

# MECCANO

TRADE MARKS 296321, 501113, 76, 12633, 10274, 55/13476, 569/13, 684/25, 2913, 80, 124, 336, 4174, 91637, 83171, 157149, 32822, 200639, 209733, 214061, 214062, 12892, 29094, 33316, 1818, 16737, 383/13, 5848, 50204, 10/12258, 22826, 18982, 20063/925, 9048, 5549, 2189, 16900, 72286, 2389, 41812, 5403, 7315, 18066, 139420, 494933-4-5-6, 29041, 26877, 6595, 404718, 410379, 55096, 12240, 41234, 8223, 1855

HORNBY'S ORIGINAL SYSTEM—FIRST PATENTED 1901

## INSTRUCTIONS

FOR OUTFITS

00 to 4



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No. 32.4

AUS./EX.



# MECCANO

## The Finest Hobby in the World for Boys

The Meccano system is composed of over two hundred and fifty different parts, mostly made of steel or brass, each one of which has a specific mechanical purpose. These parts combine to form a complete miniature engineering system with which practically any mechanical movement may be reproduced in model form. More can be accomplished with Meccano than with any other constructional toy, for no other system has such possibilities. The genius is in the parts and you can commence to build models as soon as you get your Outfit home. A screwdriver, provided in the Outfit, is the only tool necessary.

There is no limit to the number of models that can be built with Meccano—Cranes, Clocks, Motor Cars, Ship-Coalers, Machine Tools, Locomotives—in fact everything that interests boys. The most wonderful feature about the system is that it is *real engineering* in miniature; it is fascinating and delightful and it gives you a satisfaction beyond anything that you have ever previously experienced.

## Model-Building with Meccano

Make the simple models first—they will provide hours of fun—and then try to improve them. Every model can be made in a dozen different ways. It is important to screw up all the nuts and bolts tightly to ensure that your models will be strong and firm when they are completed.

Every keen and inventive Meccano model-builder should obtain copies of the special Manuals "How to use Meccano Parts" and "Meccano Standard Mechanisms." In the former the principal uses of Meccano parts are outlined, while the latter shows a large number of real engineering mechanisms, built of Meccano parts, that can be incorporated in various models. You can obtain copies of these Manuals from your dealer, or direct from Meccano Ltd., Old Swan, Liverpool, England.

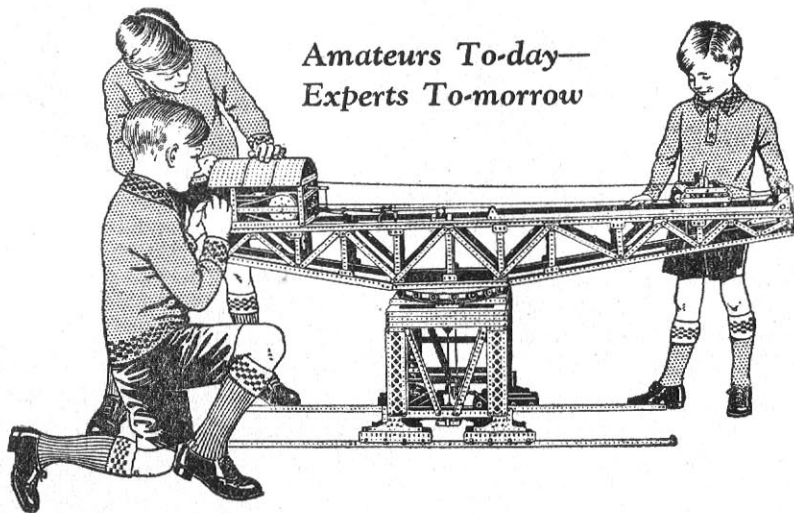
## How to Build up Your Outfit

Meccano is sold in ten different Outfits, numbered 000 to 7. All Meccano parts are of the same high quality and finish, but the larger Outfits contain a greater quantity and variety of parts, making possible the construction of more elaborate models. Each Outfit from No. 00 upwards may be converted into the one next higher by the purchase of an Accessory Outfit. Thus, a No. 00 may be converted into a No. 0 by adding to it a No. 00A. A No. 0A would then convert it into a No. 1, and so on. In this way, no matter with which Outfit you commence, you may build it up by degrees until you possess a No. 7 Outfit. It is important to remember that Meccano Parts may be bought separately at any time in any quantity from your Meccano dealer.

## Meccano Service

The service of Meccano does not end with selling an Outfit and an Instruction Manual. When you want to know something more about engineering than is now shown in our books, or when you strike a tough problem of any kind, write to us. We receive over 200 letters from boys every day all the year round. Although all kinds of queries are put to us on all manner of subjects, the main interest is, of course, engineering. The wonderful knowledge of engineering matters possessed by our staff of experts is unique. This vast store of knowledge, gained only by many years of hard-earned experience, is at your service. *We want the Meccano boy of to-day to be the famous engineer of to-morrow.*

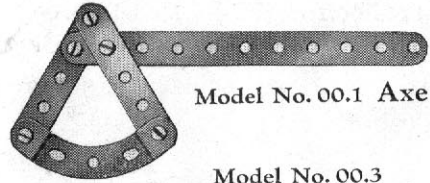
Amateurs To-day—  
Experts To-morrow





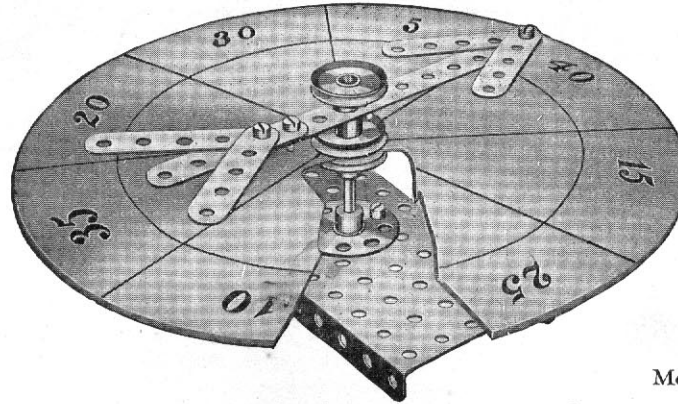
All these Models can be built with MECCANO Outfit No. 00

1



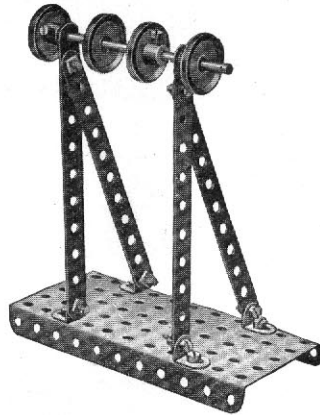
Model No. 00.1 Axle

Model No. 00.6 Roulette Wheel

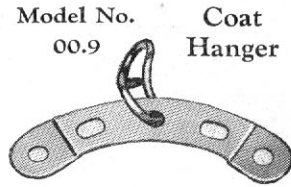
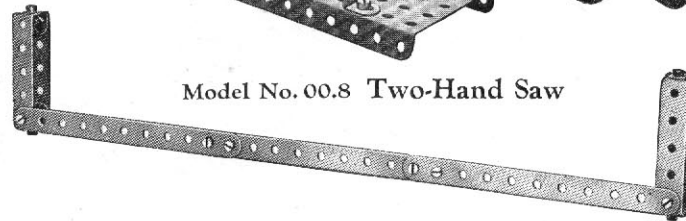


Cut out a circular piece of cardboard and mark as shown to form scoring board. This is clamped between two 1" Pulley Wheels. The pointer revolves freely on the upright spindle and is held in position by another 1" Pulley Wheel.

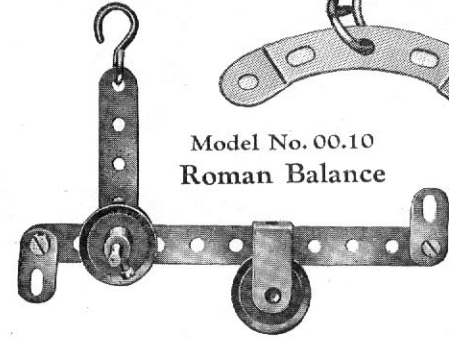
Model No. 00.7 Pulley Shafting



Model No. 00.8 Two-Hand Saw

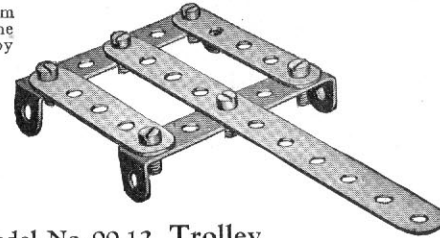


Model No. 00.9 Coat Hanger

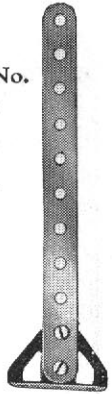


Model No. 00.10 Roman Balance

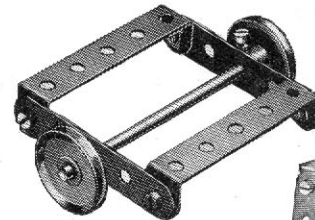
Model No. 00.11 Grill



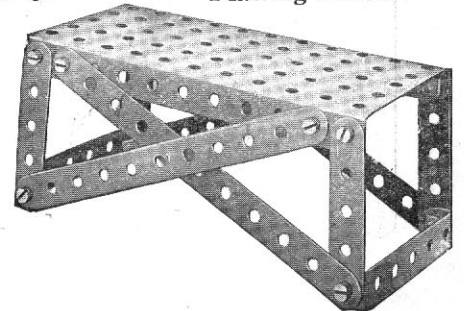
Model No. 00.13 Hoe



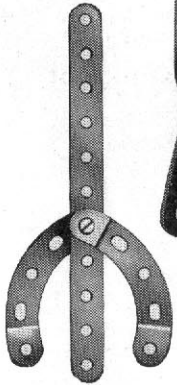
Model No. 00.12 Trolley



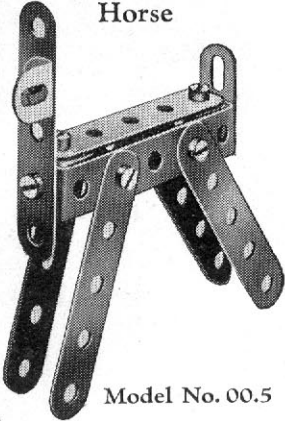
Model No. 00.14 Planing Bench



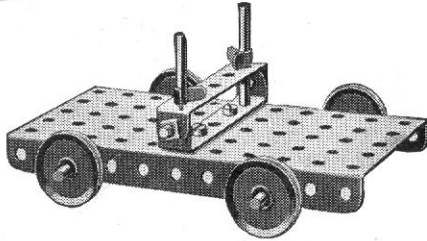
Model No. 00.2 Fork



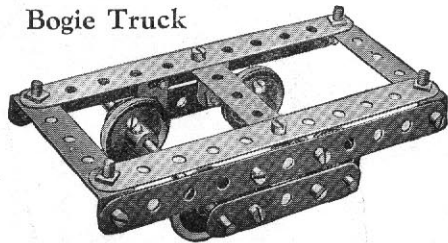
Model No. 00.3 Horse



Model No. 00.5 Lumber Truck



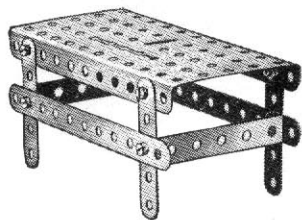
Model No. 00.4 Bogie Truck





All these Models can be built with MECCANO Outfit No. 00

Model No. 00.15 Table



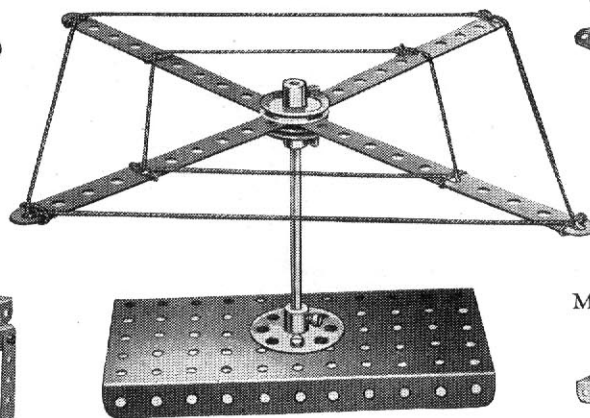
Model No. 00.17 Dividers



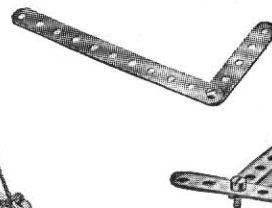
Model No. 00.18 Bench



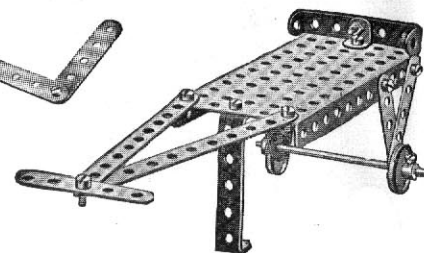
Model No. 00.22 Clothes Hanger



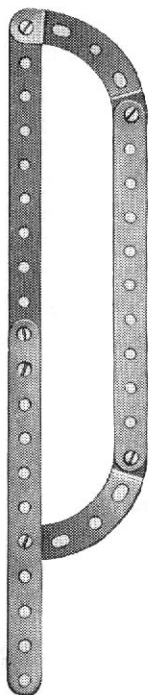
Model No. 00.26 Carpenter's Square



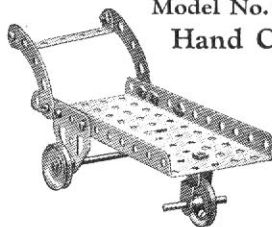
Model No. 00.27 Shipyard Bogie



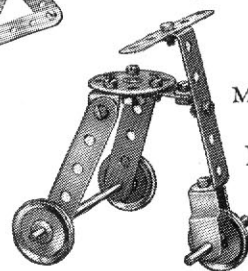
Model No. 00.16 Meat Saw



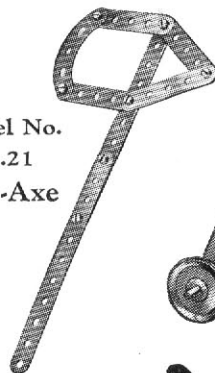
Model No. 00.19 Hand Cart



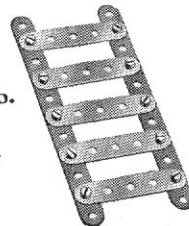
Model No. 00.23 Velocipede



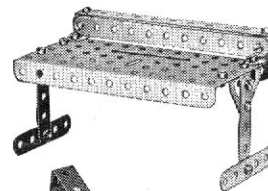
Model No. 00.21 Fire-Axe



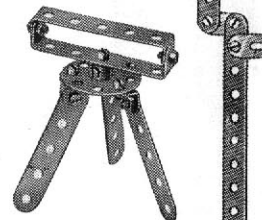
Model No. 00.24 Ladder



Model No. 00.28 Desk



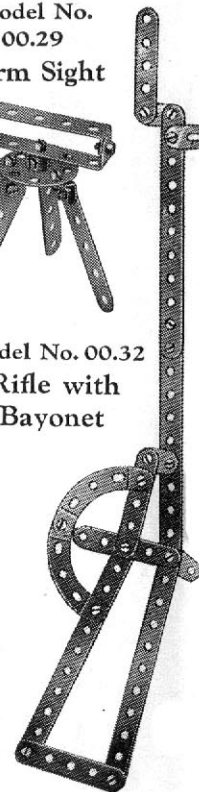
Model No. 00.29 Farm Sight



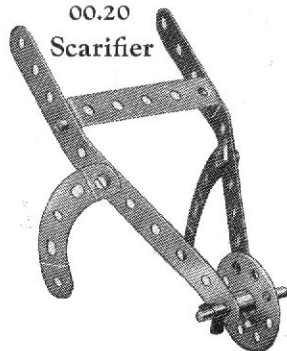
Model No. 00.30 Trowel



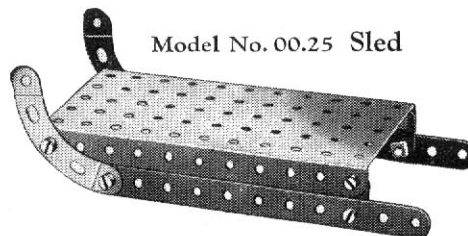
Model No. 00.32 Rifle with Bayonet



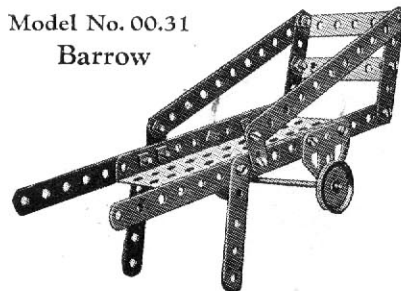
Model No. 00.20 Scarifier



Model No. 00.25 Sled

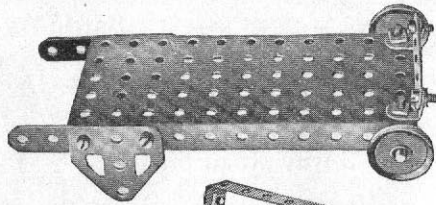


Model No. 00.31 Barrow





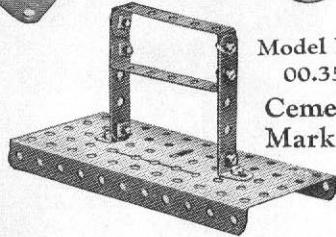
Model No. 00.33 Flat Truck



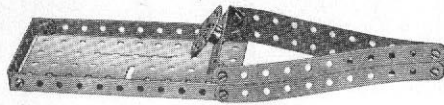
Model No.  
00.34  
Spade



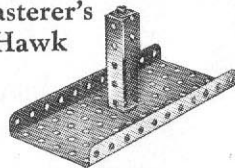
Model No.  
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Cement  
Marker



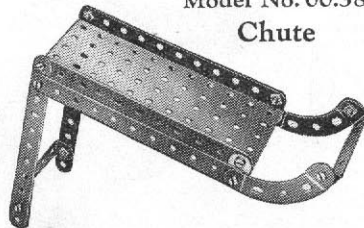
Model No. 00.36 Motor Boat



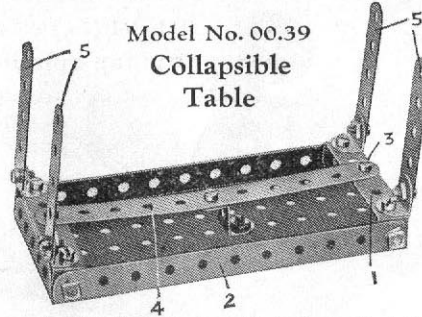
Model No.  
00.37  
Plasterer's  
Hawk



Model No. 00.38  
Chute



Model No. 00.39  
Collapsible  
Table



The  $2\frac{1}{2}'' \times \frac{1}{4}''$  Double Angle Strips 1 are attached to the  $5\frac{1}{2}'' \times 2\frac{1}{2}''$  Flanged Plate 2 by lock-nutted bolts as in Standard Mechanism No. 263. The Bolts 3 are secured to the  $5\frac{1}{2}''$  Strip 4 and their shanks engage with the centre holes in the  $2\frac{1}{2}'' \times \frac{1}{4}''$  Double Angle Strips 1, thus maintaining the legs 5 in an upright position. When it is desired to fold up the legs 5, it is only necessary to raise the ends of the Strip 4, thus freeing the Double Angle Strips 1. The table is shown in the folded position in Fig. 00.39A.

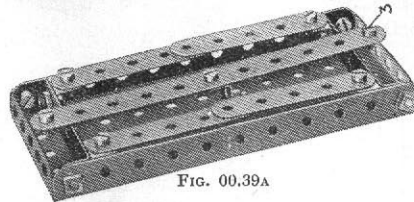
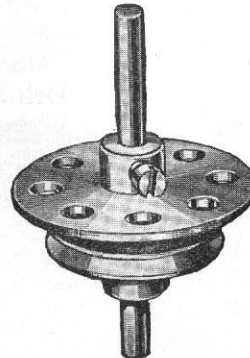
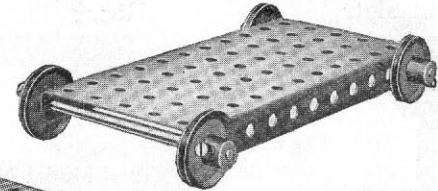


FIG. 00.39A

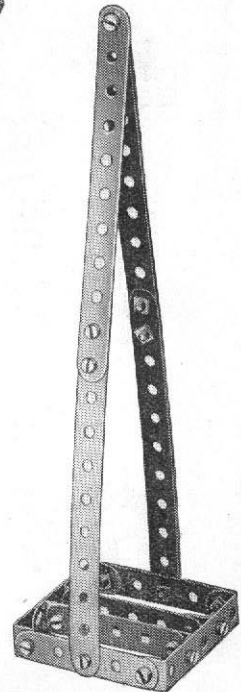
Model No. 00.40  
Spinning Top



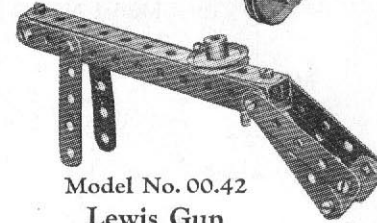
Model No. 00.41 Trolley



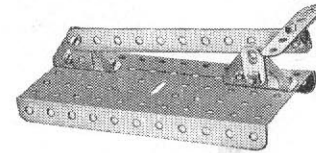
Model No.  
00.46  
Potato  
Chopper



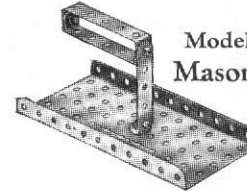
Model No. 00.42  
Lewis Gun



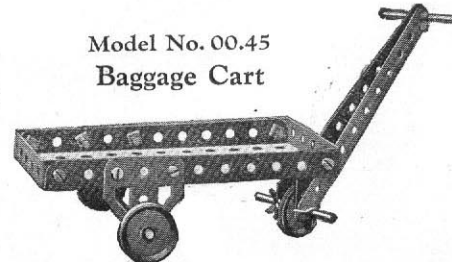
Model No. 00.43 Switch



Model No. 00.44  
Mason's Trowel



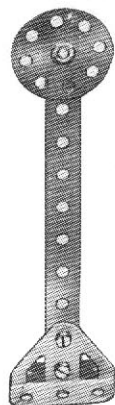
Model No. 00.45  
Baggage Cart



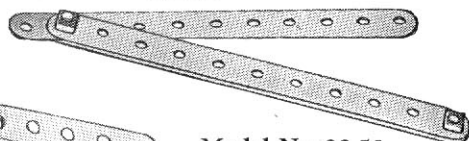


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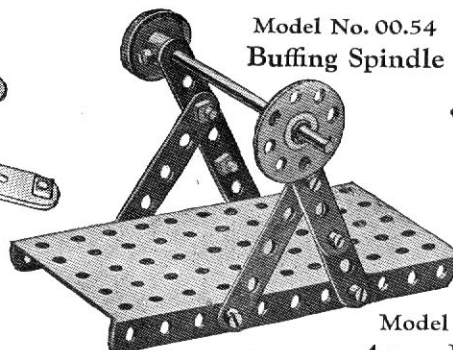
Model No. 00.47  
Road Sign



Model No. 00.50  
Razor



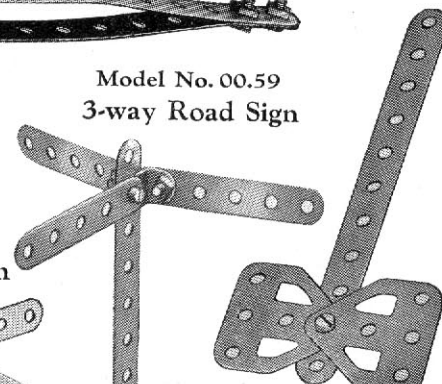
Model No. 00.54  
Buffing Spindle



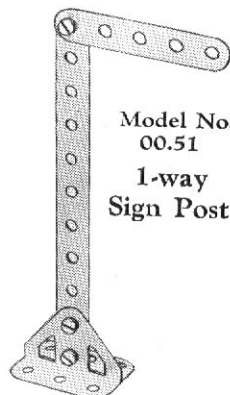
Model No. 00.58 Tweezers    Model No. 00.60  
Battle Axe



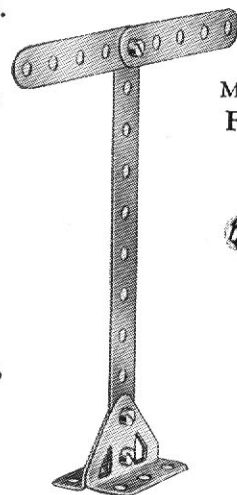
Model No. 00.59  
3-way Road Sign



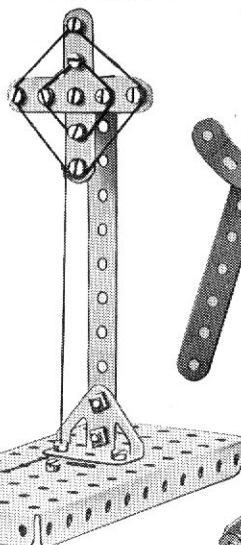
Model No.  
00.51  
1-way  
Sign Post



Model No. 00.52  
2-way Sign Post



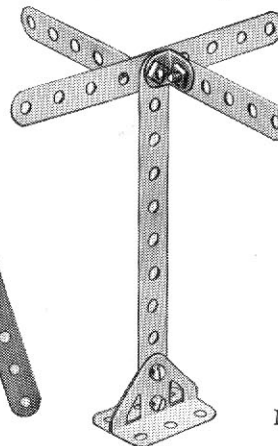
Model No. 00.53  
Frame Aerial



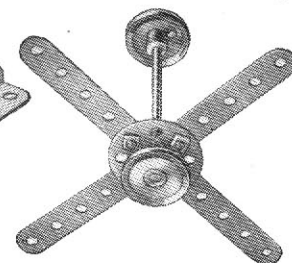
Model No.  
00.55  
Dividers



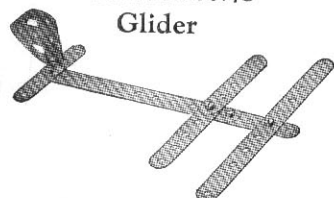
Model No. 00.56  
4-way Road Sign



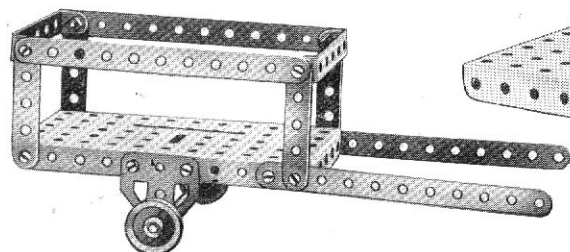
Model No. 00.61 Ceiling Fan



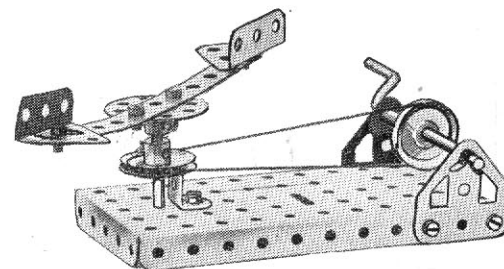
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Glider



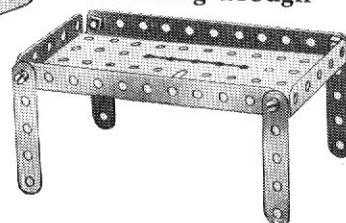
Model No. 00.49 Cart



Model No. 00.62 Roundabout



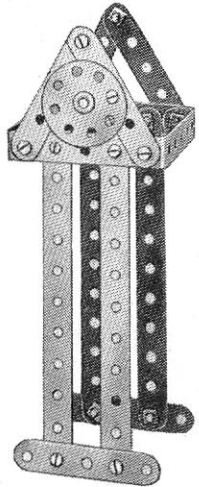
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Drinking Trough



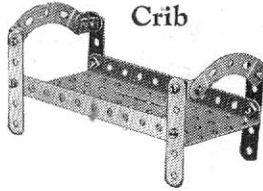
All these Models can be built with MECCANO Outfit No. 00

5

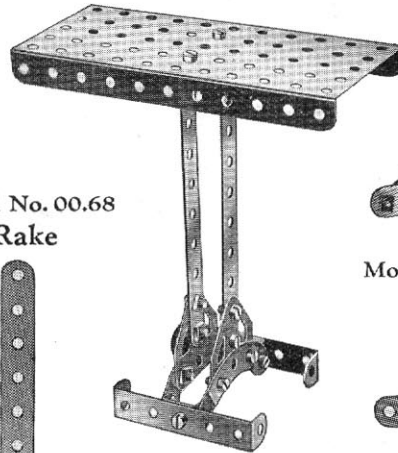
Model No. 00.63  
Grandfather's Clock



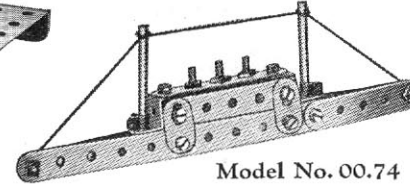
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Crib



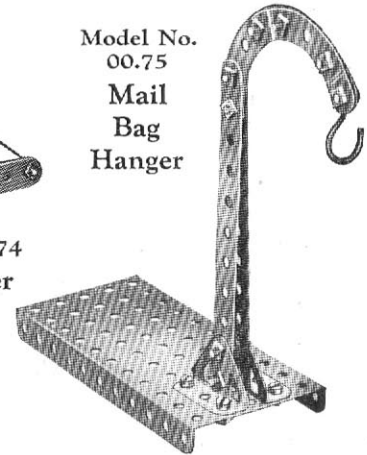
Model No. 00.70 Table



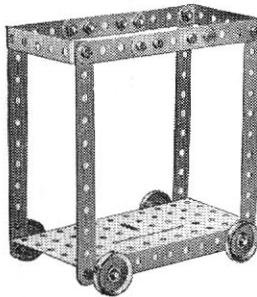
Model No. 00.72  
Liner



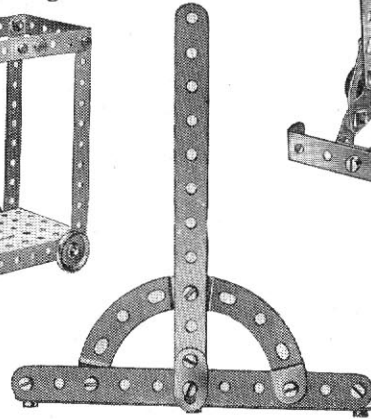
Model No.  
00.75  
Mail  
Bag  
Hanger



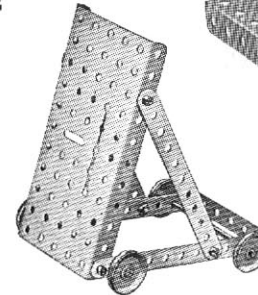
Model No. 00.67  
Refreshment Wagon



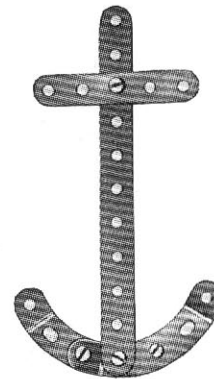
Model No. 00.68  
Rake



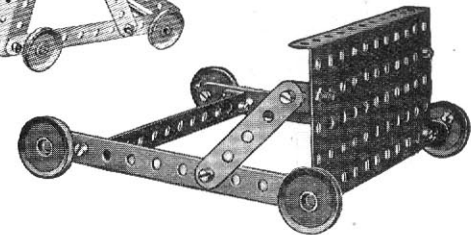
Model No. 00.74  
Gravel Sifter



Model No. 00.73  
Anchor



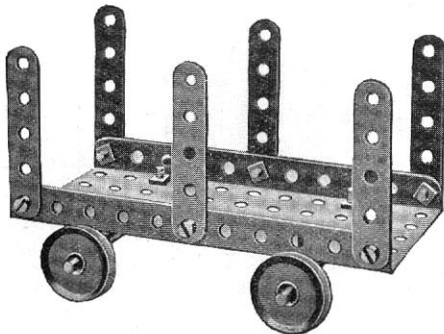
Model No. 00.76  
Devil Wall



Model No. 00.64  
Tin Opener



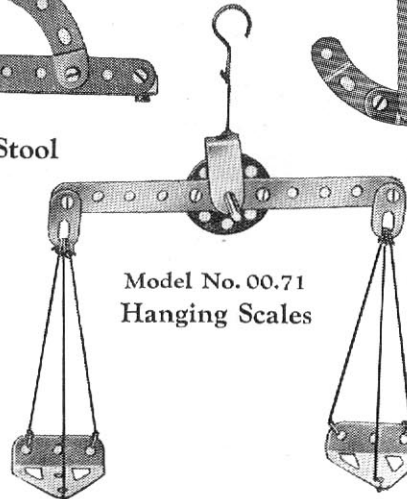
Model No. 00.65 Timber Truck



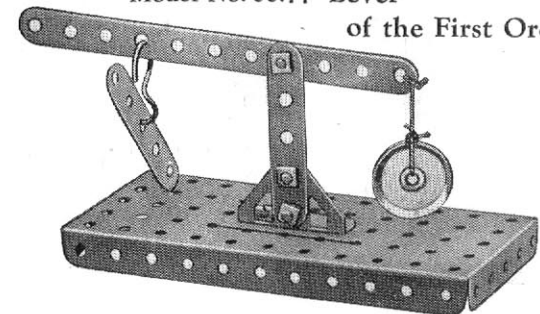
Model No. 00.69 Stool



Model No. 00.71  
Hanging Scales



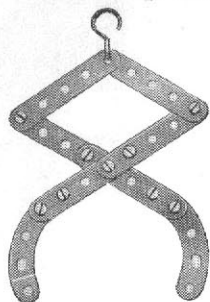
Model No. 00.77 Lever  
of the First Order



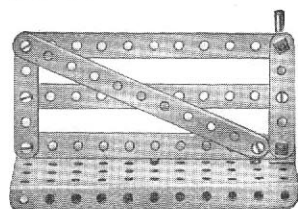


All these Models can be built with MECCANO Outfit No. 00

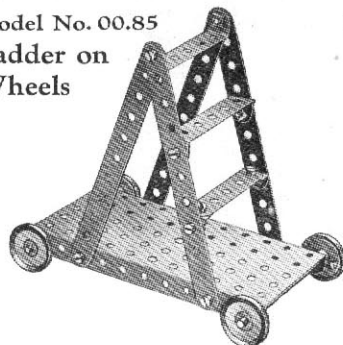
Model No. 00.78  
Friction Grip Tongs



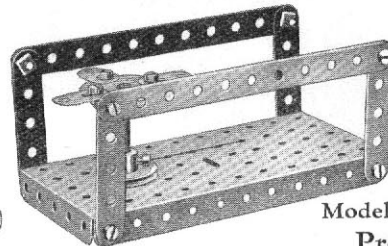
Model No. 00.80 Gate



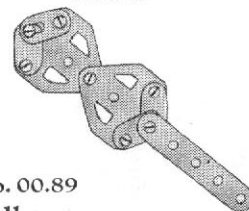
Model No. 00.85  
Ladder on  
Wheels



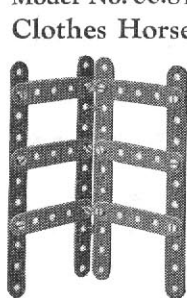
Model No. 00.87 Turnstile



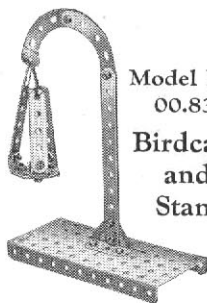
Model No. 00.92  
Violin



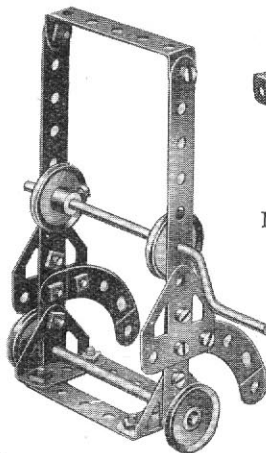
Model No. 00.81  
Clothes Horse



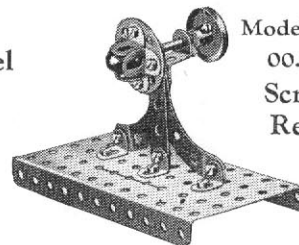
Model No.  
00.83  
Birdcage  
and  
Stand



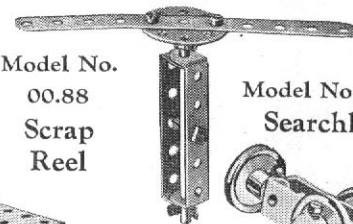
Model No. 00.86  
Garden Hose Reel



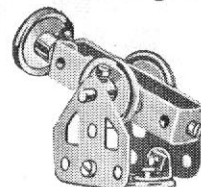
Model No.  
00.88  
Scrap  
Reel



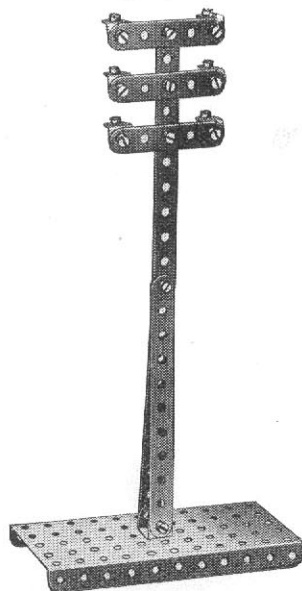
Model No. 00.89  
Propeller



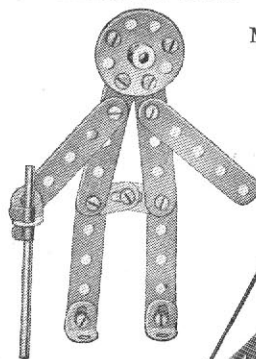
Model No. 00.93  
Searchlight



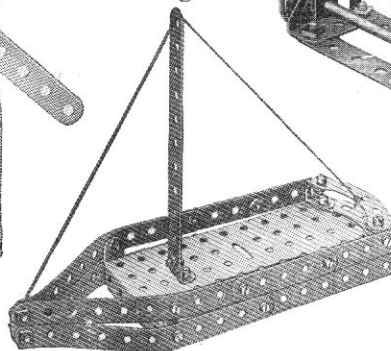
Model No. 00.79  
Telegraph Pole



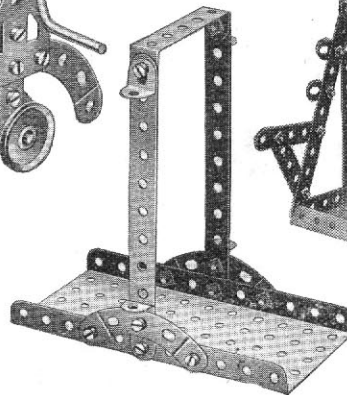
Model No. 00.82  
Meccano Man



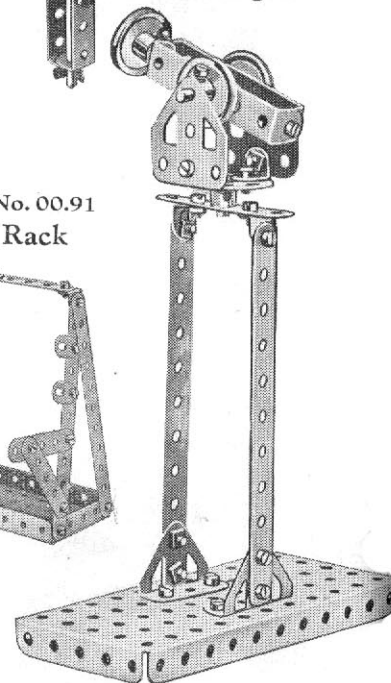
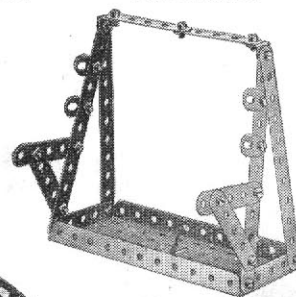
Model No. 00.84  
Barge



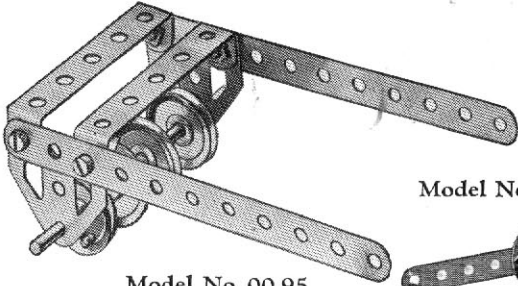
Model No. 00.90  
Elevator Car



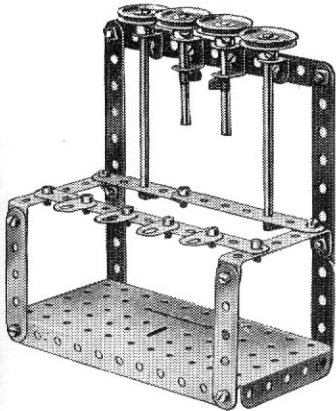
Model No. 00.91  
Pen Rack



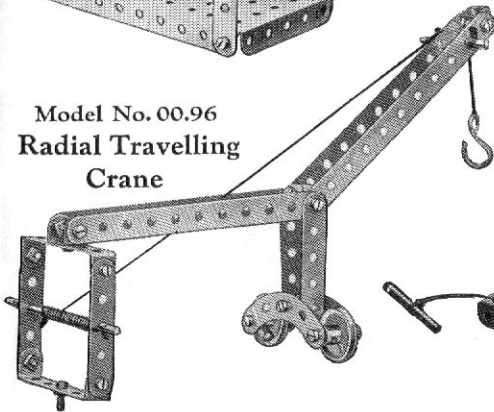
Model No. 00.94 Field Roller



Model No. 00.95 Organ

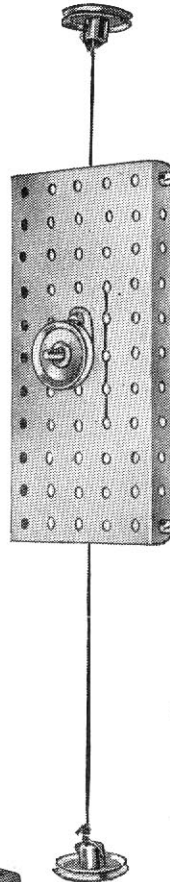


Model No. 00.96 Radial Travelling Crane

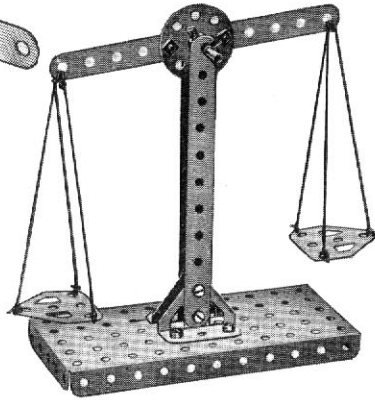


Model No. 00.100 Magic Plate

The cord is wound once round a 2" Axle Rod that is journalled in a Flat Bracket and a 1/2" Reversed Angle Bracket, which are bolted to the Plate. If the cord is held loosely the plate will drop, but as soon as the cord is tightened the plate becomes immovable.



Model No. 00.97 Scales



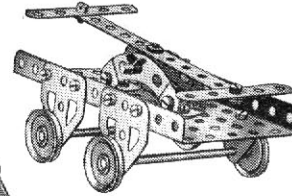
Model No. 00.98 Book End



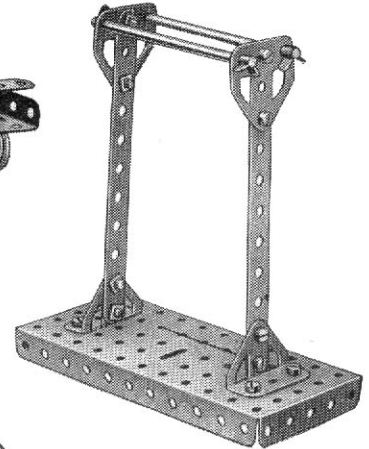
Model No. 00.99 Cheese Cutter



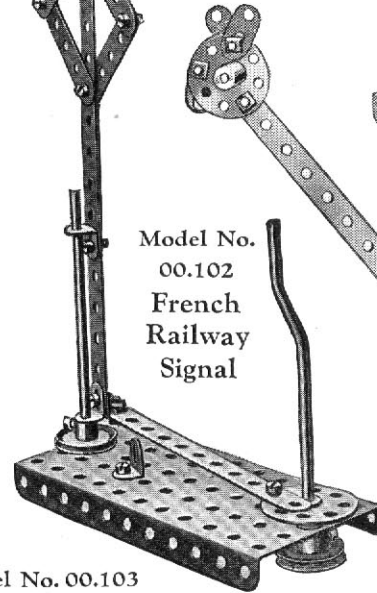
Model No. 00.101 Hand Car



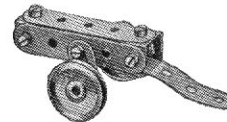
Model No. 00.104 Towel Horse



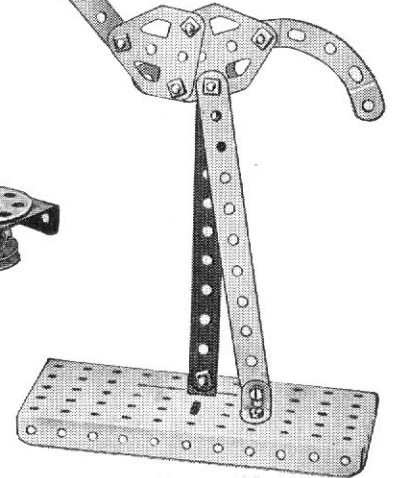
Model No. 00.102 French Railway Signal



Model No. 00.103 Cannon



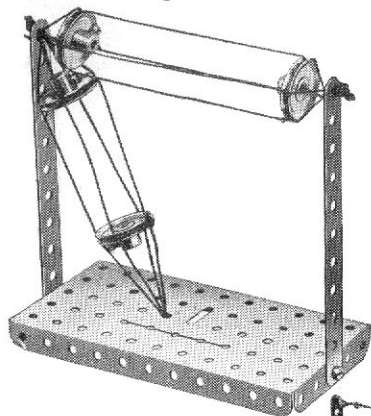
Model No. 00.105 Prehistoric Bird



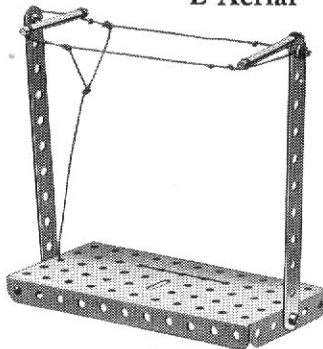


All these Models can be built with MECCANO Outfit No. 00

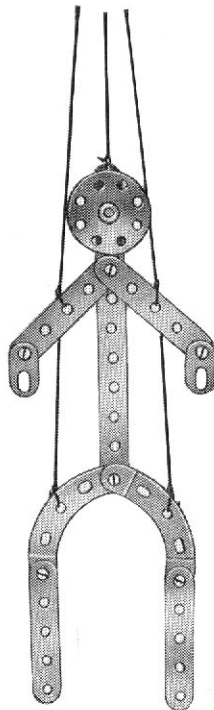
Model No. 00.106  
Cage Aerial



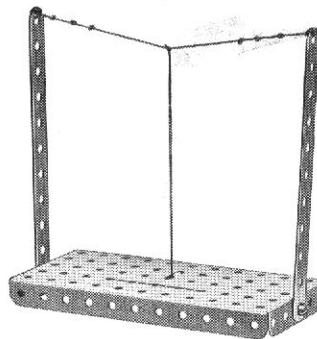
Model No. 00.108 Double Wire  
L Aerial



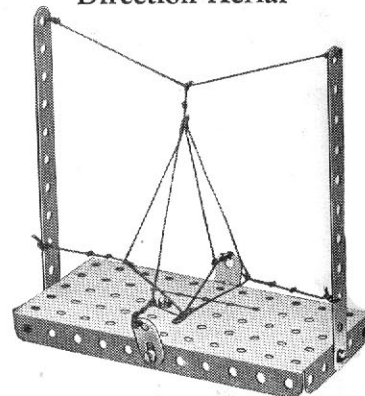
Model No. 00.110  
Jumping Jack



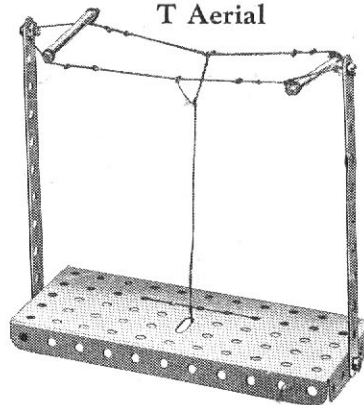
Model No. 00.112  
Single Wire  
T Aerial



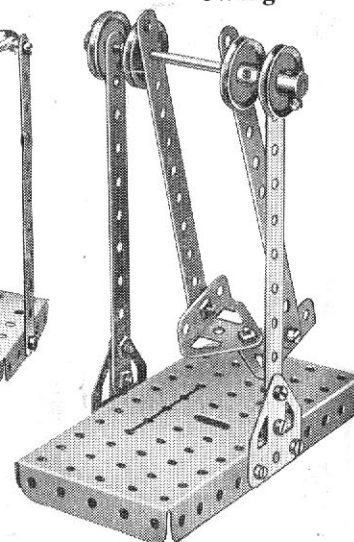
Model No. 00.114  
Direction Aerial



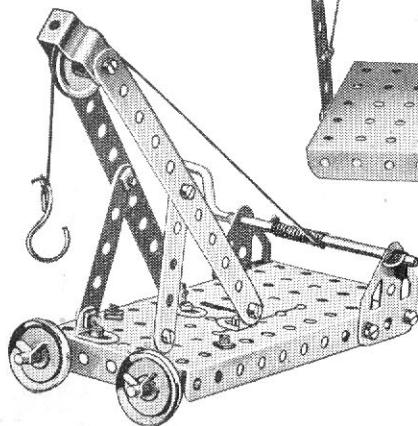
Model No. 00.113  
Double Wire  
T Aerial



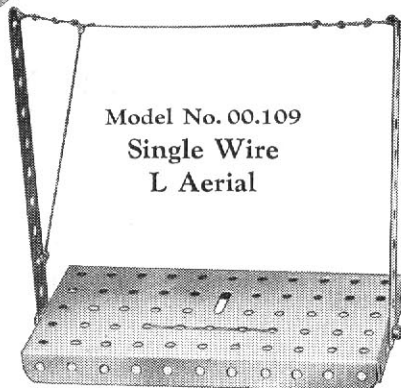
Model No. 00.115  
Swing



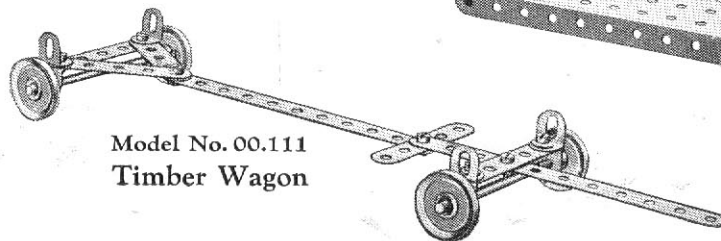
Model No. 00.107  
Revolving Crane

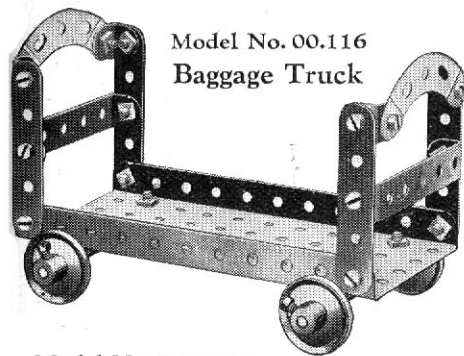


Model No. 00.109  
Single Wire  
L Aerial



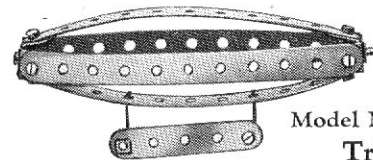
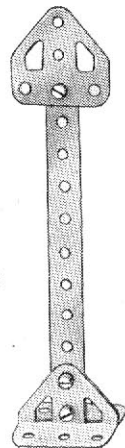
Model No. 00.111  
Timber Wagon





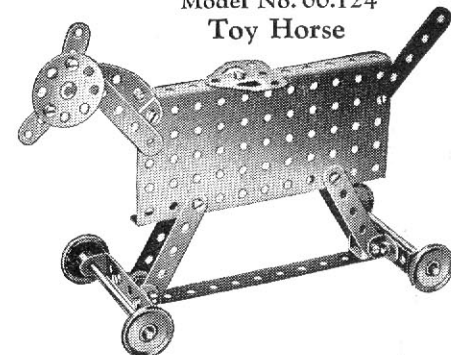
Model No. 00.116  
Baggage Truck

Model No. 00.119  
Road Sign



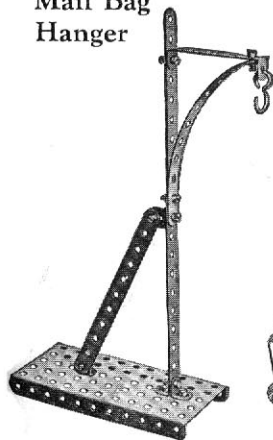
Model No. 00.120 Airship

Model No. 00.122  
Tripod

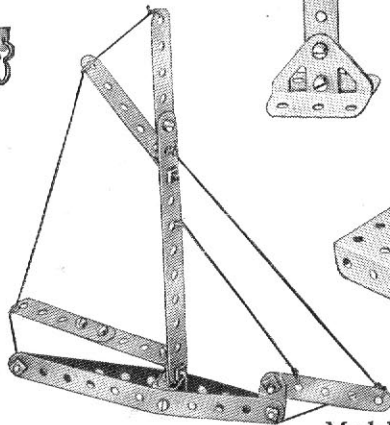


Model No. 00.124  
Toy Horse

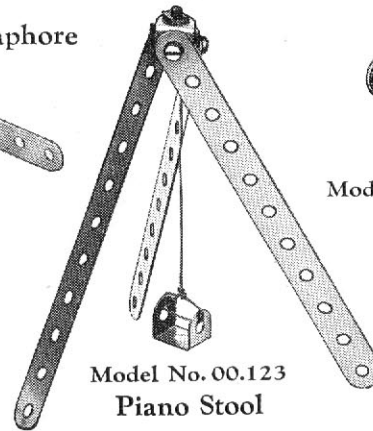
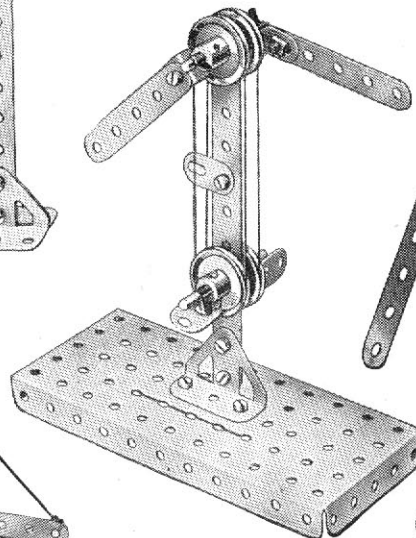
Model No. 00.117  
Mail Bag  
Hanger



Model No. 00.118  
Yacht

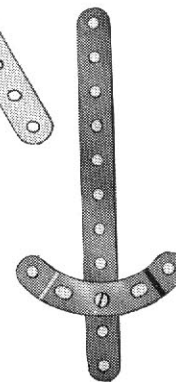


Model No. 00.121 Semaphore

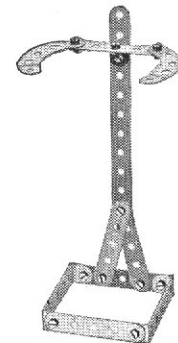


Model No. 00.123  
Piano Stool

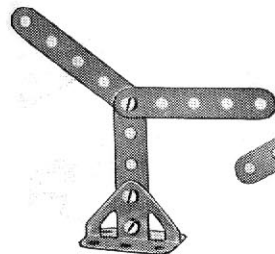
Model No. 00.125  
Sword



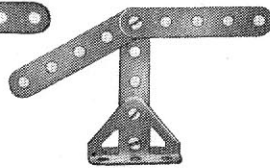
Model No. 00.126  
Umbrella Stand



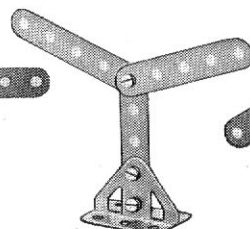
Models Nos. 00.127—00.134 Gradient Indicators



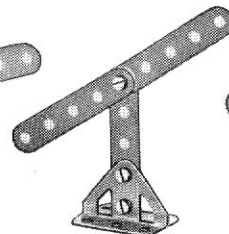
00.127



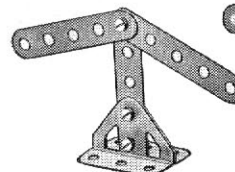
00.128



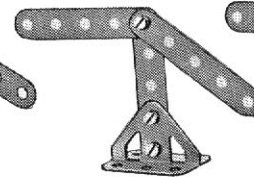
00.129



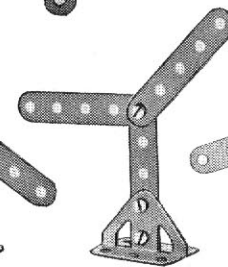
00.130



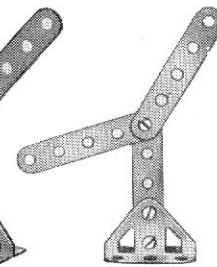
00.131



00.132



00.133



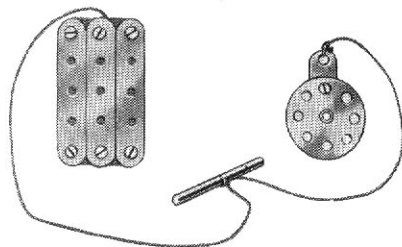
00.134



Model No. 00.135  
Street Lamp



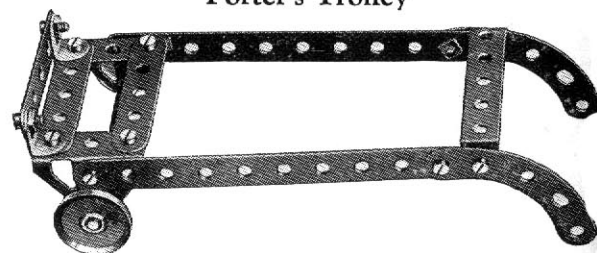
Model No. 00.137  
Watch and Chain



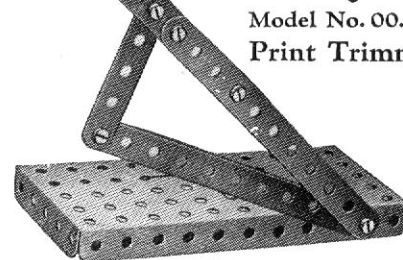
Model No. 00.142  
Track Gauge



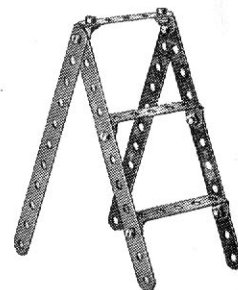
Model No. 00.146  
Porter's Trolley



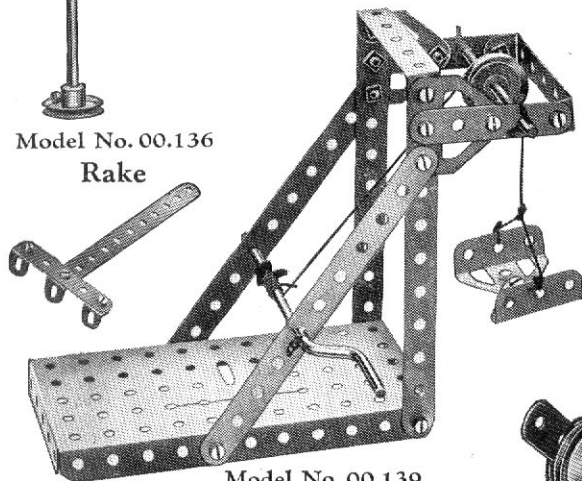
Model No. 00.143  
Print Trimmer



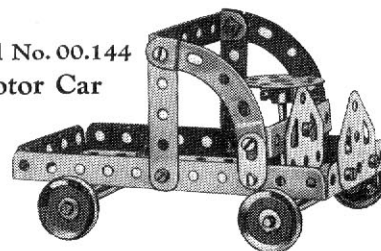
Model No. 00.148  
Step Ladder



Model No. 00.138 Pit-Head Gear



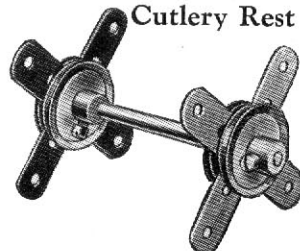
Model No. 00.144  
Motor Car



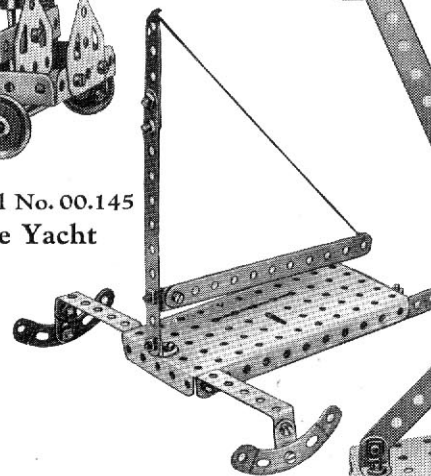
Model No. 00.147  
Ostrich



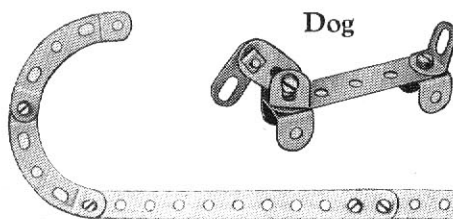
Model No. 00.140  
Cutlery Rest



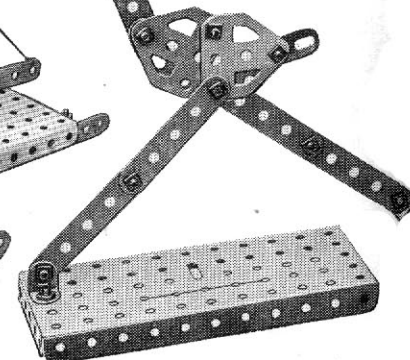
Model No. 00.145  
Ice Yacht



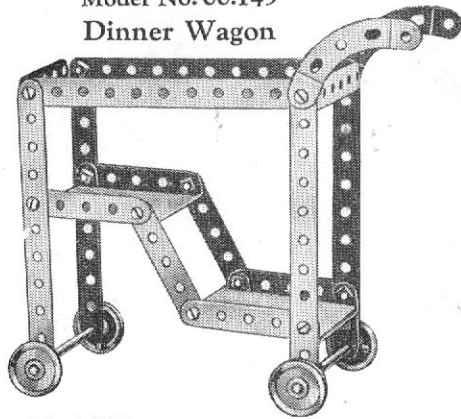
Model No. 00.139  
Dog



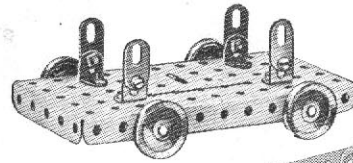
Model No. 00.141 Walking Stick



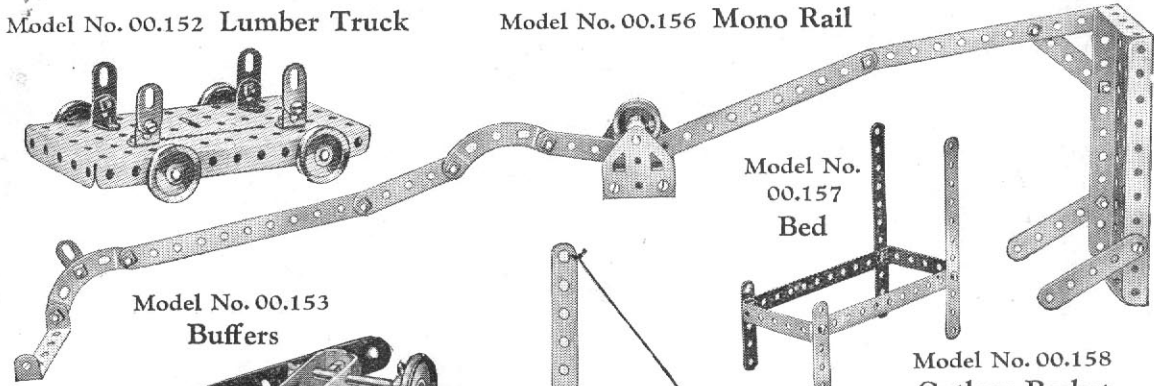
Model No. 00.149  
Dinner Wagon



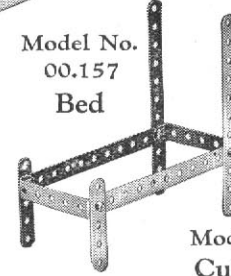
Model No. 00.152 Lumber Truck



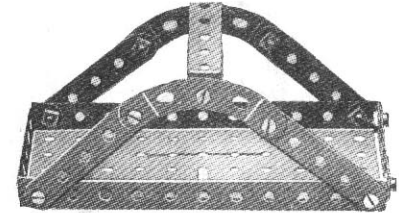
Model No. 00.156 Mono Rail



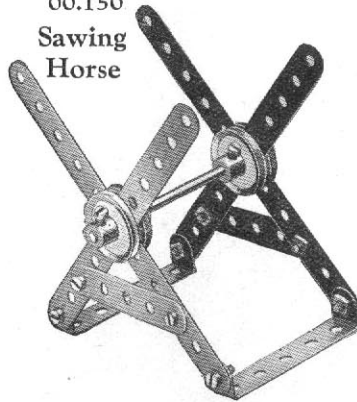
Model No.  
00.157  
Bed



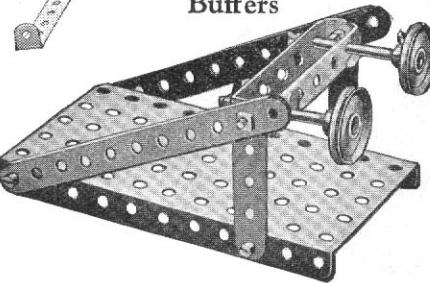
Model No. 00.158  
Cutlery Basket



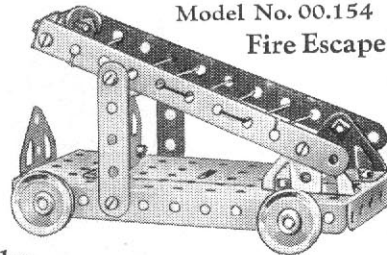
Model No.  
00.150  
Sawing  
Horse



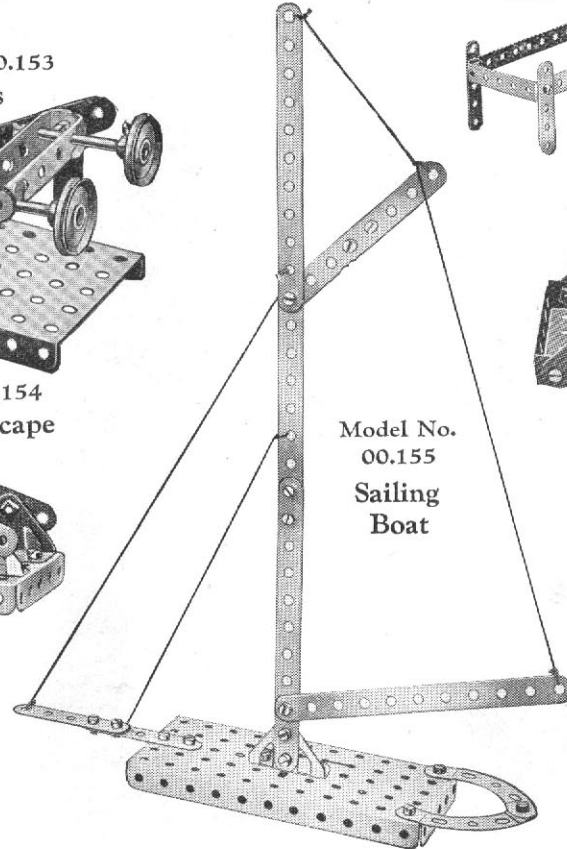
Model No. 00.153  
Buffers



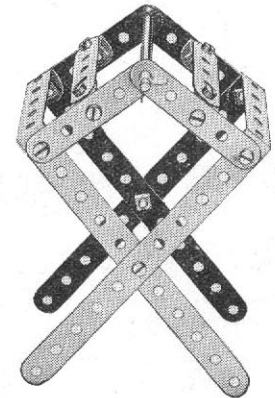
Model No. 00.154  
Fire Escape



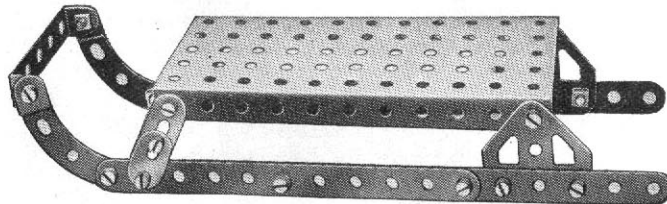
Model No.  
00.155  
Sailing  
Boat



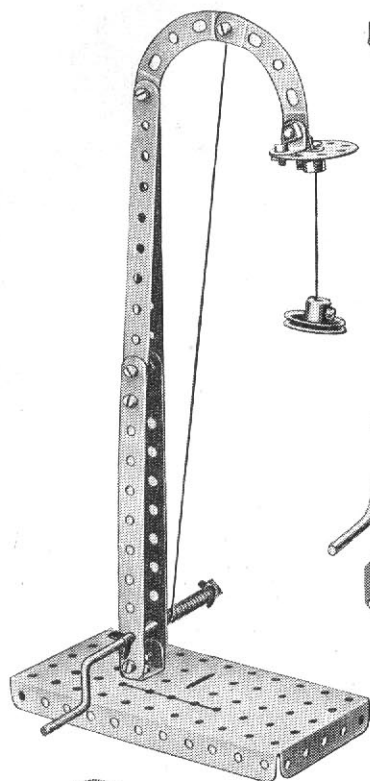
Model No. 00.159  
Clothes Drying Frame



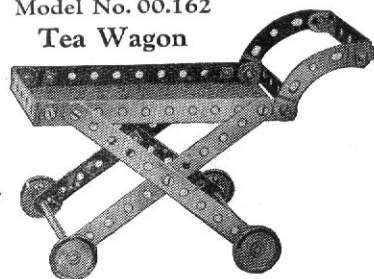
Model No. 00.151 Sledge



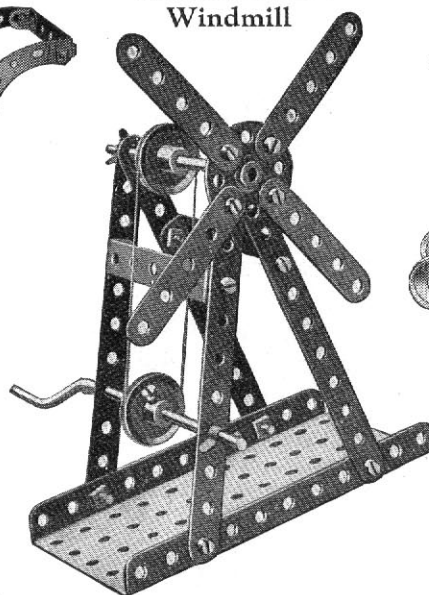
Model No. 00.160  
Arc Lamp



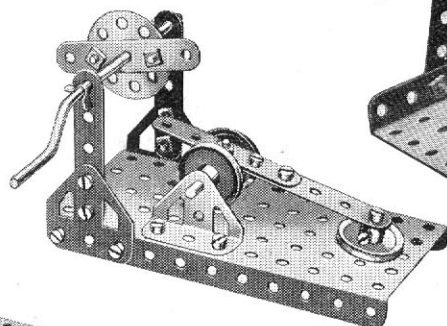
Model No. 00.162  
Tea Wagon



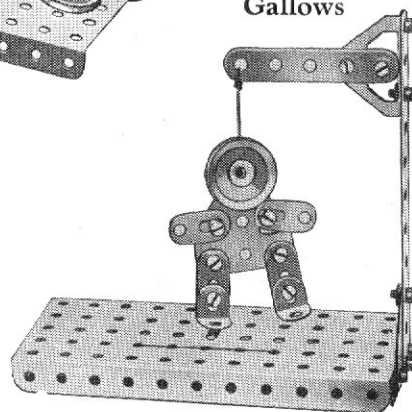
Model No. 00.164  
Windmill



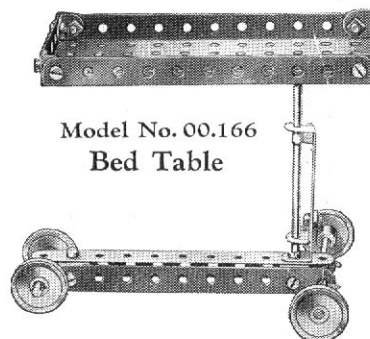
Model No. 00.163  
Trip Hammer



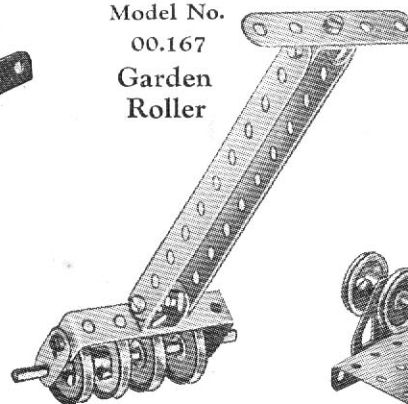
Model No. 00.165  
Gallows



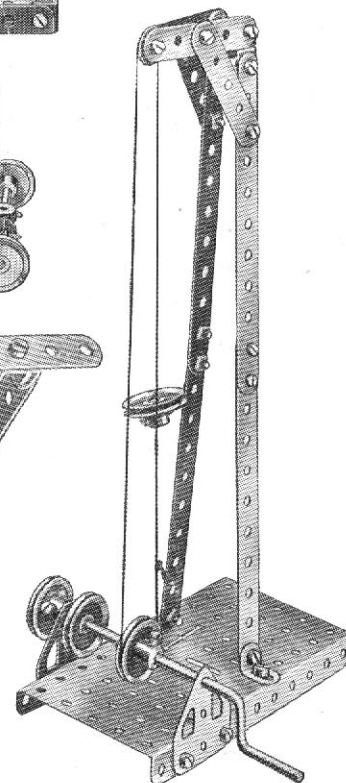
Model No. 00.166  
Bed Table



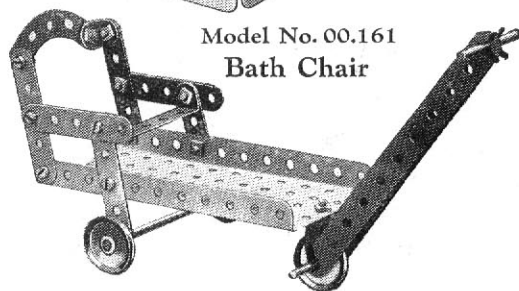
Model No.  
00.167  
Garden  
Roller



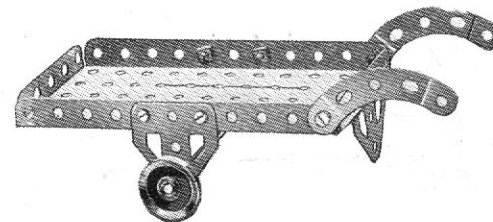
Model No. 00.168  
Airship Mooring Mast



Model No. 00.161  
Bath Chair



Model No. 00.169 Hand Truck

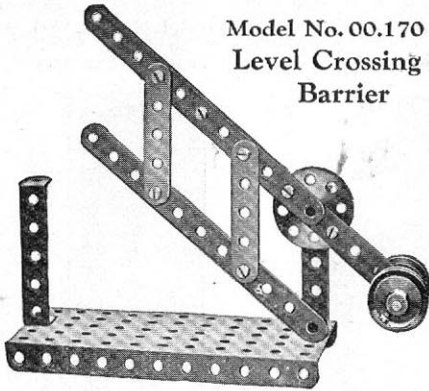




All these Models can be built with MECCANO Outfit No. 00

13

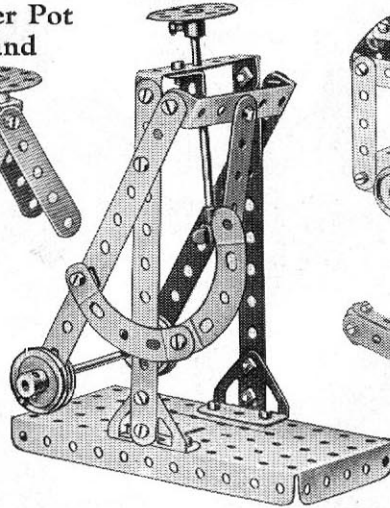
Model No. 00.170  
Level Crossing  
Barrier



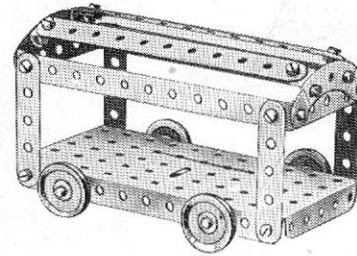
Model No.  
00.172  
Flower Pot  
Stand



Model No. 00.174  
Letter Balance

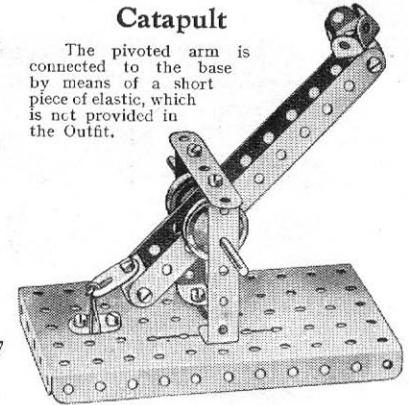


Model No. 00.176  
Pullman Car

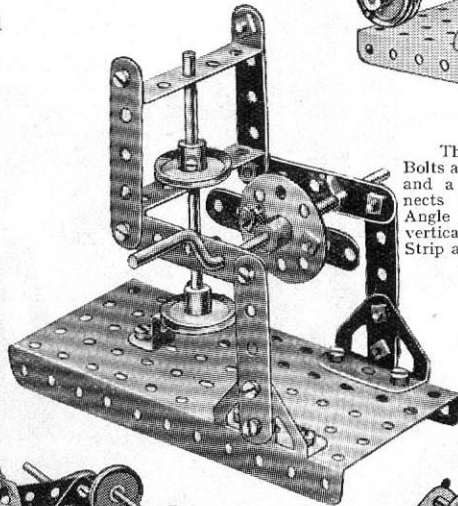


Model No. 00.178  
Catapult

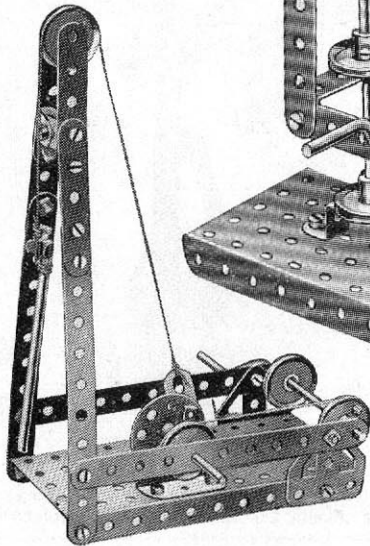
The pivoted arm is connected to the base by means of a short piece of elastic, which is not provided in the Outfit.



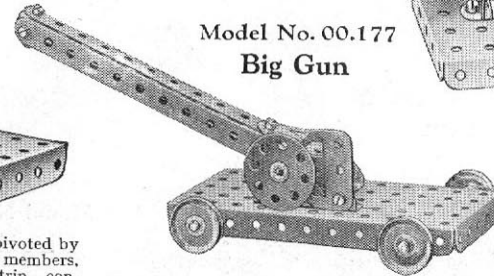
Model No. 00.173  
Ore Crusher



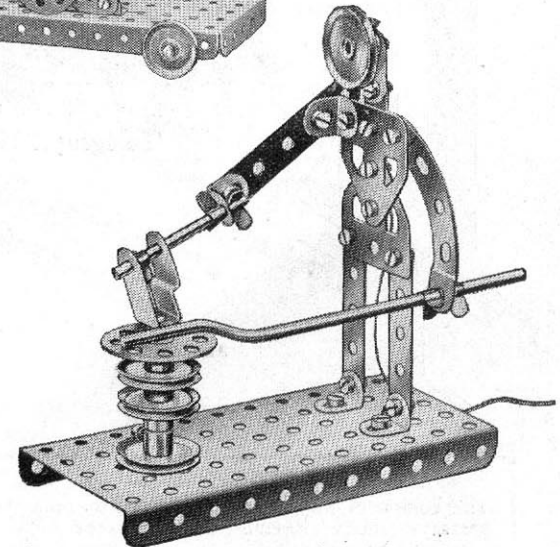
Model No. 00.171  
Well Driller



Model No. 00.177  
Big Gun

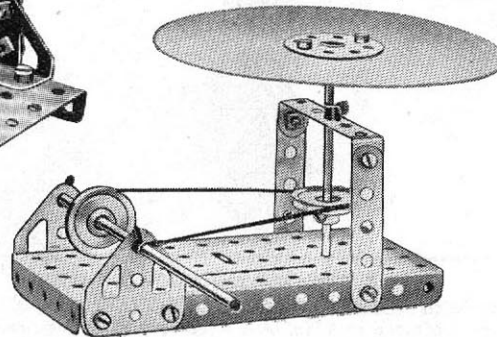


Model No. 00.179  
Blacksmith

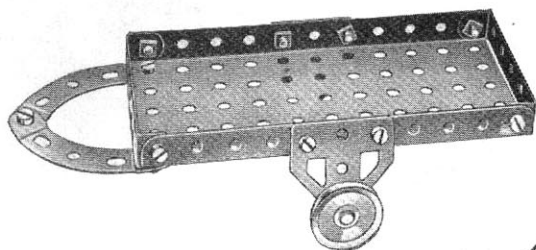
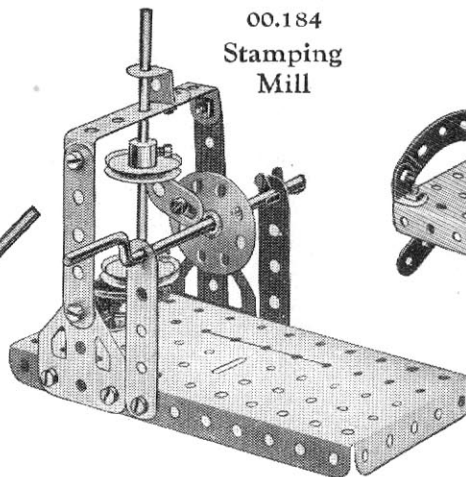
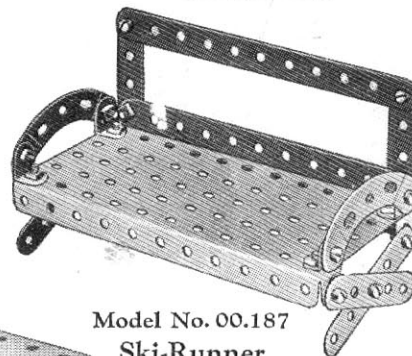
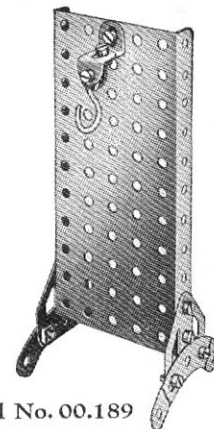
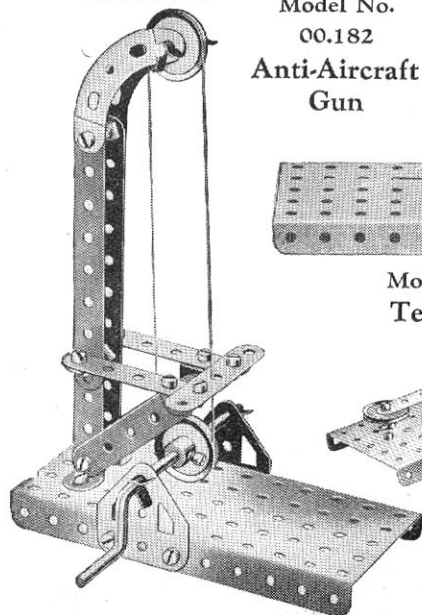
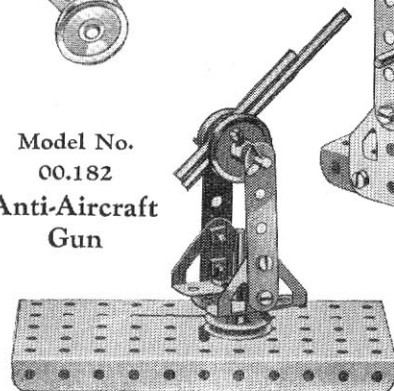
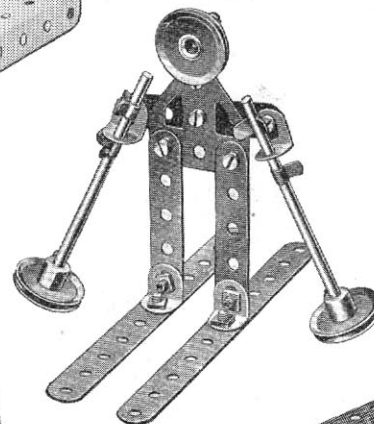
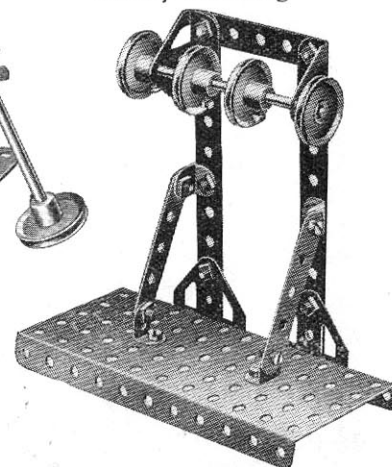
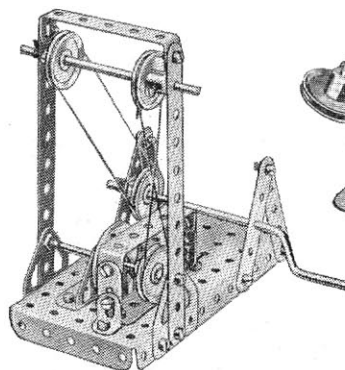


The weighted  $5\frac{1}{2}$ " Strips are pivoted by Bolts and lock-nuts to the vertical members, and a  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip connects their upper ends. This Double Angle Strip is connected, in turn, to the vertical  $3\frac{1}{2}$ " Axle Rod by means of a  $2\frac{1}{2}$ " Strip and an Angle Bracket.

Model No. 00.175 Joy Wheel



Model No. 00.180 Hand Truck

Model No.  
00.184  
Stamping  
MillModel No. 00.186  
Garden SeatModel No. 00.188  
Watch StandModel No. 00.181  
Band SawModel No.  
00.182  
Anti-Aircraft  
GunModel No. 00.187  
Ski-RunnerModel No. 00.189  
Pulley ShaftingModel No. 00.185  
Circular SawModel No. 00.183  
Telegraph Key

### HOW TO CONTINUE

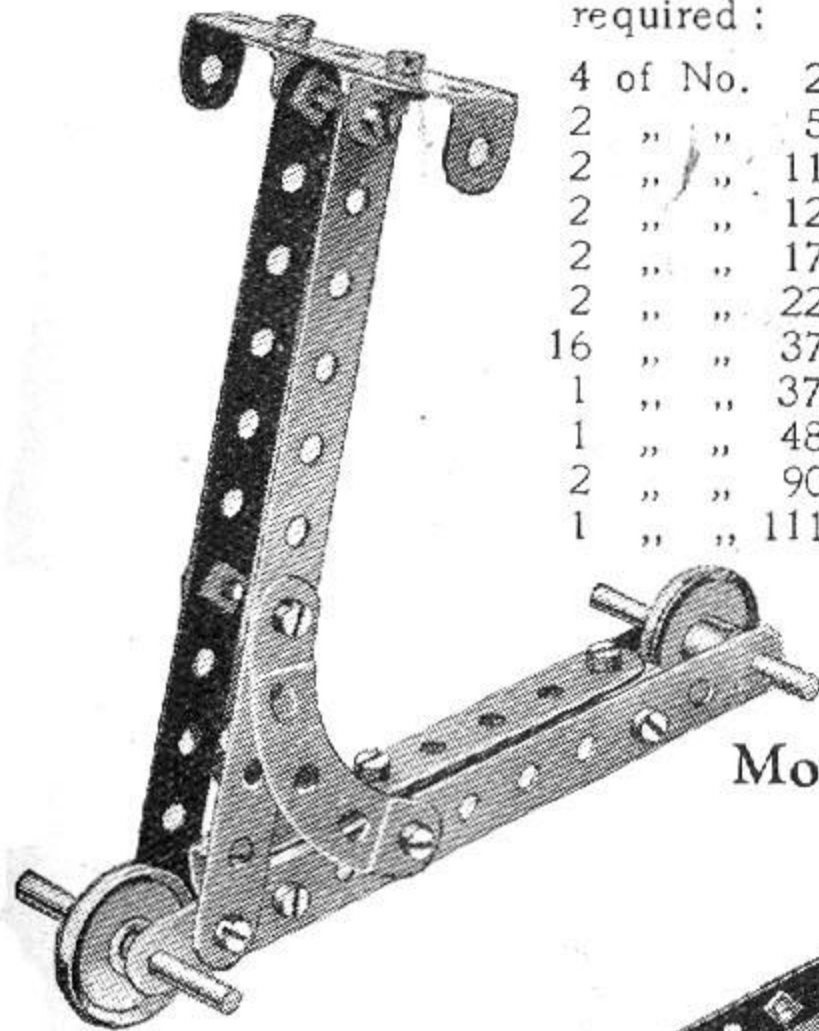
This completes our examples of models that may be made with MECCANO Outfit No. 00. The next models are a little more advanced, requiring a number of extra parts to construct them. The necessary parts are all contained in a No. 00A Accessory Outfit, the price of which may be obtained from any Meccano dealer.



Model No. 0.1 Scooter

Parts required :

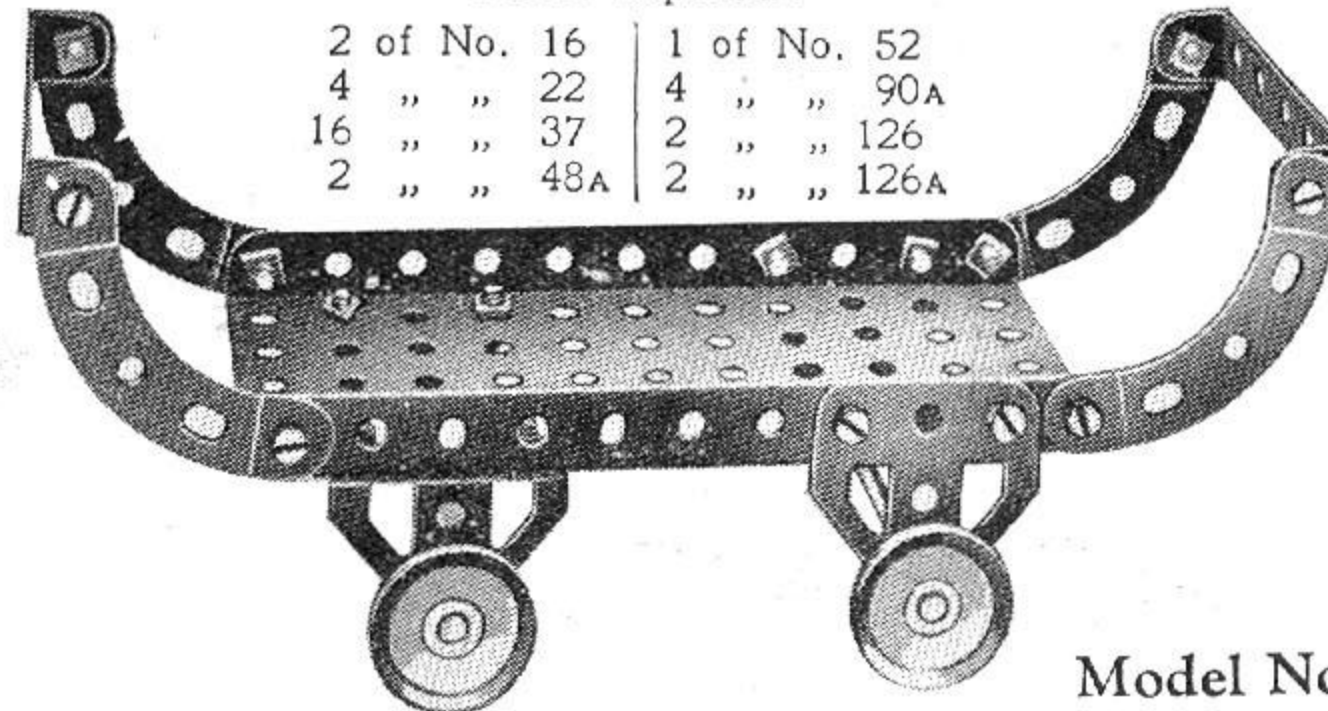
4 of No.	2
2 " "	5
2 " "	11
2 " "	12
2 " "	17
2 " "	22
16 " "	37
1 " "	37A
1 " "	48A
2 " "	90A
1 " "	111c



Model No. 0.4 Push Cart

Parts required :

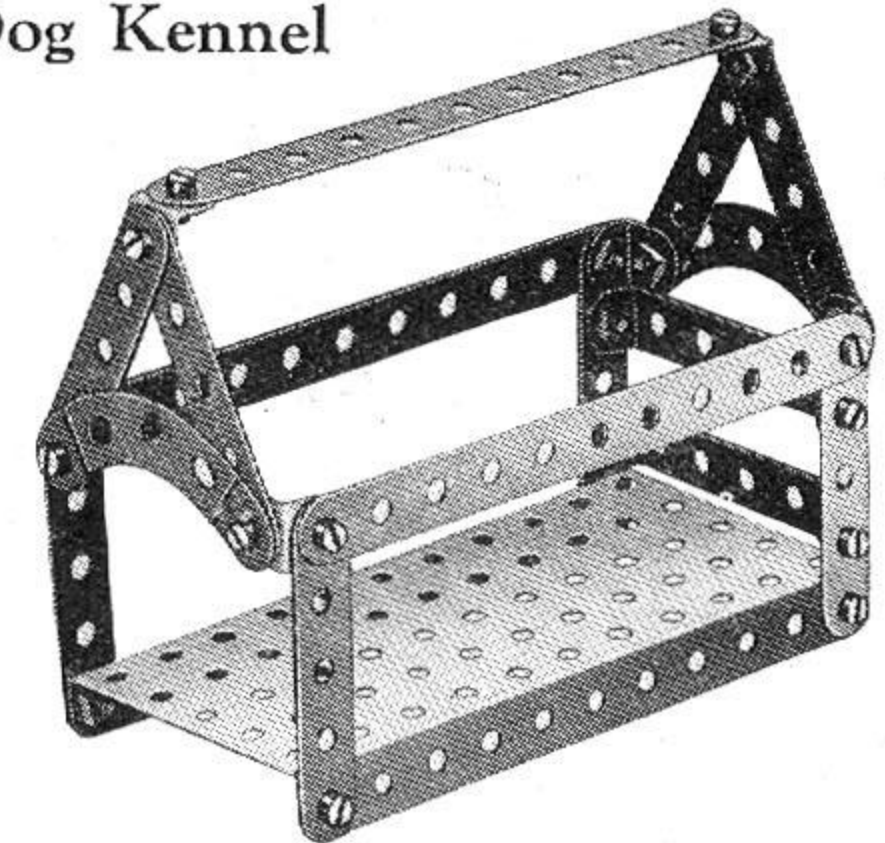
2 of No.	16	1 of No.	52
4 " "	22	4 " "	90A
16 " "	37	2 " "	126
2 " "	48A	2 " "	126A



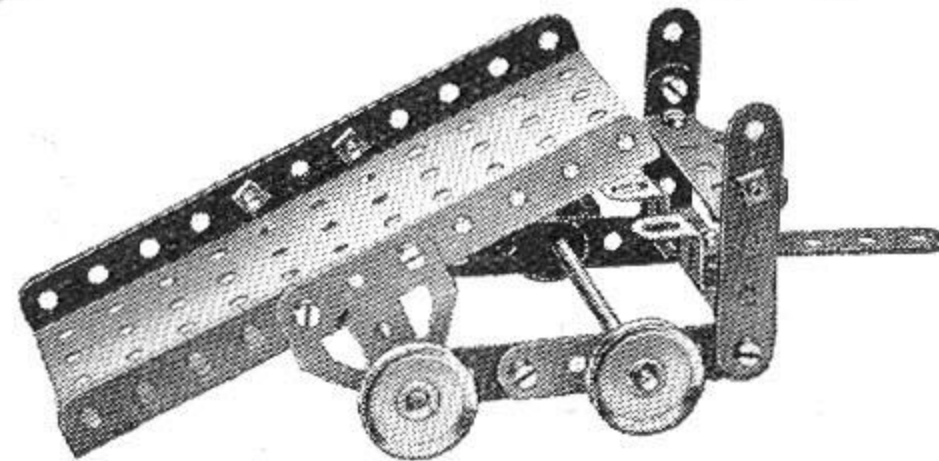
Model No. 0.7  
Dog Kennel

Parts required :

3 of No.	2
8 " "	5
6 " "	12
16 " "	37
4 " "	37A
2 " "	48A
1 " "	52
2 " "	90A
4 " "	111c



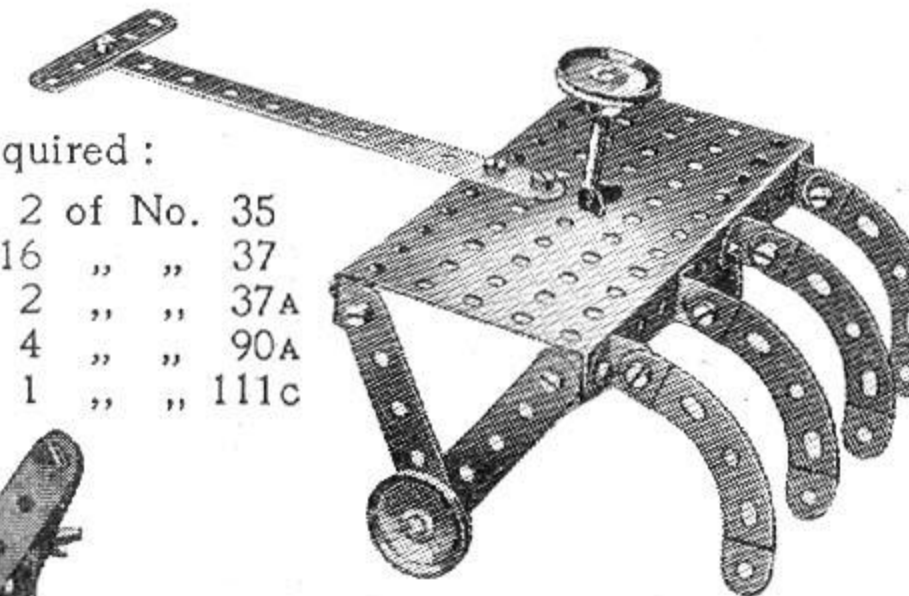
Model No. 0.3 Tipping Cart



Model No. 0.5  
Horse Rake

Parts required :

1 of No.	2	2 of No.	35
5 " "	5	16 " "	37
8 " "	12	2 " "	37A
1 " "	17	4 " "	90A
3 " "	22	1 " "	111c



Model No. 0.8  
Chaff Cutter

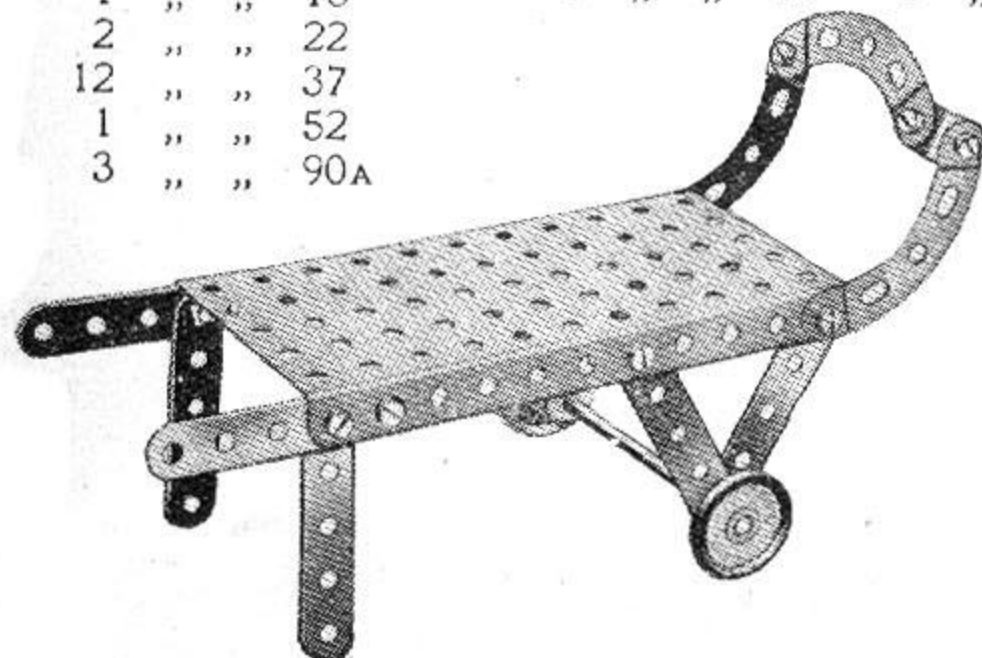
Parts required :

2 of No.	2	1 of No.	24
8 " "	5	2 " "	35
1 " "	11	16 " "	37
2 " "	12	5 " "	37A
1 " "	16	1 " "	52
1 " "	19s	5 " "	111c
2 " "	22	2 " "	125

Model No. 0.2  
Luggage Truck

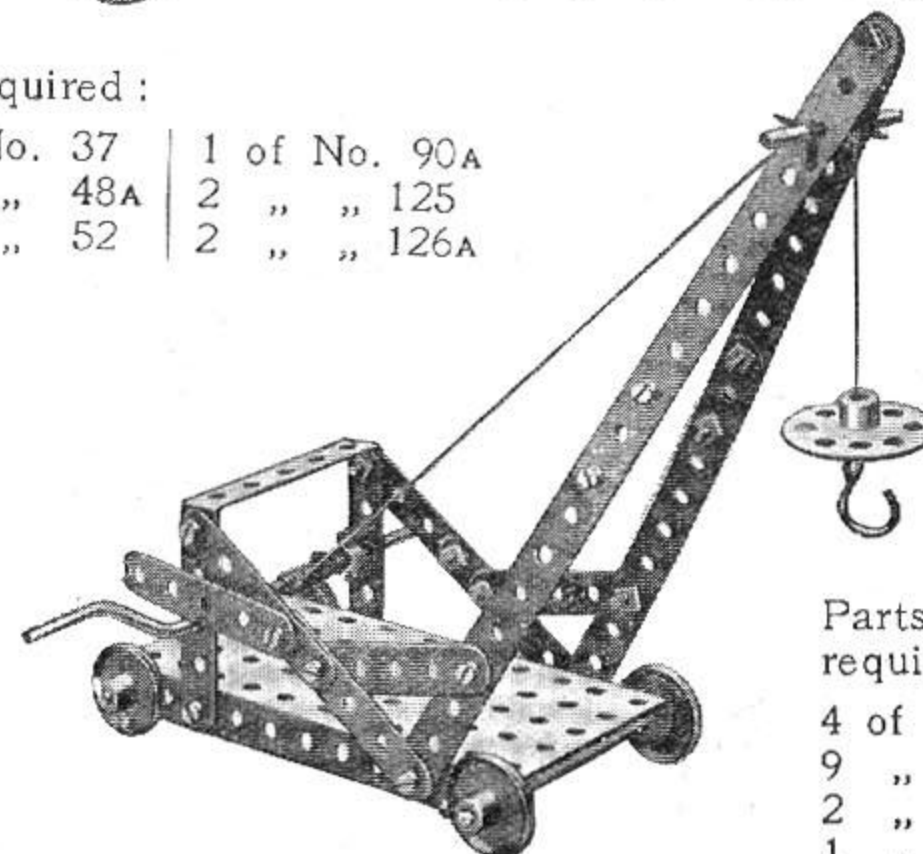
Parts required :

2 of No.	2
6 " "	5
2 " "	12
1 " "	16
2 " "	22
12 " "	37
1 " "	52
3 " "	90A



Parts required :

7 of No.	5	15 of No.	37	1 of No.	90A
2 " "	16	2 " "	48A	2 " "	125
4 " "	22	1 " "	52	2 " "	126A

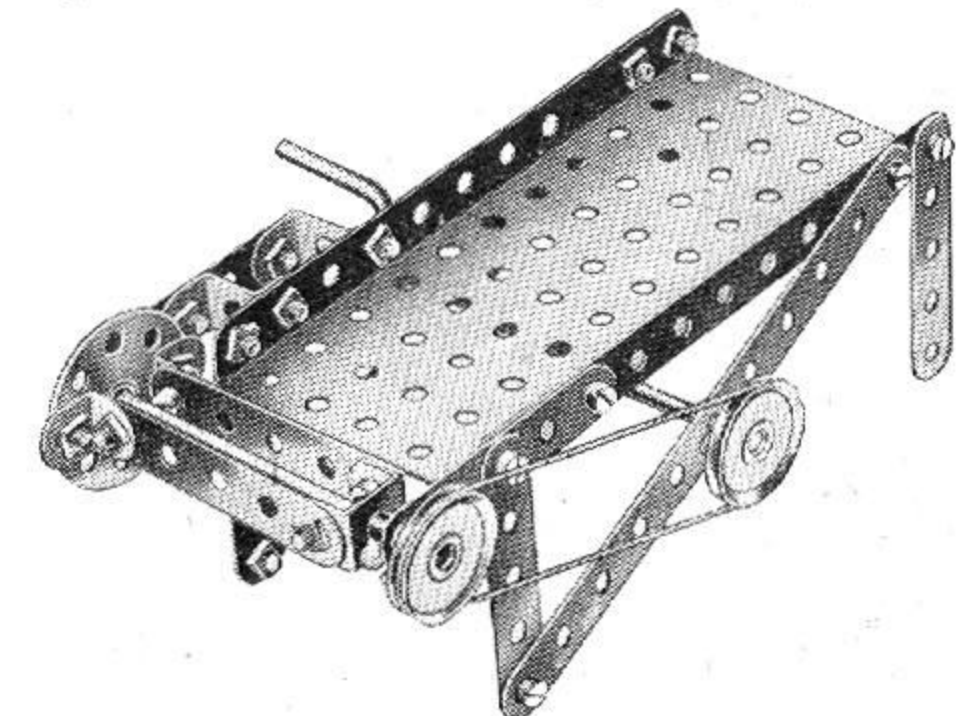


Model No. 0.6  
Jib Crane

Parts required :

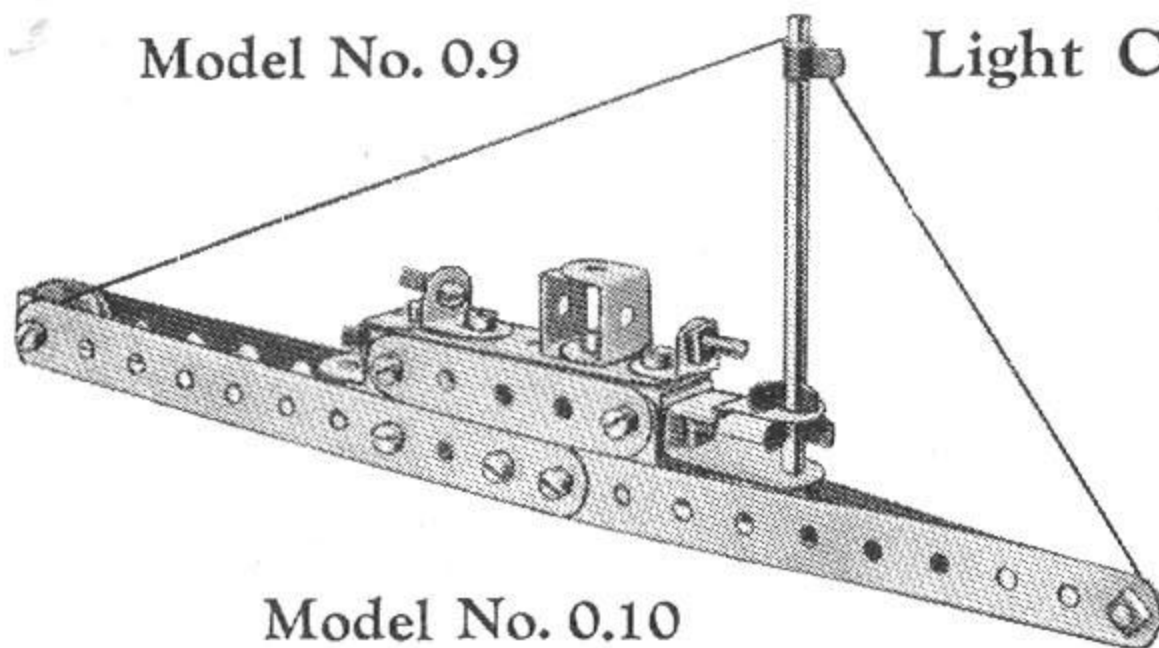
4 of No.	2
9 " "	5
2 " "	16
1 " "	17

1 of No.	19s
4 " "	22
1 " "	23
1 " "	24
4 " "	35
16 " "	37
1 " "	37A
1 " "	40
1 " "	48A
1 " "	52
1 " "	57
1 " "	111c





Model No. 0.9

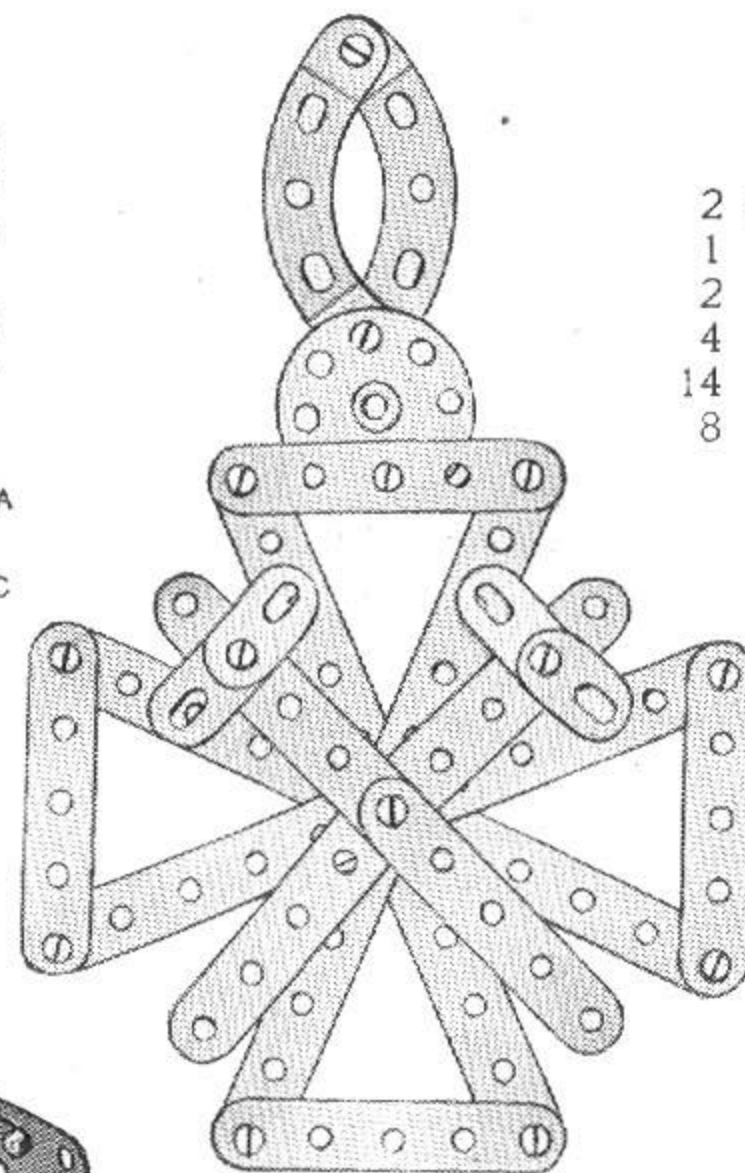


Light Cruiser

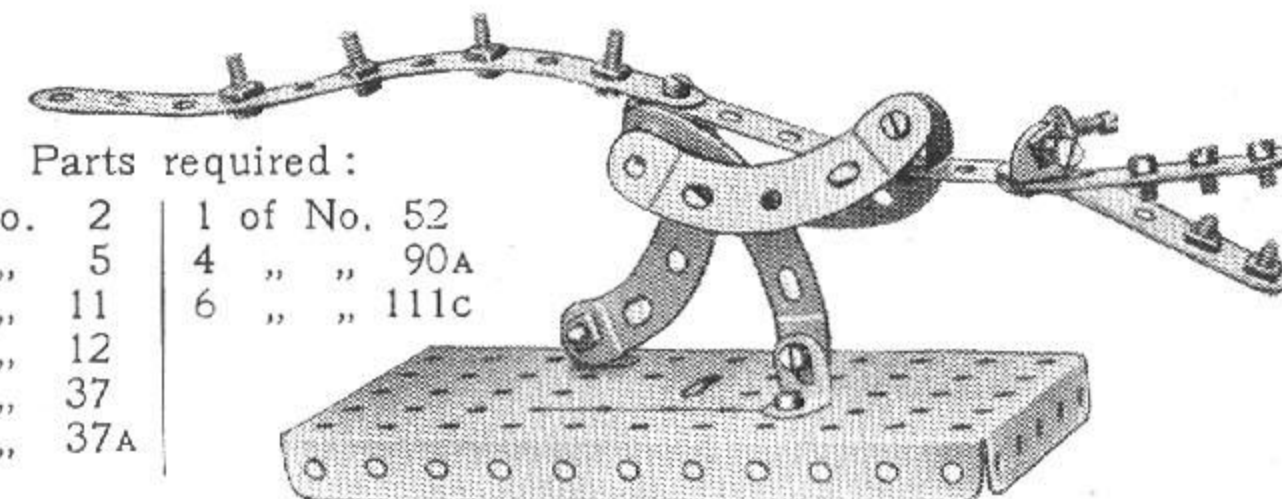
Parts required :

4 of No.	2
3 " "	5
4 " "	10
2 " "	11
7 " "	12
1 " "	16
3 " "	35
16 " "	37
6 " "	37A
1 " "	44
6 " "	111c
1 " "	125

Model No. 0.13 Medal



Model No. 0.14 Prehistoric Bird



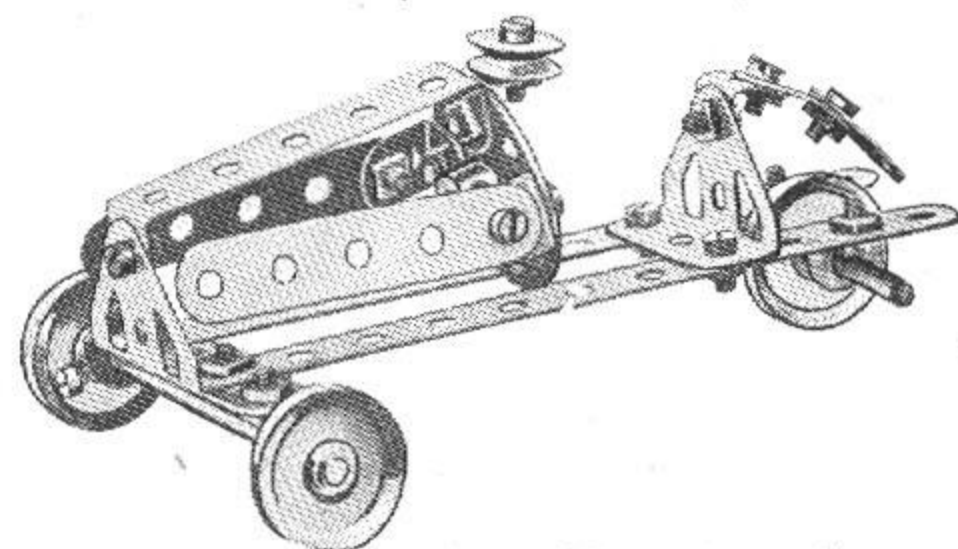
Parts required :

2 of No.	2	1 of No.	52
1 " "	5	4 " "	90A
2 " "	11	6 " "	111c
4 " "	12		
14 " "	37		
8 " "	37A		

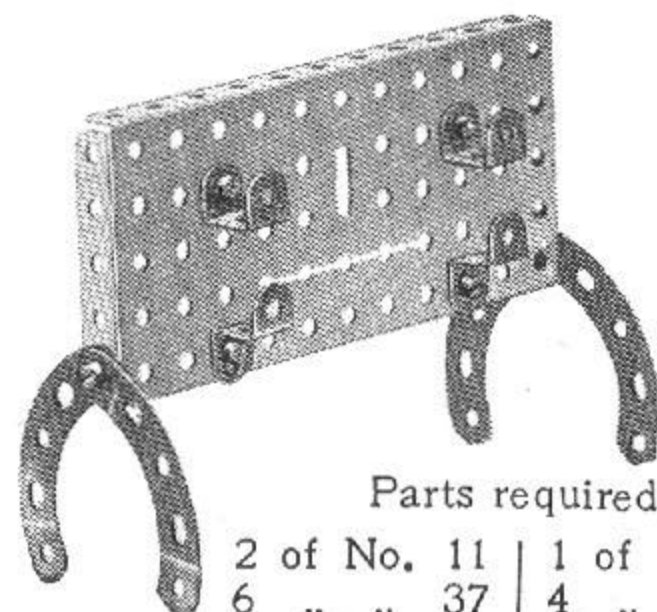
Model No. 0.10  
Three-Wheel Auto

Parts required :

2 of No.	2	1 of No.	17	2 of No.	37A
3 " "	5	3 " "	22	1 " "	48A
2 " "	10	1 " "	23	2 " "	111c
8 " "	12	1 " "	24	2 " "	126
1 " "	16	16 " "	37		



Model No. 0.11 Pen Rack



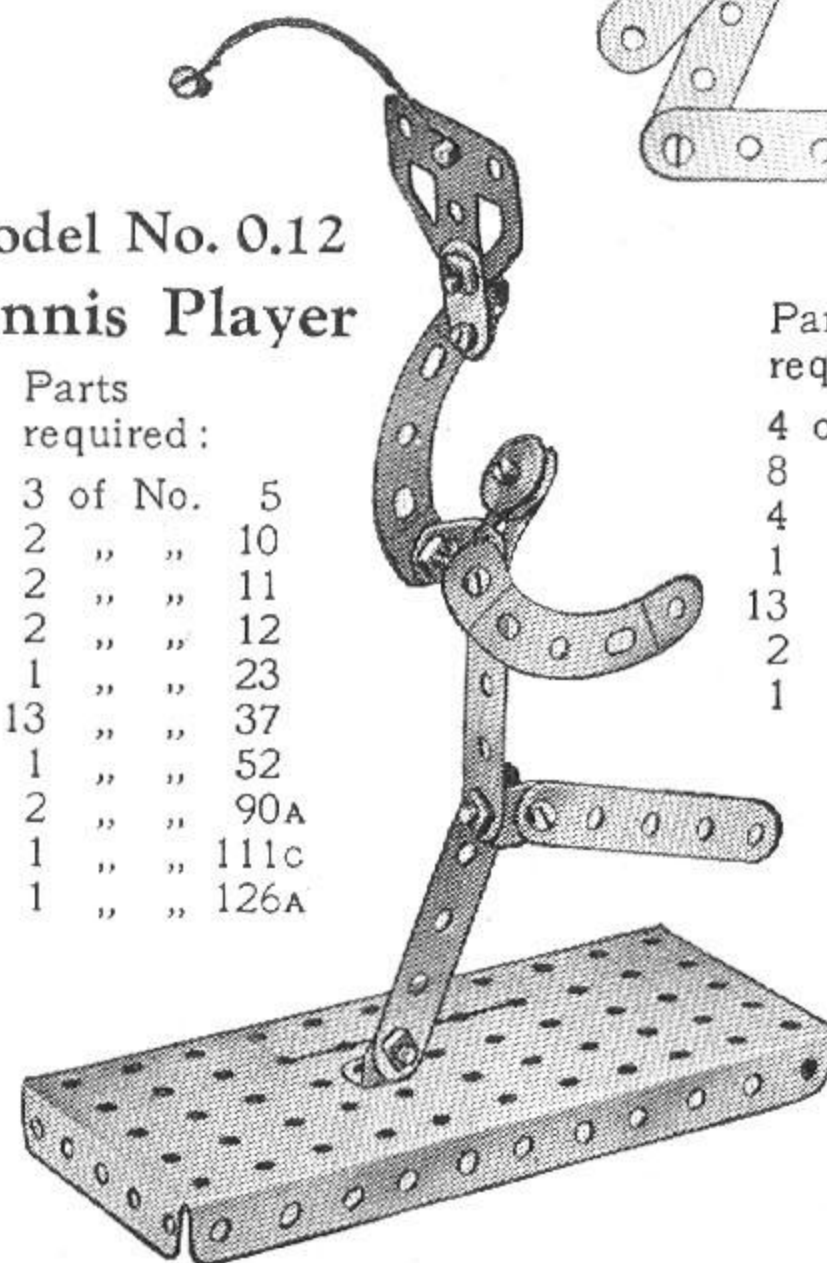
Parts required :

2 of No.	11	1 of No.	52
6 " "	37	4 " "	90A
		2 of No.	125

Model No. 0.12  
Tennis Player

Parts required :

3 of No.	5
2 " "	10
2 " "	11
2 " "	12
1 " "	23
13 " "	37
1 " "	52
2 " "	90A
1 " "	111c
1 " "	126A



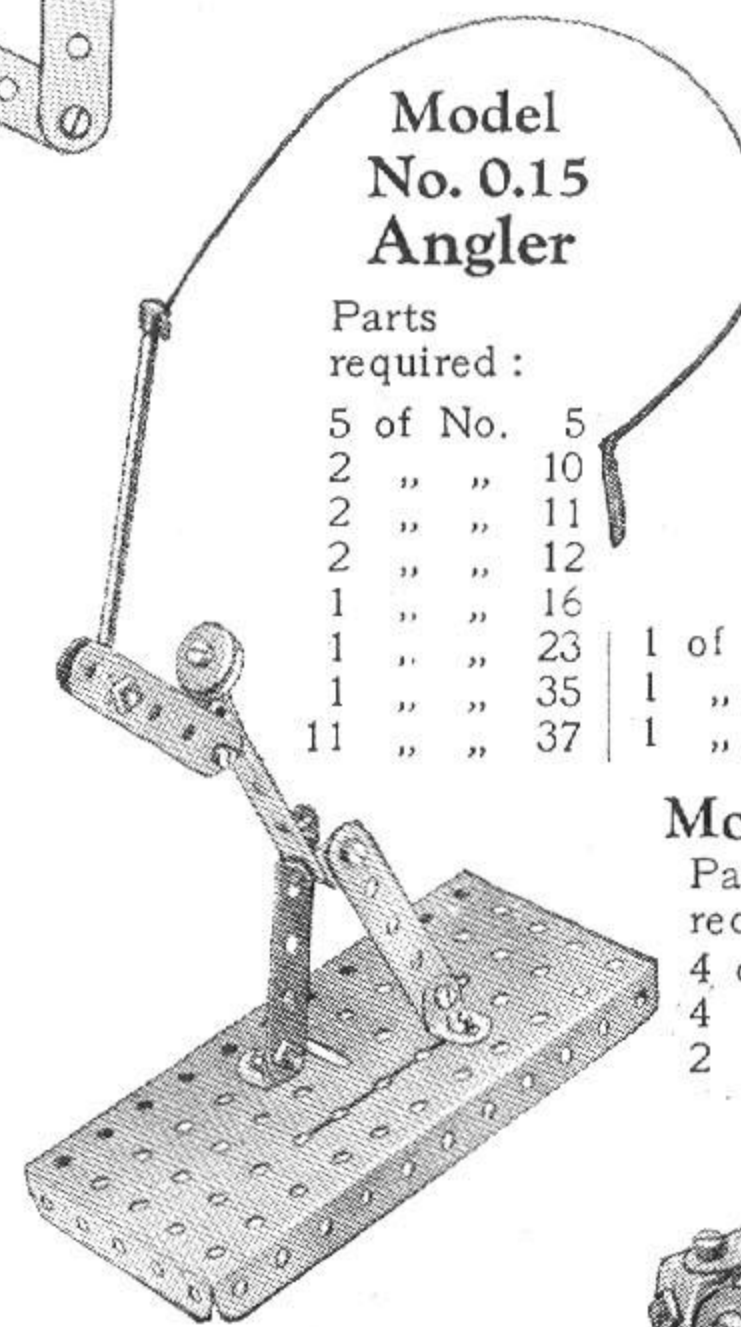
Parts required :

4 of No.	2
8 " "	5
4 " "	10
1 " "	24
13 " "	37
2 " "	90A
1 " "	111c

Model  
No. 0.15  
Angler

Parts required :

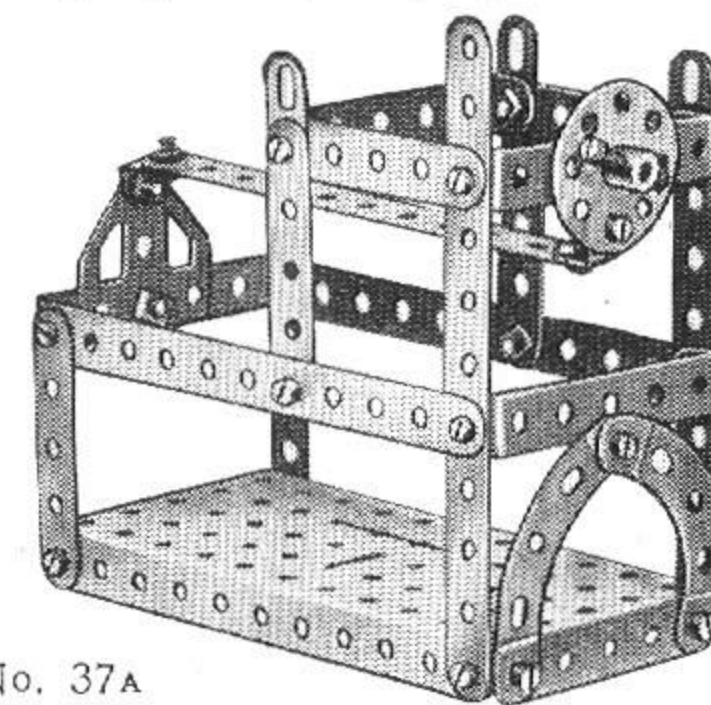
5 of No.	5		
2 " "	10		
2 " "	11		
2 " "	12		
1 " "	16		
1 " "	23	1 of No.	37A
1 " "	35	1 " "	52
11 " "	37	1 " "	111c



Model No. 0.16 Church

Parts required :

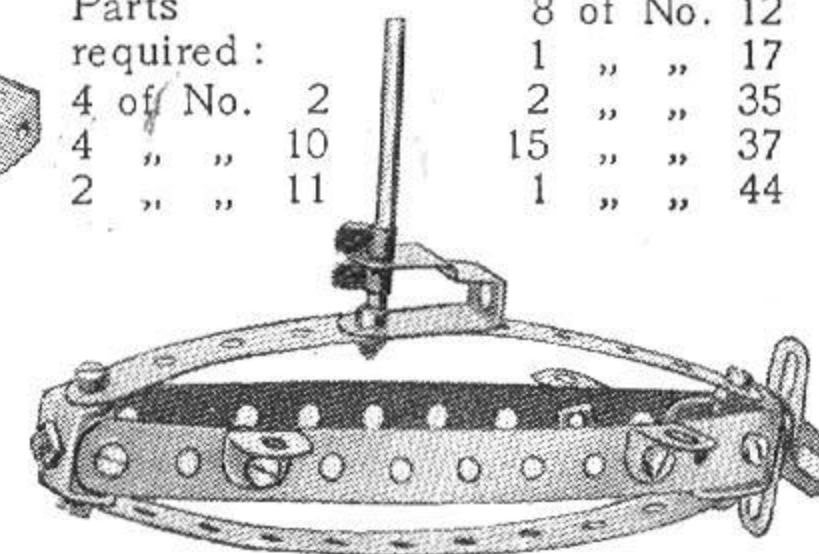
4 of No.	2	2 of No.	12	6 of No.	37A	2 of No.	90A
8 " "	5	1 " "	24	4 " "	48A	6 " "	111c
3 " "	10	16 " "	37	1 " "	52	1 " "	126A



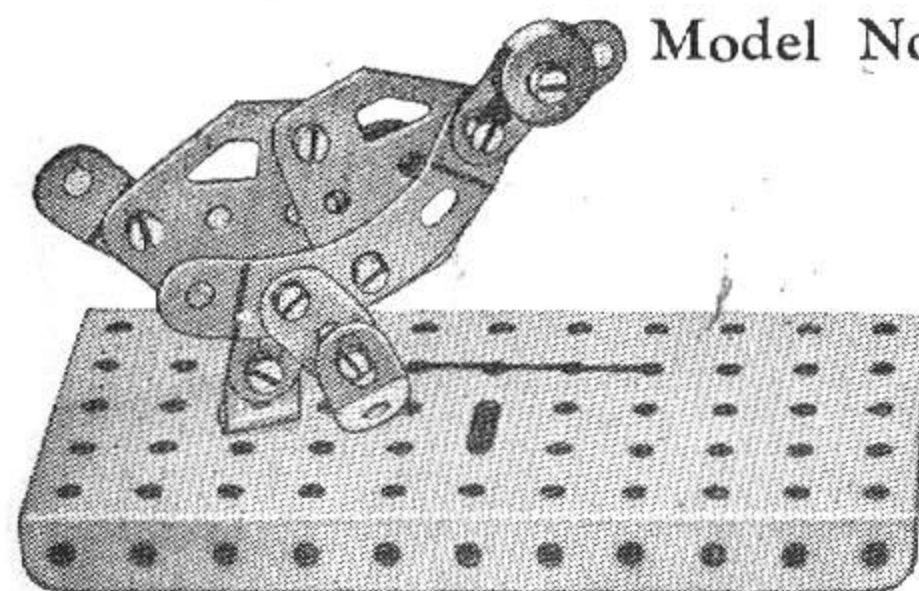
Model No. 0.17 Submarine

Parts required :

4 of No.	2	8 of No.	12
4 " "	10	1 " "	17
2 " "	11	2 " "	35
		15 " "	37
		1 " "	44







Model No. 0.18 Goose

Parts  
required :

4 of No.	10
2 " "	12
1 " "	23
8 " "	37
1 " "	37A
1 " "	52
2 " "	90A
1 " "	111c
2 " "	126A

Model No. 0.22  
Lazy Tongs

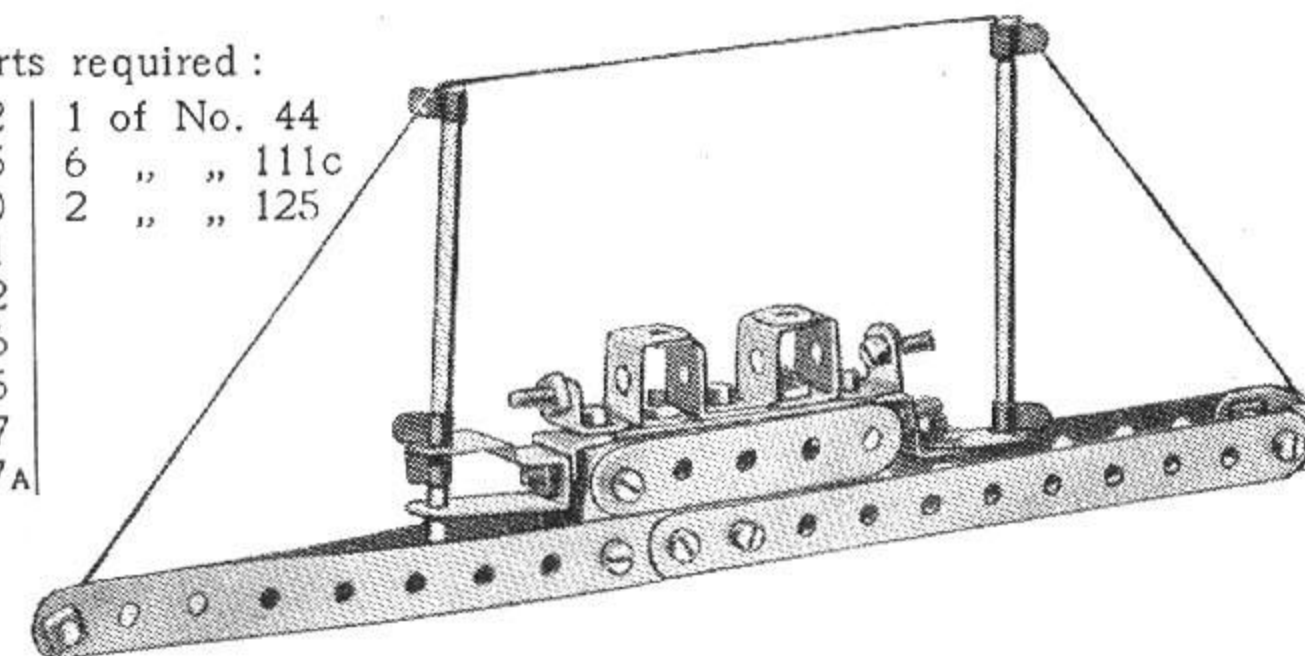


Parts  
required :

2 of No.	2
8 " "	5
13 " "	37
9 " "	37A

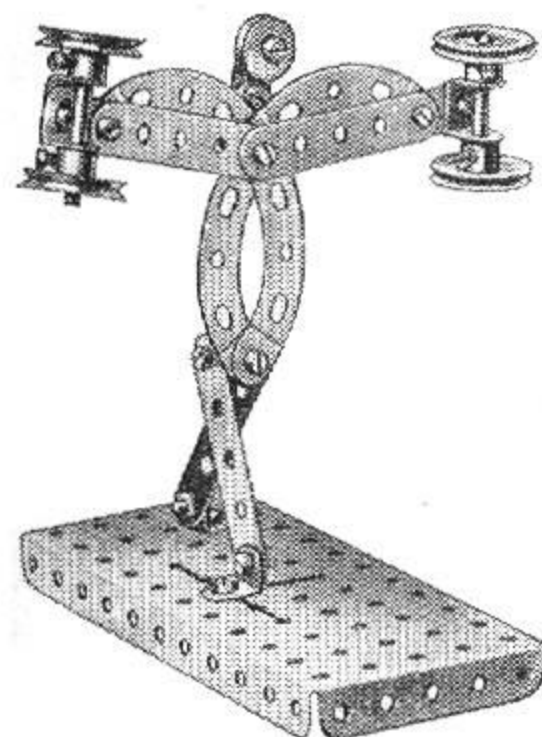
Parts required :

4 of No.	2	1 of No.	44
3 " "	5	6 " "	111c
4 " "	10	2 " "	125
2 " "	11		
9 " "	12		
2 " "	16		
6 " "	35		
16 " "	37		
6 " "	37A		



Model No. 0.23 Battleship

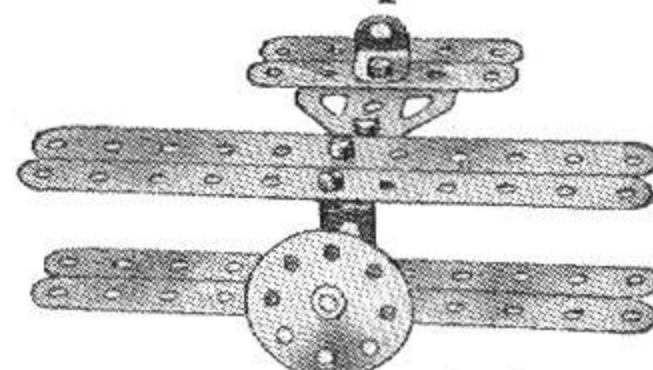
Model No. 0.19 Strong Man



Parts  
required :

4 of No.	5
4 " "	10
2 " "	11
4 " "	12
2 " "	17
4 " "	22
1 " "	23
13 " "	37
1 " "	37A
1 " "	52
4 " "	90A
1 " "	111c

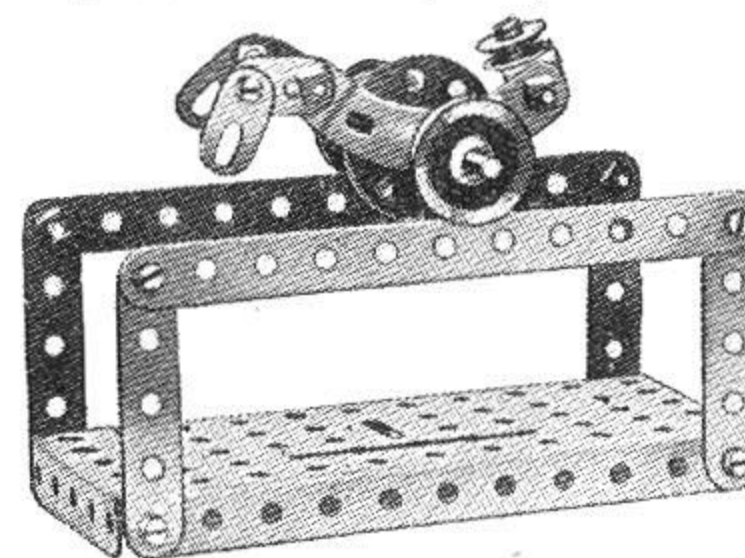
Model No. 0.20  
Aeroplane



Parts required :

4 of No.	2	8 of No.	37
3 " "	5	1 " "	111c
2 " "	12	2 " "	125
1 " "	24	1 " "	126A

Model No. 0.24 Gymnast



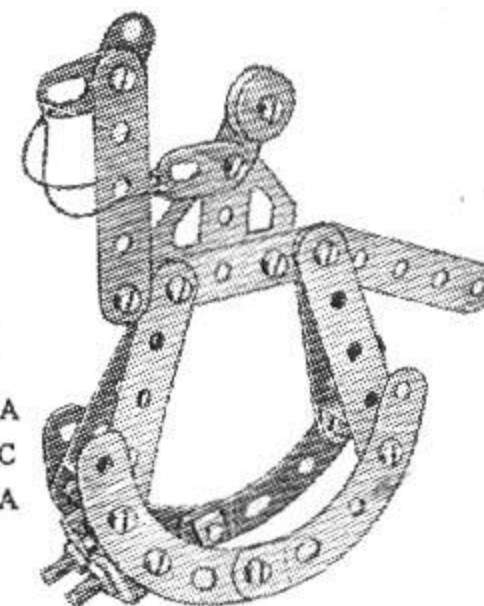
Parts required :

2 of No.	2	1 of No.	24
4 " "	5	12 " "	37
4 " "	10	1 " "	37A
1 " "	12	1 " "	52
1 " "	16	1 " "	90A
2 " "	22	1 " "	111c
1 " "	23		

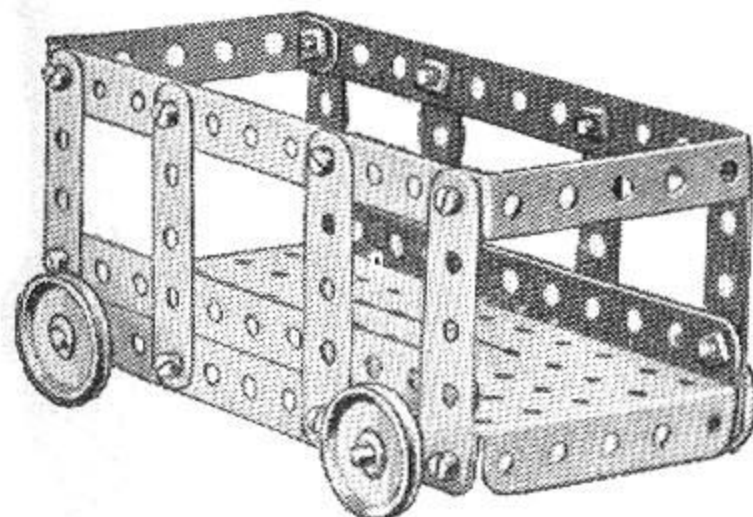
Model No. 0.25  
Rocking Horse

Parts  
required :

7 of No.	5
4 " "	10
2 " "	11
2 " "	12
1 " "	23
13 " "	37
4 " "	90A
3 " "	111c
1 " "	126A



Model No. 0.21 Cattle Truck



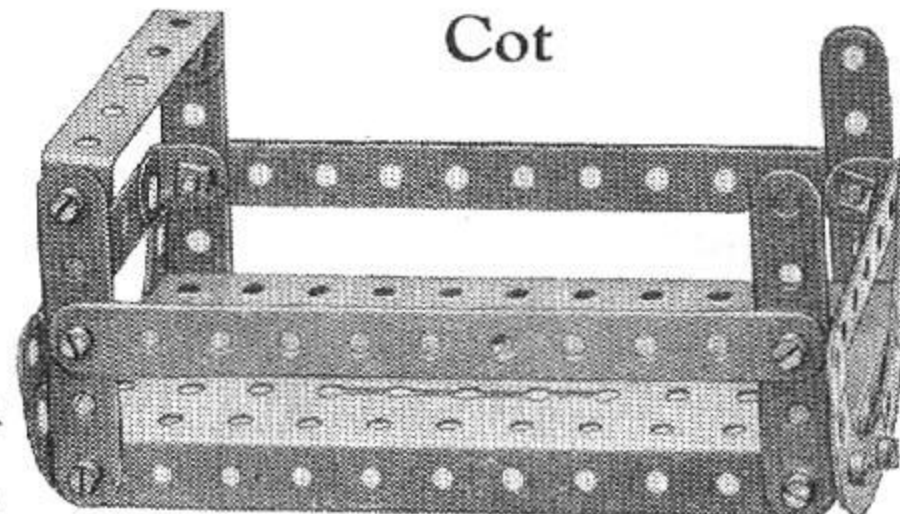
Parts  
required :

4 of No.	2
8 " "	5
2 " "	16
4 " "	22
16 " "	37
2 " "	37A
2 " "	48A
1 " "	52
2 " "	111c

Model No. 0.26  
Cot

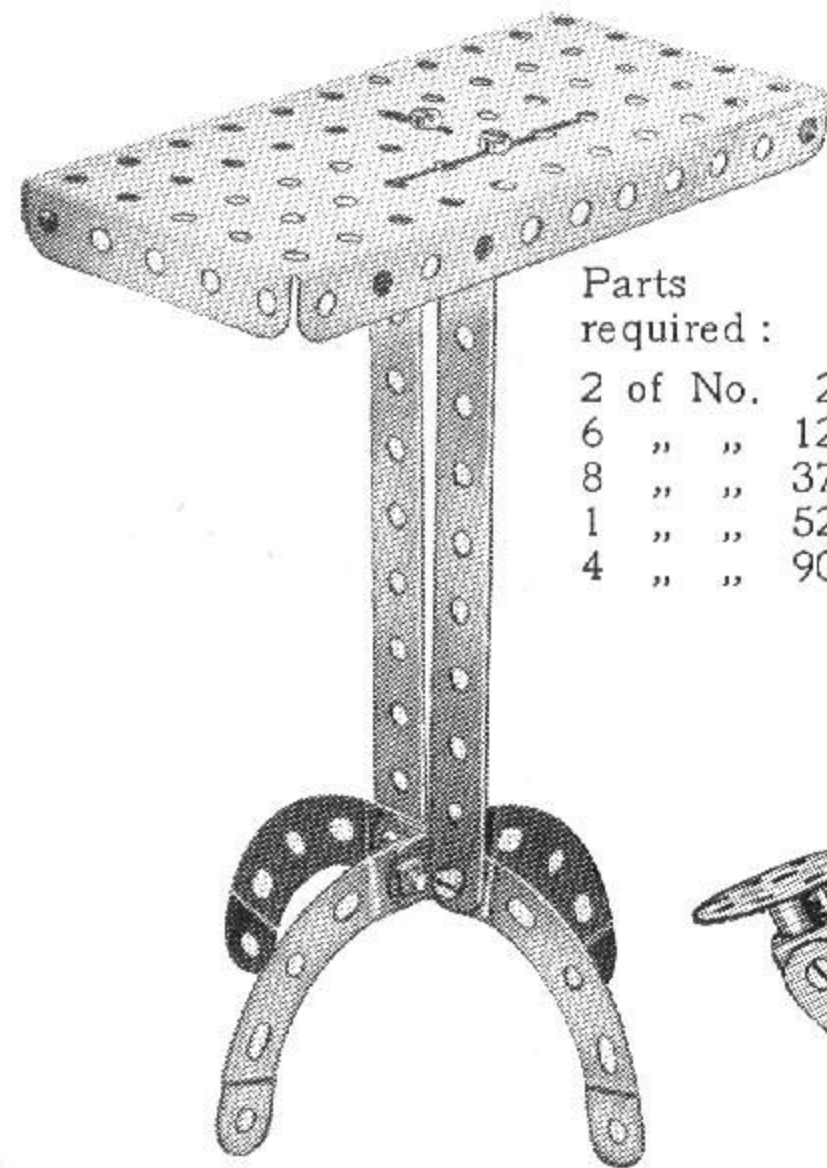
Parts  
required :

2 of No.	2
6 " "	5
2 " "	12
16 " "	37
2 " "	48A
1 " "	52
4 " "	90A





Model No. 0.27 Table

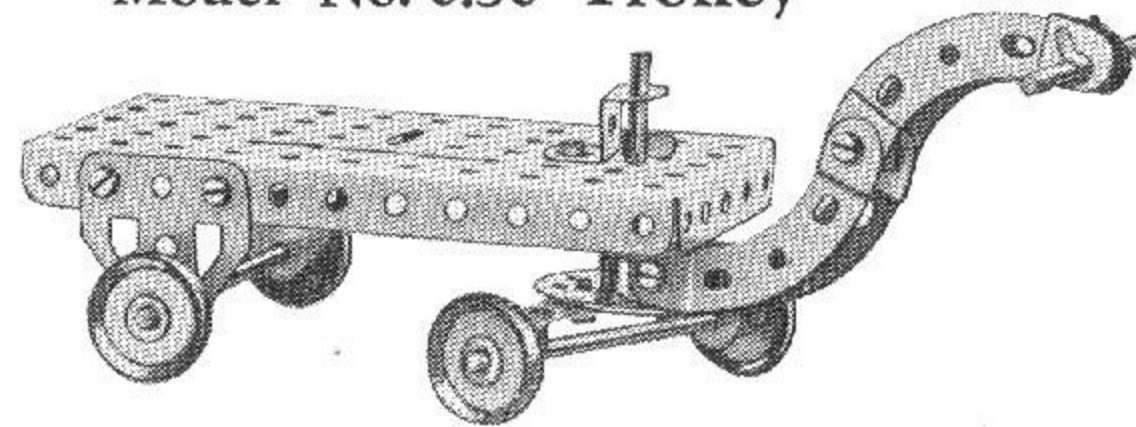
Parts  
required :

2 of No.	2
6 " "	12
8 " "	37
1 " "	52
4 " "	90A

Model  
No. 0.29  
SaxophoneParts  
required :

2 of No.	2
2 " "	10
2 " "	11
2 " "	12
1 " "	23
1 " "	24
12 " "	37
1 " "	37A
4 " "	90A
2 " "	111c

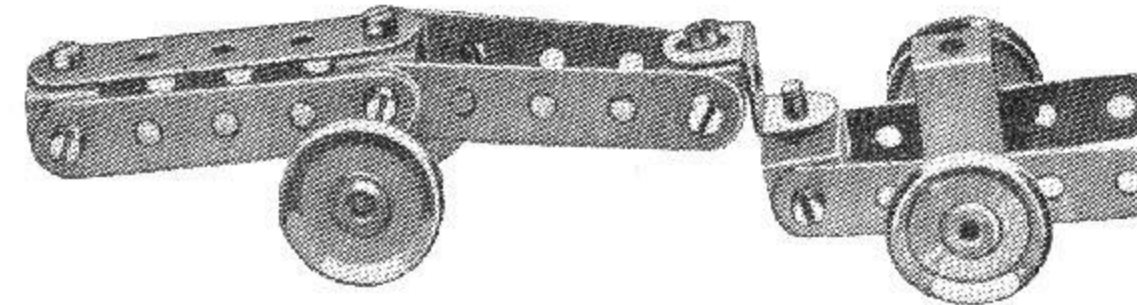
Model No. 0.30 Trolley



Parts required :

1 of No.	11	4 of No.	35	4 of No.	90A
2 " "	16	12 " "	37	1 " "	125
2 " "	17	1 " "	48A	2 " "	126A
1 " "	24	1 " "	52		

Model No. 0.31 Field Gun and Carriage



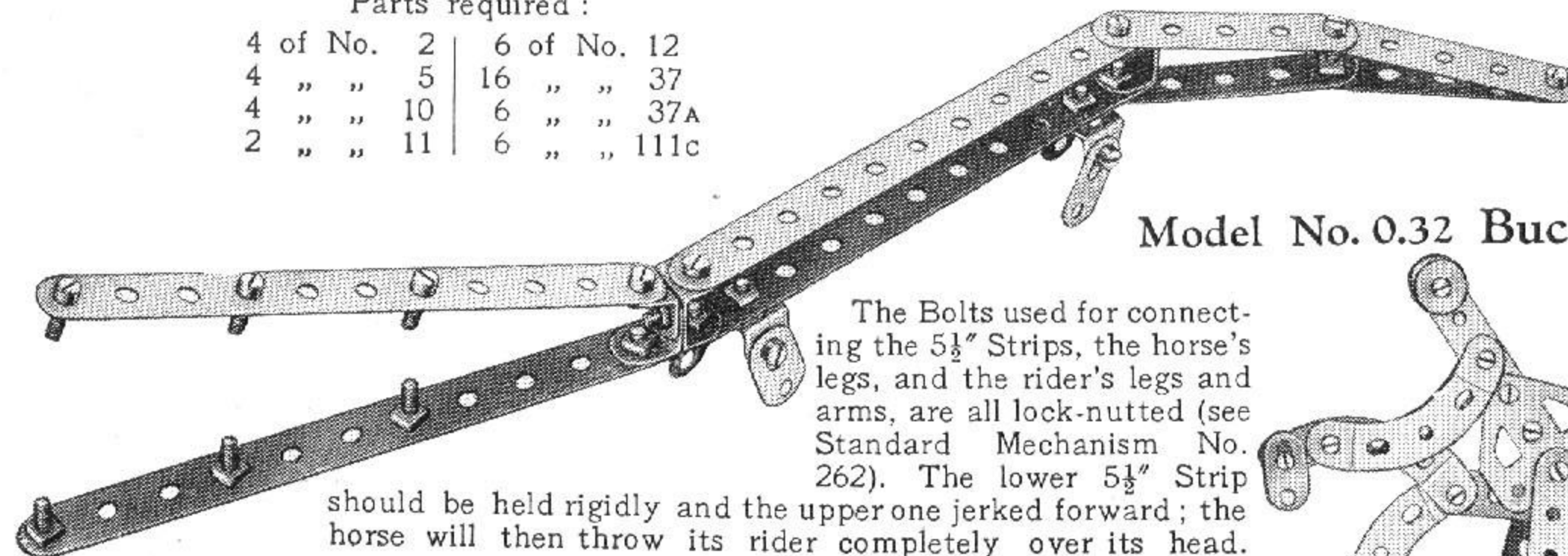
Parts required :

8 of No.	5	2 of No.	17	1 of No.	44
2 " "	10	4 " "	22	1 " "	111c
2 " "	11	13 " "	37	1 " "	125
6 " "	12	1 " "	37A		

Model No. 0.28 Crocodile

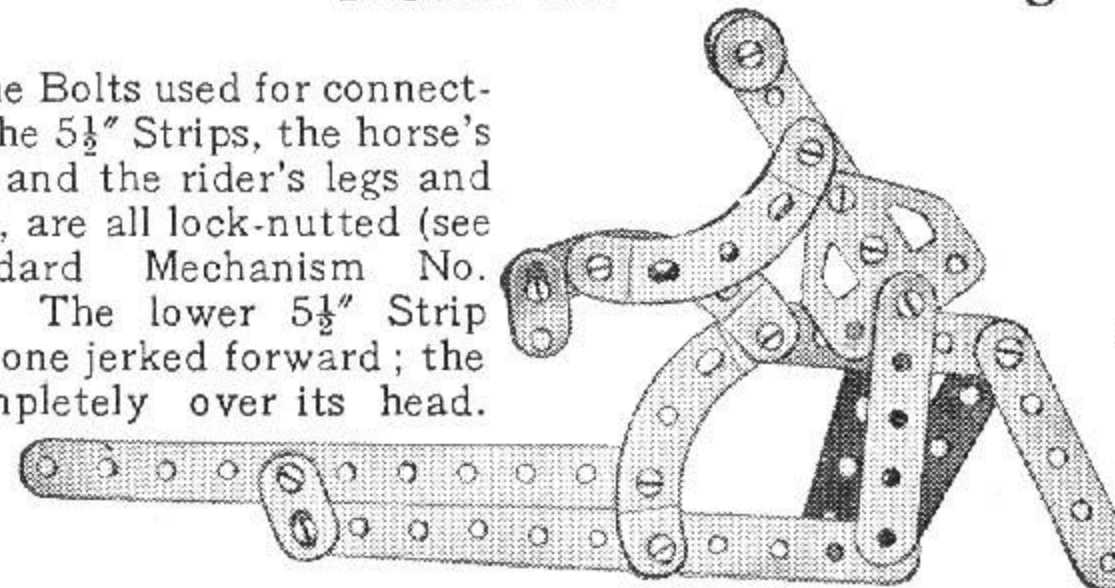
Parts required :

4 of No.	2	6 of No.	12
4 " "	5	16 " "	37
4 " "	10	6 " "	37A
2 " "	11	6 " "	111c



The Bolts used for connecting the  $5\frac{1}{2}$ " Strips, the horse's legs, and the rider's legs and arms, are all lock-nutted (see Standard Mechanism No. 262). The lower  $5\frac{1}{2}$ " Strip should be held rigidly and the upper one jerked forward; the horse will then throw its rider completely over its head.

Model No. 0.32 Bucking Broncho

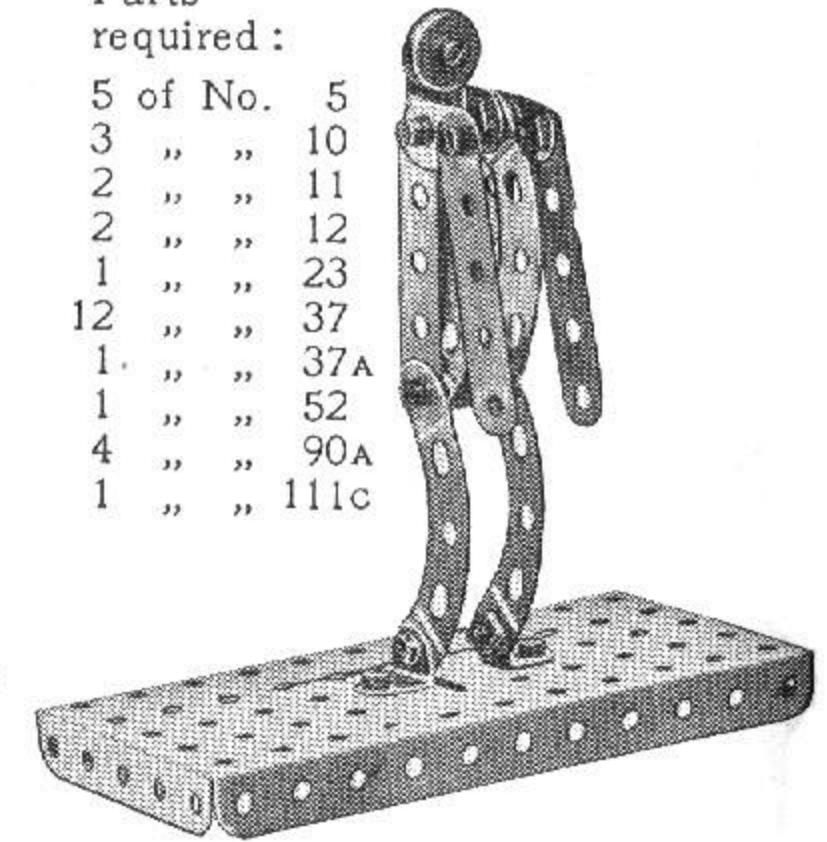
Parts  
required :

2 of No.	2
6 " "	5
2 " "	10
1 " "	23
12 " "	37
9 " "	37A
4 " "	90A
1 " "	111c
1 " "	126A

Model No. 0.33 Ape

Parts  
required :

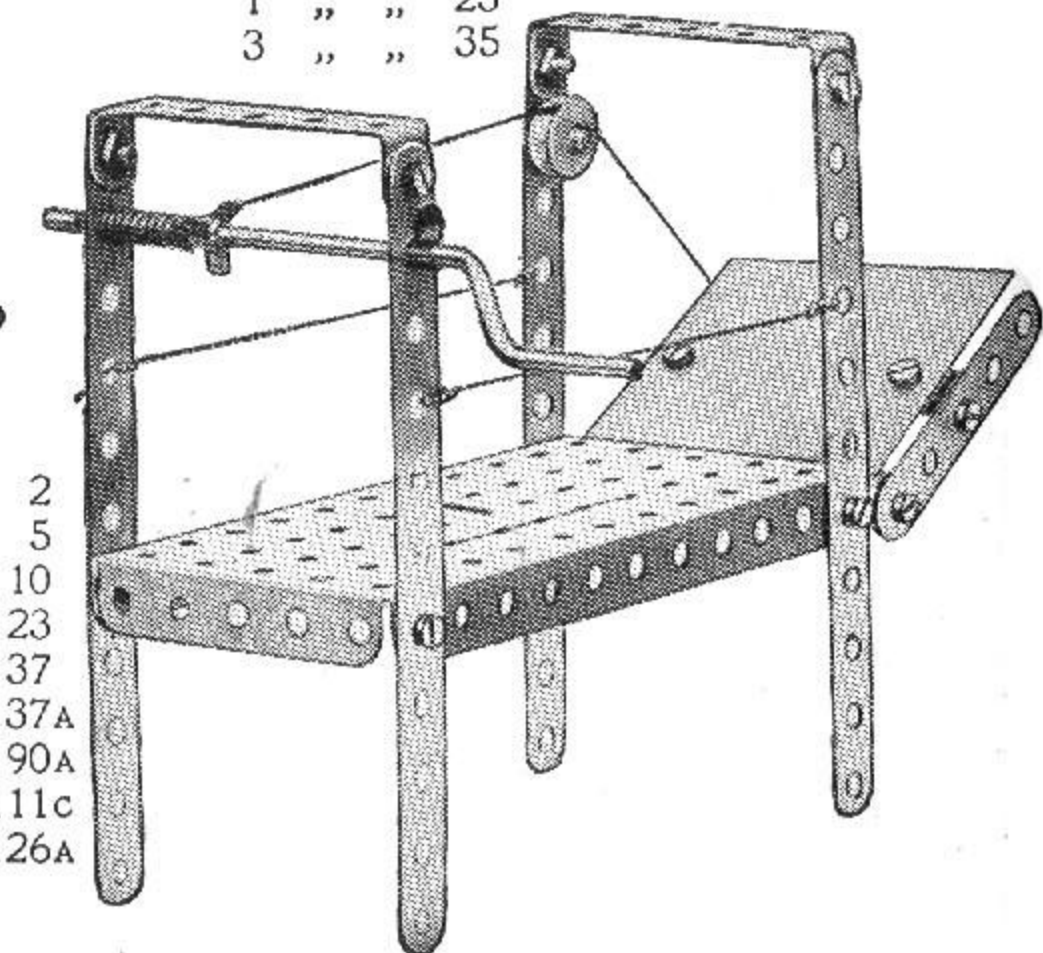
5 of No.	5
3 " "	10
2 " "	11
2 " "	12
1 " "	23
12 " "	37
1 " "	37A
1 " "	52
4 " "	90A
1 " "	111c



Model No. 0.34 Gangway

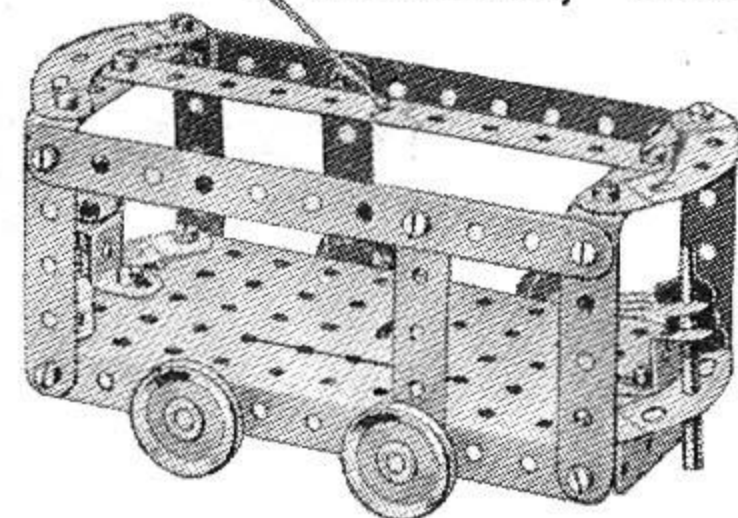
Parts required :

4 of No.	2	16 of No.	37
2 " "	5	2 " "	37A
2 " "	10	2 " "	48A
2 " "	12	1 " "	52
1 " "	19s	1 " "	111c
1 " "	23		
3 " "	35		





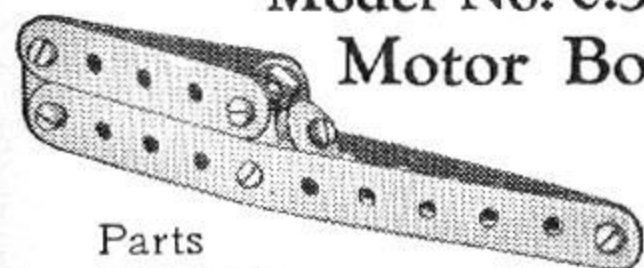
**Model No. 0.35  
Tramway Car**



Parts required :

3 of No. 2	16 of No. 37
6 " " 5	6 " " 37A
2 " " 10	2 " " 48A
2 " " 16	1 " " 52
2 " " 17	4 " " 90A
4 " " 22	6 " " 111c
6 " " 35	2 " " 125

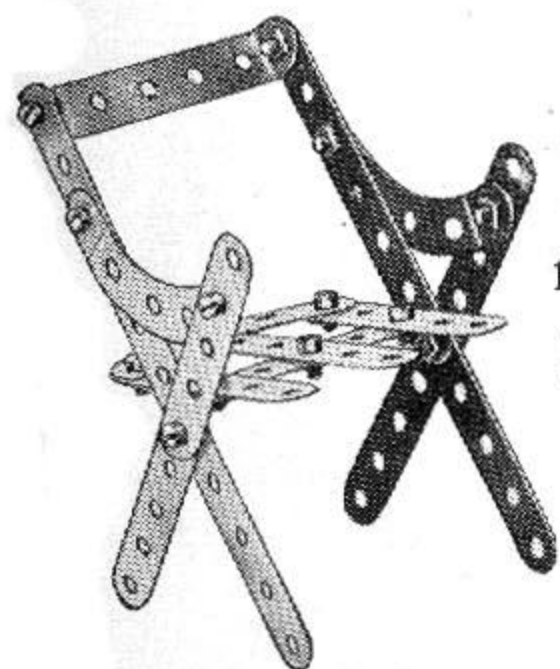
**Model No. 0.36  
Motor Boat**



Parts required :

2 of No. 2	1 of No. 23
2 " " 5	7 " " 37
3 " " 10	1 " " 37A
1 " " 11	1 " " 111c

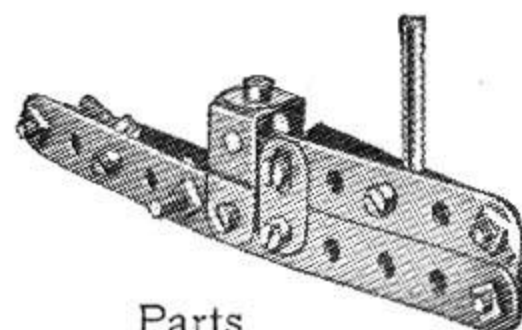
**Model No. 0.37 Arm Chair**



Parts required :

2 of No. 2
7 " " 5
14 " " 37
2 " " 48A
3 " " 90A

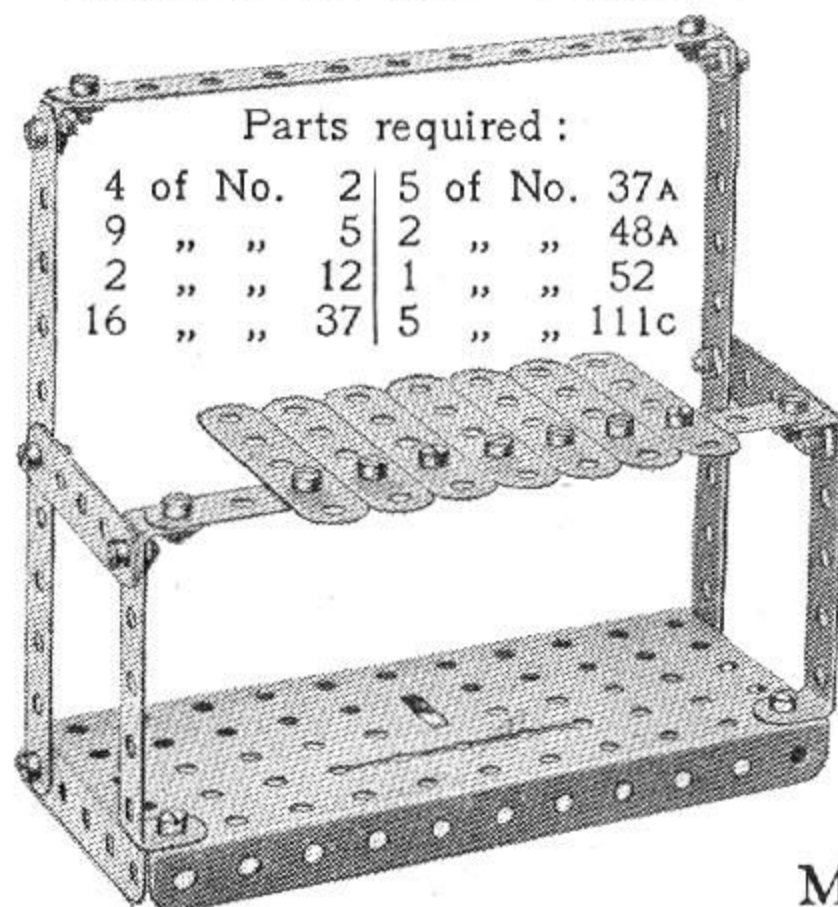
**Model No. 0.38  
Torpedo Boat**



Parts required :

2 of No. 2
2 " " 5
3 " " 10
2 " " 11
2 " " 12
1 " " 17
11 " " 37
4 " " 37A
5 " " 111c

**Model No. 0.39 Piano**



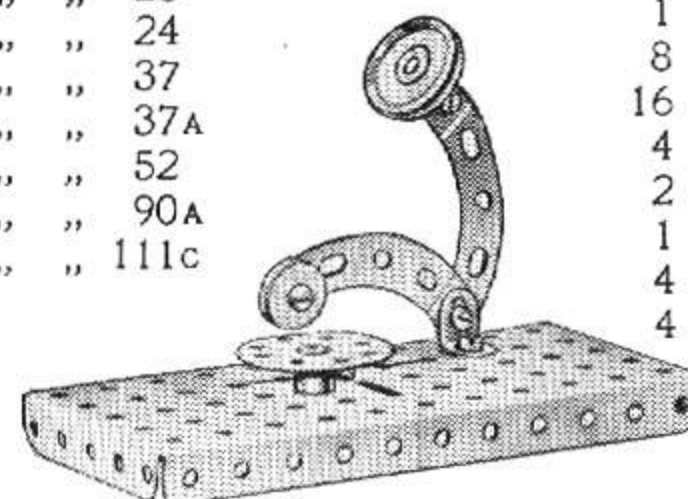
Parts required :

4 of No. 2	5 of No. 37A
9 " " 5	2 " " 48A
2 " " 12	1 " " 52
16 " " 37	5 " " 111c

**Model No. 0.40  
Gramophone**

Parts required :

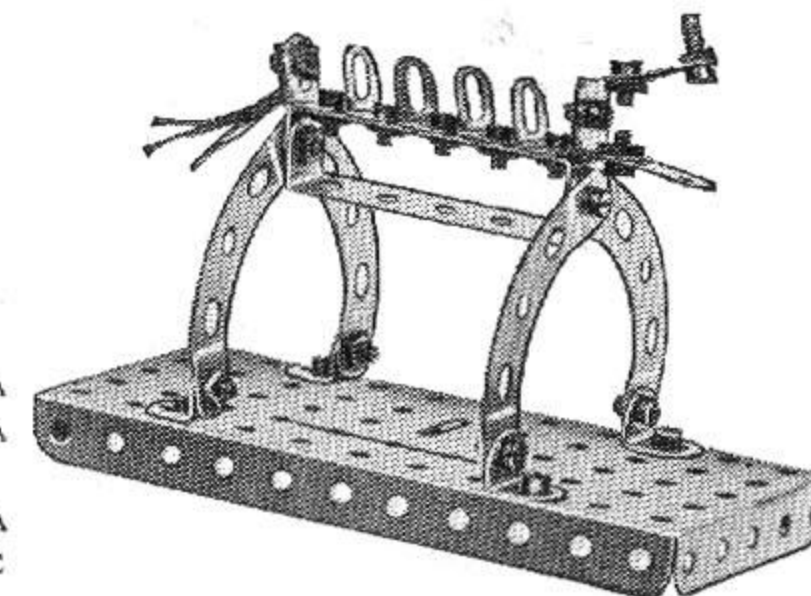
2 of No. 12
1 " " 22
1 " " 23
1 " " 24
3 " " 37
1 " " 37A
1 " " 52
2 " " 90A
3 " " 111c



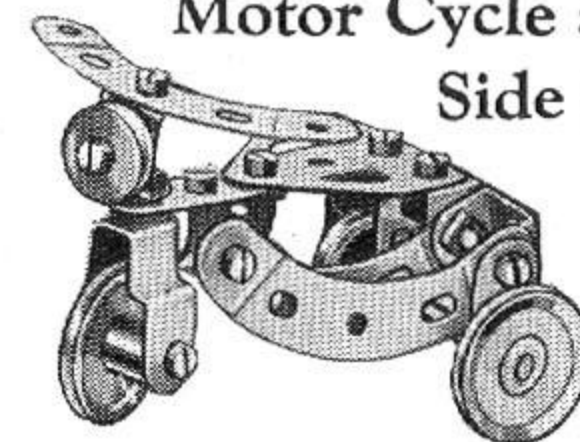
Parts required :

4 of No. 10
1 " " 11
8 " " 12
16 " " 37
4 " " 37A
2 " " 48A
1 " " 52
4 " " 90A
4 " " 111c

**Model No. 0.43  
Prehistoric Armadillo**



**Model No. 0.44  
Motor Cycle and  
Side Car**



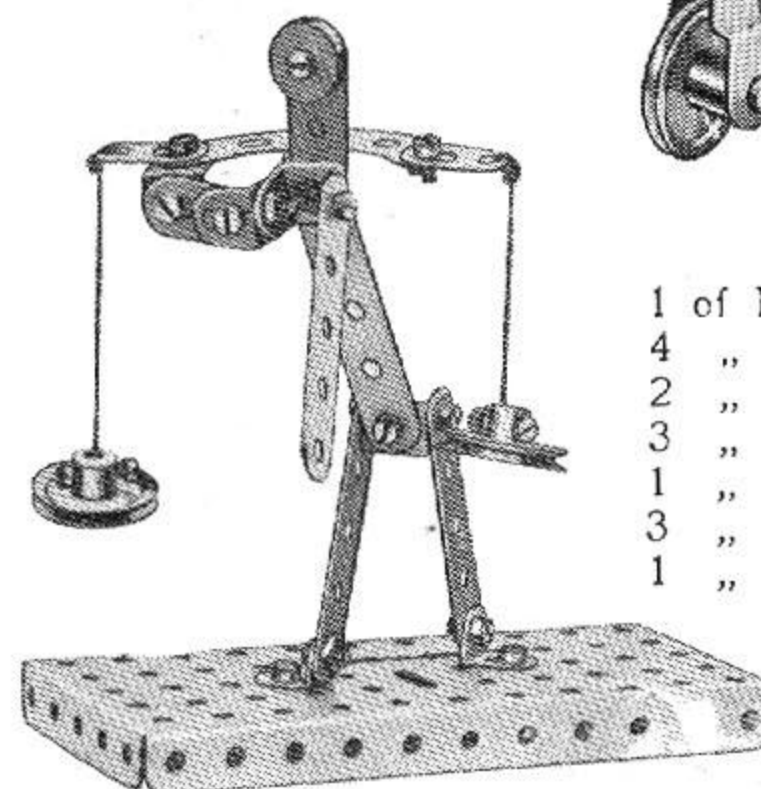
Parts required :

1 of No. 5	10 of No. 37
4 " " 10	1 " " 37A
2 " " 11	1 " " 44
3 " " 12	3 " " 90A
1 " " 16	1 " " 111c
3 " " 22	1 " " 125
1 " " 23	1 " " 126A

**Model No. 0.41 Milk Maid**

Parts required :

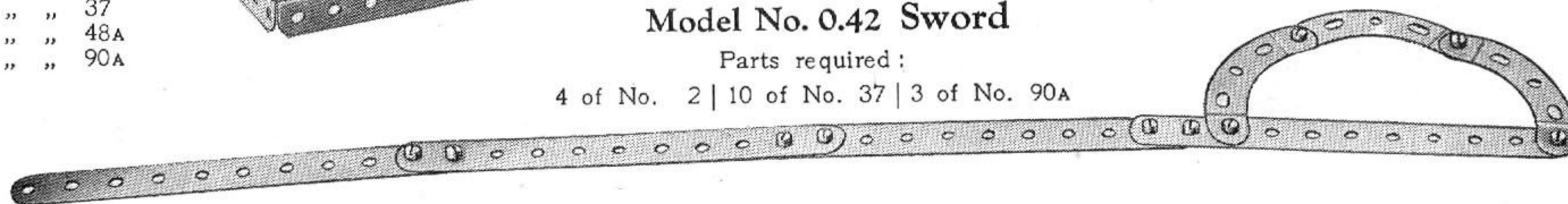
5 of No. 5
3 " " 10
2 " " 11
4 " " 12
2 " " 22
1 " " 23
14 " " 37
1 " " 37A
1 " " 52
1 " " 90A
1 " " 111c



**Model No. 0.42 Sword**

Parts required :

4 of No. 2	10 of No. 37	3 of No. 90A
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**Model No. 0.45**  
**Loud Speaker**



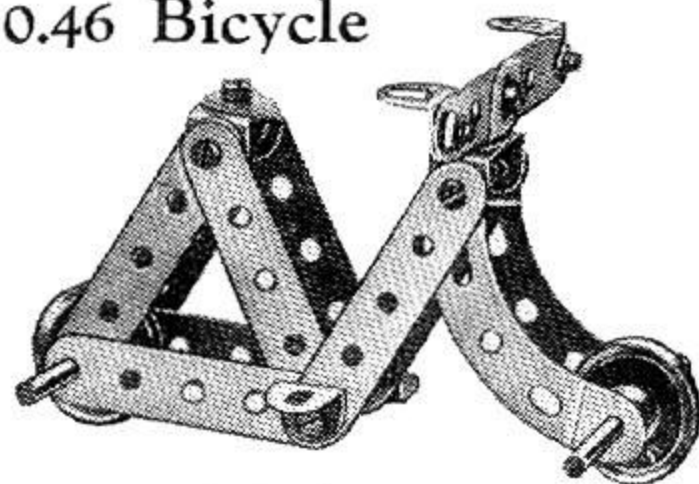
Parts  
required:

1 of No.	11
1 " "	23
1 " "	24
6 " "	37
1 " "	37A
4 " "	90A
2 " "	111c
2 " "	126

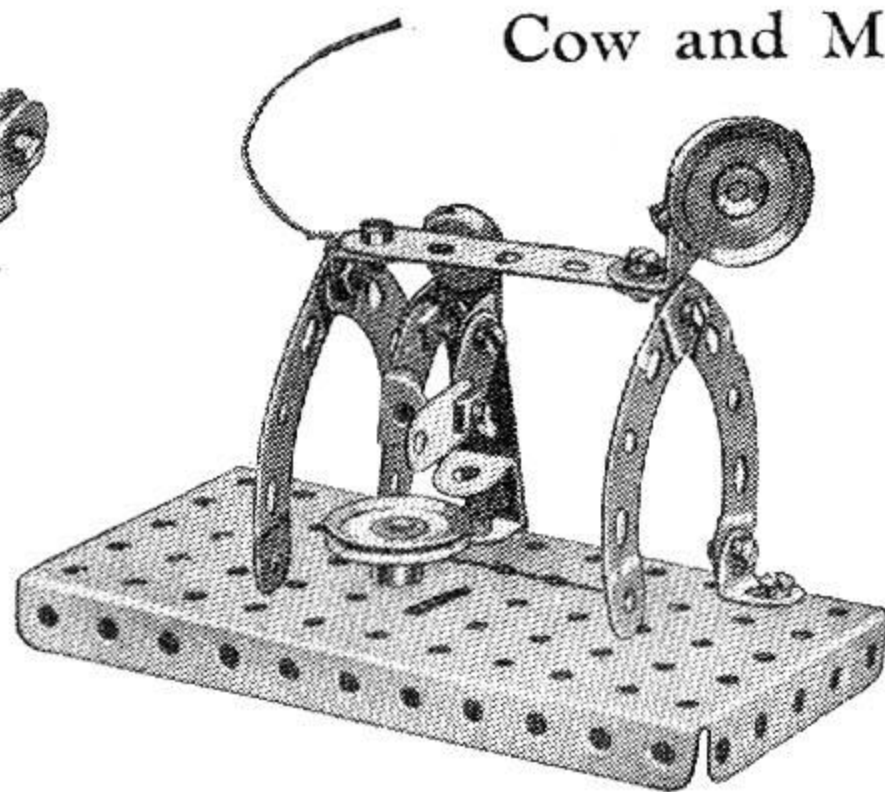
**Model No. 0.46 Bicycle**

Parts  
required:

9 of No.	5
2 " "	11
5 " "	12
2 " "	17
2 " "	22
11 " "	37



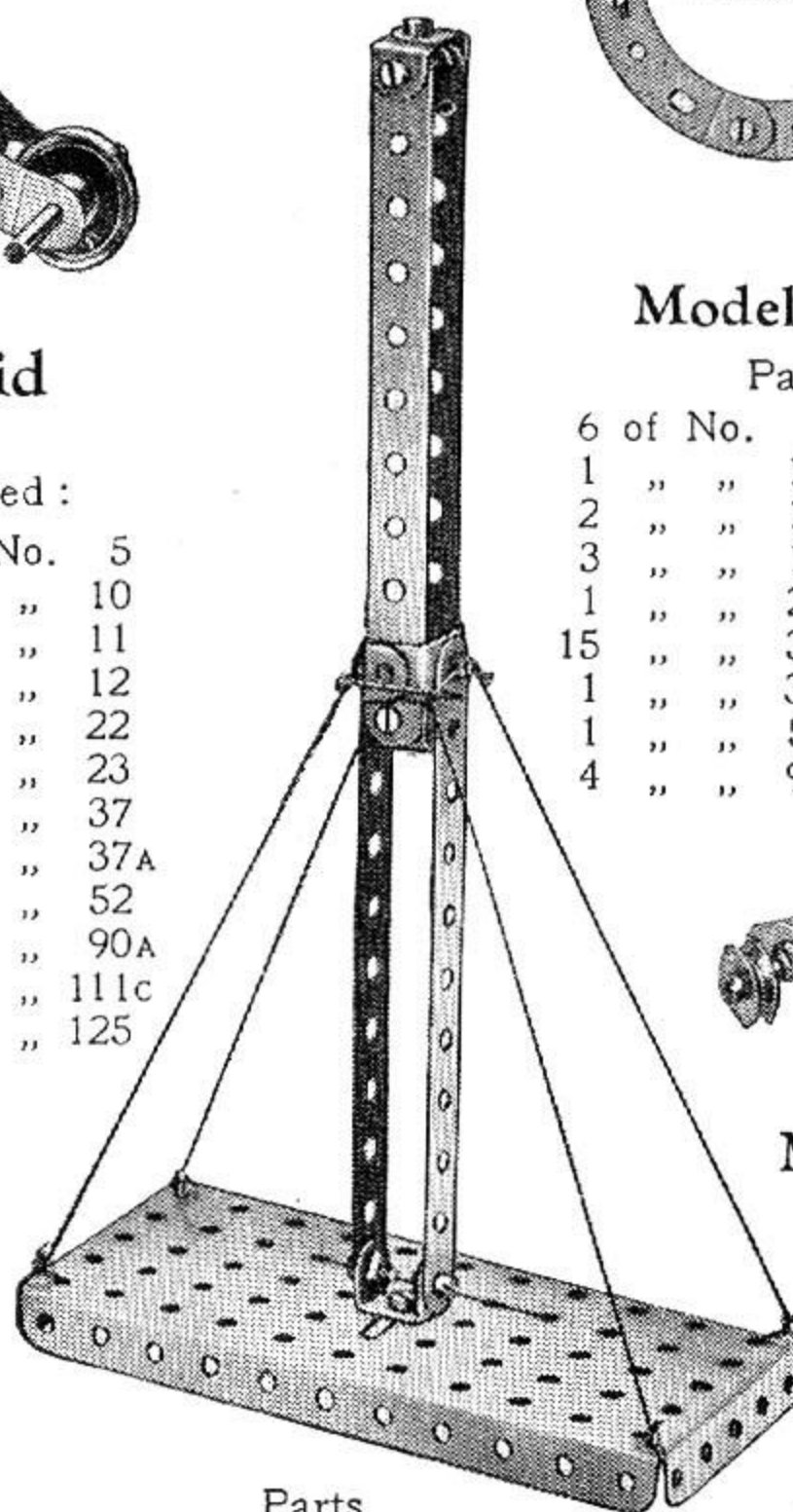
**Model No. 0.47**  
**Cow and Milkmaid**



Parts  
required:

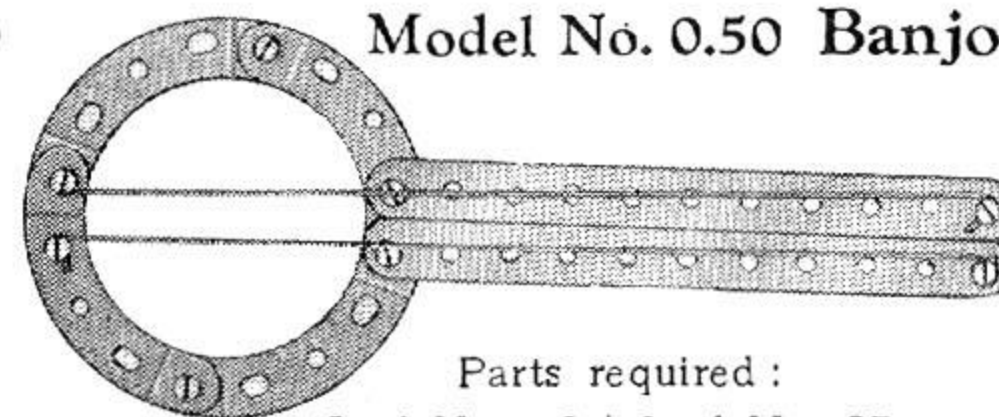
2 of No.	5
4 " "	10
2 " "	11
5 " "	12
2 " "	22
1 " "	23
16 " "	37
2 " "	37A
1 " "	52
4 " "	90A
4 " "	111c
1 " "	125

**Model No. 0.49**  
**Telescopic Mast**



Parts  
required:

4 of No.	2
2 " "	11
6 " "	12
11 " "	37
1 " "	40
1 " "	52



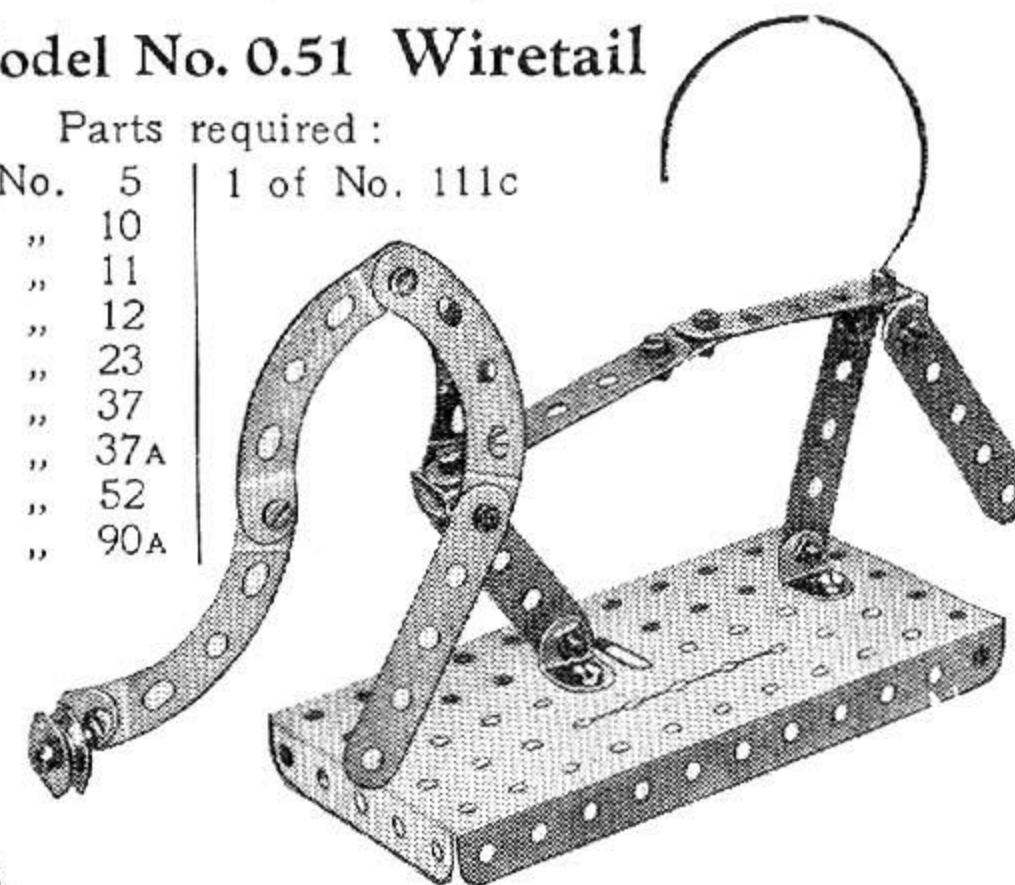
Parts required:

2 of No.	2	8 of No.	37
1 " "	10	4 " "	90A

**Model No. 0.51 Wiretail**

Parts required:

6 of No.	5	1 of No.	111c
1 " "	10		
2 " "	11		
3 " "	12		
1 " "	23		
15 " "	37		
1 " "	37A		
1 " "	52		
4 " "	90A		



**Model No. 0.53**  
**Catapult**



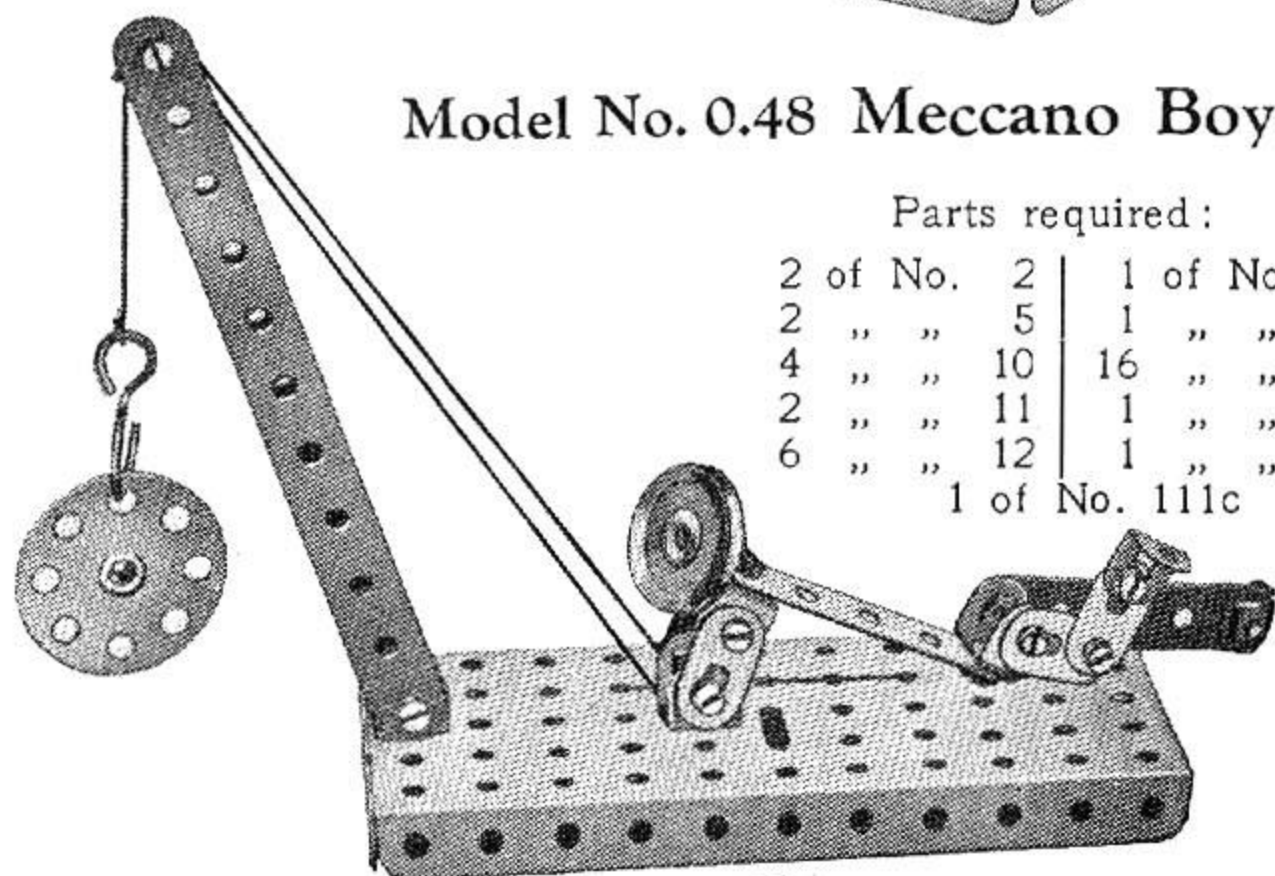
Parts  
required:

4 of No.	37
4 " "	90A

**Model No. 0.48 Meccano Boy**

Parts required:

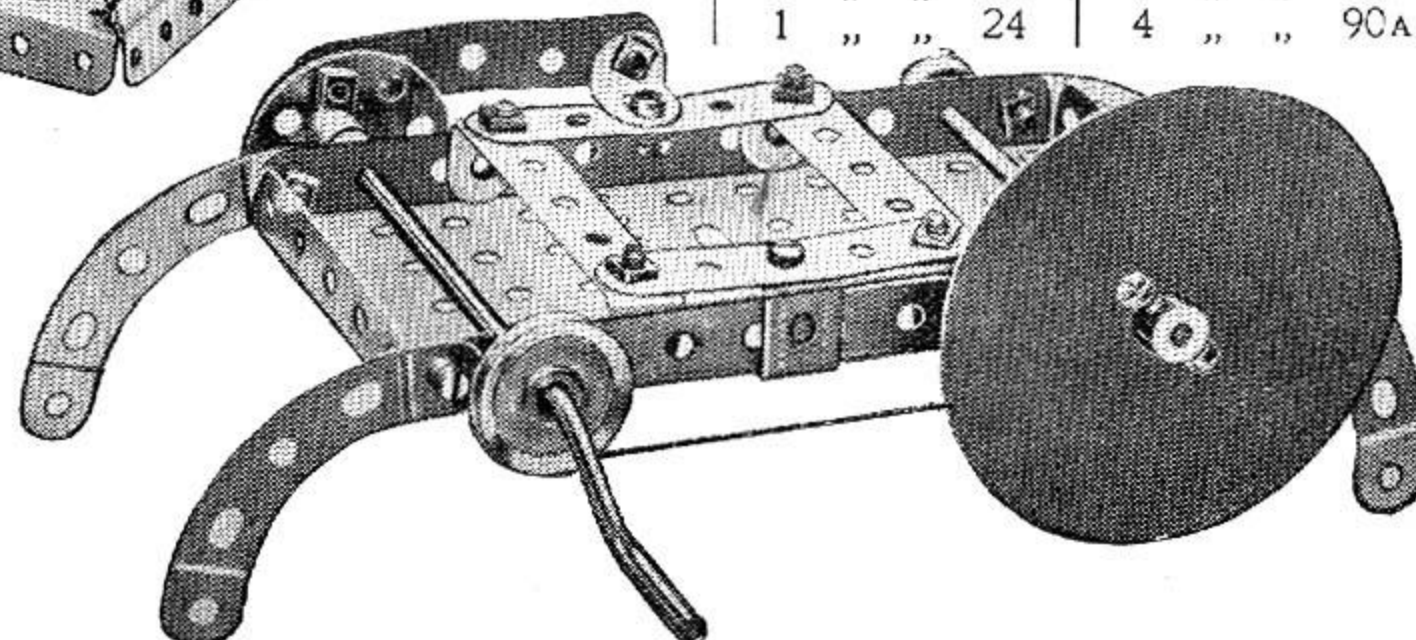
2 of No.	2	1 of No.	22
2 " "	5	1 " "	24
4 " "	10	16 " "	37
2 " "	11	1 " "	52
6 " "	12	1 " "	57
		1 of No.	111c



**Model No. 0.52 Bacon Slicing Machine**

Parts  
required:

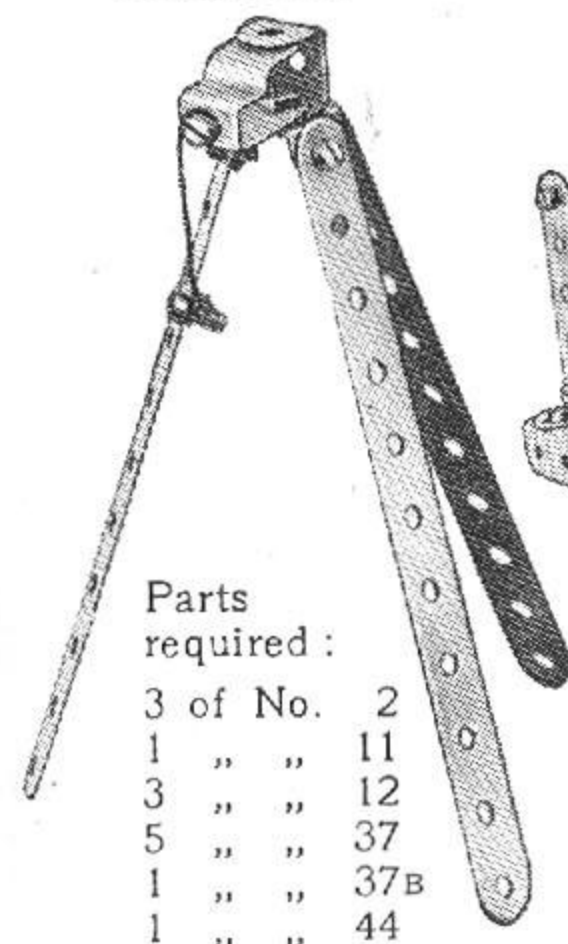
3 of No.	5	1 of No.	12	1 of No.	35
2 " "	11	1 " "	16	12 " "	37
		1 " "	19s	2 " "	37A
		2 " "	22	2 " "	48A
		1 " "	23	1 " "	52
		1 " "	24	4 " "	90A





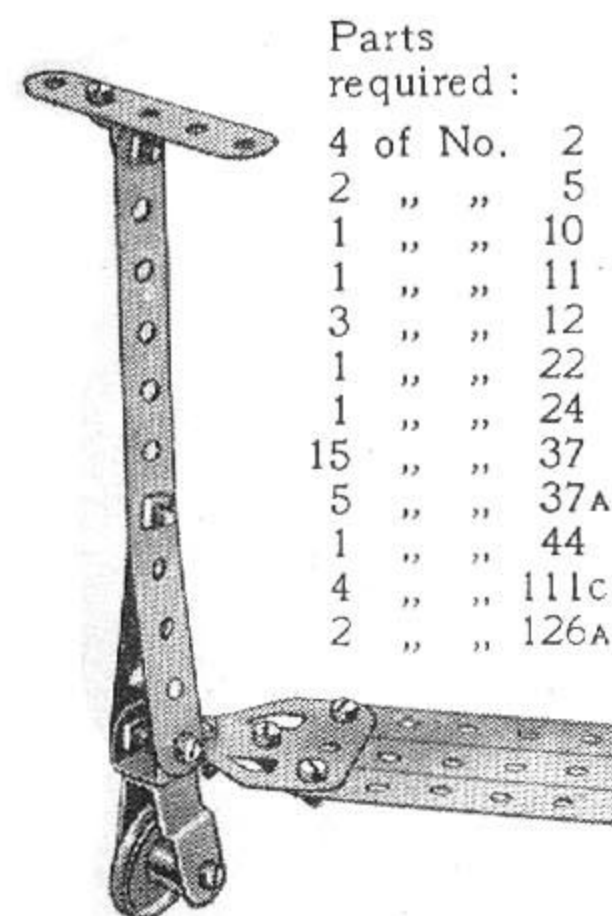
Model No. 0.54

Camera



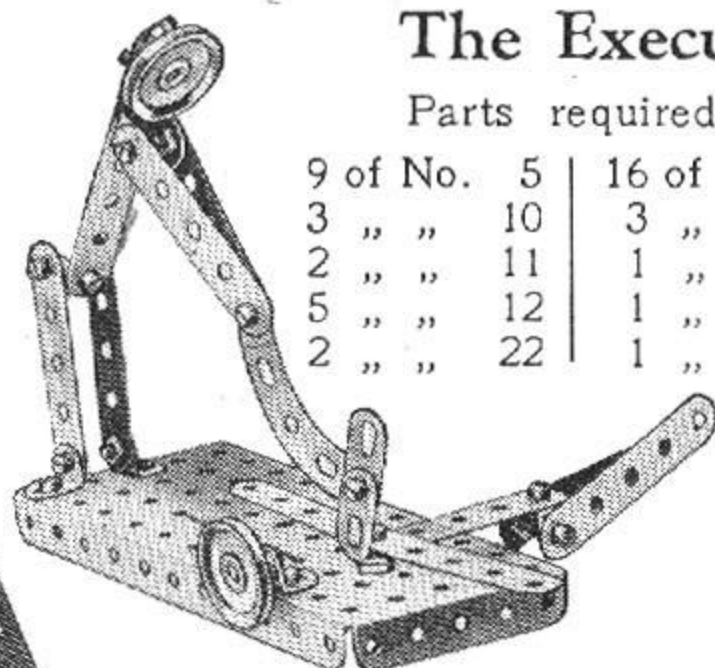
Model No. 0.55

Scooter

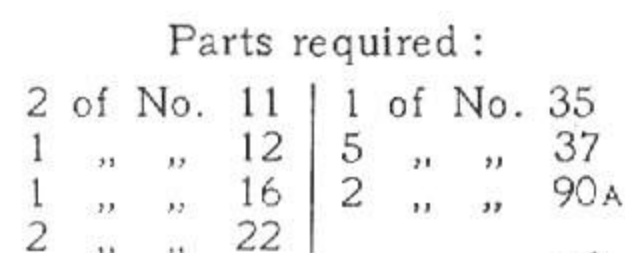


Model No. 0.56

The Execution

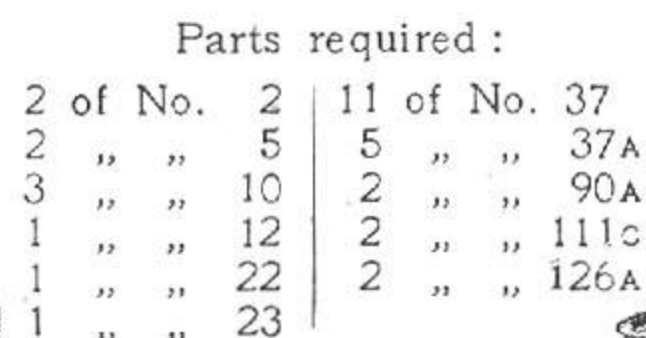


Model No. 0.57 Pistol



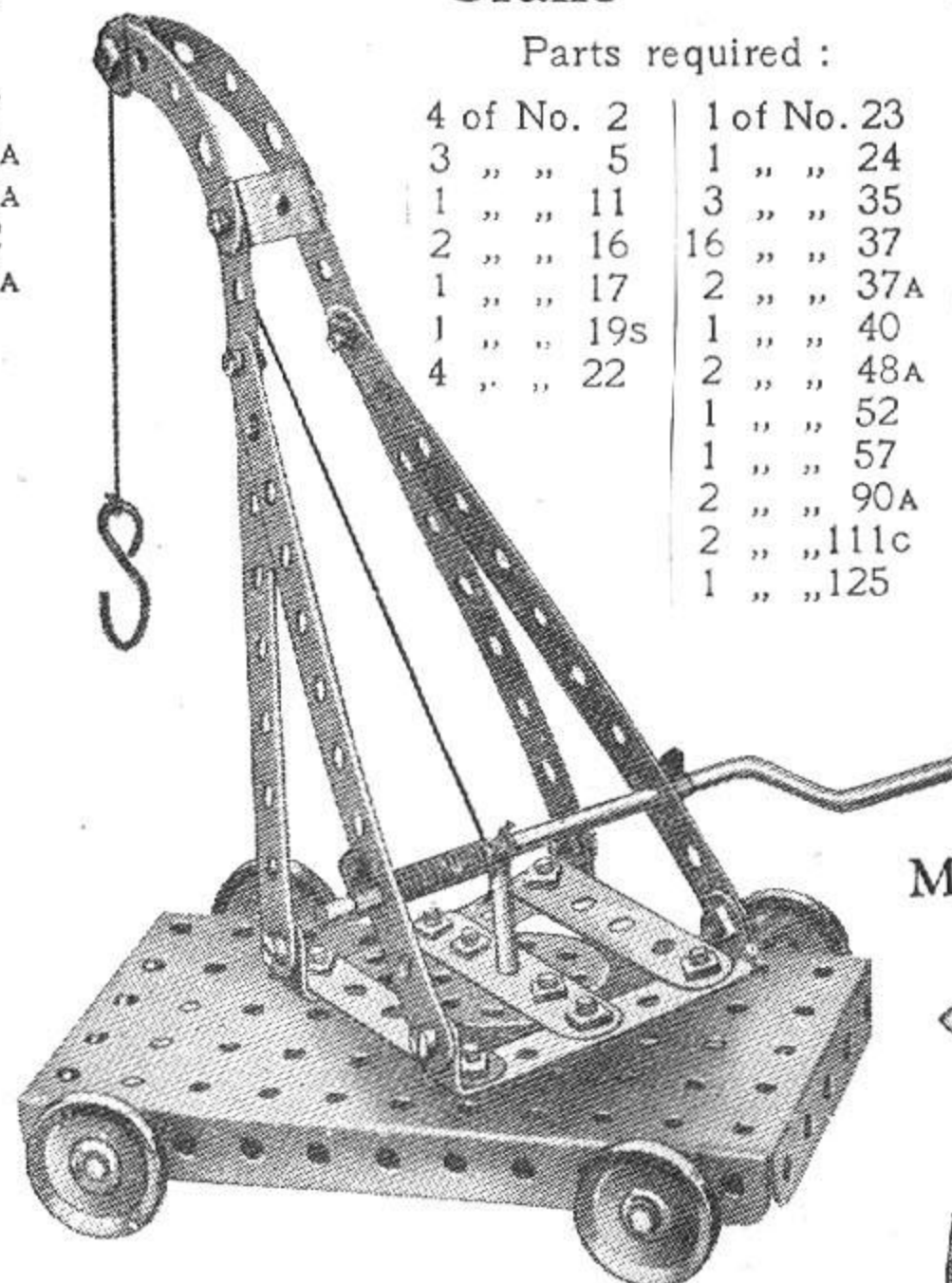
Model No. 0.59 Pecking Hen

By alternately pushing and pulling the lower of the  $5\frac{1}{2}$ " Strips, the hen can be made to peck vigorously at the "bowl" (a 1" Pulley). The bolts used for securing the  $5\frac{1}{2}$ " Strips together should be lock-nutted, care being taken to ensure that no "side play" is permitted.

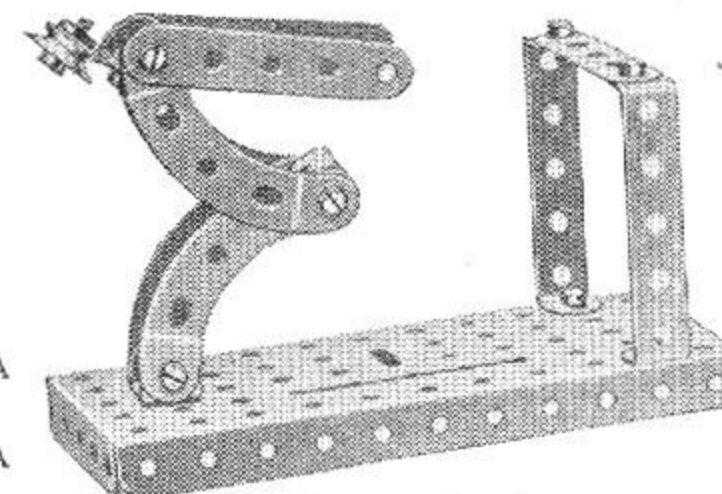


Model No. 0.58

Crane

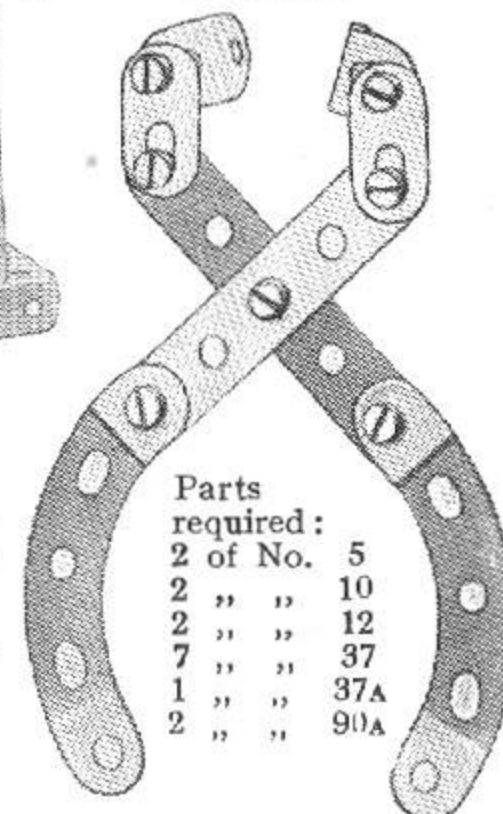


Model No. 0.60 Hurdler



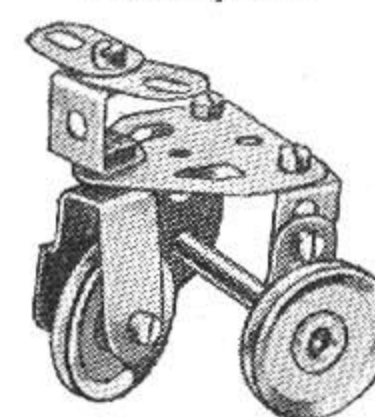
Model No. 0.62

Pliers

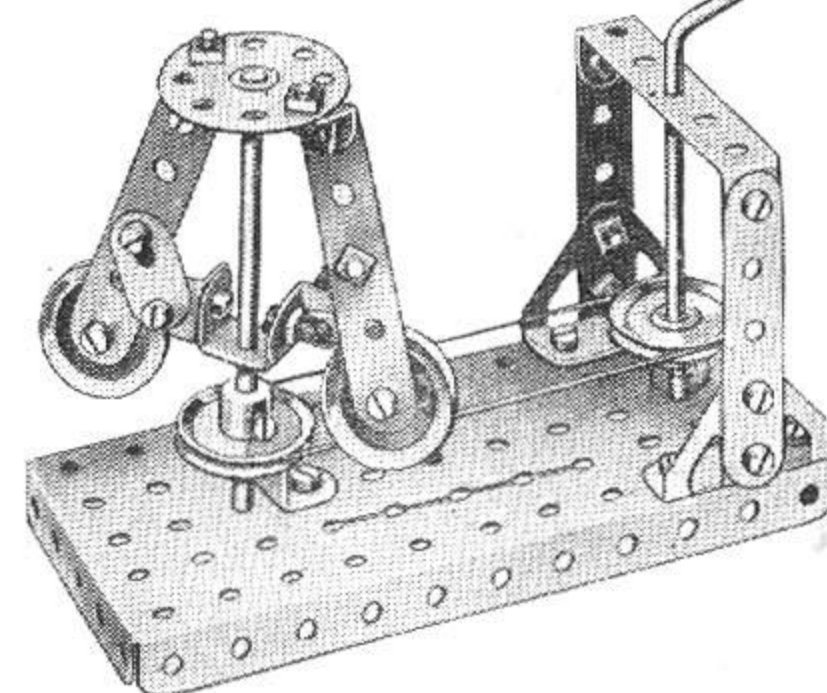
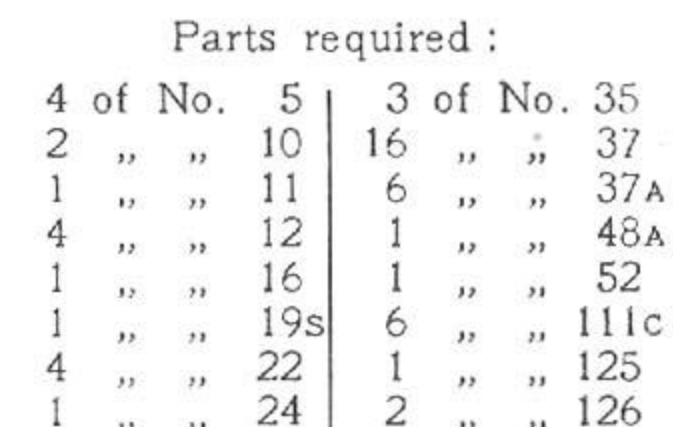


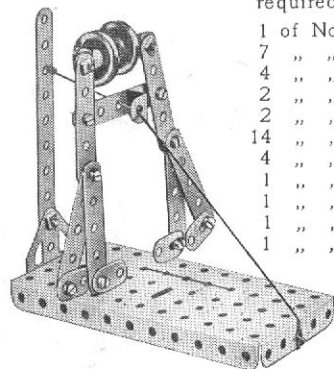
Model No. 0.61

Tricycle

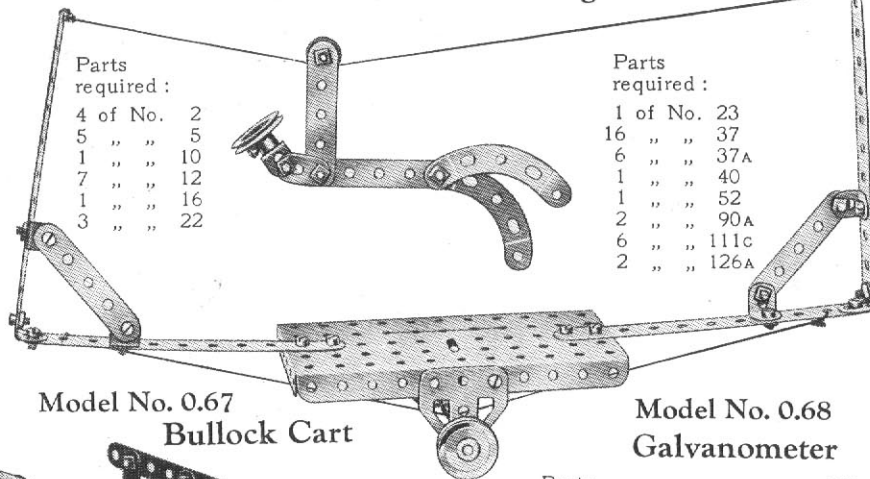


Model No. 0.63  
Centrifugal Engine Governor



**Model No. 0.64 Wrestlers**Parts  
required :

1 of No.	2
7 " "	5
4 " "	10
2 " "	12
2 " "	22
14 " "	37
4 " "	37A
1 " "	40
1 " "	52
1 " "	125
1 " "	126A

**Model No. 0.66 Aerial Flight**Parts  
required :

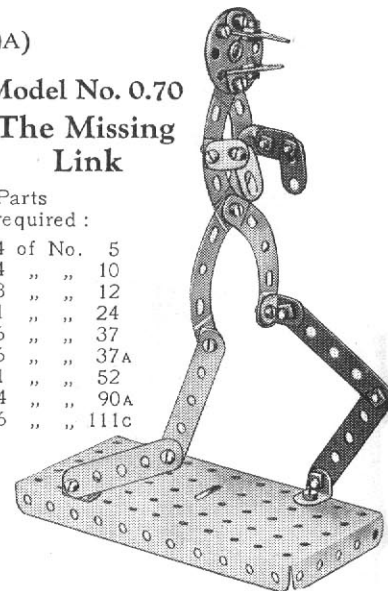
4 of No.	2
5 " "	5
1 " "	10
7 " "	12
1 " "	16
3 " "	22

Parts  
required :

1 of No.	23
16 " "	37
6 " "	37A
1 " "	40
1 " "	52
2 " "	90A
6 " "	111c
2 " "	126A

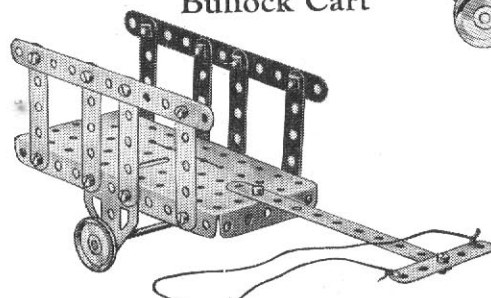
**Model No. 0.70  
The Missing Link**Parts  
required :

4 of No.	5
4 " "	10
8 " "	12
1 " "	24
16 " "	37
6 " "	37A
1 " "	52
4 " "	90A
6 " "	111c

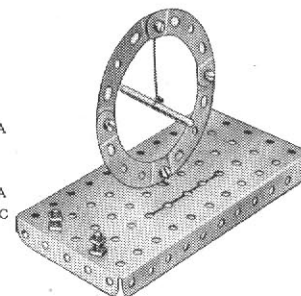
**Model No. 0.65  
A Chase**

Parts required :

1 of No.	5	16 of No.	37
1 " "	10	1 " "	37A
2 " "	11	1 " "	52
7 " "	12	4 " "	90A
1 " "	22	2 " "	111c
1 " "	23	2 " "	126A

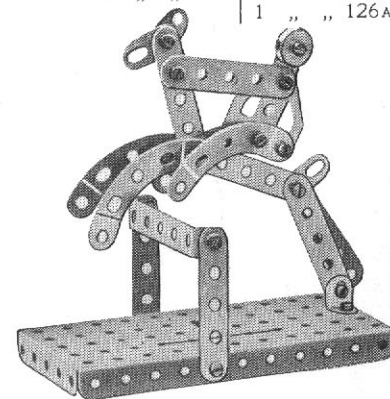
Parts  
required :

1 of No.	12
1 " "	17
5 " "	37
4 " "	37A
1 " "	40
1 " "	52
4 " "	90A
2 " "	111c

**Model No. 0.68  
Galvanometer****Model No. 0.71  
Steeple-chaser**

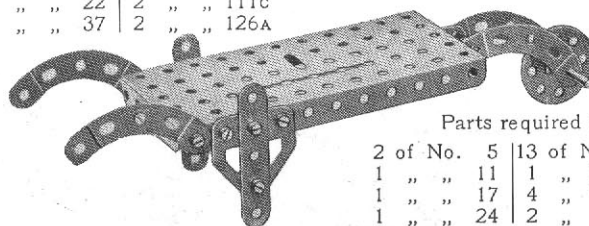
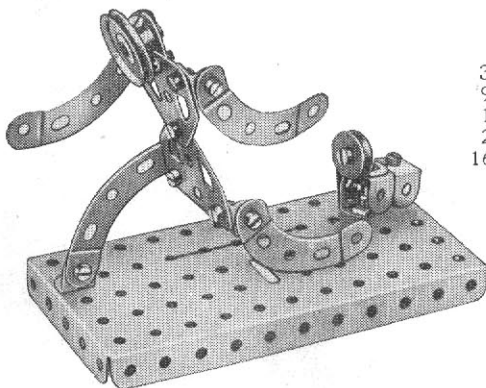
Parts required :

7 of No.	5	1 of No.	37A
4 " "	10	1 " "	48A
1 " "	12	1 " "	52
1 " "	23	4 " "	90A
13 " "	37	1 " "	111c
		1 " "	126A



Parts required :

3 of No.	2	2 of No.	37A
9 " "	5	1 " "	40
1 " "	16	1 " "	52
2 " "	22	2 " "	111c
16 " "	37	2 " "	126A

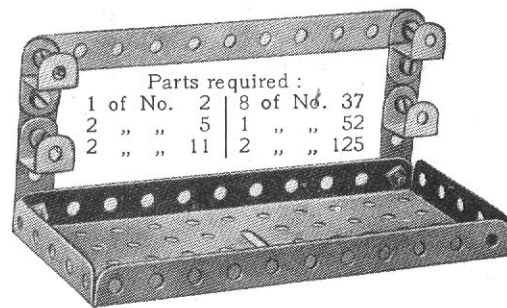
**Model No. 0.69 Coster's Barrow**

Parts required :

2 of No.	5	13 of No.	37
1 " "	11	1 " "	52
1 " "	17	4 " "	90A
1 " "	24	2 " "	126A



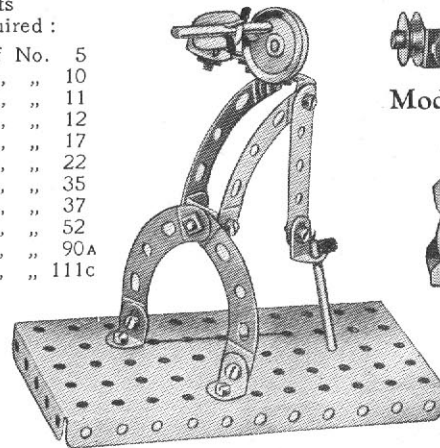
**Model No. 0.72 Pen Rack**



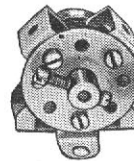
Parts required:  
 1 of No. 2 | 8 of No. 37  
 2 " " 5 | 1 " " 52  
 2 " " 11 | 2 " " 125

**Model No. 0.76 Coast Guard**

Parts required:  
 1 of No. 5  
 2 " " 10  
 2 " " 11  
 6 " " 12  
 2 " " 17  
 1 " " 22  
 3 " " 35  
 15 " " 37  
 1 " " 52  
 4 " " 90A  
 1 " " 111c

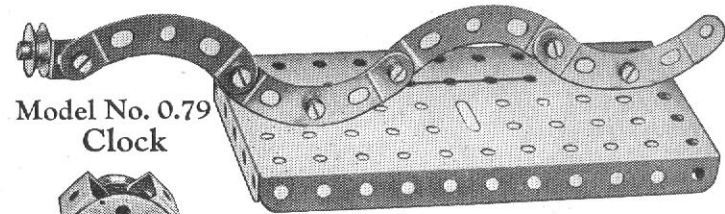


**Model No. 0.79 Clock**



Parts required:  
 2 of No. 11  
 2 " " 12  
 1 " " 17  
 1 " " 22  
 1 " " 24  
 5 " " 37  
 1 " " 111c  
 2 " " 126

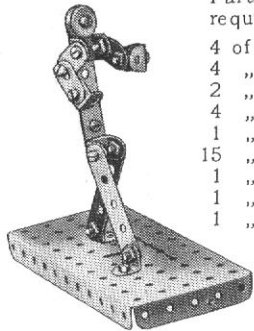
**Model No. 0.78 Snake**



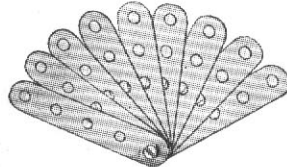
Parts required:  
 3 of No. 12 | 1 of No. 37A  
 1 " " 23 | 1 " " 52  
 8 " " 37 | 4 " " 90A  
 1 of No. 111c

**Model No. 0.73 Boxer**

Parts required:  
 4 of No. 5  
 4 " " 10  
 2 " " 11  
 4 " " 12  
 1 " " 23  
 15 " " 37  
 1 " " 37A  
 1 " " 52  
 1 " " 111c



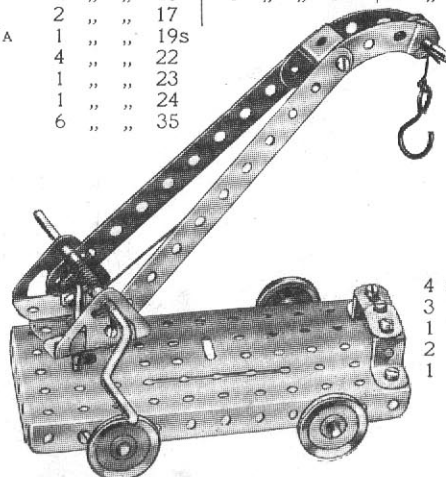
**Model No. 0.75 Fan**



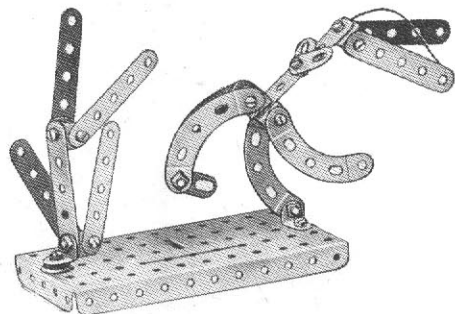
Parts required:  
 9 of No. 5 | 2 of No. 37A  
 1 of No. 111c

**Model No. 0.77 Break-Down Crane**

Parts required:  
 2 of No. 2 | 13 of No. 37 | 1 of No. 57c  
 2 " " 10 | 1 " " 40 | 2 " " 90A  
 1 " " 11 | 1 " " 48A | 2 " " 125  
 2 " " 16 | 1 " " 52 | 2 " " 126  
 2 " " 17  
 1 " " 19s  
 4 " " 22  
 1 " " 23  
 1 " " 24  
 6 " " 35



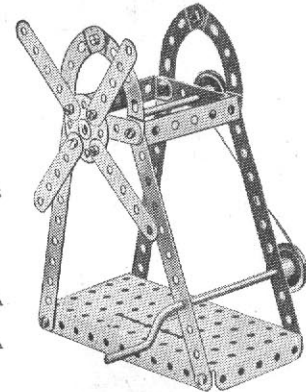
**Model No. 0.74 Horseman's Fall**



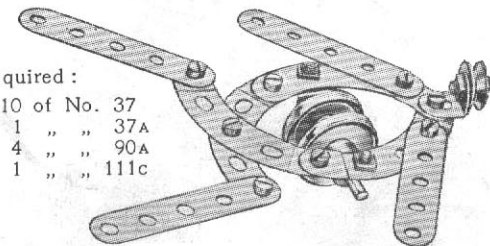
Parts required:  
 8 of No. 5  
 3 " " 10  
 2 " " 11  
 8 " " 12  
 1 " " 23  
 16 " " 37  
 4 " " 37A  
 1 " " 40  
 1 " " 52  
 4 " " 90A  
 4 " " 111c

**Model No. 0.80 Windmill**

Parts required:  
 4 of No. 2  
 6 " " 5  
 1 " " 16  
 1 " " 19s  
 2 " " 22  
 1 " " 24  
 14 " " 37  
 1 " " 40  
 2 " " 48A  
 1 " " 52  
 4 " " 90A

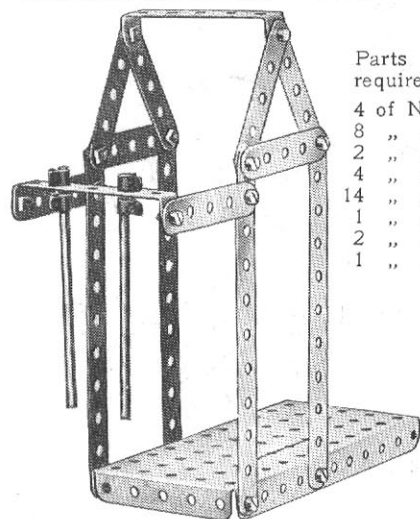


**Model No. 0.81 Frog**



Parts required:  
 4 of No. 5 | 10 of No. 37  
 3 " " 12 | 1 " " 37A  
 1 " " 17 | 4 " " 90A  
 2 " " 22 | 1 " " 111c  
 1 " " 23

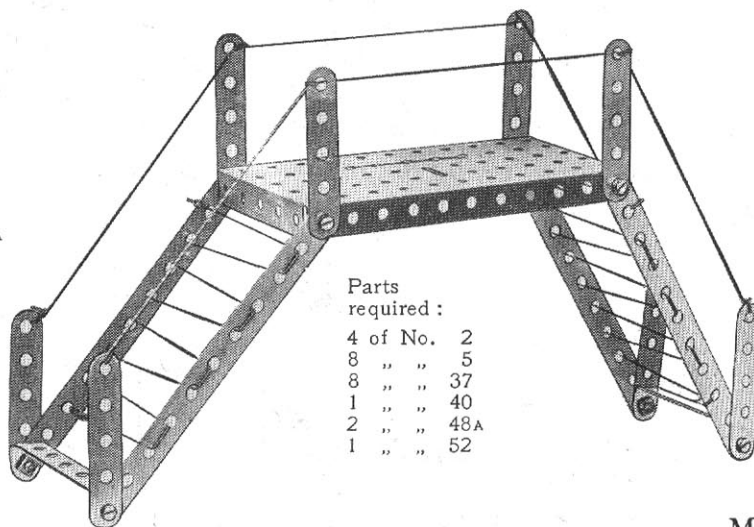
**Model No. 0.82**  
**Pneumatic Grain Elevator**



Parts  
required :

4 of No.	2
8 " "	5
2 " "	16
4 " "	35
14 " "	37
1 " "	40
2 " "	48A
1 " "	52

**Model No. 0.84 Footbridge**



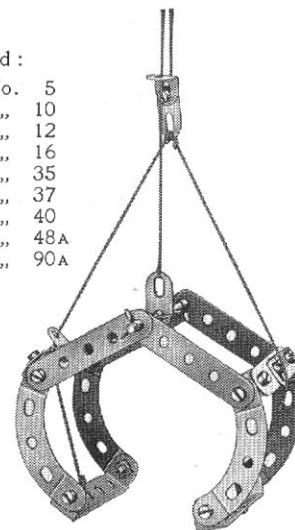
Parts  
required :

4 of No.	2
8 " "	5
8 " "	37
1 " "	40
2 " "	48A
1 " "	52

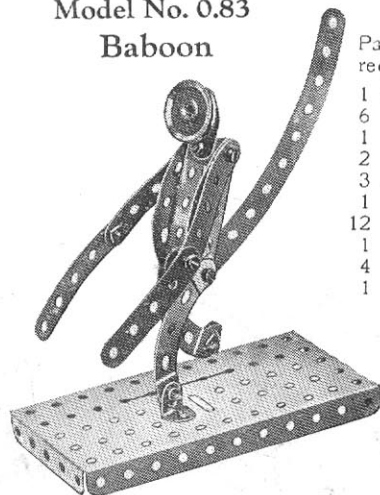
**Model No. 0.86 Crane Grab**

Parts  
required :

6 of No.	5
2 " "	10
7 " "	12
1 " "	16
6 " "	35
15 " "	37
1 " "	40
2 " "	48A
4 " "	90A



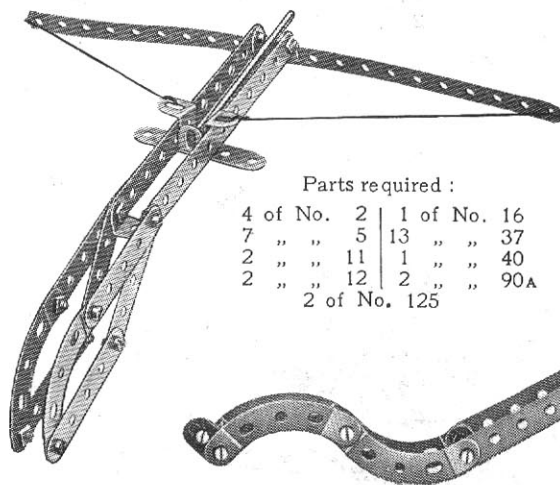
**Model No. 0.83**  
**Baboon**



Parts  
required :

1 of No.	2
6 " "	5
1 " "	10
2 " "	11
3 " "	12
1 " "	22
12 " "	37
1 " "	52
4 " "	90A
1 " "	111c

**Model No. 0.85 Cross-Bow**



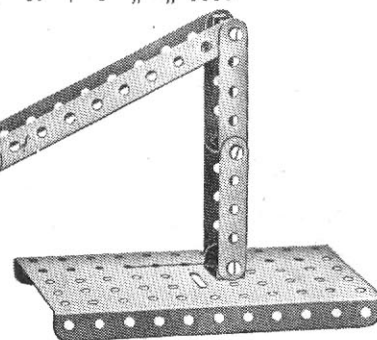
Parts  
required :

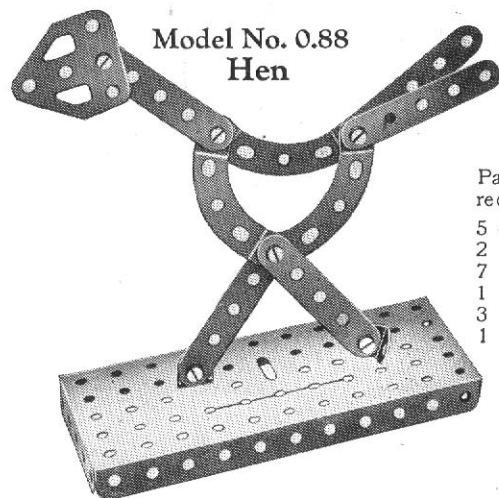
4 of No.	2	1 of No.	16
7 " "	5	13 " "	37
2 " "	11	1 " "	40
2 " "	12	2 " "	90A
2 of No. 125			

**Model No. 0.87 Switchback**

Parts  
required :

4 of No.	2	2 of No.	22
4 " "	5	16 " "	37
1 " "	10	3 " "	37A
2 " "	11	1 " "	52
2 " "	12	4 " "	90A
1 " "	17	3 " "	111c

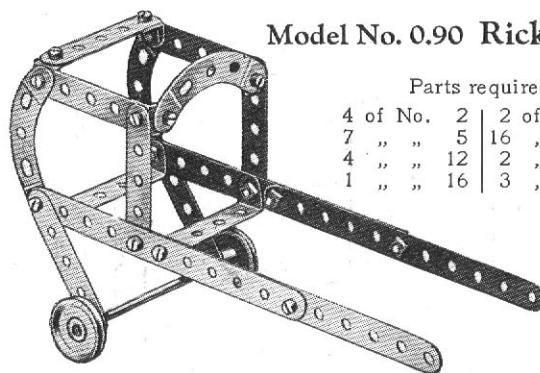




**Model No. 0.88  
Hen**

Parts  
required :

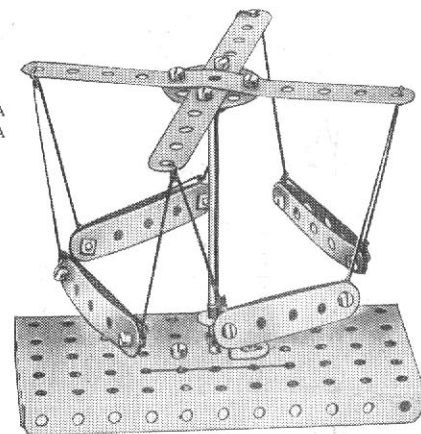
5 of No.	5
2 "	12
7 "	37
1 "	52
3 "	90A
1 "	126A



**Model No. 0.90 Rickshaw**

Parts required :

4 of No.	2	2 of No.	22
7 "	5	16 "	37
4 "	12	2 "	48A
1 "	16	3 "	90A



**Model No. 0.93 Fly Boats**

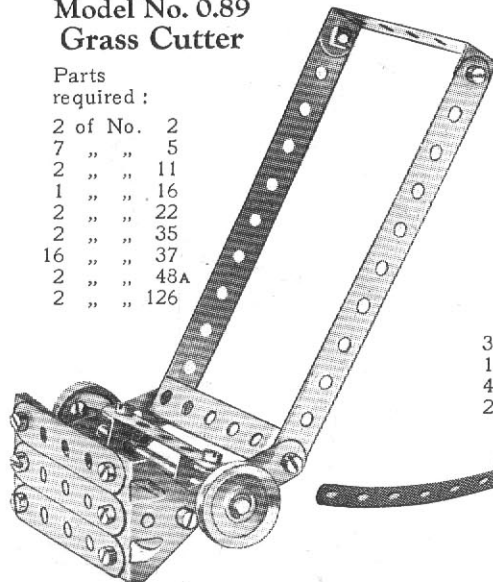
Parts required :

2 of No.	2	13 of No.	37
8 "	5	1 "	40
1 "	16	1 "	52
1 "	24	1 "	125

**Model No. 0.89  
Grass Cutter**

Parts  
required :

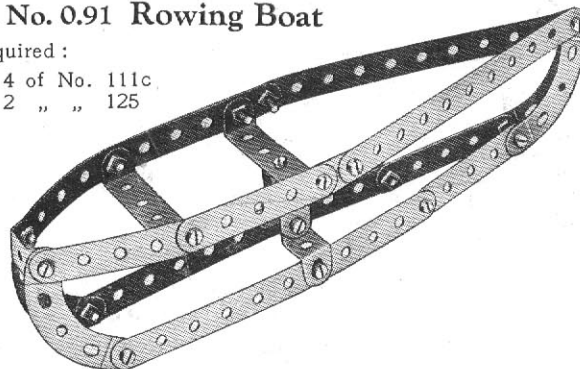
2 of No.	2
7 "	5
2 "	11
1 "	16
2 "	22
2 "	35
16 "	37
2 "	48A
2 "	126



**Model No. 0.91 Rowing Boat**

Parts required :

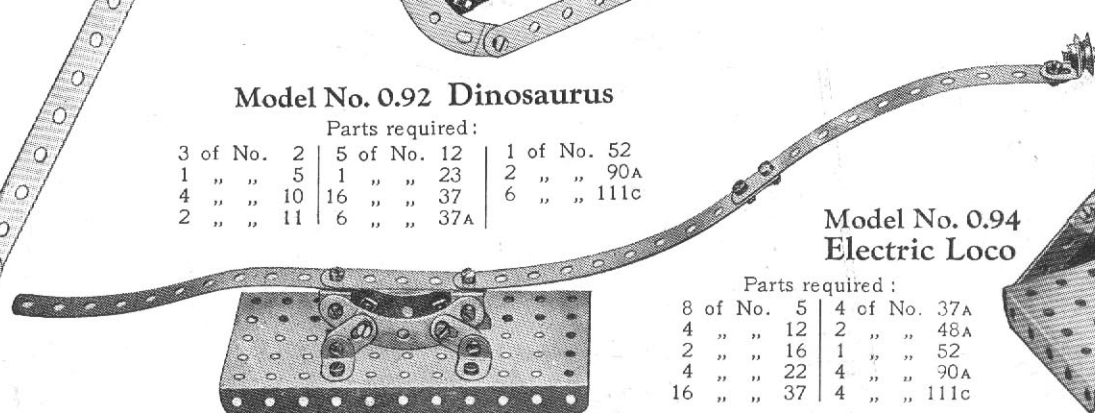
4 of No.	2	4 of No.	111c
6 "	5	2 "	125
2 "	10		
1 "	11		
16 "	37		
4 "	37A		
1 "	44		
2 "	48A		
4 "	90A		



**Model No. 0.92 Dinosaur**

Parts required :

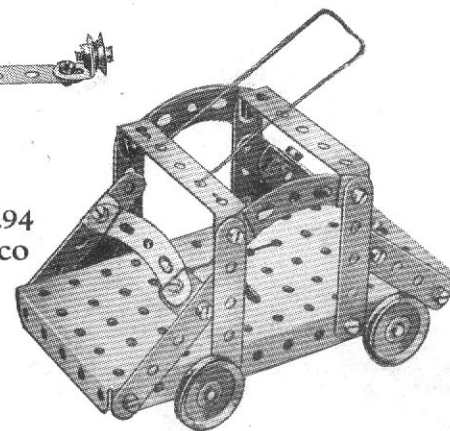
3 of No.	2	5 of No.	12	1 of No.	52
1 "	5	1 "	23	2 "	90A
4 "	10	16 "	37	6 "	111c
2 "	11	6 "	37A		

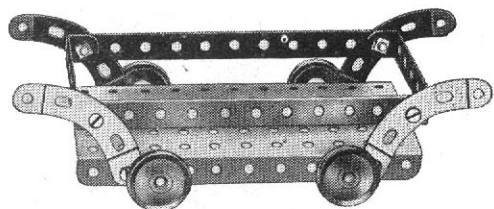


**Model No. 0.94  
Electric Loco**

Parts required :

8 of No.	5	4 of No.	37A
4 "	12	2 "	48A
2 "	16	1 "	52
4 "	22	4 "	90A
16 "	37	4 "	111c



**Model No. 0.95 Trolley**

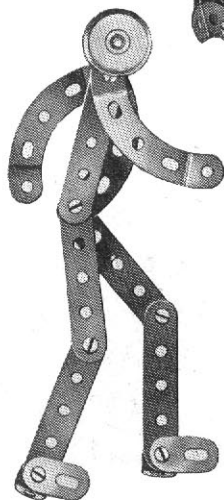
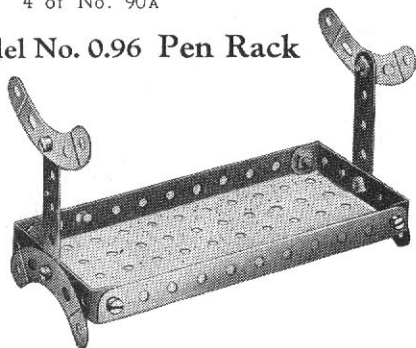
Parts required :

2 of No. 2	8 of No. 37
2 " " 16	2 " " 48A
4 " " 22	1 " " 52
4 of No. 90A	

**Model No. 0.96 Pen Rack**

Parts required :

2 of No. 5
4 " " 37
1 " " 52
4 " " 90A

**Model No. 0.97 Walking Man**

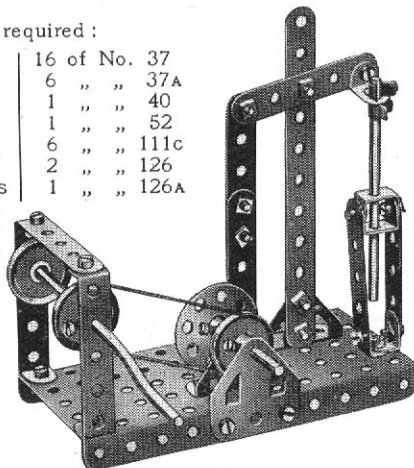
Parts required :

5 of No. 5
3 " " 10
2 " " 12
1 " " 22
7 " " 37
3 " " 90A

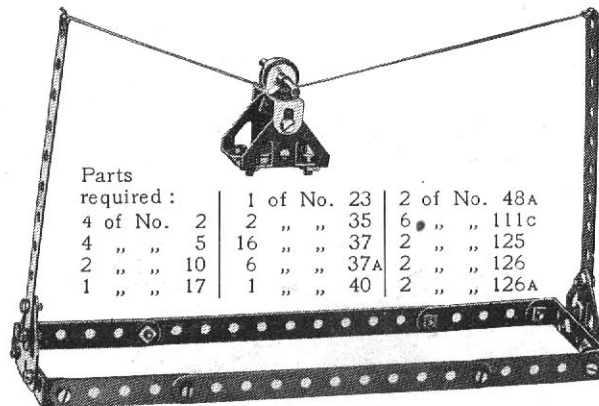
**Model No. 0.98 Pump**

Parts required :

1 of No. 2	16 of No. 37
6 " " 5	6 " " 37A
2 " " 11	1 " " 40
3 " " 12	1 " " 52
1 " " 16	6 " " 111c
1 " " 17	2 " " 126
1 " " 19s	1 " " 126A
3 " " 22	
1 " " 24	
2 " " 35	



The connecting Strip is pivoted by Bolts and Nuts at one end to the Bush Wheel and at the other end to the cross beam. The latter is pivoted by the same means to the upright.

**Model No. 0.99 Aerial Ropeway**

Parts

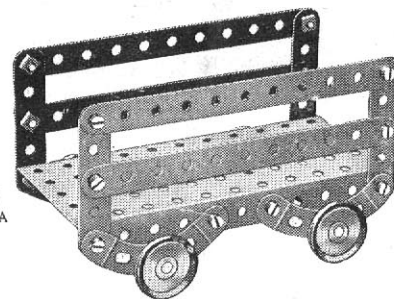
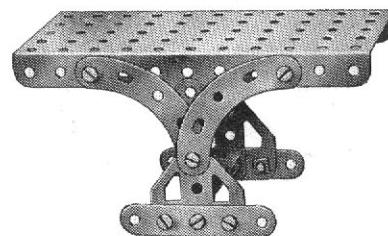
required :

1 of No. 23	2 of No. 48A
2 " " 35	6 " " 111c
4 of No. 2	2 " " 125
4 " " 5	1 " " 126
16 " " 37	2 " " 126A
2 " " 10	
6 " " 37A	
1 " " 17	
1 " " 40	

**Model No. 0.100 Luggage Truck**

Parts required :

4 of No. 2
4 " " 5
2 " " 16
4 " " 22
16 " " 37
1 " " 52
4 " " 90A

**Model No. 0.101 Drafting Table**

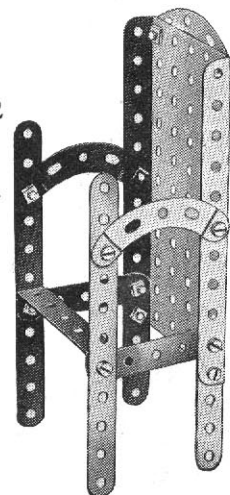
Parts required :

4 of No. 5
12 " " 37
1 " " 48A
1 " " 52
4 " " 90A
2 " " 126A

**Model No. 0.102 Arm Chair**

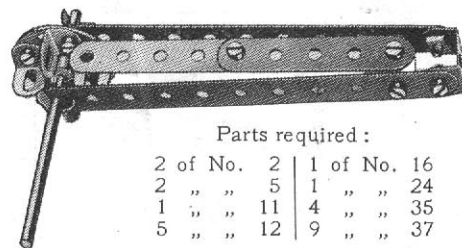
Parts required :

2 of No. 2
4 " " 5
12 " " 37
1 " " 48A
1 " " 52
3 " " 90A





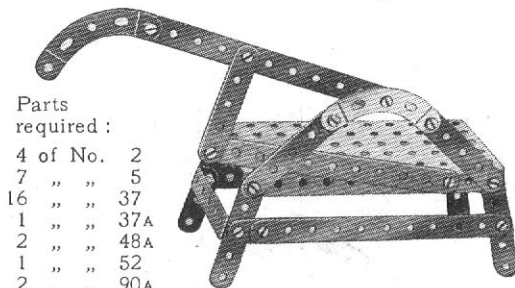
**Model No. 0.103 Rattle**



Parts required :

2 of No. 2	1 of No. 16
2 " " 5	1 " " 24
1 " " 11	4 " " 35
5 " " 12	9 " " 37

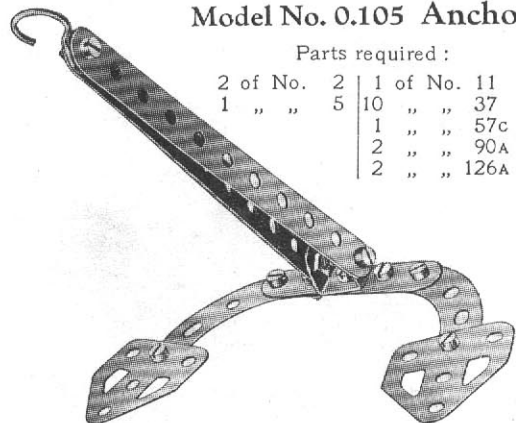
**Model No. 0.104 Shearing Machine**



Parts required :

4 of No. 2
7 " " 5
16 " " 37
1 " " 37A
2 " " 48A
1 " " 52
2 " " 90A
1 " " 111c

**Model No. 0.105 Anchor**



Parts required :

2 of No. 2	1 of No. 11
1 " " 5	10 " " 37
	1 " " 57c
	2 " " 90A
	2 " " 126A

**Model No. 0.106 Portal**

Parts required :

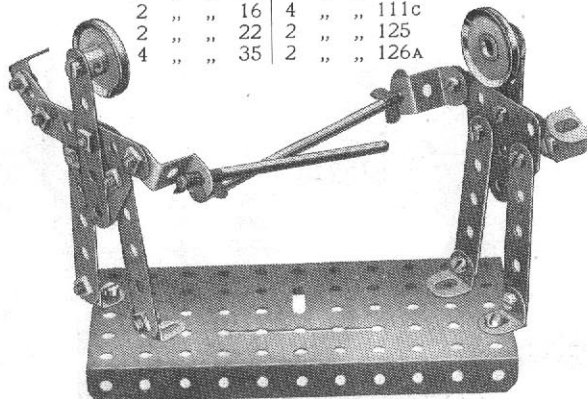
4 of No. 2
2 " " 11
8 " " 12
1 " " 22
16 " " 37
6 " " 37A
2 " " 48A
1 " " 52
4 " " 90A
6 " " 111c



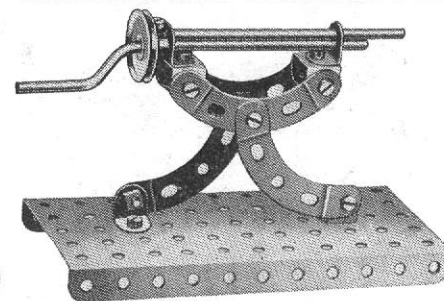
**Model No. 0.107 The Fencers**

Parts required :

8 of No. 5	16 of No. 37
2 " " 10	4 " " 37A
6 " " 12	1 " " 52
2 " " 16	4 " " 111c
2 " " 22	2 " " 125
4 " " 35	2 " " 126A



**Model No. 0.108 Machine Gun**



Parts required :

2 of No. 11	1 of No. 22
4 " " 12	12 " " 37
1 " " 16	1 " " 52
1 " " 19s	4 " " 90A

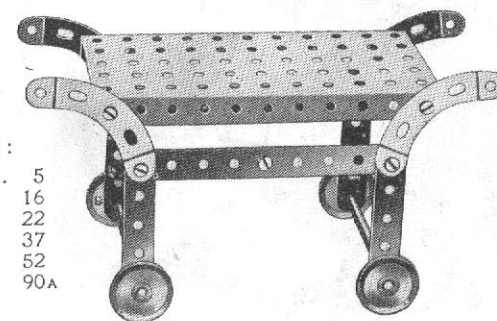
**Model No. 0.109 Single Sheave Pulley Block**



Parts required :

2 of No. 5	7 of No. 37A
1 " " 23	1 " " 57c
	3 of No. 111c

**Model No. 0.110 Tea Wagon**

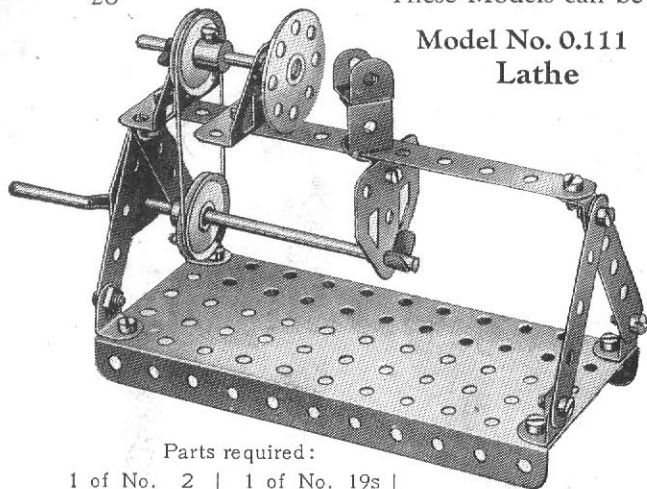


Parts required :

8 of No. 5
2 " " 16
4 " " 22
10 " " 37
1 " " 52
4 " " 90A

These Models can be built with MECCANO Outfit No. 0 (or No. 00 and No. 00A)

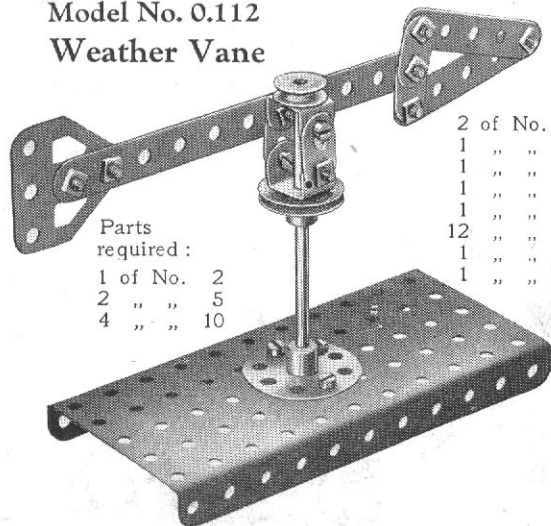
**Model No. 0.111  
Lathe**



Parts required:

1 of No. 2	1 of No. 19s	1 of No. 40
4 " " 5	2 " " 22	1 " " 52
2 " " 11	1 " " 24	2 " " 126
7 " " 12	3 " " 35	2 " " 126A
1 " " 17	16 " " 37	

**Model No. 0.112  
Weather Vane**

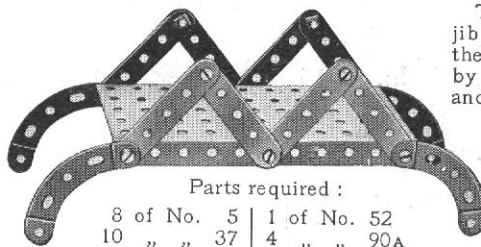


Parts required:

1 of No. 2
2 " " 5
4 " " 10

2 of No. 11
1 " " 16
1 " " 22
1 " " 23
1 " " 24
12 " " 37
1 " " 52
1 " " 126A

**Model No. 0.113 Viaduct**



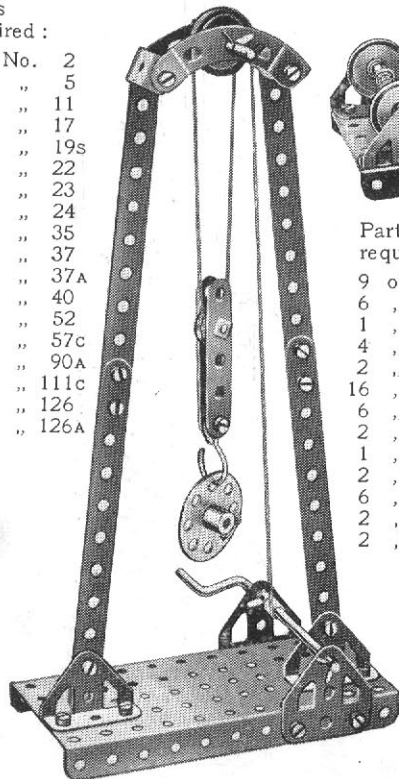
Parts required:

8 of No. 5	1 of No. 52
10 " " 37	4 " " 90A

**Model No. 0.114 Pulley Block**

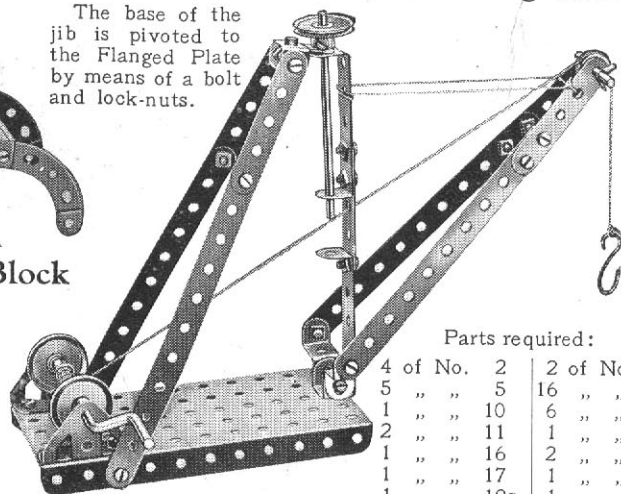
Parts required:

4 of No. 2	2
2 " " 5	
2 " " 11	
1 " " 17	
1 " " 19s	
1 " " 22	
1 " " 23	
1 " " 24	
5 " " 35	
16 " " 37	
4 " " 37A	
1 " " 40	
1 " " 52	
1 " " 57c	
2 " " 90A	
4 " " 111c	
4 " " 126	
2 " " 126A	



**Model No. 0.115 Derricking Crane**

The base of the jib is pivoted to the Flanged Plate by means of a bolt and lock-nuts.



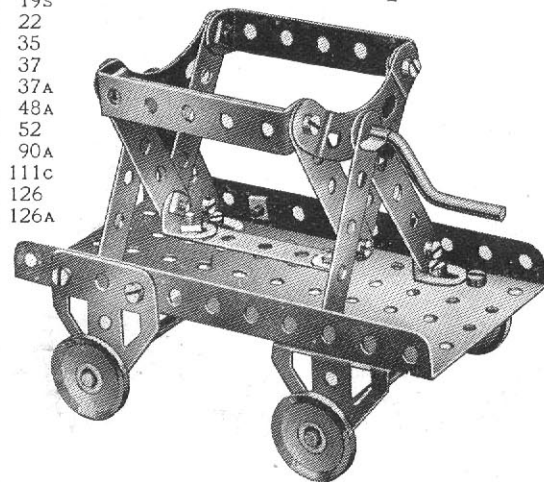
Parts required:

4 of No. 2	2 of No. 35
5 " " 5	16 " " 37
1 " " 10	6 " " 37A
2 " " 11	1 " " 40
1 " " 16	2 " " 48A
1 " " 17	1 " " 52
1 " " 19s	1 " " 57c
3 " " 22	6 " " 111c
1 " " 23	2 " " 125
	2 of No. 126

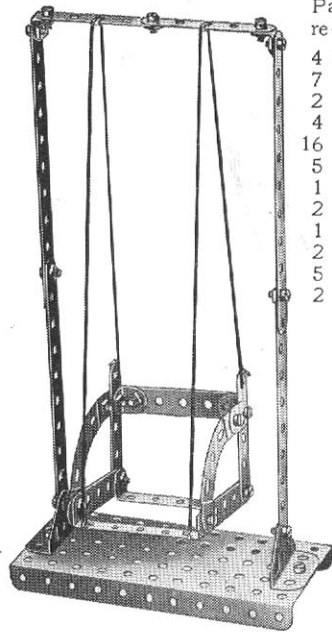
Parts required:

9 of No. 5
6 " " 12
1 " " 19s
4 " " 22
2 " " 35
16 " " 37
6 " " 37A
2 " " 48A
1 " " 52
2 " " 90A
6 " " 111c
2 " " 126
2 " " 126A

**Model No. 0.116 Dump Car**



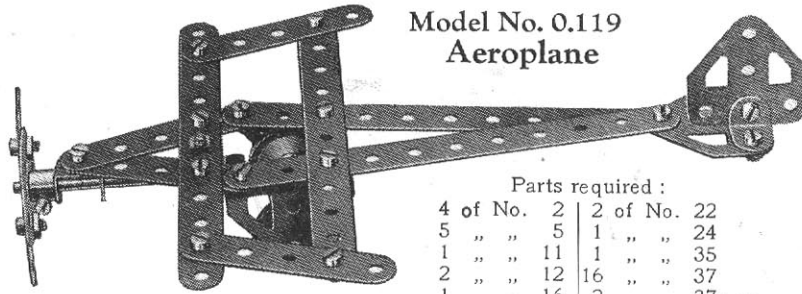
**Model No. 0.117 Swing**



Parts required :

4 of No.	2
7 " "	5
2 " "	10
4 " "	12
16 " "	37
5 " "	37A
1 " "	40
2 " "	48A
2 " "	52
2 " "	90A
5 " "	111c
2 " "	126

**Model No. 0.119 Aeroplane**



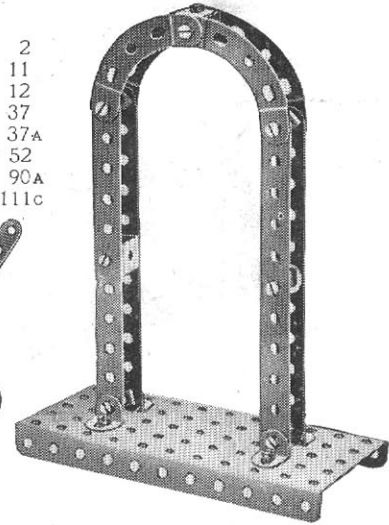
Parts required :

4 of No.	2	2 of No.	22
5 " "	5	1 " "	24
1 " "	11	1 " "	35
2 " "	12	16 " "	37
1 " "	16	2 " "	37A
1 " "	17	2 " "	111c
		2 " "	126
		1 " "	126A

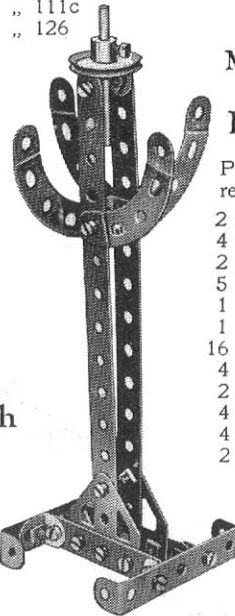
**Model No. 0.123 Arch**

Parts required :

4 of No.	2
2 " "	11
6 " "	12
16 " "	37
3 " "	37A
1 " "	52
4 " "	90A
3 " "	111c



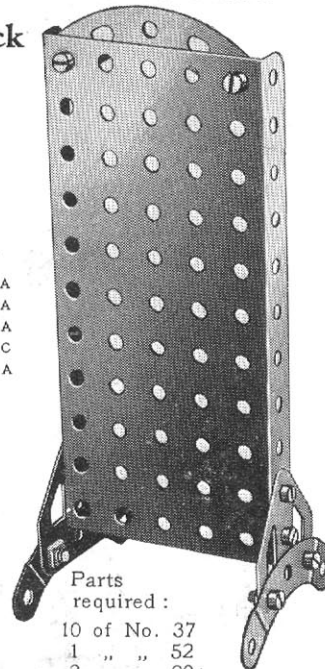
**Model No. 0.120 Hat Rack**



Parts required :

2 of No.	2
4 " "	5
2 " "	11
5 " "	12
1 " "	17
1 " "	22
16 " "	37
4 " "	37A
2 " "	48A
4 " "	90A
4 " "	111c
2 " "	126A

**Model No. 0.121 Notice Board**



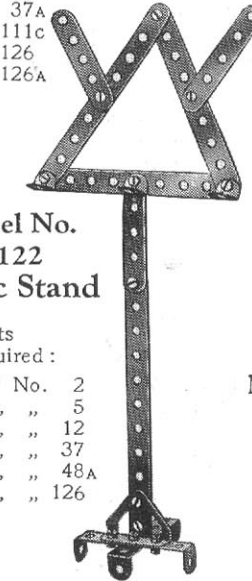
Parts required :

10 of No.	37
1 " "	52
3 " "	90A
2 " "	126A

**Model No. 0.122 Music Stand**

Parts required :

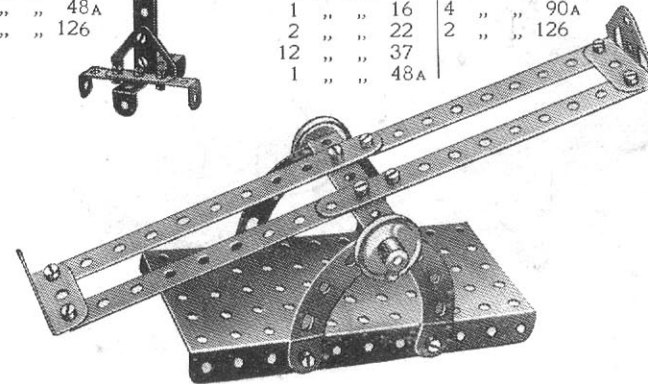
1 of No.	2
9 " "	5
3 " "	12
12 " "	37
2 " "	48A
1 " "	126



**Model No. 0.124 See-Saw**

Parts required :

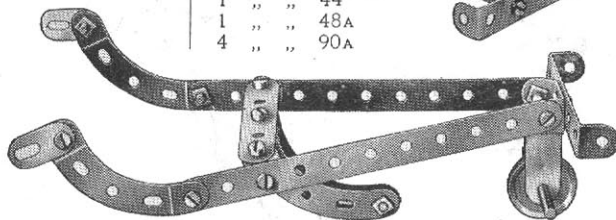
4 of No.	2	1 of No.	52
1 " "	16	4 " "	90A
2 " "	22	2 " "	126
12 " "	37		
1 " "	48A		



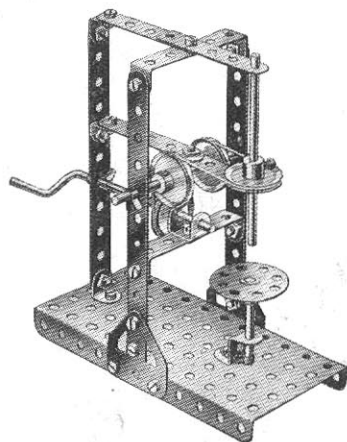
**Model No. 0.118 Plough**

Parts required :

2 of No.	2	3 of No.	12
1 " "	5	1 " "	17
2 " "	10	1 " "	22
2 " "	11	15 " "	37
		1 " "	44
		1 " "	48A
		4 " "	90A

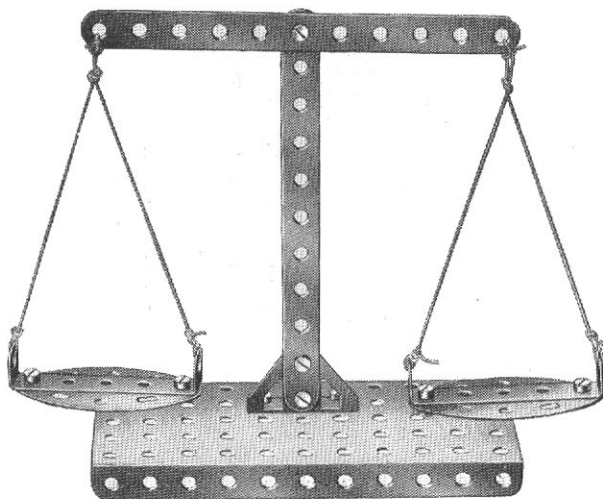




**Model No. 0.125 Drilling Machine**

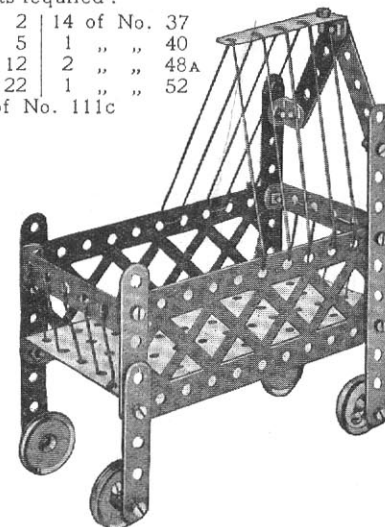
Parts required :

3 of No.	2
4 " "	5
2 " "	11
3 " "	12
1 " "	16
1 " "	17
1 " "	19s
4 " "	22
1 " "	24
6 " "	35
16 " "	37
6 " "	37A
1 " "	40
2 " "	48A
1 " "	52
6 " "	111c
1 " "	125
2 " "	126A

**Model No. 0.127 Scales****Model No. 0.129 Cot**

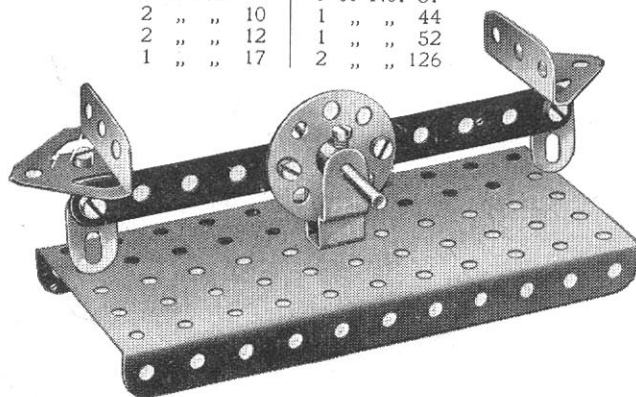
Parts required :

4 of No.	2	14 of No.	37
7 " "	5	1 " "	40
3 " "	12	2 " "	48A
4 " "	22	1 " "	52
	4 of No.	111c	

**Model No. 0.126 Counter Scales**

Parts required :

1 of No.	2	7 of No.	37
2 " "	10	1 " "	44
2 " "	12	1 " "	52
1 " "	17	2 " "	126

**Parts required :**

2 of No.	2	2 of No.	48A
9 " "	37	1 " "	52
1 " "	37A	4 " "	90A
1 " "	40	1 " "	126

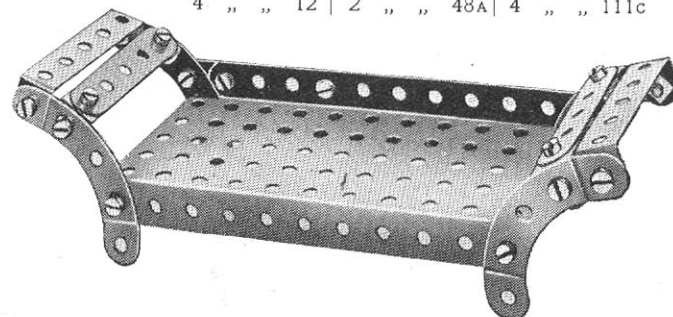
**Model No. 0.128 Single Sheave Pulley Block****Parts required :**

1 of No.	23
12 " "	37A
1 " "	57c
4 " "	111c
2 " "	126A

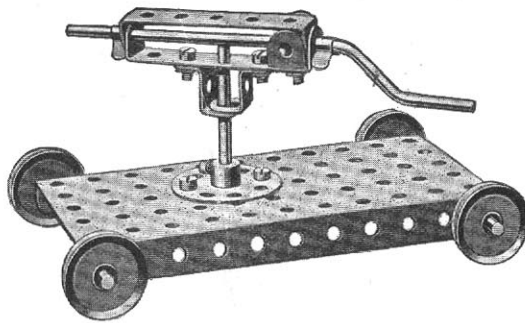
**Model No. 0.130 Couch**

Parts required :

1 of No.	2	16 of No.	37	1 of No.	52
3 " "	5	4 " "	37A	4 " "	90A
4 " "	12	2 " "	48A	4 " "	111c



### Model No. 0.131 Rock Drill



Parts required :

1 of No. 11	4 of No. 22	2 of No. 48A
2 " " 16	1 " " 24	1 " " 52
1 " " 17	2 " " 35	2 " " 125
1 " " 19s	5 " " 37	

### Model No. 0.133 Prancing Horse

Parts required :

6 of No. 5	
4 " " 12	
1 " " 17	
1 " " 19s	
4 " " 22	
1 " " 24	
16 " " 37	
4 " " 37A	
1 " " 40	
1 " " 44	
1 " " 52	
1 " " 90A	
4 " " 111c	
2 " " 125	
1 " " 126	
1 " " 126A	

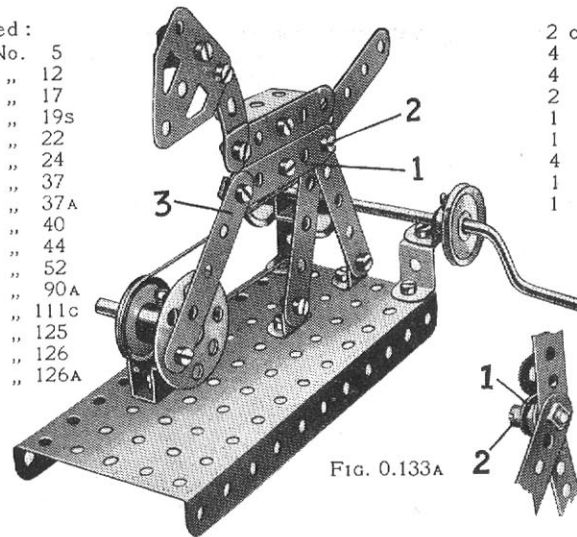
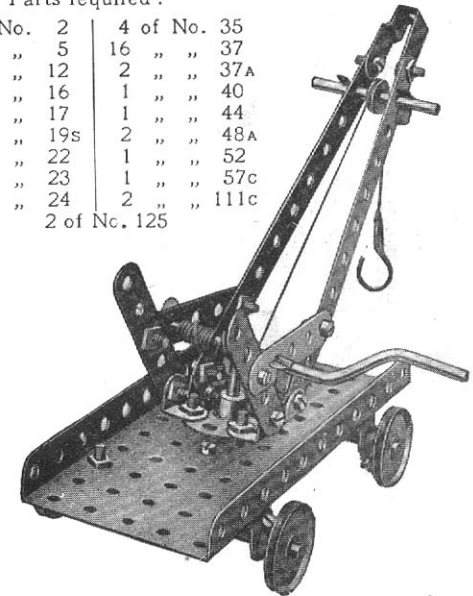


FIG. 0.133A

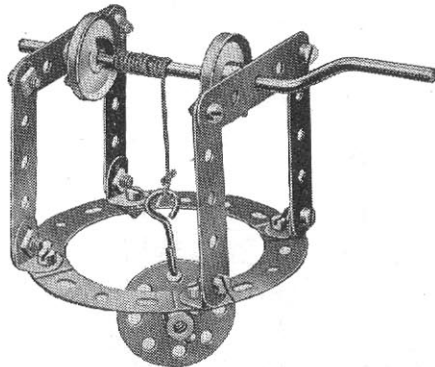
### Model No. 0.135 Swivelling Crane

Parts required :

2 of No. 2	4 of No. 35
4 " " 5	16 " " 37
4 " " 12	2 " " 37A
2 " " 16	1 " " 40
1 " " 17	1 " " 44
1 " " 19s	2 " " 48A
4 " " 22	1 " " 52
1 " " 23	1 " " 57c
1 " " 24	2 " " 111c
2 of No. 125	



### Model No. 0.132 Well Windlass

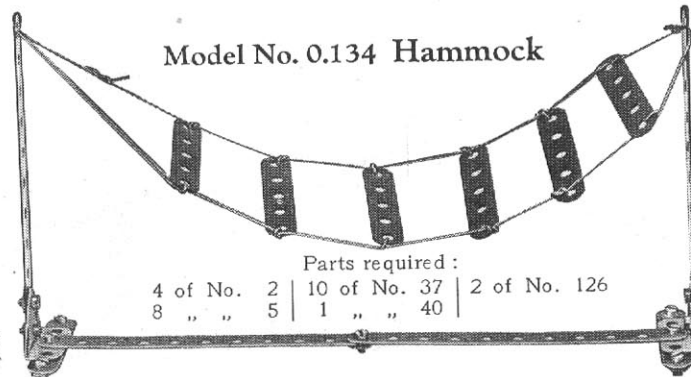


Parts required :

6 of No. 5	2 of No. 22	1 of No. 40
4 " " 12	1 " " 24	1 " " 57c
1 " " 19s	12 " " 37	4 " " 90A

The Strip 1 forming part of the body is free to move about the Bolt 2, but two Nuts on the latter secure the rear legs and tail rigidly together. The arrangement of the various Strips about this Bolt 2 is shown more clearly in Fig. 0.133A. The Strip 3 is free to move at each end about pivots formed from Bolts and Nuts.

### Model No. 0.134 Hammock



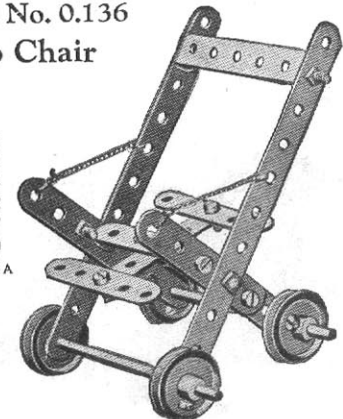
Parts required :

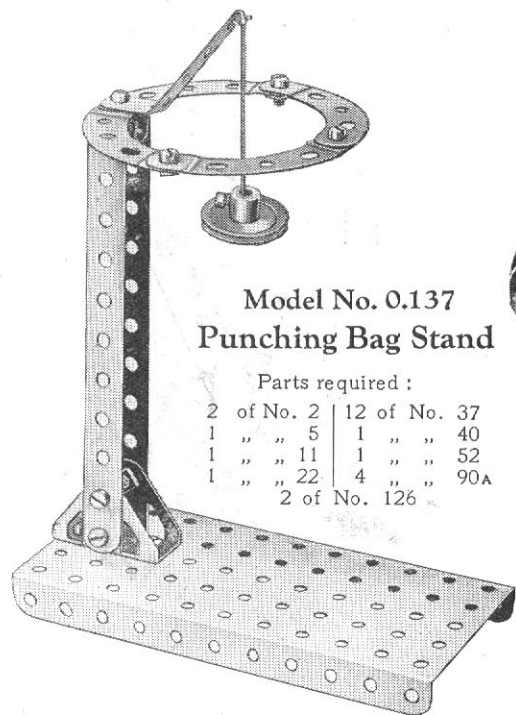
4 of No. 2	10 of No. 37	2 of No. 126
8 " " 5	1 " " 40	

### Model No. 0.136 Go Chair

Parts required :

2 of No. 2	
7 " " 5	
2 " " 16	
4 " " 22	
11 " " 37	
1 " " 40	
2 " " 48A	

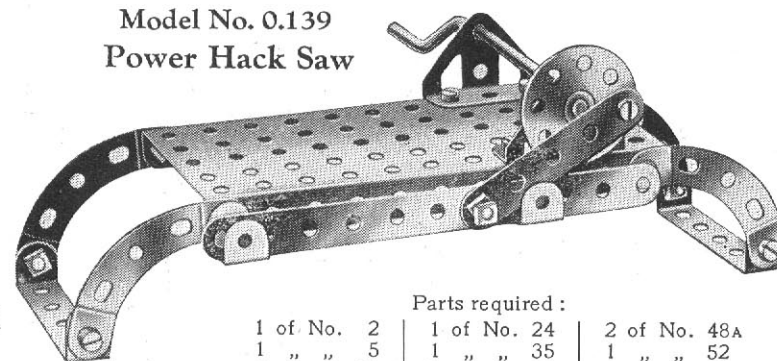




**Model No. 0.137**  
**Punching Bag Stand**

Parts required :

2 of No. 2	12 of No. 37
1 " " 5	1 " " 40
1 " " 11	1 " " 52
1 " " 22	4 " " 90A
2 of No. 126	

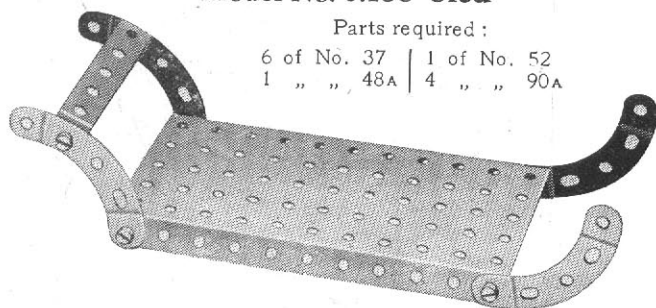
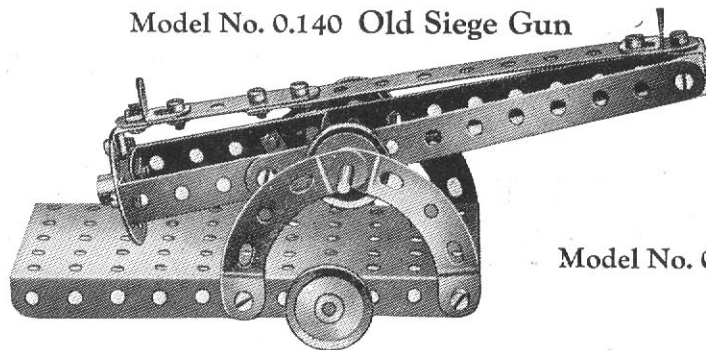


**Model No. 0.139**  
**Power Hack Saw**

Parts required :

1 of No. 2	1 of No. 24	2 of No. 48A
1 " " 5	1 " " 35	1 " " 52
2 " " 11	16 " " 37	4 " " 90A
1 " " 19s	2 " " 37A	2 " " 126

**Model No. 0.140 Old Siege Gun**



**Model No. 0.138 Sled**

Parts required :

6 of No. 37	1 of No. 52
1 " " 48A	4 " " 90A

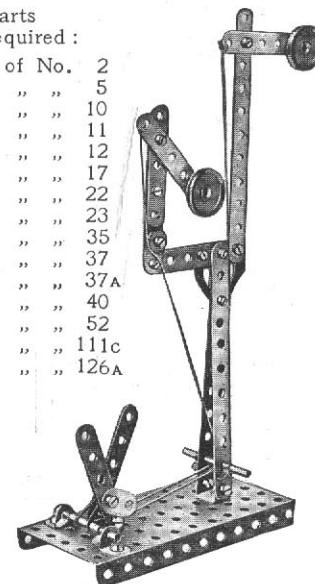
Parts required :

3 of No. 2	1 of No. 24
1 " " 11	16 " " 37
4 " " 12	2 " " 37A
1 " " 15	2 " " 48A
2 " " 16	1 " " 52
4 " " 22	4 " " 90A
2 of No. 111c	

**Model No. 0.141**  
**Junction Signal**

Parts required :

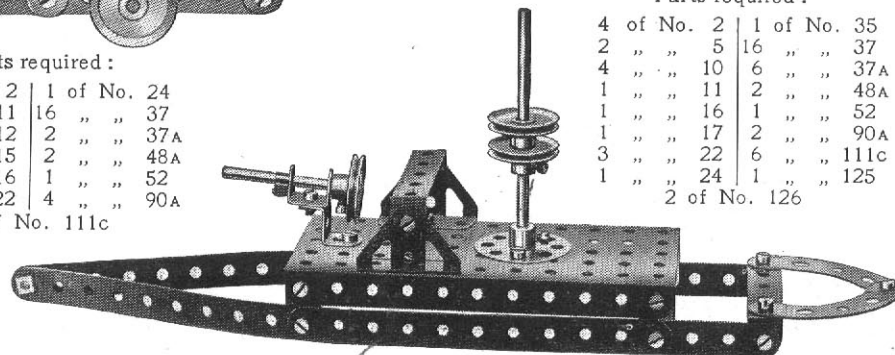
3 of No. 2	2
7 " " 5	5
2 " " 10	10
2 " " 11	11
2 " " 12	12
2 " " 17	17
2 " " 22	22
1 " " 23	23
4 " " 35	35
16 " " 37	37
5 " " 37A	37A
1 " " 40	40
1 " " 52	52
5 " " 111c	111c
1 " " 126A	126A



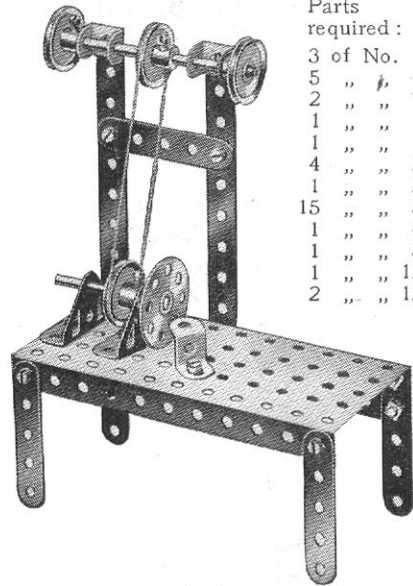
**Model No. 0.142 Battleship**

Parts required :

4 of No. 2	1 of No. 35
2 " " 5	16 " " 37
4 " " 10	6 " " 37A
1 " " 11	2 " " 48A
1 " " 16	1 " " 52
1 " " 17	2 " " 90A
3 " " 22	6 " " 111c
1 " " 24	1 " " 125
2 of No. 126	



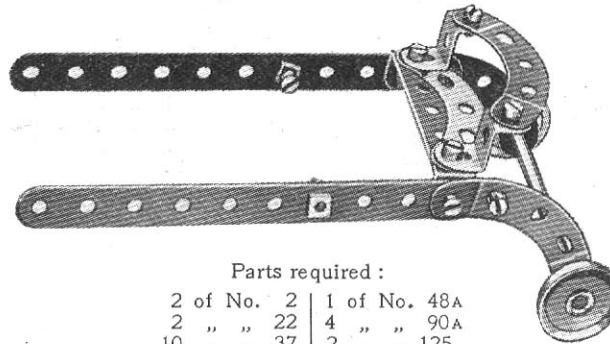
### Model No. 0.143 Bench Lathe



Parts required :

3 of No.	2
5 "	5
2 "	11
1 "	16
1 "	17
4 "	22
1 "	24
15 "	37
1 "	40
1 "	52
1 "	125
2 "	126

### Model No. 0.145 Sulkey



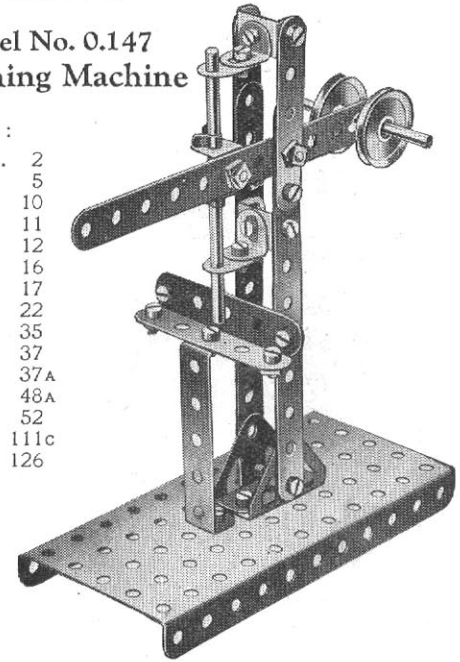
Parts required :

2 of No.	2	1 of No.	48A
2 "	22	4 "	90A
10 "	37	2 "	125

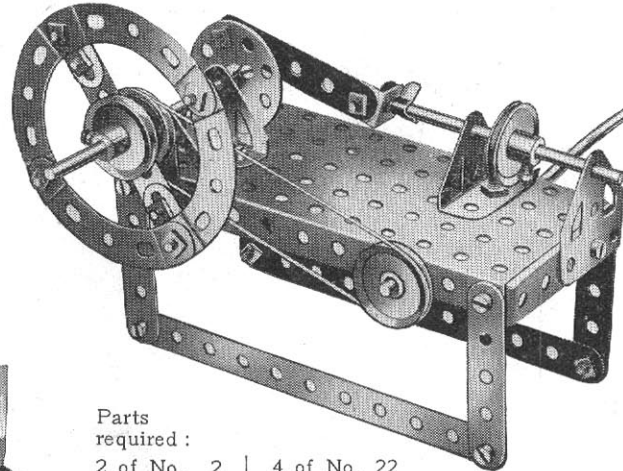
### Model No. 0.147 Punching Machine

Parts required :

3 of No.	2
4 "	5
2 "	10
2 "	11
6 "	12
1 "	16
1 "	17
2 "	22
2 "	35
16 "	37
6 "	37A
1 "	48A
1 "	52
6 "	111c
2 "	126



### Model No. 0.146 Horizontal Engine



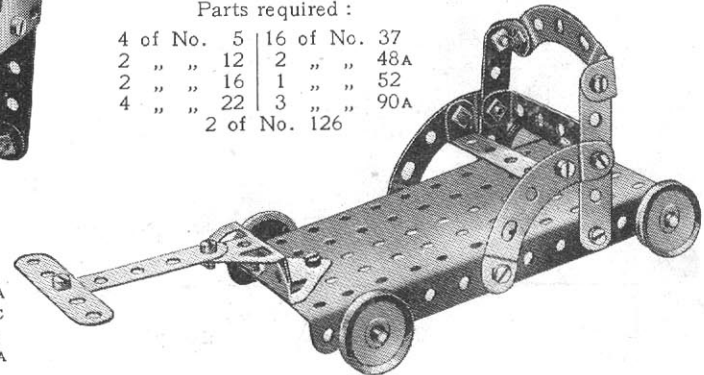
Parts required :

2 of No.	2	4 of No.	22	1 of No.	52
6 "	5	1 "	24	4 "	90A
2 "	10	3 "	35	5 "	111c
1 "	12	16 "	37	2 "	126
2 "	16	5 "	37A	2 "	126A
1 "	19s	1 "	40		

### Model No. 0.148 Bath Chair

Parts required :

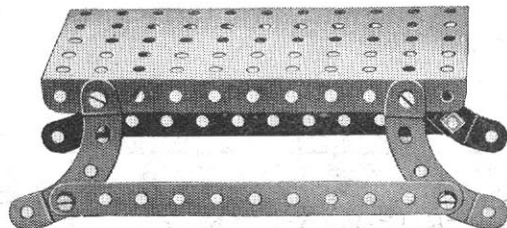
4 of No.	5	16 of No.	37
2 "	12	2 "	48A
2 "	16	1 "	52
4 "	22	3 "	90A
	2 of No.		126



### Model No. 0.144 Bench

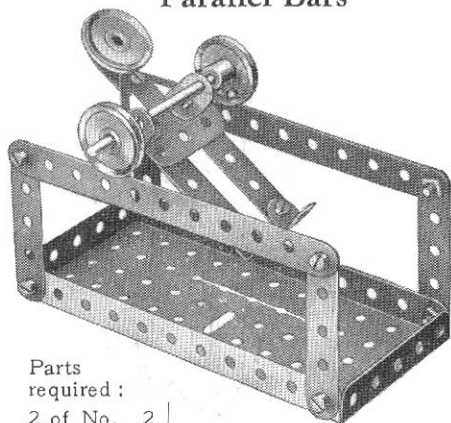
Parts required :

2 of No.	2	1 of No.	52
8 "	37	4 "	90A





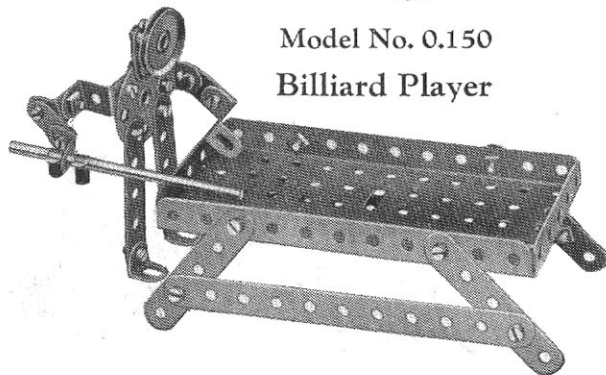
Model No. 0.149  
Parallel Bars



Parts  
required :

2 of No.	2	2 of No.	35
6 " "	5	13 " "	37
1 " "	10	1 " "	52
4 " "	12	1 " "	111c
1 " "	16	1 " "	126A
3 " "	22		

Model No. 0.150  
Billiard Player



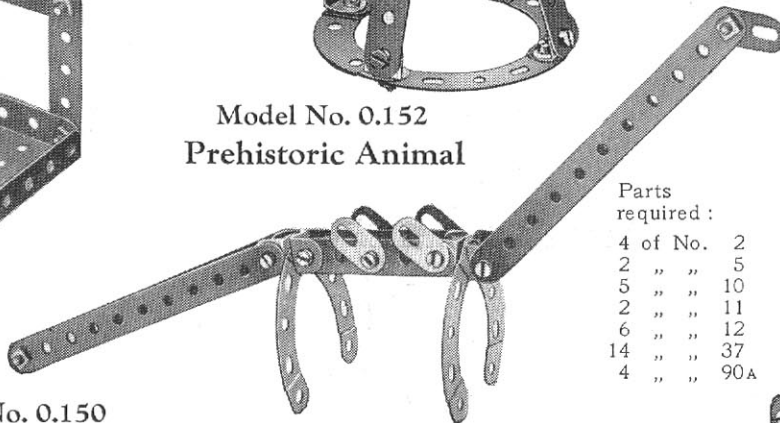
Model No. 0.151 Candle Shade

Parts  
required :

4 of No.	5
8 " "	12
1 " "	24
16 " "	37
4 " "	90A



Model No. 0.152  
Prehistoric Animal



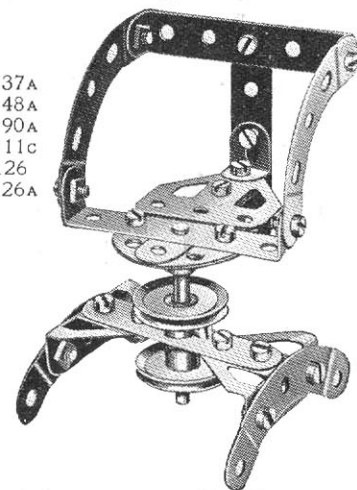
Parts  
required :

2 of No.	2
6 " "	5
3 " "	10
5 " "	12
1 " "	16
1 " "	22
1 " "	24
2 " "	35
16 " "	37
5 " "	37A
5 " "	111c
2 " "	125

Model No. 0.153 Revolving Office Chair

Parts required :

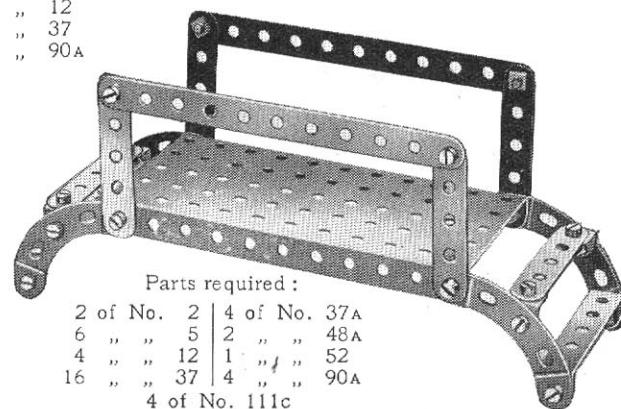
3 of No.	5	2 of No.	37A
1 " "	12	2 " "	48A
1 " "	17	4 " "	90A
2 " "	22	2 " "	111c
1 " "	24	2 " "	126
16 " "	37	1 " "	126A



Parts  
required :

4 of No.	2
2 " "	5
5 " "	10
2 " "	11
6 " "	12
14 " "	37
4 " "	90A

Model No. 0.154 Bridge



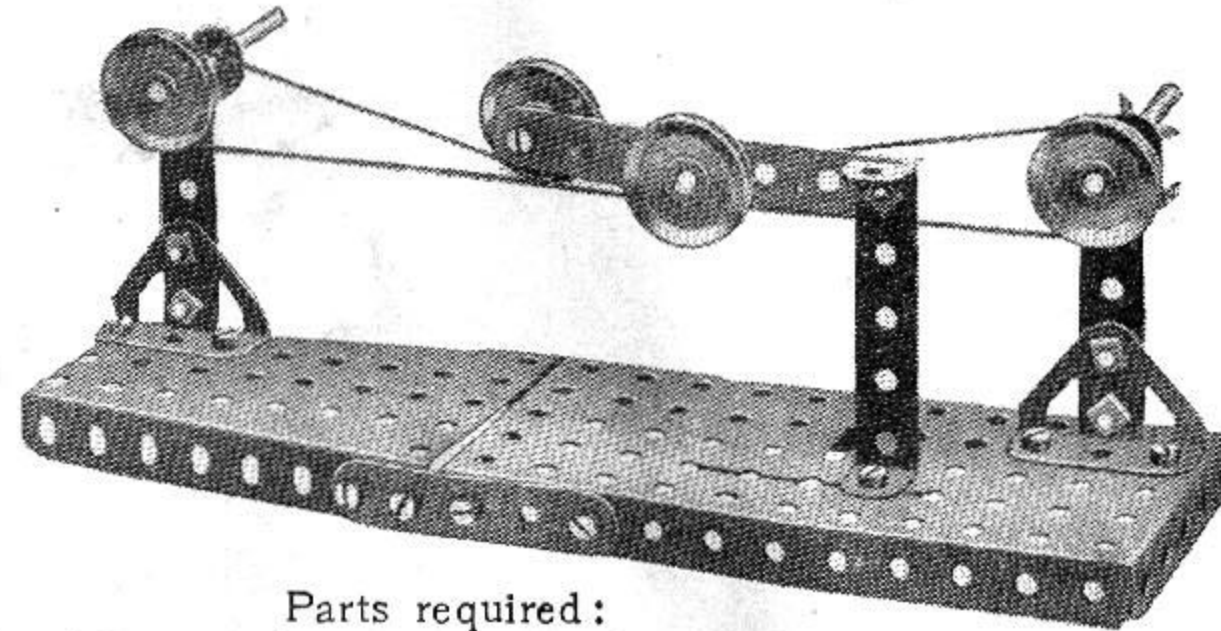
Parts required :

2 of No.	2	4 of No.	37A
6 " "	5	2 " "	48A
4 " "	12	1 " "	52
16 " "	37	4 " "	90A
		4 of No.	111c

### HOW TO CONTINUE

This completes our examples of models that may be made with MECCANO Outfit No. 0 (or No. 00 and No. 00A). The next models are a little more advanced, requiring extra parts to construct them. The necessary parts are all contained in a No. 0A Accessory Outfit, the price of which may be obtained from any Meccano dealer.

### Model No. 1.1 Jockey Pulley

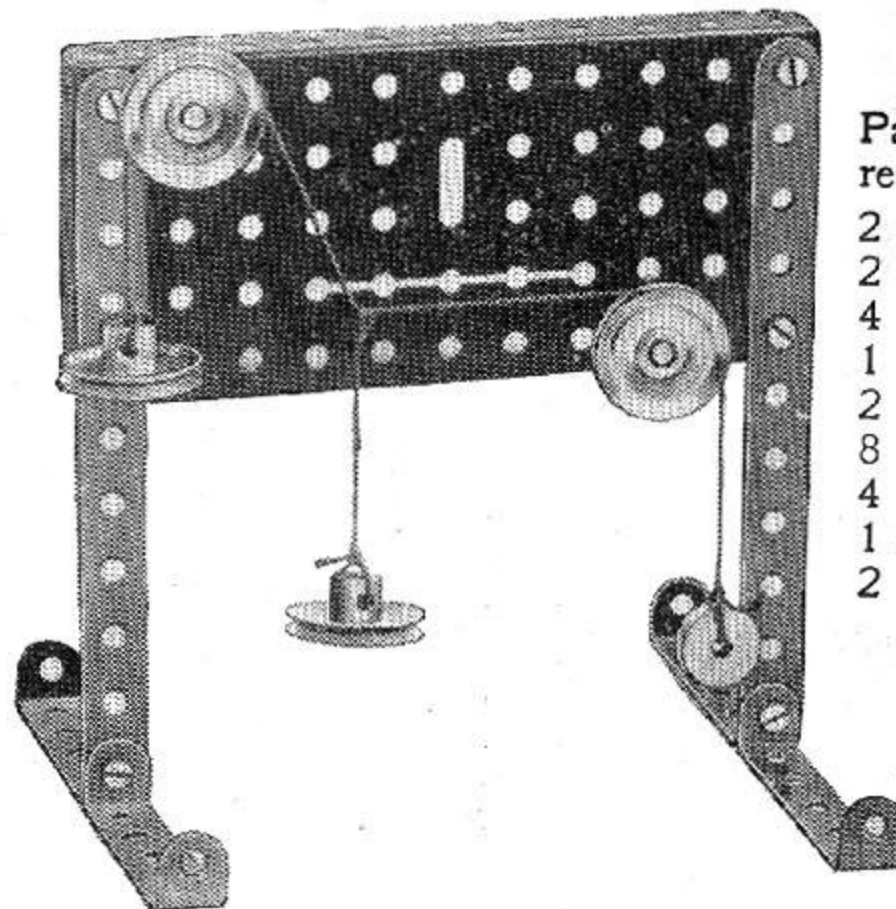


Parts required:

1 of No. 3	2 of No. 35	1 of No. 52
4 " " 5	20 " " 37	1 " " 54
2 " " 17	1 " " 37A	2 " " 111c
4 " " 22	1 " " 48A	2 " " 126

The weight of the pivoted  $3\frac{1}{2}$ " Strip, augmented by the 1" fast Pulley Wheel, causes the jockey pulley to press on the belt. Hence the latter is kept always taut.

### Model No. 1.2 Triangle of Forces

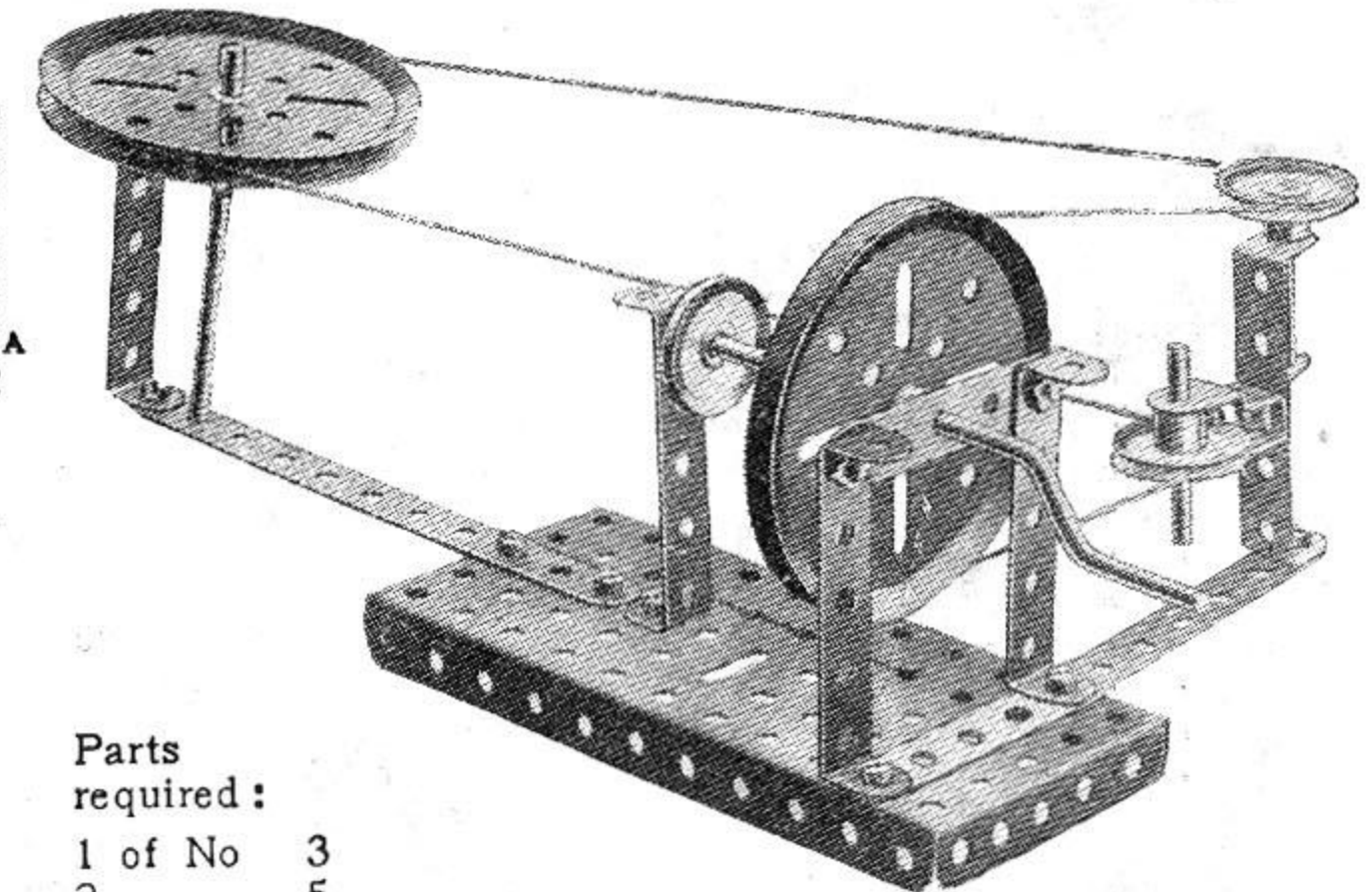


Parts required:

2 of No. 2	
2 " " 18A	
4 " " 22	
1 " " 23	
2 " " 35	
8 " " 37	
4 " " 48A	
1 " " 52	
2 " " 125	

The suspended weights represent three forces acting on a central point. If a triangle is drawn with its sides respectively parallel to the three converging cords, i.e., parallel to the directions of the three forces, the lengths of the sides will be found to be proportional to the respective magnitudes of the forces.

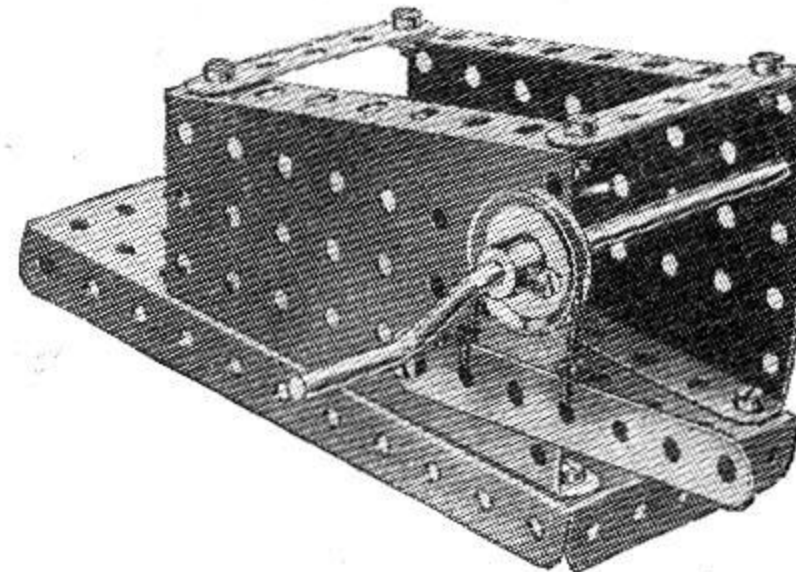
### Model No. 1.5 Belt Gear Right-angle Drive Transmission



Parts required:

2 of No. 2	3 of No. 22
1 " " 5	1 " " 35
1 " " 16	11 " " 37
1 " " 17	1 " " 44
1 " " 18A	1 " " 48
2 " " 19B	5 " " 48A
1 " " 19S	1 " " 52

### Model No. 1.3 Band Brake



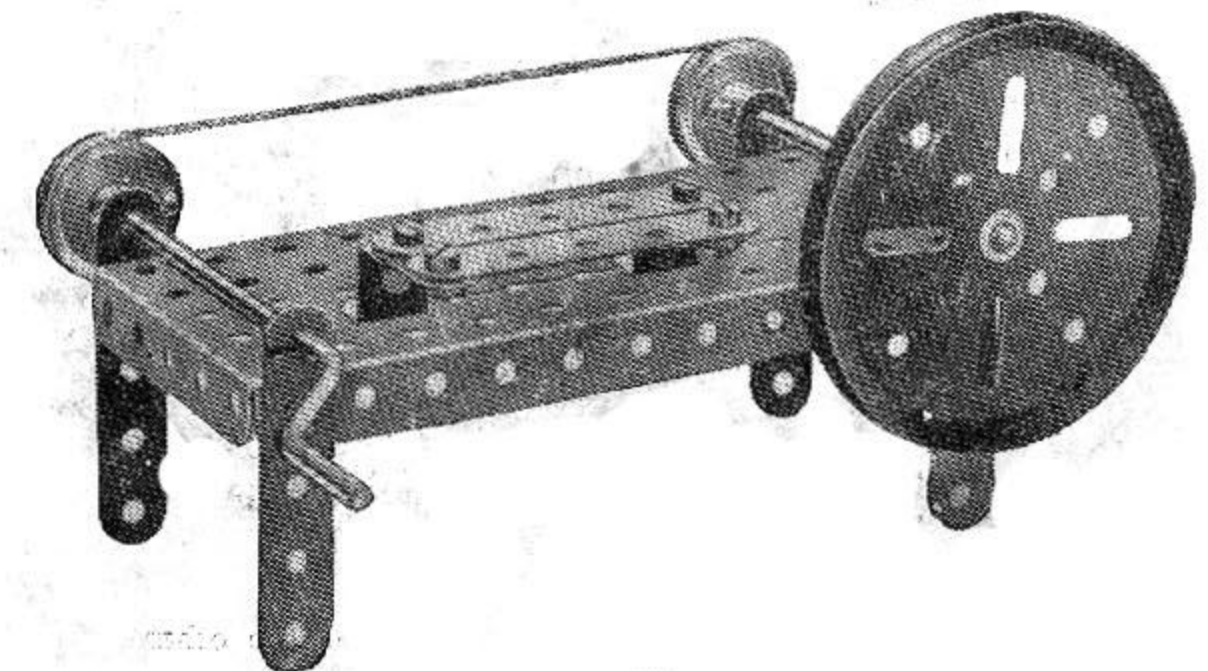
Parts required:

1 of No. 3	
2 " " 5	
1 " " 19s	
1 " " 22	
1 " " 35	
9 " " 37	
1 " " 37A	
1 " " 52	
2 " " 54	

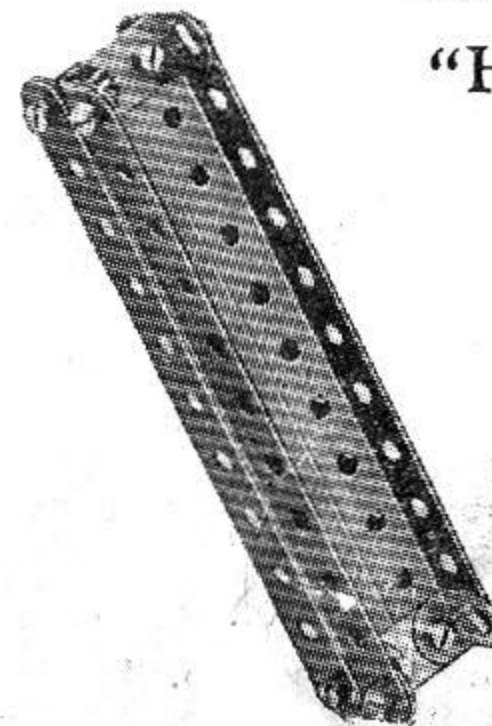
### Model No. 1.6 Bacon Slicer

Parts required:

6 of No. 5	2 of No. 22
2 " " 10	1 " " 35
1 " " 16	10 " " 37
1 " " 19B	1 " " 52
1 " " 19S	2 " " 125



### Model No. 1.4 "H" Girder



Parts required:

6 of No. 2	
2 " " 10	
8 " " 12	
12 " " 37	

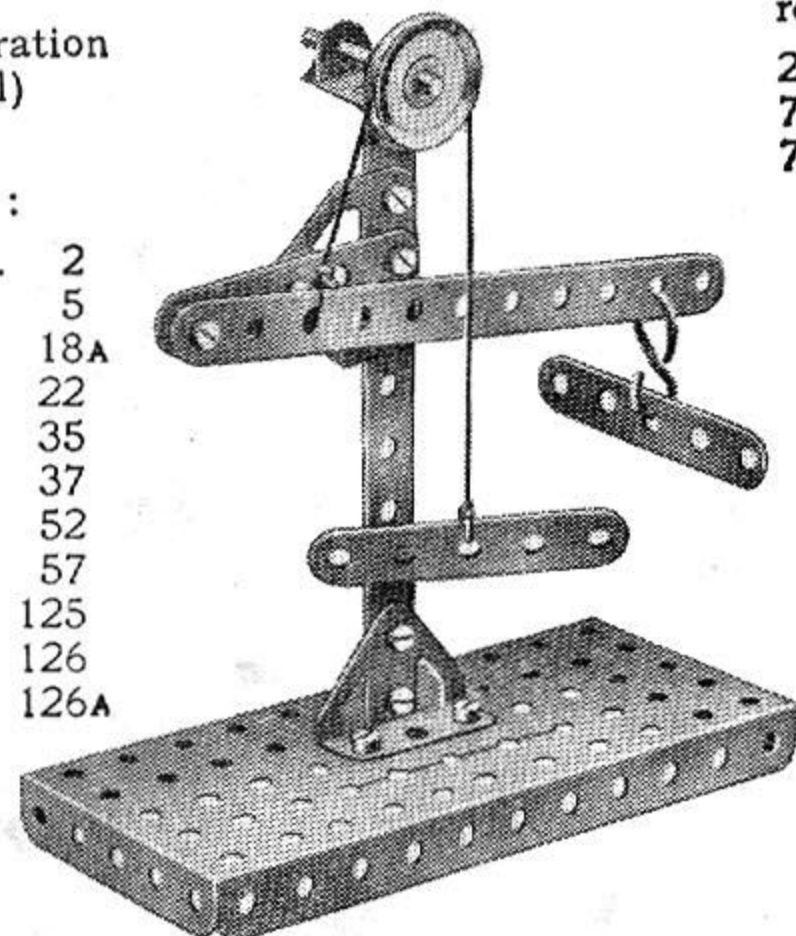


**Model No. 1.7****Lever of the Second Order**

(Demonstration Model)

Parts required :

2 of No.	2
4 " "	5
1 " "	18A
1 " "	22
1 " "	35
11 " "	37
1 " "	52
1 " "	57
1 " "	125
1 " "	126
1 " "	126A

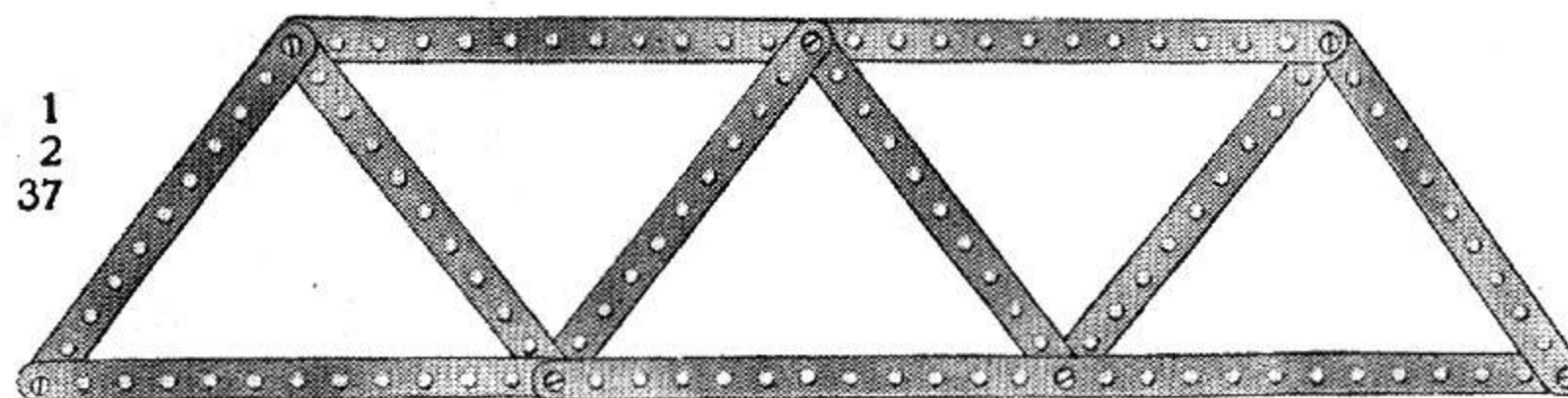


The fulcrum is at one end, the load at the other and the power lies between the two.

**Model No. 1.9 Compound Triangulated Truss**

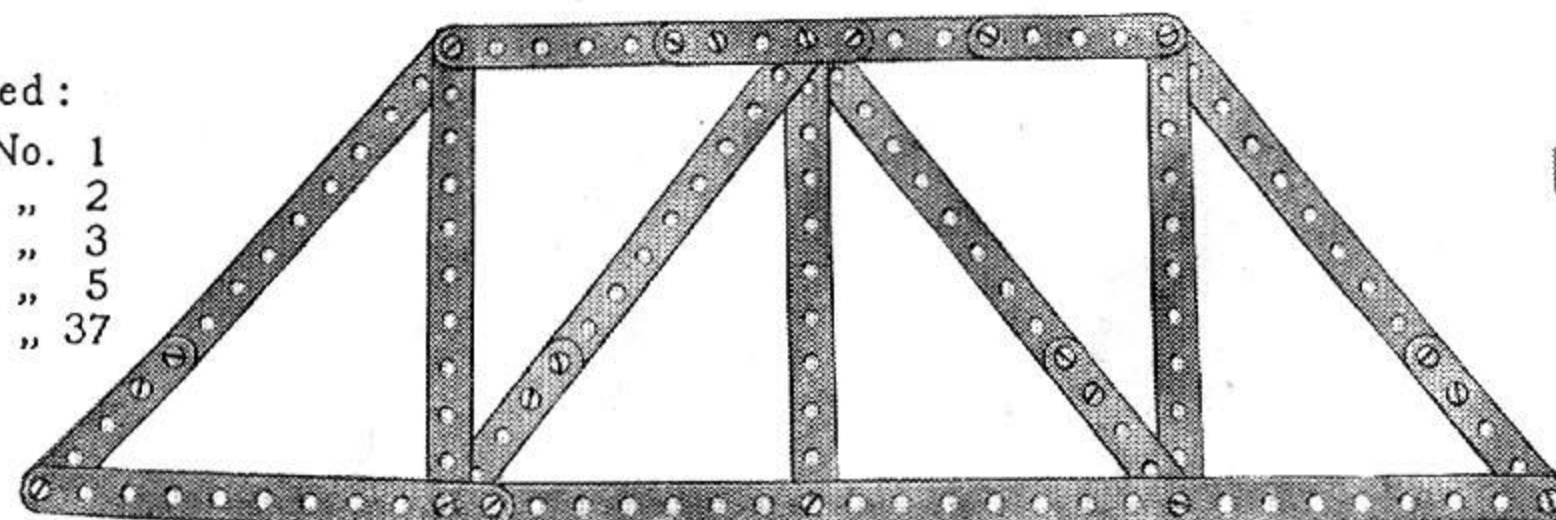
Parts required :

2 of No.	1
7 " "	2
7 " "	37

**Model No. 1.10 Howe Truss**

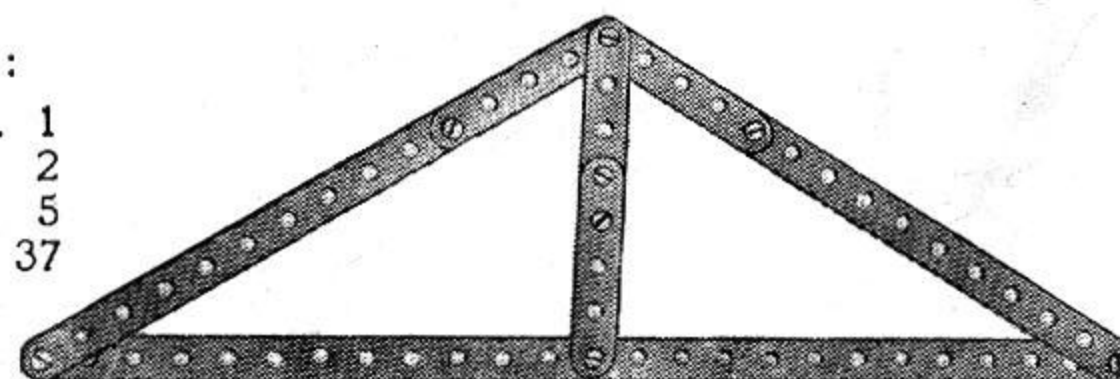
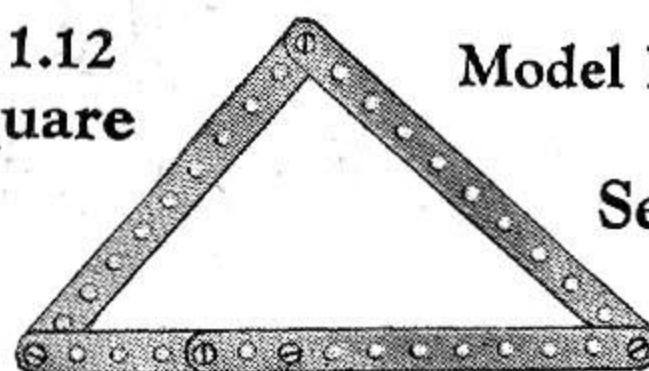
Parts required :

1 of No.	1
8 " "	2
1 " "	3
7 " "	5
21 " "	37

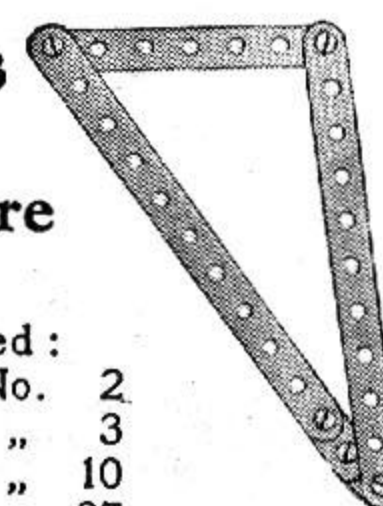
**Model No. 1.11 Triangulated Truss**

Parts required :

1 of No.	1
2 " "	2
4 " "	5
8 " "	37

**Model No. 1.12 45° Set-Square**

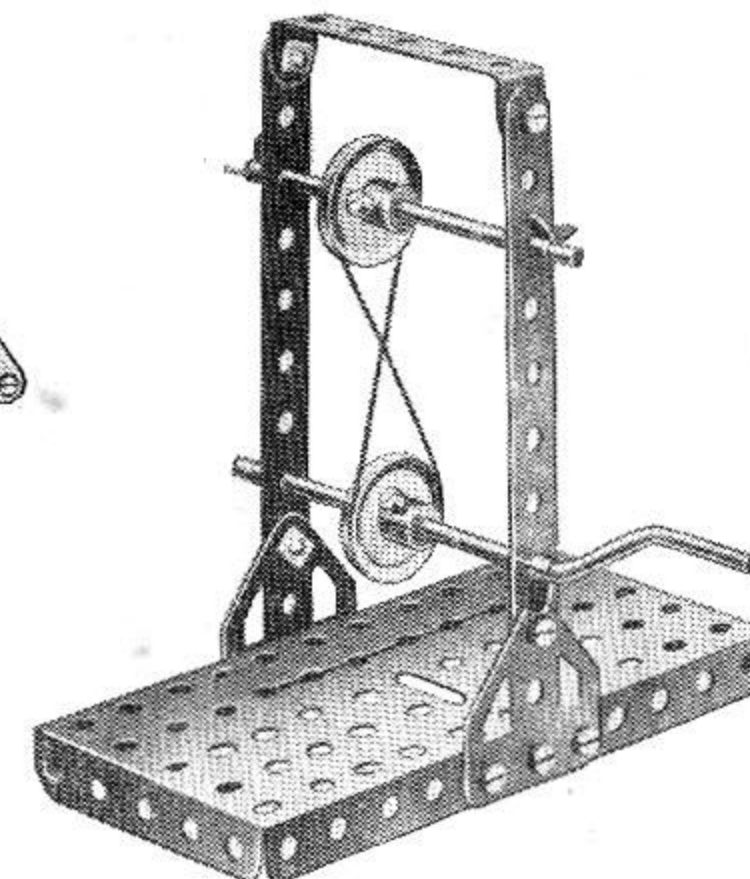
Parts required :  
3 of No. 2 | 1 of No. 3  
5 of No. 37

**Model No. 1.13 60° Set-Square**

Parts required :  
2 of No. 2  
1 " " 3  
2 " " 10  
5 " " 37

**Model No. 1.14 Belt Gear**

For Reversing Motion of Driven Shaft



Parts required :

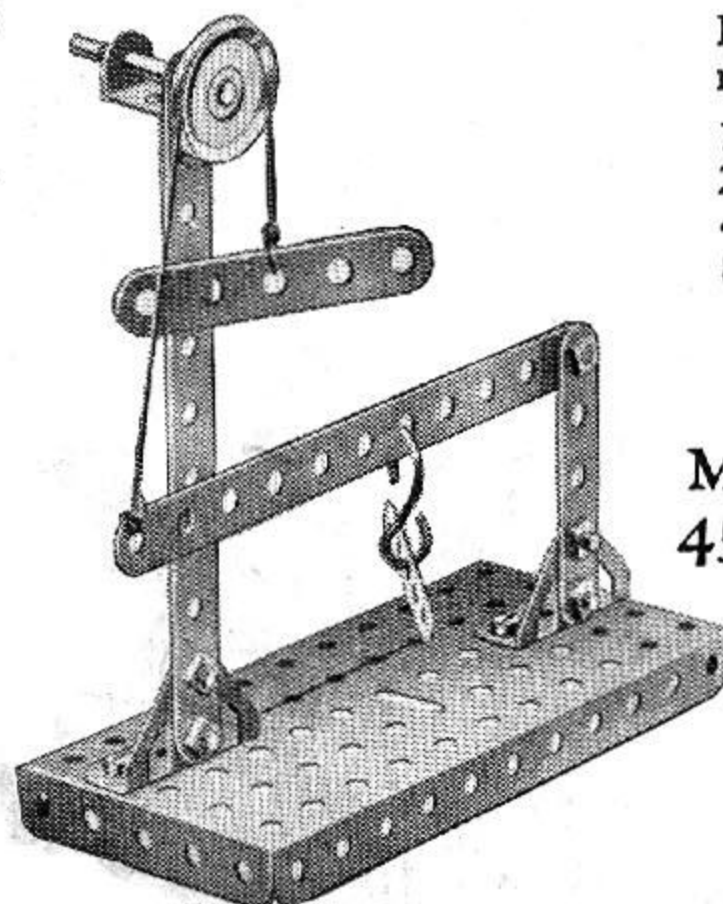
2 of No.	2	4 of No.	35
1 " "	16	10 " "	37
1 " "	19s	1 " "	48A
2 " "	22	1 " "	52
2 of No. 126A			

**Model No. 1.8****Lever of the Third Order**

(Demonstration Model)

Parts required :

2 of No.	2
4 " "	5
1 " "	18A
1 " "	22
1 " "	35
10 " "	37
1 " "	52
1 " "	57
1 " "	125
2 " "	126



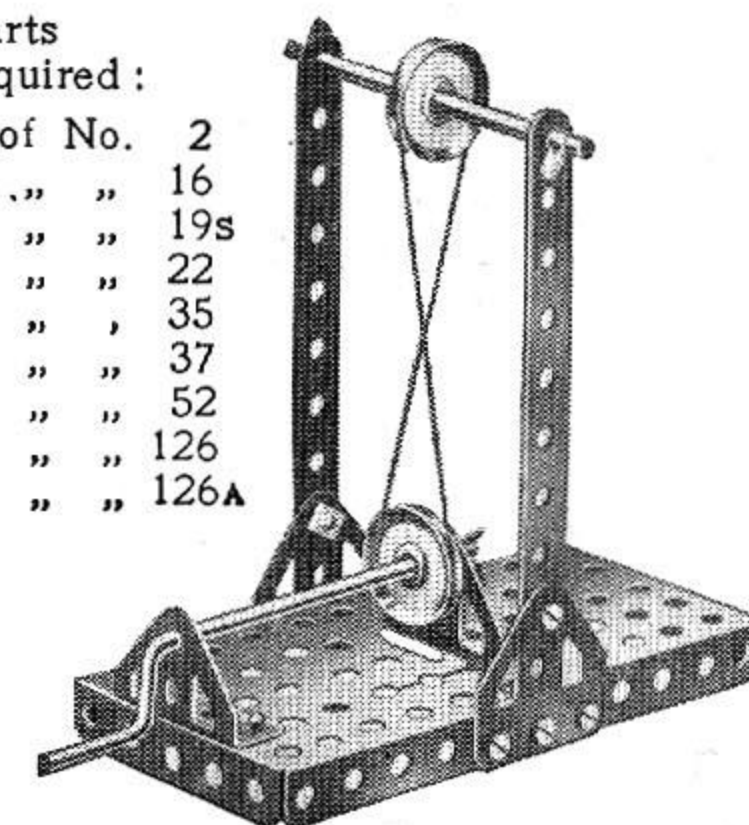
The fulcrum is at one end, the load at the other and the power lies between the two.

**Model No. 1.15 Belt Gear**

For Driving Shafts at Right Angles

Parts required :

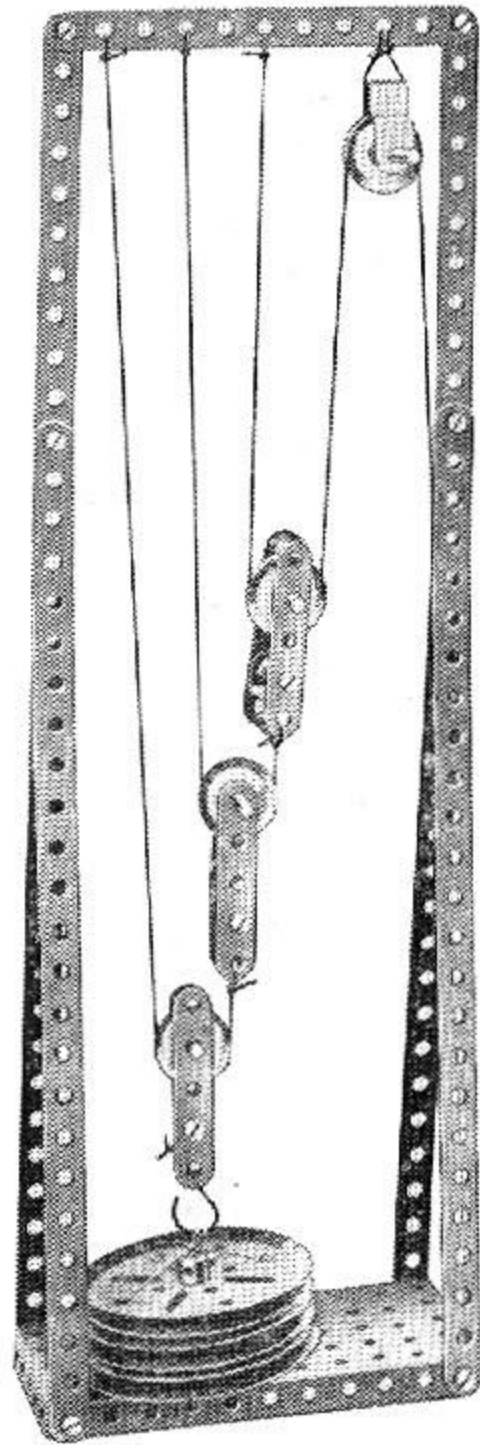
2 of No.	2
1 " "	16
1 " "	19s
2 " "	22
3 " "	35
12 " "	37
1 " "	52
2 " "	126
2 " "	126A





### Model No. 1.16 Pulley Block

Demonstration Model:  
1 Fixed and 3 Movable Sheaves.  
Theoretical Mechanical advantage : 8 to 1



Parts required :

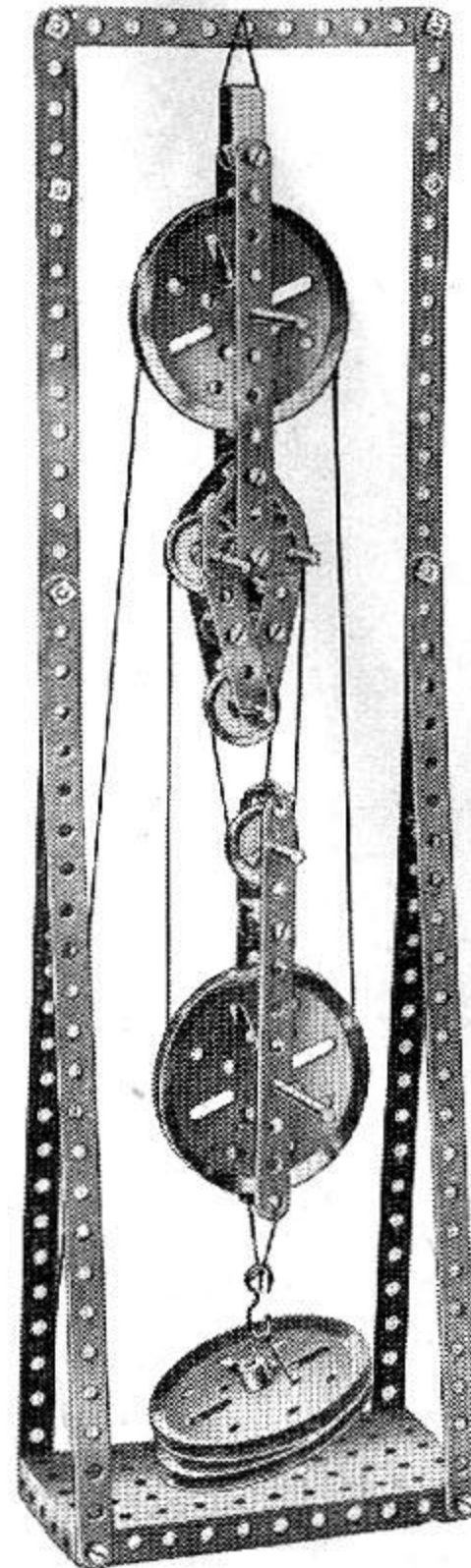
4 of No.	1	2 of No.	18A
3 "	2	3 "	19B
6 "	5	4 "	22
2 "	11	15 "	37
2 "	12	1 "	44
2 "	17	1 "	52
2 "	17	1 "	57

### Model No. 1.17 Pulley Block

Demonstration Model:  
3 Fixed and 2 Movable Sheaves.  
Theoretical Mechanical advantage: 5 to 1

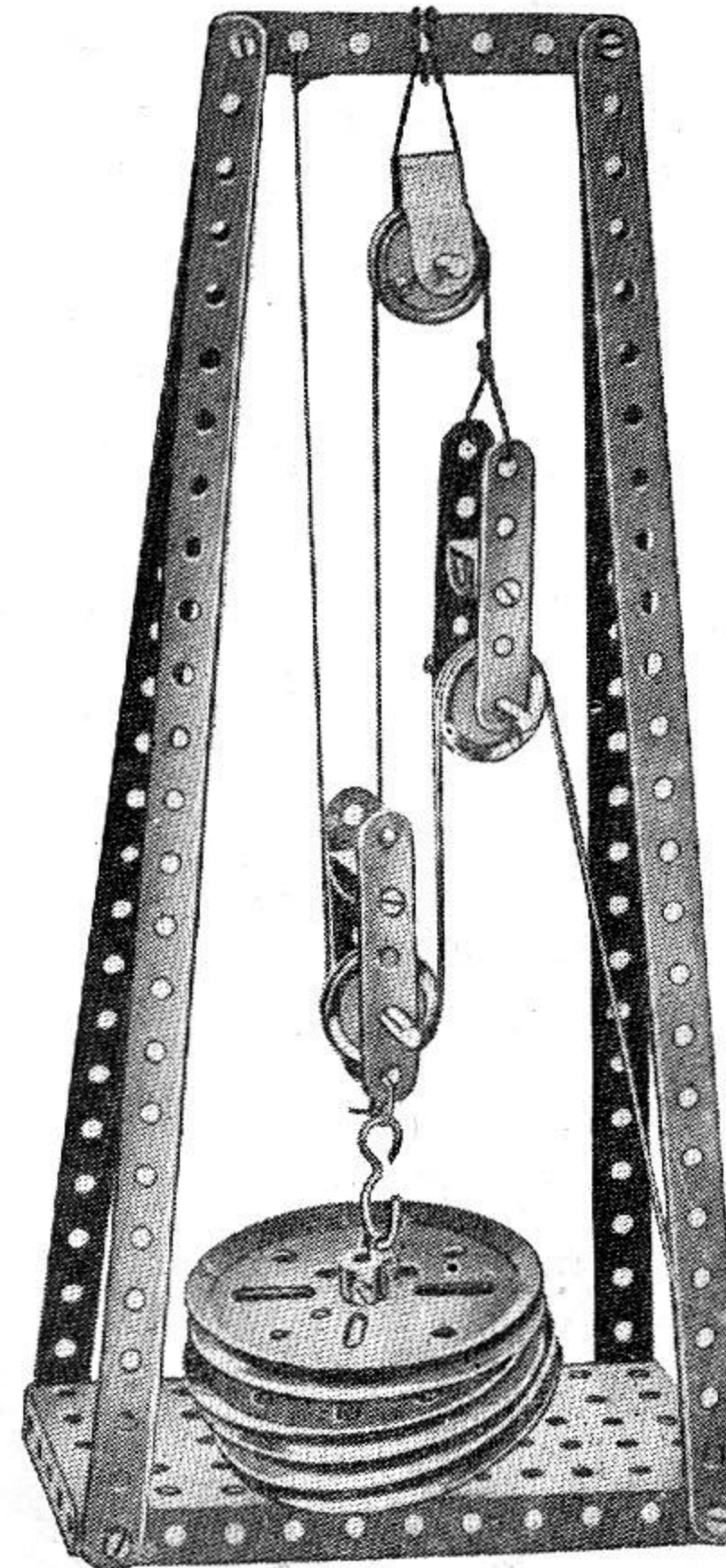
Parts required :

4 of No.	1	4 of No.	19B
7 "	2	4 "	22
6 "	5	6 "	35
2 "	10	22 "	37
2 "	11	1 "	44
2 "	16	1 "	52
2 "	17	1 "	57
2 "	18A	2 "	126A



### Model No. 1.18 Pulley Block

Demonstration Model:  
1 Fixed Sheave and 2 Suspended Blocks.  
Theoretical Mechanical advantage: 4 to 1



Parts required :

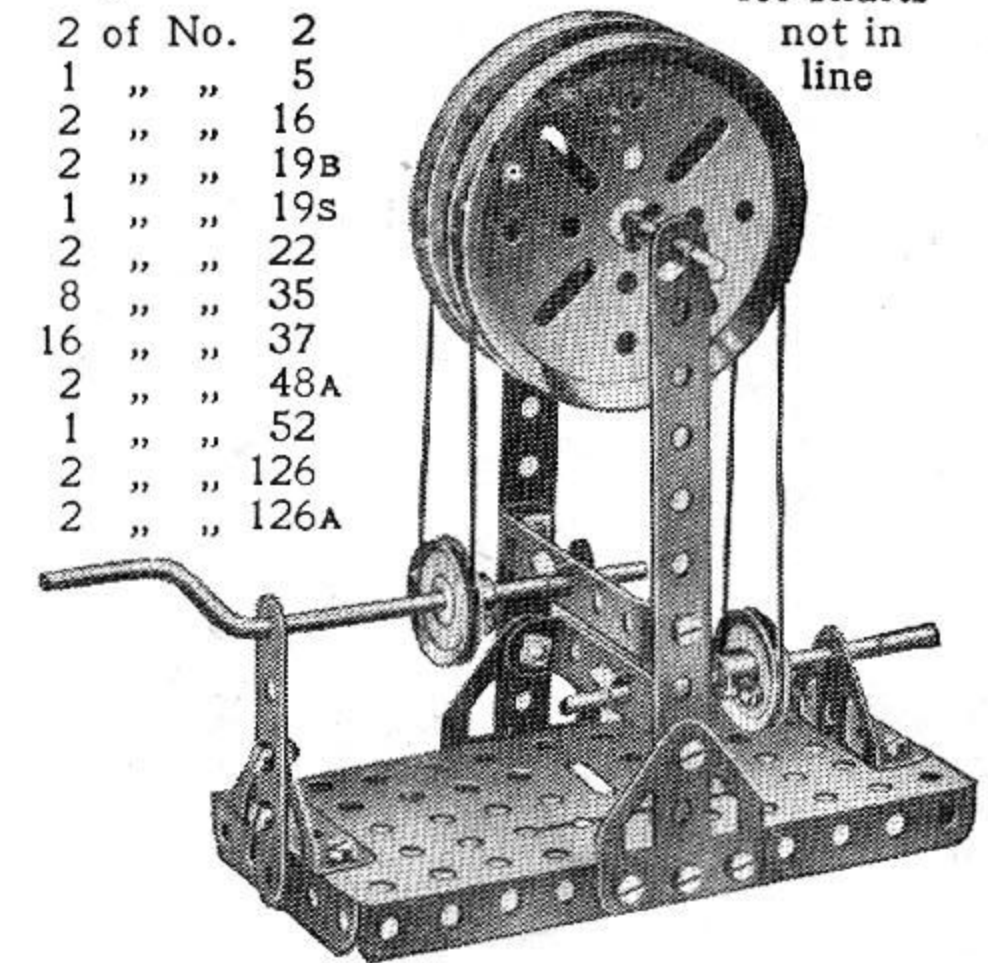
4 of No.	1	4 of No.	19B
1 "	3	3 "	22
4 "	5	10 "	37
2 "	11	1 "	44
1 "	17	1 "	52
2 "	18A	1 "	57

### Model No. 1.19 Belt Gear

Parts required :

2 of No.	2
1 "	5
2 "	16
2 "	19B
1 "	19s
2 "	22
8 "	35
16 "	37
2 "	48A
1 "	52
2 "	126
2 "	126A

Drive Transmission  
for shafts  
not in  
line

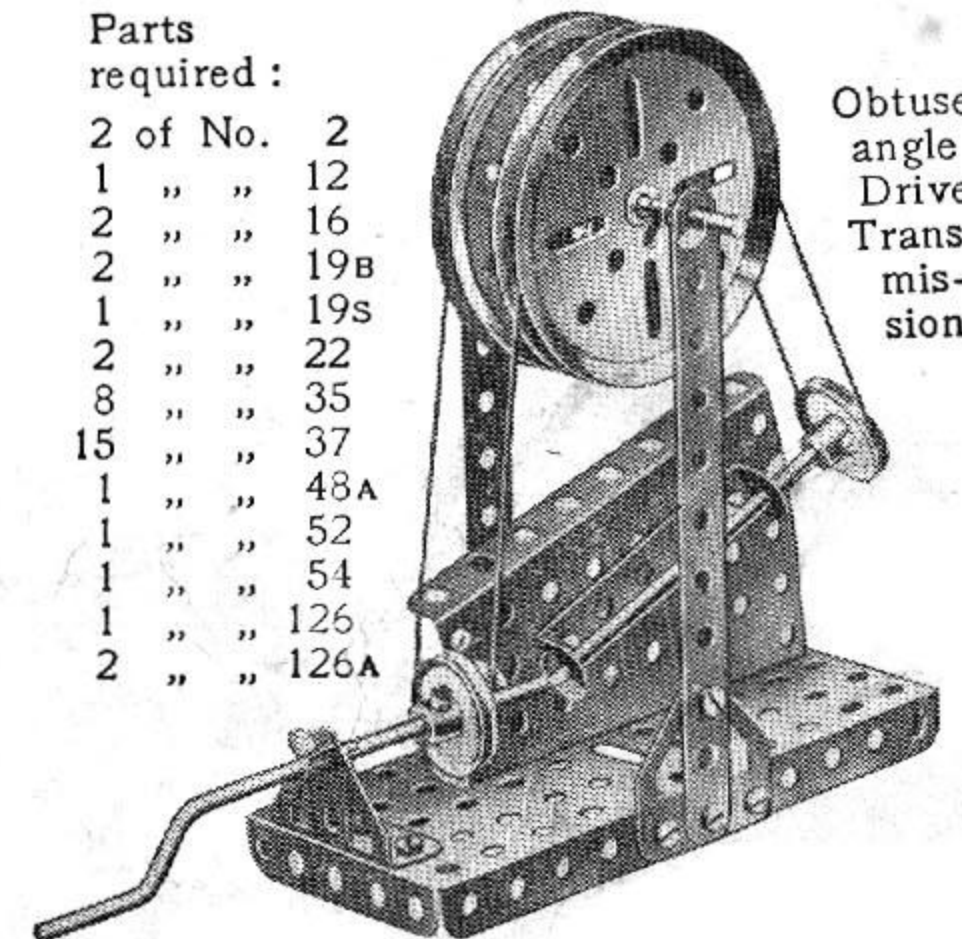


### Model No. 1.20 Belt Gear

Parts required :

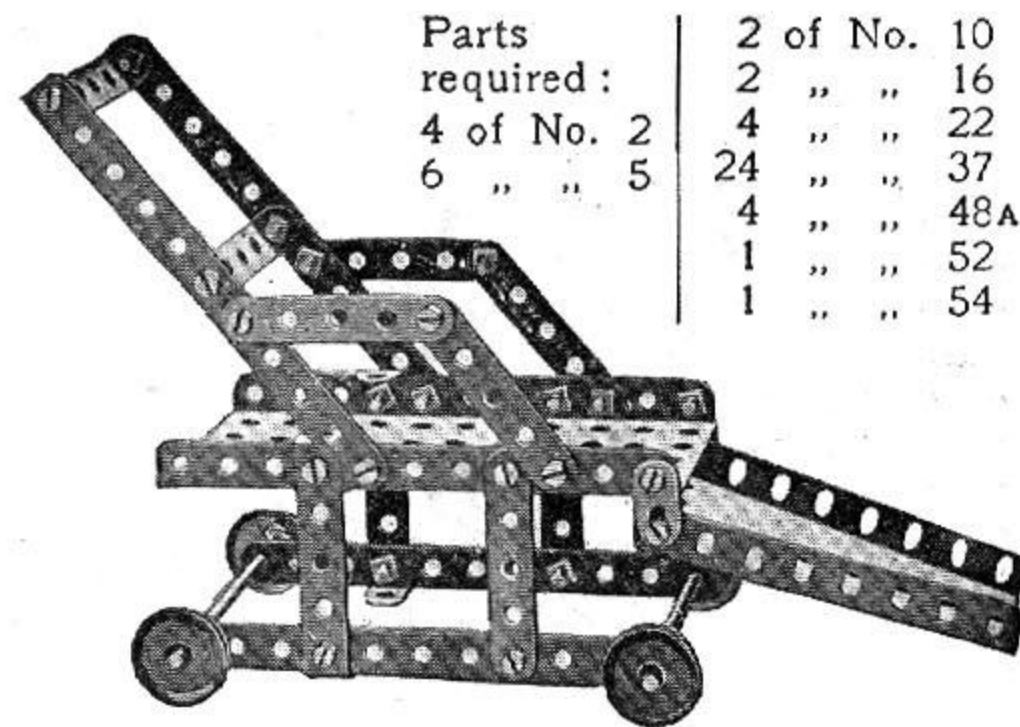
2 of No.	2
1 "	12
2 "	16
2 "	19B
1 "	19s
2 "	22
8 "	35
15 "	37
1 "	48A
1 "	52
1 "	54
1 "	126
2 "	126A

Obtuse-  
angle  
Drive  
Trans-  
mis-  
sion



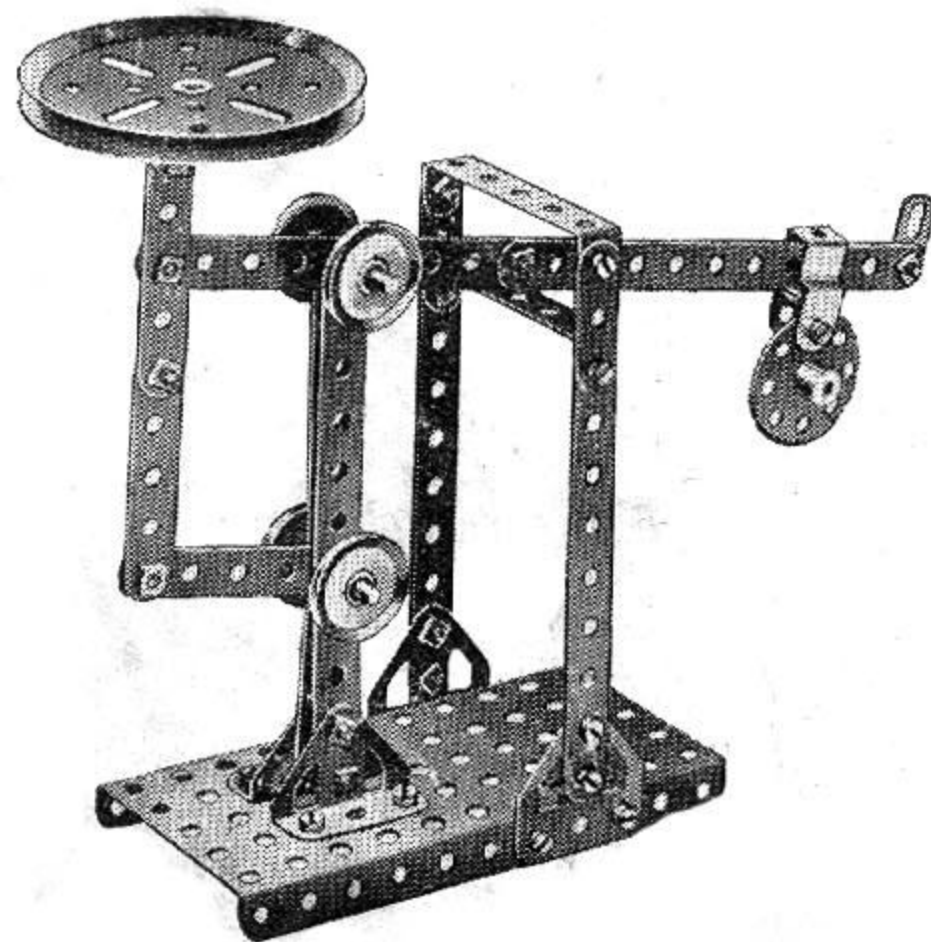


## Model No. 1.21 Invalid Chair

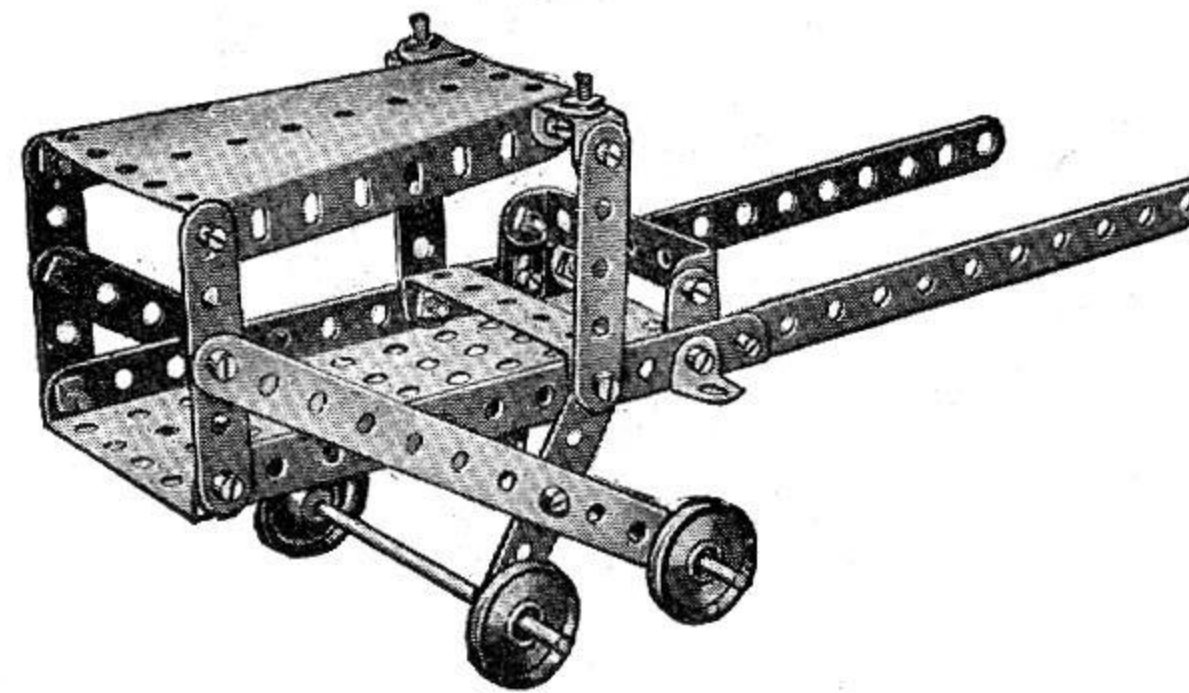


## Model No. 1.22 Letter Balance

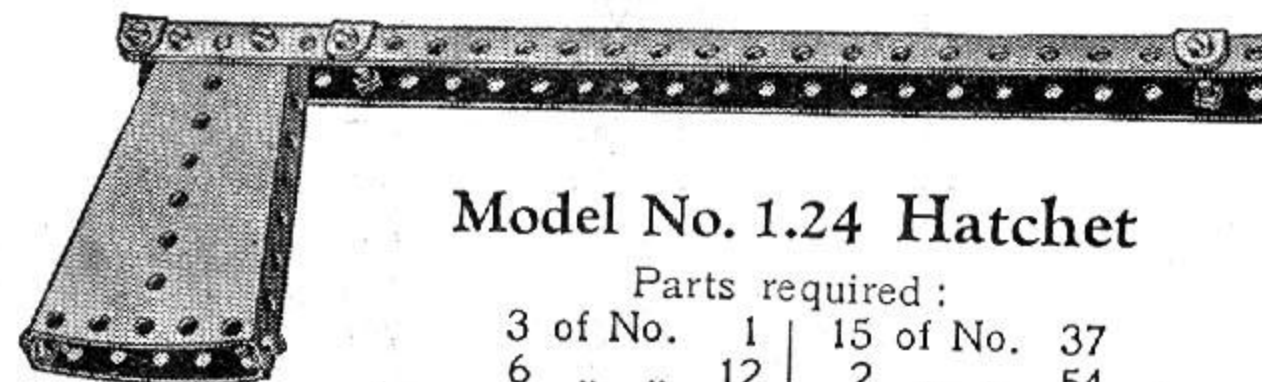
Parts required:					
6 of No.	2	4 of No.	22	2 of No.	48A
3 "	5	1 "	24	1 "	52
1 "	10	26 "	37	2 "	111c
1 "	12	4 "	37A	2 "	126
2 "	18A	2 "	38	2 "	126A
1 "	19B	1 "	44		



## Model No. 1.23 Ticca Gharry



Parts required:					
4 of No.	2	6 of No.	12	22 of No.	37
6 "	5	2 "	16	1 "	52
2 "	10	4 "	22	1 "	54

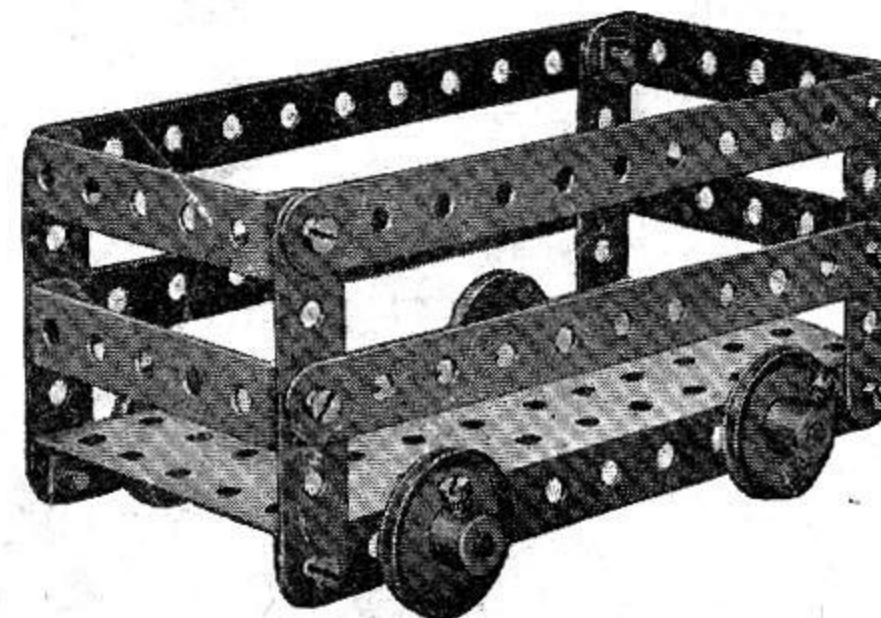


## Model No. 1.24 Hatchet

Parts required:			
3 of No.	1	15 of No.	37
6 "	12	2 "	54

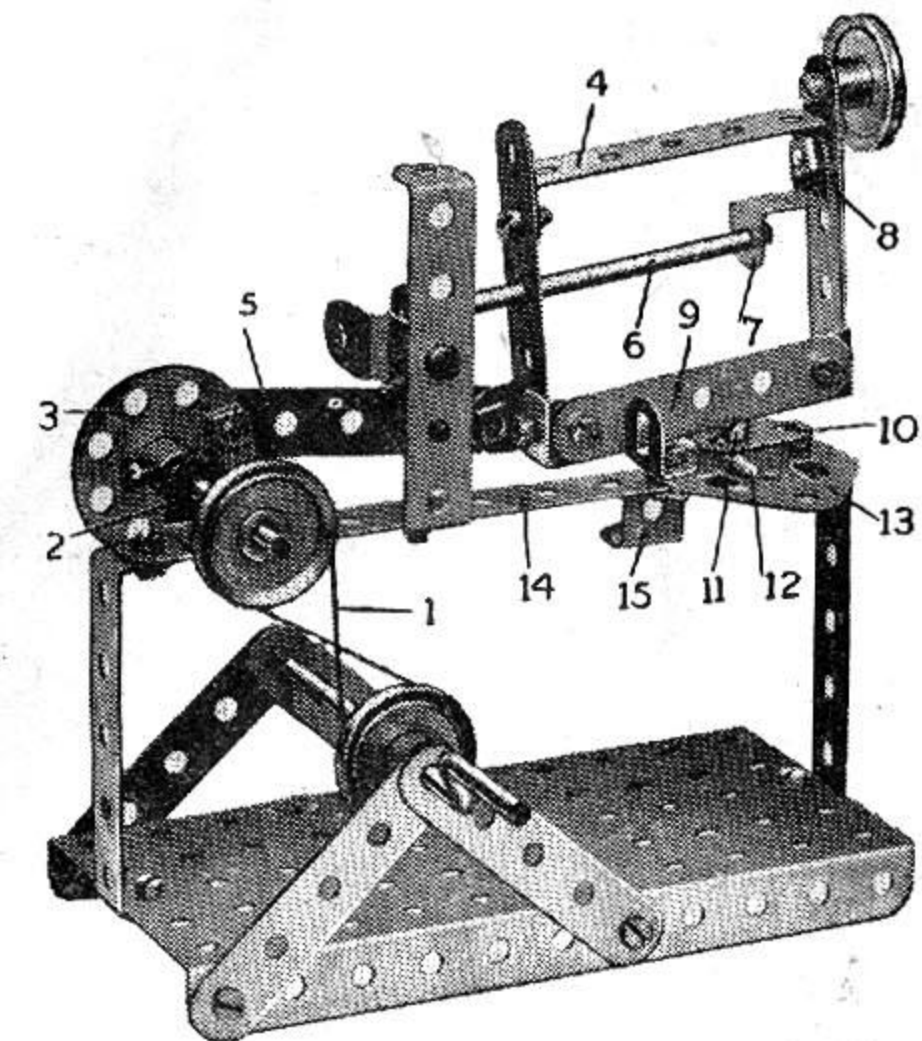
## Model No. 1.25 Truck with Sides

Parts required:		
4 of No.	2	
4 "	5	
2 "	16	
4 "	22	
12 "	37	
4 "	48A	
1 "	52	



## Model No. 1.26 Mechanical Saw

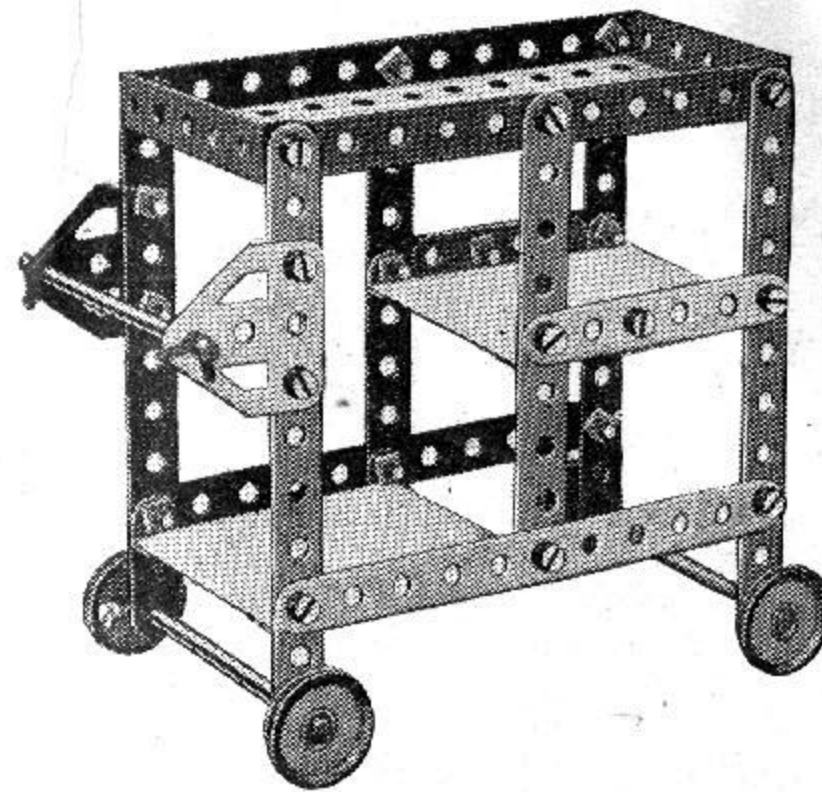
Parts required:					
1 of No.	2	1 of No.	17	4 of No.	38
8 "	5	1 "	19s	1 "	44
1 "	10	3 "	22	4 "	48A
1 "	11	1 "	24	1 "	52
4 "	12	3 "	35	2 "	125
1 "	16	22 "	37	1 "	126A



The Strip 9 represents the saw. The Crank Handle drives through a belt 1 a short Rod journalled in a Double Bracket 2 and carrying a Bush Wheel 3. The latter imparts a reciprocating motion to the saw frame 4 through a 2 1/2" Strip 5 loosely mounted on bolts secured to the Bush Wheel and to an Angle Bracket bolted to the saw frame. This frame slides on a 3 1/2" Rod 6, which acts as a guide, passing through the frame and supported in a reversed Angle Bracket 7. A washer is placed on the Bolt 8 behind the Bracket 7. A vice to secure the objects in position for cutting consists of a Flat Bracket 10 mounted on a Bolt 11, a few turns of which causes the Flat Bracket to grip the object 12. The Bolt 11 enters a nut held between the Flat Trunnion 13 and 5 1/2" Strip 14, which are spaced apart for the purpose by washers placed on the two bolts holding the Trunnion in position. The saw frame rests on the stop 15 when not in use. A 1" Pulley secured to the top of the frame acts as a weight and helps to steady the saw.



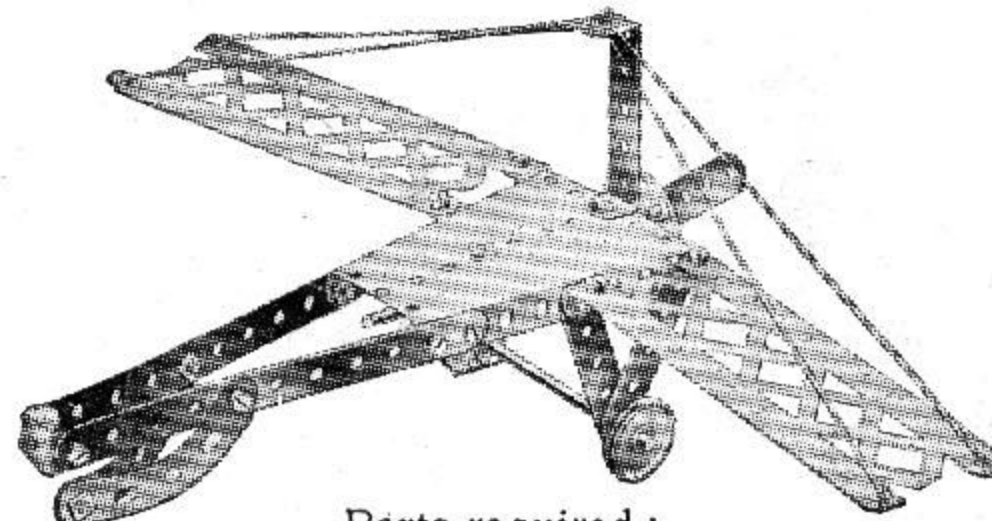
Model No. 1.27 Dinner Wagon



Parts required:		
6 of No.	2	
8 " "	5	
4 " "	12	
3 " "	16	
4 " "	22	
2 " "	35	
22 " "	37	
4 " "	48A	
1 " "	52	
2 " "	126A	

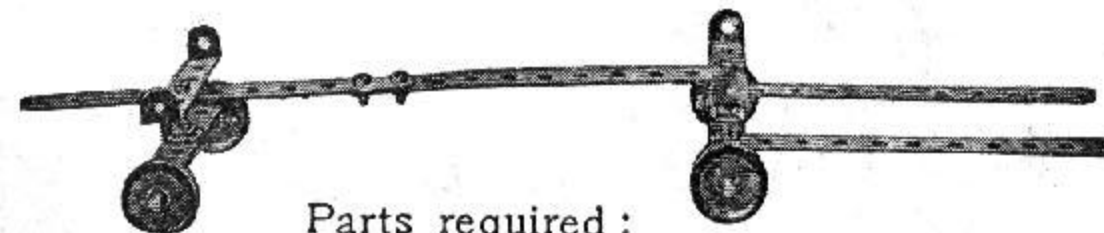
The two lower platforms are constructed out of pieces of ordinary cardboard, their outer edges resting on 2½" Double Angle Strips and their inner edges on Angle Brackets.

Model No. 1.29 Aeroplane



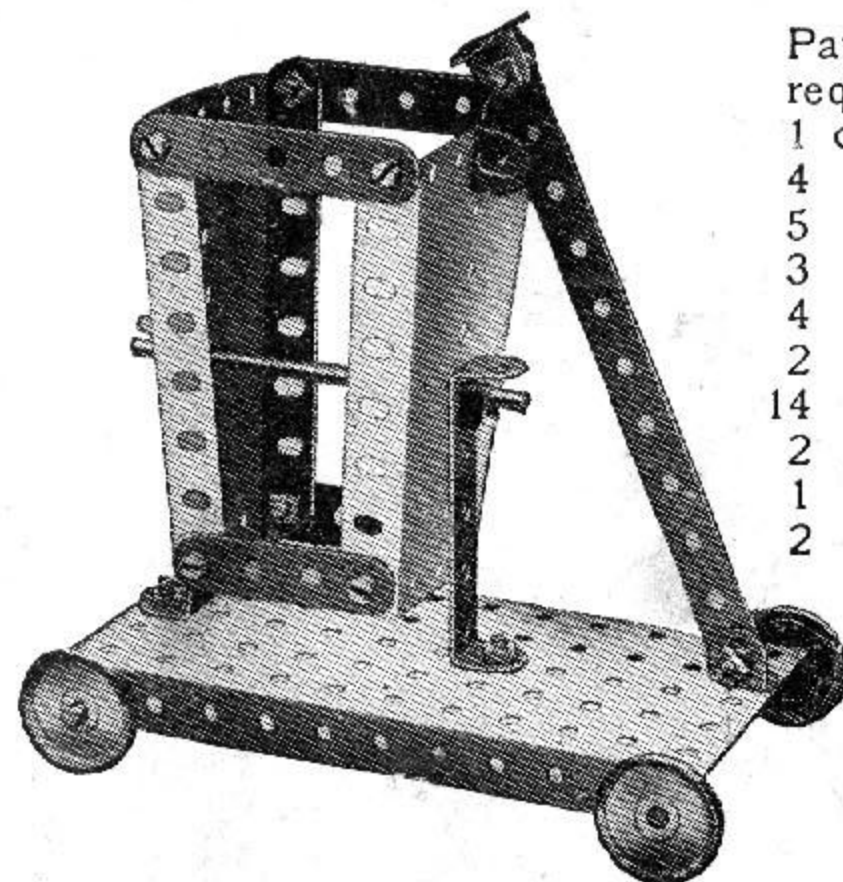
Parts required:		
2 of No.	2	2 of No. 16
5 " "	5	2 " "
1 " "	11	1 " "
6 " "	12	21 " "
		2 of No. 16
		2 " "
		1 " "
		2 " "
		2 " "
		1 of No. 48A
		1 " "
		2 " "
		2 " "

Model No. 1.30 Timber Drag



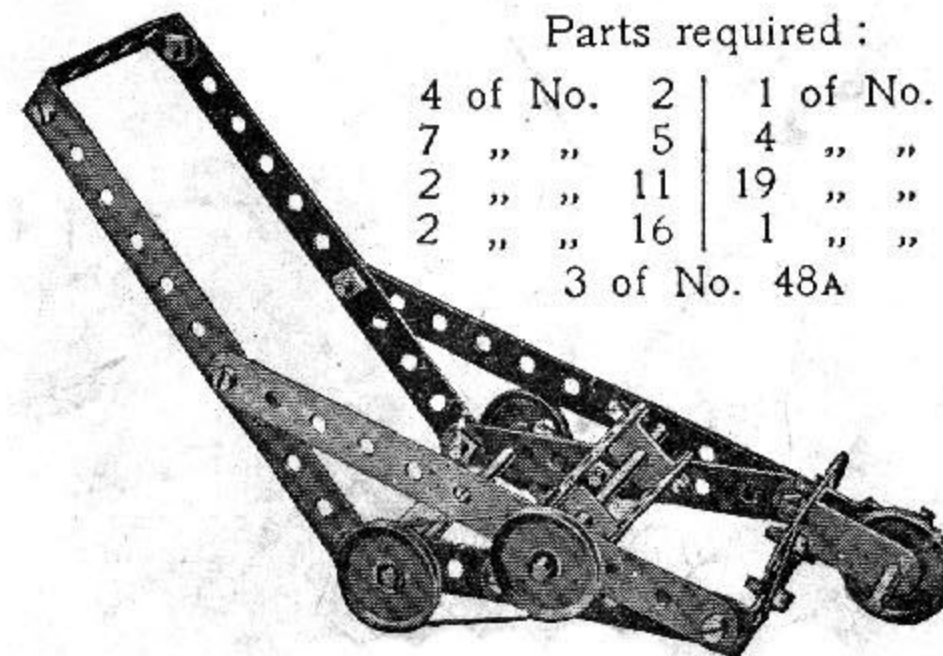
Parts required:		
4 of No.	2	2 of No. 16
2 " "	11	4 " "
		8 of No. 37
		4 " "

Model No. 1.28 Tip Wagon



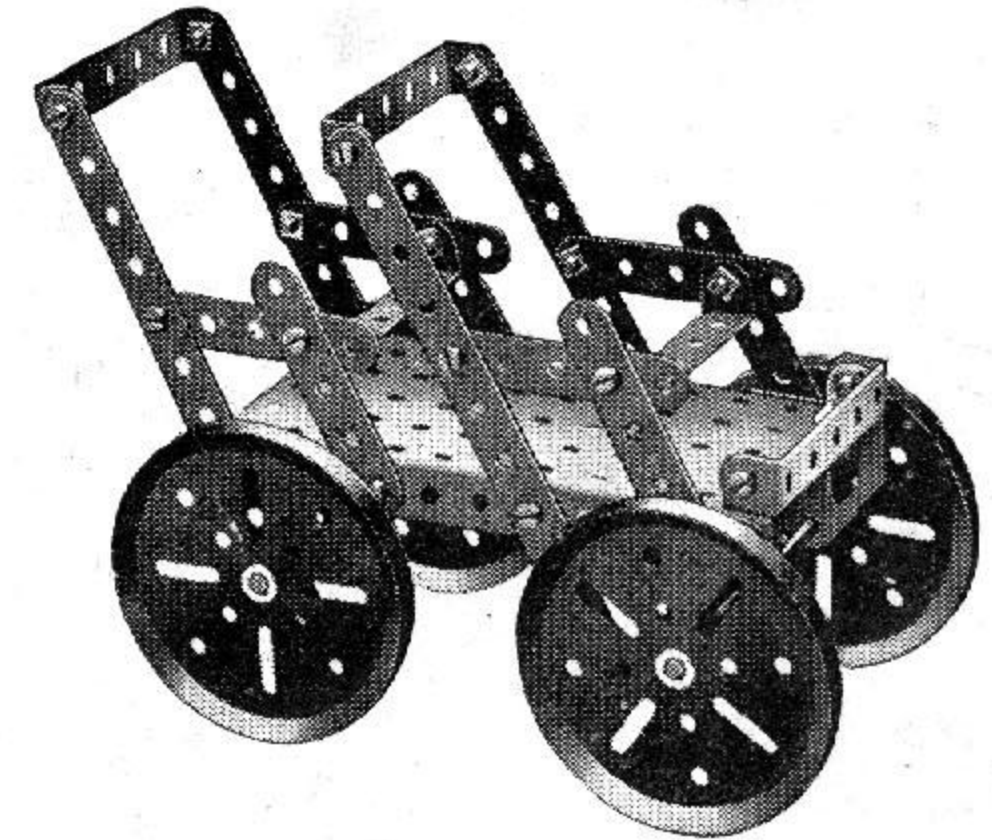
Parts required:		
1 of No.	2	
4 " "	5	
5 " "	12	
3 " "	16	
4 " "	22	
2 " "	35	
14 " "	37	
2 " "	48A	
1 " "	52	
2 " "	54	

Model No. 1.31 Lawn Mower



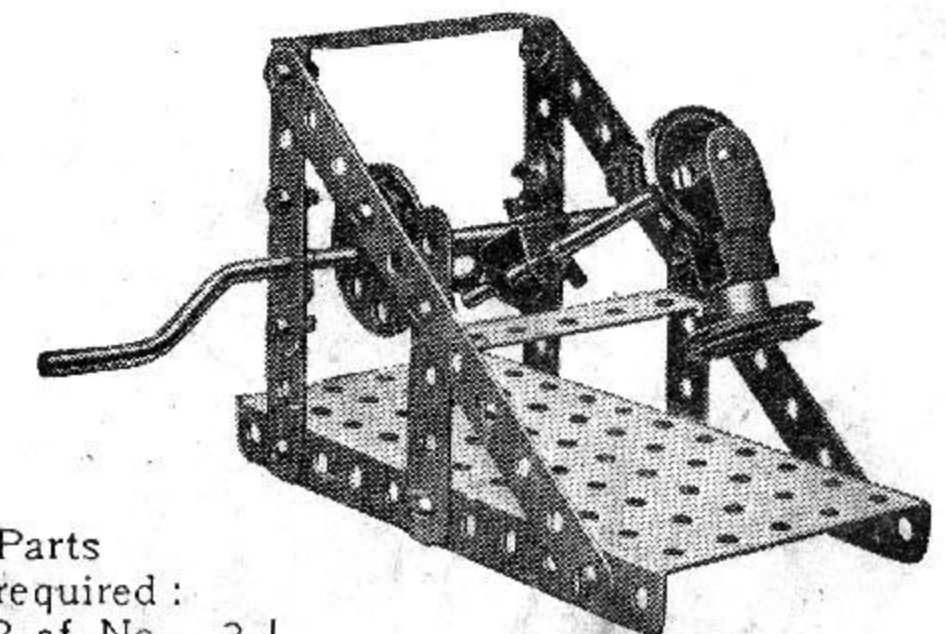
Parts required:		
4 of No.	2	1 of No. 17
7 " "	5	4 " "
2 " "	11	19 " "
2 " "	16	1 " "
		3 of No. 48A

Model No. 1.32 Tandem Car



Parts required:		
4 of No.	2	26 of No. 37
8 " "	5	5 " "
2 " "	12	1 " "
2 " "	16	2 " "
4 " "	19B	

Model No. 1.33 Mechanical Hammer

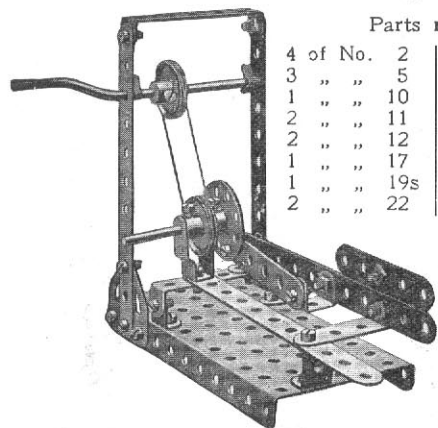


Parts required:		
2 of No.	2	1 of No. 19s
6 " "	5	2 " "
1 " "	11	1 " "
1 " "	12	4 " "
1 " "	16	4 " "
		18 of No. 37'
		1 " "
		3 " "
		1 " "

**Model No. 1.34 Sawing Machine**

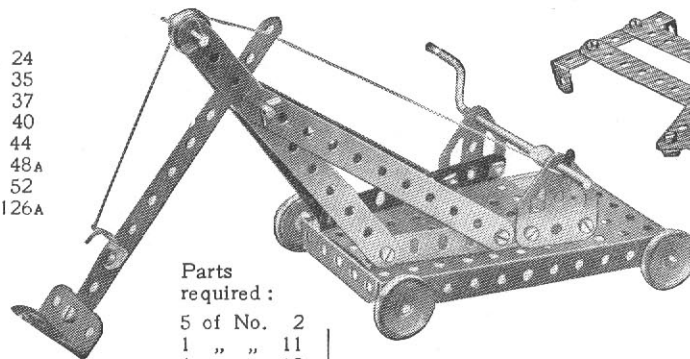
Parts required :

4 of No. 2	1 of No. 24
3 " " 5	2 " " 35
1 " " 10	22 " " 37
2 " " 11	1 " " 40
2 " " 12	1 " " 44
1 " " 17	2 " " 48A
1 " " 19s	1 " " 52
2 " " 22	2 " " 126A

**Model No. 1.36 Steam Shovel**

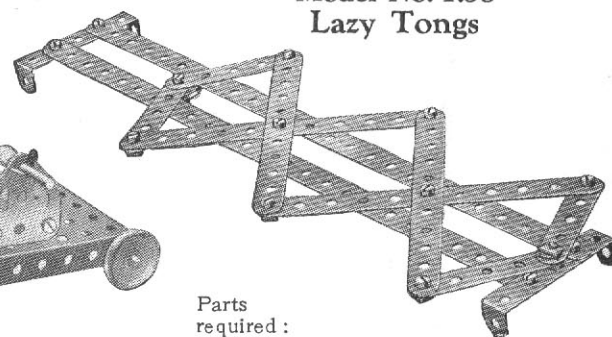
Parts required :

5 of No. 2	6 of No. 35	1 of No. 52
1 " " 11	12 " " 37	1 " " 54
1 " " 12	2 " " 37A	1 " " 111c
2 " " 16	2 " " 38	1 " " 126
2 " " 18A	1 " " 40	2 " " 126A
1 " " 19s		
4 " " 22		
1 " " 23		

**Model No. 1.38 Lazy Tongs**

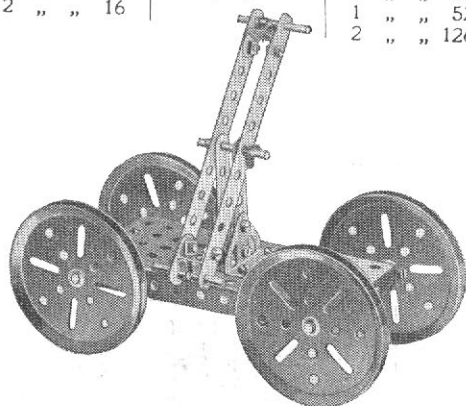
Parts required :

2 of No. 1	12 of No. 37
4 " " 2	10 " " 37A
4 " " 5	2 " " 48A
1 " " 23	2 " " 111c

**Model No. 1.35 Manual Fire Engine**

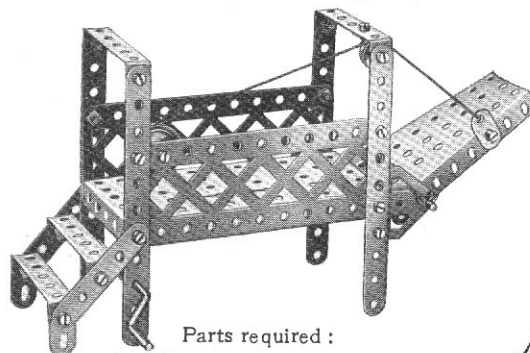
Parts required :

2 of No. 2	2 of No. 17	6 of No. 35
2 " " 5	1 " " 18A	12 " " 37
2 " " 11	4 " " 19B	2 " " 38
2 " " 16		1 " " 52
		2 " " 126

**Model No. 1.37 Gangway**

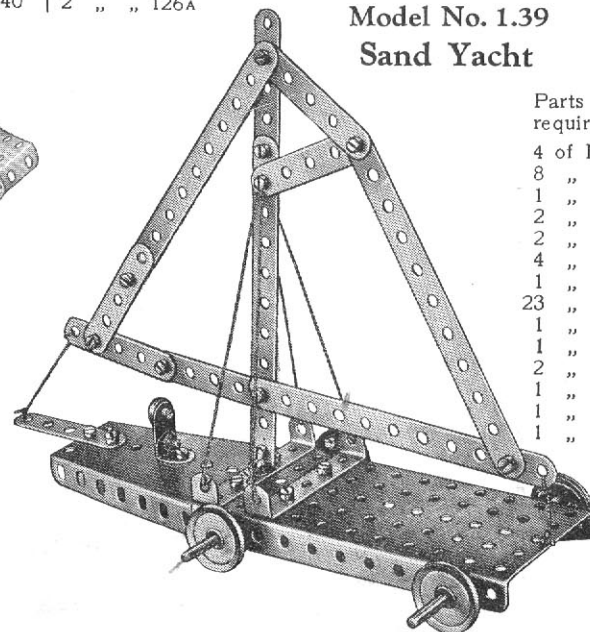
Parts required :

4 of No. 2	22 of No. 37
2 " " 5	1 " " 40
3 " " 10	4 " " 48A
1 " " 12	1 " " 52
1 " " 16	1 " " 54
1 " " 22	2 " " 100
1 " " 23	1 " " 111c
4 " " 35	2 " " 126A

**Model No. 1.39 Sand Yacht**

Parts required :

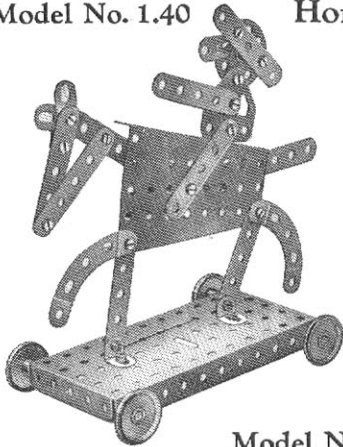
4 of No. 2
8 " " 5
1 " " 10
2 " " 12
2 " " 16
4 " " 22
1 " " 23
23 " " 37
1 " " 37A
1 " " 40
2 " " 48A
1 " " 52
1 " " 54
1 " " 111c





Model No. 1.40

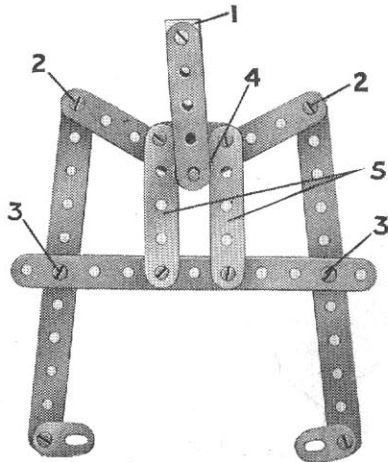
Horseman



Parts required :		
2 of No.	2	
7 " "	5	
3 " "	10	
2 " "	12	
2 " "	16	
4 " "	22	
1 " "	24	
17 " "	37	
1 " "	52	
1 " "	54	
2 " "	90A	
1 " "	126A	

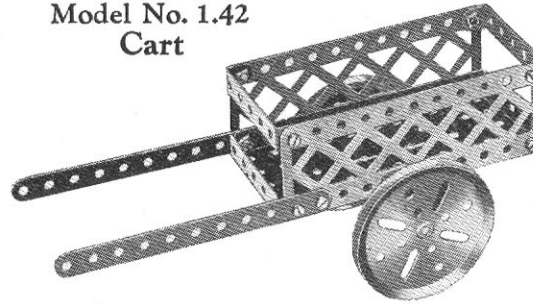
Model No. 1.41  
Friction Grip Tongs

The hoisting cord is attached to the Double Bracket 1. The joints 2, 3 are lock-nutted, so that when the grip is raised the  $\frac{1}{2}$ " loose Pulley Wheel 4 slides upward between the  $2\frac{1}{2}$ " Strips 5, and the grip closes upon the block of wood or other material placed between its jaws.



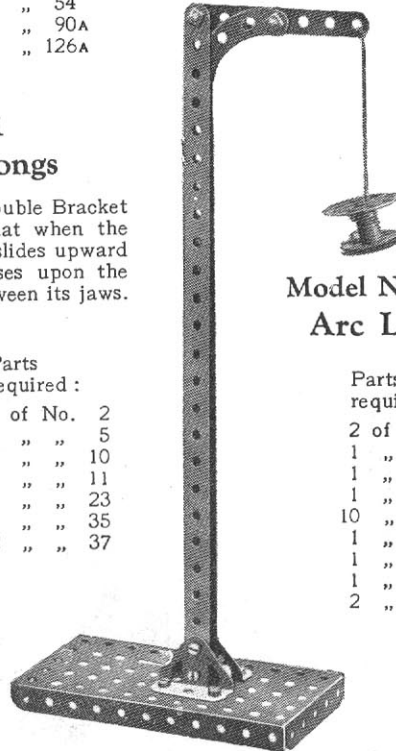
Parts required :		
3 of No.	2	
8 " "	5	
4 " "	10	
1 " "	11	
1 " "	23	
2 " "	35	
12 " "	37	

Model No. 1.42  
Cart



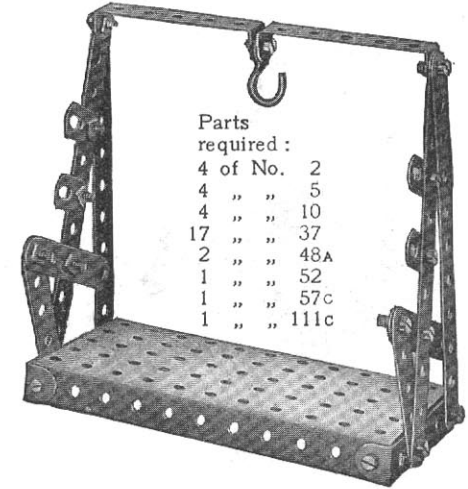
Parts required :			
2 of No.	2	2 of No.	48A
1 " "	16	1 " "	52
2 " "	19 <sup>B</sup>	2 " "	100
14 " "	37	2 " "	126A

Model No. 1.43  
Arc Lamp



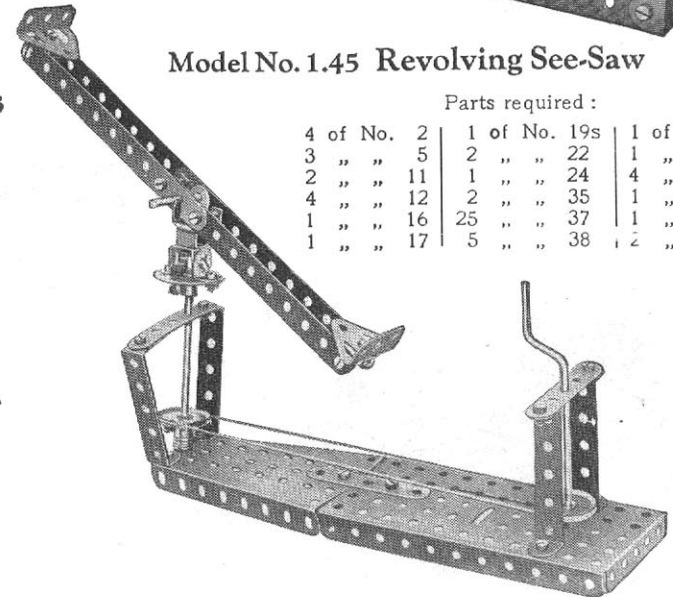
Parts required :		
2 of No.	1	
1 " "	3	
1 " "	22	
1 " "	24	
10 " "	37	
1 " "	40	
1 " "	52	
1 " "	90A	
2 " "	126	

Model No. 1.44 Pen Rack



Parts required :		
4 of No.	2	
4 " "	5	
4 " "	10	
17 " "	37	
2 " "	48A	
1 " "	52	
1 " "	57C	
1 " "	111C	

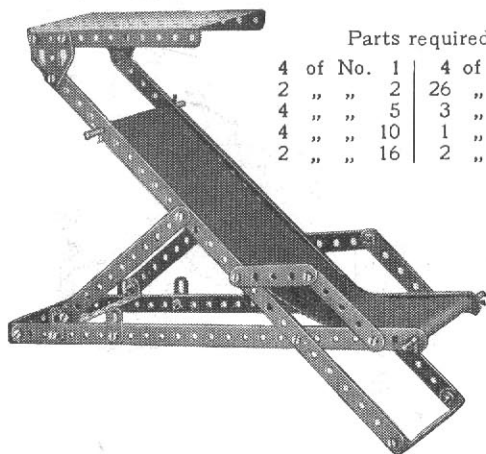
Model No. 1.45 Revolving See-Saw



Parts required :					
4 of No.	2	1 of No.	19s	1 of No.	40
3 " " "	5	2 " " "	22	1 " " "	44
2 " " "	11	1 " " "	24	4 " " "	48A
4 " " "	12	2 " " "	35	1 " " "	52
1 " " "	16	25 " " "	37	1 " " "	54
1 " " "	17	5 " " "	38	2 " " "	126

These Models can be built with MECCANO Outfit No. 1 (or No. 0 and No. 0A)

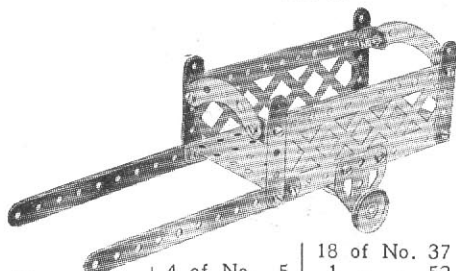
**Model No. 1.46 Deck Chair**



Parts required :

4 of No. 1	4 of No. 35
2 " " 2	26 " " 37
4 " " 5	3 " " 48A
4 " " 10	1 " " 52
2 " " 16	2 " " 126A

**Model No. 1.48 Luggage Cart**

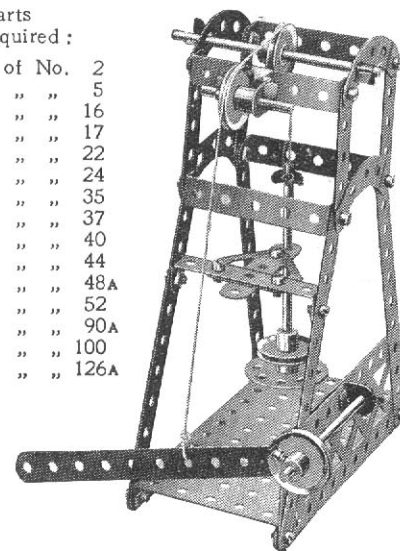


Parts required :	4 of No. 5	18 of No. 37
	4 " " 12	1 " " 52
	1 " " 16	2 " " 90A
2 of No. 2	2 " " 22	2 " " 100
		2 " " 126A

**Model No. 1.50 Mechanical Stamp**

Parts required :

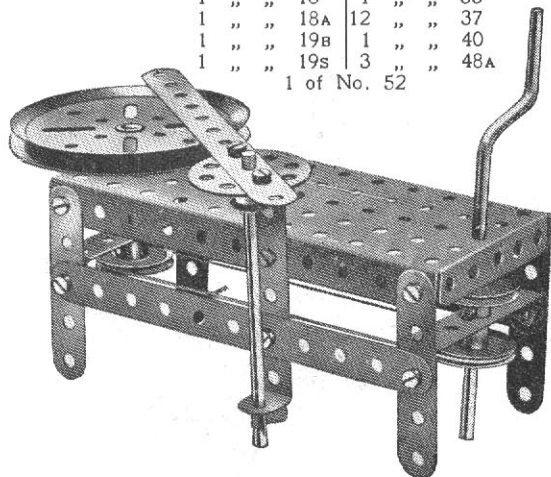
5 of No. 2
5 " " 5
3 " " 16
1 " " 17
4 " " 22
1 " " 24
6 " " 35
20 " " 37
1 " " 40
1 " " 44
6 " " 48A
1 " " 52
4 " " 90A
1 " " 100
1 " " 126A



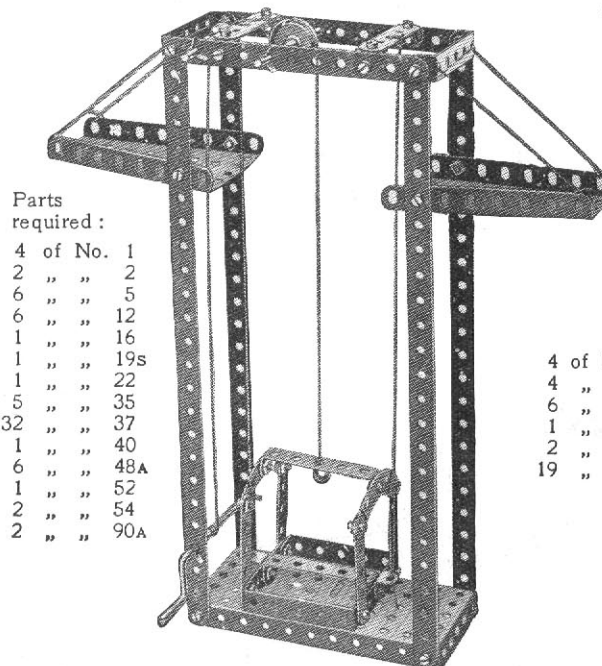
**Model No. 1.47 Potter's Wheel**

Parts required :

3 of No. 2	3 of No. 22
4 " " 5	1 " " 24
1 " " 16	1 " " 35
1 " " 18A	12 " " 37
1 " " 19B	1 " " 40
1 " " 19s	3 " " 48A
1 of No. 52	



**Model No. 1.49 Elevator**



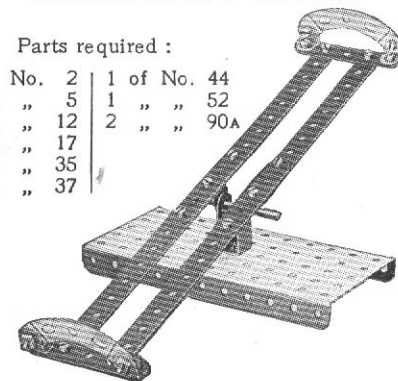
Parts required :

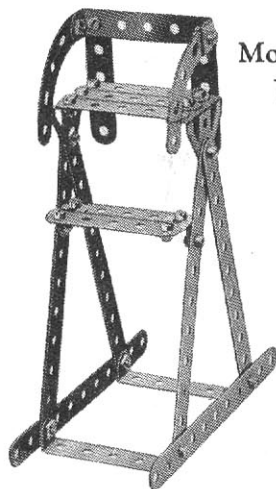
4 of No. 1
2 " " 2
6 " " 5
6 " " 12
1 " " 16
1 " " 19s
1 " " 22
5 " " 35
32 " " 37
1 " " 40
6 " " 48A
1 " " 52
2 " " 54
2 " " 90A

**Model No. 1.51 See-Saw**

Parts required :

4 of No. 2	1 of No. 44
4 " " 5	1 " " 52
6 " " 12	2 " " 90A
1 " " 17	
2 " " 35	
19 " " 37	

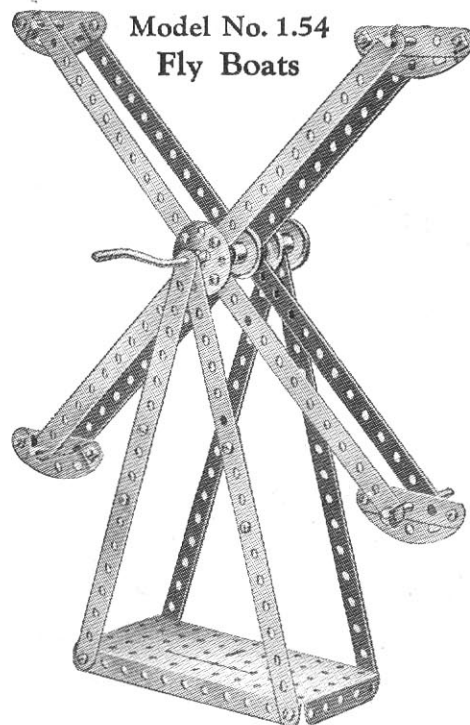




**Model No. 1.52  
Umpire's  
Seat**

Parts  
required :

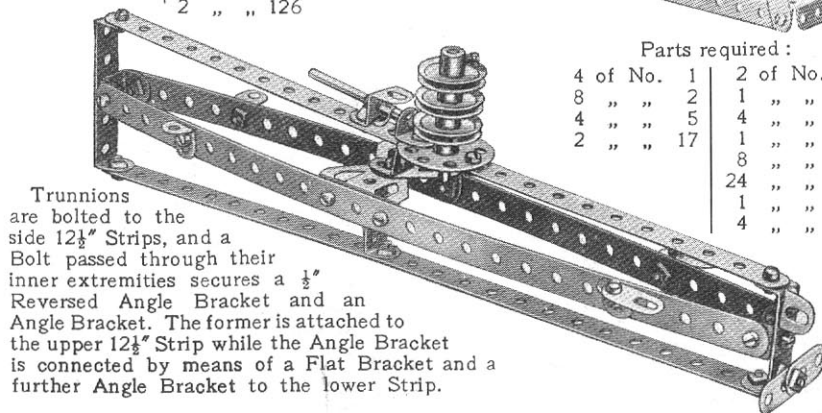
6 of No.	2
7 " "	5
2 " "	10
4 " "	12
24 " "	37
3 " "	48A
2 " "	90A
2 " "	126



**Model No. 1.54  
Fly Boats**

Parts required :

4 of No.	1	2 of No.	18A
8 " "	2	1 " "	19s
4 " "	5	4 " "	22
2 " "	17	1 " "	24
		8 " "	35
		24 " "	37
		1 " "	52
		4 " "	90A



**Model No. 1.53 Submarine**

Parts required :

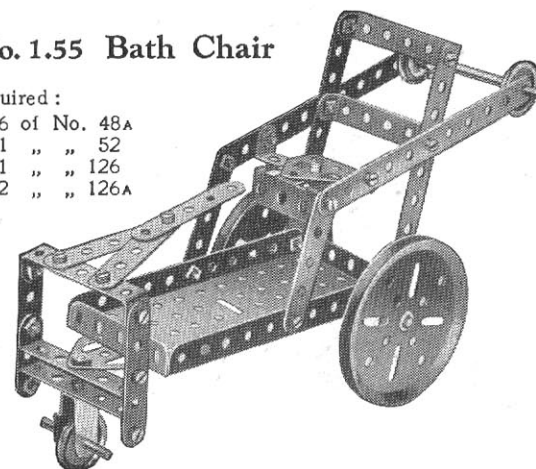
4 of No.	1	2 of No.	35
5 " "	10	28 " "	37
2 " "	11	3 " "	37A
8 " "	12	2 " "	38
2 " "	17	1 " "	48
3 " "	22	1 " "	48A
1 " "	24	2 " "	125
		2 " "	126

Trunnions are bolted to the side 12½" Strips, and a Bolt passed through their inner extremities secures a ½" Reversed Angle Bracket and an Angle Bracket. The former is attached to the upper 12½" Strip while the Angle Bracket is connected by means of a Flat Bracket and a further Angle Bracket to the lower Strip.

**Model No. 1.55 Bath Chair**

Parts required :

4 of No.	2	6 of No.	48A
7 " "	5	1 " "	52
2 " "	16	1 " "	126
1 " "	18A	2 " "	126A
2 " "	19B		
3 " "	22		
24 " "	37		
1 " "	37A		
1 " "	44		



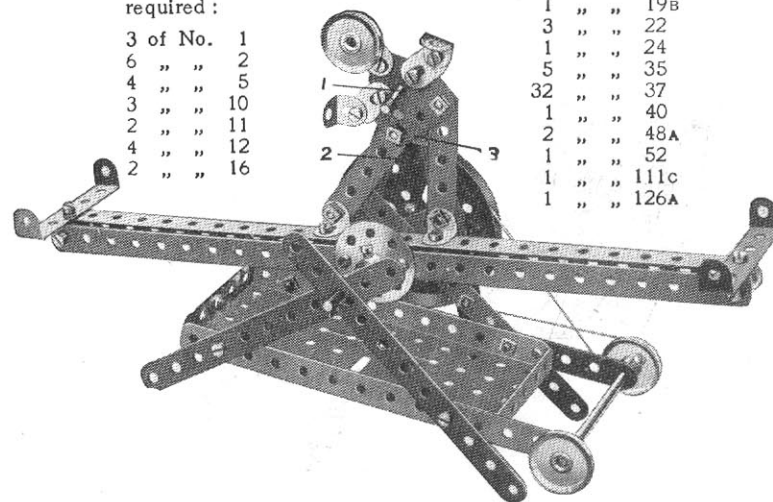
**Model No. 1.56 Acrobat on See-Saw**

The 1" Rod 1 is journaled in the end holes of two 5½" Strips 2 and in the Flat Trunnion 3 which joins them. It is held in position by two Spring Clips, placed on either side of the 5½" Strips 2.

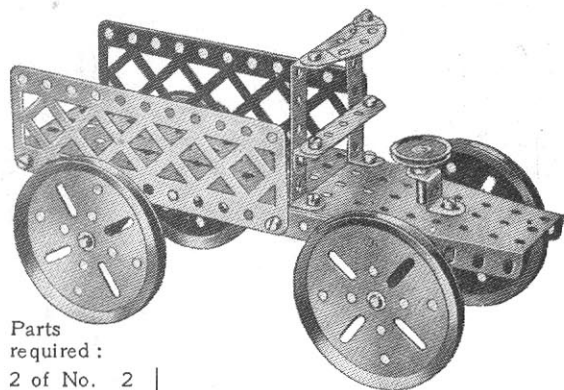
Parts  
required :

3 of No.	1
6 " "	2
4 " "	5
3 " "	10
2 " "	11
4 " "	12
2 " "	16

1 of No.	18A
1 " "	19B
3 " "	22
1 " "	24
5 " "	35
32 " "	37
1 " "	40
2 " "	48A
1 " "	52
1 " "	111c
1 " "	126A



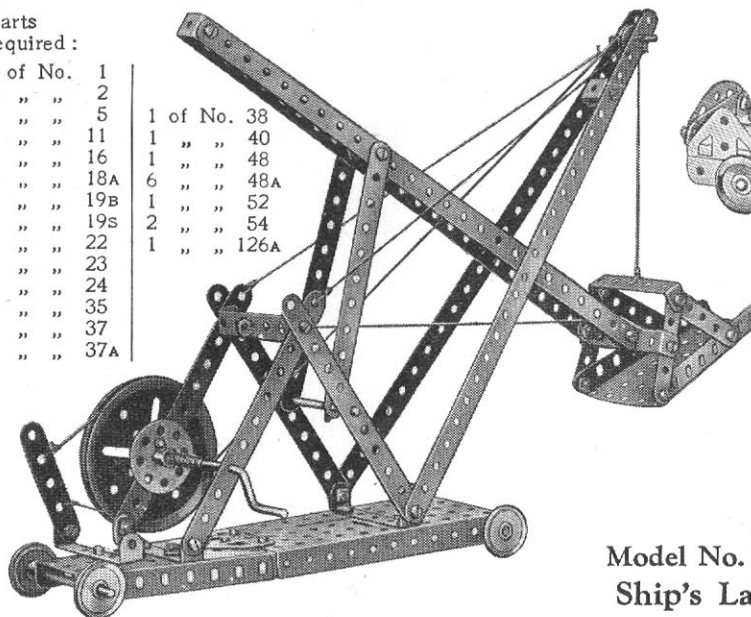
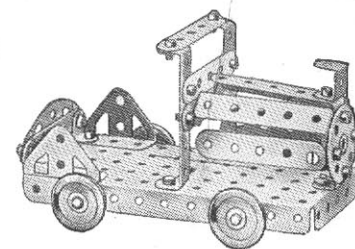


**Model No. 1.57 Motor Lorry**Parts  
required :

2 of No. 2		
2 " " 5		
2 " " 12	25 of No. 37	
2 " " 16	2 " " 38	1 of No. 90A
1 " " 18A	3 " " 48A	2 " " 100
4 " " 19B	1 " " 52	2 " " 125
1 " " 24	1 " " 54	2 " " 126A

**Model No. 1.58 Mechanical Shovel**Parts  
required :

4 of No. 1	1 of No. 38
6 " " 2	1 " " 40
5 " " 5	1 " " 48
2 " " 11	6 " " 48A
3 " " 16	1 " " 52
1 " " 18A	2 " " 54
1 " " 19B	1 " " 126A
1 " " 19S	
4 " " 22	
1 " " 23	
1 " " 24	
6 " " 35	
35 " " 37	
1 " " 37A	

**Model No. 1.60 Locomotive**Parts  
required :

7 of No. 5	
1 " " 11	
6 " " 12	
2 " " 16	
4 " " 22	
1 " " 24	
24 " " 37	
4 " " 48A	
1 " " 52	
1 " " 90A	
2 " " 126	

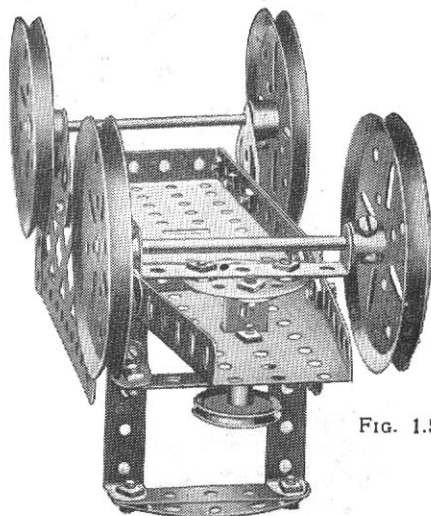
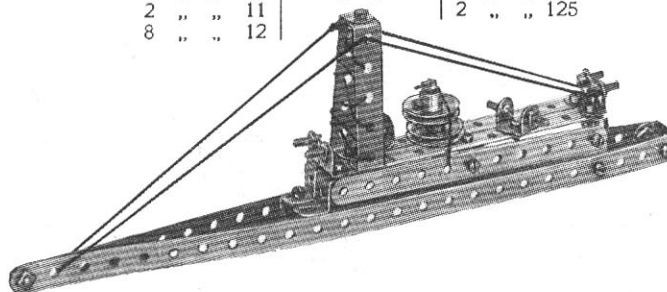


Fig. 1.57A

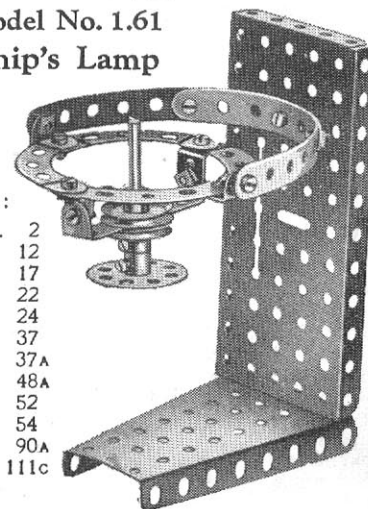
**Model No. 1.59 Battleship**

Parts required :

2 of No. 1	2 of No. 22	1 of No. 40
4 " " 2	26 " " 37	2 " " 48A
5 " " 10	6 " " 37A	6 " " 111c
2 " " 11		2 " " 125
8 " " 12		

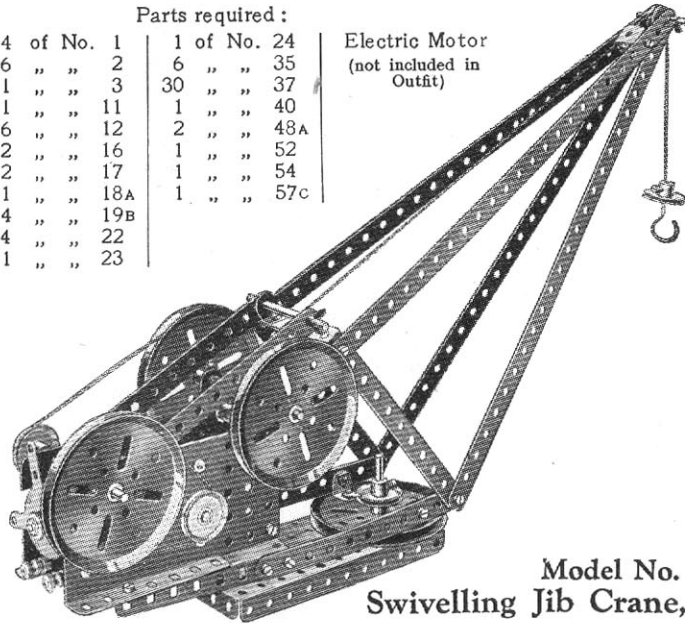
**Model No. 1.61 Ship's Lamp**Parts  
required :

2 of No. 2	
4 " " 12	
1 " " 17	
2 " " 22	
1 " " 24	
11 " " 37	
4 " " 37A	
1 " " 48A	
1 " " 52	
1 " " 54	
4 " " 90A	
2 " " 111c	



### Model No. 1.62 Swivelling Jib Crane, Electric

Parts required:		
4 of No. 1	1 of No. 24	Electric Motor
6 " " 2	6 " " 35	(not included in
1 " " 3	30 " " 37	Outfit)
1 " " 11	1 " " 40	
6 " " 12	2 " " 48A	
2 " " 16	1 " " 52	
2 " " 17	1 " " 54	
1 " " 18A	1 " " 57c	
4 " " 19B		
4 " " 22		
1 " " 23		



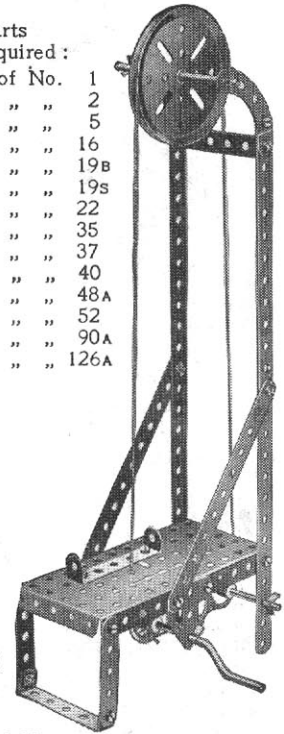
### Model No. 1.64 Overhead Crane

Parts required:	
4 of No. 2	
4 " " 5	
2 " " 10	
4 " " 12	
1 " " 16	
1 " " 18A	
1 " " 19s	
4 " " 22	
1 " " 23	
1 " " 24	
2 " " 35	
25 " " 37	
1 " " 38	
1 " " 40	
6 " " 48A	
1 " " 57c	
4 " " 90A	
2 " " 100	



### Model No. 1.66 Band Saw

Parts required:	
2 of No. 1	
2 " " 2	
2 " " 5	
2 " " 16	
1 " " 19B	
1 " " 19s	
2 " " 22	
6 " " 35	
18 " " 37	
1 " " 40	
3 " " 48A	
1 " " 52	
2 " " 90A	
2 " " 126A	

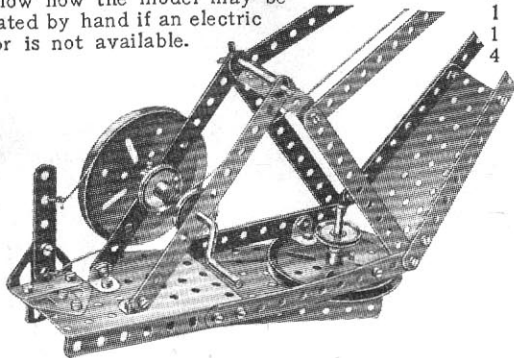


### Model No. 1.63 Swivelling Jib Crane, Hand Operated

This illustrates an alternative construction of the base of Model No. 1.62, and is intended to show how the model may be operated by hand if an electric motor is not available.

Parts required:

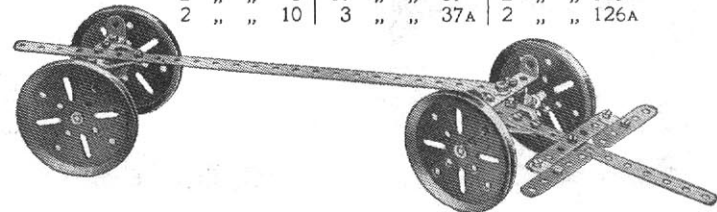
4 of No. 1	2 of No. 17
6 " " 2	1 " " 18A
1 " " 5	2 " " 19B
1 " " 11	1 " " 19s
4 " " 12	4 " " 22
	1 " " 23
	1 " " 24
	4 " " 35
	32 " " 37
	4 " " 38
	1 " " 40
	1 " " 48
	1 " " 48A
	1 " " 52
	2 " " 54
	1 " " 57c
	1 " " 126
	1 " " 126A



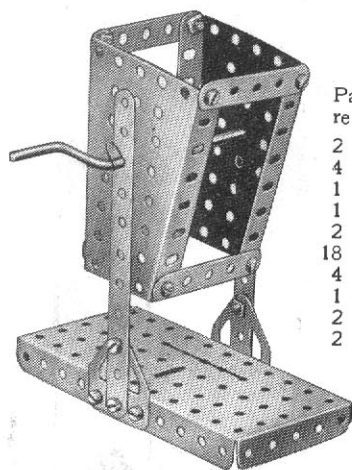
### Model No. 1.65 Timber Drag

Parts required:

1 of No. 1	2 of No. 11	4 of No. 48A
1 " " 2	2 " " 16	3 " " 111c
1 " " 3	4 " " 19B	2 " " 125
2 " " 5	19 " " 37	2 " " 126A
2 " " 10	3 " " 37A	

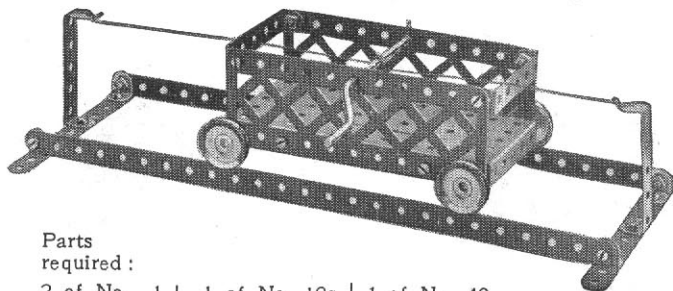


## Model No. 1.67 Butter Churn

Parts  
required :

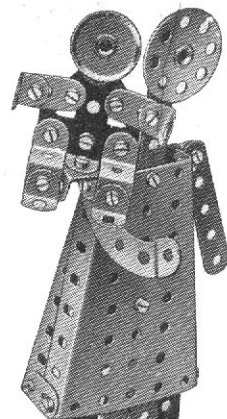
2 of No.	2
4 " "	5
1 " "	19s
1 " "	24
2 " "	35
18 " "	37
4 " "	38
1 " "	52
2 " "	54
2 " "	126A

## Model No. 1.69 Cable Railway

Parts  
required :

2 of No.	1	1 of No.	19s	1 of No.	40
2 " "	2	4 " "	22	4 " "	48A
4 " "	12	2 " "	35	1 " "	52
2 " "	16	18 " "	37	2 " "	100

## Model No. 1.72 Man and Boy

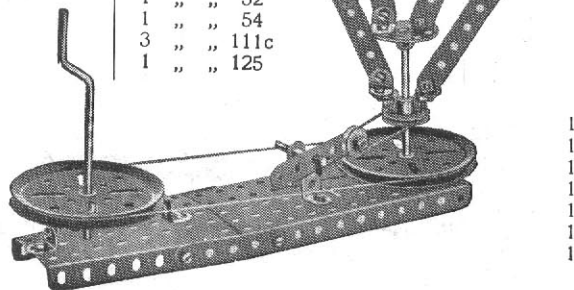
Parts  
required :

4 of No.	2
1 " "	3
1 " "	5
5 " "	10
1 " "	11
8 " "	12
1 " "	22
1 " "	24
26 " "	37
1 " "	52
2 " "	54
1 " "	90A
2 " "	125
1 " "	126A

## Model No. 1.68 Inverted Centrifugal Governor

Parts required :

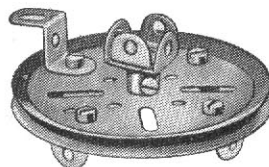
4 of No.	2	4 of No.	22
5 " "	5	1 " "	23
1 " "	11	1 " "	24
8 " "	12	3 " "	35
1 " "	16	22 " "	37
1 " "	18A	6 " "	37A
2 " "	19B	4 " "	38
1 " "	19s	1 " "	40
		1 " "	48A
		1 " "	52
		1 " "	54
		3 " "	111c
		1 " "	125



## Model No. 1.70 Candle Stick

Parts  
required :

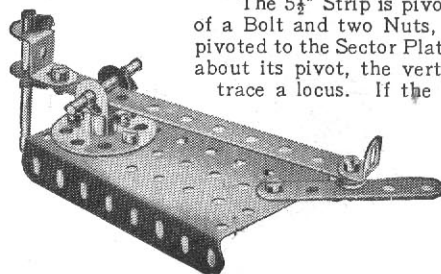
2 of No.	11
4 " "	12
1 " "	19B
4 " "	37
1 " "	111c
1 " "	125



## Model No. 1.71 Machine for Tracing a Locus

Parts required :

1 of No.	2	4 of No.	35
1 " "	5	4 " "	37
1 " "	11	3 " "	37A
1 " "	12	4 " "	38
1 " "	17	1 " "	54
1 " "	18A	2 " "	111c
1 " "	24	1 " "	125



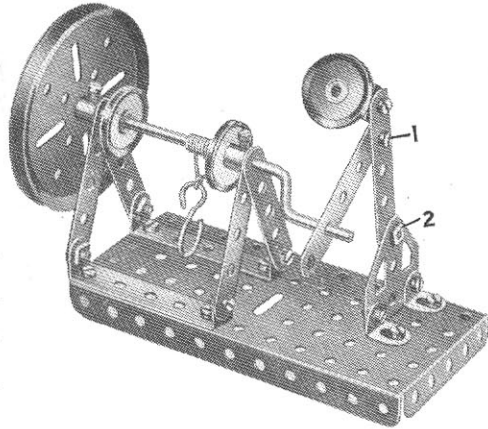
The  $5\frac{1}{2}$ " Strip is pivoted to the  $2\frac{1}{2}$ " Strip by means of a Bolt and two Nuts, and the  $2\frac{1}{2}$ " Strip is similarly pivoted to the Sector Plate. By revolving the  $2\frac{1}{2}$ " Strip about its pivot, the vertical  $1\frac{1}{2}$ " Rod can be made to trace a locus. If the positions of the  $1\frac{1}{2}$ " Rod and the  $5\frac{1}{2}$ " Strip are altered, several different loci may be traced. Machines of this type are of advantage in assisting in the design of engine connecting rods.



### Model No. 1.73 Windlass

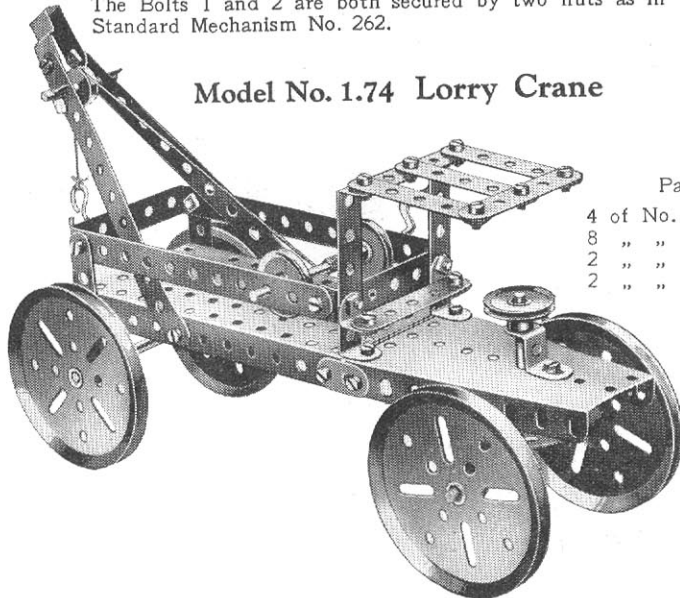
Parts  
required :

6 of No.	5
3 " "	12
1 " "	19B
1 " "	19s
3 " "	22
15 " "	37
4 " "	37A
1 " "	40
2 " "	48A
1 " "	52
1 " "	57c
3 " "	111c
1 " "	126A



The figure at the right of the model is arranged to work to and fro when the Crank Handle is rotated. The Bolts 1 and 2 are both secured by two nuts as in Standard Mechanism No. 262.

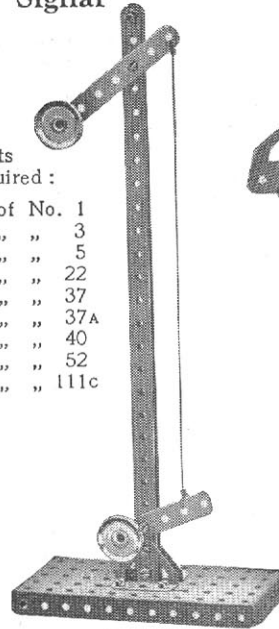
### Model No. 1.74 Lorry Crane



### Model No. 1.75 Signal

Parts  
required :

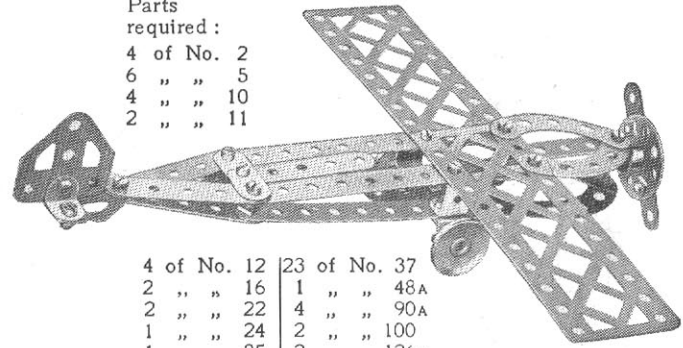
2 of No.	1
1 " "	3
1 " "	5
22 " "	22
11 " "	37
2 " "	37A
1 " "	40
1 " "	52
2 " "	111c



### Model No. 1.76 Aeroplane

Parts  
required :

4 of No.	2
6 " "	5
4 " "	10
2 " "	11

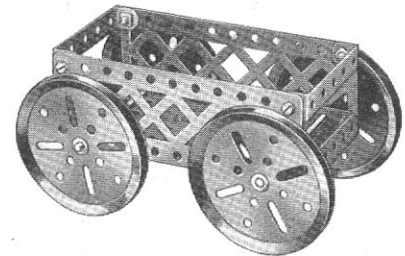


4 of No. 12	23 of No. 37
2 " " 16	1 " " 48A
2 " " 22	4 " " 90A
1 " " 24	2 " " 100
1 " " 35	2 " " 126A

### Model No. 1.77 Truck

Parts  
required :

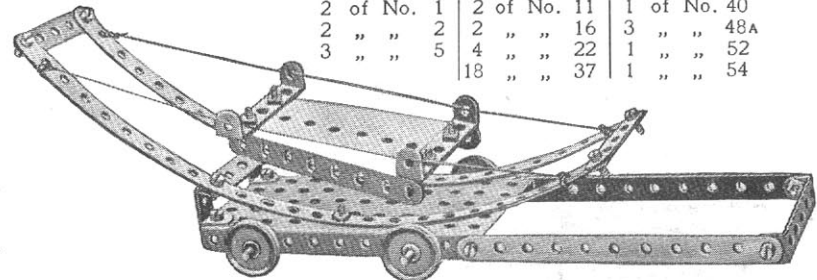
2 of No.	16
4 " "	19B
8 " "	37
2 " "	48A
1 " "	52
2 " "	100



### Model No. 1.78 Mountain Transport

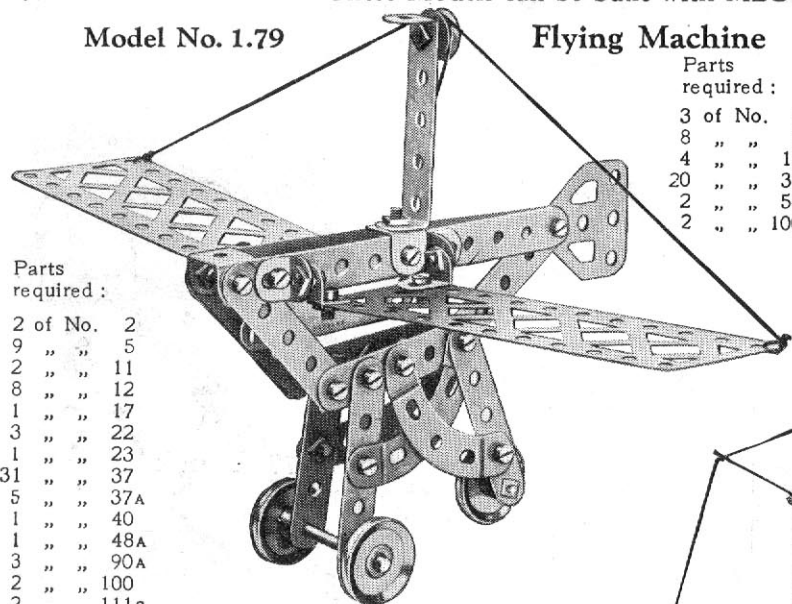
Parts required :

2 of No. 1	2 of No. 11	1 of No. 40
2 " " 2	2 " " 16	3 " " 48A
3 " " 5	4 " " 22	1 " " 52
	18 " " 37	1 " " 54



These Models can be built with MECCANO Outfit No. 1 (or No. 0 and No. 0A)

Model No. 1.79



Parts  
required :

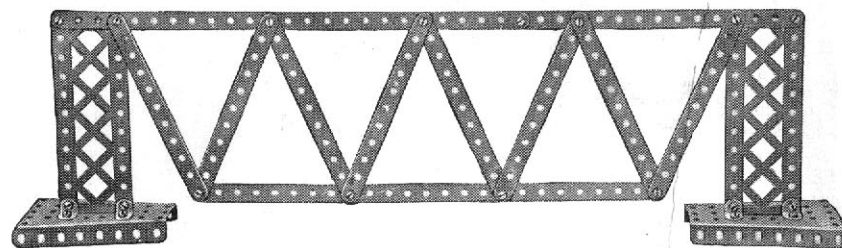
2	of No.	2
9	" "	5
2	" "	11
8	" "	12
1	" "	17
3	" "	22
1	" "	23
31	" "	37
5	" "	37A
1	" "	40
1	" "	48A
3	" "	90A
2	" "	100
2	" "	111c
1	" "	126A

Flying Machine

Parts  
required :

3	of No.	1
8	" "	2
4	" "	12
20	" "	37
2	" "	54
2	" "	100

Model No. 1.81 Inverted Truss

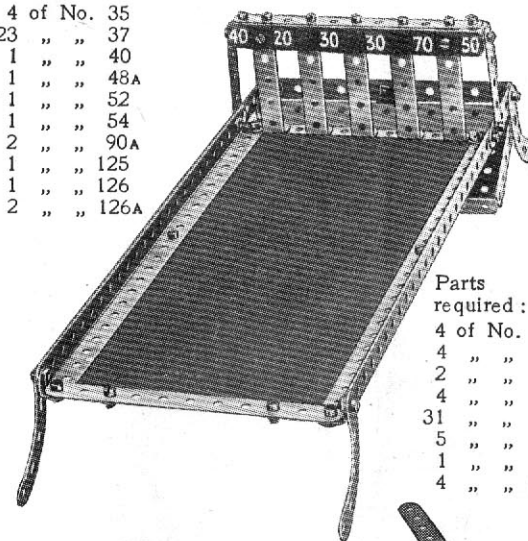


Model No. 1.82 Sand Yacht

Parts required :

1	of No.	1	4	of No.	35
1	" "	2	23	" "	37
1	" "	3	1	" "	40
2	" "	5	1	" "	48A
2	" "	12	1	" "	52
2	" "	16	1	" "	54
1	" "	18A	2	" "	90A
4	" "	19B	1	" "	125
1	" "	22	1	" "	126
1	" "	24	2	" "	126A

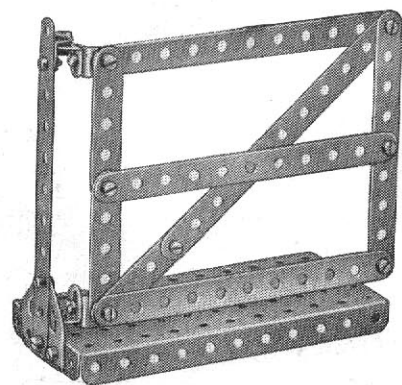
Model No. 1.83  
Box Ball Alley



Parts  
required :

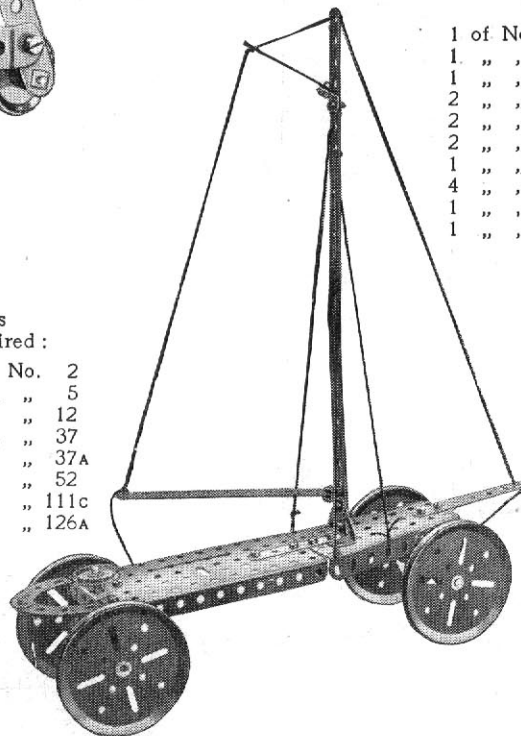
4	of No.	1
4	" "	2
2	" "	5
4	" "	10
31	" "	37
5	" "	48A
1	" "	52
4	" "	90A

Model No. 1.80 Gate



Parts  
required :

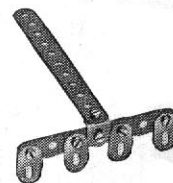
6	of No.	2
4	" "	5
5	" "	12
13	" "	37
4	" "	37A
1	" "	52
2	" "	111c
1	" "	126A



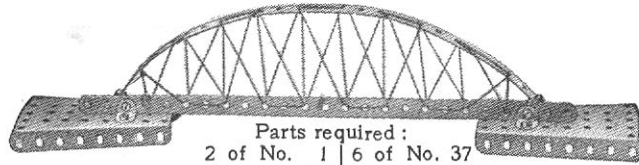
Model No. 1.84 Rake

Parts required :

1	of No.	2	4	of No.	10
2	" "	5	1	" "	12
			6	of No.	37



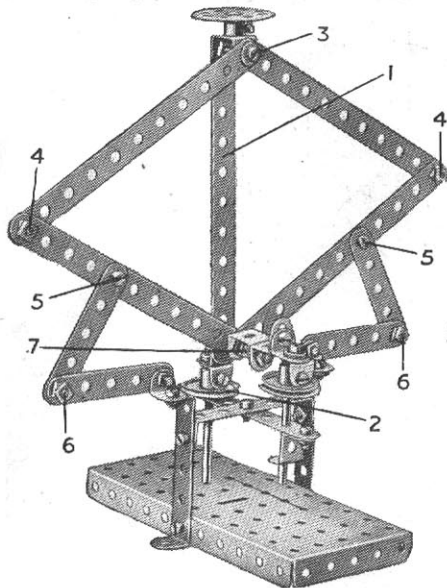
### Model No. 1.85 Bow Girder



Parts required:  
2 of No. 1 | 6 of No. 37  
4 " " 12 | 1 " " 40  
2 of No. 54

### Model No. 1.86 Double-Action Pump

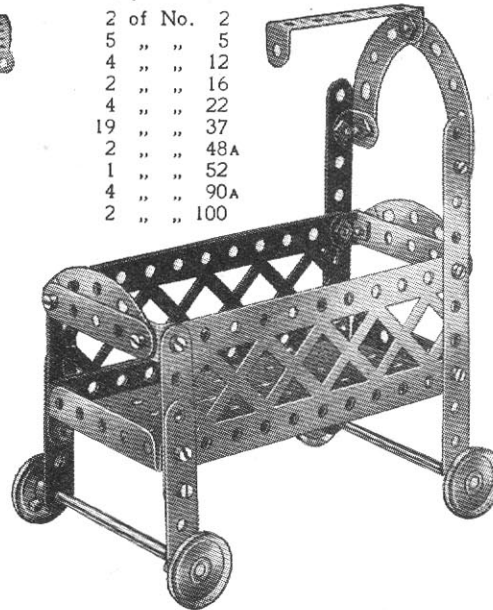
The  $5\frac{1}{2}$ " Strip 1 is attached to the 1" Pulley Wheel 2 by means of two Angle Brackets, through the lower of which passes the Set-Screw that secures the Pulley to its 2" Rod. Two Washers are placed beneath the head of the Bolt joining the Angle Brackets in order to prevent its shank from binding on the boss of the Pulley 2. The joints 3, 4, 5, 6, 7, are all lock-nutted, the remainder of the joints being quite rigid. When the Strip 1 descends, together with the first pump, the incidental distortion of the parallelogram 3, 4, 7, 4 causes the second pump to rise. Similarly, when the first pump rises, the second descends.



Parts required:  
5 of No. 2  
1 " " 3  
4 " " 5  
2 " " 11  
6 " " 12  
2 " " 17  
2 " " 22  
1 " " 24  
21 " " 37  
6 " " 37A  
4 " " 38  
3 " " 48A  
1 " " 52  
6 " " 111c  
2 " " 125

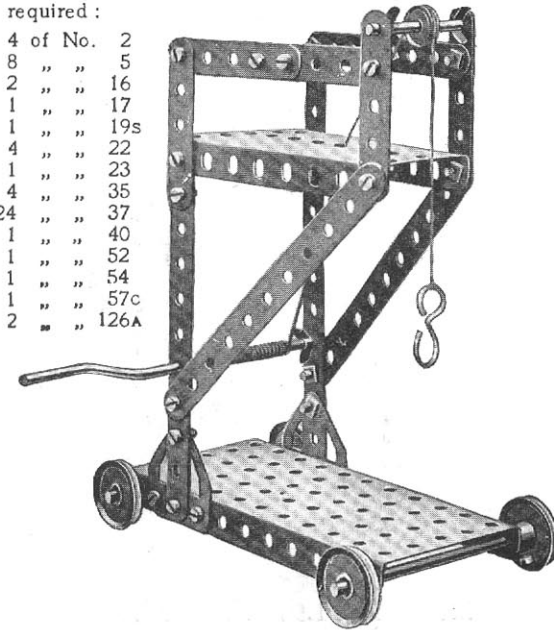
### Model No. 1.87 Cot on Wheels

Parts required:  
2 of No. 2  
5 " " 5  
4 " " 12  
2 " " 16  
4 " " 22  
19 " " 37  
2 " " 48A  
1 " " 52  
4 " " 90A  
2 " " 100



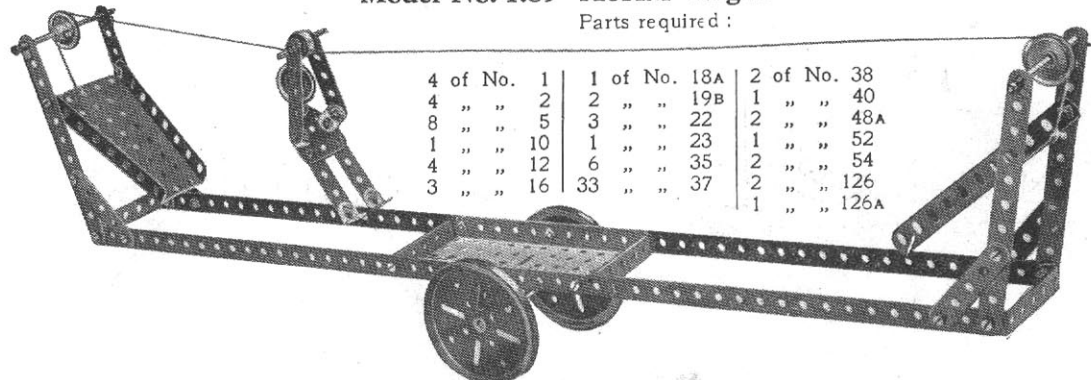
### Model No. 1.88 Tower Wagon

Parts required:  
4 of No. 2  
8 " " 5  
2 " " 16  
1 " " 17  
1 " " 19s  
4 " " 22  
1 " " 23  
4 " " 35  
24 " " 37  
1 " " 40  
1 " " 52  
1 " " 54  
1 " " 57c  
2 " " 126A



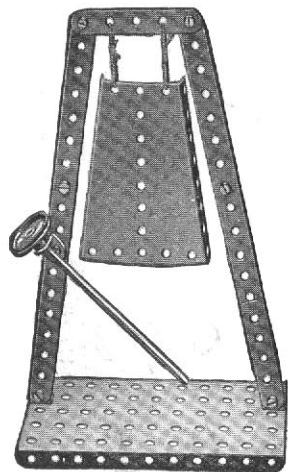
### Model No. 1.89 Aerial Flight

Parts required:



4 of No. 1	1 of No. 18A	2 of No. 38
4 " " 2	2 " " 19B	1 " " 40
8 " " 5	3 " " 22	2 " " 48A
1 " " 10	1 " " 23	1 " " 52
4 " " 12	6 " " 35	2 " " 54
3 " " 16	33 " " 37	2 " " 126
		1 " " 126A



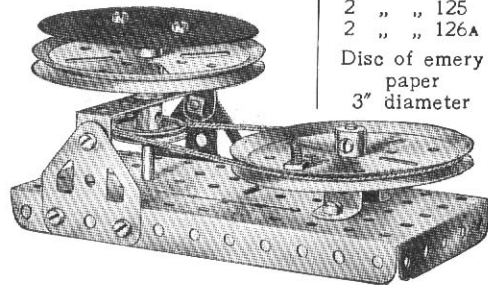
**Model No. 1.90 Gong****Parts required:**

4 of No. 2	1 of No. 22
1 " " 5	1 " " 37
3 " " 12	1 " " 40
1 " " 16	1 " " 52
1 of No. 54	

**Model No. 1.91 Emery Wheel****Parts required:**

1 of No. 17	1 of No. 22	10 of No. 37
1 " " 18A	1 " " 24	1 " " 40
2 " " 19B	2 " " 35	1 " " 48A
		1 " " 52
		1 " " 111c
		2 " " 125
		2 " " 126A

Disc of emery  
paper  
3" diameter

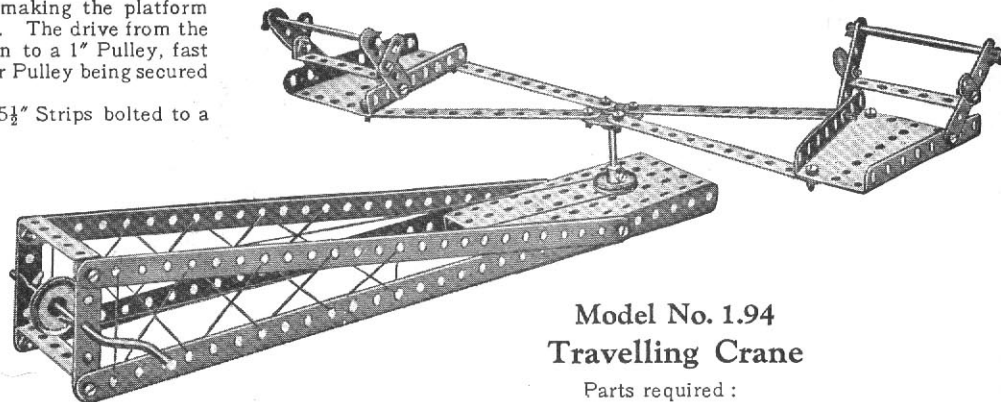
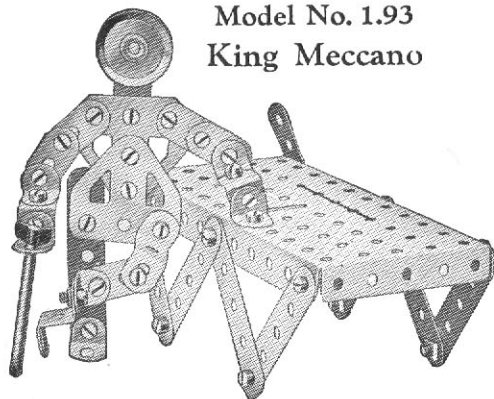
**Model No. 1.92 Roundabout**

Begin to build this model by making the platform from a Flanged Plate and 12½" Strips. The drive from the Pulley on the Crank Handle is taken to a 1" Pulley, fast on the vertical 2" Rod, another similar Pulley being secured to this Rod beneath the Plate.

The arms are formed of four 5½" Strips bolted to a Bush Wheel fast on the 2" Rod.

**Parts required:**

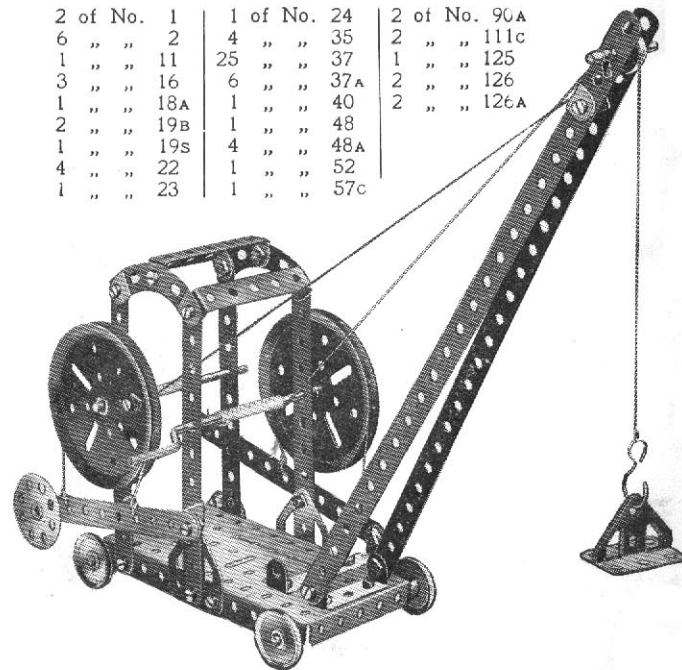
4 of No. 1	3 of No. 22
4 " " 2	1 " " 24
6 " " 5	6 " " 35
4 " " 10	22 " " 37
2 " " 16	1 " " 40
1 " " 17	4 " " 48A
1 " " 19s	1 " " 52
2 of No. 54	

**Model No. 1.93 King Meccano****Parts required:**

1 of No. 3	1 of No. 35
9 " " 5	30 " " 37
5 " " 10	1 " " 52
8 " " 12	1 " " 111c
1 " " 17	2 " " 125
1 " " 22	2 " " 126A

**Model No. 1.94 Travelling Crane****Parts required:**

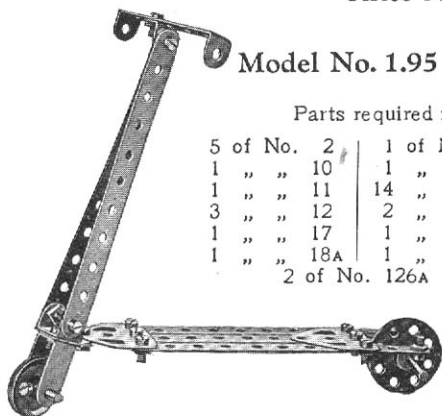
2 of No. 1	1 of No. 24	2 of No. 90A
6 " " 2	4 " " 35	2 " " 111c
1 " " 11	25 " " 37	1 " " 125
3 " " 16	6 " " 37A	2 " " 126
1 " " 18A	1 " " 40	2 " " 126A
2 " " 19B	1 " " 48	
1 " " 19s	4 " " 48A	
4 " " 22	1 " " 52	
1 " " 23	1 " " 57c	



# Model No. 1.95 Scooter

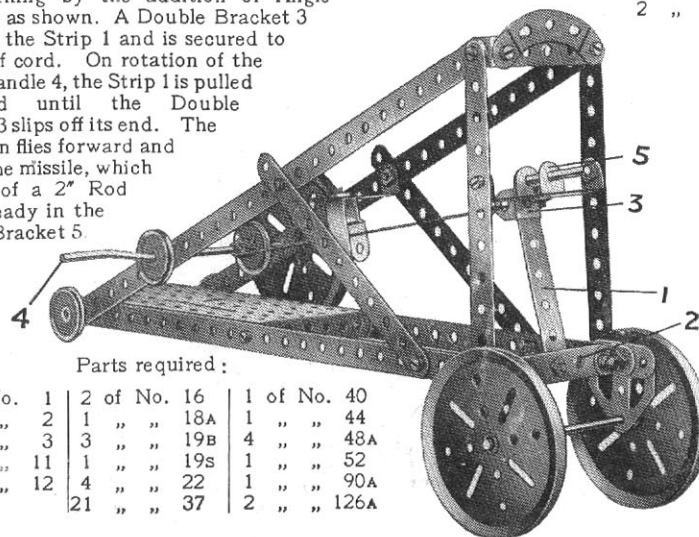
Parts required :

5 of No. 2	1 of No. 22
1 " " 10	1 " " 24
1 " " 11	14 " " 37
3 " " 12	2 " " 38
1 " " 17	1 " " 44
1 " " 18A	1 " " 48A
2 of No. 126A	



# Model No. 1.96 Ballista

This is a model of an ancient engine of war, resembling the crossbow. The  $3\frac{1}{2}$ " Strip 1 is bolted firmly to the Double Angle Strip 2, which is prevented from turning by the addition of Angle Brackets as shown. A Double Bracket 3 slides on the Strip 1 and is secured to a piece of cord. On rotation of the Crank Handle 4, the Strip 1 is pulled backward until the Double Bracket 3 slips off its end. The Strip then flies forward and strikes the missile, which consists of a 2" Rod placed ready in the Double Bracket 5.

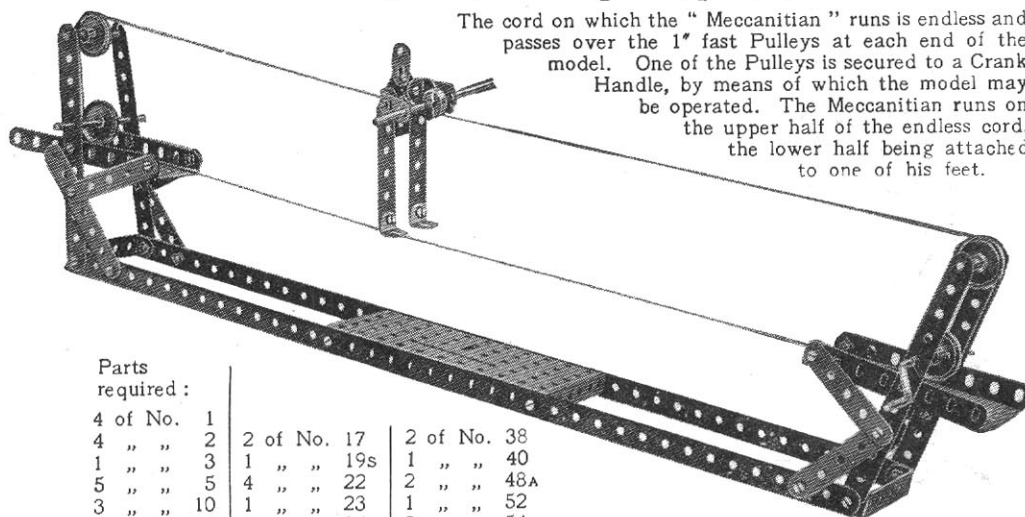


Parts required :

4 of No. 1	2 of No. 16	1 of No. 40
4 " " 2	1 " " 18A	1 " " 44
1 " " 3	3 " " 19B	4 " " 48A
2 " " 11	1 " " 19s	1 " " 52
2 " " 12	4 " " 22	1 " " 90A
	21 " " 37	2 " " 126A

# Model No. 1.97 Tight-Rope Walker

The cord on which the "Meccanitan" runs is endless and passes over the 1" fast Pulleys at each end of the model. One of the Pulleys is secured to a Crank Handle, by means of which the model may be operated. The Meccanitan runs on the upper half of the endless cord, the lower half being attached to one of his feet.



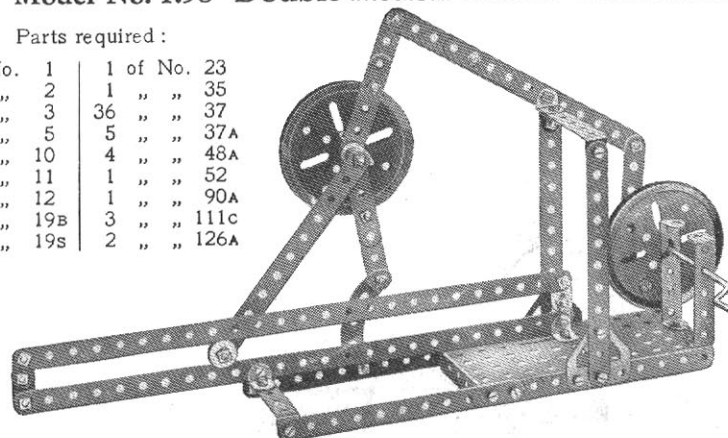
Parts required :

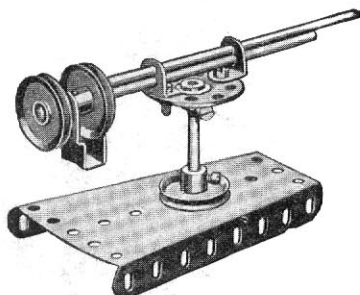
4 of No. 1	2 of No. 17	2 of No. 38
4 " " 2	1 " " 19s	1 " " 40
1 " " 3	4 " " 22	2 " " 48A
5 " " 5	1 " " 23	1 " " 52
3 " " 10	6 " " 35	2 " " 54
4 " " 12	34 " " 37	1 " " 126A
2 " " 16		

# Model No. 1.98 Double-Action Piston Connection

Parts required :

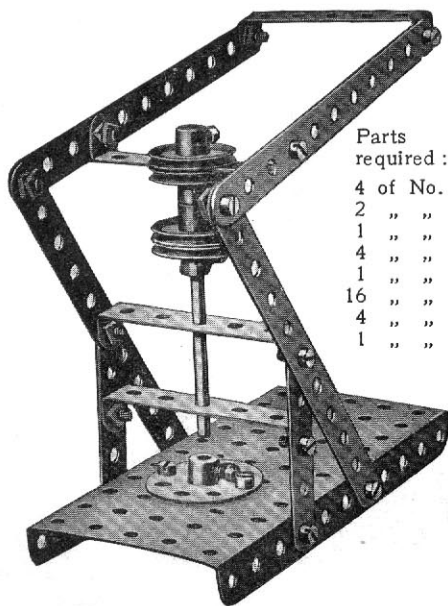
2 of No. 1	1 of No. 23
6 " " 2	1 " " 35
1 " " 3	36 " " 37
5 " " 5	5 " " 37A
4 " " 10	4 " " 48A
2 " " 11	1 " " 52
3 " " 12	1 " " 90A
2 " " 19B	3 " " 111c
1 " " 19s	2 " " 126A



**Model No. 1.99 Quick-Firing Gun**

Parts required :

2 of No. 12	1 of No. 24
2 " " 16	2 " " 37
1 " " 17	1 " " 44
4 " " 22	1 " " 54

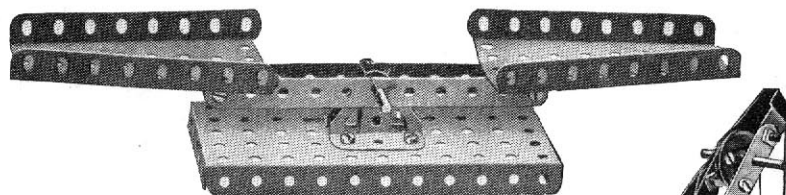
**Model No. 1.100 Punching Machine**

Parts required :

4 of No. 2
2 " " 5
1 " " 16
4 " " 22
1 " " 24
16 " " 37
4 " " 48A
1 " " 52

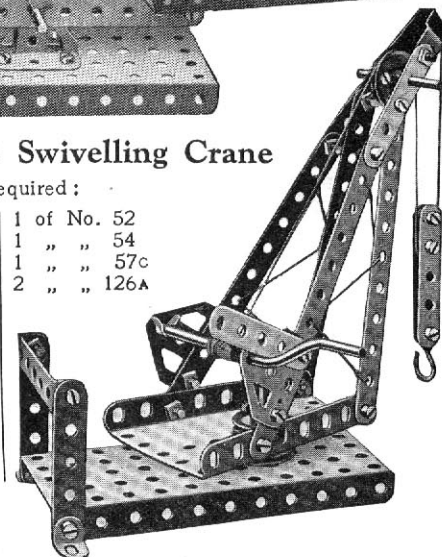
Parts required :

2 of No. 2
2 " " 11
1 " " 18A
2 " " 35
8 " " 37
1 " " 52
2 " " 54
2 " " 126

**Model No. 1.101 Scales****Model No. 1.103 Swivelling Crane**

Parts required :

4 of No. 2	1 of No. 52
7 " " 5	1 " " 54
2 " " 12	1 " " 57c
2 " " 17	2 " " 126A
1 " " 19s	
4 " " 22	
1 " " 23	
2 " " 35	
21 " " 37	
3 " " 38	
1 " " 40	
1 " " 44	
1 " " 48A	



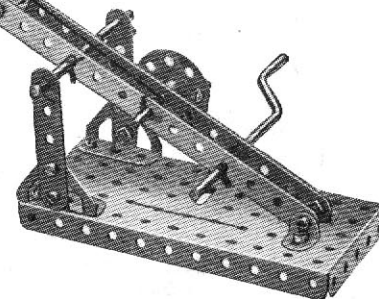
The Sector Plate of the crane in the above model is pivoted to the base with a fast Pulley above and below.

**Model No. 1.102 Extended Ash Tip**

Parts required :

4 of No. 1	2 of No. 18A	2 of No. 48A
5 " " 2	1 " " 19s	1 " " 52
7 " " 5	4 " " 22	6 " " 111c
2 " " 11	1 " " 24	2 " " 125
8 " " 12	5 " " 35	2 " " 126
1 " " 16	36 " " 37	2 " " 126A
2 " " 17	1 " " 40	

The trolley is operated by means of a cord that is wound round the  $1\frac{1}{2}$ " Axle Rod carrying the Bush Wheel, both ends of the cord being secured to the trolley. The bucket is suspended from a cord that winds on to the Crank Handle, and it is tipped by lowering it until a short cord that is attached to the bottom of the bucket and to the trolley, becomes taut. Further lowering causes the bucket to swing over.

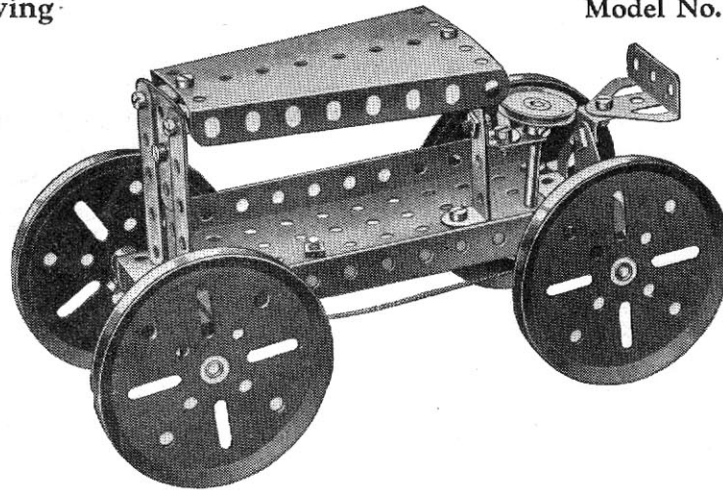
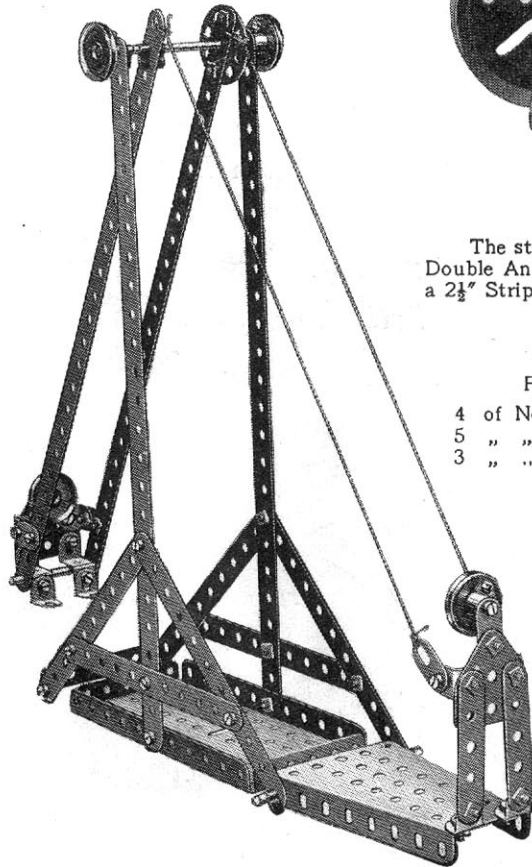




### Model No. 1.104 Boy on Swing

Parts required :

4 of No. 1	1 of No. 24
6 " " 2	7 " " 35
2 " " 5	35 " " 37
5 " " 10	1 " " 40
8 " " 12	1 " " 48A
2 " " 16	1 " " 52
1 " " 17	1 " " 54
4 " " 22	2 " " 125
2 of No. 126A	



### Model No. 1.105 Motor Tractor

Parts required :

3 of No. 5	
1 " " 10	
2 " " 12	
2 " " 16	
1 " " 18A	
4 " " 19B	
1 " " 22	
1 " " 24	
15 " " 37	
2 " " 37A	
6 " " 38	
1 " " 40	
4 " " 48A	
1 " " 52	
1 " " 54	
1 " " 111c	
2 " " 126	
1 " " 126A	

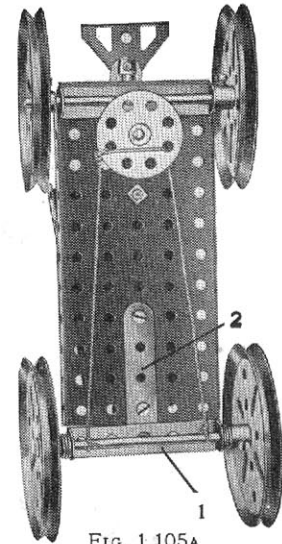


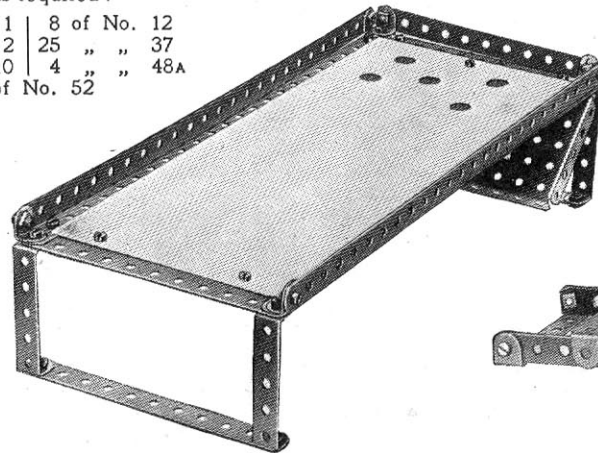
FIG. 1.105A

The steering gear is shown in Fig. 1.105A. The front wheels are carried in a  $2\frac{1}{2}'' \times 1\frac{1}{2}''$  Double Angle Strip 1, which is mounted pivotally by a Bolt and two Nuts (S.M. 262) to a  $2\frac{1}{2}''$  Strip 2 secured to the  $5\frac{1}{2}'' \times 2\frac{1}{2}''$  Flanged Plate.

### Model No. 1.106 Bagatelle Table

Parts required :

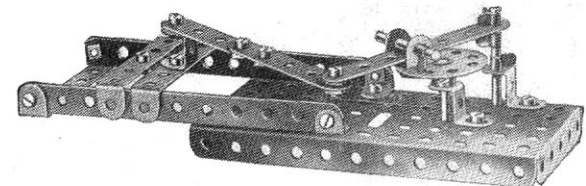
4 of No. 1	8 of No. 12
5 " " 2	25 " " 37
3 " " 10	4 " " 48A
1 of No. 52	



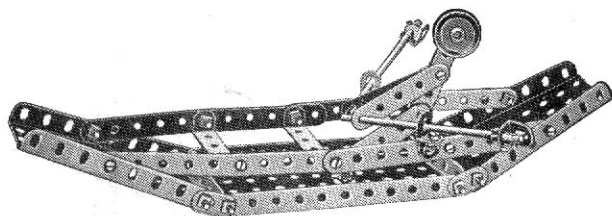
### Model No. 1.107 Quick Return Device

Parts required :

2 of No. 2	1 of No. 24
1 " " 3	6 " " 35
2 " " 5	15 " " 37
2 " " 11	2 " " 37A
2 " " 12	3 " " 48A
1 " " 17	1 " " 52
2 " " 18A	2 " " 125



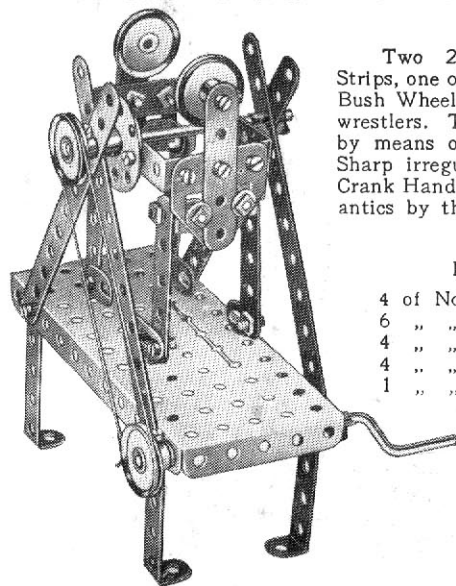
## Model No. 1.108 Rowing Boat



Parts required :

4 of No. 2	4 of No. 35
4 " " 5	24 " " 37
4 " " 10	3 " " 48A
7 " " 12	1 " " 52
2 " " 16	2 " " 54
1 " " 22	1 " " 111c

## Model No. 1.109 The Wrestlers



Two  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips, one of which is bolted to the Bush Wheel, form the arms of the wrestlers. The legs are all pivoted by means of Bolts and lock-nuts. Sharp irregular movements of the Crank Handle will result in amusing antics by the wrestlers.

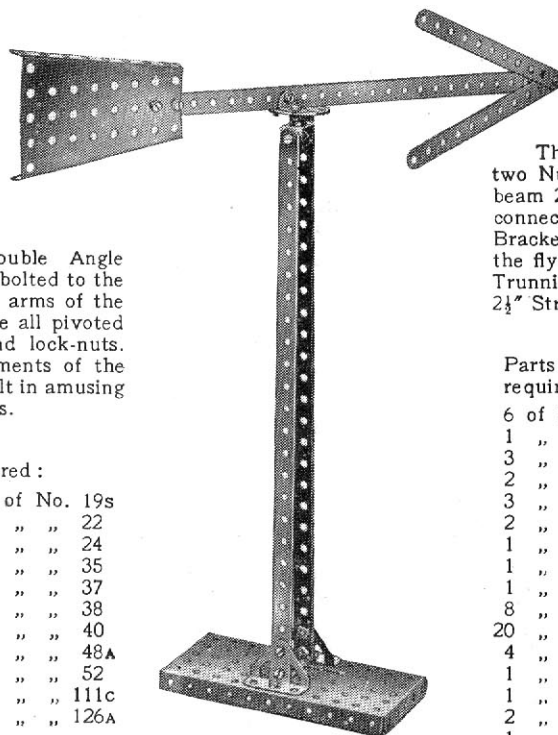
Parts required :

4 of No. 2	1 of No. 19s
6 " " 5	4 " " 22
4 " " 10	1 " " 24
4 " " 12	3 " " 35
1 " " 16	24 " " 37
	5 " " 38
	1 " " 40
	6 " " 48A
	1 " " 52
	2 " " 111c
	2 " " 126A

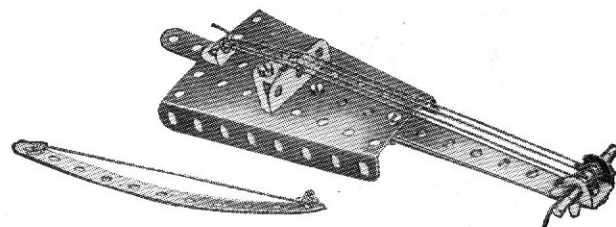
Model No. 1.110  
Weather Vane

Parts required :

3 of No. 1	14 of No. 37
2 " " 2	1 " " 52
1 " " 11	1 " " 54
2 " " 12	1 " " 111c
1 " " 24	2 " " 126



## Model No. 1.111 Violin and Bow



Parts required :

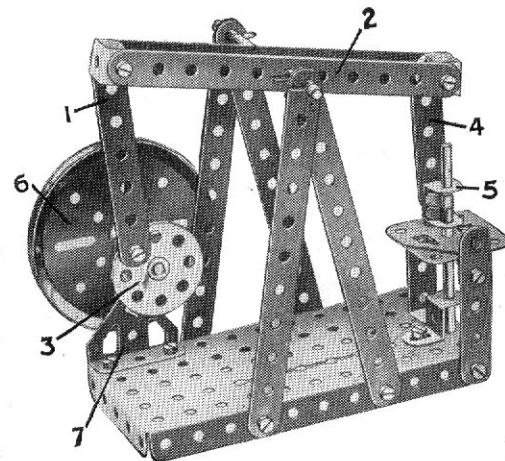
4 of No. 2	1 of No. 12	1 of No. 40
1 " " 5	1 " " 18A	1 " " 54
1 " " 11	2 " " 35	1 " " 126
	5 " " 37	

## Model No. 1.112 Beam Engine

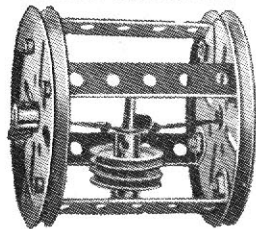
The connecting Strip 1 is attached pivotally by a Bolt and two Nuts (Standard Mechanism No. 262) to one end of the beam 2 and to the Bush Wheel 3. The Strip 4 is similarly connected to the other end of the beam 2 and to the Double Bracket 5 attached to the piston rod. The short rod carrying the flywheel 6 is journalled in a  $2\frac{1}{2}$ " Strip supported by the Trunnion 7 and in a Reversed Angle Bracket bolted to the  $2\frac{1}{2}$ " Strip.

Parts required :

6 of No. 2	2
1 " " 3	3
3 " " 5	5
2 " " 11	11
3 " " 12	12
2 " " 16	16
1 " " 17	17
1 " " 19B	19B
1 " " 24	24
8 " " 35	35
20 " " 37	37
4 " " 37A	37A
1 " " 48	48
1 " " 52	52
2 " " 125	125
1 " " 126	126
2 " " 126A	126A



### Model No. 1.113 Cum Bak

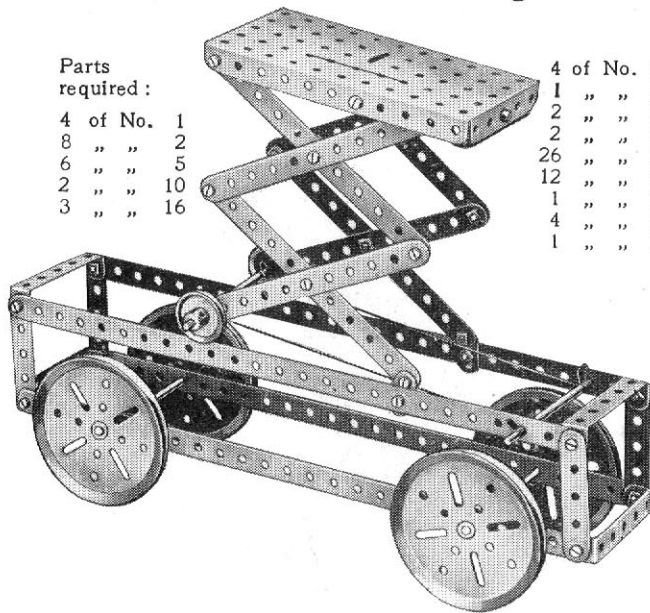


Parts  
required :

1	of No.	18A
2	" "	19B
2	" "	22
1	" "	23
1	" "	35
8	" "	37
4	" "	48A

A short length of elastic is doubled and stretched between the centres of the 3" Pulley Wheels. A weight, consisting of two 1" fast Pulley Wheels and a 1½" Rod, is suspended from it in the middle of the drum. When the Cum Bak is rolled along any smooth level surface, the elastic becomes twisted and stores up sufficient energy to return the drum to its starting point. If the mechanism is concealed by a thin cardboard covering, the model will cause much amusement by its mystifying behaviour.

### Model No. 1.114 Tower Wagon



Parts  
required :

4	of No.	1
8	" "	2
6	" "	5
2	" "	10
3	" "	16

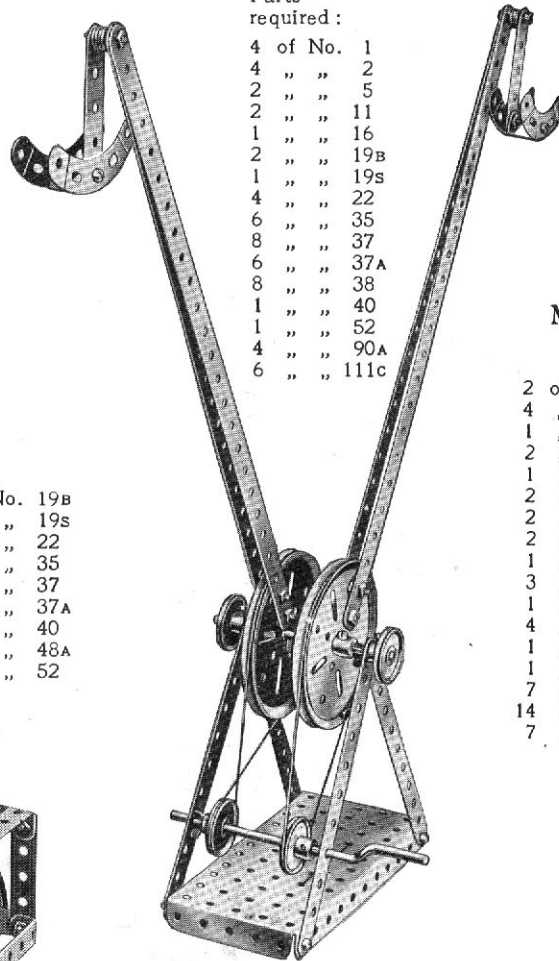
4	of No.	19B
1	" "	19s
2	" "	22
2	" "	35
26	" "	37
12	" "	37A
1	" "	40
4	" "	48A
1	" "	52

### Model No. 1.115

#### Flip Flap

Parts  
required :

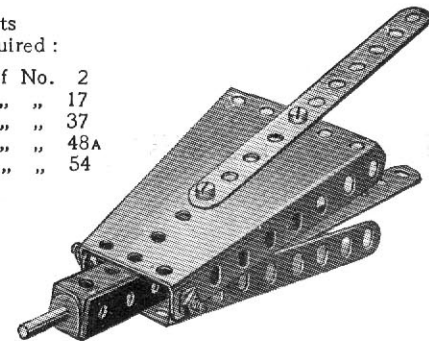
4	of No.	1
4	" "	2
2	" "	5
2	" "	11
1	" "	16
2	" "	19B
1	" "	19s
4	" "	22
6	" "	35
8	" "	37
6	" "	37A
8	" "	38
1	" "	40
1	" "	52
4	" "	90A
6	" "	111c



### Model No. 1.116 Bellows

Parts  
required :

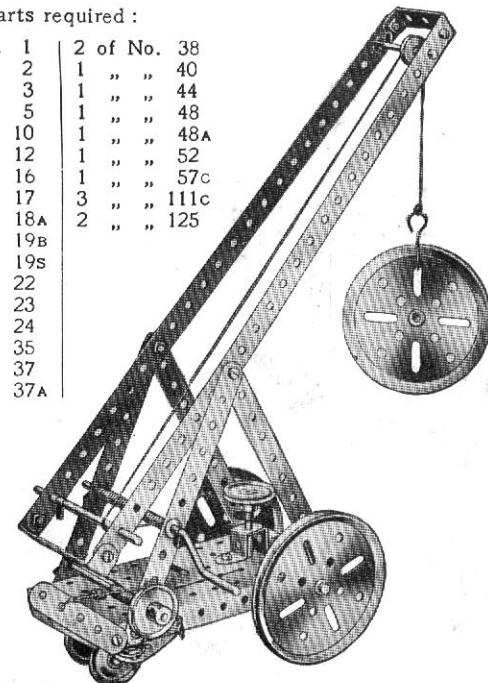
2	of No.	2
1	" "	17
9	" "	37
4	" "	48A
2	" "	54



### Model No. 1.117 Mobile Crane

Parts required :

2	of No.	1	2	of No.	38
4	" "	2	1	" "	40
1	" "	3	1	" "	44
2	" "	5	1	" "	48
1	" "	10	1	" "	48A
2	" "	12	1	" "	52
2	" "	16	1	" "	57c
2	" "	17	3	" "	111c
1	" "	18A	2	" "	125
3	" "	19B			
1	" "	19s			
4	" "	22			
1	" "	23			
1	" "	24			
7	" "	35			
14	" "	37			
7	" "	37A			

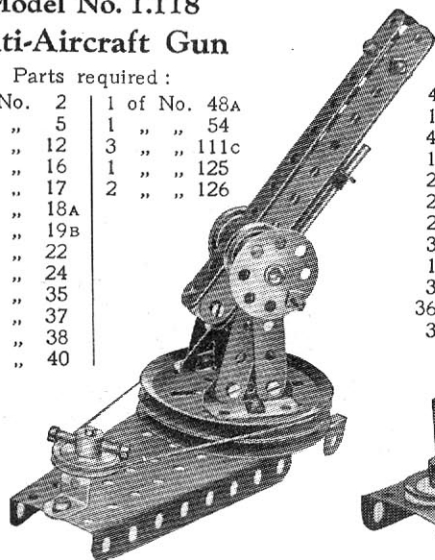




### Model No. 1.118 Anti-Aircraft Gun

Parts required:

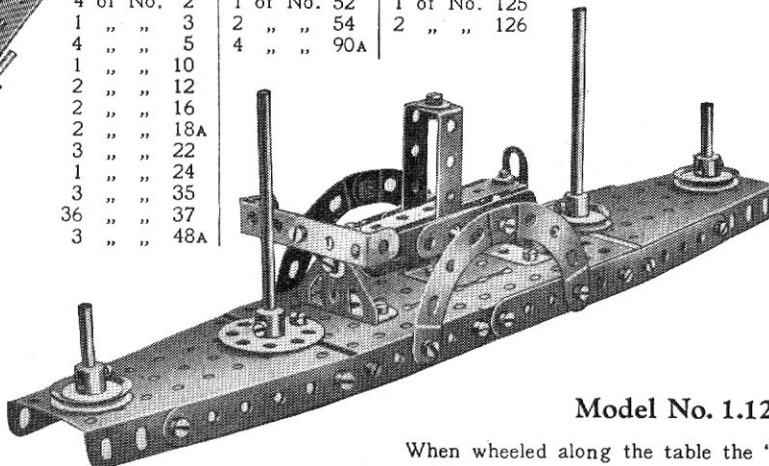
4 of No. 2	1 of No. 48A
4 " " 5	1 " " 54
8 " " 12	3 " " 111c
1 " " 16	1 " " 125
1 " " 17	2 " " 126
2 " " 18A	
2 " " 19B	
3 " " 22	
1 " " 24	
4 " " 35	
18 " " 37	
2 " " 38	
1 " " 40	



### Model No. 1.120 Paddle Steamer

Parts required:

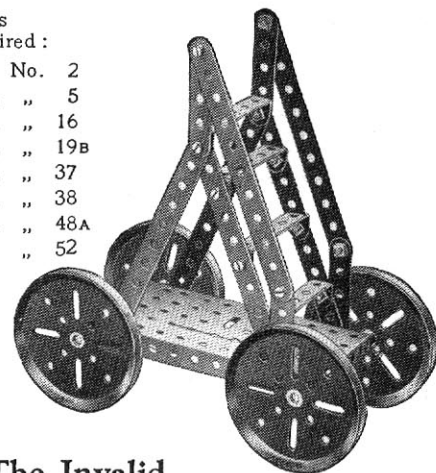
4 of No. 2	1 of No. 52	1 of No. 125
1 " " 3	2 " " 54	2 " " 126
4 " " 5	4 " " 90A	
1 " " 10		
2 " " 12		
2 " " 16		
2 " " 18A		
3 " " 22		
1 " " 24		
3 " " 35		
36 " " 37		
3 " " 48A		



### Model No. 1.121 Ladder on Wheels

Parts required:

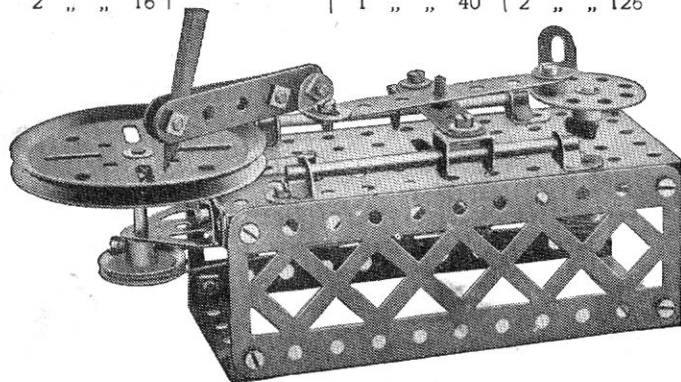
6 of No. 2
4 " " 5
2 " " 16
4 " " 19B
16 " " 37
8 " " 38
4 " " 48A
1 " " 52



### Model No. 1.119 Meccanograph

Parts required:

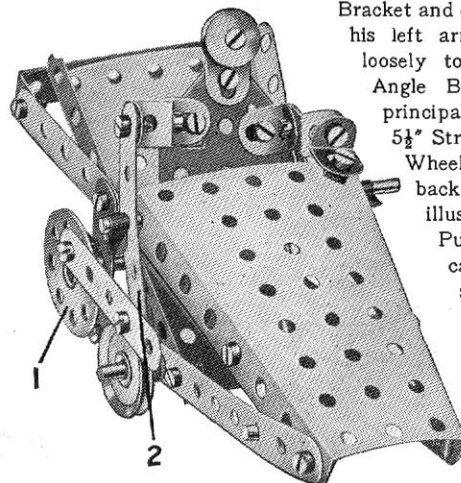
1 of No. 3	2 of No. 17	5 of No. 35	2 of No. 48A
4 " " 5	1 " " 19B	21 " " 37	1 " " 52
2 " " 11	2 " " 22	2 " " 37A	2 " " 100
6 " " 12	1 " " 24	2 " " 38	3 " " 111c
2 " " 16		1 " " 40	2 " " 126



### Model No. 1.122 The Invalid

When wheeled along the table the "invalid" appears to push himself energetically along. His neck is a Flat Bracket: his right (or propelling) arm consists of one Angle Bracket and one  $\frac{1}{2}$ " Reversed Angle Bracket, and

his left arm—the hand of which is bolted loosely to the chair—is formed by three Angle Brackets. The chair is composed principally of two Sector Plates and four  $5\frac{1}{2}$ " Strips, and it runs on three 1" Pulley Wheels—one in front and two at the back. One of these (not visible in the illustration) drives by cord another 1" Pulley Wheel, the shaft of which also carries a Bush Wheel 1. As will be seen, a  $2\frac{1}{2}$ " Strip is pivoted at one end to this Bush Wheel and at the other end to a second  $2\frac{1}{2}$ " Strip 2, which, rocking about an axle journalled through its centre hole, is again pivoted to the invalid's hands.



Parts required:

4 of No. 2
6 " " 5
1 " " 10
4 " " 12
3 " " 16
1 " " 17
4 " " 22
1 " " 23
1 " " 24
4 " " 35
24 " " 37
4 " " 37A
3 " " 38
2 " " 48A
2 " " 54
1 " " 125
1 " " 126A

## Model No. 1.123 Bow and Arrow

Parts required :  
1 of No. 1 | 1 of No. 16  
1 of No. 40

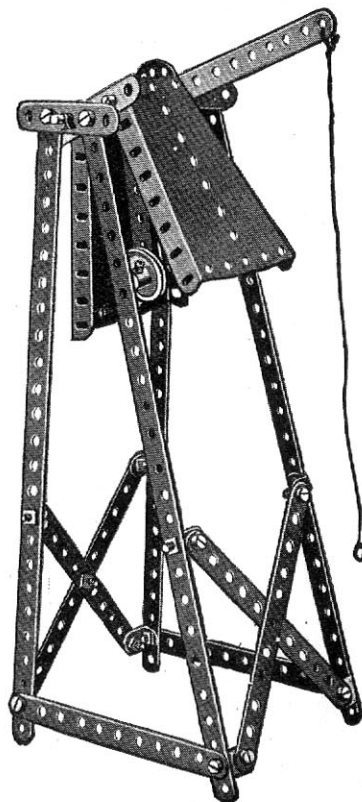
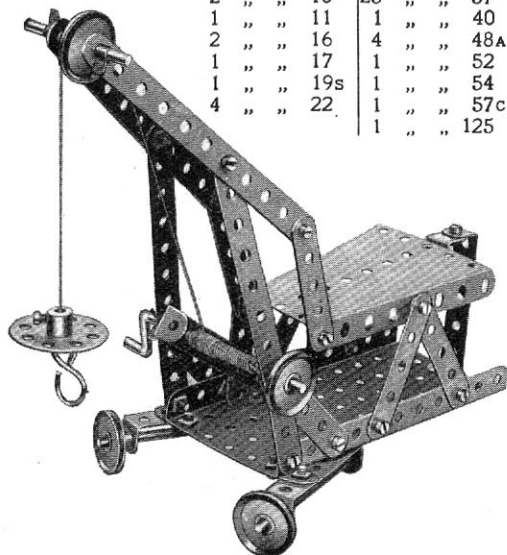


## Model No. 1.124 Rotating Crane

The running wheels of this crane are journaled in Double Angle Strips bolted to the base plate and secured at an angle by means of Flat Brackets. The rear of the Base Plate is supported on a Double Bracket. The jib is bolted loosely to the supporting 5½" Strips and is connected by 2½" Strips to the Sector Plate which pivots about its supporting bolts. By moving this Sector Plate the elevation of the jib may be altered as desired. The movement is controlled by a Double Angle Strip mounted on the Crank Handle and connected pivotally to the plate by means of a 2½" Strip. A Reversed Angle Bracket bolted to an upright Double Angle Strip in the rear of the model serves to restrict the movement of the Sector Plate.

Parts required :

4 of No. 2	1 of No. 24
9 " " 5	5 " " 35
2 " " 10	25 " " 37
1 " " 11	1 " " 40
2 " " 16	4 " " 48A
1 " " 17	1 " " 52
1 " " 19s	1 " " 54
4 " " 22	1 " " 57c
	1 " " 125



## Model No. 1.125 Fire Alarm

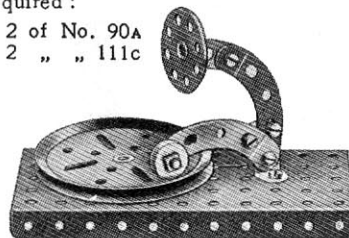
Parts required :

4 of No. 1
7 " " 2
1 " " 3
3 " " 5
8 " " 12
1 " " 16
1 " " 22
1 " " 24
4 " " 35
27 " " 37
2 " " 54

## Model No. 1.126 Gramophone

Parts required :

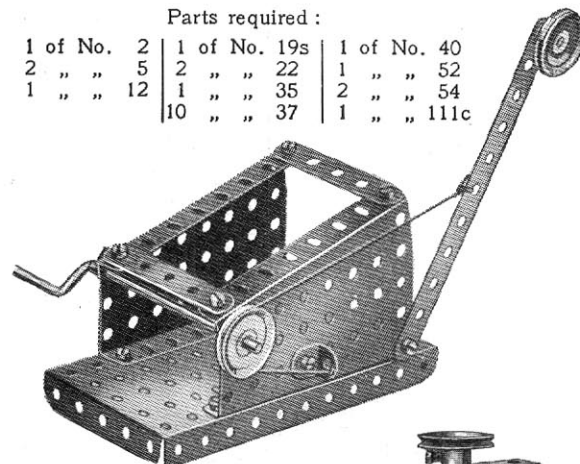
2 of No. 10	2 of No. 90A
1 " " 12	2 " " 111c
1 " " 19B	
1 " " 23	
1 " " 24	
6 " " 37	
1 " " 38	
1 " " 52	



## Model No. 1.127 Band Brake

Parts required :

1 of No. 2	1 of No. 19s	1 of No. 40
2 " " 5	2 " " 22	1 " " 52
1 " " 12	1 " " 35	2 " " 54
	10 " " 37	1 " " 111c

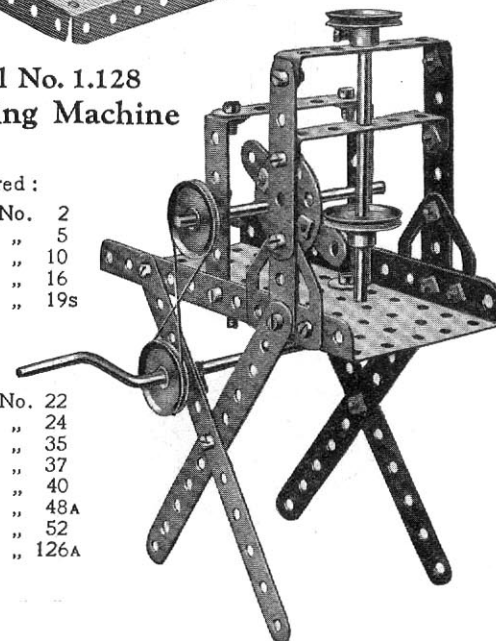


## Model No. 1.128 Stamping Machine

Parts required :

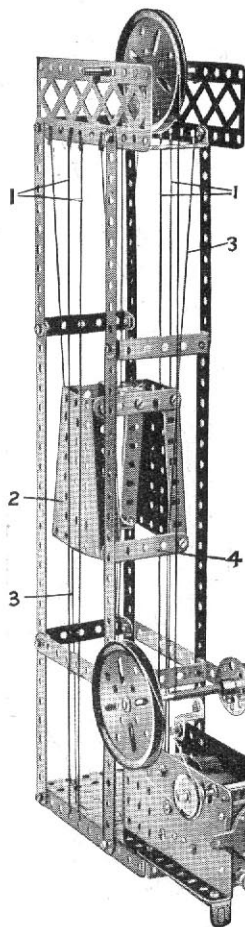
4 of No. 2
5 " " 5
2 " " 10
2 " " 16
1 " " 19s

4 of No. 22
1 " " 24
2 " " 35
22 " " 37
1 " " 40
4 " " 48A
1 " " 52
2 " " 126A



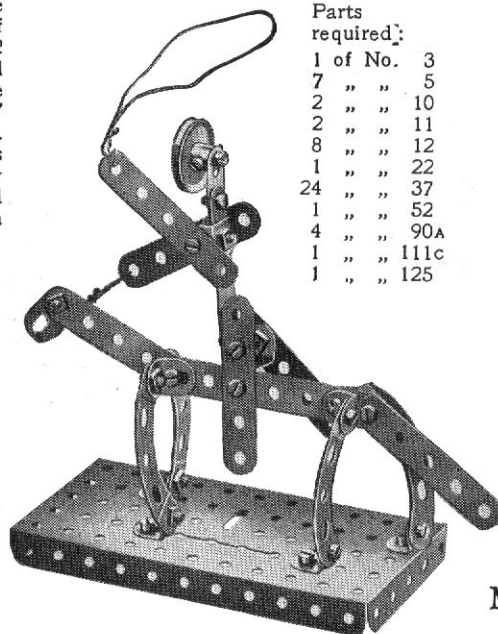
**Model No. 1.129 Electric Elevator**

Two pairs of cords 1 are stretched tightly on each side of the lift shaft to guide the cage 2 and two other cords 3 are secured at the top and bottom of the shaft and passed behind 2½" Strips 4 bolted to the cage. The drive from the motor is transmitted to the 3" Pulley Wheel 5 by means of a cord passed round a 1" Pulley on the motor armature.

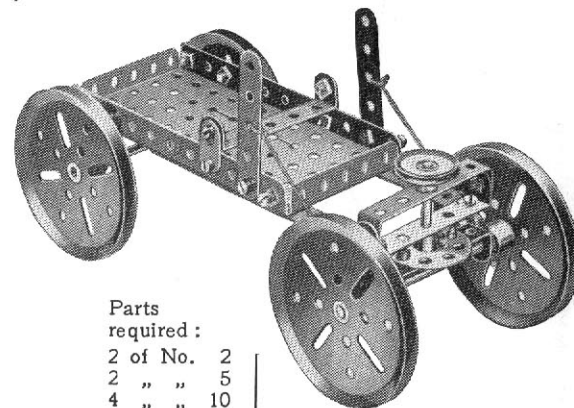
**Parts required :**

4 of No. 1	34 of No. 37
6 " " 2	1 " " 38
4 " " 5	1 " " 40
2 " " 12	1 " " 48
3 " " 16	6 " " 48A
3 " " 19B	1 " " 52
4 " " 22	2 " " 54
1 " " 24	2 " " 100
3 " " 35	2 " " 125

Electric Motor  
(not included in Outfit)

**Model No. 1.130 Mounted Cowboy****Parts required :**

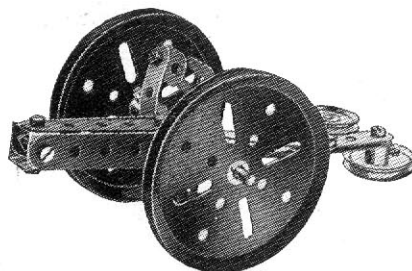
1 of No. 3
7 " " 5
2 " " 10
2 " " 11
8 " " 12
1 " " 22
24 " " 37
1 " " 52
4 " " 90A
1 " " 111c
1 " " 125

**Model No. 1.132 Coaster****Parts required :**

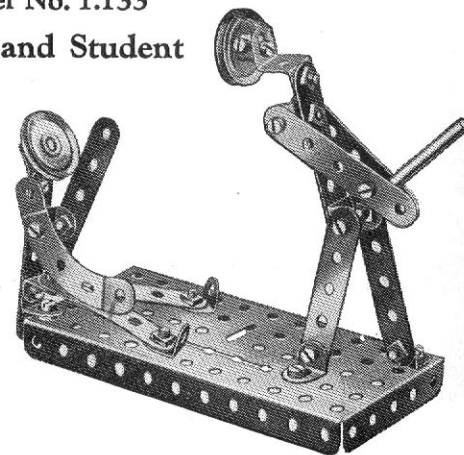
2 of No. 2	1 of No. 40
2 " " 5	4 " " 48A
4 " " 10	1 " " 52
2 " " 16	2 " " 126A
1 " " 18A	
4 " " 19B	22 of No. 37
1 " " 22	2 " " 37A
1 " " 24	6 " " 38

**Model No. 1.133  
Master and Student****Model No. 1.131****Howitzer****Parts required :**

2 of No. 2
6 " " 5
4 " " 10
2 " " 11
4 " " 12
1 " " 16
2 " " 19B
2 " " 22
2 " " 35
14 " " 37
2 " " 38
2 " " 111c
2 " " 125

**Parts required :**

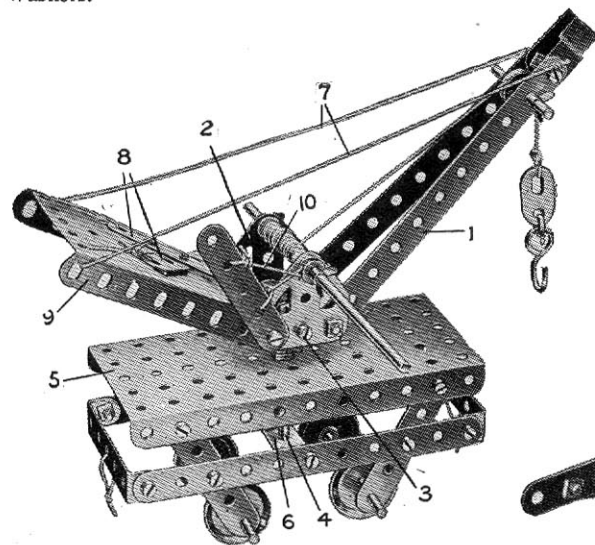
9 of No. 5
1 " " 10
2 " " 11
8 " " 12
2 " " 22
20 " " 37
3 " " 37A
1 " " 52
1 " " 90A
4 " " 111c
1 " " 125





# Model No. 1.134 Travelling Crane

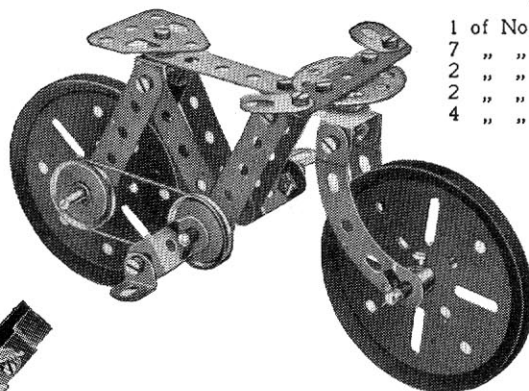
The jib 1 is pivoted to the Flat Trunnions 2, which are bolted at 3 to Angle Brackets secured to a Bush Wheel. The latter is nipped to a 2" Rod 4 passing through the Plate 5 and further supported in a Double Angle Strip 6. A Washer and Spring Clip mounted on the Rod 4 below the Strip 6 secure the crane to the carriage. The jib is supported by means of cords 7 tied to 2½" Strips 8, the holes of which engage the shank of a bolt passed through the Sector Plate 9, and its elevation may be altered by inserting this bolt in different holes in the Strips 8. The cord 10 of the brake lever is wound once round the Crank Handle, between two Washers.



## Parts required :

4 of No. 2	1 of No. 19s	1 of No. 40
7 " " 5	4 " " 22	1 " " 44
1 " " 10	1 " " 23	3 " " 48A
2 " " 12	1 " " 24	1 " " 52
2 " " 16	5 " " 35	1 " " 54
2 " " 17	27 " " 37	1 " " 57C
	6 " " 38	2 " " 126A

# Model No. 1.135 Bicycle



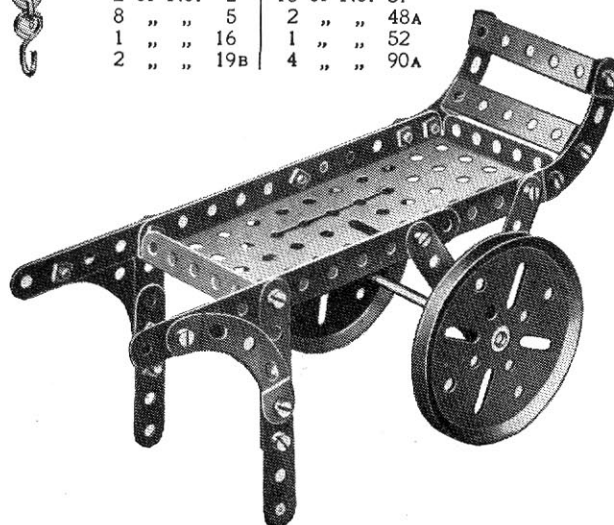
## Parts required :

1 of No. 3	2 of No. 17
7 " " 5	1 " " 18A
2 " " 10	2 " " 19B
2 " " 11	2 " " 22
4 " " 12	1 " " 24
	4 " " 35
	13 " " 37
	4 " " 37A
	3 " " 38
	1 " " 40
	2 " " 90A
	4 " " 111c
	2 " " 125
	1 " " 126A

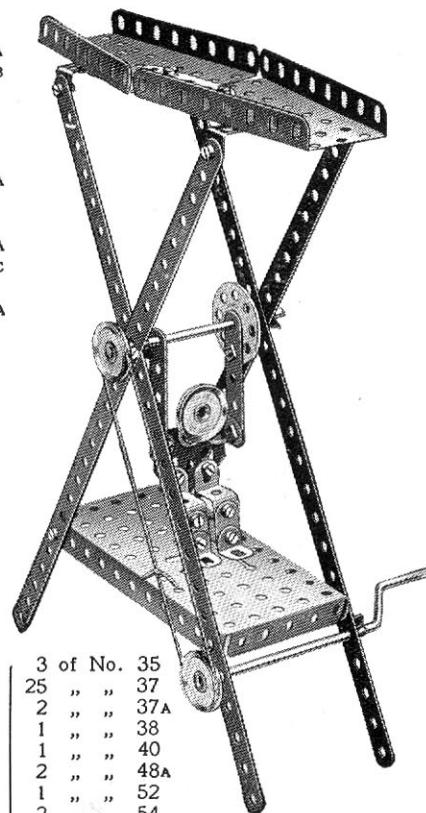
# Model No. 1.136 Luggage Truck

## Parts required :

2 of No. 2	18 of No. 37
8 " " 5	2 " " 48A
1 " " 16	1 " " 52
2 " " 19B	4 " " 90A



# Model No. 1.137 Gymnast



## Parts required :

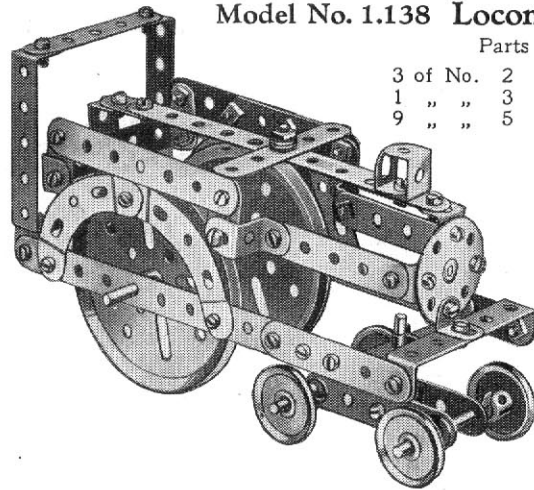
required :		3 of No. 35
4 of No. 1	25	" " 37
3 " " 5	2	" " 37A
3 " " 10	1	" " 38
4 " " 12	1	" " 40
1 " " 16	2	" " 48A
1 " " 19s	1	" " 52
3 " " 22	2	" " 54
1 " " 24	1	" " 126A

One of the 2½" Strips representing the arms of the gymnast is bolted to a Bush Wheel secured on a 3½" Rod. When the Crank Handle is rotated the gymnast turns complete somersaults in a very amusing manner. The gymnast's "arms" must be pivoted to the Angle Brackets forming his shoulders by means of Bolts and Lock-Nuts.

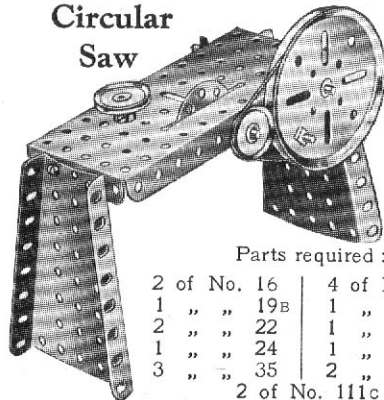
**Model No. 1.138 Locomotive**

Parts required :

3 of No.	2	5 of No.	10
1 " "	3	2 " "	11
9 " "	5	6 " "	12
		3 " "	16
		1 " "	18A
		2 " "	19B
		4 " "	22
		1 " "	24
		8 " "	35
		36 " "	37
		6 " "	37A
		6 " "	38
		1 " "	48
		6 " "	48A
		4 " "	90A
		6 " "	111c
		2 " "	125



The bogie is connected pivotally to the locomotive body by means of a  $1\frac{1}{2}$ " Rod journaled in a Double Bracket, which is secured in the centre of the bogie, and in a  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strip that is secured between the main side frames. Two Spring Clips between the Double Angle Strip and Double Bracket space the bogie at the correct distance.

**Model No. 1.139****Circular  
Saw**

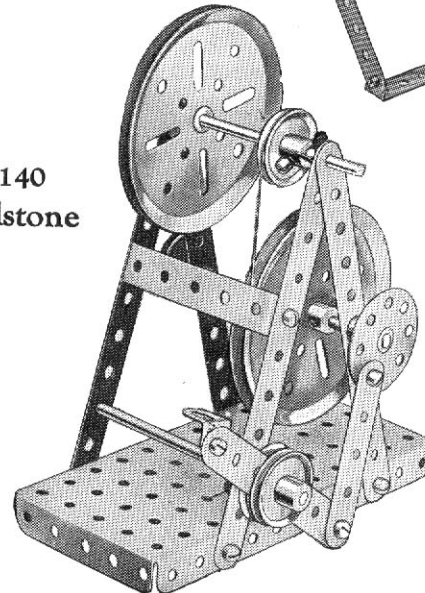
Parts required :

2 of No.	16	4 of No.	37
1 " "	19B	1 " "	37A
2 " "	22	1 " "	40
1 " "	24	1 " "	52
3 " "	35	2 " "	54
	2 of No.		111c

**Model No. 1.140  
Treadle Grindstone**

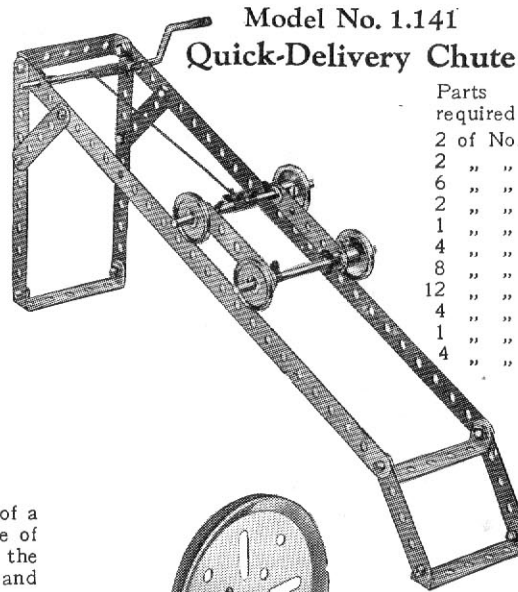
Parts required :

4 of No.	2
1 " "	3
1 " "	5
1 " "	12
3 " "	16
2 " "	19B
4 " "	22
1 " "	24
2 " "	35
9 " "	37
2 " "	37A
1 " "	40
1 " "	48A
1 " "	52

**Model No. 1.141  
Quick-Delivery Chute**

Parts required :

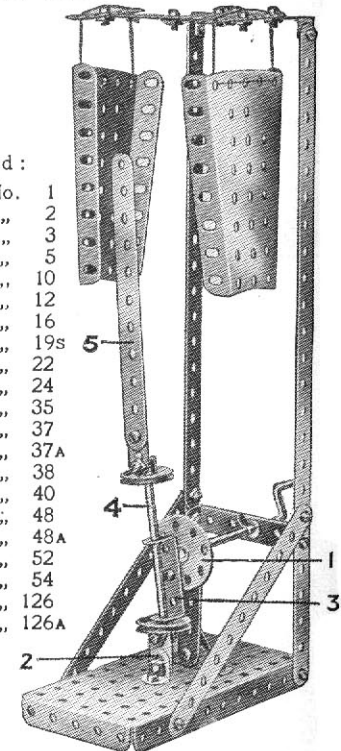
2 of No.	1
2 " "	2
6 " "	5
2 " "	16
1 " "	19s
4 " "	22
8 " "	35
12 " "	37
4 " "	38
1 " "	40
4 " "	48A

**Model No. 1.142  
Mechanical Gong**

A Flat Bracket is connected pivotally to the base at 2 and is clamped rigidly to a 1" Pulley Wheel secured to the Rod 4. The latter passes through the  $1\frac{1}{2}$ " Double Angle Strip 3 and carries at its upper end another Pulley to which is rigidly secured the striking arm 5. The Double Angle Strip 3 is pivoted to the Bush Wheel 1.

Parts required :

2 of No.	1
4 " "	2
1 " "	3
4 " "	5
2 " "	10
1 " "	12
1 " "	16
1 " "	19s
2 " "	22
1 " "	24
2 " "	35
26 " "	37
1 " "	37A
2 " "	38
1 " "	40
1 " "	48
2 " "	48A
1 " "	52
2 " "	54
1 " "	126
1 " "	126A

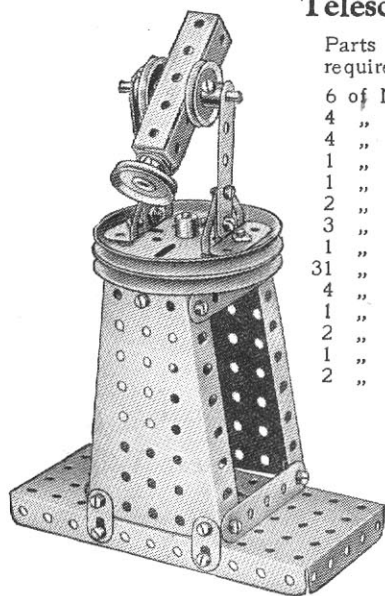


Model No. 1.143

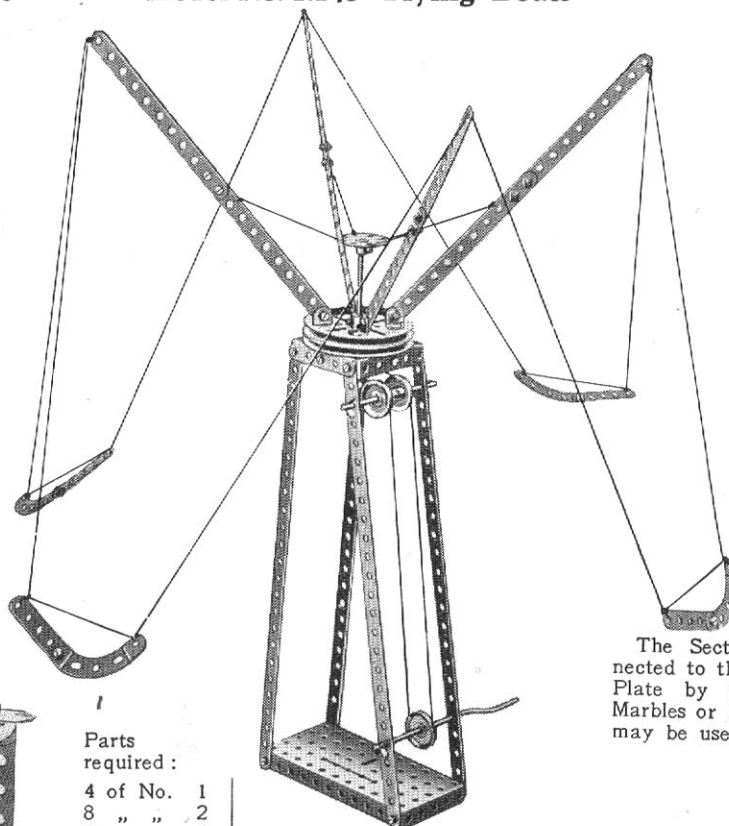
Telescope

Parts  
required :

6 of No.	5
4 " "	10
4 " "	12
1 " "	17
1 " "	18A
2 " "	19B
3 " "	22
1 " "	35
31 " "	37
4 " "	48A
1 " "	52
2 " "	54
1 " "	111c
2 " "	126



Model No. 1.145 Flying Boats



Parts  
required :

4 of No.	1
8 " "	2
6 " "	5
8 " "	12
2 " "	16
2 " "	19B
1 " "	19s

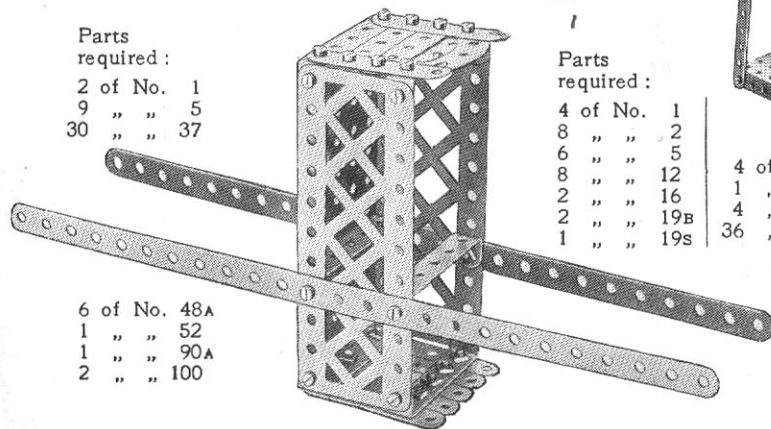
4 of No.	22
1 " "	24
4 " "	35
36 " "	37

1 of No.	40
3 " "	48A
4 " "	90A

Model No. 1.144 Sedan Chair

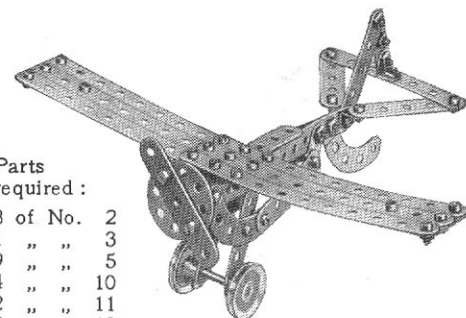
Parts  
required :

2 of No.	1
9 " "	5
30 " "	37



6 of No.	48A
1 " "	52
1 " "	90A
2 " "	100

Model No. 1.146 Aeroplane

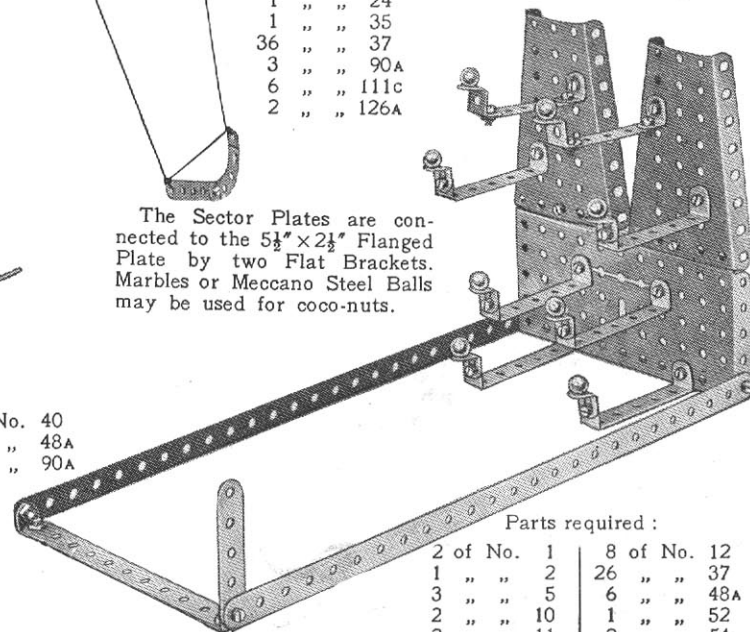


Parts  
required :

8 of No.	2
1 " "	3
9 " "	5
4 " "	10
2 " "	11
5 " "	12
1 " "	16
1 " "	18A
2 " "	22
1 " "	24
1 " "	35
36 " "	37
3 " "	90A
6 " "	111c
2 " "	126A

Model No. 1.147  
Coco-nut Shy

The Sector Plates are connected to the  $5\frac{1}{2}'' \times 2\frac{1}{2}''$  Flanged Plate by two Flat Brackets. Marbles or Meccano Steel Balls may be used for coco-nuts.



Parts required :

2 of No.	1	8 of No.	12
1 " "	2	26 " "	37
3 " "	5	6 " "	48A
2 " "	10	1 " "	52
2 " "	11	2 " "	54



These Models can be built with MECCANO Outfit No. 1 (or No. 0 and No. 0A)

### Model No. 1.148 Double Draw Bridge

Parts required :

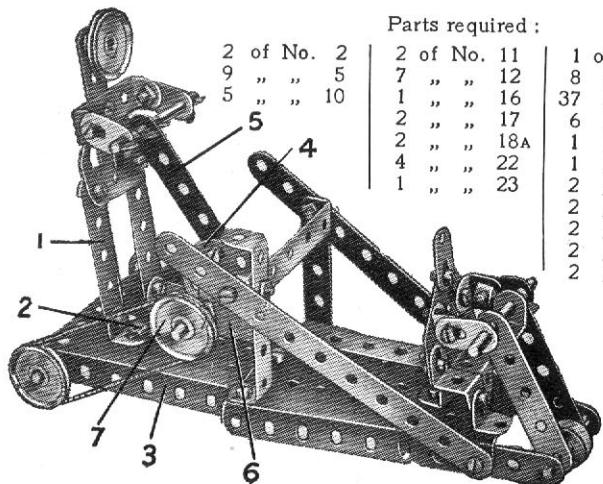
4 of No. 1	1 of No. 19s	2 of No. 38
6 " " 2	2 " " 22	1 " " 40
1 " " 16	8 " " 35	6 " " 48A
	16 " " 37	2 " " 126A

### Model No. 1.149 Coaster

The figure 1 is loosely attached by lock-nutted Bolts 2 to the Sector Plate 3 and is connected to the Bush Wheel 4 by the pivotally-attached  $2\frac{1}{2}$ " Strip 5. The  $1\frac{1}{2}$ " Rod carrying the Bush Wheel 4 is journaled in the Cranked Bent Strip 6, the 1" fast Pulley 7 being connected to the road wheel by a cord as shown.

Parts required :

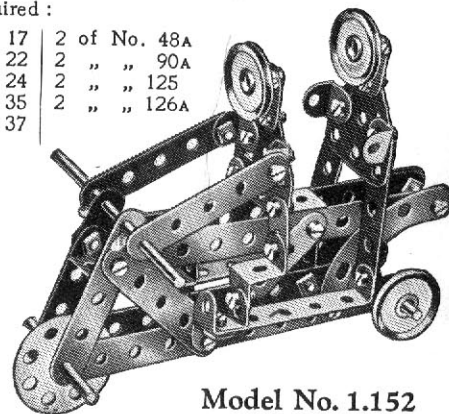
2 of No. 2	2 of No. 11	1 of No. 24
9 " " 5	7 " " 12	8 " " 35
5 " " 10	1 " " 16	37 " " 37
	2 " " 17	6 " " 37A
	2 " " 18A	1 " " 40
	4 " " 22	1 " " 48
	1 " " 23	2 " " 48A
		2 " " 54
		2 " " 111c
		2 " " 125
		2 " " 126A



### Model No. 1.151 Motor Cyclist and Pillion Rider

Parts required :

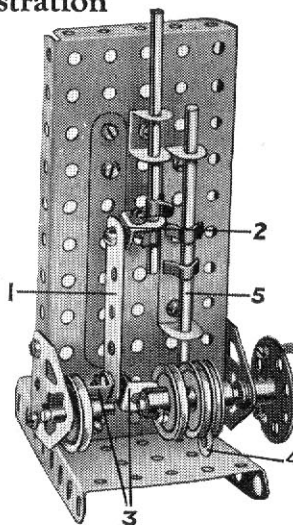
4 of No. 2	2 of No. 17	2 of No. 48A
9 " " 5	4 " " 22	2 " " 90A
4 " " 10	1 " " 24	2 " " 125
2 " " 11	2 " " 35	2 " " 126A
8 " " 12	30 " " 37	
1 " " 16		



### Model No. 1.150 Tappet Valve Demonstration Model

Parts required :

1 of No. 3	
1 " " 5	
1 " " 10	
1 " " 11	
3 " " 12	
2 " " 16	
1 " " 17	
1 " " 18A	
4 " " 22	
1 " " 24	
5 " " 35	
15 " " 37	
5 " " 37A	
4 " " 38	
1 " " 48A	
1 " " 52	
1 " " 54	
2 " " 111c	
2 " " 126A	

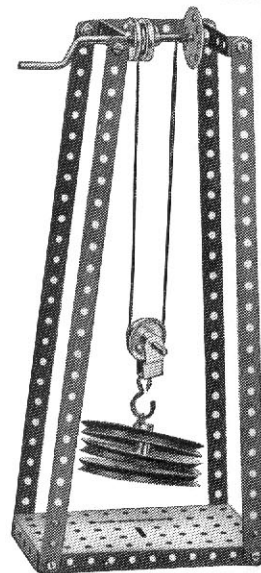


The upper end of the Strip 1 is connected pivotally by a Bolt and two Nuts to the crosshead bracket 2. The crankshaft is built up as follows: Two Angle Brackets 3 are each secured rigidly to the boss of a Pulley Wheel and are connected to each other by a  $\frac{3}{8}$ " Bolt carrying three Nuts. The Nuts are screwed tightly against the Brackets, sufficient space being left between the inner pair to enable the connecting Strip 1 to turn freely. The valve Rod 5 is operated by the Flat Bracket 4 that is clamped between two further 1" Pulleys on the crankshaft in such a way that its protruding end serves as a cam.

### Model No. 1.152 Chinese Windlass

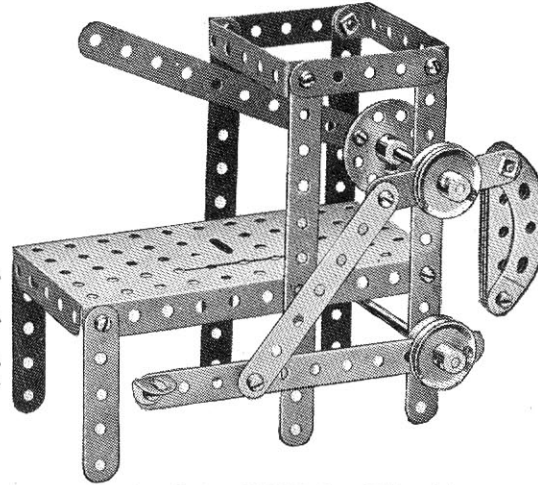
Parts required :

4 of No. 1	
1 " " 3	
1 " " 18A	
3 " " 19B	
1 " " 19s	
3 " " 22	
1 " " 23	
1 " " 24	
8 " " 37	
1 " " 40	
1 " " 44	
2 " " 48A	
1 " " 52	
1 " " 57c	



### Model No. 1.154 Foot Hammer

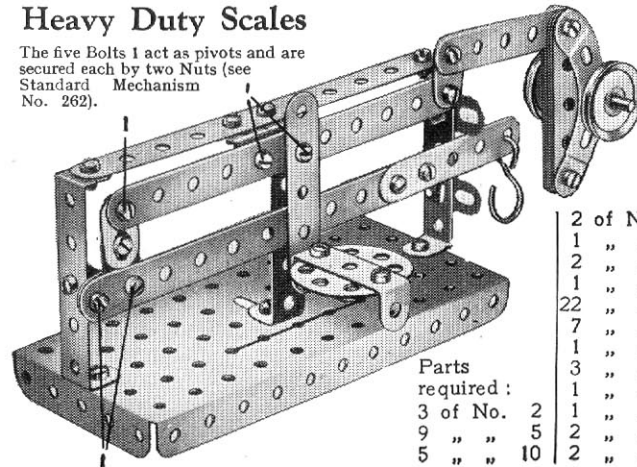
Parts required :			
6 of No.	2		
1 " "	3		
9 " "	5		
1 " "	12		
2 " "	16		
4 " "	22		
1 " "	24		
2 " "	35		
15 " "	37		
4 " "	37A		
2 " "	38		
2 " "	48A		
1 " "	52		
4 " "	90A		
2 " "	111c		



The treadle lever is connected pivotally to a  $3\frac{1}{2}$ " Strip by a Bolt and two Nuts. The upper end of this Strip is similarly connected to a  $2\frac{1}{2}$ " Strip that is clamped tightly between two Pulleys on the hammer Rod. Pressure on the treadle causes the hammer to descend on the work. When the treadle is released a weight pulls the hammer back to its original position.

### Model No. 1.155 Heavy Duty Scales

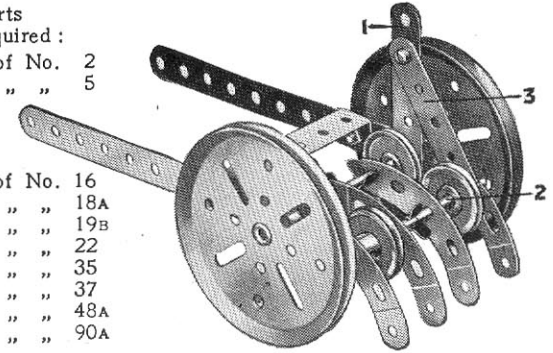
The five Bolts 1 act as pivots and are secured each by two Nuts (see Standard Mechanism No. 262).



Parts required :			
2 of No.	12		
1 " "	18A		
2 " "	22		
1 " "	24		
22 " "	37		
7 " "	37A		
1 " "	48		
3 " "	48A		
1 " "	52		
3 of No.	2		
9 " "	5		
5 " "	10		
2 " "	111c		

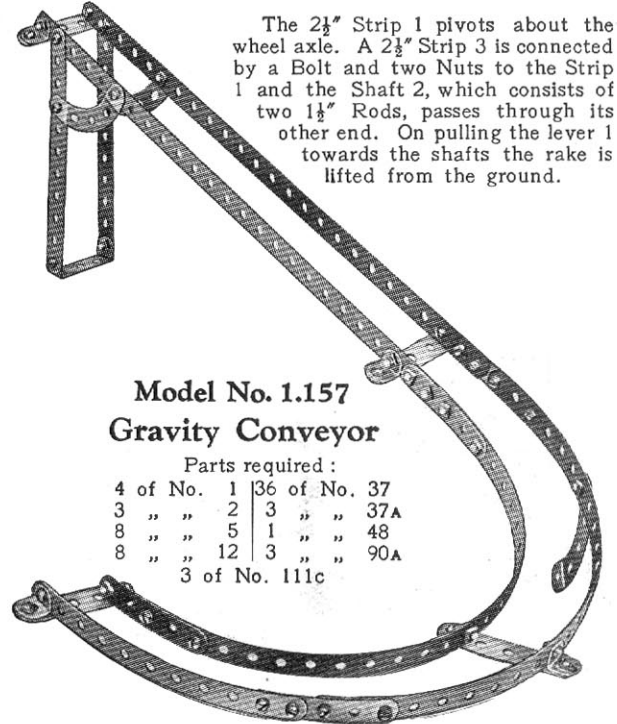
### Model No. 1.156 Horse Rake

Parts required :			
2 of No.	2		
2 " "	5		



1 of No.	16		
2 " "	18A		
2 " "	19B		
4 " "	22		
7 " "	35		
3 " "	37		
1 " "	48A		
4 " "	90A		

The  $2\frac{1}{2}$ " Strip 1 pivots about the wheel axle. A  $2\frac{1}{2}$ " Strip 3 is connected by a Bolt and two Nuts to the Strip 1 and the Shaft 2, which consists of two  $1\frac{1}{2}$ " Rods, passes through its other end. On pulling the lever 1 towards the shafts the rake is lifted from the ground.

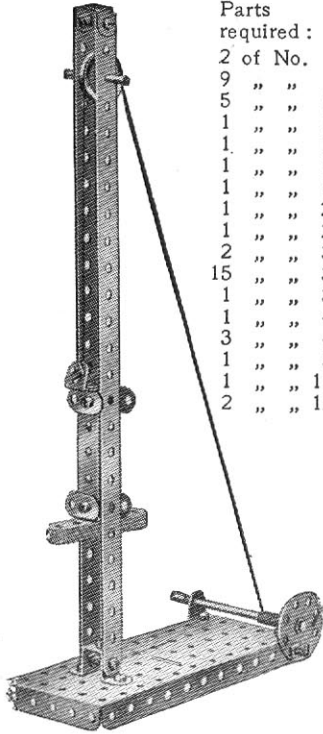


### Model No. 1.157 Gravity Conveyor

Parts required :			
4 of No.	1	36 of No.	37
3 " "	2	3 " "	37A
8 " "	5	1 " "	48
8 " "	12	3 " "	90A
3 of No. 111c			

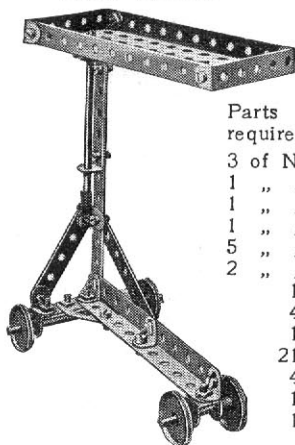
### Model No. 1.153 Pile Driver

Parts required :			
2 of No.	1		
9 " "	5		
5 " "	10		
1 " "	11		
1 " "	12		
1 " "	16		
1 " "	17		
1 " "	22		
1 " "	24		
2 " "	35		
15 " "	37		
1 " "	37A		
1 " "	40		
3 " "	48A		
1 " "	52		
1 " "	111c		
2 " "	125		



The winding cord is passed round the Pulley at the top of the model and is fastened to an Angle Bracket that is hooked under the protruding portion of a Flat Bracket bolted to the top of the driving head. When the Angle Bracket reaches the Pulley at the top it is pushed out a little, thus releasing the driving head.

### Model No. 1.158 Bed Table



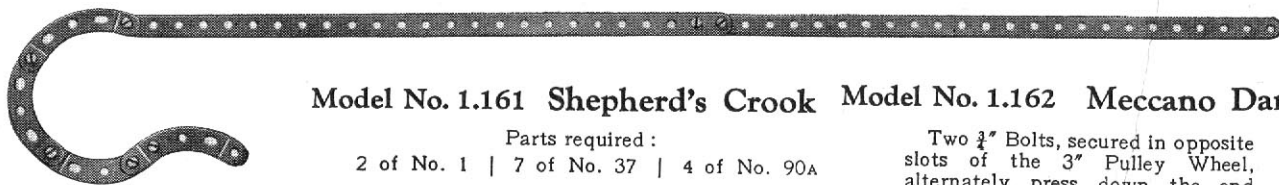
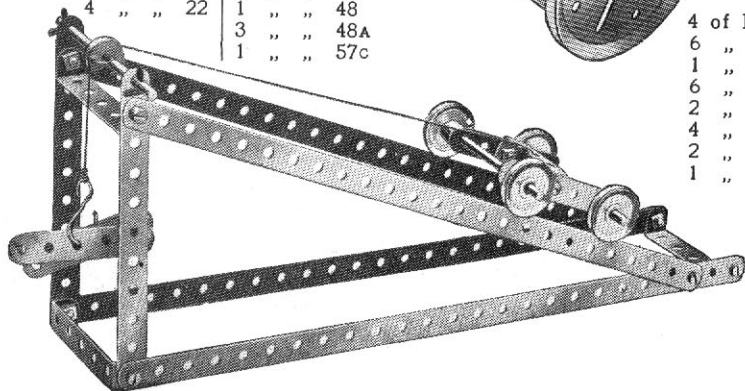
Parts  
required :

3 of No.	2
1 " "	3
1 " "	5
1 " "	11
5 " "	12
2 " "	16
1 of No.	17
4 " "	22
1 " "	24
21 " "	37
4 " "	48A
1 " "	52
1 " "	126A

### Model No. 1.159 Inclined Plane

Parts required :

4 of No.	1	1 of No.	23
2 " "	2	4 " "	35
6 " "	5	10 " "	37
3 " "	16	1 " "	40
4 " "	22	1 " "	48
		3 " "	48A
		1 " "	57c

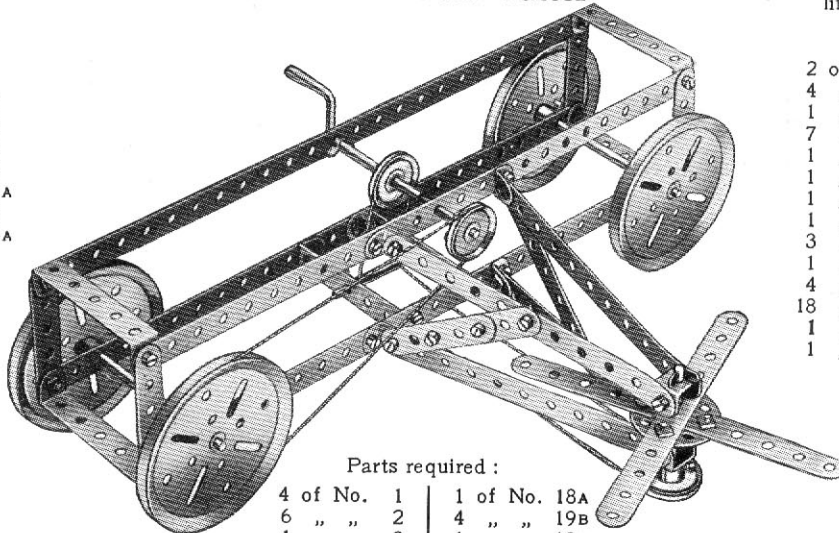


### Model No. 1.161 Shepherd's Crook    Model No. 1.162 Meccano Dancer

Parts required :

2 of No. 1 | 7 of No. 37 | 4 of No. 90A

### Model No. 1.160 Coal Cutter



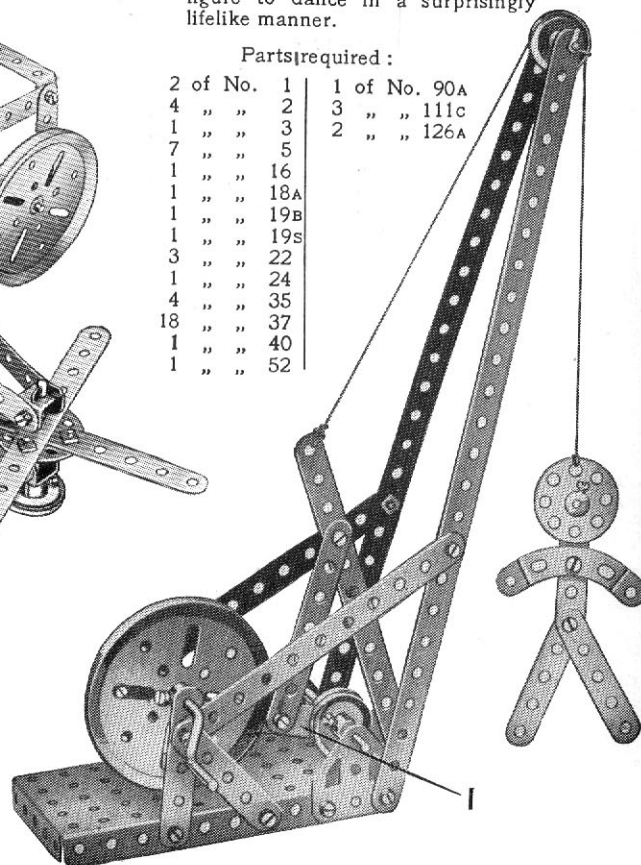
Parts required :

4 of No.	1	1 of No.	18A
6 " "	2	4 " "	19B
1 " "	3	1 " "	19S
6 " "	5	3 " "	22
2 " "	11	1 " "	24
4 " "	12	5 " "	35
2 " "	16	32 " "	37
1 " "	17	1 " "	40
		6 of No.	48A

Two  $\frac{1}{2}$ " Bolts, secured in opposite slots of the 3" Pulley Wheel, alternately press down the end of the  $5\frac{1}{2}$ " Strip 1 and cause the figure to dance in a surprisingly lifelike manner.

Parts required :

2 of No.	1	1 of No.	90A
4 " "	2	3 " "	111c
1 " "	3	2 " "	126A
7 " "	5		
1 " "	16		
1 " "	18A		
1 " "	19B		
1 " "	19S		
3 " "	22		
1 " "	24		
4 " "	35		
18 " "	37		
1 " "	40		
1 " "	52		

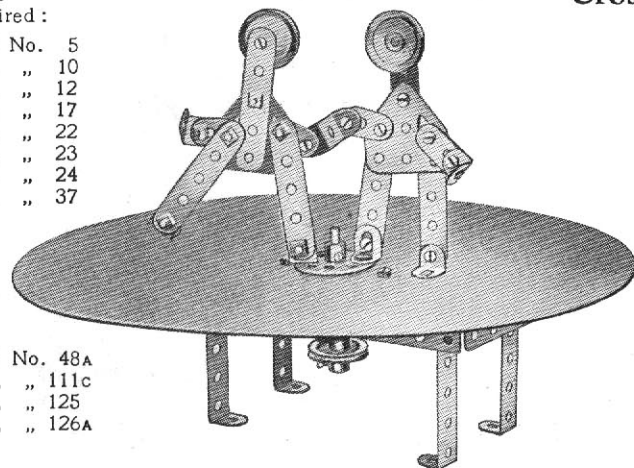




### Model No. 1.163 Eccentric Dancers

Parts  
required :

6 of No.	5
4 " "	10
6 " "	12
1 " "	17
4 " "	22
1 " "	23
1 " "	24
20 " "	37



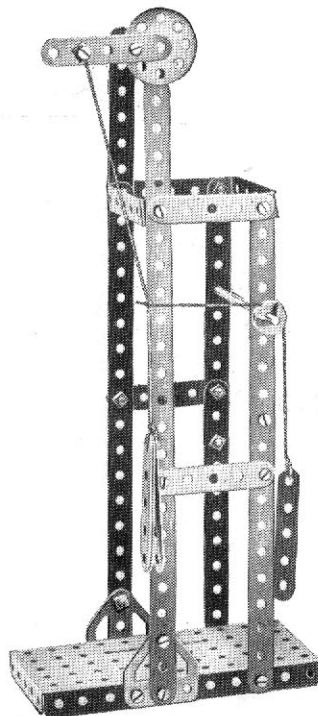
4 of No.	48A
2 " "	111c
1 " "	125
2 " "	126A

### Model No. 1.165

#### Crosshead Demonstration Model

Parts required :

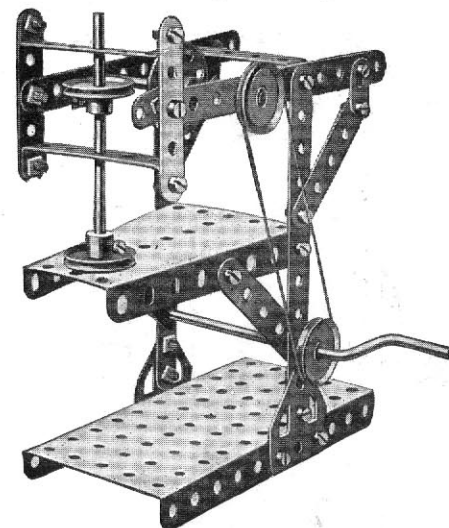
2 of No.	1	3 of No.	35
4 " "	2	20 " "	37
9 " "	5	1 " "	40
2 " "	16	2 " "	48A
1 " "	23	1 " "	52
1 " "	24	2 " "	126A



### Model No. 1.166 Drop Stamp

Parts  
required :

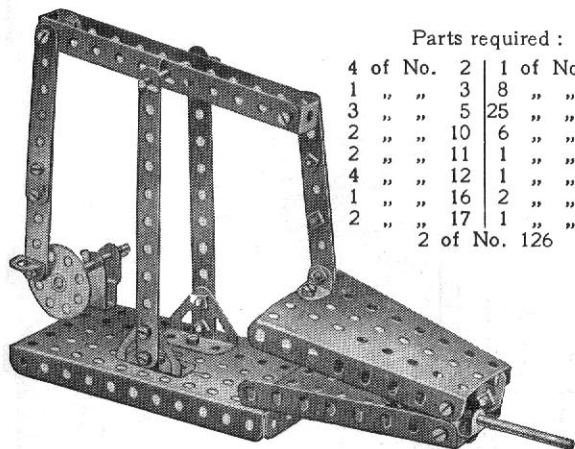
4 of No.	2
6 " "	5
3 " "	10
2 " "	16
1 " "	19s
4 " "	22
1 " "	24
2 " "	35
27 " "	37
1 " "	40
3 " "	48A
1 " "	52
1 " "	54
2 " "	126A



### Model No. 1.164 Bellows

Parts required :

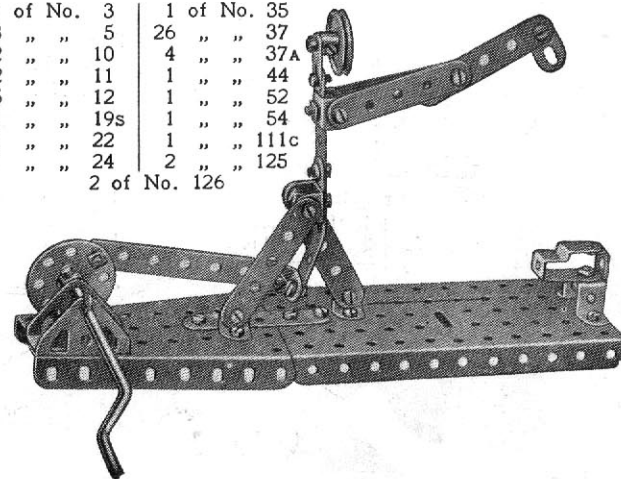
4 of No.	2	1 of No.	24
1 " "	3	8 " "	35
3 " "	5	25 " "	37
2 " "	10	6 " "	37A
2 " "	11	1 " "	44
4 " "	12	1 " "	52
1 " "	16	2 " "	54
2 " "	17	1 " "	111c
		2 of No.	126



### Model No. 1.167 Blacksmith

Parts required :

1 of No.	3	1 of No.	35
8 " "	5	26 " "	37
2 " "	10	4 " "	37A
2 " "	11	1 " "	44
5 " "	12	1 " "	52
1 " "	19s	1 " "	54
1 " "	22	1 " "	111c
1 " "	24	2 " "	125
		2 of No.	126

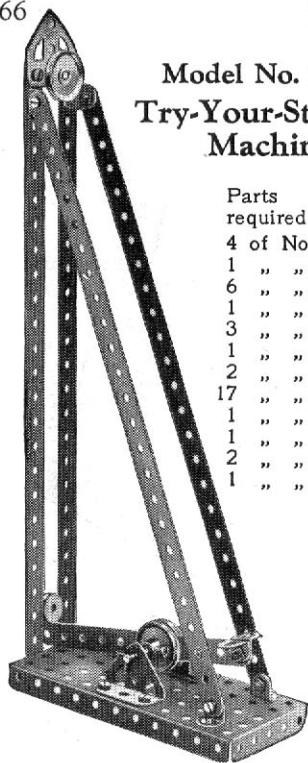


This is an apparatus for determining the forces that act at the crosshead of a reciprocating engine. The upper inclined length of cord represents the connecting rod and the lower, or vertical portion, the piston rod. The pull on the third cord indicates the pressure exerted on the slide bars of the engine due to the angularity of the connecting rod.

### Model No. 1.168 Try-Your-Strength Machine

Parts required :

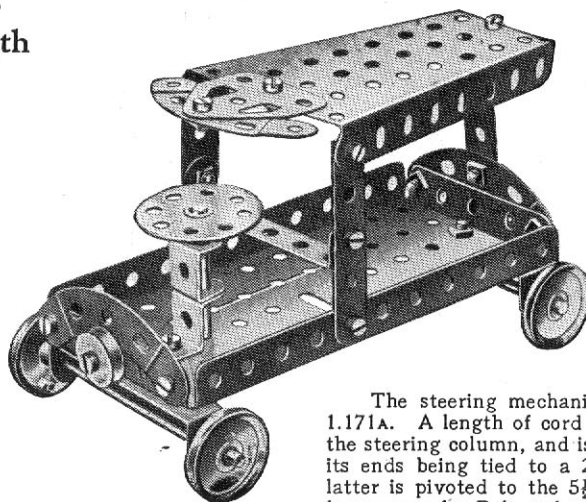
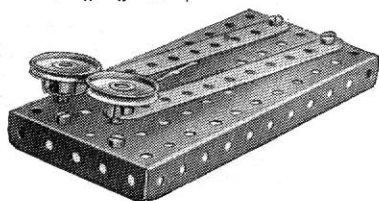
4 of No.	1
1 "	2
6 "	12
1 "	17
3 "	22
1 "	23
2 "	35
17 "	37
1 "	52
1 "	111c
2 "	126
1 "	126A



### Model No. 1.169 Double Cable Key

Parts required :

2 of No.	2	1 of No.	52
2 "	22	2 "	111c
4 "	37		



### Model No. 1.171 Motor Van

Parts required :

3 of No.	5	17 of No.	37
1 "	11	1 "	40
1 "	12	3 "	48A
2 "	16	1 "	52
1 "	17	1 "	54
4 "	22	3 "	90A
1 "	23	1 "	111c
1 "	24	1 "	125
1 "	35	1 "	126A

The steering mechanism is shown more clearly in Fig. 1.171A. A length of cord is given two or three turns round the steering column, and is held in position by a Spring Clip, its ends being tied to a  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip. The latter is pivoted to the  $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate of the lorry by means of a Bolt and two Nuts (see Standard Mechanisms Manual. Detail No. 262).

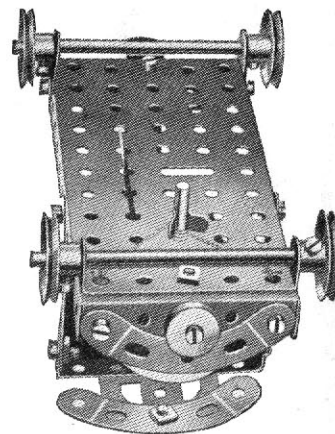
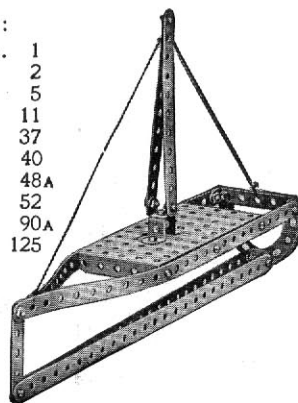


FIG. 1.171A

### Model No. 1.170 Boat

Parts required :

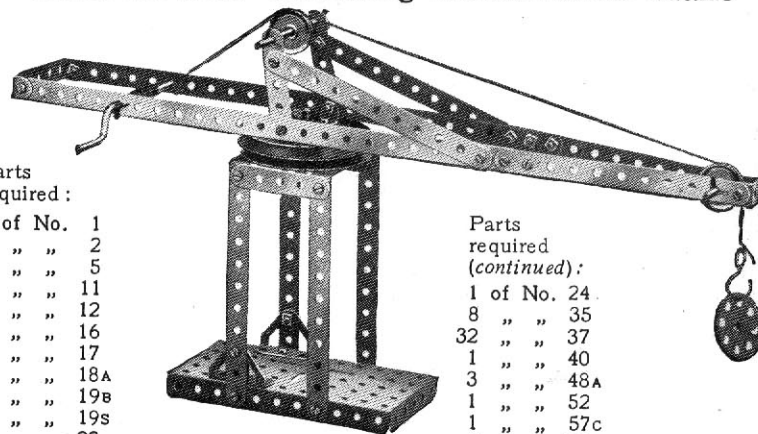
4 of No.	1
2 "	2
1 "	5
2 "	11
21 "	37
1 "	40
1 "	48A
1 "	52
2 "	90A
2 "	125



### Model No. 1.172 Revolving Hammerhead Crane

Parts required :

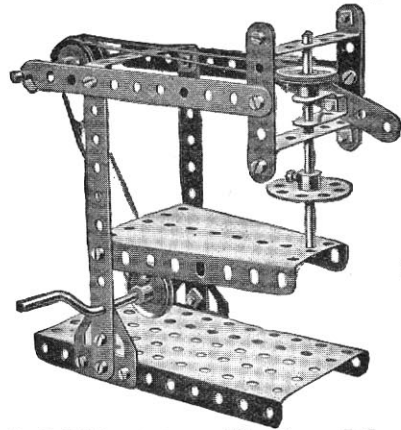
2 of No.	1
8 "	2
4 "	5
1 "	11
2 "	12
1 "	16
1 "	17
1 "	18A
2 "	19B
1 "	19S
2 "	22



Parts required (continued):

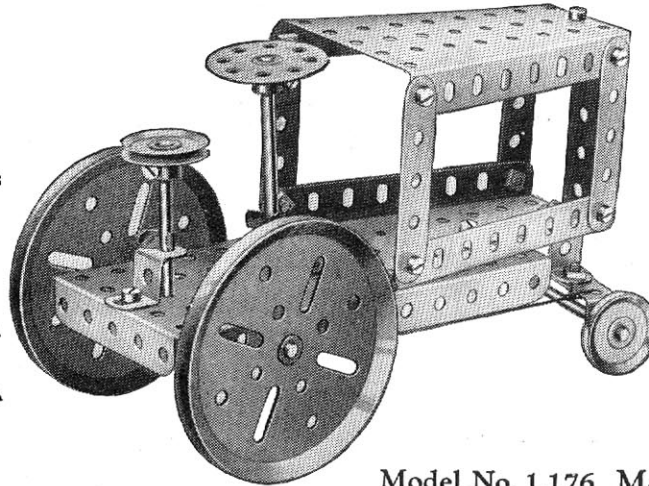
1 of No.	24
8 "	35
32 "	37
1 "	40
3 "	48A
1 "	52
1 "	57c
2 "	126

### Model No. 1.173 Drilling Machine



Parts required :		
4 of No.	2	
3	" "	5
1	" "	11
2	" "	16
1	" "	19s
4	" "	22
1	" "	24
4	" "	35
19	" "	37
1	" "	40
1	" "	44
3	" "	48A
1	" "	52
1	" "	54
2	" "	126A

### Model No. 1.175 Motor Tractor




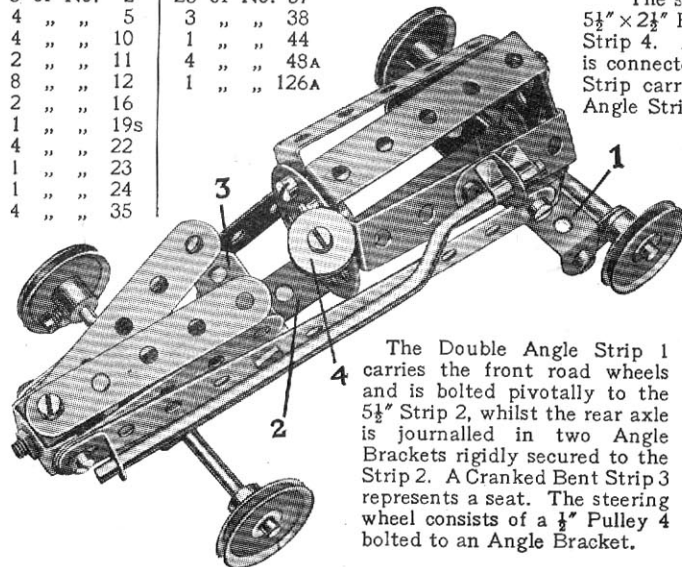
Parts required :		
4 of	No.	5
1	" "	11
3	" "	16
1	" "	17
2	" "	19 <sub>B</sub>
4	" "	22
1	" "	24
3	" "	35
16	" "	37
1	" "	37 <sub>A</sub>
1	" "	40
2	" "	48 <sub>A</sub>
1	" "	52
2	" "	54
2	" "	125

### Model No. 1.174 Racing Motor Car

Parts required :

3 of No.	2	25 of No.	37	
4	" "	3	" "	38
4	" "	1	" "	44
2	" "	4	" "	48A
8	" "	1	" "	126A
2	" "			16
1	" "			19s
4	" "			22
1	" "			23
1	" "			24
4	" "			35





The Double Angle Strip 1 carries the front road wheels and is bolted pivotally to the 5½" Strip 2, whilst the rear axle is journaled in two Angle Brackets rigidly secured to the Strip 2. A Cranked Bent Strip 3 represents a seat. The steering wheel consists of a ½" Pulley 4 bolted to an Angle Bracket.

### Model No. 1.176 Motor Car

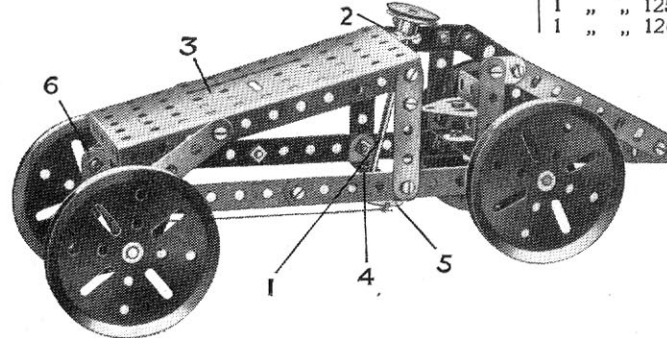
The steering column 1 is journaled in an Angle Bracket 2 bolted to the 5½" x 2½" Flanged Plate 3, and in the second hole of the 2½" x ½" Double Angle Strip 4. A Bush Wheel 5, secured to the lower end of the steering column, is connected by two short lengths of cord to a second 2½" x ½" Double Angle Strip carrying the front axle. The Strip is pivoted to a similar Double Angle Strip 6 by means of a Bolt and Nuts (Standard Mechanism No. 262).

Parts required :

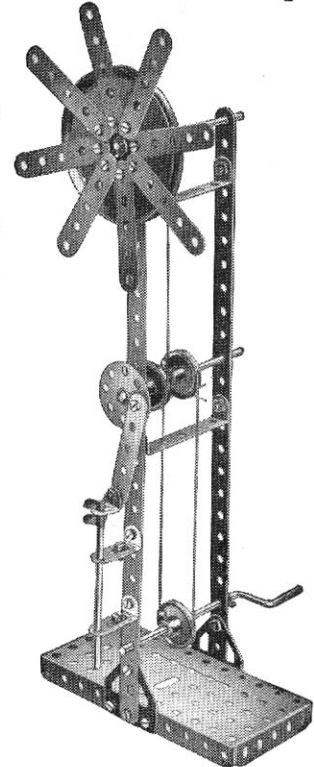
4 of No.	2	3 of No.	16	25 of No.	37	4 of No.	48A
7	" "	5	" "	2	" "	1	" "
1	" "	10	" "	2	" "	2	" "
1	" "	11	" "	1	" "	1	" "
						1	" "
						1	" "

2





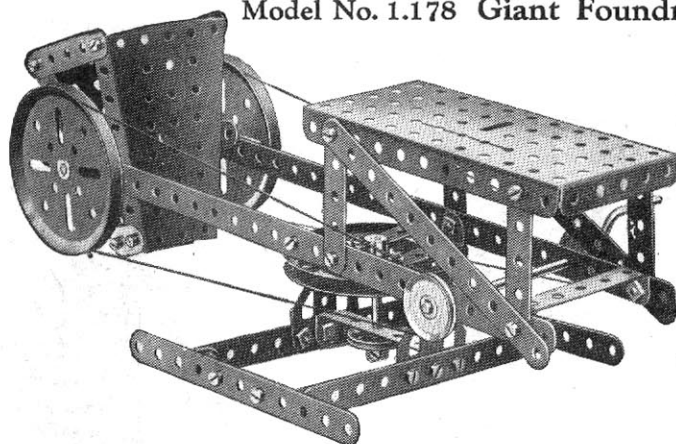
### Model No. 1.177 Windmill Pump



Parts required :

2 of No.	1	4 of No.	35
9	" "	5	37
2	" "	10	37A
3	" "	12	38
3	" "	16	40
1	" "	19 <sup>B</sup>	48A
1	" "	19 <sup>S</sup>	52
4	" "	22	111c
1	" "	24	126A



**Model No. 1.178 Giant Foundry Ladle**

The ladle pivots about a  $3\frac{1}{2}$ " Axle Rod carrying a 3" Pulley at each end in addition to a Bush Wheel and a  $2\frac{1}{2}$ " Strip. The two latter parts are bolted to the side flanges of the Sector Plates and the Bush Wheel is nipped in position on the Rod. The pivot about which the superstructure turns is shown in Fig. 1.178A.

Parts required :

2 of No. 1	3 of No. 22
6 " " 2	1 " " 24
1 " " 3	36 " " 37
7 " " 5	6 " " 37A
2 " " 10	1 " " 40
2 " " 12	6 " " 48A
1 " " 16	1 " " 52
1 " " 17	2 " " 54
3 " " 19B	6 " " 111c
1 " " 19s	2 " " 126A

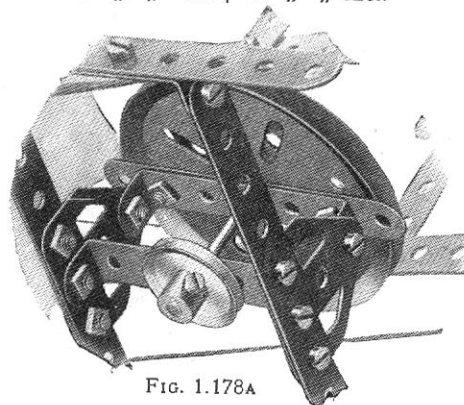
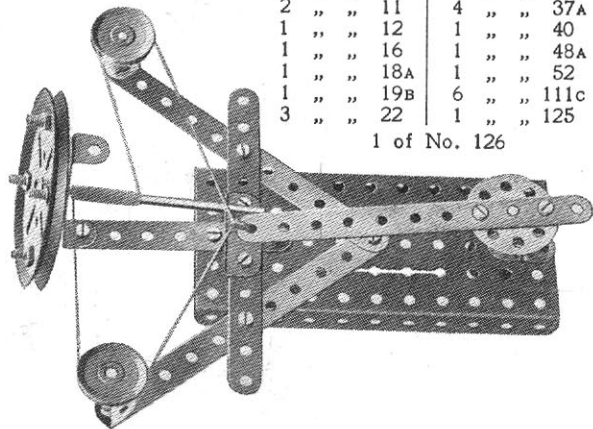


Fig. 1.178A

**Model No. 1.179 Boat Steering Gear**

Parts required :

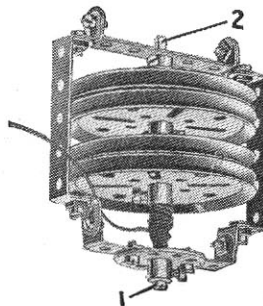
4 of No. 2	1 of No. 24
1 " " 3	14 " " 37
2 " " 11	4 " " 37A
1 " " 12	1 " " 40
1 " " 16	1 " " 48A
1 " " 18A	1 " " 52
1 " " 19B	6 " " 111c
3 " " 22	1 " " 125
1 of No. 126	

**Model No. 1.180 Gyroscope**

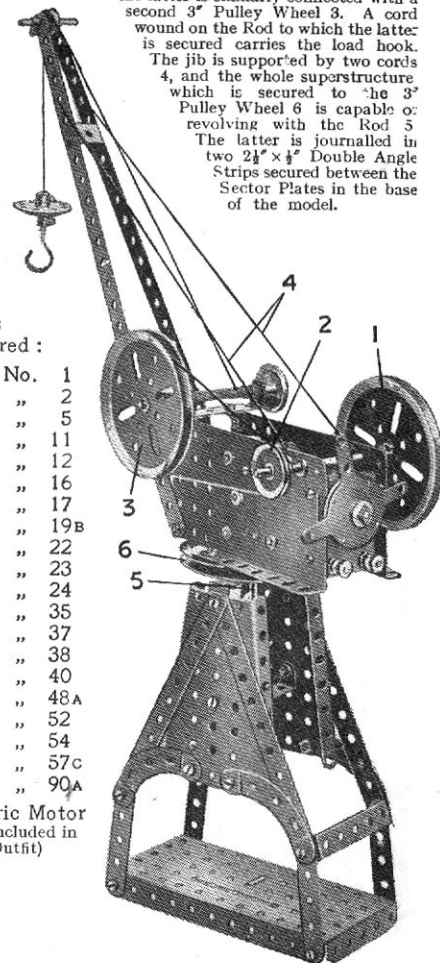
The  $5/32$ " Bolt 1 is gripped by the Set-Screw of the Bush Wheel. The lower end of the Rod 2 of the gyroscope enters the boss of the Bush Wheel and rests on the shank of the Bolt 1.

Parts required :

4 of No. 12
1 " " 16
4 " " 19B
1 " " 24
10 " " 37
1 " " 40
4 " " 48A

**Model No. 1.181****Elevated Jib Crane**

A 1" fast Pulley Wheel secured to the armature spindle of the Electric Motor is connected by an endless cord to the 3" Pulley Wheel 1. A 1" fast Pulley 2 on the same Rod as the latter is similarly connected with a second 3" Pulley Wheel 3. A cord wound on the Rod to which the latter is secured carries the load hook. The jib is supported by two cords 4, and the whole superstructure which is secured to the 3" Pulley Wheel 6 is capable of revolving with the Rod 5. The latter is journalled in two  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips secured between the Sector Plates in the base of the model.



Parts required :

2 of No. 1
4 " " 2
4 " " 5
1 " " 11
2 " " 12
3 " " 16
1 " " 17
3 " " 19B
4 " " 22
1 " " 23
1 " " 24
5 " " 35
26 " " 37
2 " " 38
1 " " 40
5 " " 48A
1 " " 52
2 " " 54
1 " " 57c
4 " " 90A

Electric Motor  
(not included in  
Outfit)

### Model No. 1.182 Telpher Span

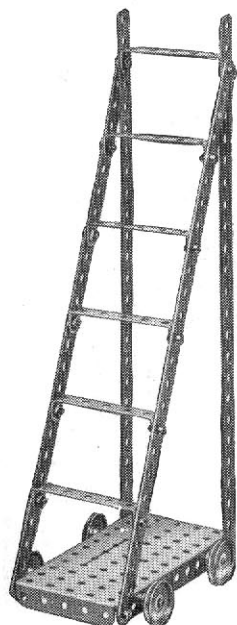
Parts required :

2 of No. 1	1 of No. 10	1 of No. 23
2 " " 2	1 " " 11	8 " " 35
4 " " 5	2 " " 12	22 " " 37
	3 " " 16	1 " " 40
	1 " " 18A	1 " " 44
	1 " " 19s	2 " " 48A
	4 " " 22	1 " " 52
		2 " " 54
		1 " " 57c
		2 " " 126A

### Model No. 1.183 Ladder on Wheels

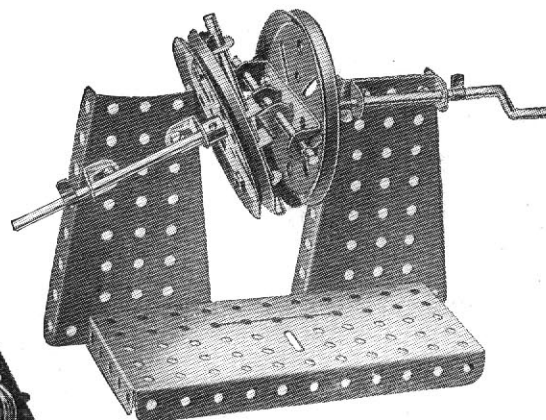
Parts required :

4 of No. 1	16 of No. 37
2 " " 16	6 " " 48A
4 " " 22	1 " " 52



This model will provide many hours of enjoyment. The cords may be made to any length to allow the load to be carried from one side of the room to the other, and, if necessary, a better grip may be obtained by winding the operating cord twice round the Pulley on the Crank Handle. The open sides of the bucket may be closed with cardboard so that it may be loaded with marbles, beads, etc. The bed of the telpher may be screwed on to a solid base with ordinary wood screws to give better support. The pulley bracket, and that securing the cord on which the bucket travels should be screwed in a suitable position on the opposite side of the room.

### Model No. 1.184 Hooke's Coupling



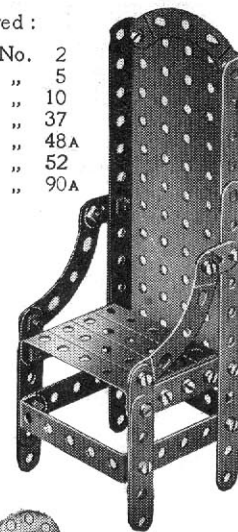
Parts required :

2 of No. 11	7 of No. 35
2 " " 12	12 " " 37
3 " " 16	1 " " 48
2 " " 19B	2 " " 48A
1 " " 19s	1 " " 52
	2 of No. 54

### Model No. 1.185 Chair

Parts required :

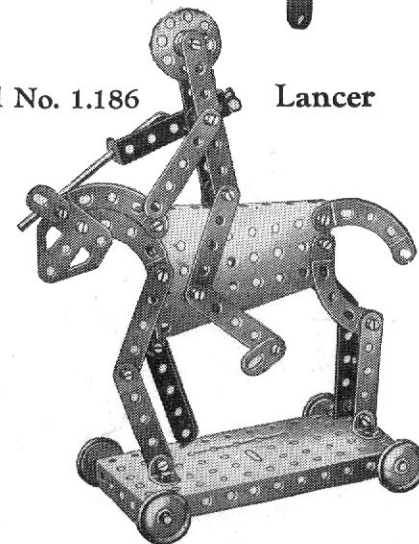
2 of No. 2	
8 " " 5	
2 " " 10	
22 " " 37	
6 " " 48A	
1 " " 52	
3 " " 90A	

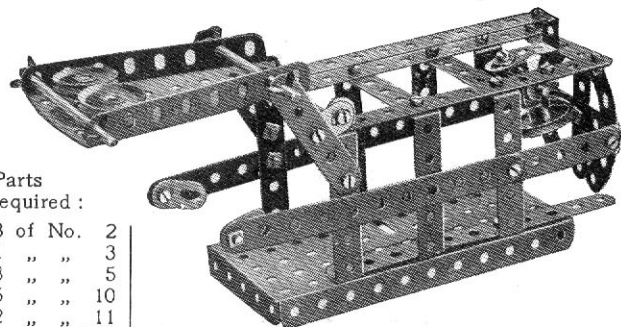


### Model No. 1.186 Lancer

Parts required :

1 of No. 2	
1 " " 3	
9 " " 5	
2 " " 10	
2 " " 11	
5 " " 12	
2 " " 16	
1 " " 19s	
4 " " 22	
1 " " 24	
1 " " 35	
27 " " 37	
1 " " 48A	
1 " " 52	
1 " " 54	
4 " " 90A	
1 " " 126A	

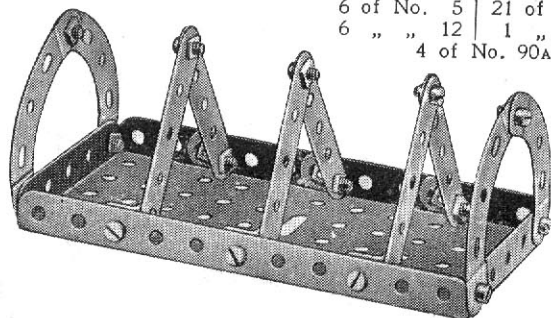


**Model No. 1.187 Rat Trap**

Parts  
required :

8 of No. 2			
1 " " 3			
8 " " 5			
5 " " 10			
2 " " 11			
6 " " 12	1 of No. 23	1 of No. 38	1 of No. 54
2 " " 16	1 " " 24	1 " " 48	2 " " 90A
1 " " 17	8 " " 35	6 " " 48A	3 " " 111c
3 " " 22	31 " " 37	1 " " 52	

The "bait" consists of a 1" fast Pulley and a  $\frac{1}{2}$ " loose Pulley suspended by means of a cord from a Double Bracket. The latter is bolted to a  $1\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip that is free to turn on a 2" Rod journalled in a pair of Angle Brackets. A Flat Bracket bolted to the Double Bracket engages a second Double Bracket on the end of a  $5\frac{1}{2}$ " Strip that is bolted to the door of the cage. If the "bait" is touched, the heavily-weighted door falls into place, and is prevented from re-opening by catches formed from Flat Brackets secured to  $5\frac{1}{2}$ " Strips that are bolted to the trap by their extreme ends and act as springs.

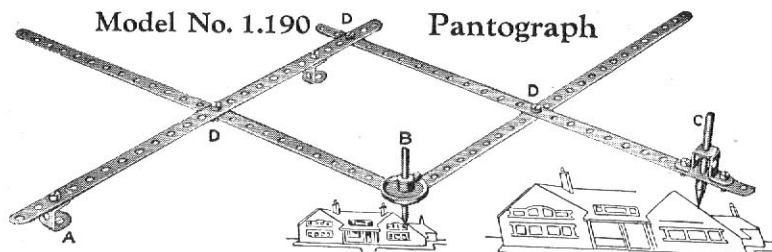
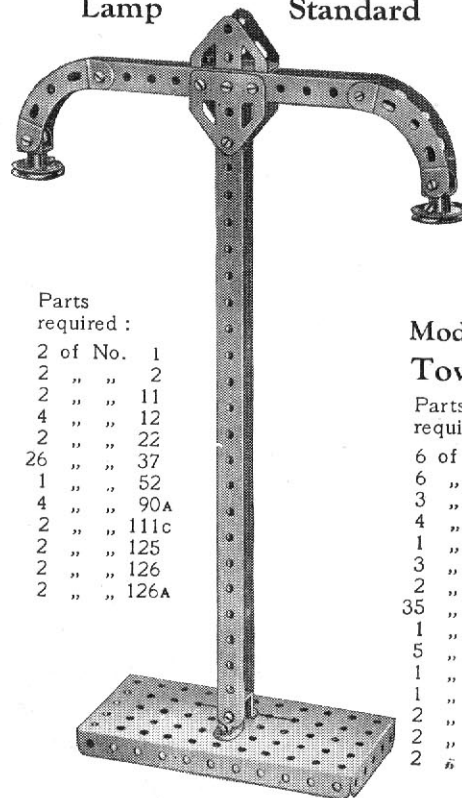
**Model No. 1.188 Toast Rack**

Parts required :

6 of No. 5	21 of No. 37
6 " " 12	1 " " 52
4 of No. 90A	

Parts  
required :

4 of No. 1	
2 " " 11	
1 " " 18A	
1 " " 22	
1 " " 35	
7 " " 37	
3 " " 37A	
2 " " 125	

**Model No. 1.190 Pantograph****Model No. 1.189 Lamp Standard**

Parts  
required :

2 of No. 1	
2 " " 2	
2 " " 11	
4 " " 12	
2 " " 22	
26 " " 37	
1 " " 52	
4 " " 90A	
2 " " 111c	
2 " " 125	
2 " " 126	
2 " " 126A	

Most boys have heard of the Pantograph but not many have had an opportunity of seeing its principles demonstrated. It is an instrument for copying plans, etc., on the same or on a reduced or enlarged scale.

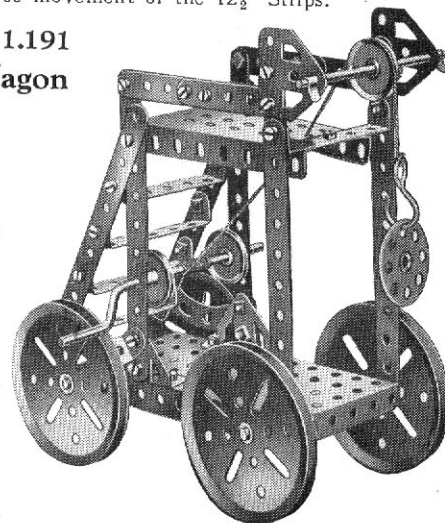
The apparatus is fixed at the point A. If an enlarged sketch is to be made, the point B is traced round the outlines, the writing point C reproducing the sketch on a larger scale. When a reduced drawing is to be made, the point C traces the outline, whilst the point B reproduces the sketch on a smaller scale. The degree of enlargement or reduction varies according to the position in which point C is fixed on the perforated arm.

The bolts at D are fitted with lock-nuts to allow free movement of the  $12\frac{1}{2}$ " Strips.

**Model No. 1.191 Tower Wagon**

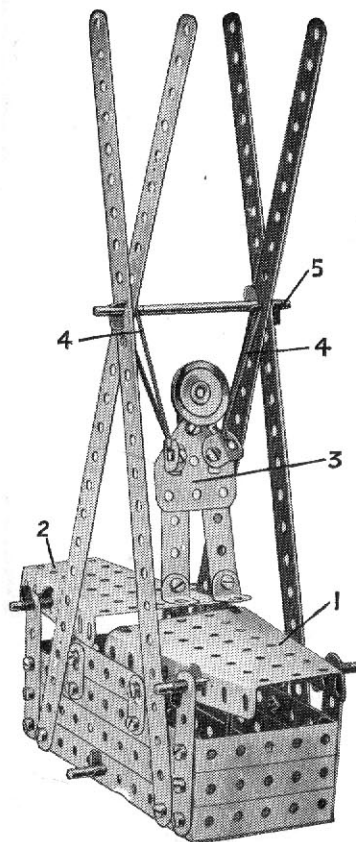
Parts  
required :

6 of No. 2	
6 " " 5	
3 " " 16	
4 " " 19B	
1 " " 19s	
3 " " 22	
2 " " 35	
35 " " 37	
1 " " 40	
5 " " 48A	
1 " " 52	
1 " " 57c	
2 " " 90A	
2 " " 126	
2 " " 126A	





# Model No. 1.192 A Sudden Appearance



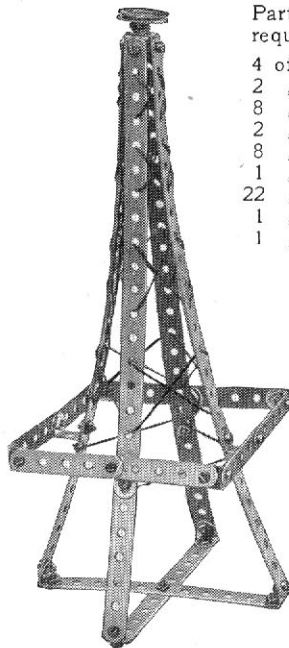
The Sector Plate 1, forming the lid, is carried pivotally on an axle rod that passes through its sides three holes from the end, and the rear Sector Plate 2 is pivoted in a similar manner, excepting that the rod in this case passes through the fourth hole from the end. Pieces of thin elastic are tied to the end holes in each side of the front Sector Plate at its widest end, and are connected to a Rod journalled in the sides of the box. The "Meccanition" 3 is placed face downward inside the box with his feet towards the far end of the model. The tension of the elastic holding the lid 1 should be sufficient to keep him in this position. On tilting the Plate 1 slightly, however, he will suddenly shoot out of the box, drawn by the elastic bands 4 connected to the  $3\frac{1}{2}$ " Axle Rod 5.

## Parts required :

4 of No. 1	8 of No. 35
4 " " 2	29 " " 37
8 " " 5	4 " " 48A
5 " " 10	1 " " 52
4 " " 12	2 " " 54
4 " " 16	1 " " 111c
1 " " 22	1 " " 126A

A short length of elastic

# Model No. 1.193 Eiffel Tower

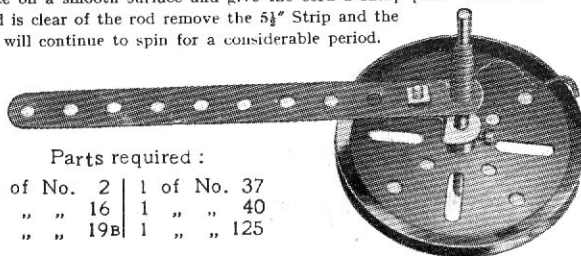


## Parts required :

4 of No. 1
2 " " 2
8 " " 5
2 " " 11
8 " " 12
1 " " 22
22 " " 37
1 " " 40
1 " " 111c

# Model No. 1.194 Top

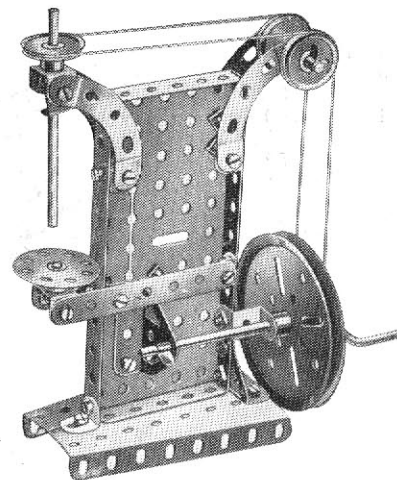
To spin the top wind a length of cord round the rod, as shown, place on a smooth surface and give the cord a sharp pull. When the cord is clear of the rod remove the  $5\frac{1}{2}$ " Strip and the top will continue to spin for a considerable period.



## Parts required :

1 of No. 2	1 of No. 37
1 " " 16	1 " " 40
1 " " 19B	1 " " 125

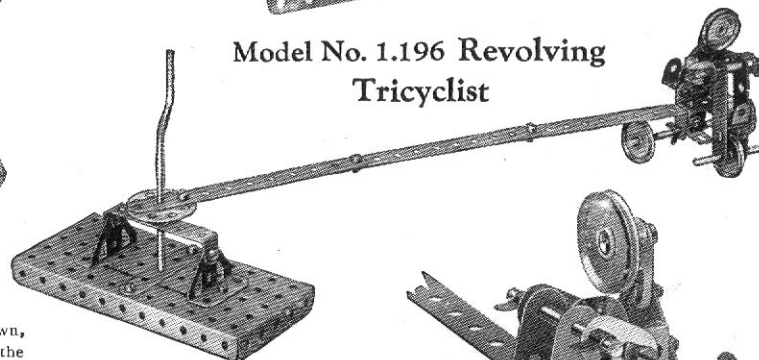
# Model No. 1.195 Drill



## Parts required :

1 of No. 3
2 " " 11
6 " " 12
1 " " 16
1 " " 18A
1 " " 19B
1 " " 19s
4 " " 22
1 " " 24
2 " " 35
27 " " 37
1 " " 40
1 " " 52
1 " " 54
4 " " 90A
1 " " 125
2 " " 126

# Model No. 1.196 Revolving Tricyclist



## Parts required :

3 of No. 2	1 of No. 24
3 " " 5	5 " " 35
3 " " 10	25 " " 37
1 " " 11	1 " " 44
5 " " 12	2 " " 48A
1 " " 16	1 " " 52
2 " " 17	2 " " 125
1 " " 19s	2 " " 126
4 " " 22	1 " " 126A

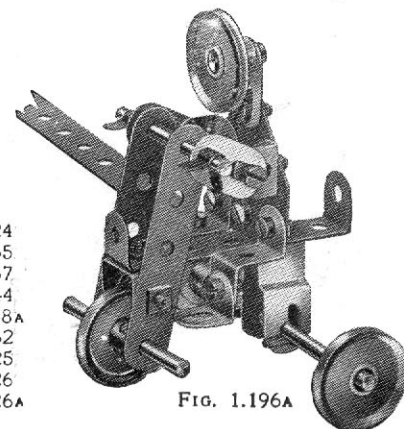
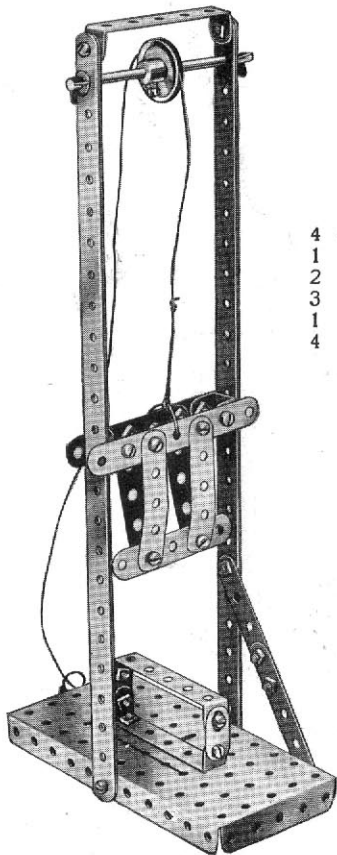
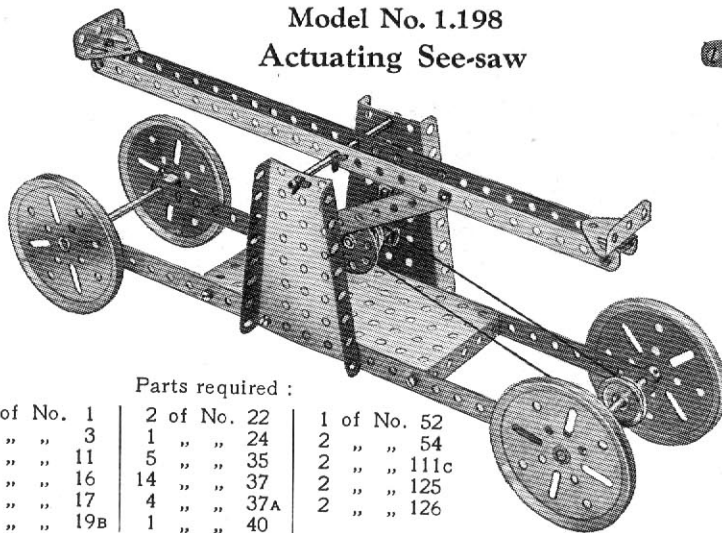


FIG. 1.196A

**Model No. 1.197 Guillotine**

Parts required :

2 of No. 1	1 of No. 22
1 " " 3	2 " " 35
9 " " 5	24 " " 37
2 " " 10	1 " " 40
2 " " 11	3 " " 48A
1 " " 16	1 " " 52

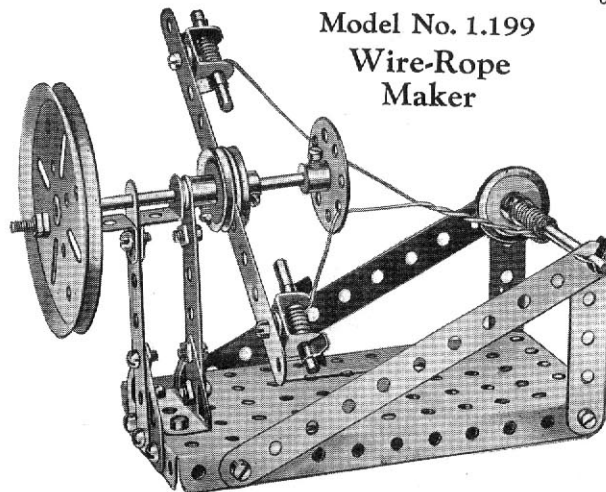
**Model No. 1.198  
Actuating See-saw**

Parts required :

4 of No. 1	2 of No. 22	1 of No. 52
1 " " 3	1 " " 24	2 " " 54
2 " " 11	5 " " 35	2 " " 111c
3 " " 16	14 " " 37	2 " " 125
1 " " 17	4 " " 37A	2 " " 126
4 " " 19B	1 " " 40	

Parts  
required :

3 of No. 2
1 " " 3
3 " " 5
1 " " 10
2 " " 11
2 " " 16
2 " " 18A
1 " " 19B
3 " " 22
1 " " 24
6 " " 35
2 " " 37
2 " " 37A
1 " " 52
1 " " 111c
2 " " 125
1 " " 126
1 " " 126A

**Model No. 1.199  
Wire-Rope  
Maker****Model No. 1.200 Coat Hanger**

Parts required :

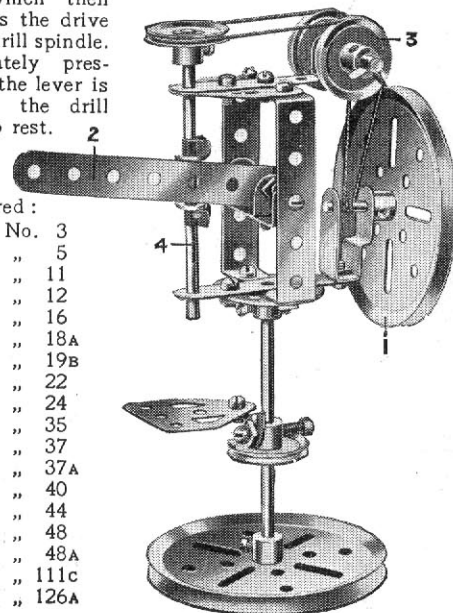
1 of No. 1	2 of No. 5	1 of No. 57c
2 " " 2	6 " " 37	

**Model No. 1.201 Automatic Drill**

Cord is passed round the Pulley on the drill spindle 4 and thence over the Pulleys 3 and round the shaft of the Pulley 1. The lever 2 (a  $3\frac{1}{2}$ " Strip) is pivoted by a Bolt and two Nuts at its inner end to an Angle Bracket, and the latter is bolted to a  $1\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip which, in turn, is bolted between the vertical  $2\frac{1}{2}$ " Double Angle Strips. The arm of the lever engages between two Washers on the drill spindle, and on pressing the lever, the drill spindle with its 1" Pulley is forced downwards, thus tightening the Cord, which then transmits the drive to the drill spindle. Immediately pressure on the lever is released, the drill comes to rest.

Parts  
required :

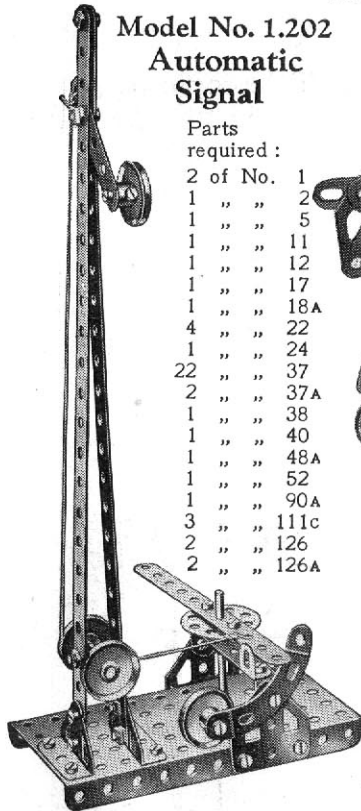
1 of No. 3
2 " " 5
1 " " 11
2 " " 12
2 " " 16
2 " " 18A
2 " " 19B
4 " " 22
1 " " 24
4 " " 35
16 " " 37
1 " " 37A
1 " " 40
1 " " 44
1 " " 48
2 " " 48A
1 " " 111c
2 " " 126A



### Model No. 1.202 Automatic Signal

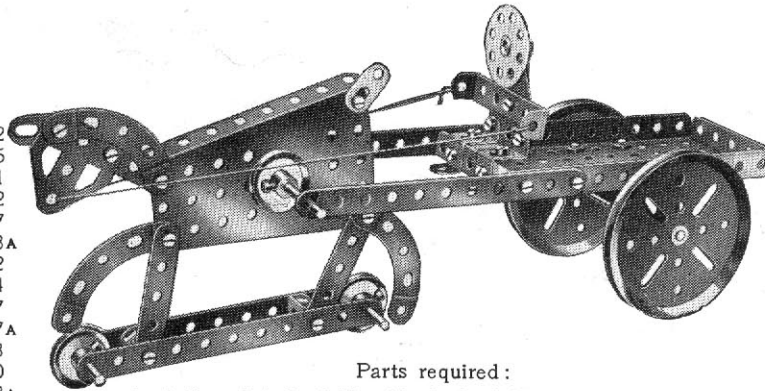
Parts required :

2 of No.	1
1 " "	2
1 " "	5
1 " "	11
1 " "	12
1 " "	17
1 " "	18A
4 " "	22
1 " "	24
22 " "	37
2 " "	37A
1 " "	38
1 " "	40
1 " "	48A
1 " "	52
1 " "	90A
3 " "	111c
2 " "	126
2 " "	126A



The weighted Curved Strip normally holds the end of the 5½" Strip against an Angle Bracket, allowing the signal arm to fall to the "all clear" position. Any train passing the signal however, strikes the opposite end of the 5½" Strip, and by means of the cord shown, raises the arm to indicate "danger." The Curved Strip moves to allow the end of the 5½" Strip to pass over it, and is returned to its original position by reason of its weighted end. The signal then remains at "danger" until the mechanism is re-set.

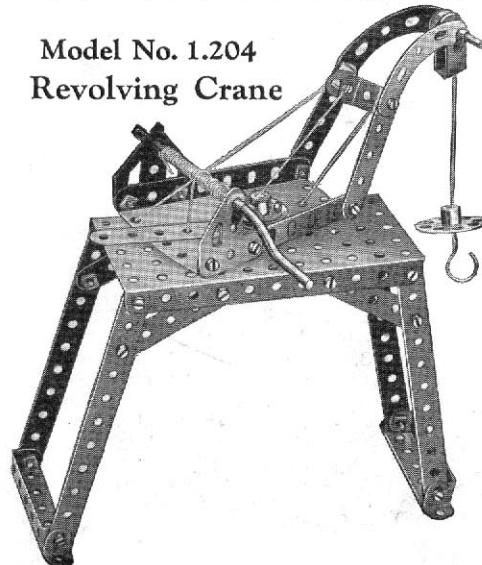
### Model No. 1.203 Horse and Cart



Parts required :

4 of No.	2	2 of No.	16	2 of No.	35	1 of No.	54
3 " "	5	2 " "	18A	26 " "	37	3 " "	90A
3 " "	10	2 " "	19B	1 " "	40	1 " "	111c
2 " "	11	4 " "	22	1 " "	48A	2 " "	125
2 " "	12	1 " "	24	1 " "	52	2 " "	126
						2 " "	126A

### Model No. 1.204 Revolving Crane

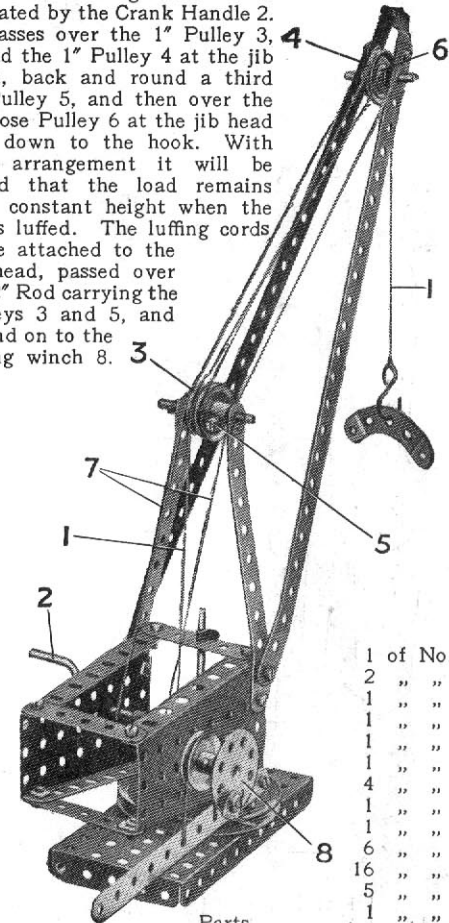


Parts required :

4 of No.	2
7 " "	5
4 " "	12
1 " "	17
1 " "	18A
1 " "	19S
2 " "	22
1 " "	23
1 " "	24
4 " "	35
25 " "	37
1 " "	37A
1 " "	40
1 " "	44
4 " "	48A
1 " "	52
1 " "	54
1 " "	57C
2 " "	90A
2 " "	125
2 " "	126A

### Model No. 1.205 Patent Luffing Crane

The hoisting cord 1 is operated by the Crank Handle 2. It passes over the 1" Pulley 3, round the 1" Pulley 4 at the jib head, back and round a third 1" Pulley 5, and then over the ½" loose Pulley 6 at the jib head and down to the hook. With this arrangement it will be found that the load remains at a constant height when the jib is luffed. The luffing cords 7 are attached to the jib head, passed over the 2" Rod carrying the Pulleys 3 and 5, and wound on to the luffing winch 8.

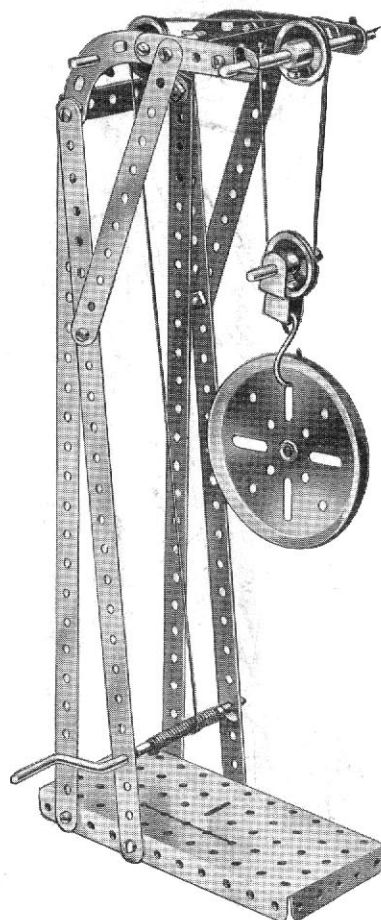


Parts required :

2 of No.	1
3 " "	2
4 " "	5

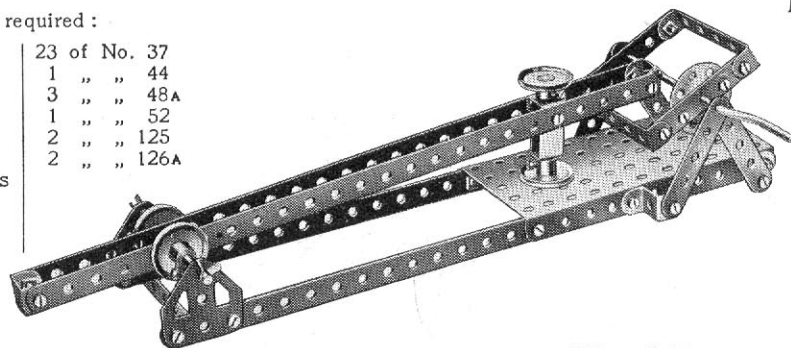
1 of No.	12
2 " "	16
1 " "	17
1 " "	18A
1 " "	19B
1 " "	19S
4 " "	22
1 " "	23
1 " "	24
6 " "	35
16 " "	37
5 " "	38
1 " "	40
1 " "	44
1 " "	52
2 " "	54
1 " "	57C
2 " "	111c



**Model No. 1.206 Hoisting Block**

Parts required :

4 of No.	1	23 of No.	37
6 "	"	1 "	"
2 "	"	3 "	"
2 "	"	1 "	"
1 "	"	2 "	"
1 "	"	2 "	"
1 "	"		
4 "	"		
1 "	"		
4 "	"		

**Model No. 1.208 Helve Hammer****Model No. 1.210 Telescopic Mast**

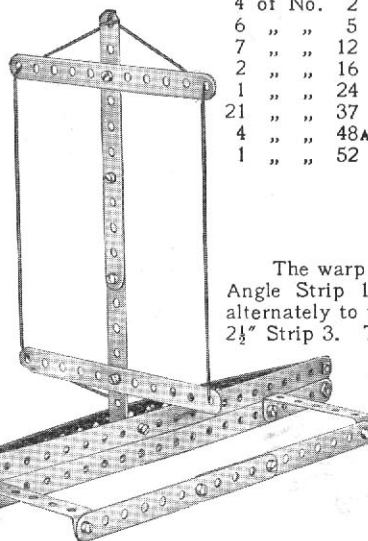
Parts required :

4 of No.	1
5 "	"
2 "	"
6 "	"
1 "	"
1 "	"
4 "	"
16 "	"
1 "	"
1 "	"
2 "	"

**Model No. 1.207 Catamaran**

Parts required :

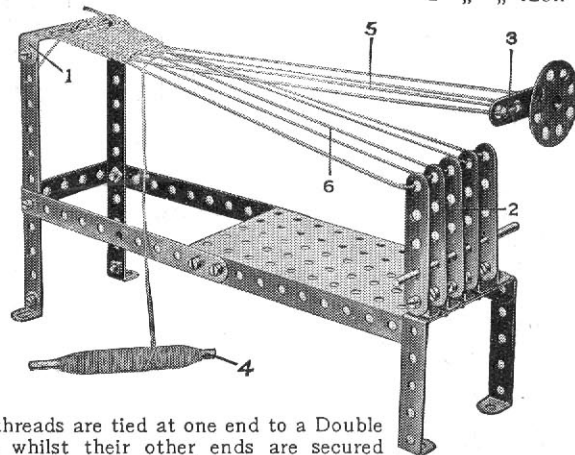
4 of No.	1
6 "	"
2 "	"
1 "	"
17 "	"
1 "	"
2 "	"



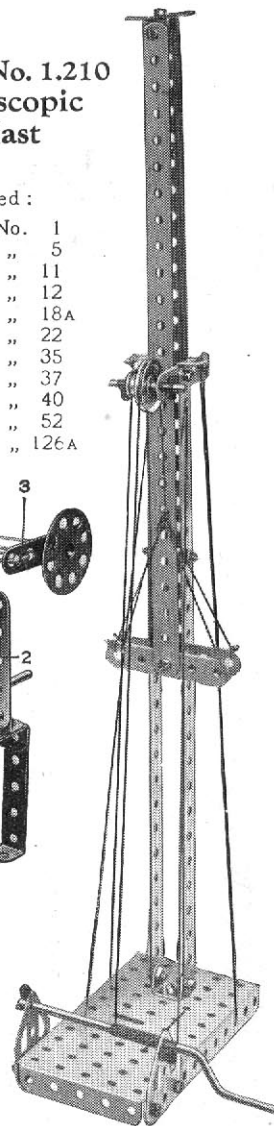
Parts required :	1 of No.	18A	1 of No.	40
4 of No.	1	"	"	"
2 "	"	2	"	"
2 "	"	5	"	"
2 "	"	16	"	"

Parts required :

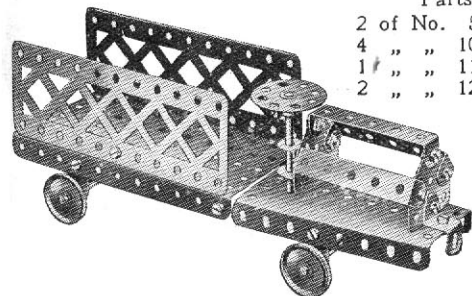
4 of No.	2
6 "	"
7 "	"
2 "	"
1 "	"
21 "	"
4 "	"
1 "	"



The warp threads are tied at one end to a Double Angle Strip 1, whilst their other ends are secured alternately to the tops of the upright Strips 2, and the  $2\frac{1}{2}$ " Strip 3. The "shedding" movement of the warp is obtained by moving the Strip 3 up or down each time the shuttle—a  $3\frac{1}{2}$ " Rod 4—is passed between the two layers of warp 5 and 6. Wool or similar material is particularly suited to this apparatus. The strands 6 should be kept very taut, and the weft threads may be closed up with the woven portion by means of an ordinary comb each time the shuttle passes.



### Model No. 1.211 Motor Lorry

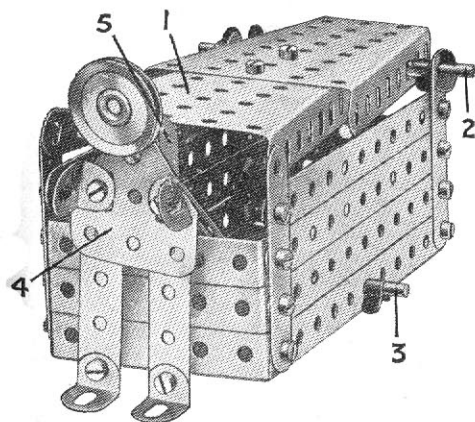


Parts required :

2 of No. 5	2 of No. 16
4 " " 10	1 " " 17
1 " " 11	4 " " 22
2 " " 12	1 " " 24
	1 " " 35
	23 " " 37
	4 " " 48A
	1 " " 52
	1 " " 54
	2 " " 100
	1 " " 125
	2 " " 126A

### Model No. 1.212 Disappearing Meccanition

The bottom of the box-like portion of the model consists of a  $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate ; three  $5\frac{1}{2}$ " Strips bolted to upright  $2\frac{1}{2}$ " Strips form each side and each end consists of three  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips. The lid 1, which is mounted pivotally on an Axle Rod 2, consists of two Sector Plates bolted together. Elastic bands are tied to the sides of these Plates and connected to Rod 3 passed through the bottom of the box. The "Meccanition" 4 also is connected to this Rod by pieces of elastic. On pressing the end of the rear Sector Plate the lid opens sufficiently to allow the figure to be drawn inside and then snaps back into place. A Cranked Bent Strip 5 is bolted at the back of the figure and rests against the edge of the Sector Plate.

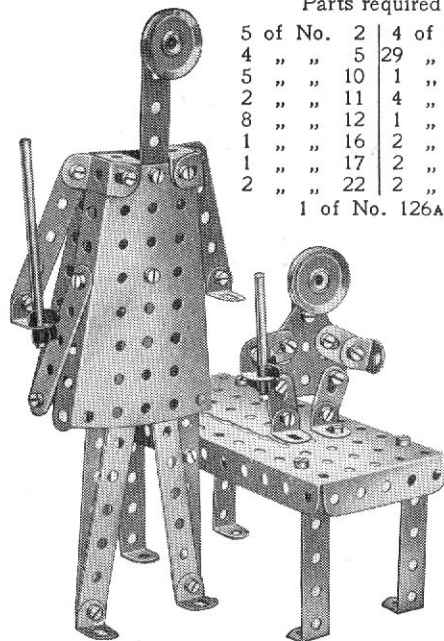


Parts required :

6 of No. 2
6 " " 5
1 " " 10
4 " " 12
2 " " 16
1 " " 22
6 " " 35
23 " " 37
1 " " 44
4 " " 48A
1 " " 52
2 " " 54
1 " " 111c
1 " " 126A

A short length of elastic

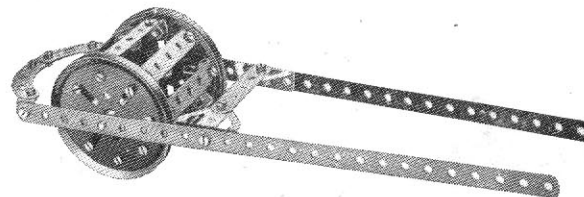
### Model No. 1.213 Dignity and Impudence



Parts required :

5 of No. 2	4 of No. 35
4 " " 5	29 " " 37
5 " " 10	1 " " 48
2 " " 11	4 " " 48A
8 " " 12	1 " " 52
1 " " 16	2 " " 54
1 " " 17	2 " " 111c
2 " " 22	2 " " 125
1 of No. 126A	

### Model No. 1.214 Field Roller



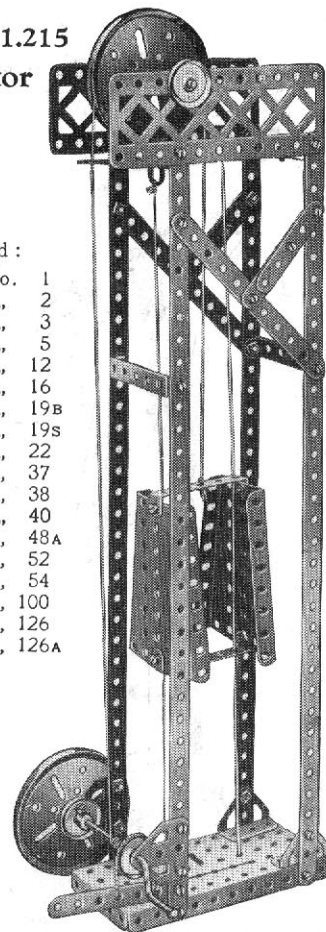
Parts required :

2 of No. 1	1 of No. 16	6 of No. 48A
3 " " 5	2 " " 19B	2 " " 90A
6 " " 12	30 " " 37	2 " " 126

### Model No. 1.215 Elevator

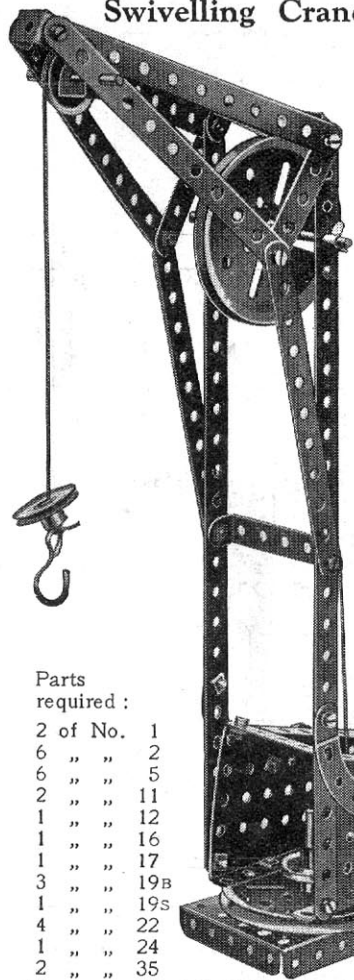
Parts required :

4 of No. 1
7 " " 2
1 " " 3
4 " " 5
1 " " 12
1 " " 16
2 " " 19B
1 " " 19S
4 " " 22
33 " " 37
3 " " 38
1 " " 40
6 " " 48A
1 " " 52
2 " " 54
2 " " 100
2 " " 126
2 " " 126A



Two cords stretched between the base plate of the model and the upper structure are passed through holes in the Double Angle Strips of the cage to form guides. A further cord is tied to the upper Double Angle Strip, and after being led over the 3" Pulley at the head of the model is tied to the shaft of a Crank Handle.

**Model No. 1.216**  
**Swivelling Crane**



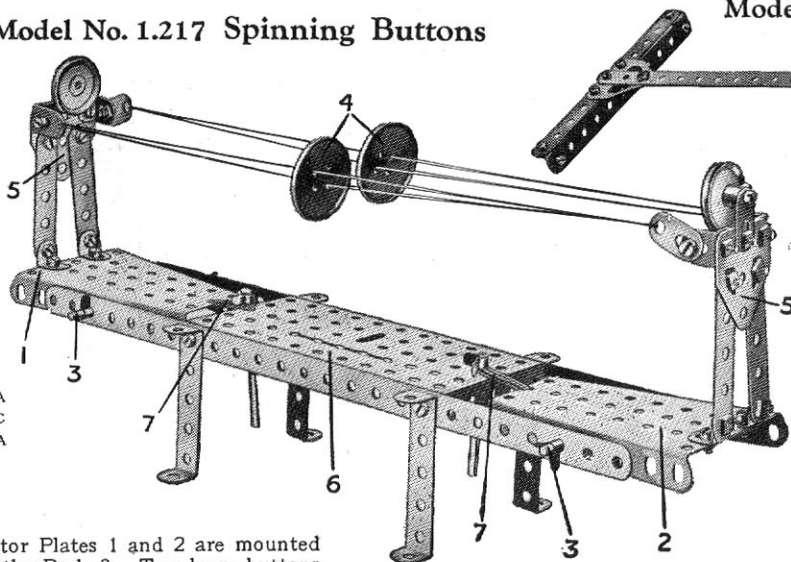
Parts  
required :

2 of No.	1		
6 "	2		
6 "	5		
2 "	11		
1 "	12		
1 "	16		
1 "	17		
3 "	19B		
1 "	19S		
4 "	22		
1 "	24		
2 "	35		
25 "	37	2 of No.	48A
1 "	37A	1 "	52
1 "	40	2 "	54
		1 of No.	57c
		2 "	90A
		1 "	111c

**Model No. 1.217 Spinning Buttons**

Parts  
required :

2 of No.	1
6 "	5
4 "	10
8 "	12
2 "	16
2 "	17
2 "	22
6 "	35
28 "	37
1 "	40
4 "	48A
2 "	111c
2 "	126A

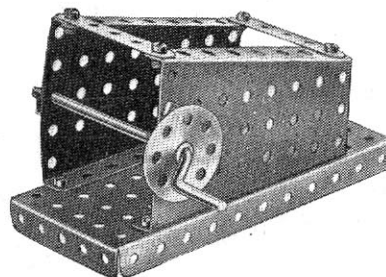


The Sector Plates 1 and 2 are mounted pivotally on the Rods 3. Two large buttons, 4 are placed on lengths of thread or thin elastic stretched between the arms of the Meccanitions 5. Start the model as follows : twist the threads a little with your fingers, pull the Meccanitions outward, then release them sharply. As soon as the buttons are spinning a slight downward touch on the feet of each Meccanition is sufficient to keep them going. The ends of the Sector Plates 1 and 2 are connected to the Flanged Plate 6 by means of pieces of elastic 7.

**Model No. 1.218 Safety Catch for Winding Gear**

Parts  
required :

2 of No.	5
1 "	19s
1 "	24
1 "	35
8 "	37
1 "	37A
1 "	52
2 "	54
1 "	111c



The hoisting cord of a crane, etc., may be wound on the shaft of the Crank Handle. To lock the handle in position, the Bush Wheel should be pushed inward so that one of its holes engages with the shank of a  $\frac{3}{8}$ " Bolt projecting from the Sector Plate.

**Model No. 1.219 Large Rake**

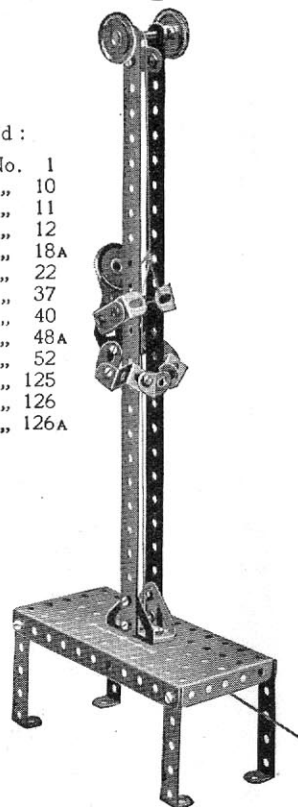
Parts required :

1 of No.	1	2 of No.	12
2 "	2	8 "	37
		1 of No.	126A

**Model No. 1.220**  
**Man Climbing Pole**

Parts  
required :

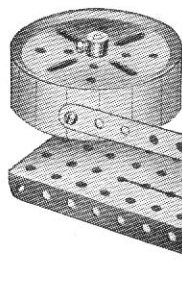
2 of No.	1
5 "	10
1 "	11
6 "	12
1 "	18A
3 "	22
26 "	37
1 "	40
4 "	48A
1 "	52
2 "	125
2 "	126
1 "	126A





### Model No. 1.221 Seismograph

Parts required :



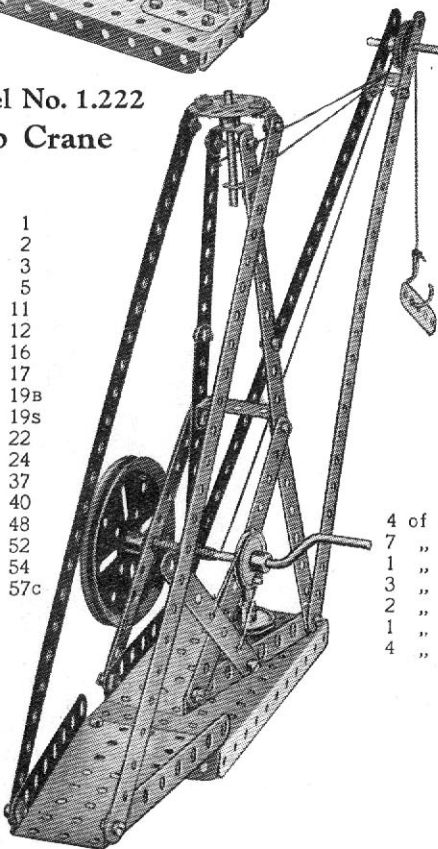
1 of No. 2	6 of No. 37
1 " " 11	1 " " 37A
1 " " 17	1 " " 52
2 " " 19B	1 " " 111c
	2 " " 126

A short length of elastic

### Model No. 1.222 Jib Crane

Parts required :

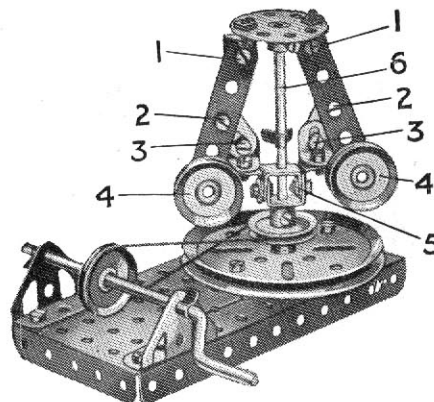
4 of No. 1
6 " " 2
1 " " 3
1 " " 5
2 " " 11
3 " " 12
1 " " 16
2 " " 17
1 " " 19B
1 " " 19s
4 " " 22
1 " " 24
23 " " 37
1 " " 40
1 " " 48
1 " " 52
2 " " 54
1 " " 57c



### Model No. 1.223 Centrifugal Governor

Parts required :

2 of No. 5
2 " " 10
2 " " 11
6 " " 12
1 " " 16
1 " " 19B
1 " " 19s
4 " " 22
3 " " 24
3 " " 35
18 " " 37
6 " " 37A
4 " " 38
1 " " 40
2 " " 111c
2 " " 126

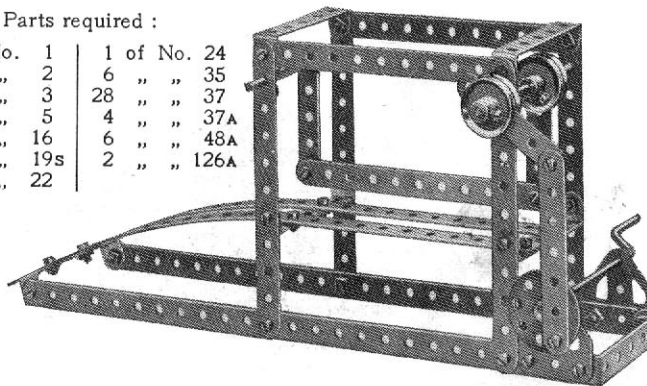


The 3" Pulley Wheel is bolted to the 5½" x 2½" Flanged Plate as shown, and the Rod 6 is free to rotate in its boss. The Bolts 1, 2, 3, are provided with lock-nuts. When the engine to which the governor is attached works at too great a speed, the 1" fast Pulley Wheels 4 fly outward and lift the two Double Brackets 5. In actual practice this movement is utilised to close the engine valves and so reduce speed.

### Model No. 1.224 Stone-Sawing Machine

Parts required :

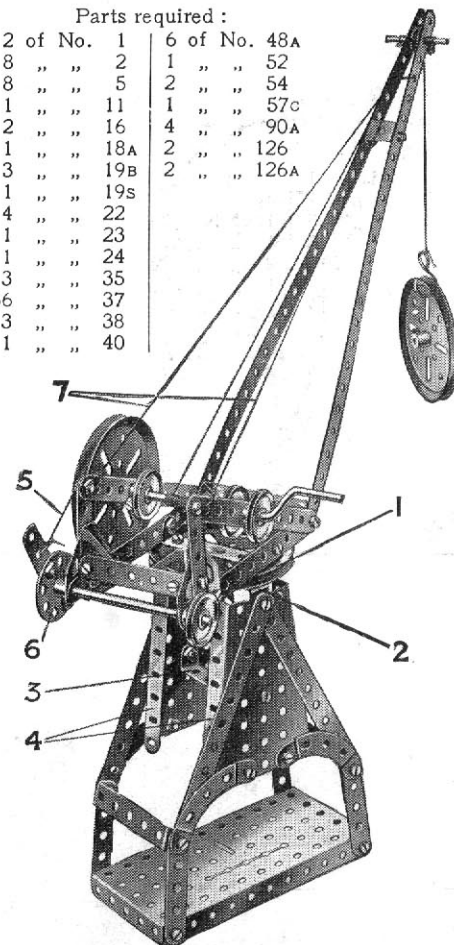
4 of No. 1	1 of No. 24
7 " " 2	6 " " 35
1 " " 3	28 " " 37
3 " " 5	4 " " 37A
2 " " 16	6 " " 48A
1 " " 19s	2 " " 126A
4 " " 22	



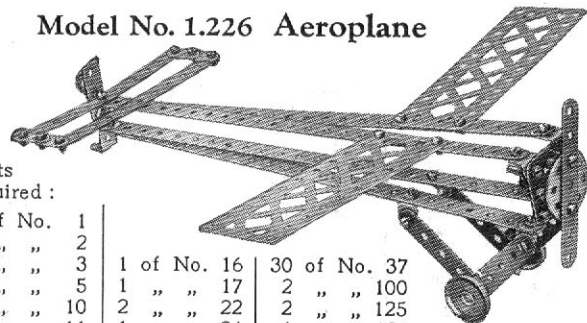
### Model No. 1.225 Elevated Crane

Parts required :

2 of No. 1	6 of No. 48A
8 " " 2	1 " " 52
8 " " 5	2 " " 54
1 " " 11	1 " " 57c
2 " " 16	4 " " 90A
1 " " 18A	2 " " 126
3 " " 19B	2 " " 126A
1 " " 19s	
4 " " 22	
1 " " 23	
1 " " 24	
3 " " 35	
36 " " 37	
3 " " 38	
1 " " 40	



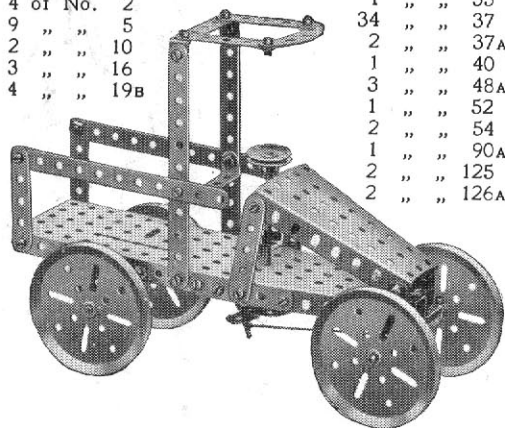
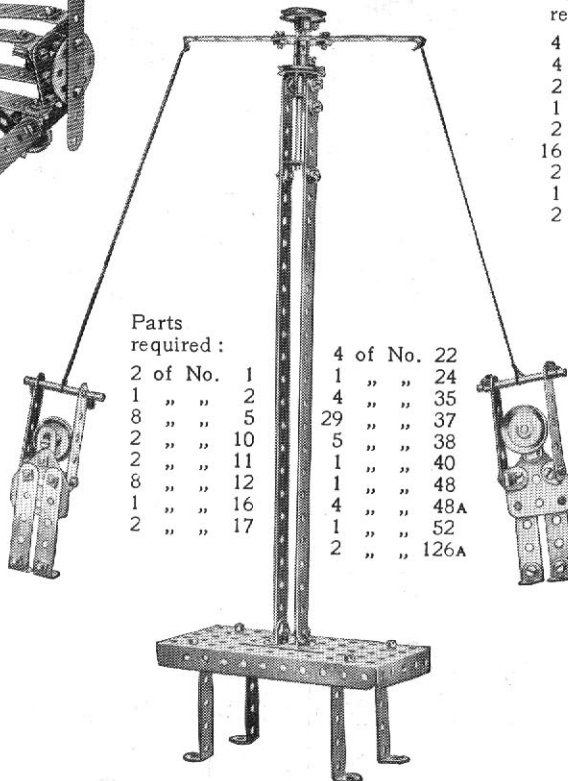
The base of the swivelling portion of the crane consists of a 3" Pulley Wheel 1, which has a 3½" Axle Rod nipped in its boss. The Rod is journalled in two 2½" Double Angle Strips 2 and 3 secured between the Sector Plates 4. The brake cord 5 passes round the 3" Pulley as shown, and is tied to one of the holes in the Bush Wheel 6. The cords 7 serve merely to support the weight of the jib.

**Model No. 1.226 Aeroplane**Parts  
required :

4 of No.	1		
2 "	2		
1 "	3	1 of No.	16
4 "	5	1 "	17
4 "	10	2 "	22
1 "	11	1 "	24
8 "	12	1 "	35
		30 of No.	37
		2 "	100
		2 "	125
		1 "	126
		2 "	126A

**Model No. 1.227 Motor Truck**Parts  
required :

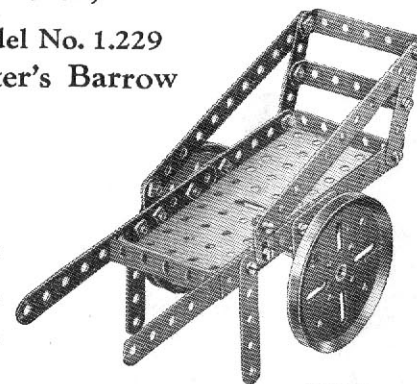
4 of No.	2		
9 "	5		
2 "	10		
3 "	16		
4 "	19B		
		1 of No.	22
		1 "	24
		1 "	35
		34 "	37
		2 "	37A
		1 "	40
		3 "	48A
		1 "	52
		2 "	54
		1 "	90A
		2 "	125
		2 "	126A

**Model No. 1.228  
Revolving Gymnasts**Parts  
required :

2 of No.	1		
1 "	2		
8 "	5		
2 "	10		
2 "	11		
8 "	12		
1 "	16		
2 "	17		
		4 of No.	22
		1 "	24
		4 "	35
		29 "	37
		5 "	38
		1 "	40
		1 "	48
		4 "	48A
		1 "	52
		2 "	126A

**Model No. 1.229  
Coster's Barrow**Parts  
required :

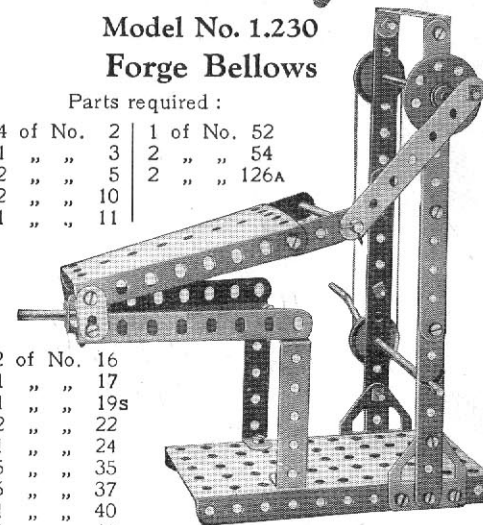
4 of No.	2		
4 "	5		
2 "	10		
1 "	16		
2 "	19B		
16 "	37		
2 "	48A		
1 "	52		
2 "	126A		

**Model No. 1.230  
Forge Bellows**

Parts required :

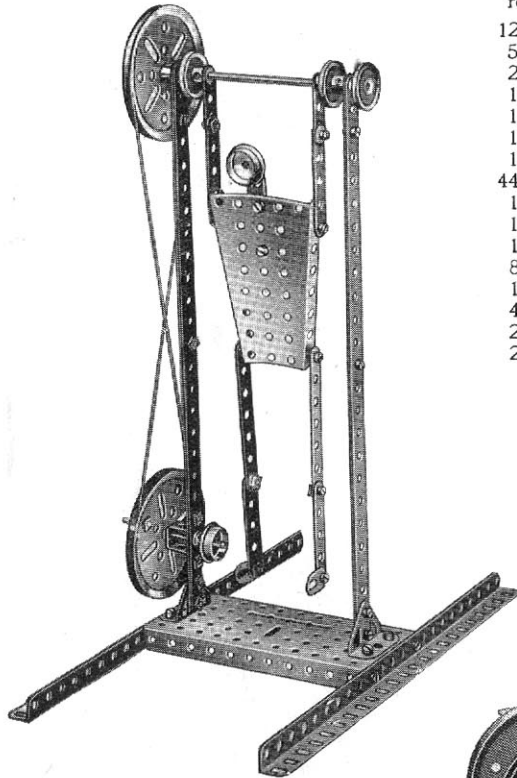
4 of No.	2	1 of No.	52
1 "	3	2 "	54
2 "	5	2 "	126A
2 "	10		
1 "	11		

2 of No.	16
1 "	17
1 "	19s
2 "	22
1 "	24
5 "	35
25 "	37
1 "	40
3 "	48A

**HOW TO CONTINUE**

This completes our examples of models that may be made with MECCANO Outfit No. 1 (or No. 0 and No. 0A). The next models are a little more advanced, requiring a number of extra parts to construct them. The necessary parts are all contained in a No. 1A Accessory Outfit, the price of which may be obtained from any Meccano dealer.

### Model No. 2.1 Acrobat



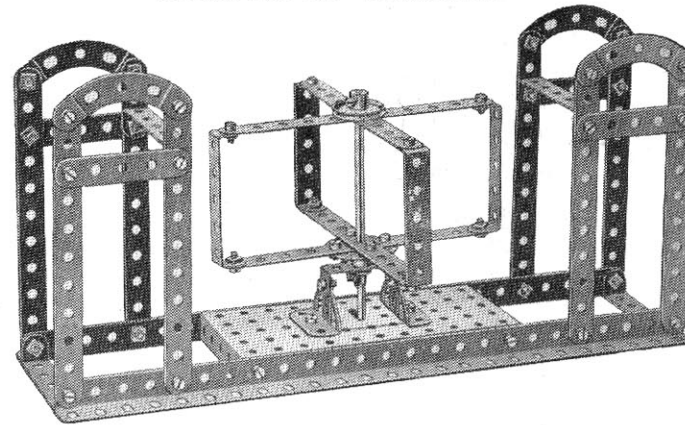
Parts required :

4 of No. 1	28 of No. 37
2 " " 3	6 " " 37A
5 " " 5	5 " " 38
2 " " 8	1 " " 40
2 " " 10	1 " " 45
1 " " 15	1 " " 52
2 " " 19B	1 " " 54
2 " " 20B	2 " " 62
3 " " 22	1 " " 115
2 of No. 126	

Parts required :

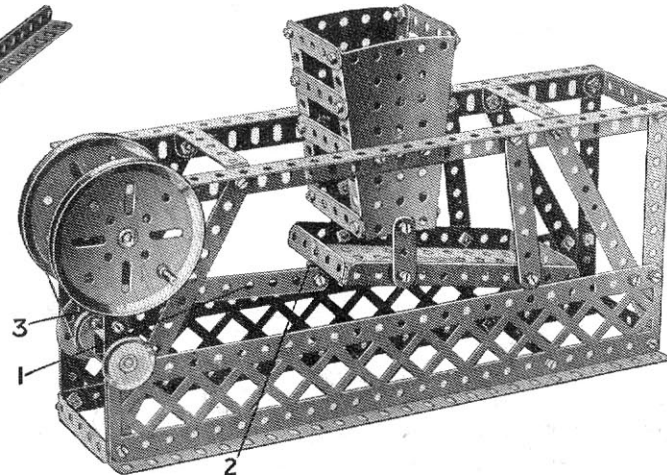
12 of No. 2	
5 " " 5	
2 " " 8	
1 " " 15A	
1 " " 22	
1 " " 24	
1 " " 35	
44 " " 37	
1 " " 38	
1 " " 40	
1 " " 48	
8 " " 48A	
1 " " 52	
4 " " 90A	
2 " " 99	
2 " " 126	

### Model No. 2.2 Turnstile



### Model No. 2.3 Coal Sifter

The  $5\frac{1}{2}$ " Strip 1 is pivoted to the Angle Bracket 2 by a bolt and two Nuts. The Angle Bracket in turn is bolted to the Flanged Plate, which is suspended in such a way that it is free to swing to and fro. The other end of the  $5\frac{1}{2}$ " Strip is pivoted to the Bush Wheel 3.



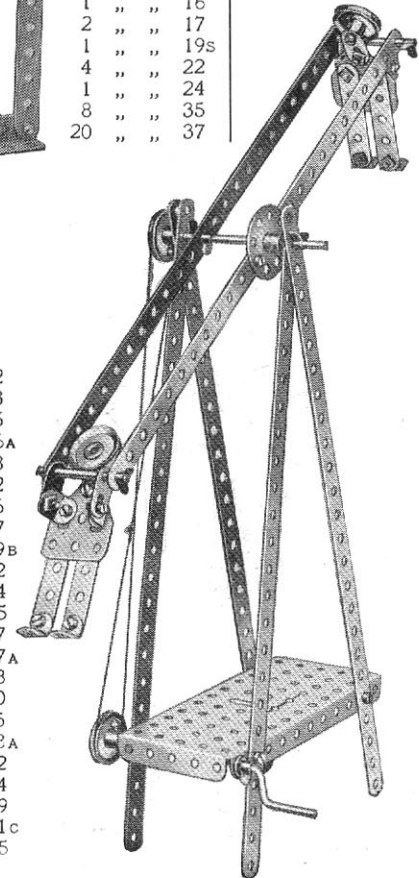
Parts required :

9 of No. 2	
2 " " 3	
8 " " 5	
2 " " 6A	
4 " " 8	
1 " " 12	
1 " " 16	
1 " " 17	
2 " " 19B	
2 " " 22	
1 " " 24	
2 " " 35	
54 " " 37	
6 " " 37A	
8 " " 38	
1 " " 40	
1 " " 45	
6 " " 48A	
1 " " 52	
2 " " 54	
2 " " 99	
6 " " 111c	
1 " " 115	

### Model No. 2.4 Revolving Meccanitions

Parts required :

6 of No. 1	1 of No. 38
4 " " 5	1 " " 52
6 " " 10	2 " " 111c
8 " " 12	2 " " 126A
1 " " 16	
2 " " 17	
1 " " 19s	
4 " " 22	
1 " " 24	
8 " " 35	
20 " " 37	

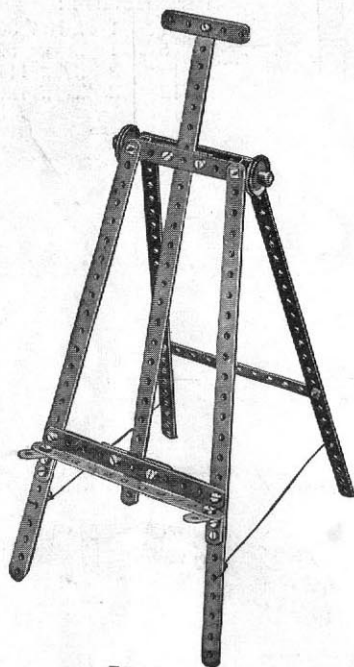




These Models can be built with MECCANO Outfit No. 2 (or No. 1 and No. 1A)

### Model No. 2.5

#### Easel



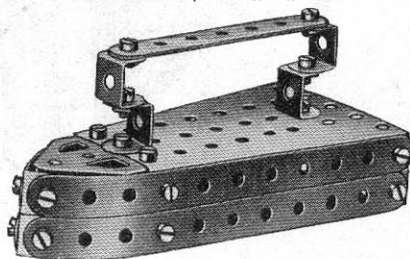
Parts  
required :

5 of No.	1
3 " "	2
2 " "	3
3 " "	5
4 " "	12
2 " "	12A
1 " "	15A
2 " "	22
19 " "	37
4 " "	38
1 " "	40

### Model No. 2.6 Smoothing Iron

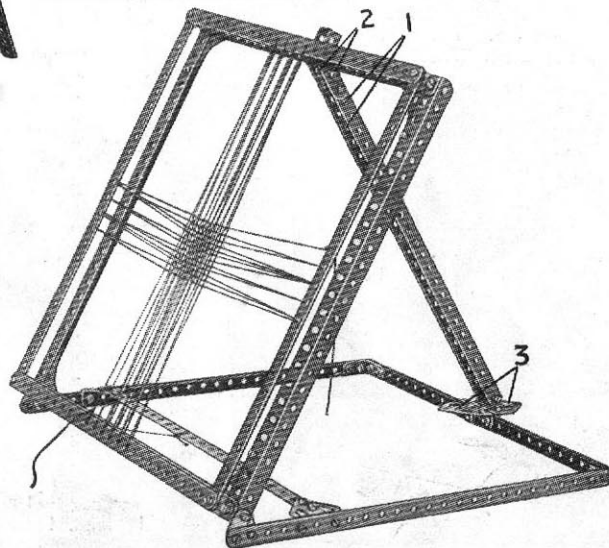
Parts required :

4 of No.	2	20 of No.	37
2 " "	3	2 " "	38
6 " "	10	1 " "	48A
4 " "	11	2 " "	54
2 " "	12	1 " "	126A



### Model No. 2.7 Mat Frame

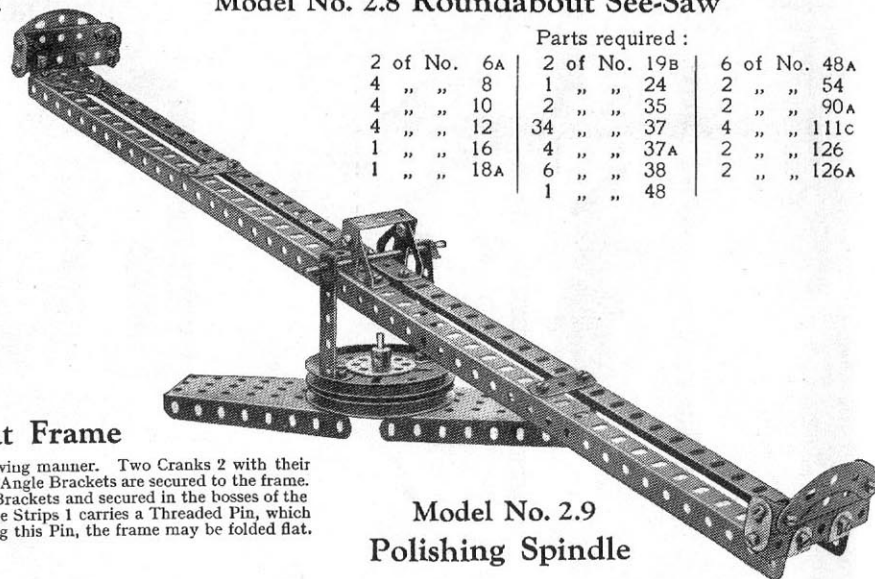
The Strips 1 are hinged to the frame in the following manner. Two Cranks 2 with their bosses facing inward are bolted to the Strips 1 and two Angle Brackets are secured to the frame. A Rod is then pushed through the holes in the Angle Brackets and secured in the bosses of the Cranks. A Double Bracket fastened to the ends of the Strips 1 carries a Threaded Pin, which fits in the holes in the Flat Trunnions 3. By removing this Pin, the frame may be folded flat.



### Model No. 2.8 Roundabout See-Saw

Parts required :

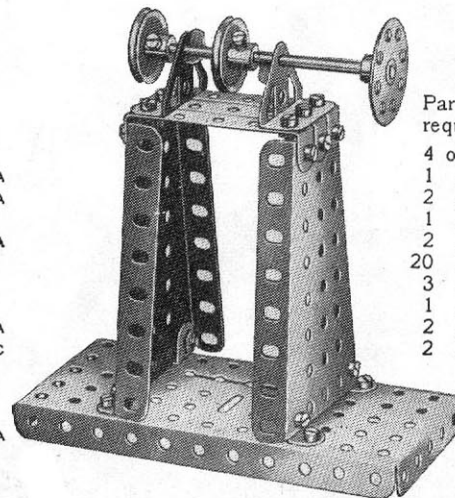
2 of No.	6A	2 of No.	19B	6 of No.	48A
4 " "	8	1 " "	24	2 " "	54
4 " "	10	2 " "	35	2 " "	90A
4 " "	12	34 " "	37	4 " "	111c
1 " "	16	4 " "	37A	2 " "	126
1 " "	18A	6 " "	38	2 " "	126A
		1 " "	48		



### Model No. 2.9 Polishing Spindle

Parts  
required :

10 of No.	1
4 " "	8
4 " "	10
3 " "	11
6 " "	12
2 " "	12A
1 " "	18A
54 " "	37
2 " "	37A
2 " "	38
1 " "	45
2 " "	62
4 " "	90A
2 " "	111c
1 " "	115
4 " "	125
2 " "	126
2 " "	126A

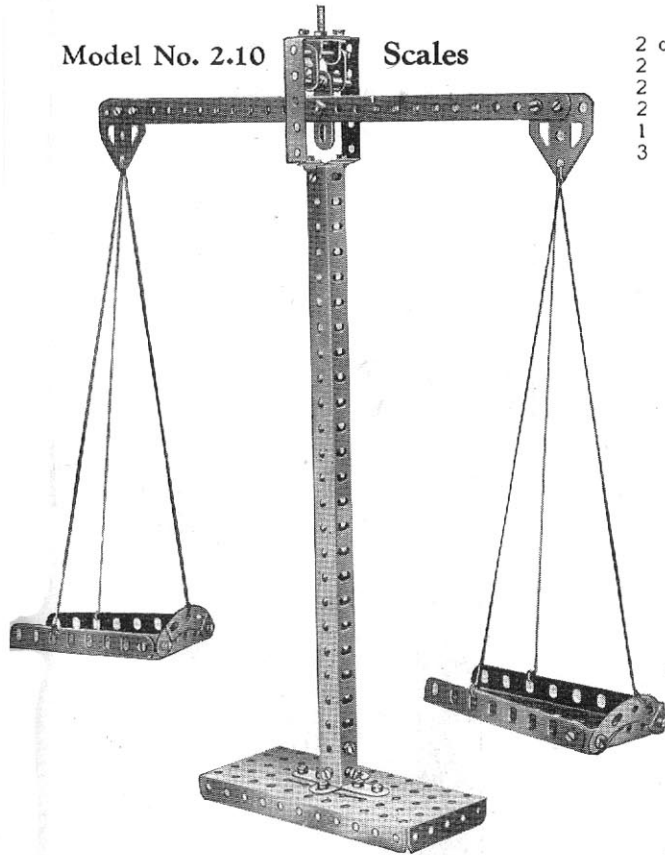


Parts  
required :

4 of No.	12
1 " "	16
2 " "	22
1 " "	24
2 " "	35
20 " "	37
3 " "	48A
1 " "	52
2 " "	54
2 " "	126

Model No. 2.10

Scales



Parts required :		
2 of No. 1	2 of No. 18A	1 of No. 52
1 " " 6A	2 " " 35	2 " " 54
2 " " 8	31 " " 37	2 " " 62
2 " " 10	4 " " 38	2 " " 90A
1 " " 11	1 " " 40	1 " " 115
2 " " 12	1 " " 45	2 " " 126A
2 " " 12A	4 " " 48A	

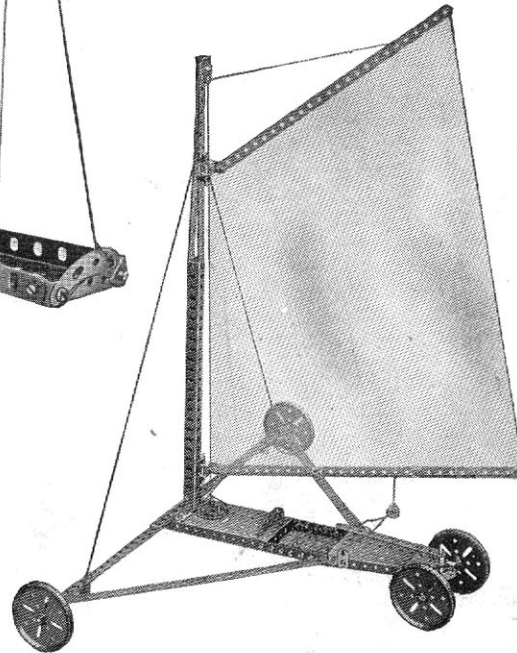
Model No. 2.12 Motor Truck

Parts required :

2 of No. 2	4 of No. 19B	3 of No. 48A
2 " " 5	1 " " 22	1 " " 52
2 " " 6A	1 " " 24	2 " " 54
2 " " 10	1 " " 35	2 " " 100
1 " " 11	23 " " 37	1 " " 111c
3 " " 16	2 " " 37A	2 " " 126A
	1 " " 40	

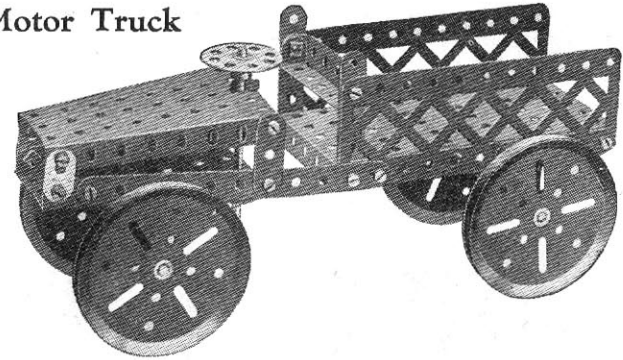
A cord passed twice round a 1" fast Pulley Wheel on the lower end of the steering column is tied to the ends of a  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip, which is pivoted by means of a Bolt and Lock-Nuts to a Double Bracket bolted to the lower Sector Plate. The front axle is journaled in the end holes of the Double Angle Strip.

Model No. 2.11 Sand Yacht



Parts required :

8 of No. 1	1
2 " " 2	2
1 " " 5	5
4 " " 8	8
4 " " 10	10
4 " " 11	11
12 " " 12	12
2 " " 12A	12A
3 " " 16	16
1 " " 17	17
2 " " 18A	18A
4 " " 19B	19B
1 " " 23	23
1 " " 24	24
12 " " 35	35
60 " " 37	37
9 " " 38	38
1 " " 40	40
8 " " 48A	48A
1 " " 52	52
1 " " 54	54
1 " " 62	62
1 " " 90A	90A
1 " " 115	115
4 " " 125	125
1 " " 126	126
2 " " 126A	126A



Model No. 2.13 Towel Horse

Parts required :	4 of No. 12
2 " " 22A	22A
28 " " 37	37
6 of No. 1	2 " " 37A
4 " " 2	8 " " 38
2 " " 8	4 " " 90A
4 " " 10	2 " " 111c



These Models can be built with MECCANO Outfit No. 2 (or No. 1 and No. 1A)

### Model No. 2.14 Monoplane

The nose of the fuselage, which is formed by the two Sector Plates, is secured to the fuselage proper by means of two 2½" Strips bolted to the top rear corners of the

Sector Plates, and by two further 2½" Strips that are mounted on the axle of the running wheels and bolted to the ends of the lower Angle Girders of the fuselage.

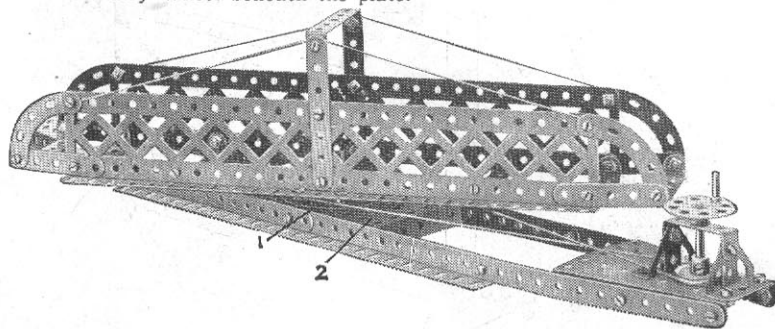
Parts required :

6	of No.	1
9	" "	2
1	" "	3
12	" "	5
2	" "	6A
4	" "	8
5	" "	12
1	" "	15A
1	" "	17
2	" "	20B
2	" "	22
1	" "	24
60	" "	37
4	" "	37A

1	of No.	45	2	of No.	99
1	" "	48	2	" "	100
2	" "	48A	4	" "	111c
2	" "	54	2	" "	126
2	" "	62	2	" "	126A

### Model No. 2.15 Turntable

The two sides of the revolving portion are joined in the middle by two pairs of 2½" Strips, each pair being overlapped three holes and bolted to the 3" Pulley Wheel 1. An Axle Rod secured in the latter is journaled in the bottom plate 2 and retained in position by a 1" fast Pulley Wheel beneath the plate.

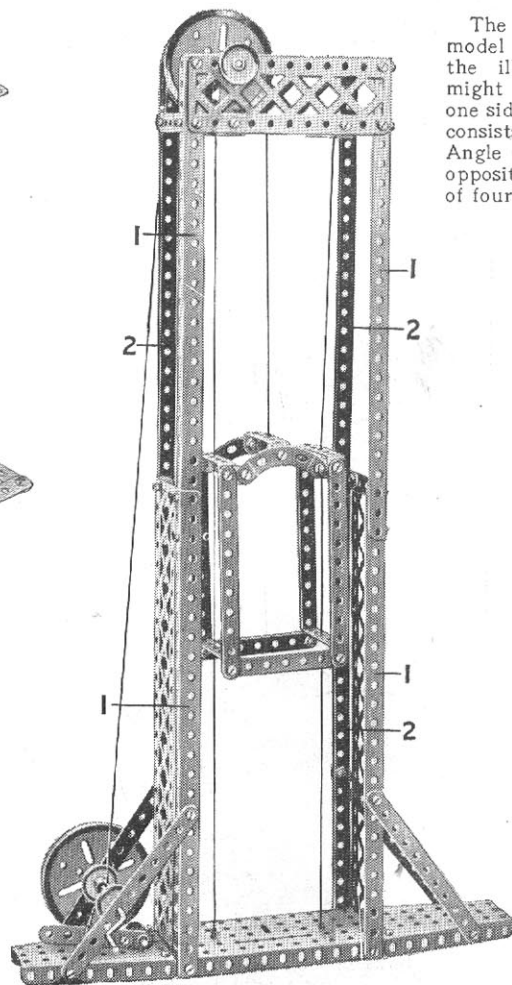


Parts required :

4	of No.	1
2	" "	3
8	" "	5
4	" "	8
1	" "	17
1	" "	18A
1	" "	19B
3	" "	22
1	" "	24
45	" "	37
4	" "	37A
4	" "	38
1	" "	48
7	" "	48A
1	" "	52
2	" "	54
4	" "	90A
2	" "	99
4	" "	111c

### Model No. 2.16 Elevator

The construction of this model is fairly clear in the illustration, but it might be pointed out that one side of the framework consists of four 12½" Angle Girders 1 while the opposite side is composed of four 12½" Strips 2.

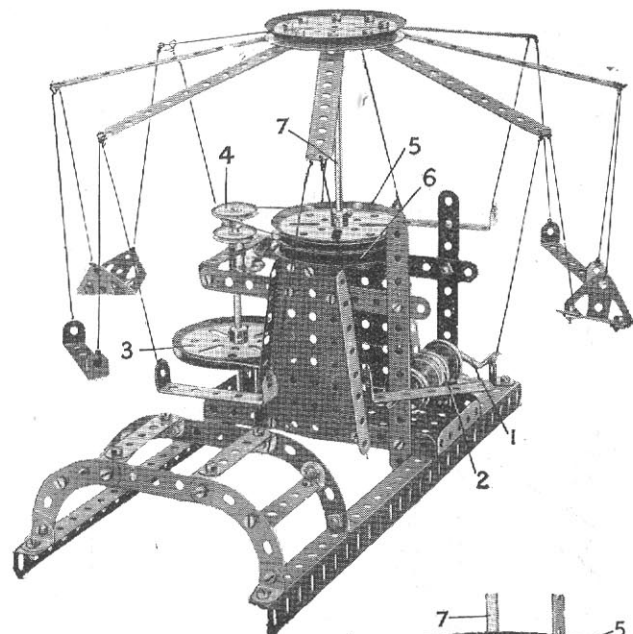


Parts required :

4	of No.	1
8	" "	2
2	" "	3
8	" "	5
4	" "	8
4	" "	10
1	" "	11
12	" "	12
1	" "	16
1	" "	18A
2	" "	19B
1	" "	19s
4	" "	22
1	" "	35
60	" "	37
6	" "	37A
2	" "	38
1	" "	40
7	" "	48A
1	" "	52
2	" "	54
1	" "	62
2	" "	90A
2	" "	99
2	" "	100
6	" "	111c



# Model No. 2.17 Roundabout



Parts required :

13 of No.	2
6 " "	5
2 " "	8
12 " "	12
2 " "	12A

2 of No.	15
1 " "	19
4 " "	19B
2 " "	20B
4 " "	22
1 " "	24
48 " "	37
2 " "	40
7 " "	48A
1 " "	52
2 " "	54
4 " "	90A
2 " "	126
2 " "	126A

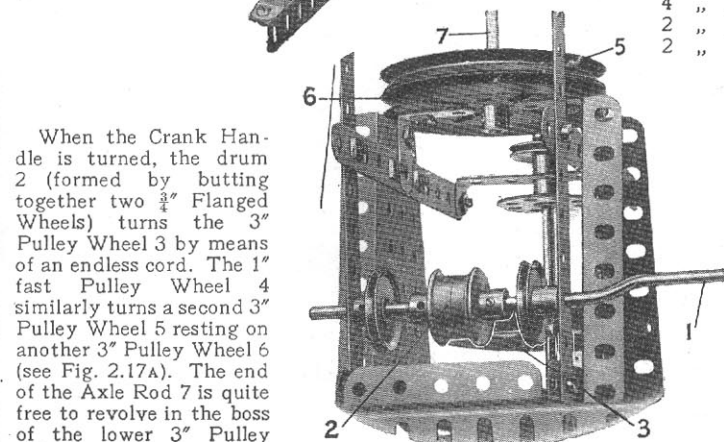
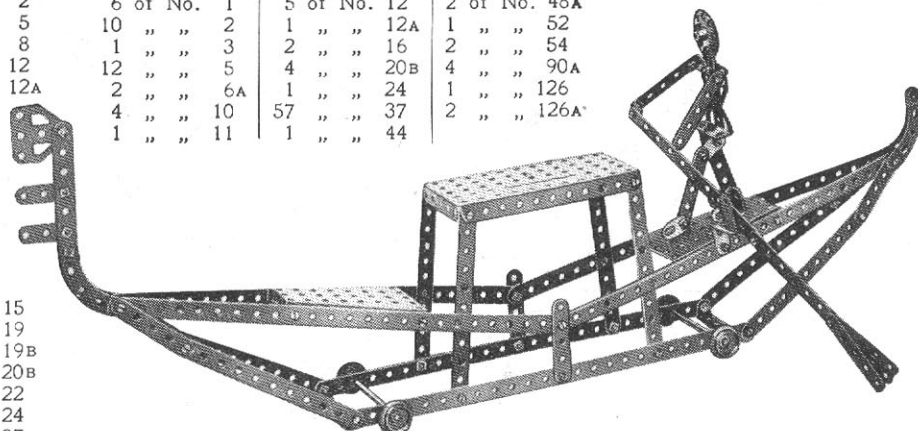


FIG. 2.17A

When the Crank Handle is turned, the drum 2 (formed by butting together two  $\frac{3}{4}$ " Flanged Wheels) turns the 3" Pulley Wheel 3 by means of an endless cord. The 1" fast Pulley Wheel 4 similarly turns a second 3" Pulley Wheel 5 resting on another 3" Pulley Wheel 6 (see Fig. 2.17A). The end of the Axle Rod 7 is quite free to revolve in the boss of the lower 3" Pulley Wheel 6.

# Model No. 2.18 Gondola



Parts required :

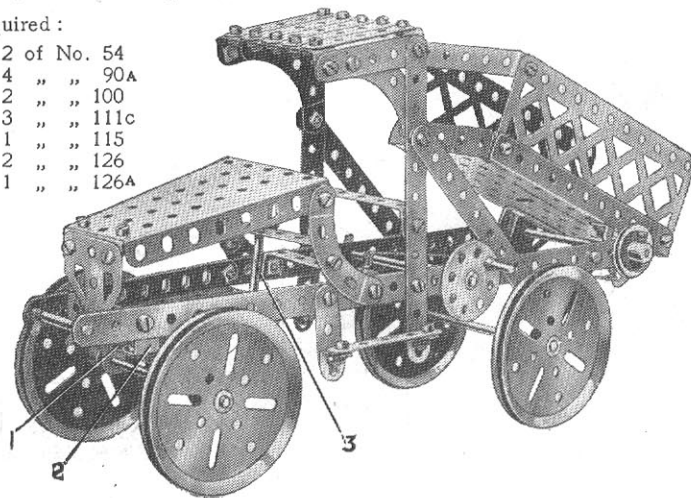
6 of No.	1	5 of No.	12	2 of No.	48A
10 " "	2	1 " "	12A	1 " "	52
1 " "	3	2 " "	16	2 " "	54
12 " "	5	4 " "	20B	4 " "	90A
2 " "	6A	1 " "	24	1 " "	126
4 " "	10	57 " "	37	2 " "	126A
1 " "	11	1 " "	44		

# Model No. 2.19 Tipping Motor Wagon

The front Axle Rod is journaled in a  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip 1 which in turn is bolted to a Double Bent Strip 2. The Double Bent Strip is pivoted to the Sector Plate by a Bolt and two Nuts. Cord passing over a 1" Pulley Wheel attached to the Rod 3 is fastened to the ends of the Double Angle Strip 1, and by rotating another pulley, which represents the steering wheel, the road wheels are deflected.

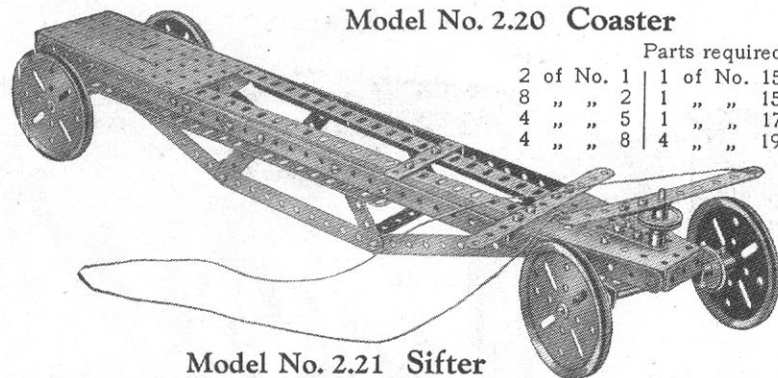
Parts required :

2 of No.	1	2 of No.	54
4 " "	2	4 " "	90A
11 " "	5	2 " "	100
2 " "	6A	3 " "	111c
6 " "	12	1 " "	115
4 " "	16	2 " "	126
1 " "	17	1 " "	126A
1 " "	18A		
4 " "	19B		
4 " "	22		
1 " "	24		
6 " "	35		
59 " "	37		
4 " "	37A		
1 " "	40		
1 " "	45		
1 " "	48		
7 " "	48A		
1 " "	52		



These Models can be built with MECCANO Outfit No. 2 (or No. 1 and No. 1A)

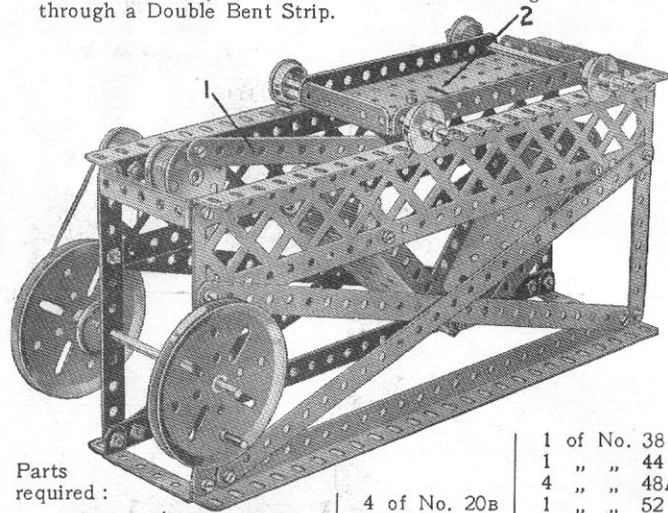
### Model No. 2.20 Coaster



Parts required :			
2 of No. 1	1 of No. 15	3 of No. 22	
8 " " 2	1 " " 15A	1 " " 23	
4 " " 5	1 " " 17	1 " " 24	
4 " " 8	4 " " 19B	44 " " 37	
		4 " " 38	
		1 " " 48	
		4 " " 48A	
		1 " " 52	
		1 " " 54	
		2 " " 62	
		2 " " 126	

### Model No. 2.21 Sifter

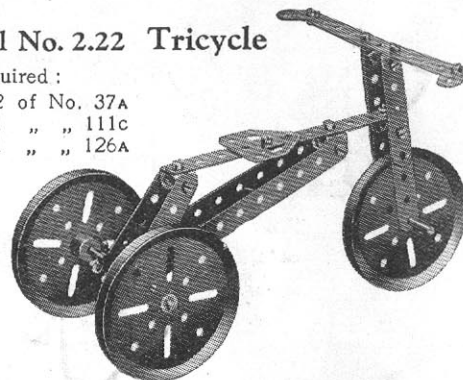
The  $5\frac{1}{2}$ " Strip 1 is pivoted by a Bolt and two Nuts (S.M. 262) to the Bush Wheel and also to a Trunnion bolted to the under-surface of the Flanged Plate 2. The Rod carrying the Bush Wheel is journaled in one of the side girders and through a Double Bent Strip.



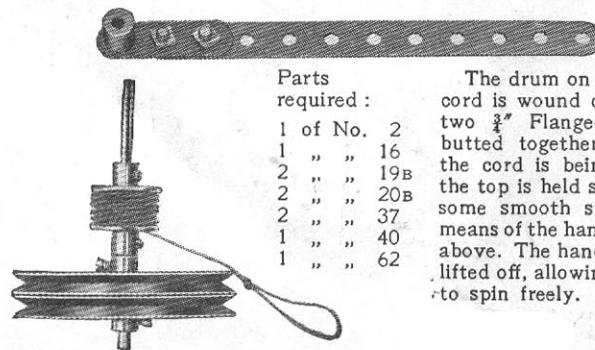
Parts required :			
4 of No. 1	4 of No. 10	3 of No. 20B	1 of No. 38
5 " " 2	2 " " 15	1 " " 22	1 " " 44
4 " " 5	1 " " 15A	1 " " 24	4 " " 48A
2 " " 6A	1 " " 17	4 " " 35	1 " " 52
4 " " 8	2 " " 19B	36 " " 37	2 " " 54
		4 " " 37A	2 " " 99
			2 " " 111c
			1 " " 115
			1 " " 126

### Model No. 2.22 Tricycle

Parts required :			
4 of No. 2	2 of No. 37A		
6 " " 5	1 " " 111c		
2 " " 10	1 " " 126A		
3 " " 11			
2 " " 12			
1 " " 16			
1 " " 18A			
3 " " 19B			
2 " " 35			
15 " " 37			



### Model No. 2.23 Spinning Top



Parts required :

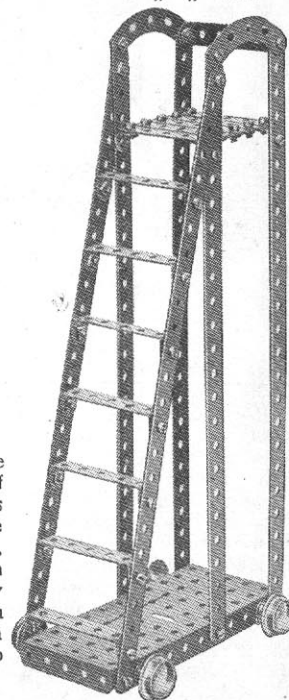
1 of No. 2	
1 " " 16	
2 " " 19B	
2 " " 20B	
2 " " 37	
1 " " 40	
1 " " 62	

The drum on which the cord is wound consists of two  $\frac{3}{4}$ " Flanged Wheels butted together. While the cord is being pulled, the top is held steadily on some smooth surface by means of the handle shown above. The handle is then lifted off, allowing the top to spin freely.

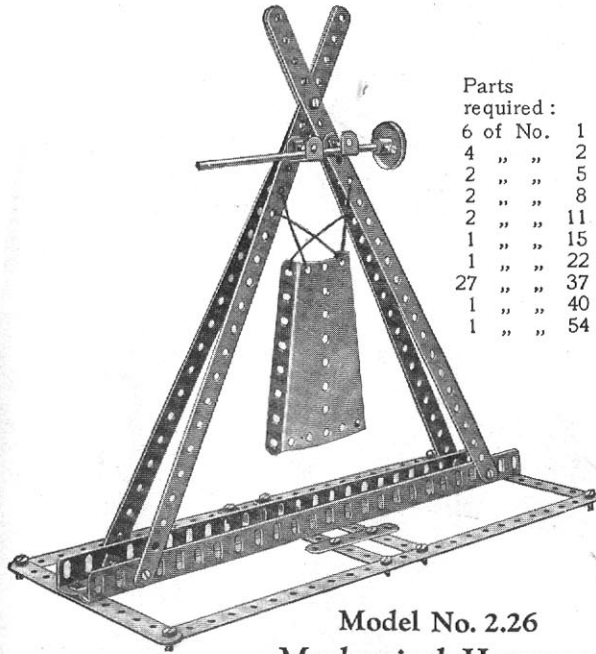
### Model No. 2.24 Ladder on Wheels

Parts required :

6 of No. 1	
7 " " 5	
4 " " 12	
2 " " 16	
4 " " 20B	
40 " " 37	
4 " " 38	
8 " " 48A	
1 " " 52	
2 " " 90A	

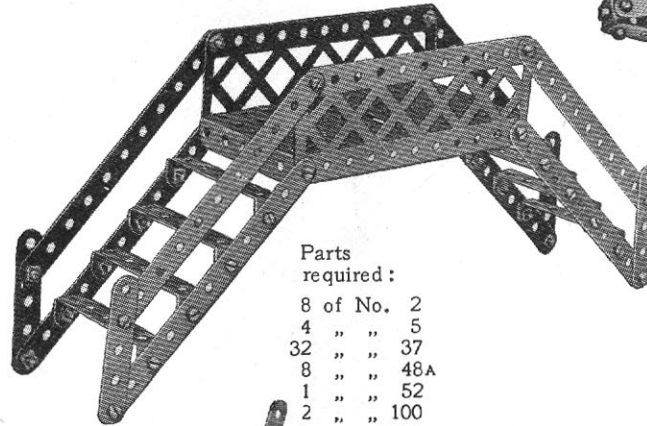


**Model No. 2.25 Gong**



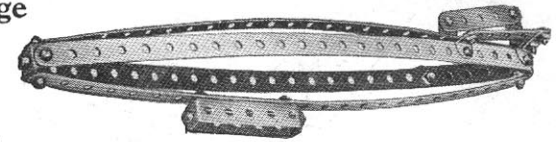
Parts  
required :  
6 of No. 1  
4 " " 2  
2 " " 5  
2 " " 8  
2 " " 11  
1 " " 15  
1 " " 22  
27 " " 37  
1 " " 40  
1 " " 54

**Model No. 2.27 High Level Bridge**



Parts  
required :  
8 of No. 2  
4 " " 5  
32 " " 37  
8 " " 48A  
1 " " 52  
2 " " 100

**Model No. 2.28 Airship**



Parts required :  
4 of No. 1 | 2 of No. 11  
3 " " 5 | 10 " " 12  
3 " " 10 | 25 " " 37  
3 of No. 48A

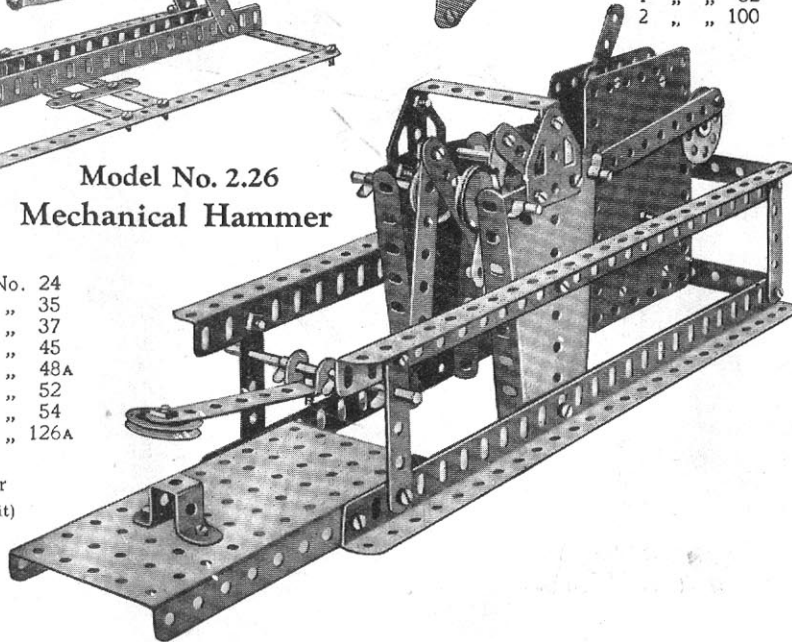
**Model No. 2.29 Treadle Lathe**

The  $2\frac{1}{2}$ " Strip 2, forming the treadle, is attached pivotally by means of a Bolt and two Nuts to the Angle Bracket 1. One end of a further  $2\frac{1}{2}$ " Strip is connected by the same means to the  $2\frac{1}{2}$ " Strip 2, and the other end is mounted on a Threaded Pin secured to the 3" Pulley Wheel.

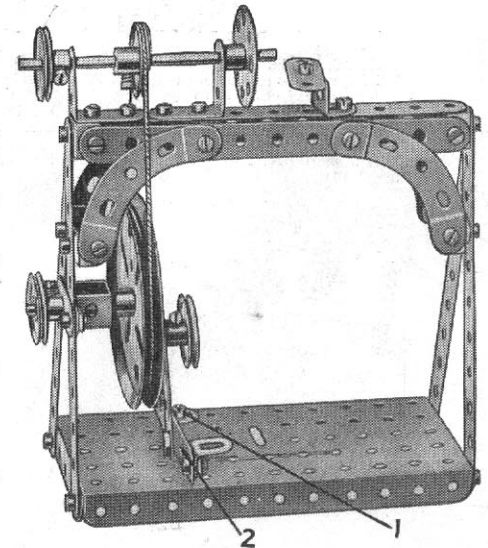
**Model No. 2.26 Mechanical Hammer**

Parts required :  
2 of No. 2 | 1 of No. 24  
1 " " 3 | 8 " " 35  
6 " " 5 | 32 " " 37  
4 " " 8 | 1 " " 45  
1 " " 11 | 3 " " 48A  
1 " " 12 | 2 " " 52  
3 " " 16 | 2 " " 54  
4 " " 22 | 2 " " 126A  
1 " " 22A

Clockwork Motor  
(not included in Outfit)

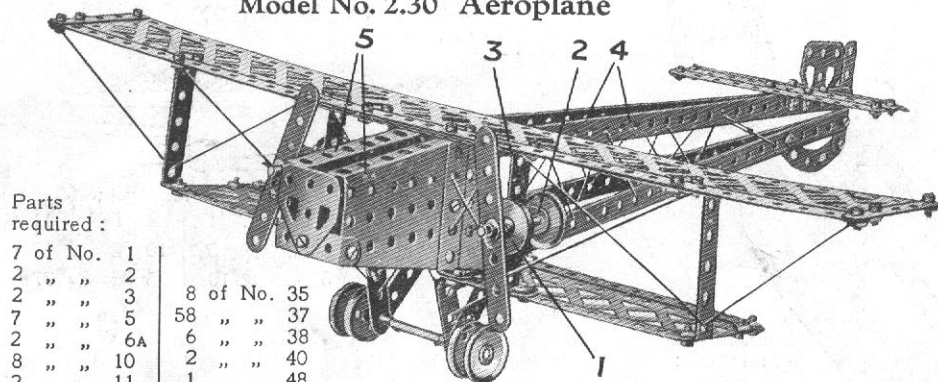


Parts  
required :  
7 of No. 2  
1 " " 3  
1 " " 5  
2 " " 6A  
4 " " 11  
6 " " 12  
2 " " 12A  
1 " " 16  
1 " " 17  
3 " " 19B  
4 " " 22  
1 " " 24  
1 " " 35  
34 " " 37  
2 " " 37A  
4 " " 38  
1 " " 40  
1 " " 45  
1 " " 52  
4 " " 90A  
1 " " 115  
1 " " 125





## Model No. 2.30 Aeroplane



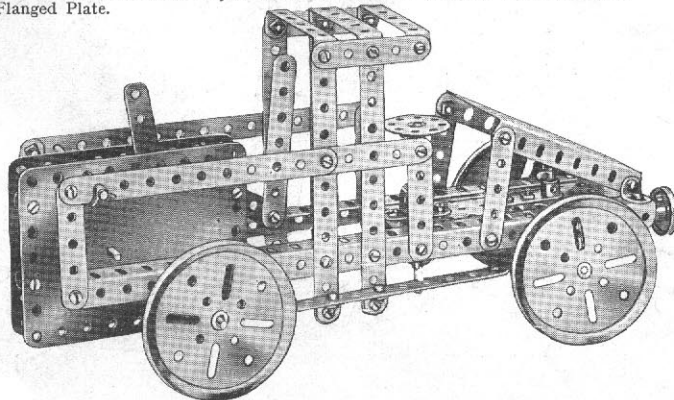
Parts required :

7 of No.	1	
2 "	2	
2 "	3	
7 "	5	8 of No. 35
2 "	6A	6 " " 38
8 "	10	2 " " 40
2 "	11	1 " " 48
8 "	12	6 " " 48A
1 "	16	2 " " 54
2 "	17	1 " " 90A
2 "	20B	2 " " 99
4 "	22	2 " " 100
2 "	22A	2 " " 126A

Each engine is represented by a  $\frac{1}{2}$ " Flanged Wheel 1 and a 1" fast Pulley Wheel secured to a 2" Rod journalled in a Double Bracket 2, which is bolted to the  $2\frac{1}{2} \times \frac{1}{2}$ " vertical Double Angle Strip 3. The  $12\frac{1}{2}$ " Strips 4 of the fuselage proper are bolted to the two Sector Plates 5, and also by means of Angle Brackets to the wings. The tail plane consists of two  $5\frac{1}{2}$ " Strips to which a similar Strip, representing the movable portion of the plane, is attached by means of Flat Brackets.

## Model No. 2.31 Motor Lorry

The driving spindle of the Clockwork Motor is removed and in its place is inserted a  $3\frac{1}{2}$ " Rod forming the rear axle, the special Pinion inside the Motor being secured to this Rod, of course, instead of to the driving spindle. The steering is operated by a Bush Wheel on a vertical  $3\frac{1}{2}$ " Rod journalled in a Double Bent Strip. Cord is wound round the lower part of this Rod and its ends are secured one to each end of a Double Angle Strip carrying the front axle. A Crank is bolted to this Double Angle Strip and carries a short Rod that is journalled in the boss of a further Crank bolted to the Flanged Plate.



Parts required :

8 of No.	2
1 "	3
10 "	5
6 "	10
1 "	15
1 "	15A
2 "	16
1 "	18A
4 "	19B
2 "	22
1 "	24
12 "	35
49 "	37
3 "	38
1 "	45
4 "	48A
1 "	52
1 "	54
2 "	62
2 "	111c

Clockwork  
Motor  
(not included in Outfit)

## Model No. 2.32 Try-Your-Strength Machine

The Bush Wheel 1 is secured to a short Axle Rod 2, the lower end of which rests on a pair of Angle Brackets 3 bolted to the ends of four  $5\frac{1}{2}$ " Strips 4. The Strips 4 are pivoted as shown (Fig. 2.32A) on a  $1\frac{1}{2}$ " Rod 5, and on their opposite ends rests a  $\frac{1}{2}$ " loose Pulley Wheel 6. When the Bush Wheel 1 is struck, the  $5\frac{1}{2}$ " Strips fling the Pulley Wheel 6 upward, but the wheel is guided by the vertical  $12\frac{1}{2}$ " Strips 7. The weight of the Strips 4 then causes the Bush Wheel to resume its original position.

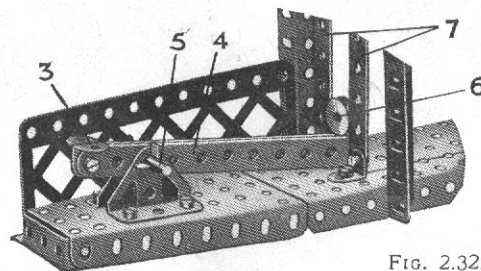


FIG. 2.32A

Parts required :

6 of No.	1	2 of No.	10
6 "	2	10 "	12
1 "	3	2 "	18A
2 "	5	1 "	23
2 "	6A	1 "	24
4 "	8	3 "	35
		60 "	37
		6 "	37A
		4 "	38
		1 "	45
		1 "	48
		1 "	48A
		1 "	52
		2 "	54
		3 "	90A
		2 "	100
		2 "	126

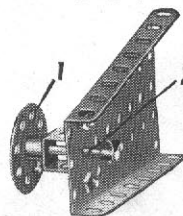
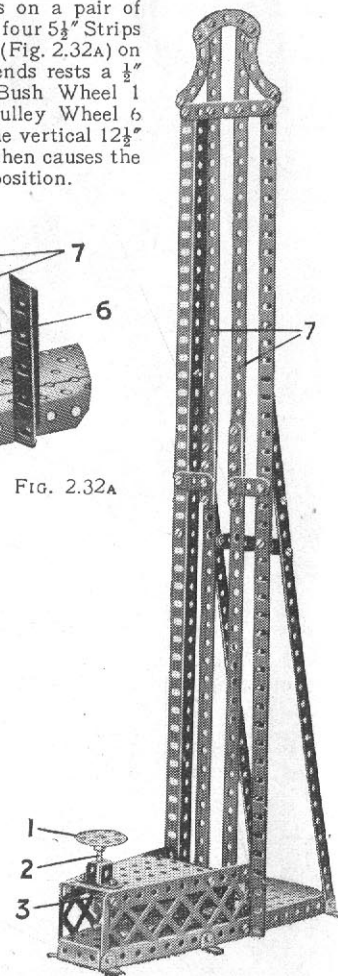
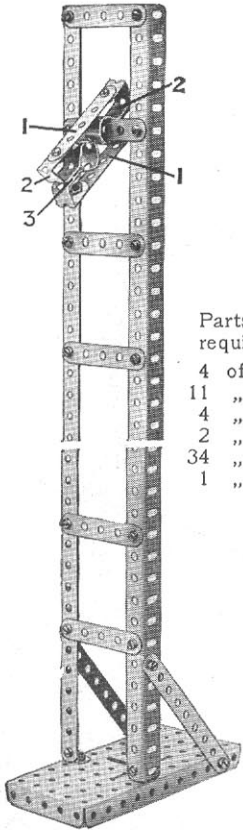


FIG. 2.32B



### Model No. 2.33 Performing Meccanitian



Parts required :

4 of No.	2
11 " "	5
4 " "	8
2 " "	12
34 " "	37
1 " "	52

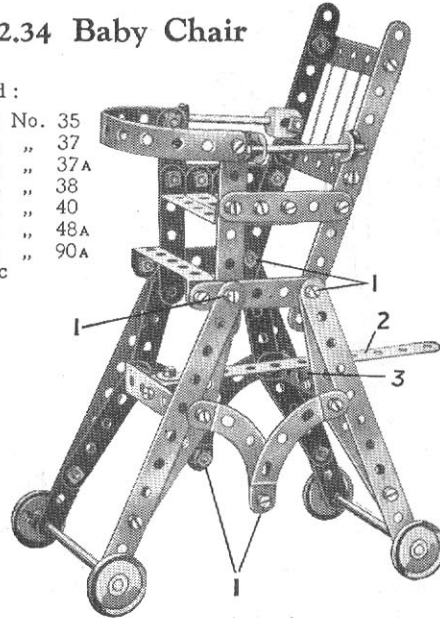
The Meccanitian consists of two 2½" Strips 1 to the ends of which two 5½" Strips 2, bent as shown, are bolted. The slot 3 should be passed over the top strip of the ladder, when the device will fall "head over heels" to the bottom.

### Model No. 2.34 Baby Chair

Parts required :

8 of No.	2	4 of No.	35
2 " "	3	35 " "	37
12 " "	5	2 " "	37A
6 " "	12	4 " "	38
2 " "	16	1 " "	40
2 " "	17	8 " "	48A
4 " "	22	4 " "	90A
1 of No. 111c			

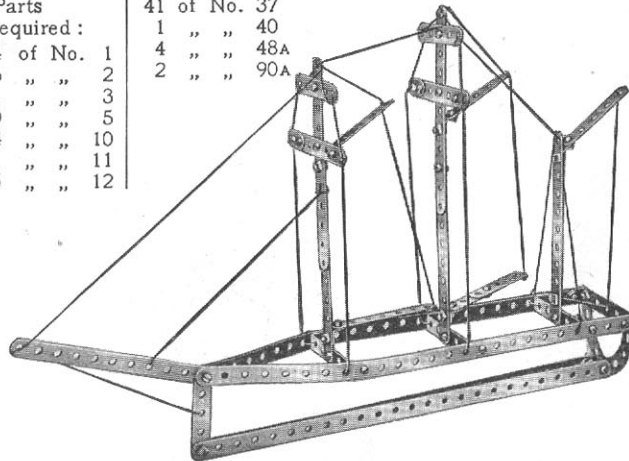
The Bolts 1 are all secured pivotally (see S.M. Nos. 262 and 263), and the height of the chair may be adjusted by fitting any hole in the Strip 2 over the shank of a Bolt that is secured in an Angle Bracket bolted to the Double Angle Strip 3.



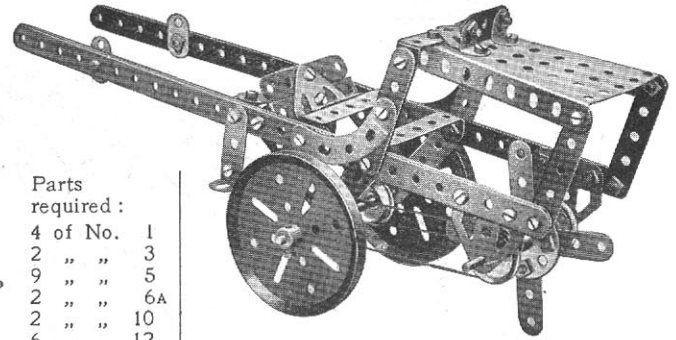
### Model No. 2.35 Square-topsail Schooner

Parts required :

41 of No.	37
1 " "	40
4 " "	48A
2 " "	90A



### Model No. 2.36 Hay Tedder



Parts required :

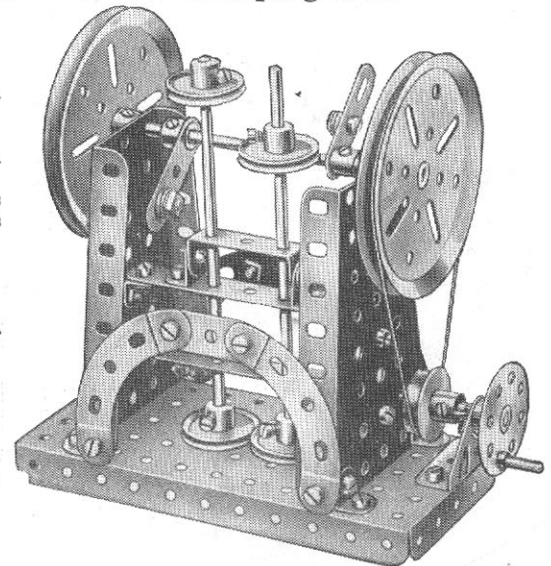
4 of No.	1
2 " "	3
9 " "	5
2 " "	6A
2 " "	10
6 " "	12
1 " "	15A
1 " "	16
2 " "	19
2 " "	20B
2 " "	22

1 of No.	24	4 of No.	38	3 of No.	90A
2 " "	35	1 " "	40	6 " "	111c
34 " "	37	4 " "	48A	2 " "	126
6 " "	37A	1 " "	54	2 " "	126A

### Model No. 2.37 Stamping Mill

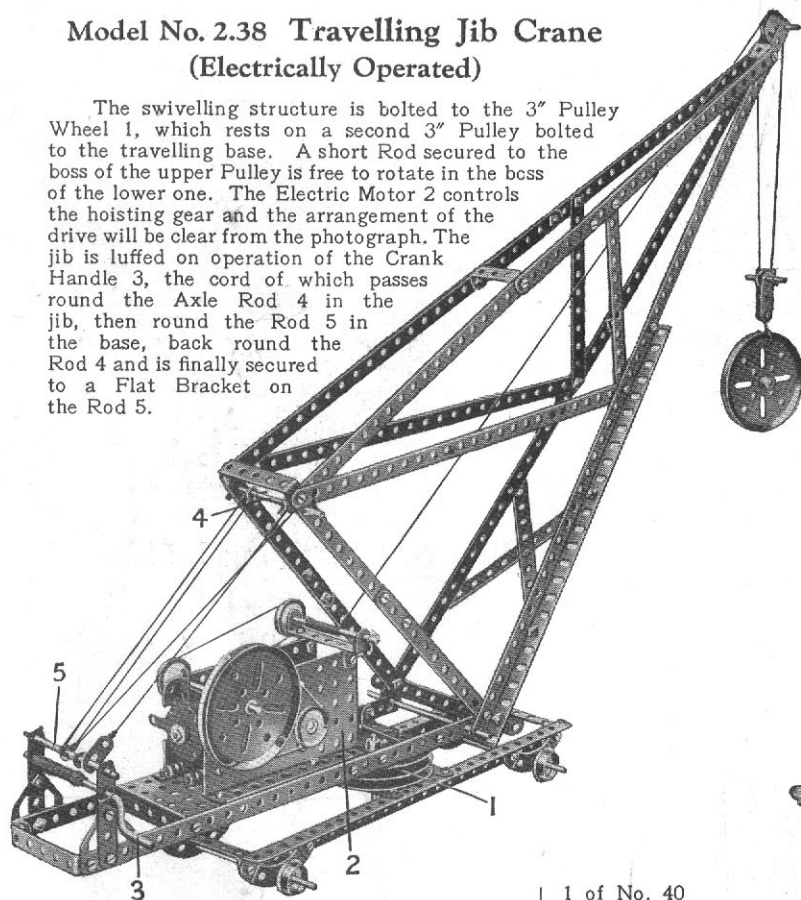
Parts required :

2 of No.	3
2 " "	6A
10 " "	12
2 " "	15
1 " "	15A
1 " "	17
2 " "	19B
1 " "	20B
4 " "	22
1 " "	24
1 " "	35
50 " "	37
2 " "	37A
11 " "	38
1 " "	48
1 " "	52
2 " "	54
2 " "	62
4 " "	90A
2 " "	111c
1 " "	115
1 " "	126



### Model No. 2.38 Travelling Jib Crane (Electrically Operated)

The swivelling structure is bolted to the 3" Pulley Wheel 1, which rests on a second 3" Pulley bolted to the travelling base. A short Rod secured to the boss of the upper Pulley is free to rotate in the boss of the lower one. The Electric Motor 2 controls the hoisting gear and the arrangement of the drive will be clear from the photograph. The jib is luffed on operation of the Crank Handle 3, the cord of which passes round the Axle Rod 4 in the jib, then round the Rod 5 in the base, back round the Rod 4 and is finally secured to a Flat Bracket on the Rod 5.

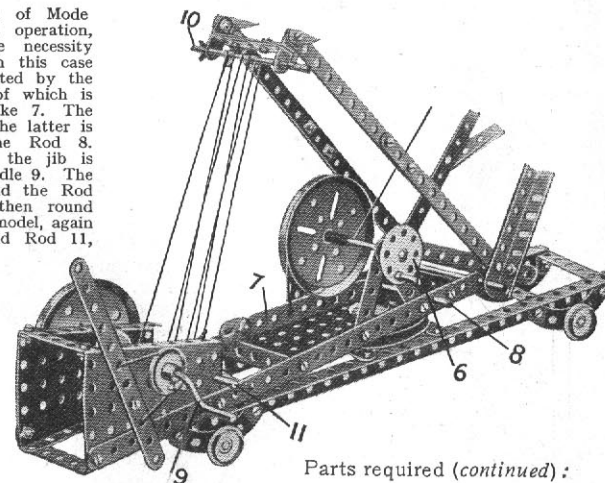


Parts required:			
10 of No. 1	2 of No. 12	4 of No. 20B	1 of No. 40
9 " " 2	2 " " 15	4 " " 22	1 " " 48
2 " " 3	1 " " 15A	1 " " 23	7 " " 48A
2 " " 5	2 " " 16	1 " " 24	1 " " 52
2 " " 6A	1 " " 17	14 " " 35	1 " " 57C
4 " " 8	2 " " 18A	60 " " 37	4 " " 90A
1 " " 10	1 " " 19	6 " " 37A	5 " " 111C
1 " " 11	4 " " 19B	14 " " 38	2 " " 126A

Electric Motor  
(not included  
in Outfit)

### Model No. 2.39 Travelling Jib Crane (Hand Operated)

This shows a section of Mode No. 2.38 fitted for hand operation, thus dispensing with the necessity of the Electric Motor. In this case the hoisting cord is operated by the hand wheel 6, the Rod of which is controlled by a hand brake 7. The end hole of the lever of the latter is pivotally mounted on the Rod 8. The luffing movement of the jib is effected by the Crank Handle 9. The operating cord passes round the Rod 10 attached to the jib, then round Rod 11 in the base of the model, again round Rod 10, back round Rod 11, and once more round Rod 10. The end of the cord is then tied to a Flat Bracket on the Rod 11.

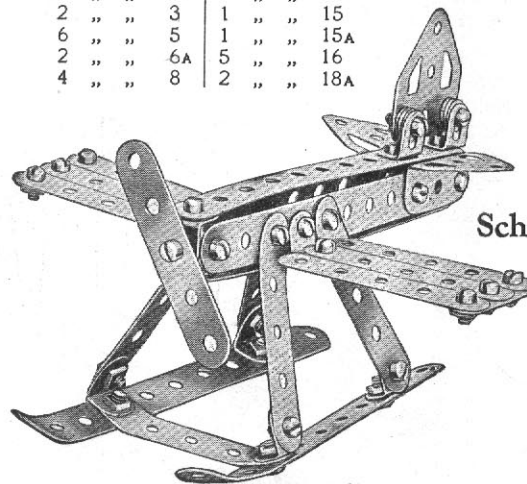


#### Parts required:

10 of No. 1	3 of No. 10
11 " " 2	1 " " 11
2 " " 3	1 " " 15
6 " " 5	1 " " 15A
2 " " 6A	5 " " 16
4 " " 8	2 " " 18A

#### Parts required (continued):

1 of No. 19	1 of No. 48
4 " " 19B	7 " " 48A
4 " " 20B	1 " " 52
4 " " 22	2 " " 54
1 " " 23	1 " " 57C
1 " " 24	1 " " 62
12 " " 35	4 " " 90A
57 " " 37	1 " " 111C
1 " " 40	1 " " 115



### Model No. 2.40 Schneider Trophy Seaplane

#### Parts required:

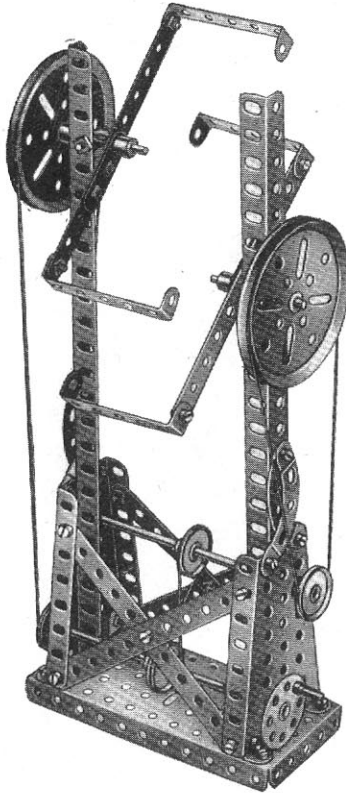
6 of No. 2	34 of No. 37
12 " " 5	3 " " 37A
2 " " 6A	6 " " 38
2 " " 11	2 " " 111C
12 " " 12	2 " " 126
1 of No. 126A	



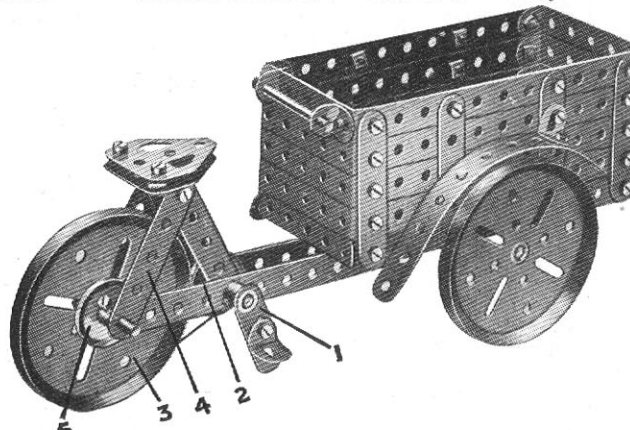
# Model No. 2.41 Candy Puller

Parts required :

6 of No.	2	36 of No.	37
2 "	8	4 "	38
2 "	12	1 "	40
6 "	15	4 "	48A
2 "	17	1 "	52
2 "	19B	2 "	54
4 "	22	2 "	62
1 "	24	4 "	90A
3 "	35	1 "	115



# Model No. 2.42 Carrier Tricycle



Each pedal of the tricycle consists of an Angle Bracket pivotally attached to a Crank 1 by means of a Bolt and two Nuts (see S.M. No. 262). The Cranks are secured to a  $1\frac{1}{2}$ " Axle Rod carrying a 1" fast Pulley Wheel 2. A cord passes round this Pulley and around the 3" Pulley Wheel 3, which is spaced away from the  $2\frac{1}{2}$ " Strips 4 by a 1" fast Pulley Wheel 5. The Double Bracket 6 (Fig. 2.42A) is attached pivotally to the lower framework by a Bolt and Lock-Nuts (S.M. 263).

Parts required :

12 of No.	2
12 "	5
2 "	11
6 "	12
1 "	16
1 "	17
2 "	18A
3 "	19B
2 "	22
45 "	37
5 "	37A
1 "	40
8 "	48A
1 "	52
2 "	62
3 "	111c
2 "	126A

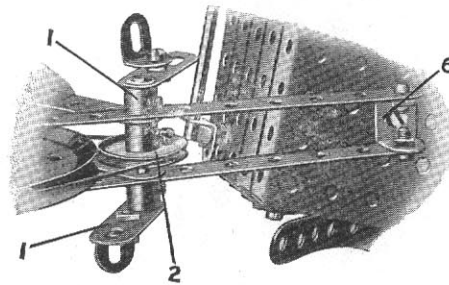


FIG. 2.42A

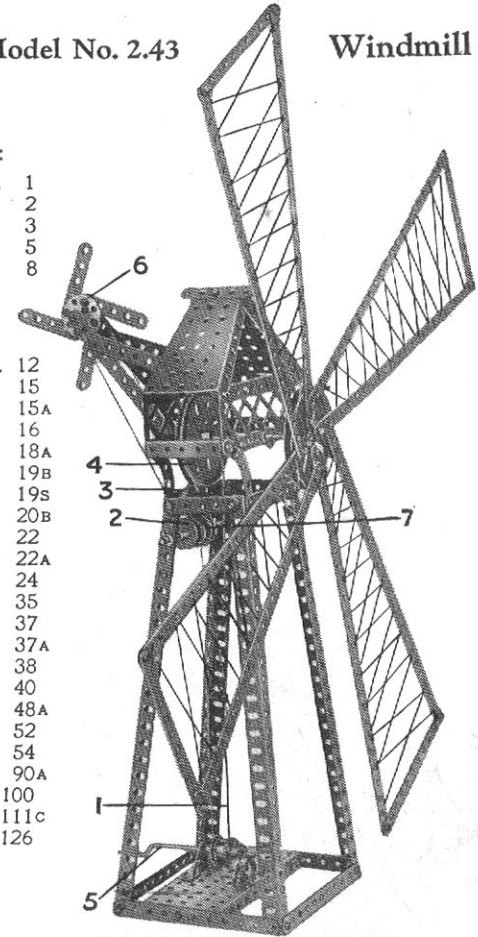
# Model No. 2.43

# Windmill

Parts required :

8 of No.	1
13 "	2
2 "	3
10 "	5
4 "	8

4 of No.	12
1 "	15
1 "	15A
1 "	16
1 "	18A
2 "	19B
1 "	19s
4 "	20B
2 "	22
1 "	22A
1 "	24
6 "	35
60 "	37
4 "	37A
7 "	38
2 "	40
2 "	48A
1 "	52
2 "	54
4 "	90A
2 "	100
4 "	111c
2 "	126

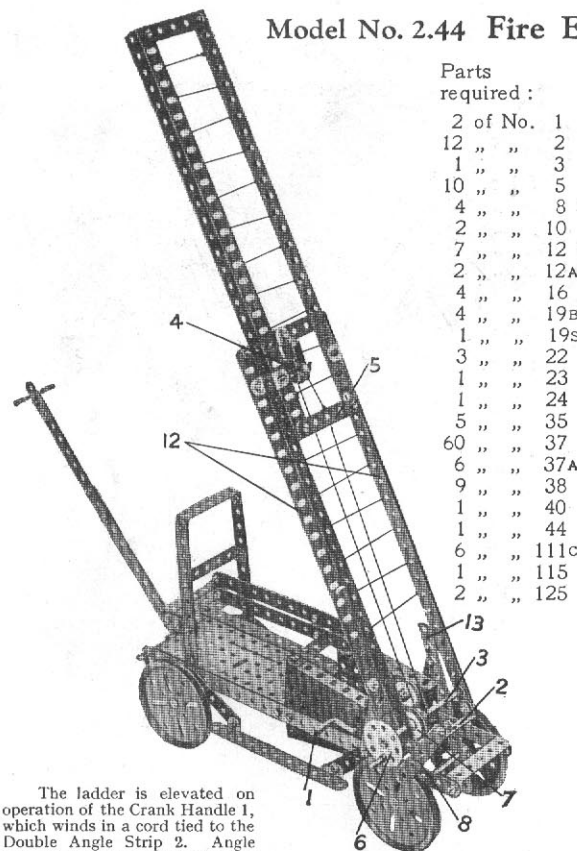


The operating cord 1 is given a complete turn round the pair of  $\frac{3}{4}$ " Flanged Wheels 2. It is then led round the 1" Loose Pulley 3, over the 3" Pulley 4, then down and round the  $\frac{3}{4}$ " Flanged Wheels secured to the Crank Handle 5. The vane 6 is rotated by a cord which passes round a 1" fixed Pulley 7 secured to the shaft of the Flanged Wheels 2.

## Model No. 2.44 Fire Escape

Parts  
required :

2 of No.	1
12 " "	2
1 " "	3
10 " "	5
4 " "	8
2 " "	10
7 " "	12
2 " "	12A
4 " "	16
4 " "	19B
1 " "	19S
3 " "	22
1 " "	23
1 " "	24
1 " "	35
5 " "	37
60 " "	37A
6 " "	38
9 " "	40
1 " "	44
1 " "	111c
1 " "	115
2 " "	125



The ladder is elevated on operation of the Crank Handle 1, which winds in a cord tied to the Double Angle Strip 2. Angle Brackets bolted to the 12½" Angle Girders 12 are attached pivotally to the 5½" Strips 13 by means of Bolts and Nuts (S.M. 262), and the action of winding in the cord thus causes the ladder to swing upward. It is prevented from falling by the friction of the 1" Pulley Wheels 10 (Fig. 2.44A), which press against the two Sector Plates. When the ladder is fully elevated, its lower ends act as brakes to prevent the road wheels from revolving.

A second cord is wound upon the Rod 3. One end is then carried over the ½" loose Pulley Wheel 4 and tied to the 2½" Strip 5, the opposite end being carried directly to the same Strip and secured to it. When the handle 6 is turned, the two ends of the cord are wound and unwound simultaneously, and the ladder is extended or shortened as required. A permanent brake is provided by a cord passing over the 1" Pulley Wheel 7 and having both its ends secured to the 2½" Strip 8. The Strip 8 is bolted firmly to the Angle Bracket 9 (Fig. 2.44A) and keeps the brake continuously in action.

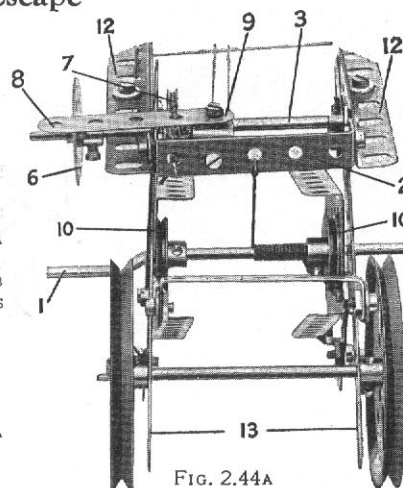
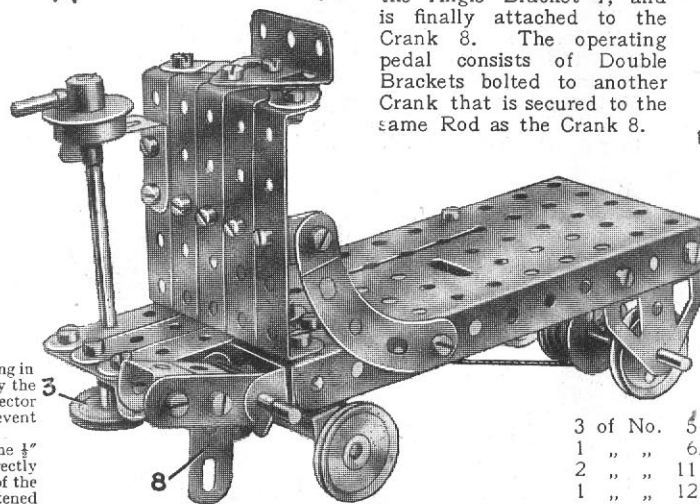


FIG. 2.44A



## Model No. 2.45 Electric Truck

An underneath view of the truck is shown in Fig. 2.45A. The front axle is journalled in a 1½"×½" Double Angle Strip 1 that is free to turn on a Double Bent Strip 2, from which it is spaced by a ½" loose Pulley. A length of cord is wrapped round the 1" Pulley 3, which is secured to the end of the steering column, and then passed through a Cranked Bent Strip 4 and secured to the Double Angle Strip 1 as shown. The brake cord 5 is attached to the Double Bent Strip 2, wrapped several times round the ½" Flanged Wheels 6, passed through the Angle Bracket 7, and is finally attached to the Crank 8. The operating pedal consists of Double Brackets bolted to another Crank that is secured to the same Rod as the Crank 8.

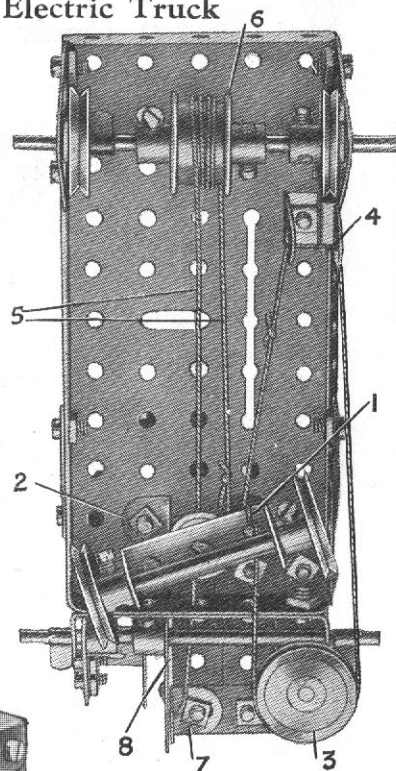


FIG. 2.45A

Parts required :

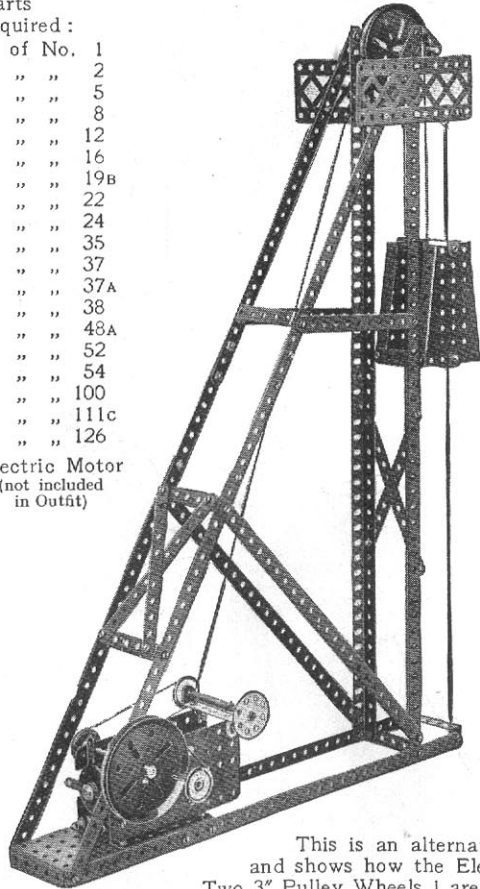
3 of No.	20B	1 of No.	45
4 " "	22	1 " "	48
1 " "	22A	7 " "	48A
1 " "	23	1 " "	52
4 " "	35	2 " "	62
35 " "	37	3 " "	90A
2 " "	37A	1 " "	111c
5 " "	38	1 " "	115
1 " "	40	1 " "	126
1 " "	44	2 " "	126A

### Model No. 2.46 Pit Head Gear (Electrically Operated)

Parts required:

8	of No.	1
8	" "	2
4	" "	5
4	" "	8
2	" "	12
3	" "	16
2	" "	19B
3	" "	22
1	" "	24
2	" "	35
60	" "	37
6	" "	37A
6	" "	38
8	" "	48A
1	" "	52
2	" "	54
2	" "	100
6	" "	111c
2	" "	126

Electric Motor  
(not included  
in Outfit)



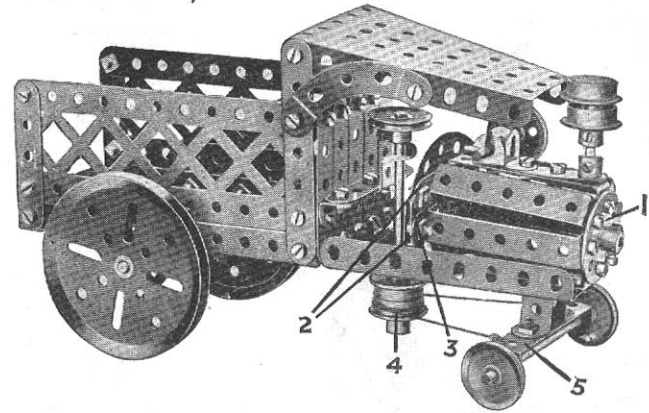
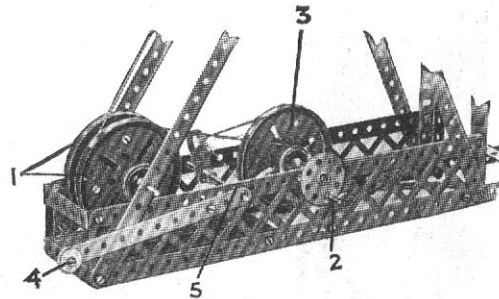
Parts required:

2	of No.	3	4	of No.	20B	1	of No.	52
10	" "	5	3	" "	22	2	" "	54
2	" "	10	1	" "	22A	1	" "	62
1	" "	11	1	" "	24	3	" "	90A
3	" "	12	5	" "	35	2	" "	100
3	" "	16	60	" "	37	4	" "	111c
1	" "	17	5	" "	37A	1	" "	125
1	" "	18A	1	" "	45	2	" "	126A
2	" "	19B	8	" "	48A			

### Model No. 2.47 Pit Head Gear (Hand Operated)

Parts required:

6	of No.	1	4	of No.	22	2	of No.	54
7	" "	2	1	" "	23	2	" "	62
3	" "	5	1	" "	24	2	" "	99
4	" "	8	3	" "	35	2	" "	100
4	" "	11	60	" "	37	6	" "	111c
6	" "	12	6	" "	37A	1	" "	115
4	" "	16	8	" "	48A	2	" "	126A
4	" "	19B	1	" "	52			

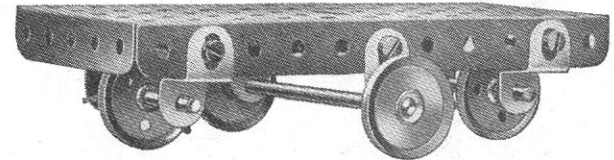


The boiler of the engine is built up of  $2\frac{1}{2}'' \times \frac{1}{2}''$  Double Angle Strips bolted to the Bush Wheel 1, and to two  $2\frac{1}{2}''$  Strips 2, which are joined together by Flat Brackets 3. A  $2\frac{1}{2}''$  Curved Strip (small radius) is bolted to the upper Strip 2. A cord is passed completely round two  $\frac{3}{4}''$  Flanged Wheels 4 secured to the steering column, and its ends are tied to the  $2\frac{1}{2}'' \times \frac{1}{2}''$  Double Angle Strip 5. The Double Bent Strip bolted to the Strip 5 is pivoted by a bolt and two nuts to the Sector Plate.

### Model No. 2.49 Revolving Truck

Parts required:

1	of No.	16	2	of No.	22A	1	of No.	52
2	" "	17	4	" "	35	4	" "	125
2	" "	22	6	" "	37			

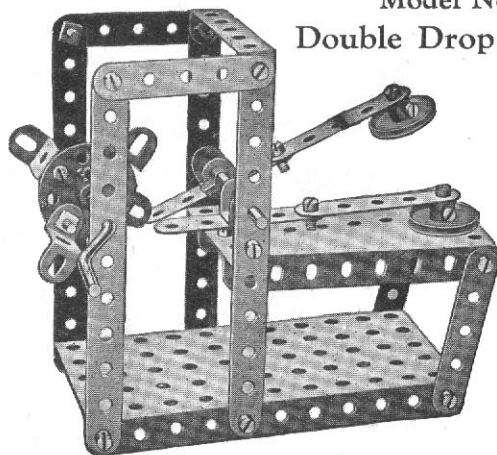


This is an alternative construction of the base of Model No. 2.46, and shows how the Electric Motor may be dispensed with if necessary. Two  $3''$  Pulley Wheels 1 are bolted together by four Double Brackets to form a drum on which the hoisting cord is wound. The cage is raised or lowered on operation of the handle 2, which is connected to the winding drum by an ordinary belt drive. The cage is prevented from overhauling by a hand brake that acts on the groove of a third  $3''$  Pulley Wheel 3. The brake normally is applied by the weight of the  $\frac{1}{2}''$  loose Pulley Wheel 4, which is secured to the end of a  $5\frac{1}{4}''$  Strip that is bolted to the crank 5.



## Model No. 2.50

## Double Drop Hammer

Parts  
required :

4 of No.	2
8 " "	5
2 " "	11
1 " "	16
1 " "	19s
2 " "	22
1 " "	24
6 " "	35
23 " "	37
2 " "	48A
1 " "	52
1 " "	54
4 " "	125

## Model No. 2.51 Motor Van

The Axle Rod 1 is journalled in a  $2\frac{1}{2} \times \frac{1}{4}$ " Double Angle Strip 2. The latter is bolted to a Double Bent Strip that is pivoted to the Flanged Plate 3 by a Bolt and two Nuts. Steering is effected by a cord attached to the ends of the Double Angle Strip 2 and passed round a 1" Pulley Wheel fastened to the lower end of the steering Rod.

Parts required :

6 of No.	2	1 of No.	38	2 of No.	54
10 " "	5	1 " "	45	3 " "	111c
1 " "	10	1 " "	48	2 " "	125
2 " "	12	6 " "	48A	2 " "	126A
1 " "	15	1 " "	52		
1 " "	15A				
1 " "	16				
4 " "	19B				
3 " "	22				
1 " "	24				
5 " "	35				
35 " "	37				
2 " "	37A				

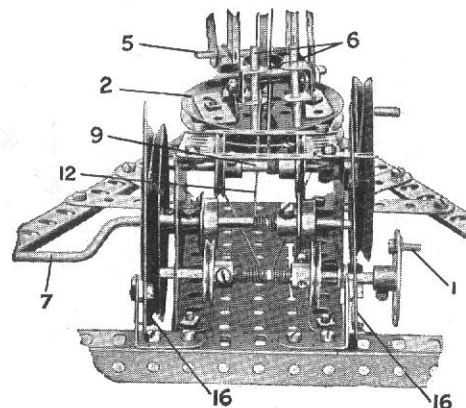
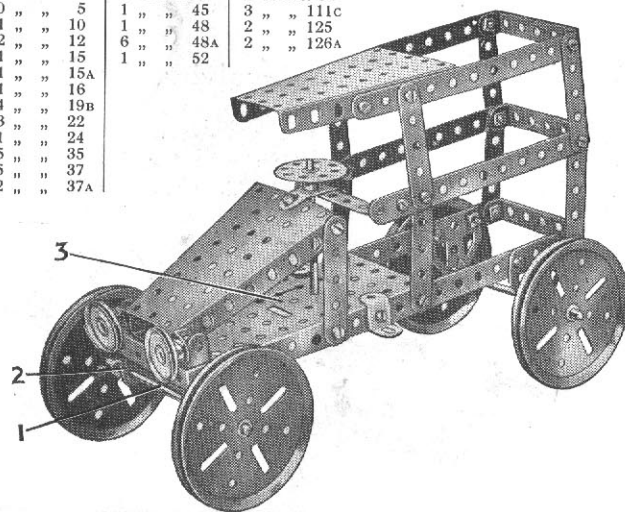
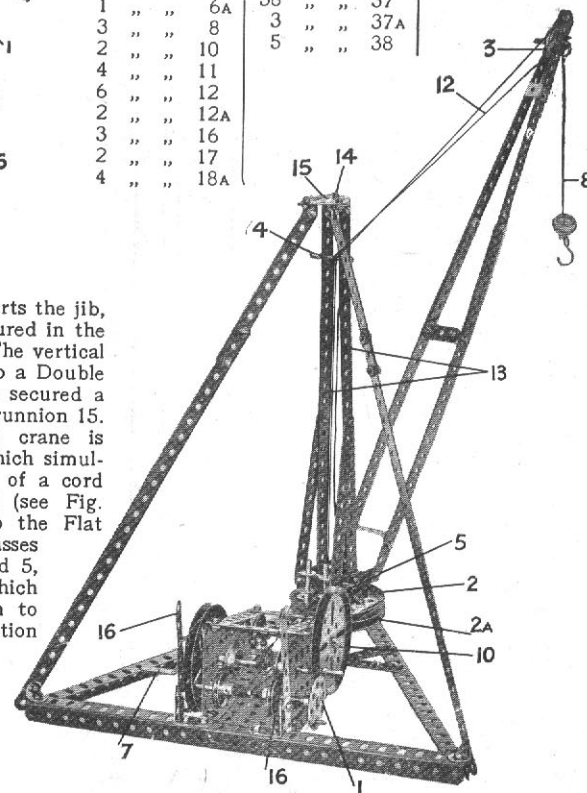


Fig. 2.52A

## Model No. 2.52 Derrick

Parts  
required :

8 of No.	1	4 of No.	19B	1 of No.	52
4 " "	2	4 " "	20B	2 " "	54
2 " "	3	1 " "	22	1 " "	57c
2 " "	5	1 " "	23	1 " "	111c
1 " "	6A	1 " "	24	1 " "	115
3 " "	8	11 " "	35	2 " "	126
2 " "	10	58 " "	37		
4 " "	11	3 " "	37A		
6 " "	12	5 " "	38		
2 " "	12A				
3 " "	16				
2 " "	17				
4 " "	18A				

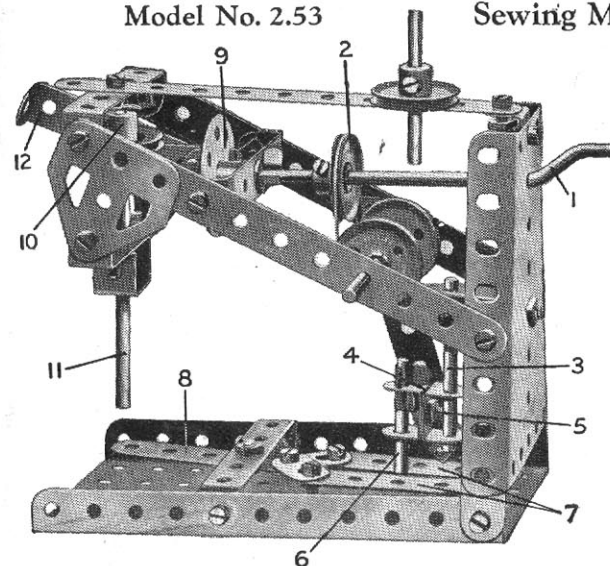


The 3" Pulley Wheel 2, which supports the jib, is free to turn on a short Axle Rod secured in the boss of the lower 3" Pulley Wheel 2a. The vertical  $12\frac{1}{2}$ " Strips 13 are bolted at their tops to a Double Bracket, to the centre hole of which is secured a Bolt 14 that is free to turn in the Flat Trunnion 15.

The swivelling movement of the crane is carried out by turning the handle 1, which simultaneously winds and unwinds the ends of a cord passing round the 3" Pulley Wheel 2 (see Fig. 2.52A). The cord 12, which is tied to the Flat Bracket 3 at the head of the jib passes over the 2" Rod 4, under a similar Rod 5, and between two vertical 2" Rods 6, which act as guides, and is finally wound on to the Crank Handle 7. Hence on operation of the latter the jib is raised or lowered. The cord 8 also passes round the Rods 4, 5 and 6, and is wound on to the Rod 9. Operation of the handle 10 raises and lowers the hook. The cords 8 and 12 are prevented from unwinding by band-and-pulley brakes 16.

# Model No. 2.53

## Sewing Machine



Parts required :

3 of No.	2
6 "	5
3 "	10
2 "	11
3 "	12
2 "	16
2 "	17
1 "	18A
1 "	19s
4 "	22
2 "	22A
1 "	24
5 "	35
24 "	37
3 "	38
1 "	44
5 "	48A
1 "	52
1 "	54
2 "	125
2 "	126A

The handle 1 carries a 1" Pulley 2, which drives by means of a cord a similar Pulley on a 2" Rod 3 journalled in a Cranked Bent Strip bolted to the Sector Plate. Two Double Brackets 4 are secured together by a Bolt 5, the shank of which presses very tightly on the Rod 3. This locks the Double Brackets in position, and they revolve with the Rod 3. The outer Double Bracket carries a 1½" Rod 6, the end of which lies between two Strips 7, arranged at a short distance apart from each other and bolted to two Flat Brackets. These are secured to a further Strip 8 bolted pivotally to a transverse Double Angle Strip. As the shaft 3 rotates, the Rod 6 slides between the Strips 7 and so rocks the Strip 8 from side to side to represent the shuttle.

The Bush Wheel 9 carries two Angle Brackets placed together in the form of a Double Bracket, with their elongated holes overlapping, and in such a position that an imaginary line drawn through their opposite round holes, would cross the centre of the Bush Wheel. A Flat Bracket is bolted to the inner Angle Bracket in a line with the Crank Handle and forms a lever which engages 1" Pulley 10 mounted on a vertical sliding Rod 11. This Rod is journalled in a Double Angle Strip bolted between the lower holes of the two Flat Trunnions and is further supported by two ½" Reversed Angle Brackets secured to the Angle Strip. As the Bush Wheel rotates, the Flat Bracket imparts to the Rod 11 a movement corresponding to the action of the needle.

The outer Angle Bracket on the Bush Wheel strikes once in every revolution the end of a Double Angle Strip 12. This is pivotally mounted by a Bolt passed through its second hole from the Bush Wheel end to the centre hole of the Flat Trunnion on that side of the model. The resulting movement of the Strip 12 represents the apparatus that pays out the cotton from the reel.

# Model No. 2.54 Anti-Aircraft Gun

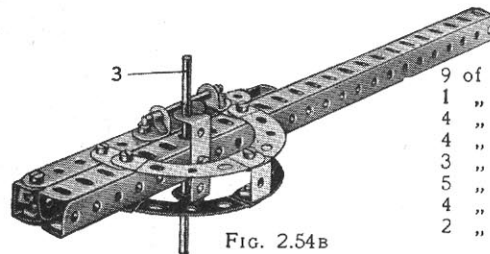


FIG. 2.54B

Parts required :

9 of No.	2	1 of No.	19B	4 of No.	48A
1 "	6A	4 "	20B	1 "	52
4 "	8	4 "	22	2 "	54
4 "	10	1 "	24	4 "	90A
3 "	11	8 "	35	1 "	115
5 "	12	57 "	37	2 "	126
4 "	16	6 "	38	2 "	126A
2 "	17	1 "	44		

The general construction of the model will be made clear by reference to Figures 2.54A and 2.54B. Rotation of the handle 1 causes the gun to revolve on the 3" Pulley Wheel 2. The barrel of the gun is so balanced on the Axle Rod 3 that it tends to fall by its own weight, but is prevented from doing so by a cord 4 tied to the gun close to the breech and wound on the 3½" Rod 5. By turning the Pulley Wheels 6 the muzzle is raised or allowed to fall.

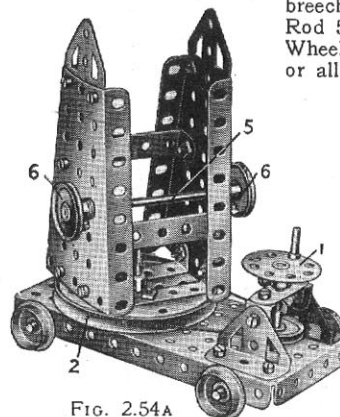
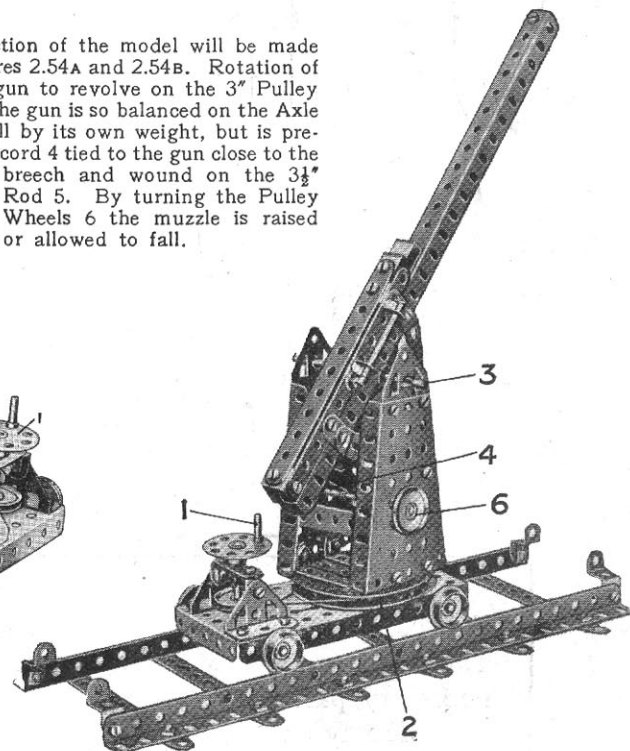
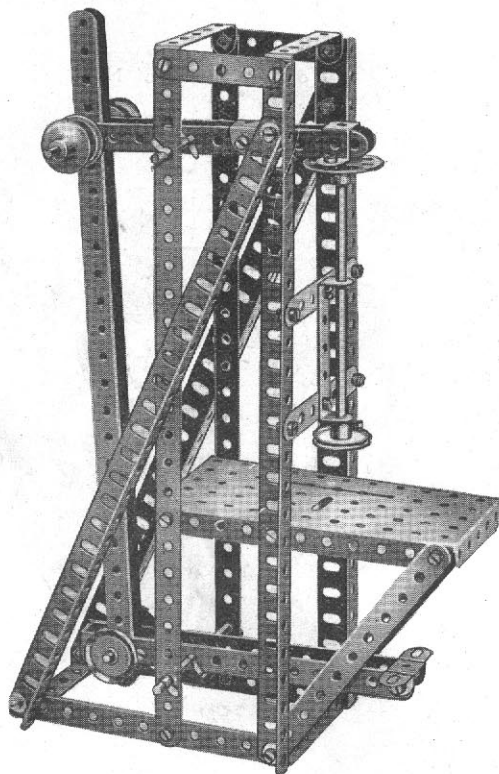


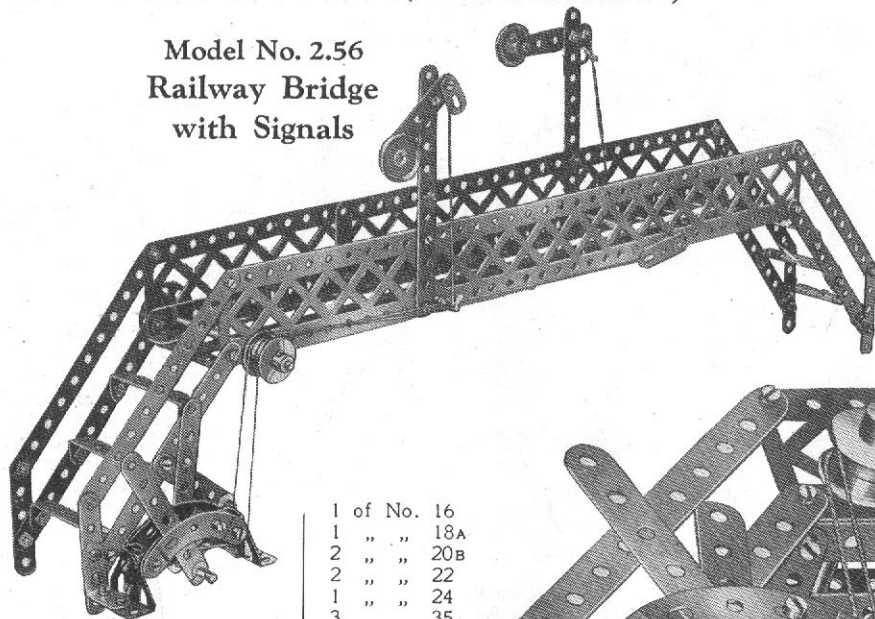
FIG. 2.54A



## Model No. 2.55 Embossing Machine

Parts  
required :

4	of No.	1
8	" "	2
2	" "	3
2	" "	5
4	" "	8
3	" "	11
2	" "	12
1	" "	15
3	" "	16
1	" "	18A
4	" "	20B
3	" "	22
1	" "	24
10	" "	35
34	" "	37
8	" "	38
1	" "	45
5	" "	48A
1	" "	52

Model No. 2.56  
Railway Bridge  
with SignalsParts  
required :

2	of No.	1
10	" "	2
2	" "	3
10	" "	5
4	" "	8
2	" "	10
3	" "	11
2	" "	12A
1	" "	15A

1	of No.	16
1	" "	18A
2	" "	20B
2	" "	22
1	" "	24
3	" "	35
60	" "	37
3	" "	37A
6	" "	38
7	" "	48A
2	" "	62
4	" "	90A
2	" "	99
2	" "	100
3	" "	111c
1	" "	115
2	" "	126

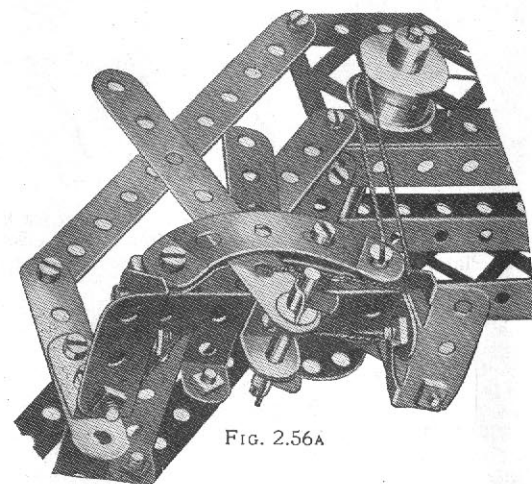


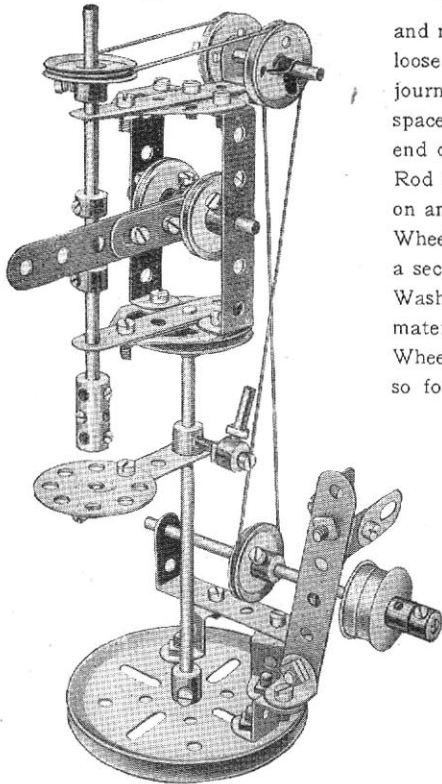
FIG. 2.56A

## HOW TO CONTINUE

This completes our examples of models that may be made with MECCANO Outfit No. 2 (or No. 1 and No. 1A). The next models are a little more advanced, requiring a number of extra parts to construct them. The necessary parts are all contained in a No. 2A Accessory Outfit, the price of which may be obtained from any Meccano dealer.



### Model No. 3.1 Drilling Machine



#### Parts required :

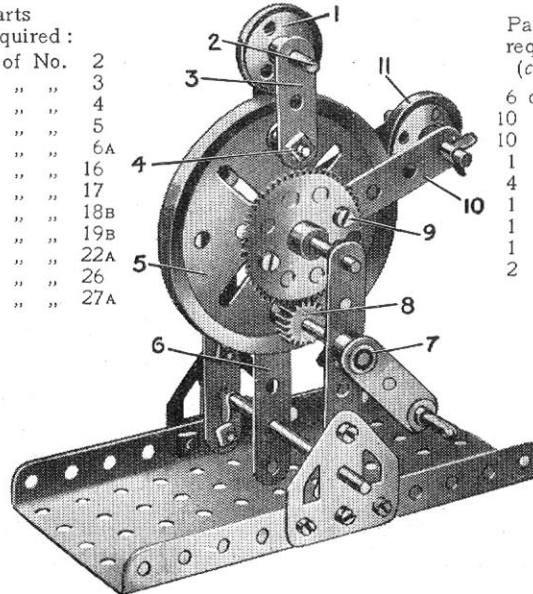
2 of No. 4	1 of No. 19B	2 of No. 48A
2 " " 5	2 " " 20B	4 " " 59
2 " " 10	1 " " 21	2 " " 62
2 " " 11	4 " " 22	1 " " 63
1 " " 12	2 " " 22A	1 " " 111
1 " " 15	1 " " 24	1 " " 115
2 " " 15A	3 " " 35	3 " " 125
2 " " 17	21 " " 37	2 " " 126A
	1 " " 46	

### Model No. 3.2 Strip-Bending Machine

This model represents a device for bending bars or rods of metal to circular form, and may be put to practical purpose in shaping strips of tin or similar material. A loose Pulley 1 is spaced by a Collar and Washers in the centre of the short Rod 2 journalled in a  $1\frac{1}{2}$ " Strip 3. The latter is secured to the end of a  $\frac{3}{4}$ " Bolt 4 and spaced away from the 3" Pulley 5 by means of a number of Washers. The opposite end of the Rod is supported by a  $5\frac{1}{2}$ " Strip 6. The Handle 7 is secured to a  $3\frac{1}{2}$ " Rod carrying a  $\frac{1}{2}$ " Pinion 8. This engages with a 57-teeth Gear Wheel 9 mounted on another  $3\frac{1}{2}$ " Rod which is free to revolve in the boss of the Wheel 5. The Gear Wheel 9 carries a 3" Strip 10 forming one of the bearings for a short Rod carrying a second 1" loose Pulley 11. The latter is also spaced by means of a Collar and Washers so that it lies immediately above the groove of the Pulley Wheel 5. The material to be shaped is passed between the two loose Pulleys at the top of the Wheel 5, and on rotation of the handle 7 the arm 10 is caused to move downward so forcing the object to the same curvature as the circumference of the wheel.

#### Parts required :

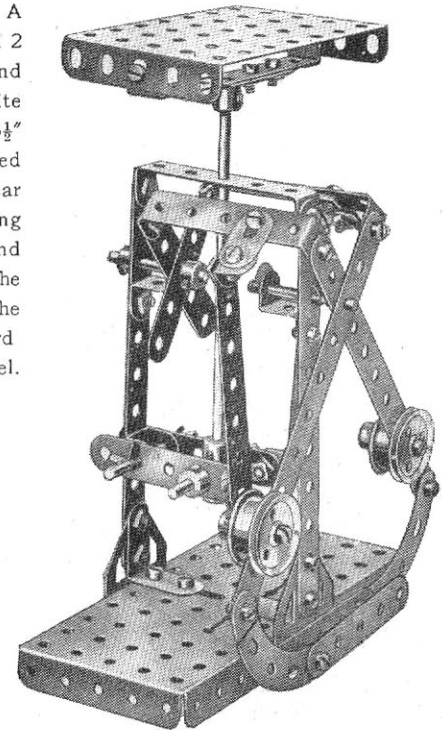
1 of No. 2	
2 " " 3	
1 " " 4	
1 " " 5	
1 " " 6A	
2 " " 16	
1 " " 17	
2 " " 18B	
1 " " 19B	
2 " " 22A	
1 " " 26	
1 " " 27A	



#### Parts required (continued):

6 of No. 35	
10 " " 37	
10 " " 38	
1 " " 52	
4 " " 59	
1 " " 62	
1 " " 111	
1 " " 115	
2 " " 126A	

### Model No. 3.3 Letter Balance

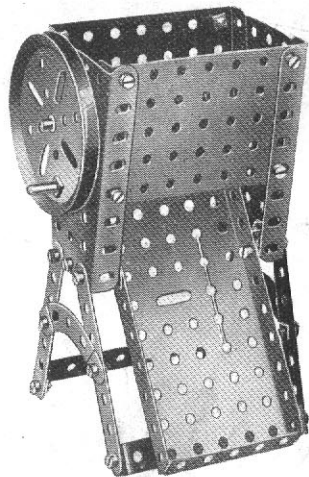


#### Parts required :

4 of No. 2	2 of No. 18A	1 of No. 53
2 " " 3	2 " " 20B	4 " " 59
5 " " 5	2 " " 22A	1 " " 62
2 " " 10	4 " " 35	1 " " 63
1 " " 11	37 " " 37	2 " " 90A
4 " " 12	6 " " 37A	2 " " 111
2 " " 12A	2 " " 48A	4 " " 111c
1 " " 15	1 " " 48B	2 " " 125
2 " " 17	1 " " 52	2 " " 126A

These Models can be built with MECCANO Outfit No. 3 (or No. 2 and No. 2A)

### Model No. 3.4 Oil Cake Chopper



Parts required :

4 of No. 3	1 of No. 52
6 " " 10	2 " " 53
1 " " 15	2 " " 54
1 " " 19B	1 " " 59
4 " " 22	2 " " 90A
24 " " 37	1 " " 115
2 " " 48B	2 " " 125

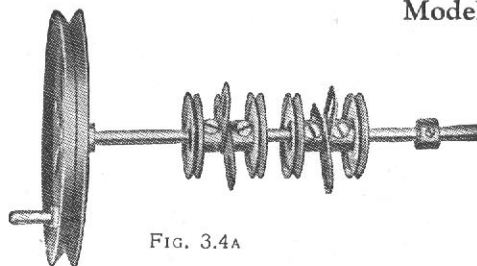
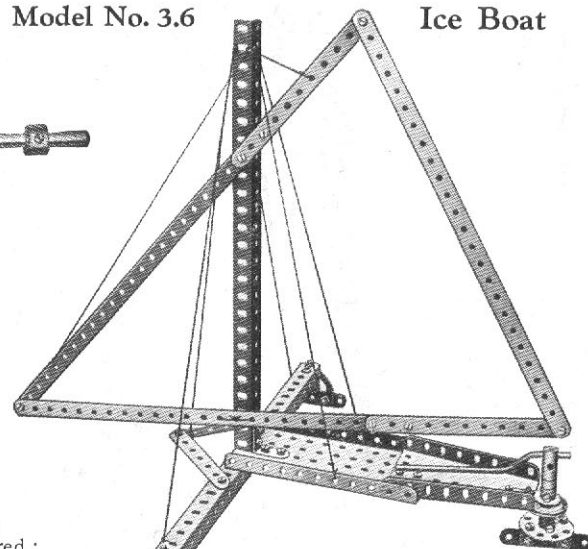


FIG. 3.4A

Fig. 3.4A shows the hand wheel and shaft removed from the model. It will be seen that the chopping mechanism is represented by Flat Brackets clamped between two pairs of 1" fast Pulley Wheels.

### Model No. 3.6

### Ice Boat



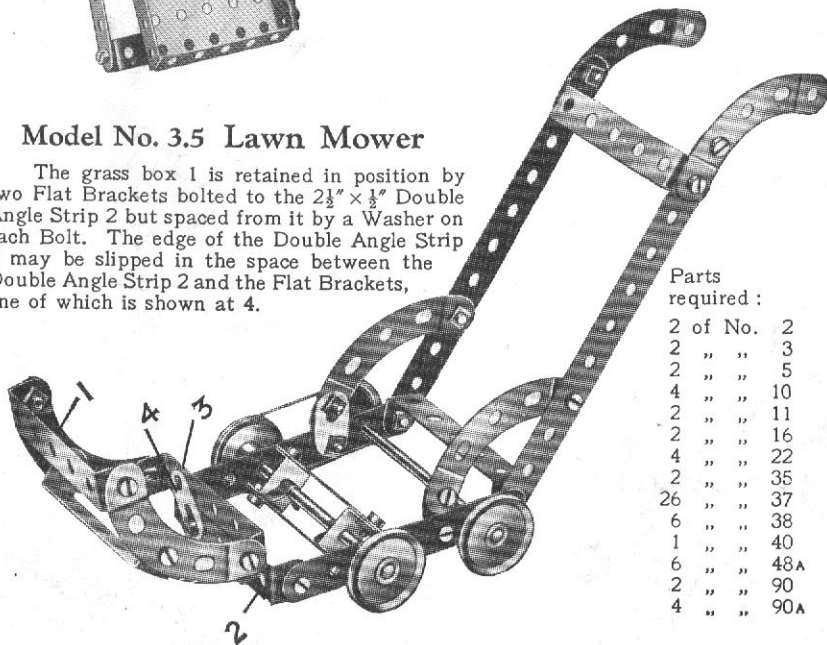
Parts required :

3 of No. 1	
2 " " 2	
2 " " 3	
3 " " 5	
2 " " 8	
2 " " 12	

3 of No. 12A	1 of No. 40
1 " " 17	1 " " 52
1 " " 19s	1 " " 54
1 " " 22	1 " " 59
1 " " 24	1 " " 62
36 " " 37	1 " " 63
2 of No. 126A	

### Model No. 3.5 Lawn Mower

The grass box 1 is retained in position by two Flat Brackets bolted to the  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip 2 but spaced from it by a Washer on each Bolt. The edge of the Double Angle Strip 3 may be slipped in the space between the Double Angle Strip 2 and the Flat Brackets, one of which is shown at 4.



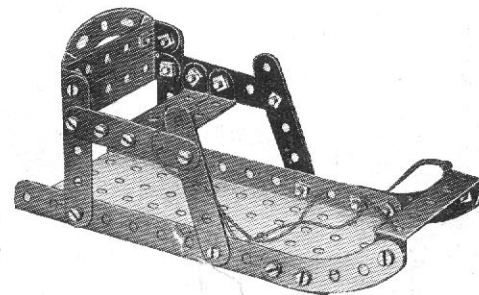
Parts required :

2 of No. 2	
2 " " 3	
2 " " 5	
4 " " 10	
2 " " 11	
2 " " 16	
4 " " 22	
2 " " 35	
26 " " 37	
6 " " 38	
1 " " 40	
6 " " 48A	
2 " " 90	
4 " " 90A	

### Model No. 3.7 Toboggan

Parts required :

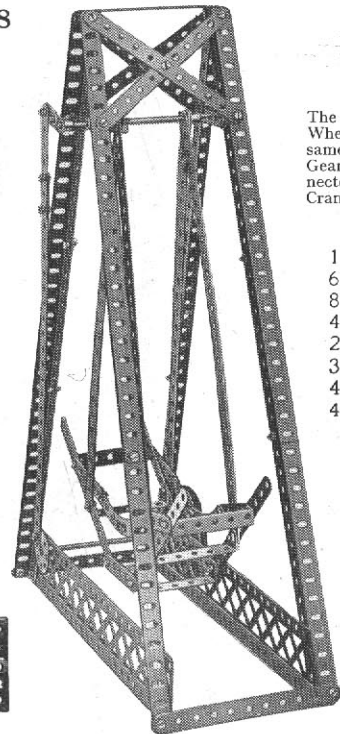
6 of No. 5	
22 " " 37	
1 " " 40	
5 " " 48A	
1 " " 52	
2 " " 90	
1 " " 90A	



## Model No. 3.8 Swing

Parts  
required :

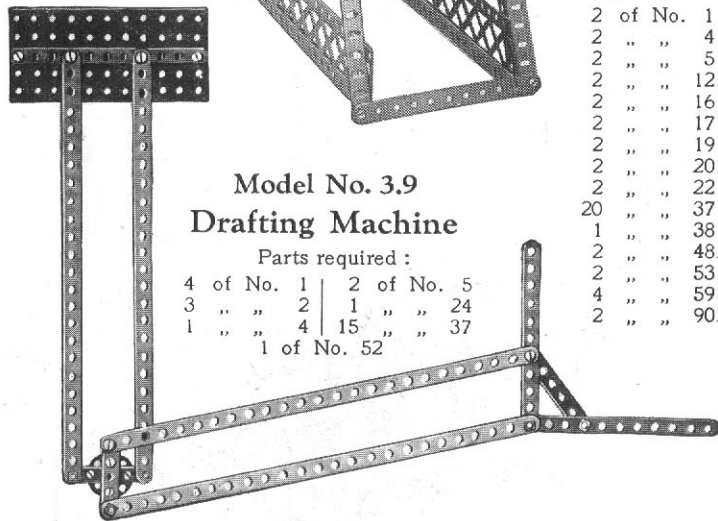
7	of No.	1
10	" "	2
1	" "	3
8	" "	5
8	" "	8
1	" "	10
2	" "	15
1	" "	19B
1	" "	24
2	" "	35
56	" "	37
4	" "	37A
6	" "	48A
1	" "	48B
2	" "	59
2	" "	62
4	" "	90A
2	" "	99
2	" "	111c
1	" "	115



## Model No. 3.9 Drafting Machine

Parts required :

4	of No.	1	2	of No.	5
3	" "	2	1	" "	24
1	" "	4	15	" "	37
1 of No. 52					

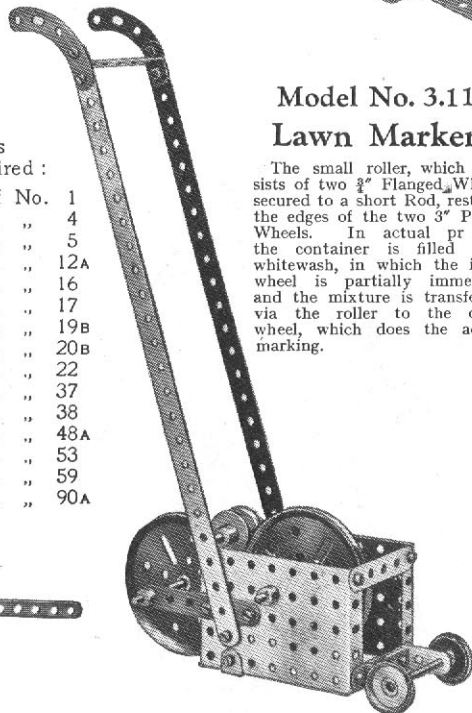


## Model No. 3.10 Actuated See-Saw

The model is actuated by the motion of one pair of travelling wheels. The axle to which these wheels are secured carries two 1" fast Pulley Wheels, which are connected by endless cords to similar Pulleys on the same Rod as a  $\frac{1}{2}$ " Pinion Wheel. This  $\frac{1}{2}$ " Pinion meshes with a 57-teeth Gear Wheel secured to the Rod of a Bush Wheel, and the latter is connected by means of a  $3\frac{1}{4}$ " Strip to an extended crank (a  $2\frac{1}{2}$ " Strip and a Crank bolted together) secured to the pivotal Rod of the see-saw.

Parts required :

1	of No.	3	1	of No.	24	2	of No.	52
6	" "	5	1	" "	26	2	" "	53
8	" "	8	1	" "	27A	3	" "	59
4	" "	12	2	" "	35	2	" "	62
2	" "	15	43	" "	37	2	" "	90A
3	" "	15A	2	" "	37A	1	" "	111c
4	" "	19B	1	" "	40	1	" "	115
4	" "	22	2	" "	48B			



## Model No. 3.11 Lawn Marker

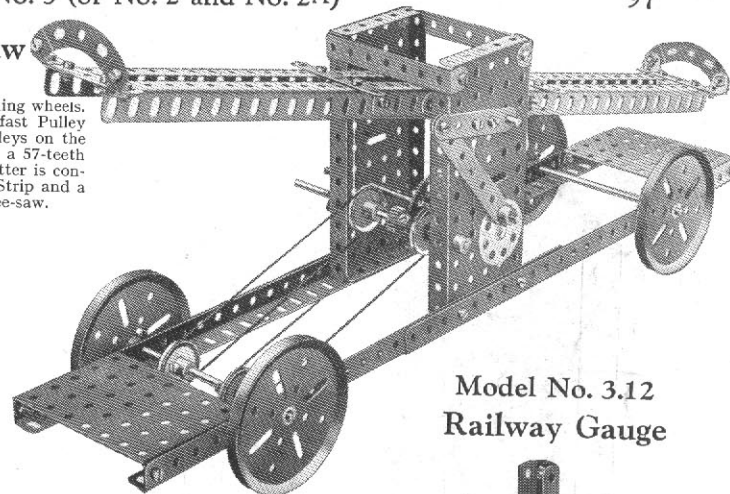
The small roller, which consists of two  $\frac{1}{2}$ " Flanged Wheels secured to a short Rod, rests on the edges of the two 3" Pulley Wheels. In actual practice the container is filled with whitewash, in which the inner wheel is partially immersed, and the mixture is transferred via the roller to the outer wheel, which does the actual marking.

Parts  
required :

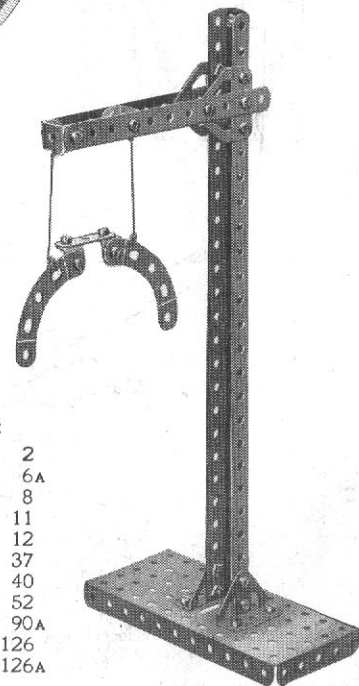
2	of No.	1
2	" "	4
2	" "	5
2	" "	12A
2	" "	16
2	" "	17
2	" "	19B
2	" "	20B
2	" "	22
20	" "	37
1	" "	38
2	" "	48A
2	" "	53
4	" "	59
2	" "	90A

Parts  
required :

2	of No.	2
1	" "	6A
2	" "	8
2	" "	11
2	" "	12
25	" "	37
1	" "	40
1	" "	52
2	" "	90A
2	" "	126
2	" "	126A

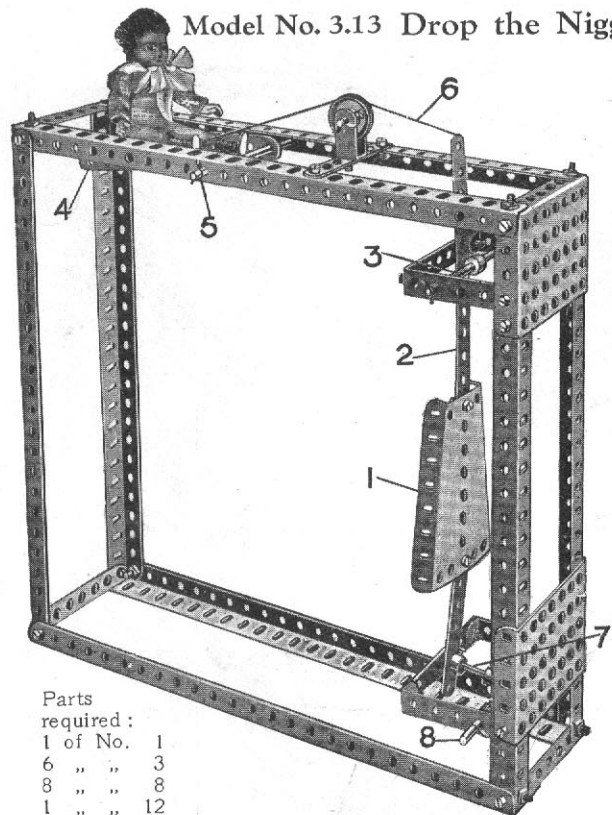


## Model No. 3.12 Railway Gauge





Model No. 3.13 Drop the Nigger

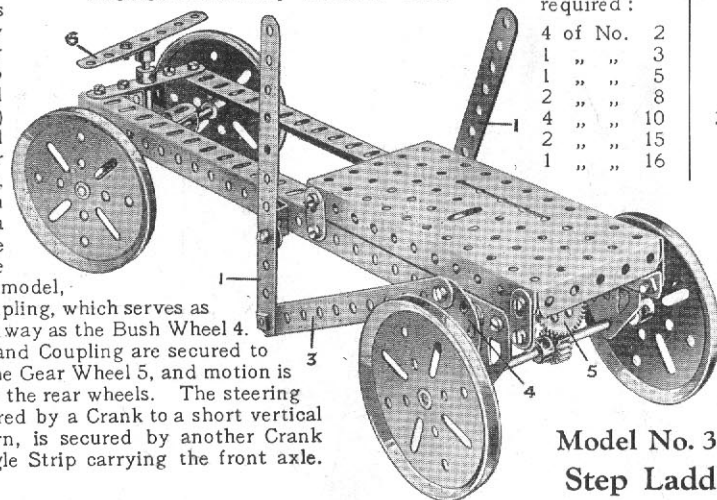


Parts required :		
1 of No.	1	
6 "	3	
8 "	8	
1 "	12	
3 "	15A	
2 "	17	
1 "	22	
6 "	35	
33 "	37	
1 "	40	
1 "	44	
4 "	48A	
2 "	53	
2 "	54	
3 "	59	
1 "	63	

The Sector Plate 1 is a target, which, when hit, allows the nigger to be dropped. The Plate 1 is carried on the Strip 2 pivoted at 3, and the weight of the nigger supported on another Sector Plate 4 pivoted at 5 by means of the cord 6 keeps the lower end of the Strip 2 hard against a short Rod 7 pivoted at 8. When the target is hit and knocked back the Rod 7 is released and falls about its pivot, allowing the Sector Plate 4 with the nigger to drop.

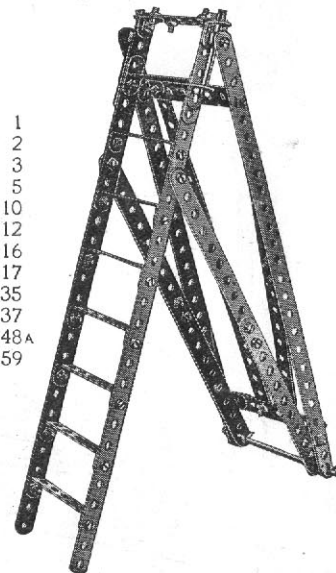
The hand levers 1 are each pivotally attached to the car by a Bolt and two Nuts (see Standard Mechanism No. 262) and are connected in a similar manner to two further levers, one of which, seen at 3, is pivoted to a Bush Wheel 4 while the other, on the further side of the model, is pivoted to a Coupling, which serves as a crank in the same way as the Bush Wheel 4. Both Bush Wheel and Coupling are secured to the Rod carrying the Gear Wheel 5, and motion is thus transmitted to the rear wheels. The steering foot lever 6 is secured by a Crank to a short vertical Rod which, in turn, is secured by another Crank to the Double Angle Strip carrying the front axle.

Model No. 3.14 Hand Car



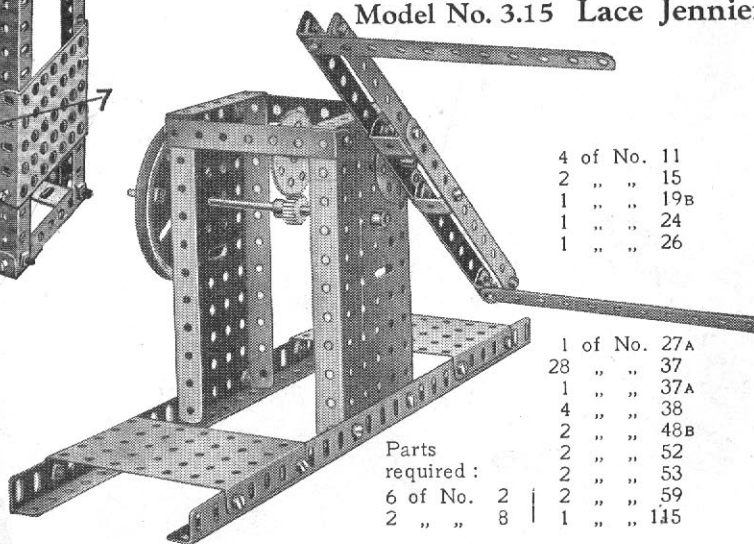
Parts required :			1 of No.		
4 of No.	2		4	"	17
1 "	3		1	"	19B
1 "	5		1	"	24
2 "	8		1	"	26
4 "	10		4	"	27A
2 "	15		4	"	35
1 "	16		26	"	37
			5	"	37A
			4	"	38
			1	"	45
			1	"	48A
			1	"	52
			1	"	59
			2	"	62
			1	"	63
			1	"	111c
			2	"	125
			2	"	126A

Model No. 3.16 Step Ladder



Parts required :		
4 of No.	1	
8 "	2	
2 "	3	
3 "	5	
2 "	10	
10 "	12	
1 "	16	
2 "	17	
10 "	35	
38 "	37	
8 "	48A	
2 "	59	

Model No. 3.15 Lace Jennier

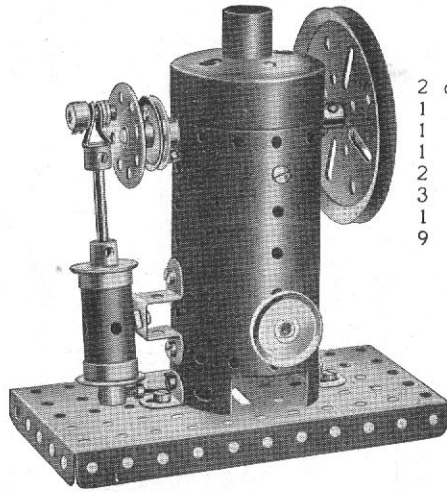


4 of No.	11
2 "	15
1 "	19B
1 "	24
1 "	26

1 of No.	27A
28 "	37
1 "	37A
4 "	38
2 "	48B
2 "	52
2 "	53
2 "	59
1 "	145

Parts required :		
6 of No.	2	
2 "	8	

### Model No. 3.17 Vertical Steam Engine



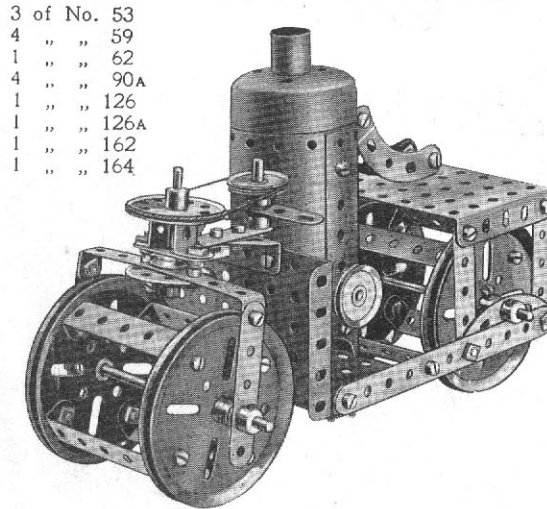
Parts required :

2 of No. 12	2 of No. 38
1 " " 16	1 " " 45
1 " " 17	1 " " 52
1 " " 19B	1 " " 59
2 " " 20B	1 " " 115
3 " " 22	1 " " 162
1 " " 24	1 " " 163
9 " " 37	1 " " 164
1 of No. 166	

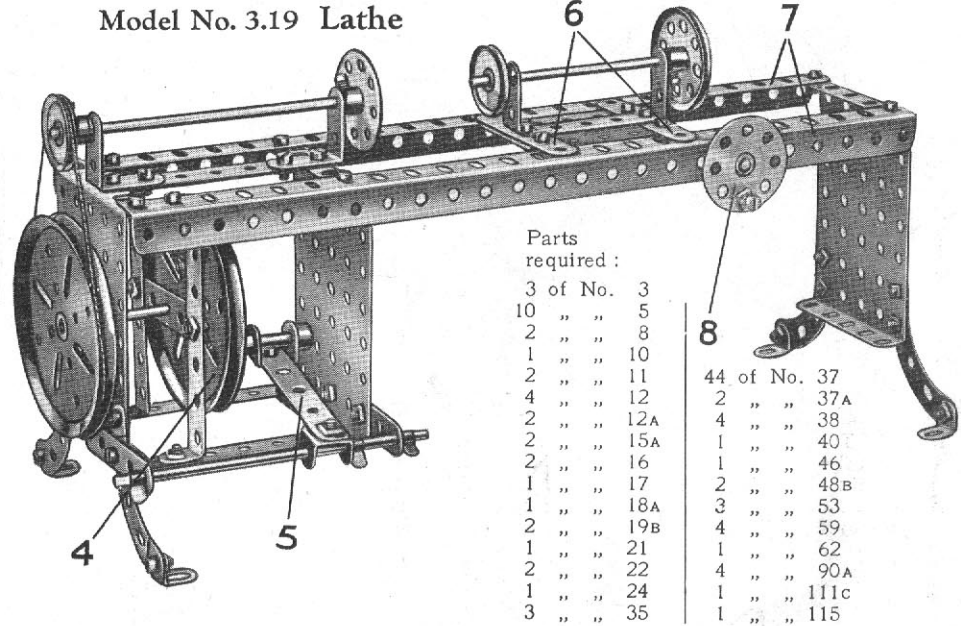
### Model No. 3.18 Steam Road Roller

Parts required :

2 of No. 2
7 " " 5
2 " " 11
1 " " 12
2 " " 12A
3 " " 16
1 " " 17
1 " " 18A
4 " " 19B
1 " " 21
3 " " 22
1 " " 23
1 " " 24
57 " " 37
11 " " 38
1 " " 40
1 " " 45
8 " " 48A
2 " " 48B



### Model No. 3.19 Lathe



Parts required :

3 of No. 3	5
10 " " 8	8
2 " " 10	44 of No. 37
1 " " 11	2 " " 37A
2 " " 12	4 " " 38
2 " " 12A	1 " " 40
2 " " 15A	1 " " 46
2 " " 16	2 " " 48B
1 " " 17	3 " " 53
1 " " 18A	4 " " 59
2 " " 19B	1 " " 62
1 " " 21	2 " " 90A
2 " " 22	4 " " 111c
1 " " 24	1 " " 115
3 " " 35	

The arrangement of the treadle is shown in detail in Fig. 3.19A. The Crank 1 is provided with a Flat Bracket, the round hole of which coincides with the elongated hole of the Crank, and receives the short Rod 2. The Crank 1 is free to turn about a Threaded Pin 3, secured to the 3" Pulley Wheel 4, and once the latter is set in motion it can be kept in rotation by working the treadle 5. The Strips 6 of the saddle (Fig. 3.19) are duplicated and their ends form slots to receive the flanges of the Angle Girders 7. The hand wheel 8 is a dummy one, but if desired it may be arranged to operate the saddle by an endless rope device.

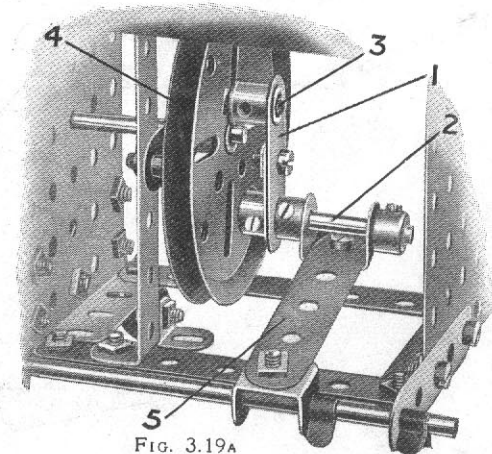
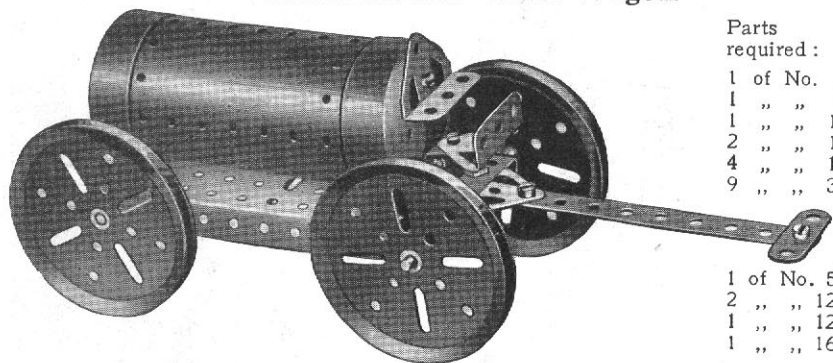


FIG. 3.19A

These Models can be built with MECCANO Outfit No. 3 (or No. 2 and No. 2A)

### Model No. 3.20 Tank Wagon

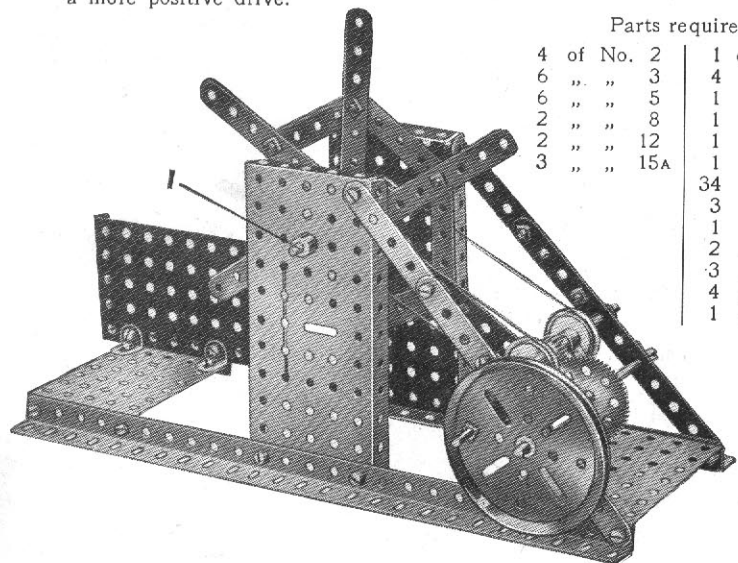


Parts required :

1 of No. 2	2
1 " "	6A
1 " "	12
2 " "	16
4 " "	19B
9 " "	37
1 of No. 52	
2 " "	126
1 " "	126A
1 " "	162

### Model No. 3.21 Flax Cleaner

The six  $3\frac{1}{2}$ " Strips forming the rotating frame are fastened to a Bush Wheel that in turn is attached to the Rod 1. The  $3\frac{1}{2}$ " Strips are braced by six  $2\frac{1}{2}$ " Strips. The drive is transmitted from the operating shaft by means of endless cords. Two separate cords are used in order to secure a more positive drive.

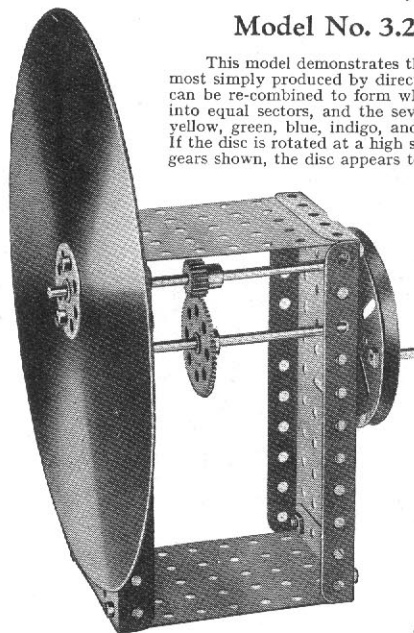


Parts required :

4 of No. 2	1 of No. 19B
6 " " 3	4 " " 22
6 " " 5	1 " " 24
2 " " 8	1 " " 26
2 " " 12	1 " " 27A
3 " " 15A	1 " " 35
	34 " " 37
	3 " " 38
	1 " " 40
	2 " " 52
	3 " " 53
	4 " " 59
	1 " " 115

### Model No. 3.22 Newton's Disc

This model demonstrates that the colours of the spectrum, which are most simply produced by directing a ray of white light through a prism, can be re-combined to form white light. The cardboard disc is divided into equal sectors, and the seven colours of the spectrum—red, orange, yellow, green, blue, indigo, and violet—are painted on separate sectors. If the disc is rotated at a high speed by means of the hand wheel and the gears shown, the disc appears to be of a greyish-white colour.



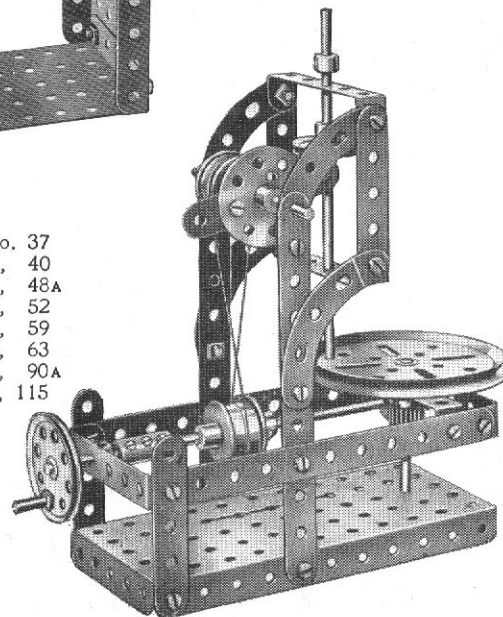
Parts required :

2 of No. 15	10 of No. 37
1 " " 19B	1 " " 38
1 " " 24	2 " " 52
1 " " 26	2 " " 53
1 " " 27A	2 " " 59
1 of No. 115	

### Model No. 3.23 Auto Dial Press

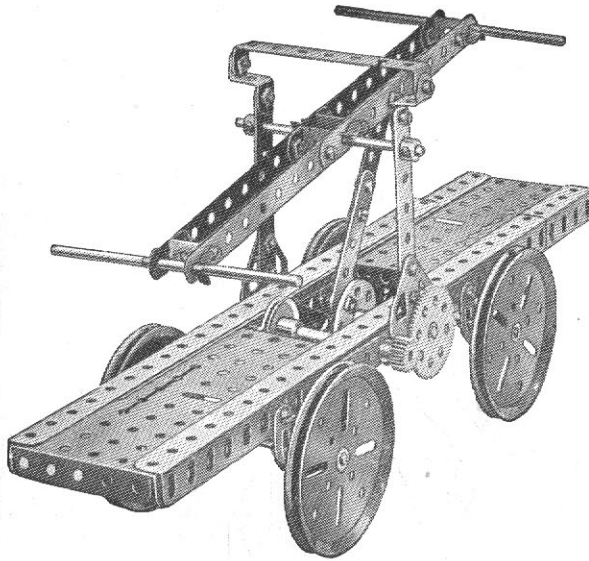
Parts required :

4 of No. 2	22 of No. 37
5 " " 5	1 " " 40
2 " " 15	5 " " 48A
1 " " 16	1 " " 52
1 " " 17	3 " " 59
1 " " 18A	1 " " 63
1 " " 19B	4 " " 90A
4 " " 20B	1 " " 115
1 " " 21	
1 " " 22	
1 " " 24	
1 " " 26	
1 " " 32	





### Model No. 3.24 Hand Trolley



#### Parts required :

4 of No. 2	1 of No. 18A	1 of No. 40
3 " " 3	4 " " 19B	1 " " 45
2 " " 5	2 " " 22	1 " " 48B
4 " " 8	1 " " 24	2 " " 52
8 " " 10	1 " " 26	3 " " 59
4 " " 11	1 " " 27A	4 " " 90A
2 " " 15A	6 " " 35	2 " " 125
4 " " 16	40 " " 37	2 " " 126A

The connecting arm is pivoted at its lower end to the Bush Wheel and at its upper end to the hand lever, a bolt and two nuts being used to pivot the arm in each case. The drive is transmitted to a 1" Pulley Wheel on the axle of the road wheels by means of a crossed belt passing round another 1" Pulley that is secured to a Rod connected via a 3:1 gear ratio to the 1½" Rod carrying the Bush Wheel. This Rod is journalled in a 3½" Strip fastened to the side Angle Girder, and also in a Double Bent Strip secured to the inside of the Girder.

### Model No. 3.25

#### Parts required :

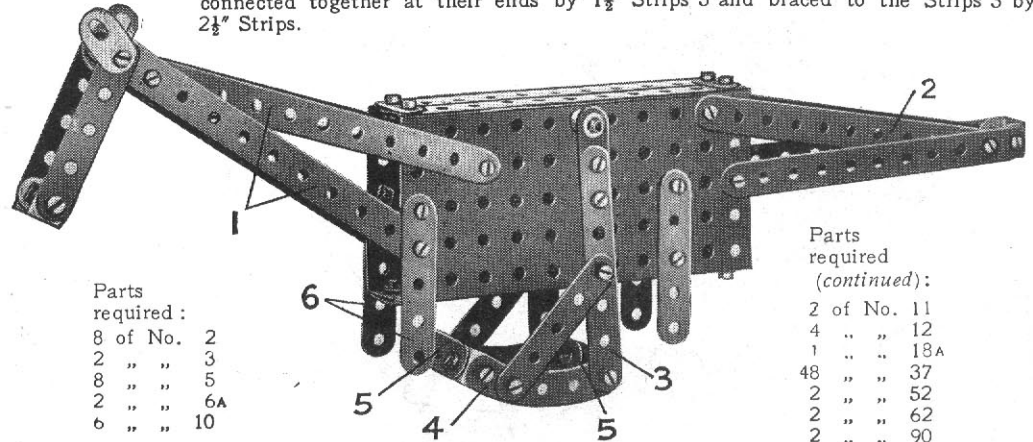
5 of No. 5	3 of No. 48A
2 " " 8	2 " " 48B
2 " " 12	2 " " 52
3 " " 15A	3 " " 53
3 " " 18A	3 " " 59
2 " " 19B	1 " " 63
1 " " 19S	1 " " 116
4 " " 20B	1 " " 125
1 " " 21	2 " " 126
1 " " 22	1 " " 162
2 " " 35	1 " " 163
32 " " 37	1 " " 164
1 " " 40	1 " " 166
1 " " 48	

### Model No. 3.26

### The Meccangaroo

When placed upon an incline the "Meccangaroo" will "walk" with a quaint action. The positions of the various Strips in relation to the body should be reproduced as accurately as possible, for the successful working of the model depends upon them.

The animal rocks about a short Rod secured between the rocker-frame which does duty as "legs." This frame consists of two 3½" Strips 3 bolted at their upper ends to Cranks in which the short Rod is secured, and at their lower ends to two 2½" large radius Curved Strips 4, which are connected together at their ends by 1½" Strips 5 and braced to the Strips 3 by 2½" Strips.

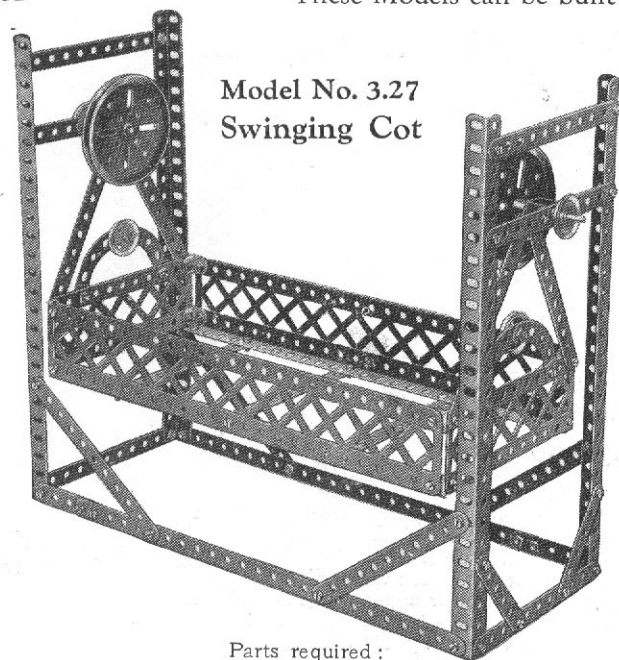


#### Parts required :

8 of No. 2
2 " " 3
8 " " 5
2 " " 6A
6 " " 10

#### Parts required (continued):

2 of No. 11
4 " " 12
1 " " 18A
48 " " 37
2 " " 52
2 " " 62
2 " " 90



**Model No. 3.27**  
**Swinging Cot**

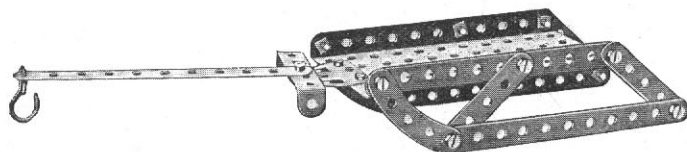
Parts required :

2 of No. 1	6 of No. 8	2 of No. 22	2 of No. 45
17 " " 2	8 " " 12	2 " " 22A	4 " " 90A
2 " " 4	2 " " 17	64 " " 37	2 " " 99
2 " " 5	2 " " 19B	2 " " 37A	2 " " 100
			2 " " 111c

**Model No. 3.28 Horse Sleigh**

Parts required :

3 of No. 2	13 of No. 37	1 of No. 57c
4 " " 5	1 " " 48A	2 " " 90
1 " " 23	1 " " 52	1 " " 126A



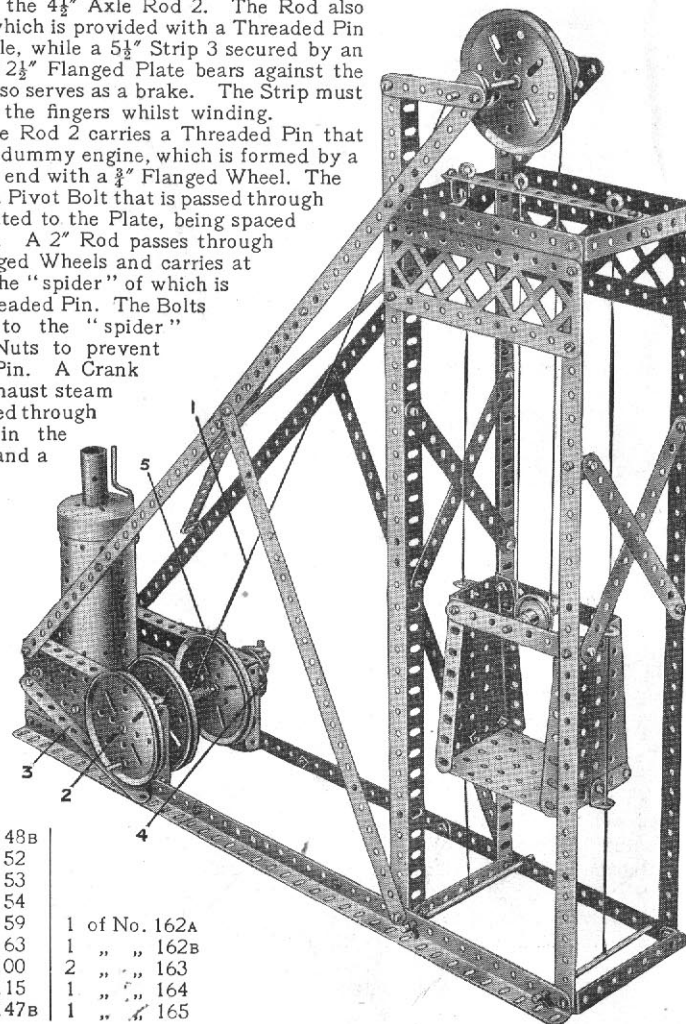
**Model No. 3.29 Pit Head Gear**

The cage is raised and lowered by the cord 1 which is wound between two 3" Pulleys on the 4½" Axle Rod 2. The Rod also carries a further 3" Pulley which is provided with a Threaded Pin to form the operating handle, while a 5½" Strip 3 secured by an Angle Bracket to the 5½" x 2½" Flanged Plate bears against the periphery of the Pulley and so serves as a brake. The Strip must be depressed slightly with the fingers whilst winding.

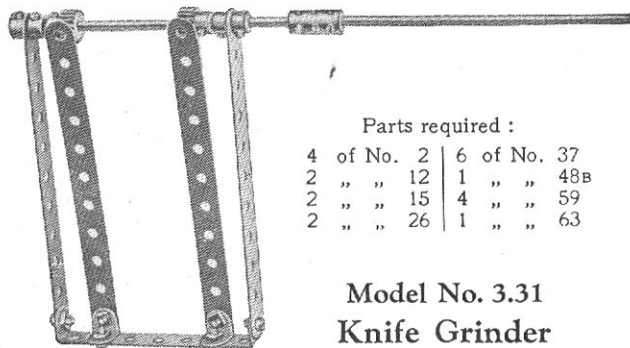
A Bush Wheel 4 on the Rod 2 carries a Threaded Pin that serves as the crank pin of a dummy engine, which is formed by a Sleeve Piece 5 fitted at each end with a ¾" Flanged Wheel. The Sleeve Piece is mounted on a Pivot Bolt that is passed through its centre hole and lock-nutted to the Plate, being spaced from the latter by a Collar. A 2" Rod passes through the boss of one of the Flanged Wheels and carries at one end a Swivel Bearing, the "spider" of which is mounted loosely on the Threaded Pin. The Bolts securing the Fork Piece to the "spider" should be provided with Nuts to prevent their shanks gripping the Pin. A Crank Handle representing the exhaust steam pipe is secured by Bolts passed through the Boiler, and inserted in the tapped holes of a Coupling and a Collar.

Parts required :

10 of No. 1	1
8 " " 2	2
4 " " 3	3
2 " " 4	4
8 " " 8	8
1 " " 11	11
14 " " 12	12
1 " " 12A	12A
1 " " 15	15
3 " " 15A	15A
2 " " 17	17
4 " " 19B	19B
1 " " 19S	19S
4 " " 20B	20B
1 " " 22	22
1 " " 24	24
4 " " 35	35
88 " " 37	37
3 " " 38	38
1 " " 40	40
2 of No. 48B	48B
2 " " 52	52
3 " " 53	53
2 " " 54	54
4 " " 59	59
1 " " 63	63
2 " " 100	100
2 " " 115	115
1 " " 147B	147B
1 of No. 162A	162A
1 " " 162B	162B
2 " " 163	163
1 " " 164	164
1 " " 165	165



### Model No. 3.30 Rattle

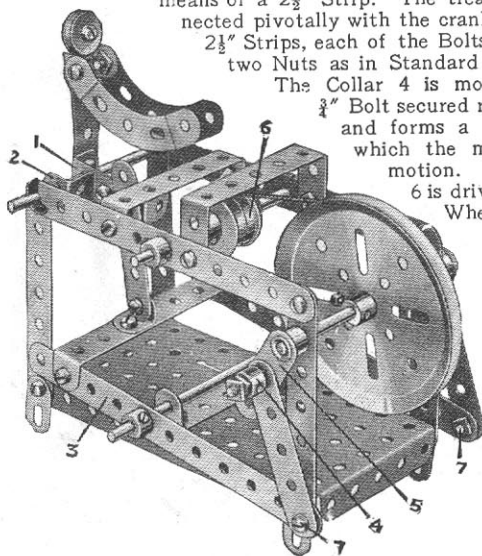


Parts required :

4 of No. 2	6 of No. 37
2 " " 12	1 " " 48B
2 " " 15	4 " " 59
2 " " 26	1 " " 63

### Model No. 3.31 Knife Grinder

The body is a 2½" Strip, which is bolted at its lower end to a 1½" x ¼" Double Angle Strip 1 and is held upright by a ¼" Reversed Angle Bracket 2 secured to the Double Angle Strip. Both the latter parts are free to turn about a 3½" Axle Rod, and the Double Angle Strip is connected pivotally with the treadle 3 by means of a 2½" Strip. The treadle, in turn, is connected pivotally with the crankshaft by two further 2½" Strips, each of the Bolts 7 being secured by two Nuts as in Standard Mechanism No. 262.



The Collar 4 is mounted loosely on a ¾" Bolt secured rigidly to the Crank 5, and forms a handle by means of which the model may be set in motion. The grinding wheel 6 is driven from the 3" Pulley Wheel by an endless belt.

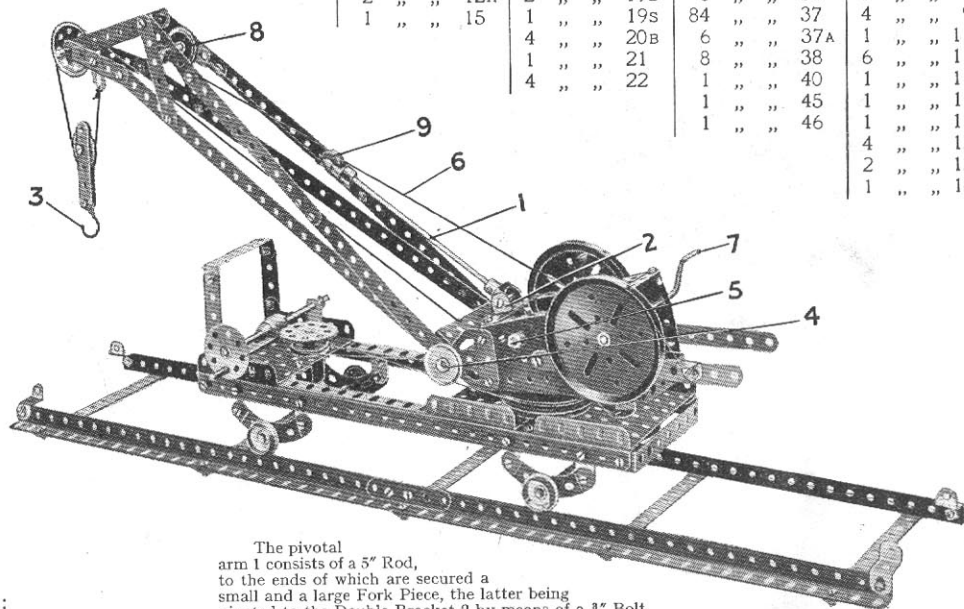
Parts required :

4 of No. 2	9 of No. 37A
4 " " 3	1 " " 38
4 " " 5	1 " " 40
4 " " 10	1 " " 46
1 " " 11	1 " " 48
1 " " 12	2 " " 48A
1 " " 15A	1 " " 48B
3 " " 16	1 " " 52
1 " " 19B	4 " " 59
2 " " 20B	2 " " 62
1 " " 23	2 " " 90A
3 " " 35	1 " " 111
27 " " 37	1 " " 125

### Model No. 3.32 Railway Breakdown Crane

Parts required :

2 of No. 1	12 of No. 5	3 of No. 15A	2 of No. 22A	3 of No. 48A
11 " " 2	6 " " 8	1 " " 16	1 " " 23	2 " " 48B
2 " " 3	10 " " 10	2 " " 17	1 " " 24	3 " " 53
2 " " 4	2 " " 11	2 " " 18A	1 " " 27A	2 " " 54
	3 " " 12	1 " " 19	1 " " 32	1 " " 57C
	2 " " 12A	2 " " 19B	6 " " 35	3 " " 59
	1 " " 15	1 " " 19S	84 " " 37	4 " " 90A
		4 " " 20B	6 " " 37A	1 " " 111
		1 " " 21	8 " " 38	6 " " 111C
		4 " " 22	1 " " 40	1 " " 115
			1 " " 45	1 " " 116
			1 " " 46	1 " " 116A
				4 " " 125
				2 " " 126A
				1 " " 147B



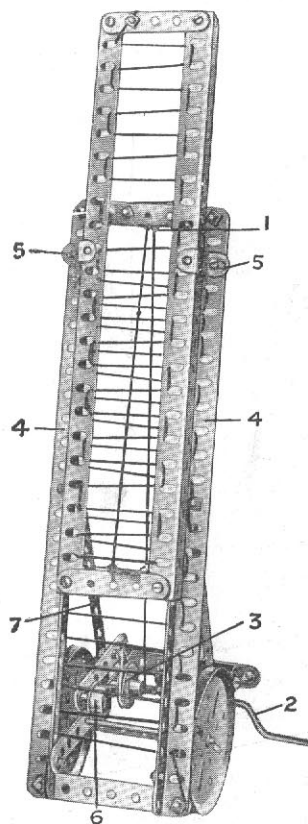
The pivotal arm 1 consists of a 5" Rod, to the ends of which are secured a small and a large Fork Piece, the latter being pivoted to the Double Bracket 2 by means of a ¾" Bolt. The hoisting cord controlling the Hook 3 passes under a 3½" Rod 4 and is wound on a Crank Handle 5. The cord 6, which raises the jib, is operated by a second Crank Handle 7. It passes over the 1" loose Pulley Wheel 8, round the ½" loose Pulley 9 (which is mounted on a Pivot Bolt) and is then led back again and tied to a Flat Bracket on the 1½" Rod that carries the Pulley 8. Each Crank Handle 5, 7 is provided with a permanent band-and-pulley brake to prevent the jib or the load on the Hook 3 from falling when the handles are released. The method of rotating the crane about its pivot is as follows:

The hand wheel consisting of a Bush Wheel fitted with a Threaded Pin is fastened to a 3½" Rod journaled in two 1" x 1" Angle Brackets which are bolted to the 2½" x 3½" Flanged Plate. This Rod carries a Worm Wheel that meshes with a 57-teeth Gear Wheel fastened to a 2" Rod. The support for this Rod is formed by a Double Bent Strip. Connection between this Rod and the body of the crane is made by means of a 1" Pulley Wheel, a 3" Pulley Wheel fastened to the base of the crane, and a crossed belt joining these two wheels. On rotation of the hand wheel the jib of the crane is, therefore, slowly rotated.

The 3" Pulley to which the swivelling portion of the crane is attached, slides on the rim of a second 3" Pulley secured to the base of the model by means of ¾" Bolts. These Bolts have Washers on their shanks to prevent damage to the rim of the Pulley.



## Model No. 3.33 Fire Escape



Parts required:

4 of No.	2
3	3
1	4
2	5
4	8
3	12
1	16
1	19s
2	19B
1	20B
1	22
1	23
26	37
6	37A
5	38
2	40
2	48A
3	59
5	111c
2	125
1	126A

The moving portion of the escape slides on the 12 1/2" Angle Girders 4 of the fixed ladder and is guided by two 1/2" Reversed Angle Brackets 5. The cord for extending the ladder passes over the 1/2" loose Pulley 1 and is wound on the

Crank Handle 2. The Pulley 1 revolves freely on a 3/4" Bolt that is secured by two Nuts to an Angle Bracket bolted to the 3 1/2" Strip.

A 3" Strip, weighted with a 3/4" Flanged Wheel 6 to form a brake lever, is pivoted by a 3/8" Bolt to the 5 1/2" Strip 7, and a piece of cord is passed round the 1" Pulley 3 on the hoisting shaft, and tied to the Strip. The pressure of the weighted lever is sufficient to keep the ladder raised in any position.

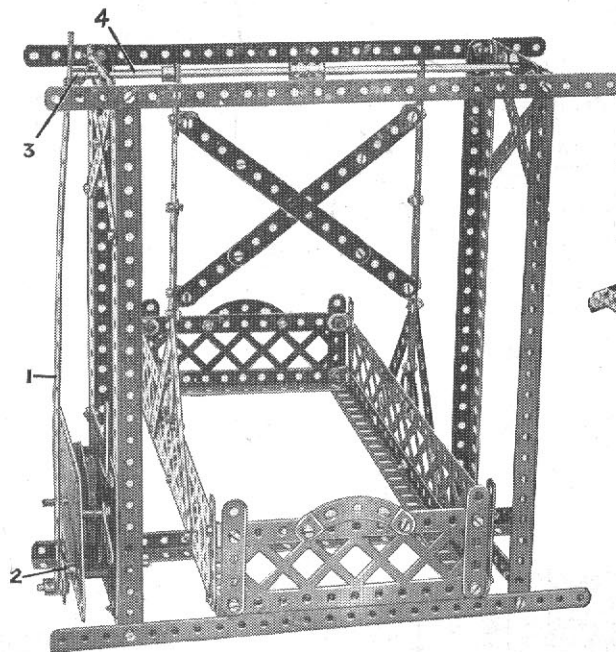
## Model No. 3.34 Auto Swing Boat

The connecting Strip 1 is attached pivotally at one end to a Threaded Pin secured to the Bush Wheel 2 on the driving spindle of the motor, and at the other end by means of Bolt and Lock-Nuts to a Crank 3 mounted on the shaft 4, which operates the swing boat.

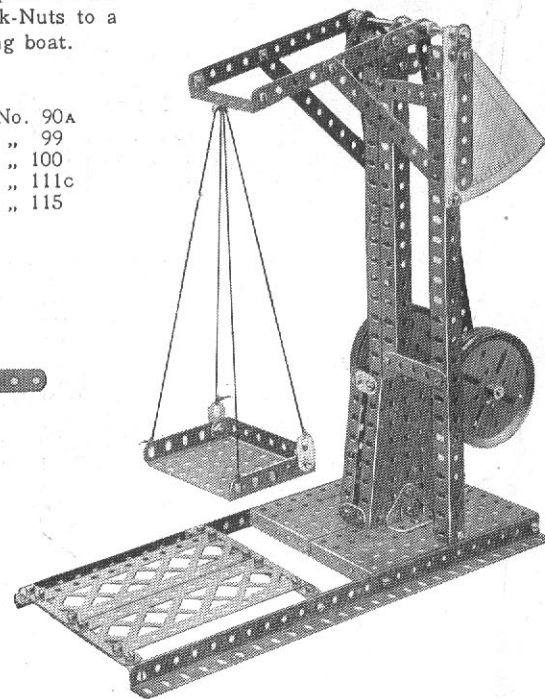
Parts required:

3 of No.	1	1 of No.	10	86 of No.	37	2 of No.	90A
16	2	12	12	2	37A	2	99
6	3	2	15	1	59	2	100
8	5	1	24	2	62	1	111c
8	8	2	35	1	63	1	115
2 of No. 126A							

Clockwork Motor (not included in Outfit)



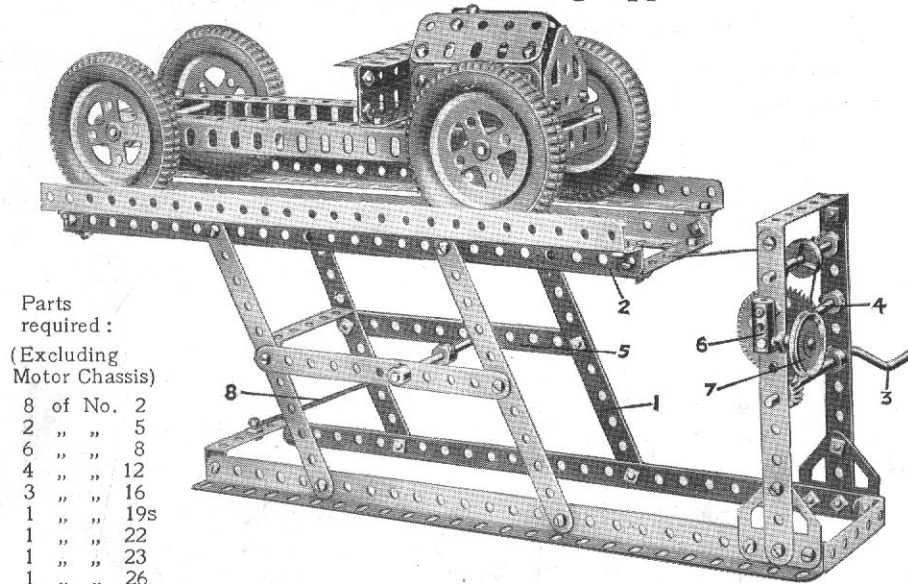
## Model No. 3.35 Scales



Parts required:

10 of No.	2	2 of No.	48A
1	3	1	48B
2	5	2	52
5	8	1	53
7	10	2	54
5	12	4	59
2	15A	2	62
4	19B	2	100
67	37	2	126
2	38	2	126A

### Model No. 3.36 Car Lifting Apparatus

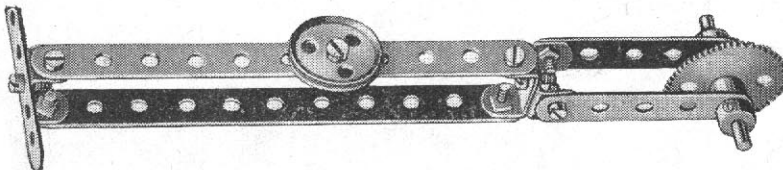


Parts  
required :  
(Excluding  
Motor Chassis)

8	of No.	2
2	" "	5
6	" "	8
4	" "	12
3	" "	16
1	" "	19s
1	" "	22
1	" "	23
1	" "	26
1	" "	27A
5	" "	35
36	" "	37
12	" "	37A
1	" "	40
4	" "	48A
4	" "	59
1	" "	63
2	" "	115
2	" "	126A

Four  $5\frac{1}{2}$ " Strips 1 are attached pivotally by lock-nutted Bolts to the  $12\frac{1}{2}$ " Angle Girders, which form the base of the model, and to the carrier 2, which receives the car. The Crank Handle 3 carries a  $\frac{1}{2}$ " Pinion meshing with a 57-teeth Gear on the Rod 4, which forms a drum for a length of cord attached to the carrier. The Rod runs freely in the transverse hole of a Coupling 6 that is secured to the upright Strip by a  $\frac{3}{8}$ " Bolt. A Threaded Pin carries the 1" Pulley 7 and its shank is inserted in the tapped hole of the Coupling, so that when the Pulley is rotated clockwise the Pin nips the Rod. The carrier 2 is returned to its original position by a length of elastic or Spring Cord 8.

### Model No. 3.37 Pastry Designer



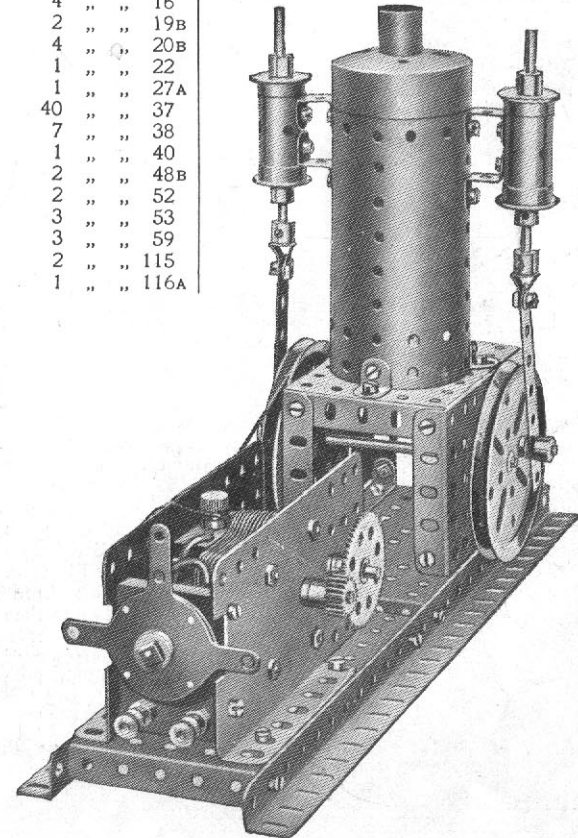
Parts  
required :

2	of No.	2
3	" "	5
3	" "	11
1	" "	17
1	" "	22A
1	" "	27A
9	" "	37
2	" "	59

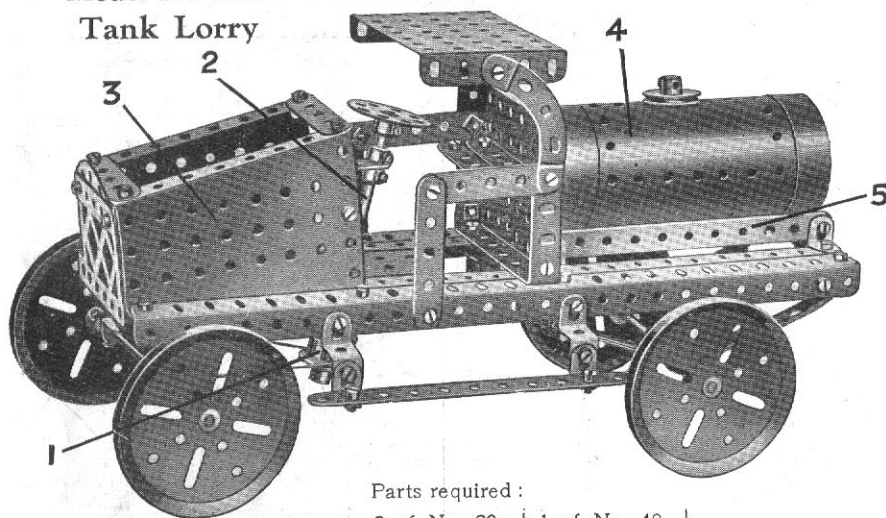
### Model No. 3.38 Two-Cylinder Vertical Steam Engine

Parts  
required :

2	of No.	125	Electric Motor
1	" "	162	(not included in
2	" "	163	Outfit)
1	" "	164	
1	" "	166	
<hr/>			
2	" "	8	
2	" "	11	
3	" "	12	
4	" "	16	
2	" "	19B	
4	" "	20B	
1	" "	22	
1	" "	27A	
40	" "	37	
7	" "	38	
1	" "	40	
2	" "	48B	
2	" "	52	
3	" "	53	
3	" "	59	
2	" "	115	
1	" "	116A	



### Model No. 3.39 Tank Lorry



#### Parts required :

2 of No. 1	2 of No. 11	2 of No. 20B	1 of No. 48	
8 " " 2	14 " " 12	1 " " 22	1 " " 48A	3 of No. 90A
3 " " 3	2 " " 12A	1 " " 24	2 " " 48B	1 " " 98
6 " " 5	2 " " 15	4 " " 35	1 " " 52	2 " " 111c
1 " " 6A	1 " " 15A	60 " " 37	2 " " 53	4 " " 125
2 " " 8	4 " " 19B	1 " " 37A	2 " " 54	2 " " 126
		4 " " 38	4 " " 59	1 " " 162

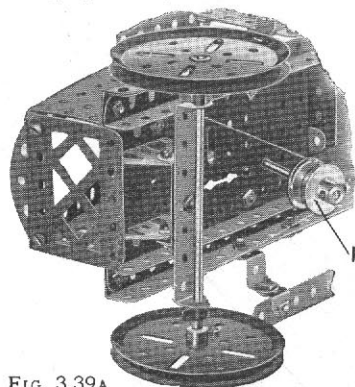


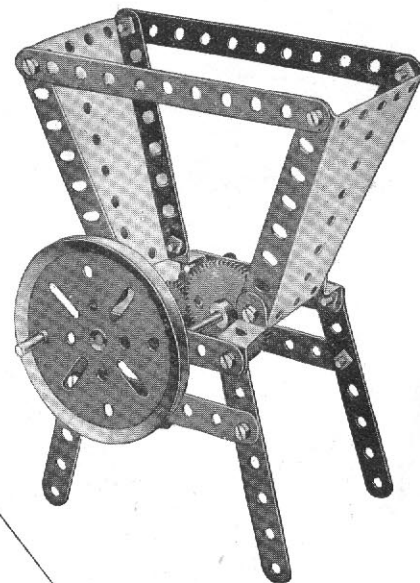
FIG. 3.39A

It should be noted that the steering cord is given a complete turn around the two  $\frac{3}{4}$ " Flanged Wheels 1 to prevent slipping. The steering column 2 is journalled in the end of a  $1\frac{1}{2}$ " Strip, the other end of which is bolted to a  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip secured between the two Sector Plates 3. The front road wheels are secured to a 5" Rod that is journalled in the end holes of a  $3\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip. The ends of the steering cord are tied to this Strip, which is pivoted by means of a Bolt and Lock-nuts (S.M. 263) to the central hole of a  $1\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip. The latter is bolted between a pair of Trunnions attached to the underside of the  $5\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plate. The tank 4 merely rests on the  $5\frac{1}{2}$ " Strips 5.

### Model No. 3.40 Coffee Grinder

#### Parts required :

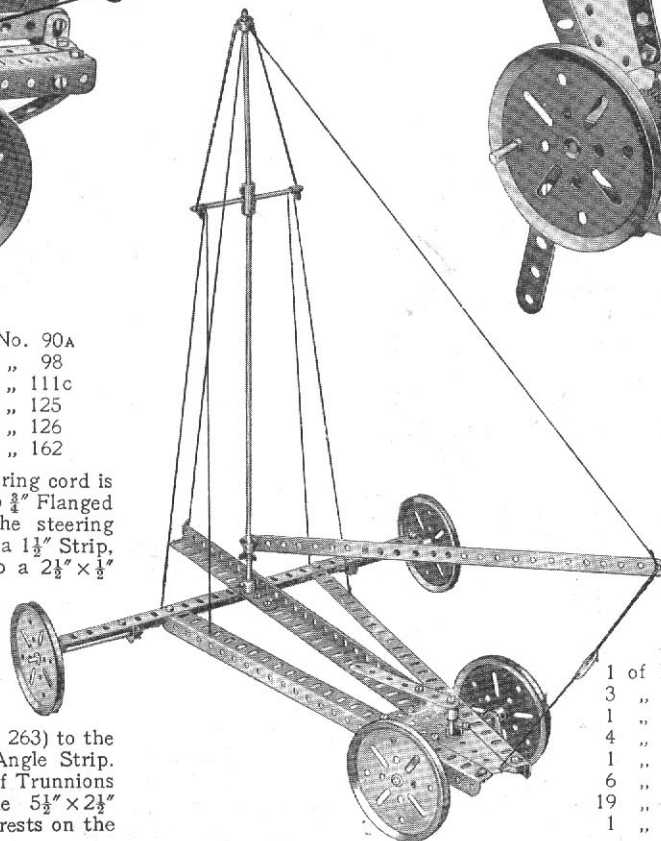
2 of No. 2	1 of No. 27A
6 " " 3	16 " " 37
2 " " 4	2 " " 54
2 " " 16	3 " " 59
1 " " 19B	1 " " 115
1 " " 26	4 " " 125



### Model No. 3.41 Land Yacht

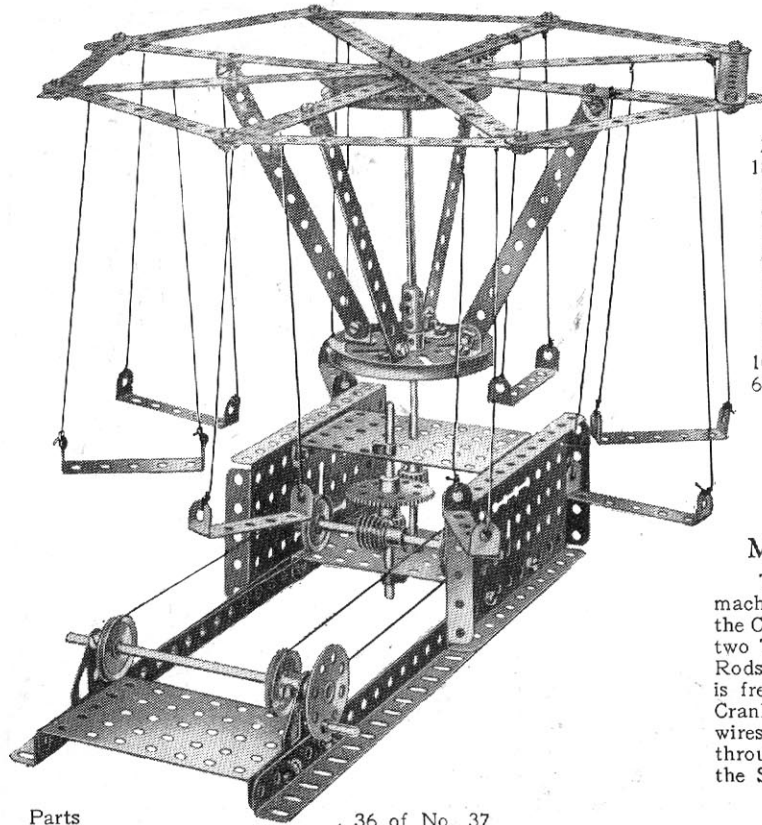
#### Parts required :

1 of No. 1	1 of No. 40
1 " " 3	1 " " 45
4 " " 8	2 " " 48A
1 " " 10	1 " " 48B
1 " " 13	1 " " 54
1 of No. 15	4 " " 59
3 " " 16	2 " " 62
1 " " 18A	1 " " 63
4 " " 19B	2 of No. 111c
1 " " 24	
6 " " 35	
19 " " 37	
1 " " 37A	





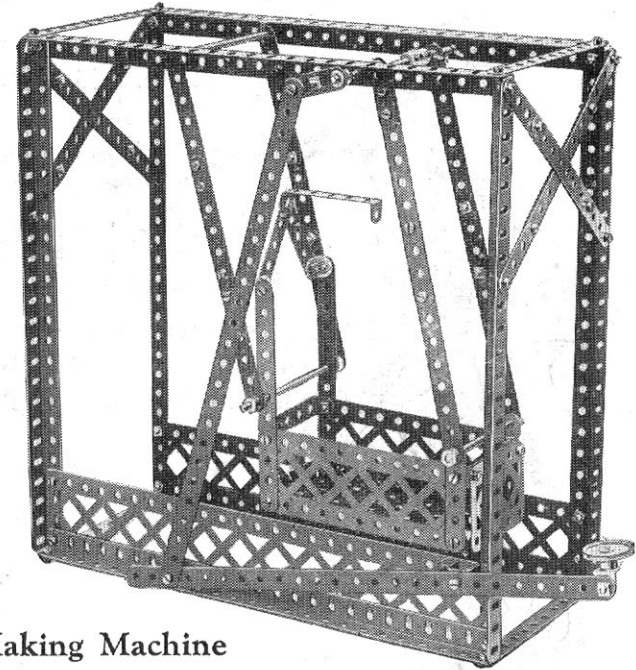
### Model No. 3.42 Roundabout



### Model No. 3.43 Swing Boat

Parts required :

2 of No.	1	6 of No.	37A
18 "	2	8 "	38
6 "	3	1 "	45
4 "	5	3 "	48A
8 "	8	1 "	52
3 "	12	4 "	59
1 "	15	2 "	62
1 "	15A	1 "	63
3 "	16	1 "	98
1 "	22	2 "	99
10 "	35	2 "	100
68 "	37	4 "	111c



### Model No. 3.44 Flex Making Machine

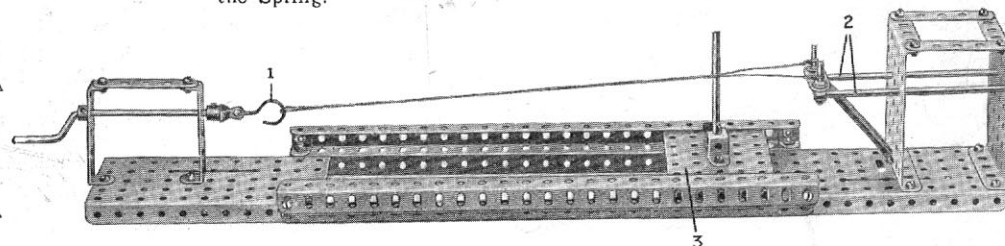
The two wires to be twisted are fixed at one end of the machine to a Hook 1 which is attached by an End Bearing to the Crank Handle. At the other end the wires are looped over two Threaded Pins fixed by Collars to the spring controlled Rods 2. The  $3\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate 3 carrying a  $3\frac{1}{2}$ " Rod is free to slide in the built-up channel girders, and as the Crank Handle is turned it is pushed ahead of the twisting wires, so keeping the finished flex even. As the wires shorten through twisting, the Rods 2 slide longitudinally, extending the Spring.

Parts required :

3 of No.	5	2 of No.	35
1 "	6A	32 "	37
4 "	8	2 "	38
4 "	12	1 "	40
2 "	15A	1 "	43
1 "	16	1 "	45
1 "	19s	2 "	48A
		2 "	52
		3 "	53
		1 "	57c
		3 "	59
		2 "	115
		1 "	166

Parts required :

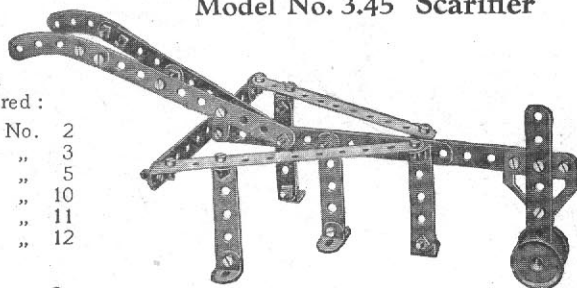
4 of No.	1	2 of No.	19B	36 of No.	37
12 "	2	4 "	22	2 "	40
2 "	8	1 "	24	8 "	48A
8 "	12	2 "	26	2 "	52
1 "	15	1 "	27A	3 "	53
3 "	15A	1 "	32	2 "	59
1 "	16	2 "	35	1 "	63
				1 "	115
				2 "	126A



Model No. 3.45 Scarifier

Parts  
required :

7 of No.	2
1 " "	3
4 " "	5
1 " "	10
1 " "	11
11 " "	12

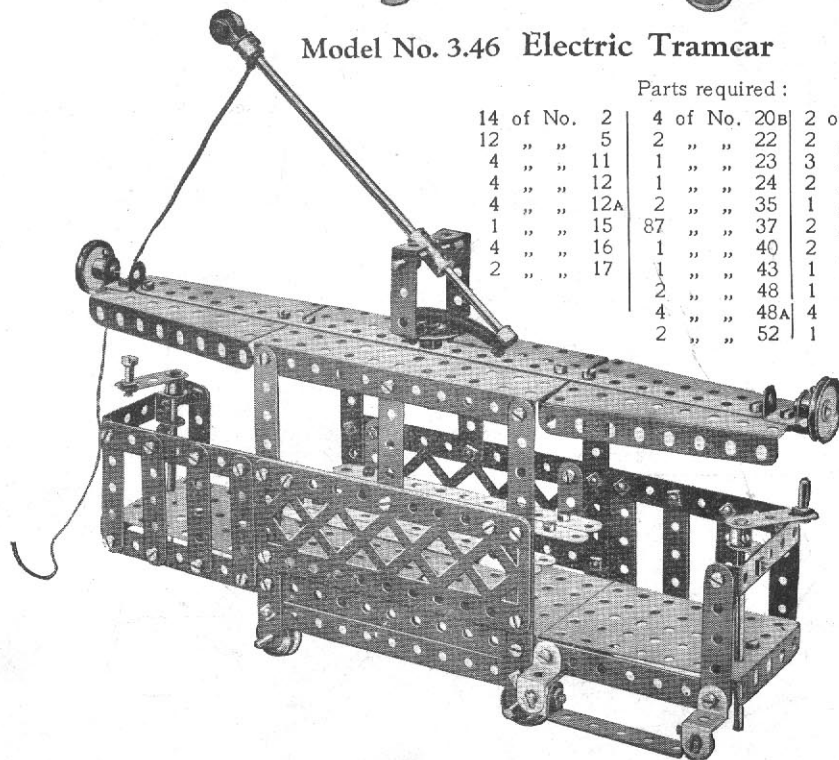
Parts  
required  
(continued) :

1 of No.	18A
2 " "	22
29 " "	37
2 " "	38
2 " "	90
1 " "	126A

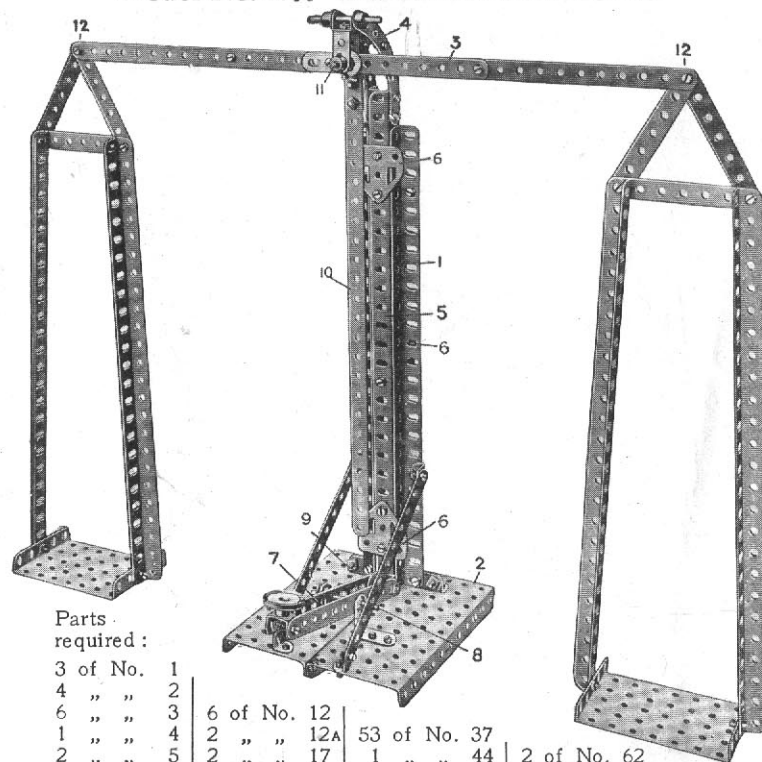
Model No. 3.46 Electric Tramcar

Parts required :

14 of No.	2	4 of No.	20B	2 of No.	53
12 " "	5	2 " "	22	2 " "	54
4 " "	11	1 " "	23	3 " "	59
4 " "	12	1 " "	24	2 " "	62
4 " "	12A	2 " "	35	1 " "	63
1 " "	15	87 " "	37	2 " "	100
4 " "	16	1 " "	40	2 " "	111c
2 " "	17	1 " "	43	1 " "	115
		2 " "	48	1 " "	116A
		4 " "	48A	4 " "	125
		2 " "	52	1 " "	147B



Model No. 3.47 Demonstration Scales

Parts  
required :

3 of No.	1	6 of No.	12	53 of No.	37	2 of No.	62
4 " "	2	2 " "	12A	1 " "	44	4 " "	90
6 " "	3	2 " "	17	2 " "	52	1 " "	125
1 " "	4	1 " "	18A	2 " "	53	2 " "	126A
2 " "	5	1 " "	22				
1 " "	6A	2 " "	35				
8 " "	8						
4 " "	11						

The only feature of this model which needs description is the standard, which is built up of two Angle Girders 1 bolted to the base 2 by Angle Brackets and spaced apart at the top by a  $2\frac{1}{2}$ " Strip obliquely disposed. The balance lever 3 is pivotally carried in Curved Strips 4 bolted to the top of two Angle Girders 5 sliding between the Girders 1. The Girders 5 are themselves bolted together and in order to guide them as they slide vertically two Flat Trunnions 6 and two  $1\frac{1}{2}$ " Strips are bolted at the front and rear. The balance is raised by depressing the lever 7 pivoted at 8 and pivotally connected at 11 to the vertically sliding Girders 5. The indicator 10 is bolted to a Crank at the rear, the boss of which is fitted on the pivot Rod 11. The connections at 12 are lock-nutted to allow free action.

## Model No. 3.48 Fire Truck

The front axle is journalled in a  $2\frac{1}{2}$ " Double Angle Strip that is pivoted through its centre hole to a Double Bent Strip secured to the Flanged Plate 15. Steering is effected from the Pulley 13 secured on a  $3\frac{1}{2}$ " Rod that is passed through the  $3\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flanged Plate 16, and held in position by Collars. On the lower end of the Rod is a Bush Wheel 14, which is connected to the pivoted Double Angle Strip by cords tied to opposite holes in the Bush Wheel and to the ends of the Double Angle Strip.

The lower part of the escape is mounted pivotally on Bolts 10 passed through the upturned ends of a  $2\frac{1}{2}$ "  $\times$  1" Double Angle Strip that is bolted to a  $3\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip which, in turn, is supported on two vertical  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips. The upper or moving portion of the escape slides between the  $12\frac{1}{2}$ " Angle Girders 9 and is held freely in position by the Nuts of the Bolts 11.

The ladder is extended from the Crank Handle 2 (Fig. 3.48A) that is journalled in a  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip bolted to a  $5\frac{1}{2}$ " Strip that, in turn, is bolted across the flanges of the Sector Plates. A Cord 7 is wound on to the Crank Handle and one of its ends is tied to a  $2\frac{1}{2}$ " Strip that spans the inner end of the  $12\frac{1}{2}$ " Strips forming the sides of the extending ladder. Its other end 7A is then led towards the outer end of the fixed ladder, round a  $\frac{1}{2}$ " loose Pulley held on a Bolt in the centre hole of a  $2\frac{1}{2}$ " Double Angle Strip that spans the outer ends of the  $12\frac{1}{2}$ "

Girders 9, and finally is tied to the same  $2\frac{1}{2}$ " Strip to which the end 7 is already attached. Thus by turning the handle 2 the escape is pulled inward or outward.

The Crank Handle 1 carries a  $\frac{1}{2}$ " Pinion 3 that engages a 57-teeth Gear 4 secured to a Rod 12. A Cord 8 is wound a few turns round the Rod 12 and is then led to the  $2\frac{1}{2}$ " Strip 5 where it is secured. By turning the Crank Handle the Cord is wound in, thus raising the pivoted escape.

On turning the handle in the opposite direction, the escape is lowered by its own weight.

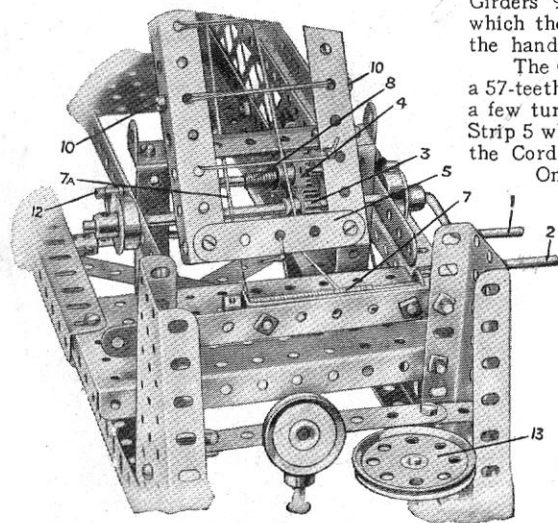
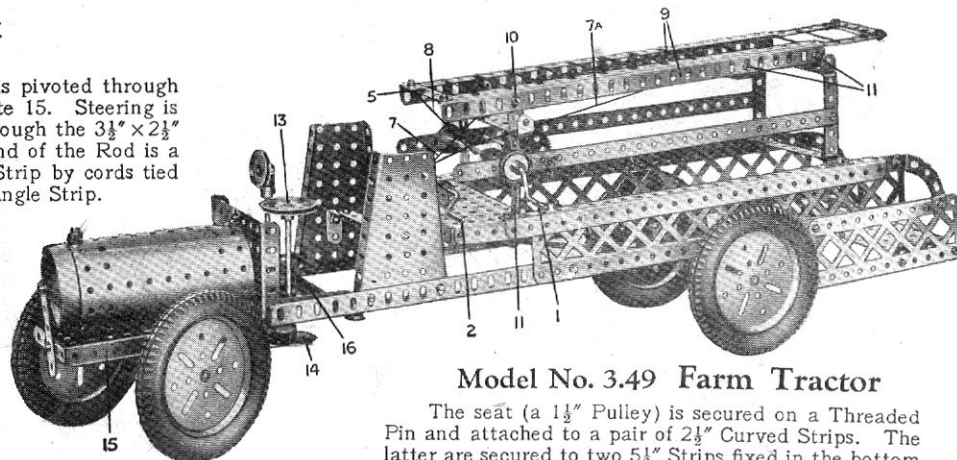


FIG. 3.48A



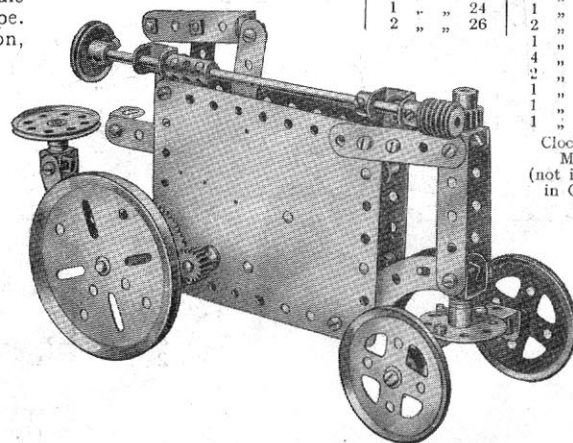
## Model No. 3.49 Farm Tractor

The seat (a  $1\frac{1}{2}$ " Pulley) is secured on a Threaded Pin and attached to a pair of  $2\frac{1}{2}$ " Curved Strips. The latter are secured to two  $5\frac{1}{2}$ " Strips fixed in the bottom row of holes of the motor plates. A  $2\frac{1}{2}$ " Strip is pivoted to the Motor reversing lever by means of a Reversed Angle Bracket, and is supported by a  $1\frac{1}{2}$ " Strip which is attached pivotally to the Motor.

### Parts required:

2 of No. 2	4 of No. 11	1 of No. 17	1 of No. 27A
5 " " 5	5 " " 12	2 " " 19B	1 " " 32
1 " " 6A	1 " " 15	2 " " 20A	28 " " 37
2 " " 10	2 " " 16	1 " " 21	7 " " 37A
		1 " " 22	5 " " 38
		1 " " 24	1 " " 48A
		2 " " 26	2 " " 59
			1 " " 63
			4 " " 90A
			2 " " 111
			1 " " 111C
			1 " " 115
			1 " " 125

Clockwork  
Motor  
(not included  
in Outfit)



### Parts required:

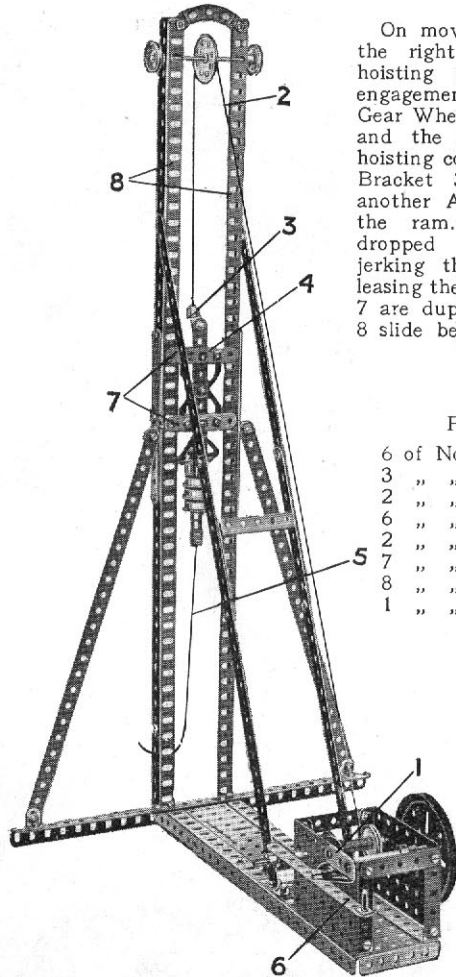
4 of No. 1	3 of No. 20B	2 of No. 48B
6 " " 2	1 " " 21	2 " " 52
3 " " 3	2 " " 22	2 " " 53
4 " " 5	1 " " 23	2 " " 54
8 " " 8	1 " " 24	4 " " 59
4 " " 11	1 " " 26	1 " " 63
1 " " 12	1 " " 27A	2 " " 90A
2 " " 12A	4 " " 35	2 " " 99
2 " " 15	87 " " 37	2 " " 100
2 " " 15A	8 " " 37A	4 " " 111C
2 " " 16	10 " " 38	2 " " 126A
1 " " 18A	2 " " 40	1 " " 162A
1 " " 19	1 " " 45	1 " " 162B
4 " " 19B	1 " " 46	1 " " 165
1 " " 19S	8 " " 48A	

4 3" Dunlop Tyres (not included in Outfit)



These Models can be built with MECCANO Outfit No. 3 (or No. 2 and No. 2A)

### Model No. 3.50 Pile Driver



On moving the hand lever 6 to the right a  $\frac{1}{2}$ " Pinion on the hoisting shaft is brought into engagement with the 57-teeth Gear Wheel 1 on the driving shaft and the ram 4 is raised. The hoisting cord 2 is tied to an Angle Bracket 3, which lodges under another Angle Bracket bolted to the ram. The latter may be dropped whenever required by jerking the cord 5, thereby releasing the Brackets 3. The Strips 7 are duplicated, and the Girders 8 slide between their ends.

#### Parts required :

6 of No. 1	3 of No. 16
3 " " 2	1 " " 19B
2 " " 3	3 " " 20B
6 " " 5	1 " " 21
2 " " 6A	2 " " 22
7 " " 8	1 " " 26
8 " " 12	1 " " 27A
1 " " 15A	1 " " 32
	2 " " 35
	60 " " 37
	2 " " 37A
	1 " " 38
	1 " " 40
	1 " " 45
	1 " " 46
	1 " " 48A
	2 " " 48B
	2 " " 52
	4 " " 53
	1 " " 59
	1 " " 90A
	1 " " 111C
	1 " " 115
	2 " " 126
	2 " " 126A

### Model No. 3.51 Railway Wagon Swivel Crane

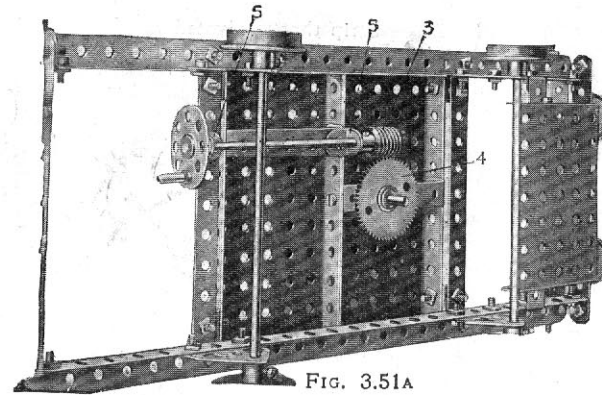
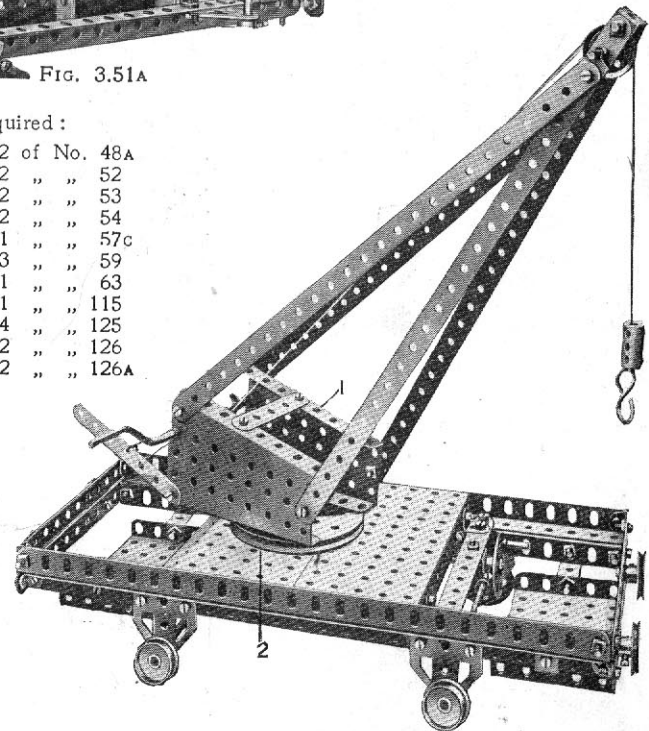


FIG. 3.51A

The flanges of the Sector Plates 1 are bolted to the 3" Pulley Wheel 2 upon which the crane swivels, and the spindle of the Pulley Wheel is rotated by the Worm 3 engaging the Gear Wheel 4 (Fig. 3.51A). In order to bring the Worm centrally over the teeth of the Gear Wheel 4, Washers are placed beneath the Angle Brackets 5 in which the spindle of the Worm is journaled.

#### Parts required :

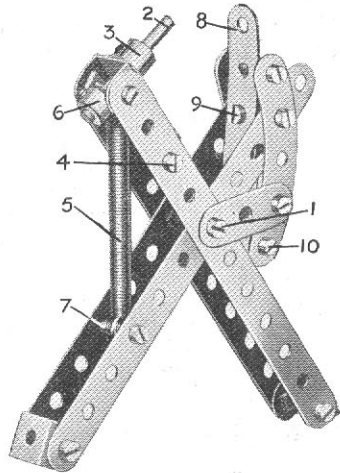
4 of No. 1	2 of No. 48A
6 " " 2	2 " " 52
1 " " 3	2 " " 53
2 " " 5	2 " " 54
4 " " 8	1 " " 57C
3 " " 11	3 " " 59
14 " " 12	1 " " 63
2 " " 15	1 " " 115
1 " " 15A	4 " " 125
2 " " 17	2 " " 126
1 " " 19	2 " " 126A
1 " " 19B	
4 " " 20B	
4 " " 22	
1 " " 22A	
1 " " 24	
1 " " 27A	
1 " " 32	
3 " " 35	
70 " " 37	
2 " " 38	
1 " " 40	



# Model No. 3.52 Hand Punch

Parts required :

4 of No. 2	21 of No. 37
1 " " 5	3 " " 37A
2 " " 6A	1 " " 48
4 " " 11	1 " " 59
4 " " 12	1 " " 62
1 " " 18A	2 " " 90
1 of No. 111c	



Two pairs of  $5\frac{1}{2}$ " Strips are connected loosely towards their centres by means of Nuts and Bolts 1. The punch 2 consists of a  $1\frac{1}{2}$ " Rod secured in the boss of a Crank 3, which is bolted to a Double Bracket secured at 4. A Spring 5 serves to open the handles after the punch has been used; it is placed on the Rod 2 and held in position by means of a Collar 6, while its other end is attached to a  $\frac{3}{8}$ " Bolt 7 passed through one pair of  $5\frac{1}{2}$ " Strips. After passing through the paper the punch enters the end hole of a 3" Strip 8. The latter is bolted at 9 to a Double Bracket, while its other end passes beneath a similar bracket at 10.

# Model No. 3.53 Paddle Steamer

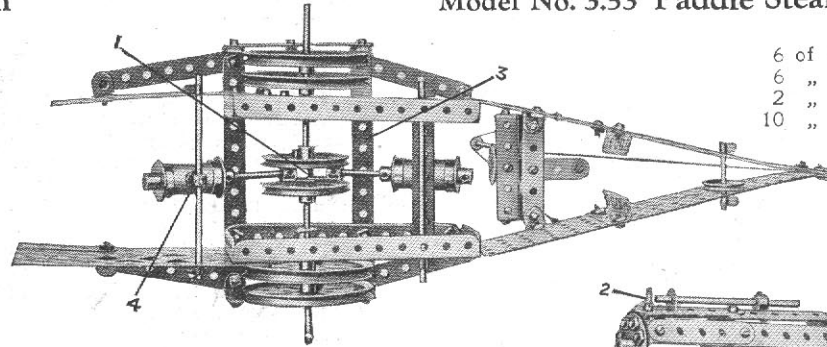


FIG. 3.53A

The 3" Pulley Wheels forming the paddles are attached to  $3\frac{1}{2}$ " Rods, to the inner ends of which 2" Pulleys are fixed (Fig. 3.53A), and the 2" Pulleys are connected together rigidly by a  $\frac{1}{2}$ " Bolt 1 that is locked in position by nuts. The Bolt 1 forms also a pivot for two small Fork Pieces (one of which is taken from a Swivel Bearing) to which the piston rods of the oscillating cylinders are fixed. The cylinders pivot about  $\frac{1}{4}$ " Rods, one cylinder being mounted on a  $3\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strip while the other is attached rigidly to a Collar 4 by a Bolt on which are placed two Washers. The Collar is secured, of course, to the Rod.

The funnel is built up of eight  $2\frac{1}{2}$ " Strips and eight  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips, which are attached at the top to a  $1\frac{1}{2}$ " Pulley and at the bottom to a Bush Wheel. It is attached to the hull by the lower hole of the Double Bracket 2, Fig. 3.53B. The top hole of this Double Bracket forms a support for the lower end of the escape pipe.

The bridge consists of a  $2\frac{1}{2}$ "  $\times$   $1\frac{1}{2}$ " Double Angle Strip and two  $2\frac{1}{2}$ "  $\times$   $1\frac{1}{2}$ " Double Angle Strips, and the complete assembly is bolted to a Double Bent Strip. The latter is attached to a transverse  $2\frac{1}{2}$ " Strip. The Bolt holding the bridge to the  $2\frac{1}{2}$ " Strip serves also to retain a Crank in which the foot of the mast is secured.

The steering wheel 5 consists of a 1" fast Pulley mounted by its set-screw hole on the end of a  $\frac{1}{2}$ " Bolt that is secured to the floor of the bridge. The binnacle is merely a Threaded Pin on which is fixed a Collar.

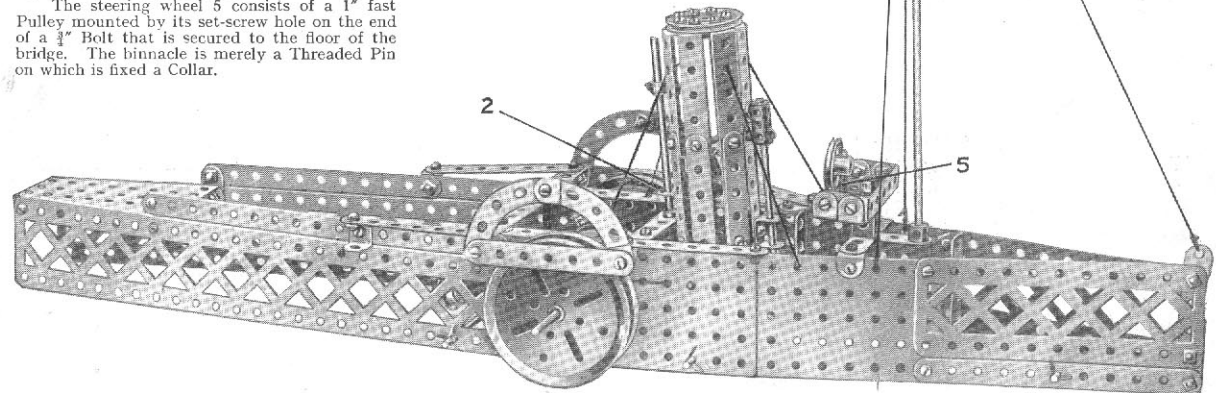


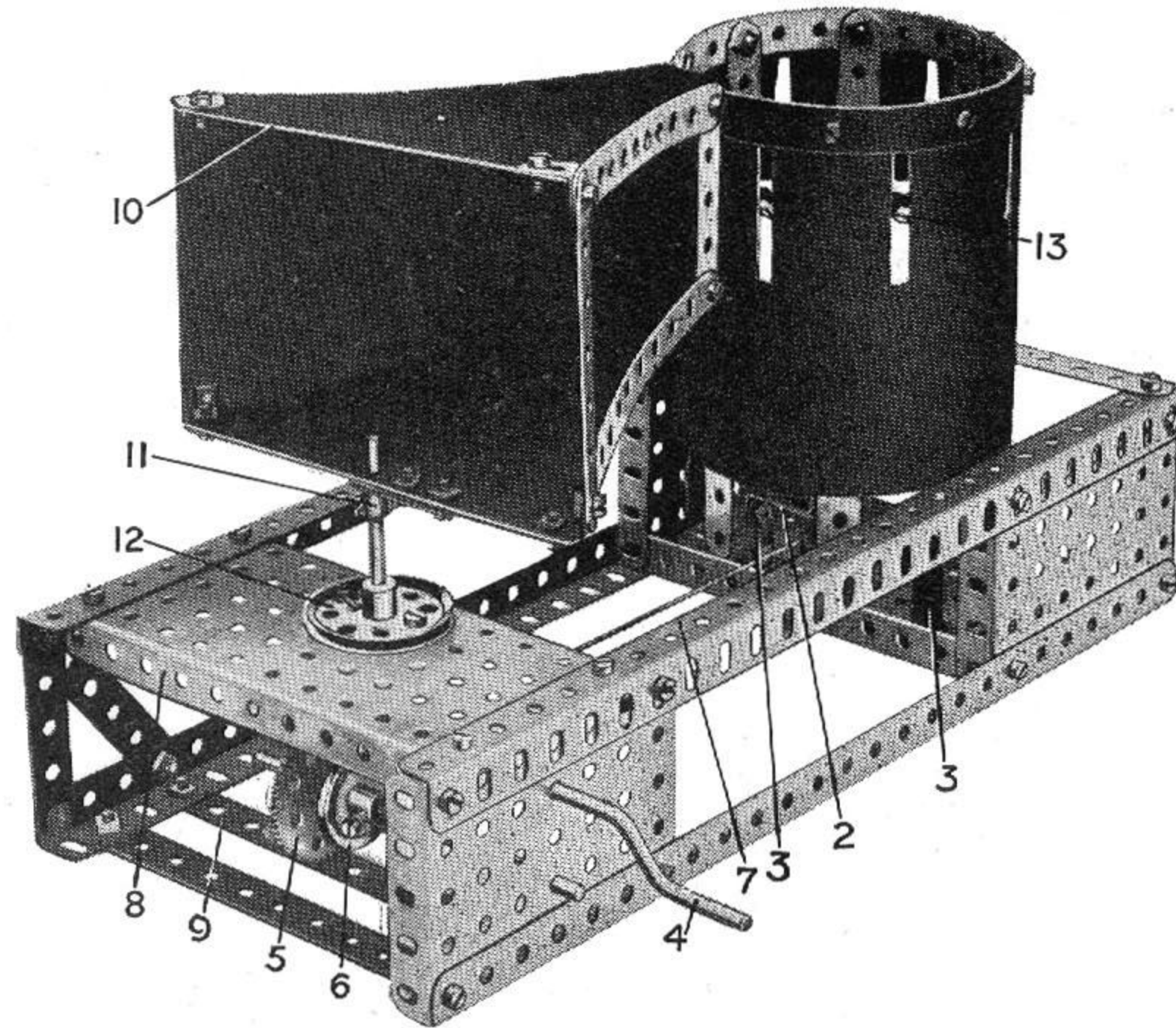
FIG. 3.53B

Parts required :

6 of No. 2	5 of No. 10	1 of No. 22A
6 " " 3	4 " " 11	1 " " 24
2 " " 4	14 " " 12	6 " " 35
10 " " 5	1 " " 13	93 " " 37
	2 " " 15A	4 " " 37A
	4 " " 16	14 " " 38
	2 " " 17	1 " " 40
	1 " " 18A	1 " " 45
	4 " " 19B	1 " " 46
	2 " " 20A	10 " " 48A
	4 " " 20B	1 " " 48B
	1 " " 21	2 " " 52
	1 " " 22	2 " " 53
		1 " " 54
		4 " " 59
		1 " " 62
		1 " " 63
		4 " " 90A
		2 " " 99
		2 " " 100
		2 " " 111
		1 " " 115
		1 " " 116A
		2 " " 125
		2 " " 163
		1 " " 165



## Model No. 3.57 Kinetograph



Most Meccano boys probably are aware of the principles of the Kinetograph, but for the benefit of those who have not seen one in action, we may mention that it is a device which imparts an appearance of animation to a series of pictures, each differing slightly from the other and passed in rapid succession before the eyes. In this respect it resembles the remarkable principle upon which the modern cinematograph is based.

In constructing the Meccano model the following details will prove useful:—The drum consists of a  $12\frac{1}{2}$ " Strip bent to form a circle, with its ends overlapping one hole, and bolted to eight vertical  $5\frac{1}{2}$ " Strips forming the sides. Two pairs of opposite  $5\frac{1}{2}$ " Strips are connected by  $3\frac{1}{2}$ " Strips and Angle Brackets bolted in the third holes from their lower ends. The  $3\frac{1}{2}$ " Strips cross at right angles to one another and are bolted in the centre to a Bush Wheel, in the boss of which is secured a short Rod forming the pivot of the revolving drum. This Rod is journaled in a Double Bent Strip bolted to a  $2\frac{1}{2} \times 1$ " Double Angle Strip 2. This, in turn, is secured to the base of the model by two  $1 \times 1$ " Angle Brackets 3. A further bearing for the short Rod consists of a Crank bolted to the base of the model.

The drum is rotated from the Crank Handle 4, on which is mounted a  $\frac{1}{2}$ " Pinion engaging a 57-teeth Gear Wheel 5 secured to a  $3\frac{1}{2}$ " Rod carrying a Pulley Wheel 6. The latter is connected by means of a cord 7 to a similar wheel nipped to the vertical spindle of the drum. Bearings are provided for the inner ends of the Crank Handle and  $3\frac{1}{2}$ " Rod by a Double Angle Strip bolted between the Plate 8 and  $5\frac{1}{2}$ " Strip 9. The sighting box 10 is built up from a framework of Strips and is secured by means of a Crank 11 to a short vertical Rod rigidly mounted in the boss of the  $1\frac{1}{2}$ " Pulley 12. The four sides of the framework 10 are covered with some black material; stiff black paper suitable for this purpose may be obtained from any stationers. The drum is enclosed in the same way, but the covering paper should be cut in a strip measuring  $12\frac{1}{2} \times 4\frac{1}{2}$ " and pierced with slots spaced  $1\frac{1}{2}$ " apart (from centre to centre) so that they fall exactly between the upright  $5\frac{1}{2}$ " Strips. The slots should measure  $1\frac{1}{2} \times \frac{1}{4}$ ".

The type of drawing suitable for use in this model is shown in Fig. 3.57A, and the dimensions indicated therein should be followed carefully. No doubt Meccano boys will be able to devise numerous amusing pictures of a similar kind for themselves. The strip of stout white paper carrying the sketches is inserted in the bottom of the drum, as indicated at 13. The model is now ready for operation. Placing the frame 10 over the eyes, the line of vision is directed through the narrow end, where the Strips are held apart by means of Double Brackets, and through the slots in the drum. The latter should be rotated rapidly by operating the handle 4, and as it revolves, the little dog shown in Fig. 3.57A will be seen jumping over the fence with a most realistic and amusing action.

## Parts required :

1 of No. 1	1 of No. 15A	12 of No. 38
17 " " 2	2 " " 16	1 " " 45
6 " " 3	1 " " 19s	1 " " 46
1 " " 4	1 " " 21	1 " " 48A
3 " " 5	2 " " 22	2 " " 52
4 " " 8	1 " " 24	3 " " 53
2 " " 11	1 " " 26	4 " " 59
12 " " 12	1 " " 27A	2 " " 62
2 " " 12A	60 " " 37	

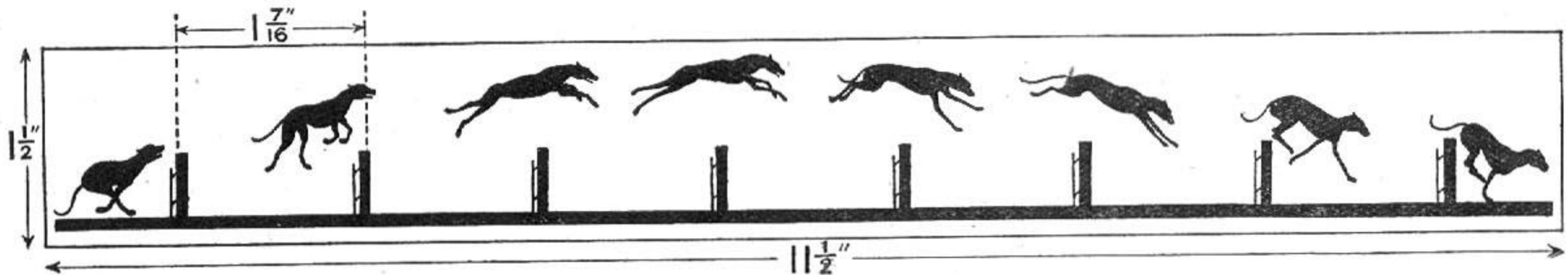


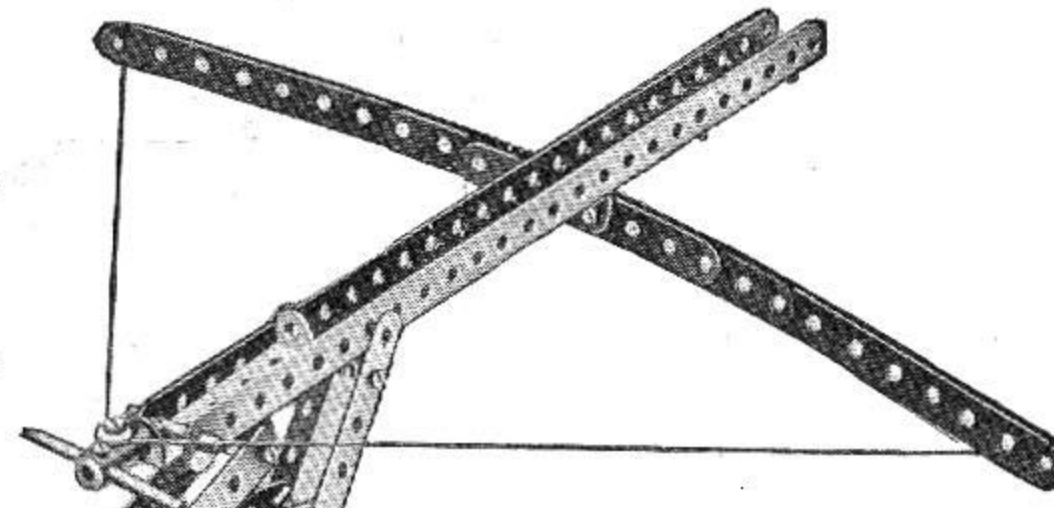
FIG. 3.57A



### Model No. 3.55 Crossbow

Parts required :

5 of No.	1	1 of No.	18A
2 " "	2	2 " "	35
1 " "	3	25 " "	37
4 " "	5	1 " "	38
2 " "	8	1 " "	48A
2 " "	11	1 " "	63
1 " "	12		
1 " "	17		

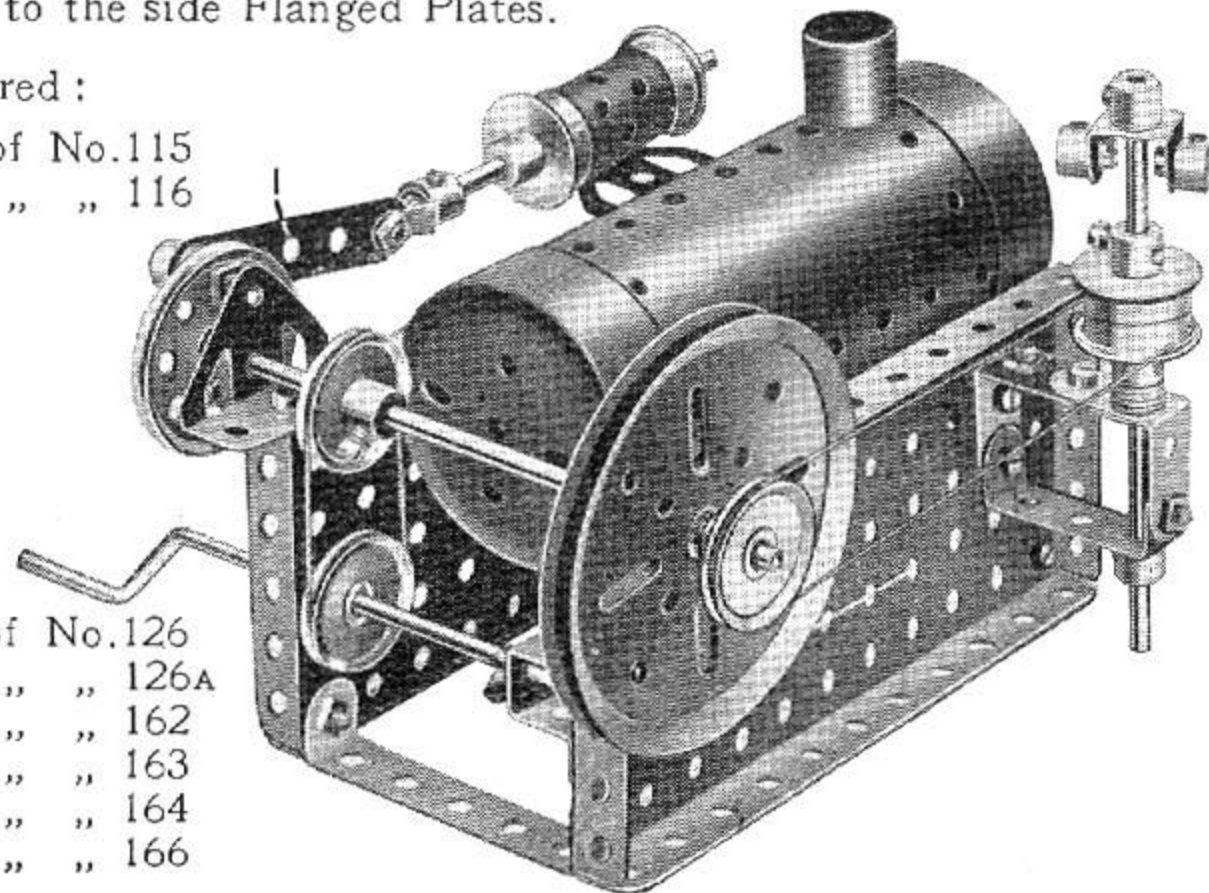


### Model No. 3.56 Horizontal Engine

This model forms an interesting example of the use of the Meccano Boiler, Sleeve Piece and other new parts. The  $2\frac{1}{2}$ " Strip 1, forming the connecting rod, is attached to the  $1\frac{1}{2}$ " Pulley Wheel by means of a Threaded Pin. The latter is fastened in one hole of the  $1\frac{1}{2}$ " Pulley Wheel, and two Washers are placed upon it between the Strip 1 and the wheel. The connecting rod is held in place by a Collar locked to the end of the Threaded Pin. The Boiler is attached to the framework by means of two  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips attached by their centre holes to the side of the Boiler opposite the chimney. When the Boiler is placed in the position shown, the whole is secured by bolting the Double Angle Strips to the side Flanged Plates.

Parts required :

1 of No.	5	1 of No.	115
2 " "	12A	1 " "	116
2 " "	15A		
1 " "	16		
1 " "	19B		
1 " "	19S		
4 " "	20B		
1 " "	21		
3 " "	22		
1 " "	35		
25 " "	37	2 of No.	126
7 " "	38	1 " "	126A
1 " "	45	1 " "	162
1 " "	48	1 " "	163
4 " "	48A	1 " "	164
2 " "	52	1 " "	166
4 " "	59		

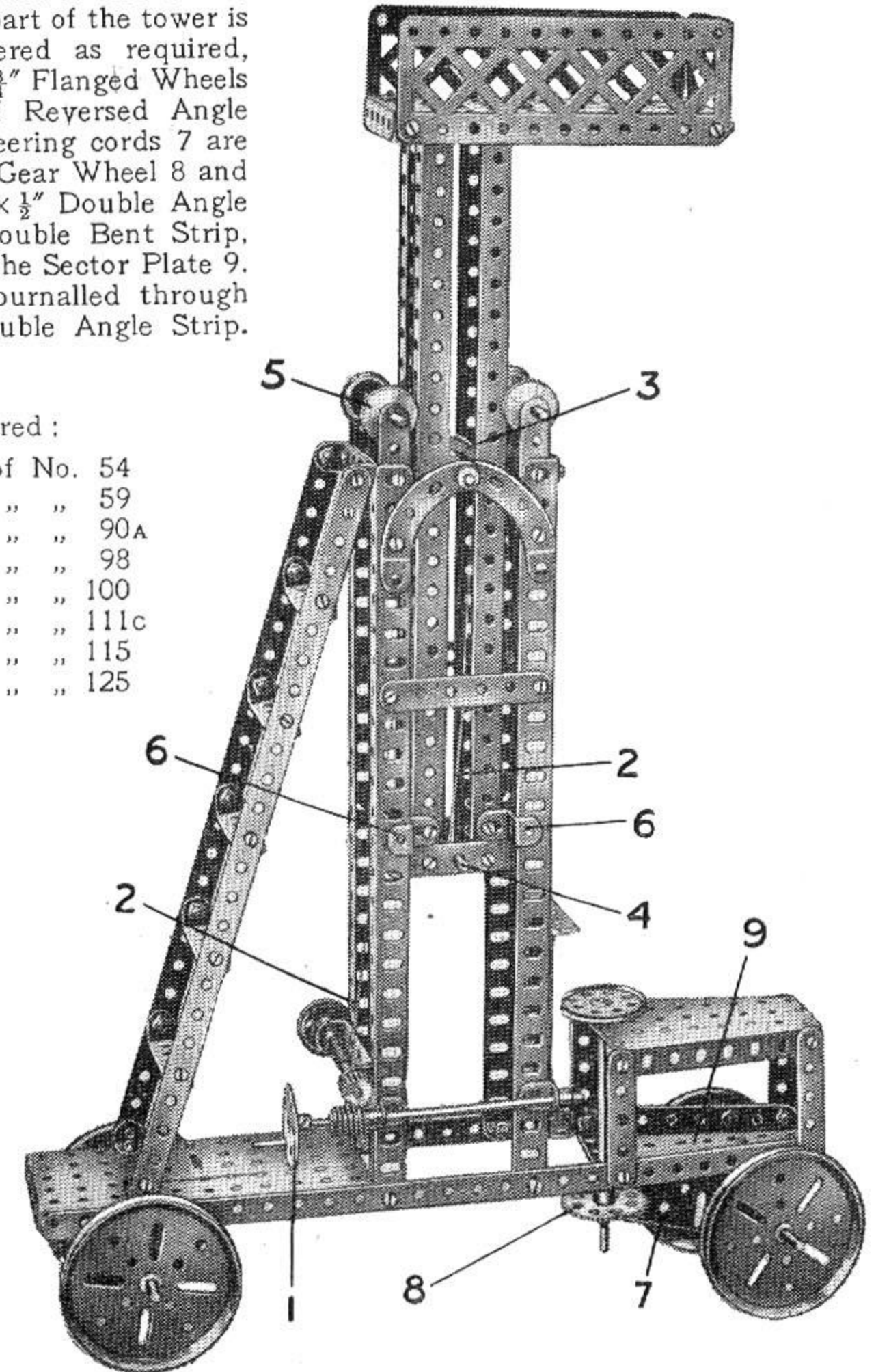


### Model No. 3.57 Tower Wagon

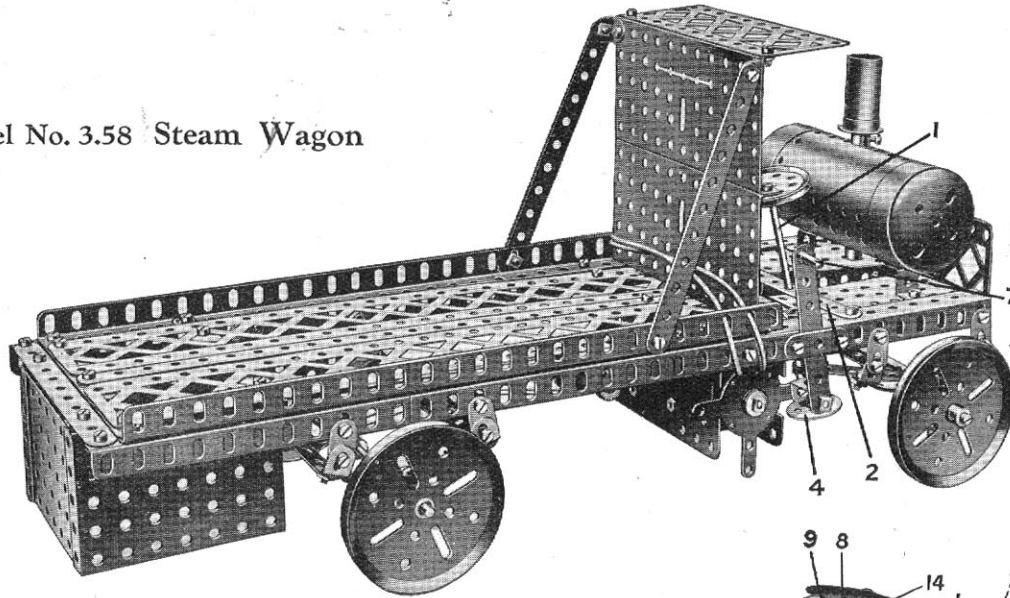
When operated the handle 1 winds in the cord 2, which passes over a  $1\frac{1}{2}$ " fast Pulley Wheel 3 and is tied to the Rod 4. The upper part of the tower is thus raised or lowered as required, being guided by the  $\frac{3}{4}$ " Flanged Wheels 5 and two pairs of Reversed Angle Brackets 6. The steering cords 7 are tied to the 57-teeth Gear Wheel 8 and to the end of a  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strip bolted to a Double Bent Strip, which is pivoted to the Sector Plate 9. The front axle is journaled through the ends of the Double Angle Strip.

Parts required :

4 of No.	1	2 of No.	54
2 " "	4	3 " "	59
6 " "	5	4 " "	90A
2 " "	6A	1 " "	98
8 " "	8	2 " "	100
8 " "	12	1 " "	111c
1 " "	15	1 " "	115
3 " "	15A	4 " "	125
4 " "	16		
1 " "	17		
4 " "	19B		
4 " "	20B		
1 " "	21		
2 " "	22		
1 " "	24		
1 " "	26		
1 " "	27A		
1 " "	32		
3 " "	35		
84 " "	37		
2 " "	37A		
1 " "	45		
8 " "	48A		
2 " "	52		
1 " "	53		



## Model No. 358 Steam Wagon



The steering column 1 is journalled in bearings consisting of a  $5\frac{1}{2}$ " Strip 2 and two  $2\frac{1}{2}$ " Strips 3 (Fig. 3.58A), and carries the Bush Wheel 4, which is secured rigidly to it. A  $\frac{3}{4}$ " Flanged Wheel 5 supports the weight of the steering column 1. The stub axles of the front road wheels consist of  $\frac{3}{4}$ " Bolts, on which the road wheels are spaced by Washers 14. These Bolts serve in the place of set screws to secure two collars to the 1" Rods 8. A pair of Cranks 9, 9a secured to the Rods 8 are joined by two  $5\frac{1}{2}$ " Strips 15 overlapped eight holes. A  $1\frac{1}{2}$ " Strip 10, bolted to the face of the Bush Wheel 4, is connected pivotally by a composite  $4\frac{1}{2}$ " Strip 11 (a  $3\frac{1}{2}$ " Strip and a  $2\frac{1}{2}$ " Strip overlapped three holes) to the end of the Crank 9. When the steering wheel is turned, the Strip 11 moves the Cranks 9 9a, thereby deflecting the front road wheels.

The electric motor 6 is controlled by raising and depressing the handle 7. Duplicate drive transmission belts 12 and 13 are used in order to secure a more dependable drive to the rear axle.

Parts required :		
14 of No. 2	4 of No. 19B	2 of No. 54
6 " " 3	3 " " 20B	4 " " 59
6 " " 5	1 " " 21	2 " " 62
2 " " 6A	4 " " 22	1 " " 63
6 " " 8	1 " " 23	2 " " 99
8 " " 10	1 " " 24	2 " " 100
3 " " 11	1 " " 26	2 " " 111
10 " " 12	79 " " 37	1 " " 115
2 " " 12A	10 " " 38	4 " " 125
1 " " 15	2 " " 48B	1 " " 147
3 " " 16	2 " " 52	1 " " 162
2 " " 18A	3 " " 53	1 " " 163

Electric Motor  
(not included in Outfit)

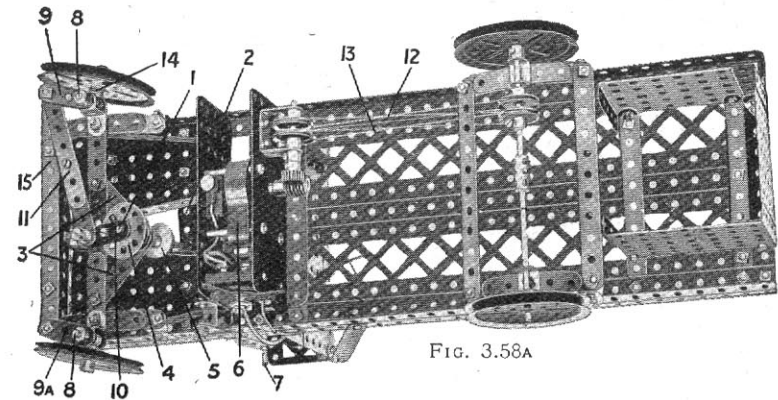


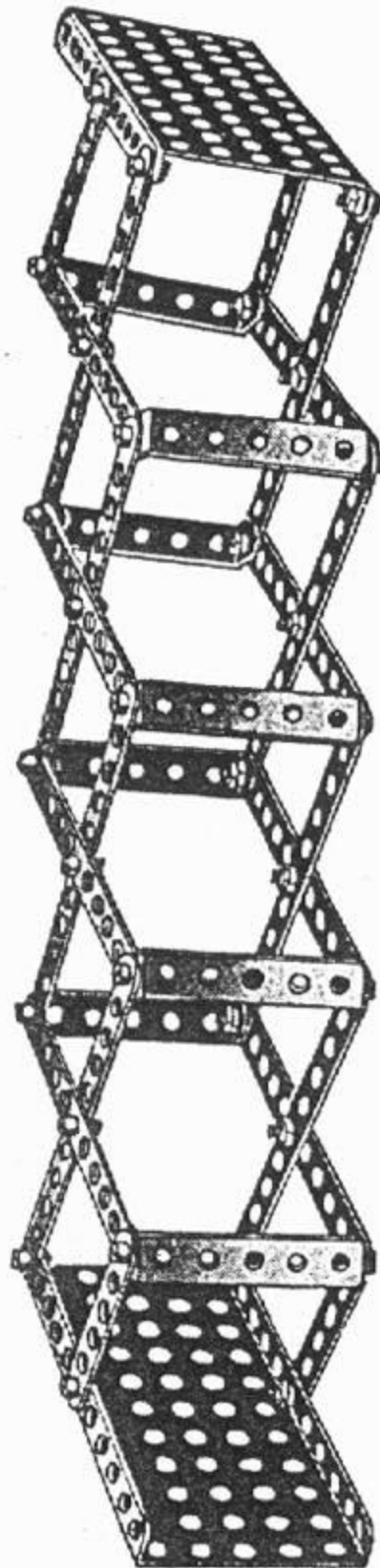
FIG. 3.58A

## HOW TO CONTINUE

This completes our examples of models that may be made with MECCANO Outfit No. 3. The next models are a little more advanced, requiring a number of extra parts to construct them. The necessary parts are all contained in a No. 3A Accessory Outfit, the price of which may be obtained from any Meccano dealer.



## Model No. 4.1 Periscope



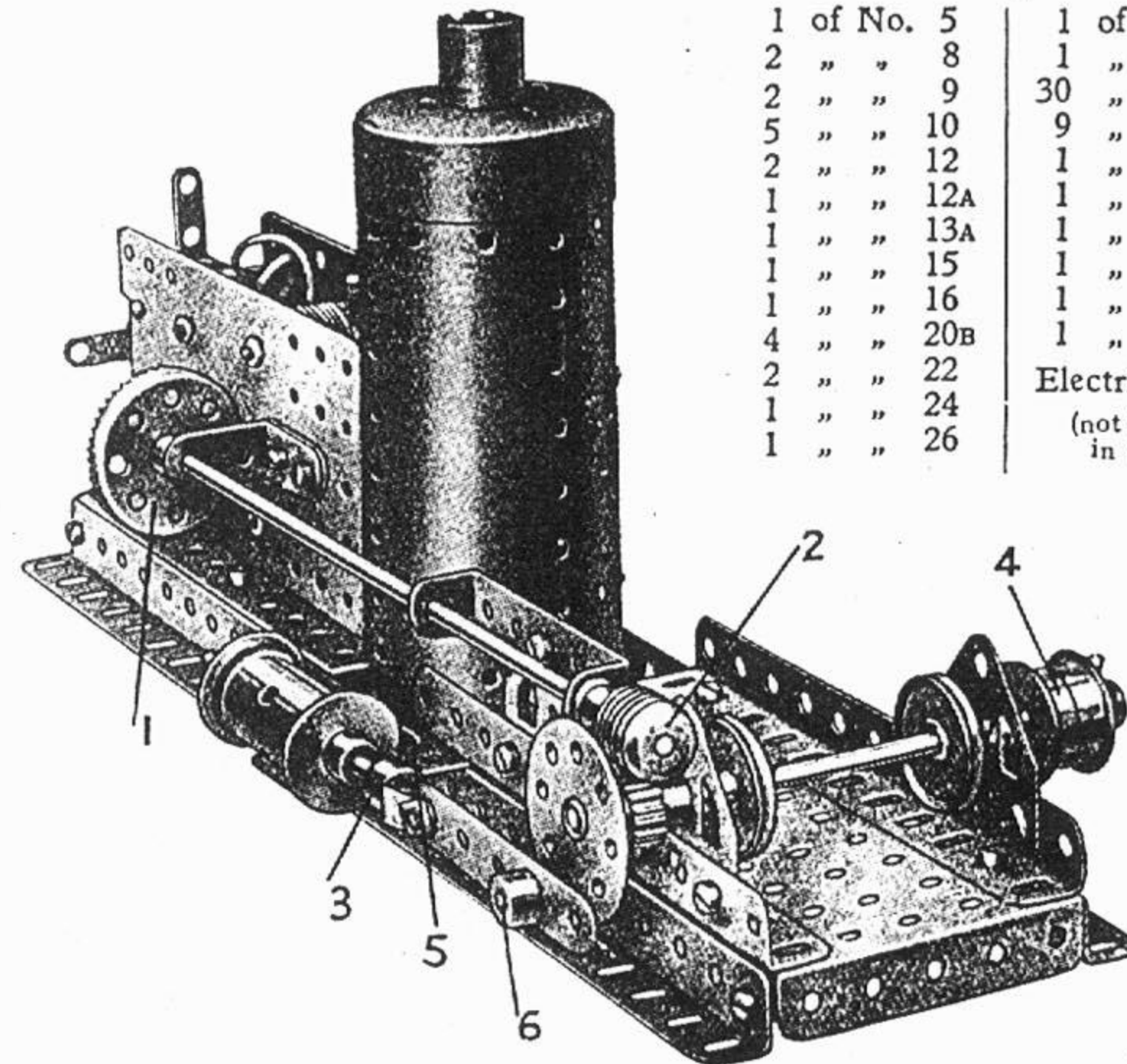
Parts  
required :

6 of No. 2
4 " " 4
2 " " 37
8 " " 48A
2 " " 52

Small pieces of  
looking glass should  
be inserted in the  
top and bottom  
plates.

## Model No. 4.2 Steam Winch

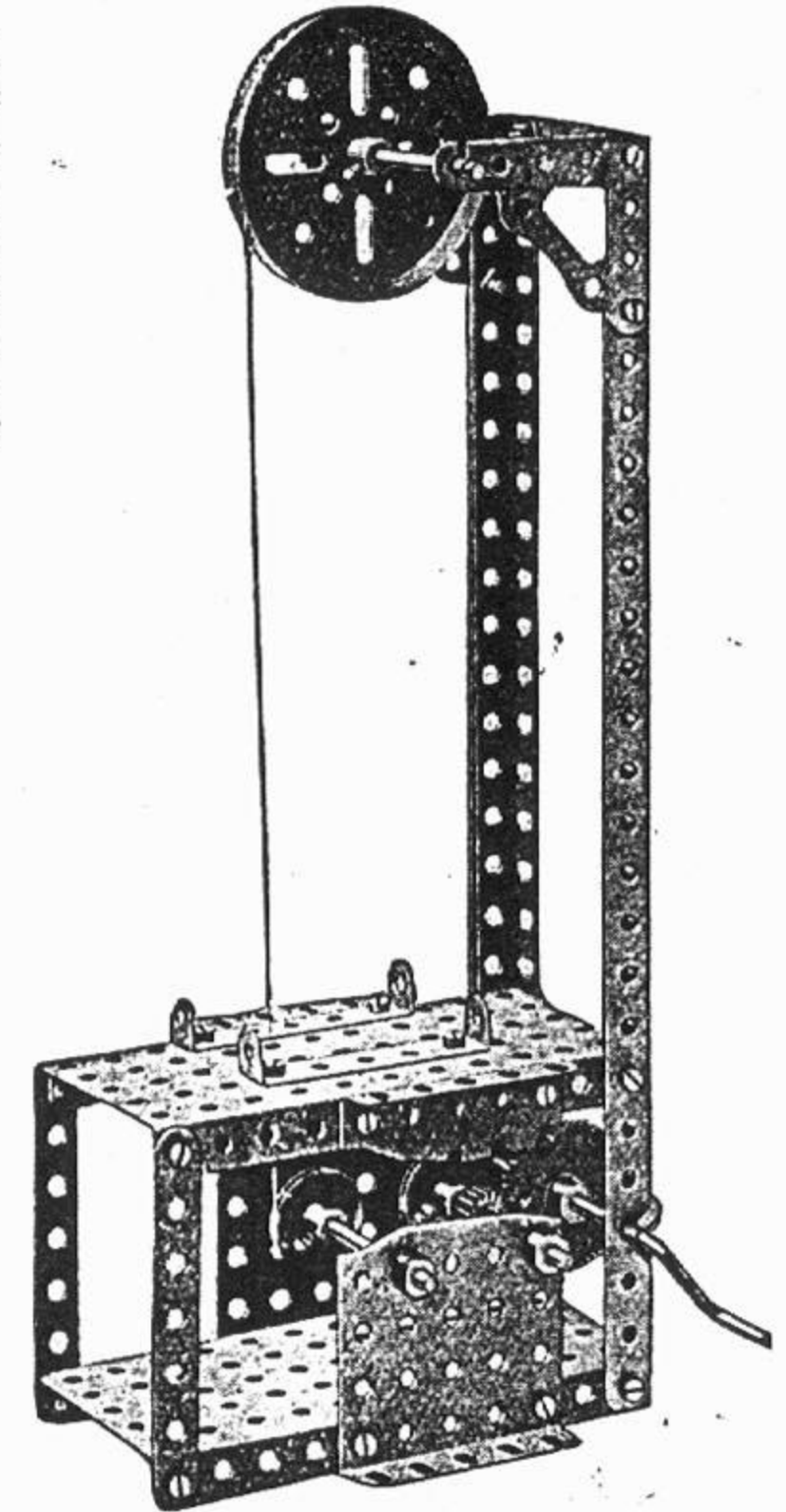
A  $\frac{1}{2}$ " Pinion secured on the armature shaft of the Electric Motor turns a  $1\frac{1}{2}$ " Contrate Wheel 1 mounted on an 8" Axle Rod, to the opposite end of which is secured a Worm Wheel 2. The drum 4 of the winch consists of two  $\frac{3}{4}$ " Flanged Wheels and is secured to the end of a  $3\frac{1}{2}$ " Rod, which carries a  $\frac{1}{2}$ " Pinion that is driven by the Worm 2. The cylinder is composed of a Sleeve Piece, secured by two Nuts and Bolts to the end of a  $2\frac{1}{2}$ " Flat Girder 5, and two  $\frac{3}{4}$ " Flanged Wheels. The piston rod is attached pivotally to the connecting rod by means of an End Bearing 3, and the crank pin 6 is formed by a Threaded Pin secured to the Bush Wheel. The Boiler is secured in place by two Angle Brackets bolted to its base and to the  $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plates forming part of the engine bed. It will be noted that the  $1 \times 1$ " Angle Bracket supporting one end of the 8" Rod is spaced away from the Motor by a Flat Bracket, in order to obtain proper clearance for the Contrate Wheel 1.



Parts required :

1 of No. 5	1 of No. 28
2 " " 8	1 " " 32
2 " " 9	30 " " 37
5 " " 10	9 " " 38
2 " " 12	1 " " 48A
1 " " 12A	1 " " 52
1 " " 13A	1 " " 59
1 " " 15	1 " " 103F
1 " " 16	1 " " 162
4 " " 20B	1 " " 163
2 " " 22	Electric Motor
1 " " 24	(not included
1 " " 26	in Outfit)

## Model No. 4.3 Band Saw

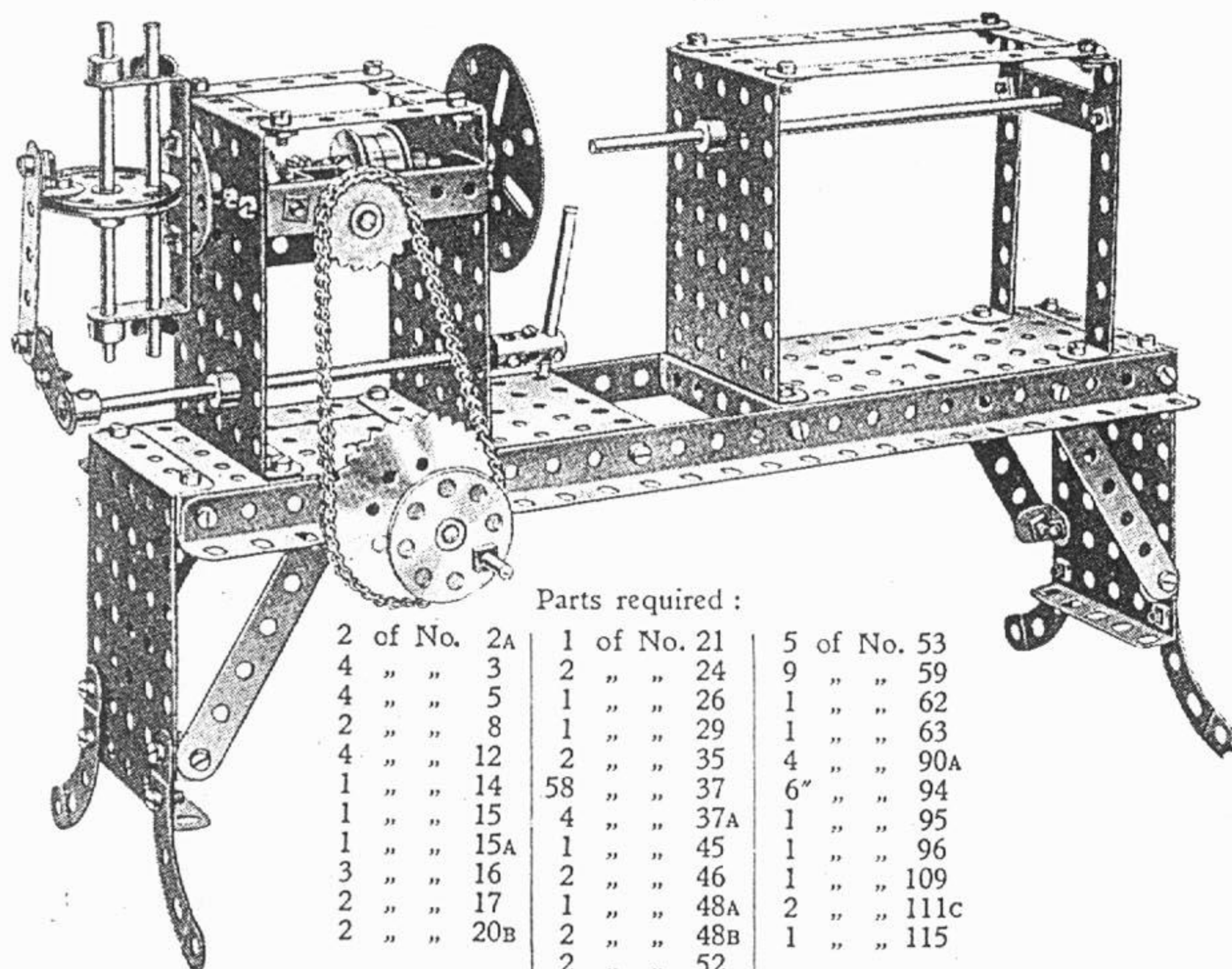


Parts required :

2 of No. 3	1 of No. 27A
1 " " 5	4 " " 35
2 " " 8	26 " " 37
3 " " 16	1 " " 40
1 " " 19	2 " " 48A
1 " " 19B	2 " " 52
2 " " 22	2 " " 53
1 " " 26	4 " " 59
2 of No. 108	



## Model No. 4.4 Elliptical Lathe

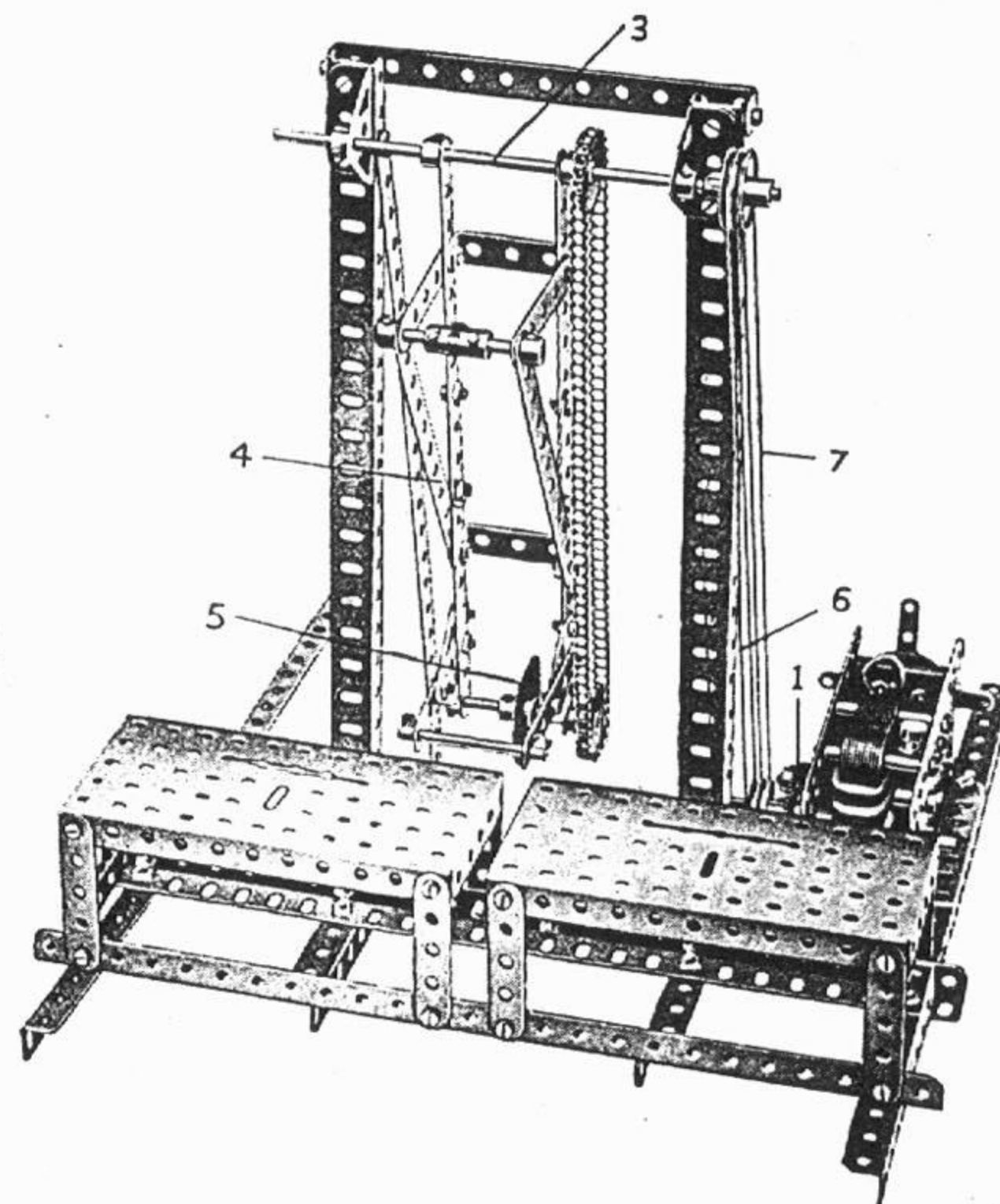


Parts required :

2	of No.	1
6	" "	2
12	" "	5
8	" "	8
2	" "	9
1	" "	14
1	" "	16
3	" "	17
4	" "	22
1	" "	26
2	" "	27A
2	" "	35
57	" "	37
1	" "	40
2	" "	48
2	" "	48A
1	" "	48D
2	" "	52
2	" "	53
7	" "	59
1	" "	63
12	" "	94
2	" "	96
2	" "	126
2	" "	126A

Electric Motor  
(not included  
in Outfit)

## Model No. 4.6 Swing Saw



## Model No. 4.5 Distance Indicator

Parts required :

1 of No. 4	16 of No. 37
4 " " 10	1 " " 37A
2 " " 12	3 " " 38
1 " " 15	1 " " 52
2 " " 16	3 " " 59
2 " " 17	2 " " 62
4 " " 20B	1 " " 63
2 " " 26	1 " " 65
1 " " 28	1 " " 95
1 " " 32	1 " " 96
4 of No. 126A	

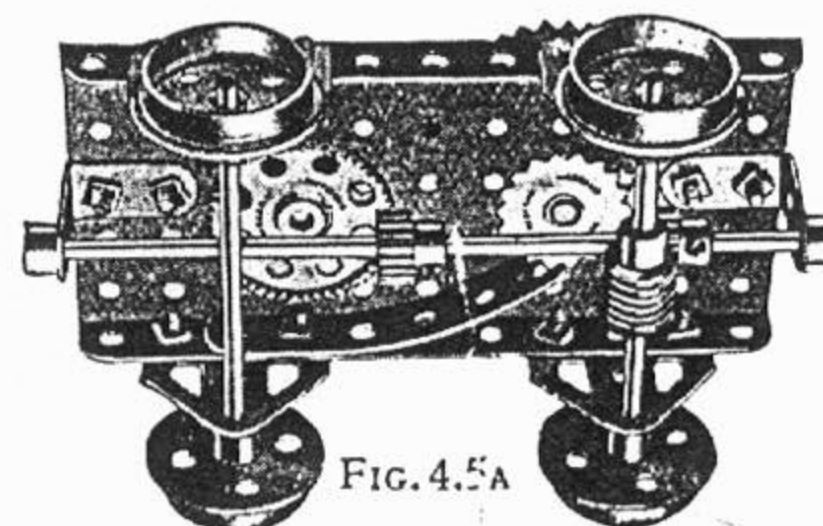
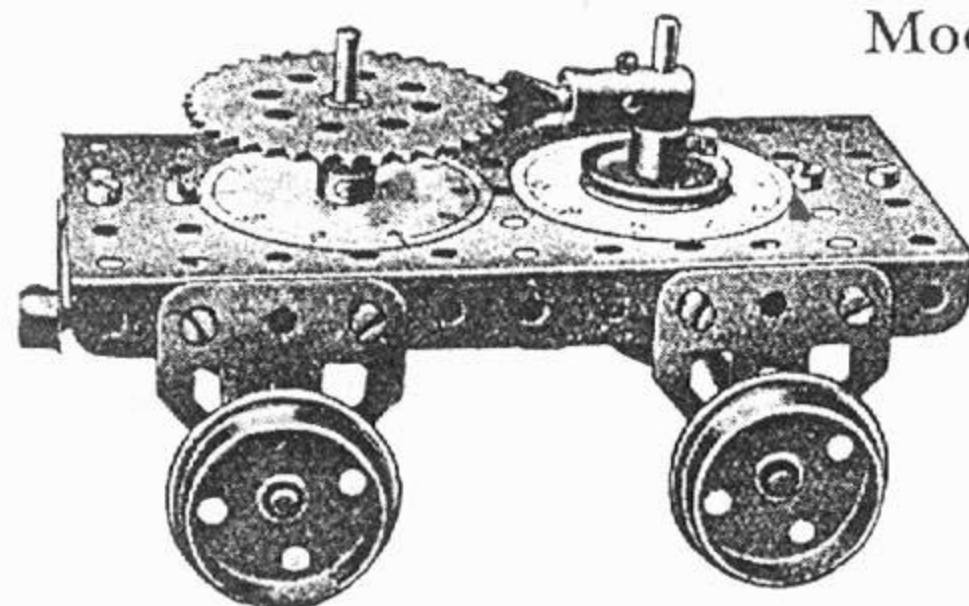


FIG. 4.5A

(Model No. 4.6)

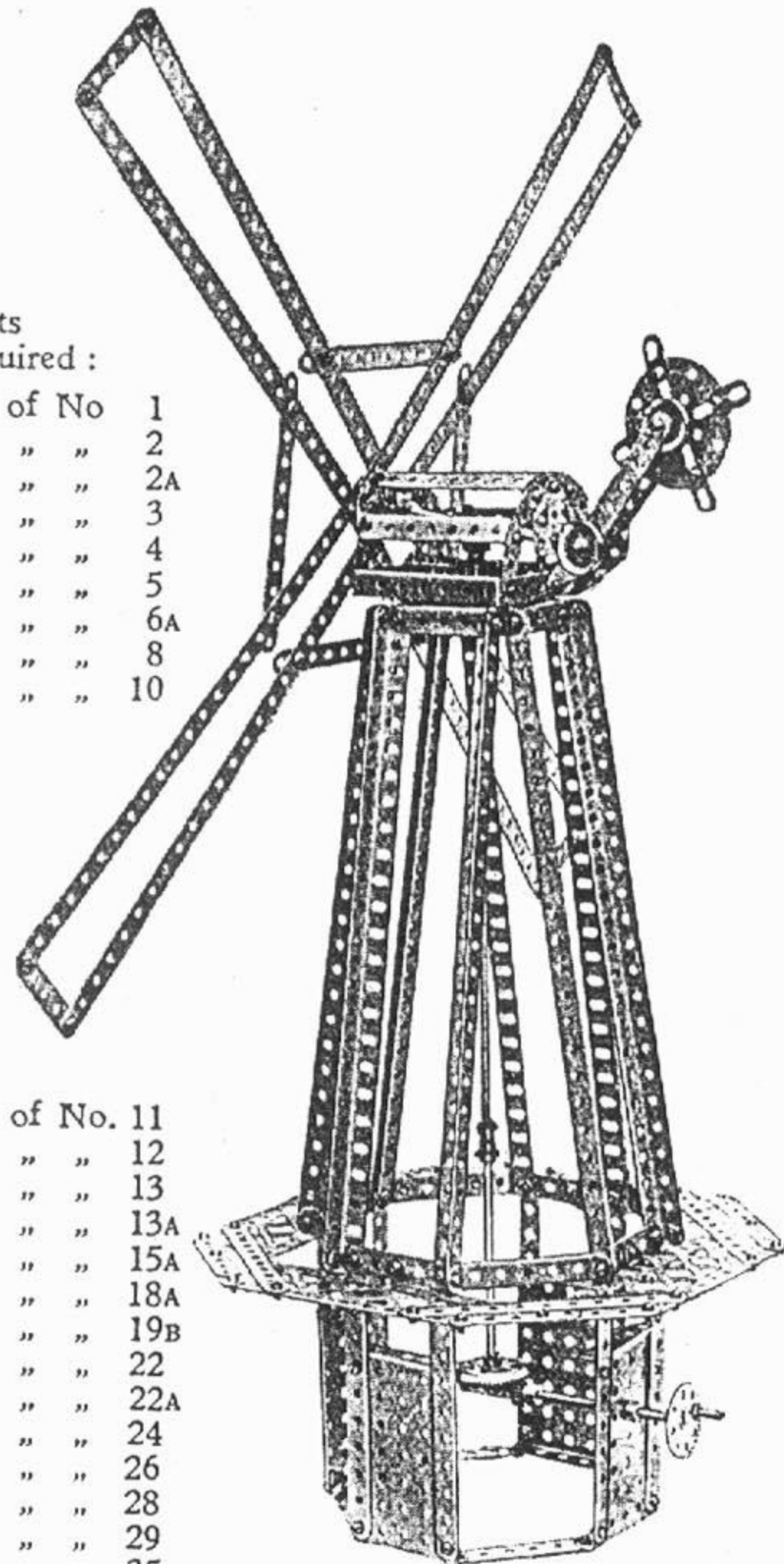
A  $\frac{1}{2}$ " Pinion secured to the armature spindle of the Electric Motor engages with a 57-teeth Gear Wheel 1, the shaft of which carries two 1" Pulleys that transmit the drive by belts to the operating Rod 3. Two driving belts 6 and 7 are used side by side to minimise slip. The framework 4, carrying the 57-teeth gears that is used for the circular saw, is free to swing about the Rod 3.



# Model No. 4.7 Windmill

Parts  
required :

8	of No	1
16	" "	2
2	" "	2A
6	" "	3
4	" "	4
16	" "	5
2	" "	6A
8	" "	8
5	" "	10



1	of No.	11
12	" "	12
1	" "	13
1	" "	13A
2	" "	15A
2	" "	18A
2	" "	19B
1	" "	22
2	" "	22A
2	" "	24
2	" "	26
1	" "	28
1	" "	29
2	" "	35
126	" "	37
6	" "	37A
10	" "	38
4	" "	48A
6	" "	48B

4	of No.	53
9	" "	59
2	" "	63
4	" "	90
2	" "	90A

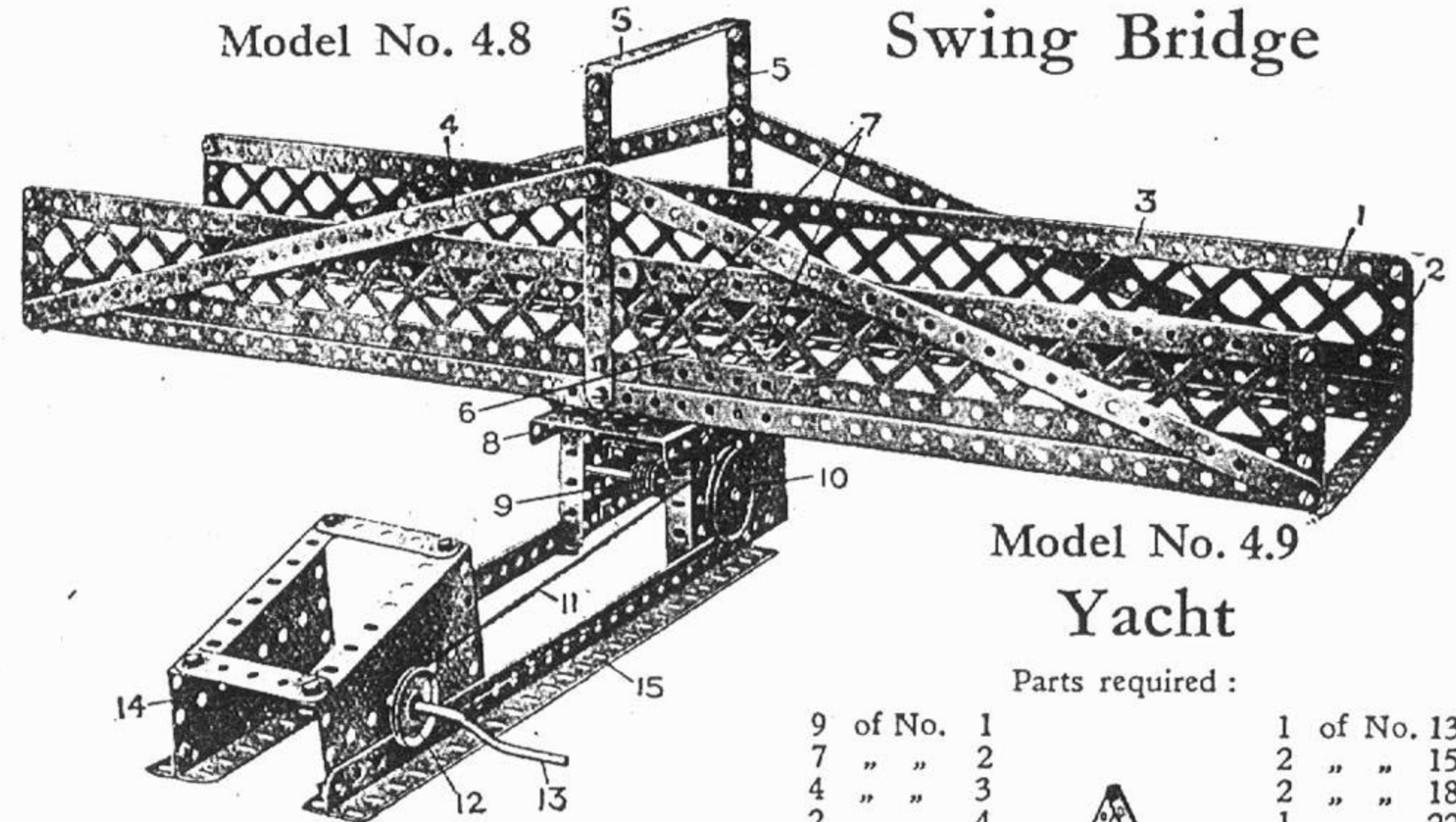
4	of No.	100
1	" "	109
6	" "	111c
1	" "	115
1	" "	126A

Parts  
required :

8	of No.	1
6	" "	2
6	" "	5
6	" "	8
1	" "	16
1	" "	17
1	" "	19B
1	" "	19S
1	" "	21
1	" "	22
1	" "	27A
1	" "	32
50	" "	37
1	" "	40
1	" "	48A
1	" "	48D
1	" "	52
2	" "	53
2	" "	54
2	" "	59
4	" "	99

The sides of this model, as shown in the illustration, are made of the Braced Girders 1 secured to the upright Strips 2 and reinforced by the inner Strips 3. Other diagonal Strips 4 brace the side Girders to the top structure 5 forming a stay for the sides 1. The swing base of the bridge is composed of a 3" Pulley Wheel 6 which is bolted to two cross 5½" Strips 7 which in turn are secured to the main base side Girders. The bridge swings on a short Rod in the Perforated Plate 8. On the lower end of the Rod is secured a Gear Wheel engaged and driven by a Worm 9, on the spindle of which is the 1½" Pulley 10 driven by the Cord 11 that is operated from the Smaller grooved Pulley 12 on the Crank Handle 13. The Crank Handle is journaled in two Sector Plates 14 secured to the base Angle Girder 15.

# Model No. 4.8



# Swing Bridge

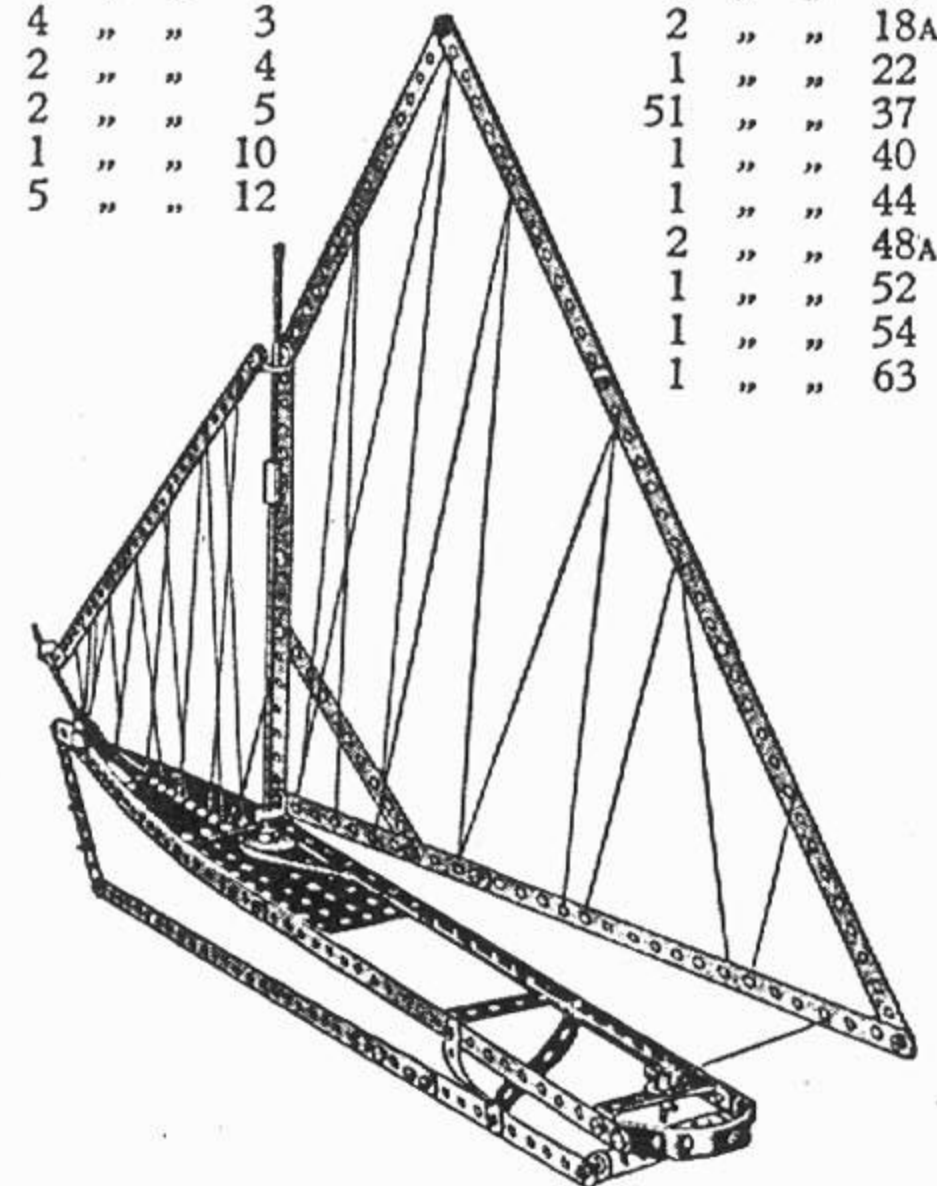
# Model No. 4.9

# Yacht

Parts required :

9	of No.	1
7	" "	2
4	" "	3
2	" "	4
2	" "	5
1	" "	10
5	" "	12

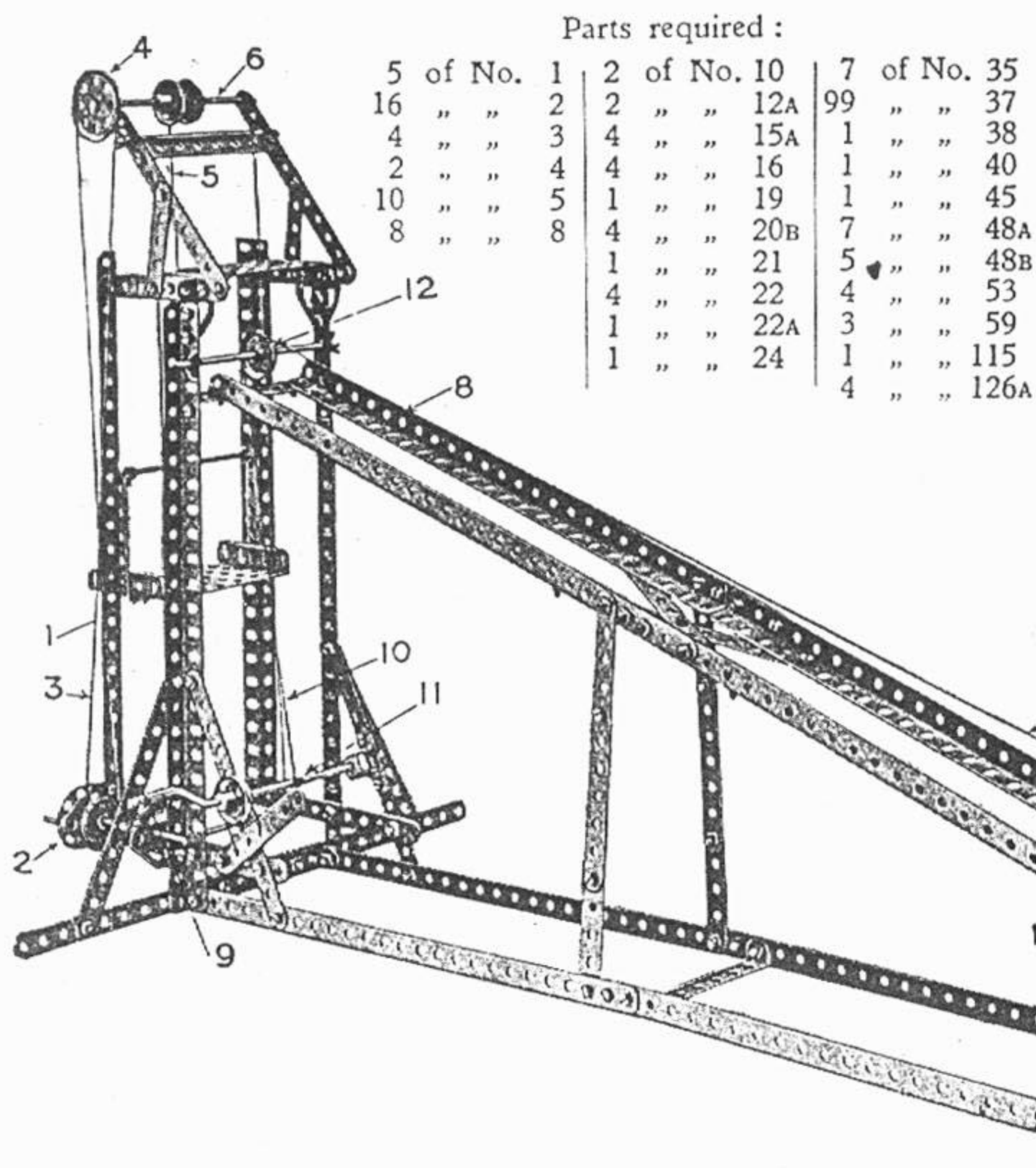
1	of No.	13A
2	" "	15
2	" "	18A
1	" "	22
51	" "	37
1	" "	40
1	" "	44
2	" "	48A
1	" "	52
1	" "	54
1	" "	63



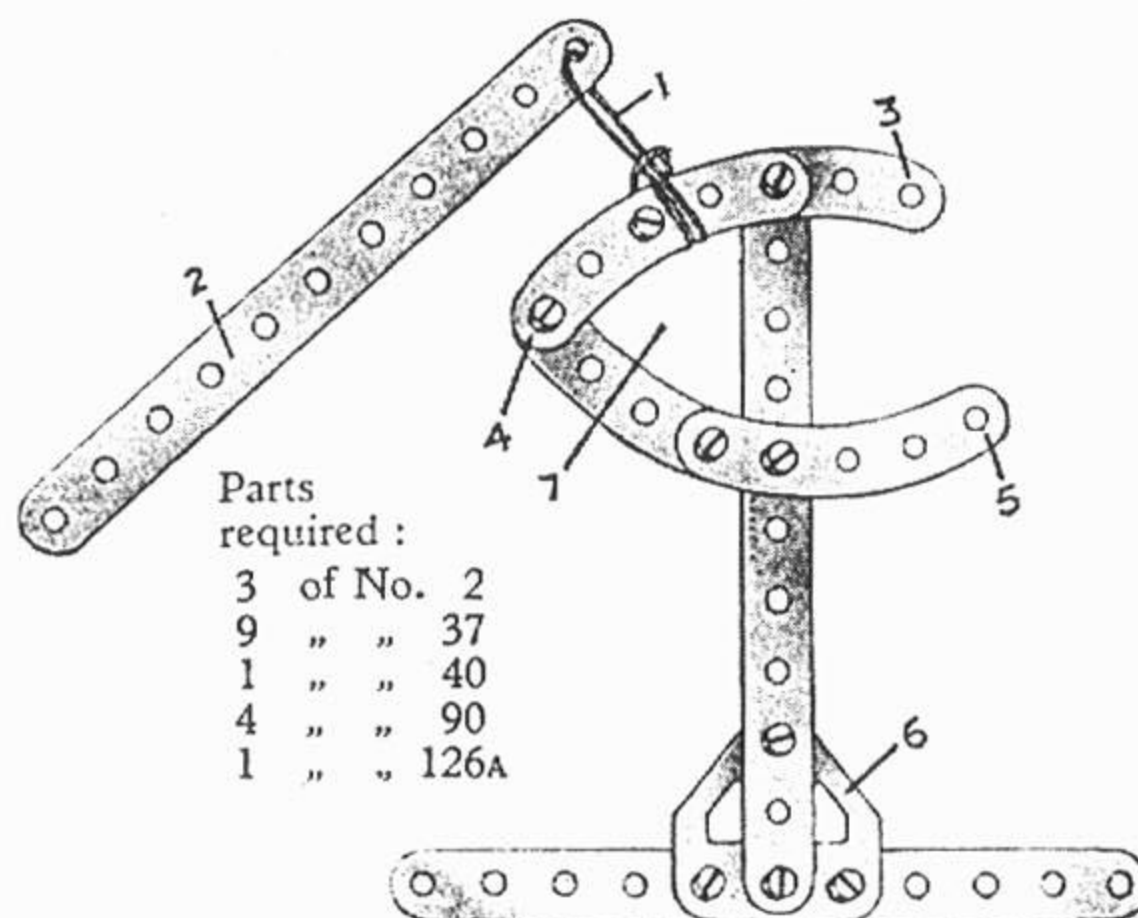


## Model No. 4.10 Inclined Delivery Chute

The cage 1 is raised from the hand wheel 2 by means of an endless Cord 3 which passes over the upper  $1\frac{1}{2}$ " Pulley 4. A Cord 5 winding on Rod 6 between two 1" fast Pulleys raises or lowers the cage. The truck 7 is raised or lowered along the inclined rails 8 by a Crank Handle 9, a Cord 10 being wound on the Shaft 11, passing over a Pulley 12, and connected to the truck 7. When the truck reaches the end of the inclined rails 8 it rests upon two  $5\frac{1}{2}$ " Strips 13 pivoted at 14, the weight of the truck depressing these pivoted Strips and tipping the load.



## Model No. 4.11 Puzzle

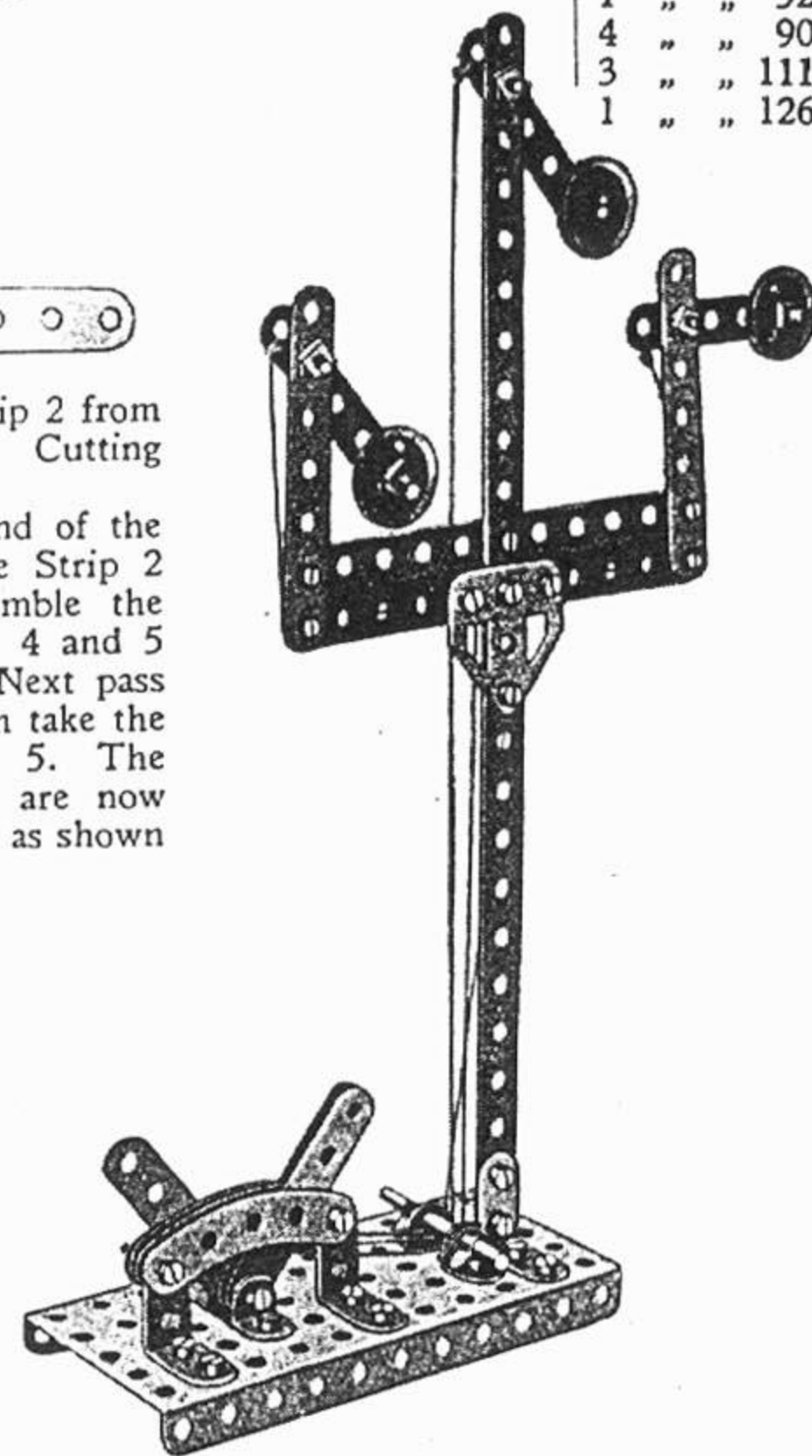


The problem, which is to remove the Strip 2 from the frame, is by no means an easy one to solve. Cutting the String or undoing the knot is not allowed!

The loop of string 1, attached to the end of the  $5\frac{1}{2}$ " Strip 2, should reach halfway along the Strip 2 (when removed from the frame). To assemble the puzzle first pass the loop over the points 3, 4 and 5 and then slip it down to the Trunnion 6. Next pass the  $5\frac{1}{2}$ " Strip 2 through the space 7 and again take the loop over 3, 4 and 5. The loop 1 and Strip 2 are now attached to the frame as shown in the illustration.

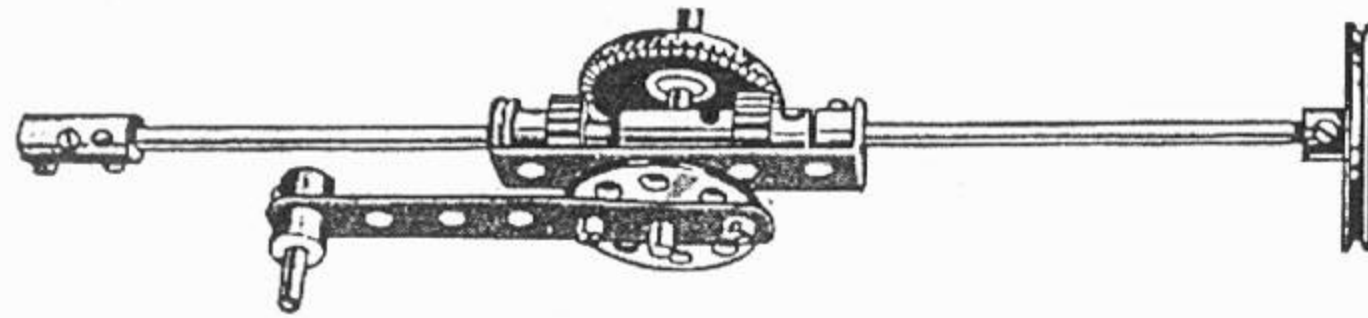
## Model No. 4.12 Three-arm Signal

Parts required :					
1	of No.	1	1	of No.	22
2	"	2	2	"	22A
2	"	3	2	"	35
6	"	5	27	"	37
4	"	12	5	"	37A
3	"	12A	11	"	38
1	"	17	1	"	40
			1	"	52
			4	"	90
			3	"	111
			1	"	126A





## Model No. 4.13 Breast Drill

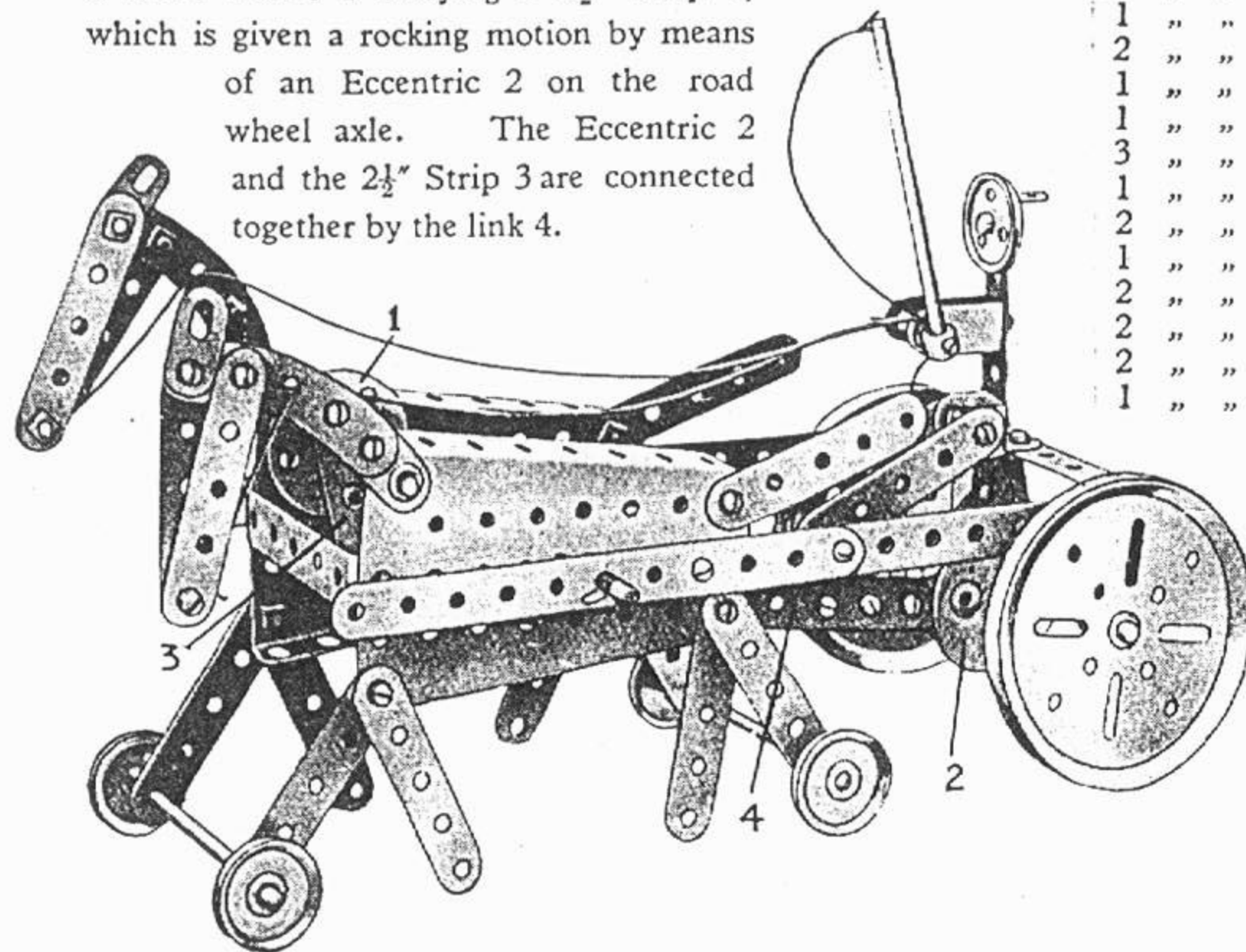


Parts required :

1 of No. 3	1 of No. 21	2 of No. 26	1 of No. 48A
2 " " 15	1 " " 23	1 " " 28	3 " " 59
2 " " 17	1 " " 24	2 " " 37	2 " " 63
1 " " 18A			

## Model No. 4.14 Trotting Car

The only portion of this model requiring description is the mechanism operating the horses' heads. Each of the latter is secured by a Crank to one end of a  $3\frac{1}{2}$ " Rod. To this Rod is also secured a Bush Wheel 1 carrying a  $2\frac{1}{2}$ " Strip 3, which is given a rocking motion by means of an Eccentric 2 on the road wheel axle. The Eccentric 2 and the  $2\frac{1}{2}$ " Strip 3 are connected together by the link 4.



Parts required :

6 of No. 2	4 of No. 16
17 " " 5	2 " " 19B
2 " " 10	4 " " 22
1 " " 11	1 " " 22A
2 " " 15A	1 " " 24
	4 " " 35
	42 " " 37
	1 " " 37A
	2 " " 38
	1 " " 40
	1 " " 44
	3 " " 48A
	1 " " 48B
	2 " " 54
	1 " " 59
	2 " " 62
	2 " " 90
	2 " " 126A
	1 " " 130

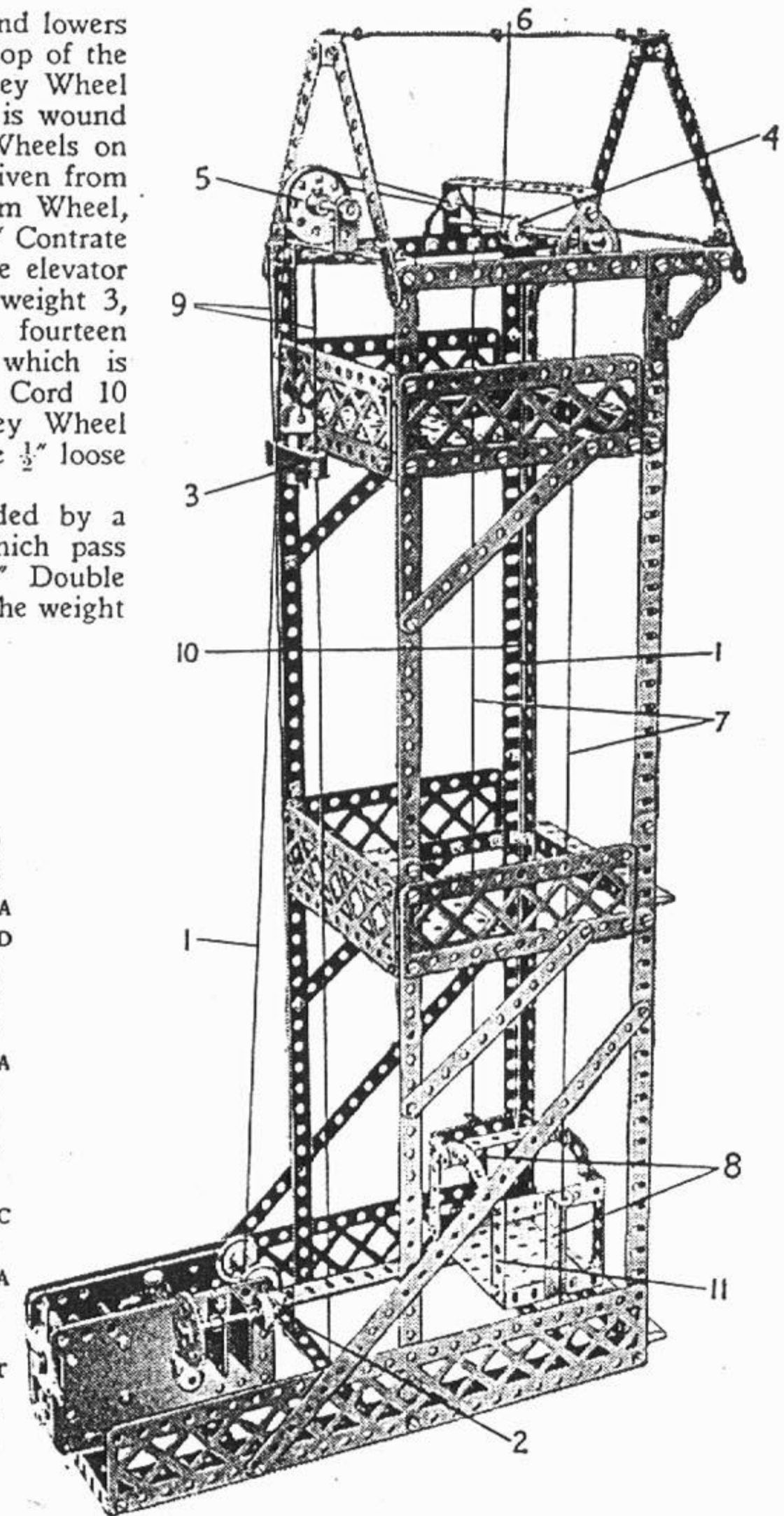
## Model No. 4.15 Warehouse

The Cord 1 that raises and lowers the elevator passes from the top of the car 11 over the  $\frac{1}{2}$ " loose Pulley Wheel 4 and the  $1\frac{1}{2}$ " Pulley 5, and is wound between two 1" fast Pulley Wheels on a 3" Axle Rod 2, which is driven from the Electric Motor via a Worm Wheel, a 57-toothed Gear Wheel, a  $\frac{1}{4}$ " Contrate Wheel, and a  $\frac{1}{2}$ " Pinion. The elevator car is counterbalanced by a weight 3, consisting of a Fork Piece, fourteen  $2\frac{1}{2}$ " Strips, and a Collar, which is connected to the car by a Cord 10 passing over a 1" fast Pulley Wheel (behind the Wheel 5) and the  $\frac{1}{2}$ " loose Pulley Wheel 6.

The elevator car is guided by a pair of vertical Cords 7, which pass through holes in the  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips 8 as shown, and the weight 3 is guided by the cords 9.

Parts required :

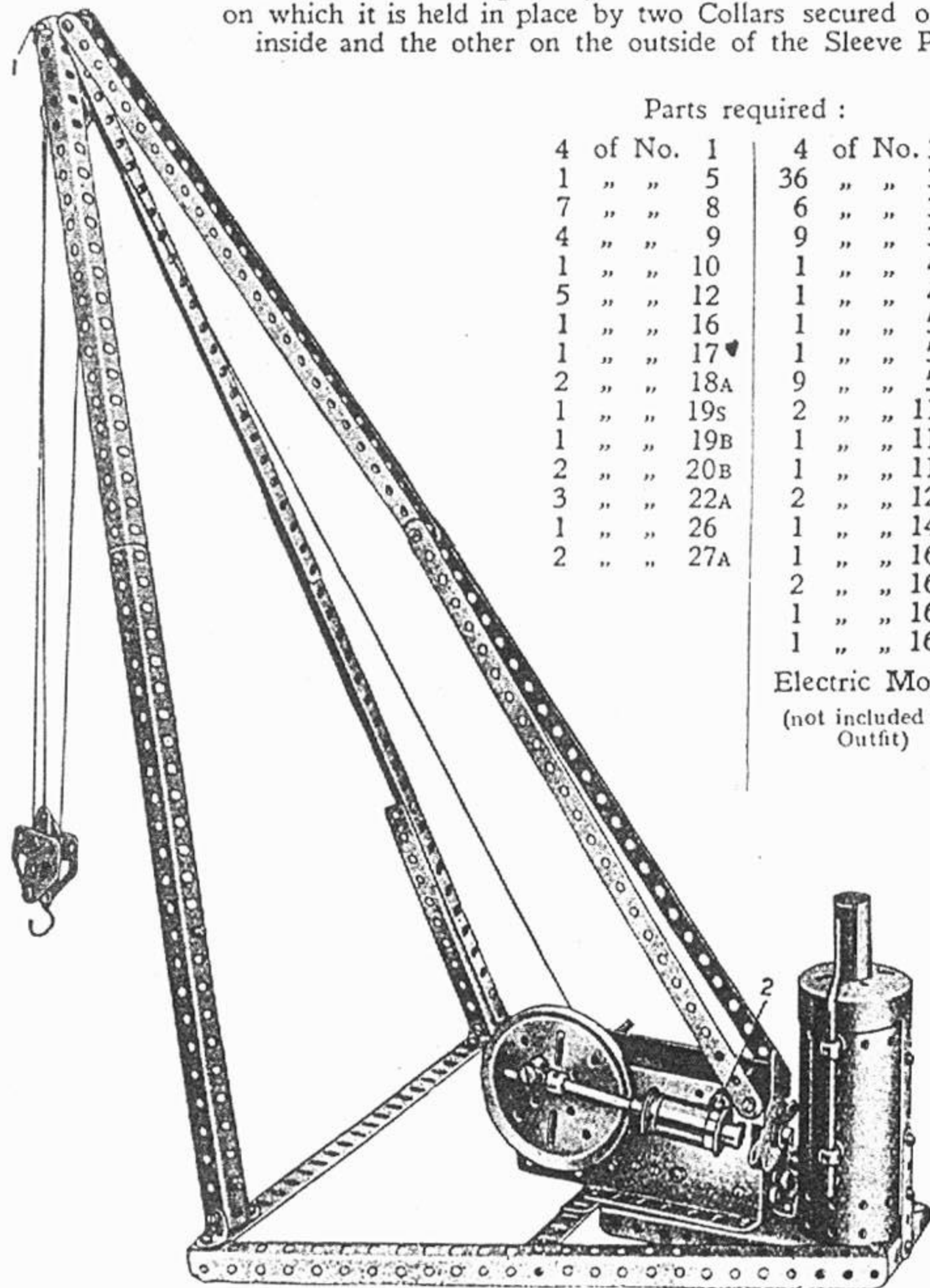
6 of No. 1	1 of No. 40
19 " " 2	1 " " 46
18 " " 5	5 " " 48A
2 " " 6A	1 " " 48D
6 " " 8	2 " " 52
4 " " 9	1 " " 53
4 " " 10	6 " " 59
16 " " 12	2 " " 90A
1 " " 14	2 " " 99
2 " " 16	6 " " 100
2 " " 17	2 " " 108
1 " " 21	2 " " 111
3 " " 22	4 " " 111c
2 " " 23	1 " " 116
1 " " 26	2 " " 126A
1 " " 27A	1 " " 160
1 " " 29	
1 " " 32	Electric Motor
2 " " 35	(not included in
126 " " 37	Outfit)
6 " " 37A	
1 " " 38	





## Model No. 4.16 Sheerlegs

The fixed pulley block at the top of the sheerlegs consists of a Cranked Bent Strip carrying two 1" loose Pulleys. The Cranked Bent Strip has a Small Fork Piece secured to it by a  $\frac{3}{8}$ " Bolt, which passes through the hole in the top of the Cranked Bent Strip, and is held in place by a  $1\frac{1}{2}$ " Rod 1. The Sleeve Piece forming the cylinder is free to turn about the Rod 2, on which it is held in place by two Collars secured one on the inside and the other on the outside of the Sleeve Piece.

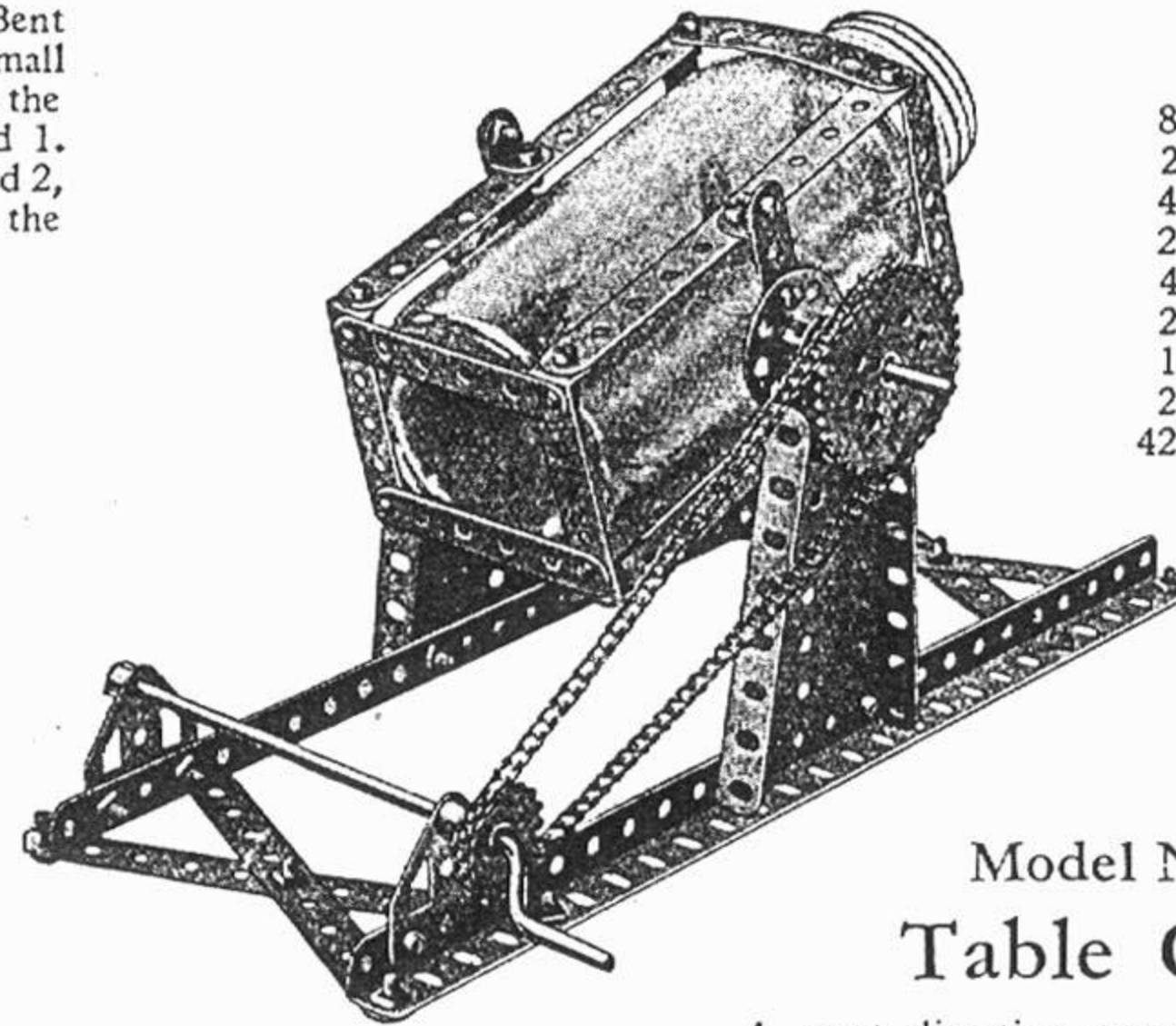


### Parts required :

4 of No. 1	4 of No. 35
1 " " 5	36 " " 37
7 " " 8	6 " " 37A
4 " " 9	9 " " 38
1 " " 10	1 " " 40
5 " " 12	1 " " 44
1 " " 16	1 " " 52
1 " " 17	1 " " 57C
2 " " 18A	9 " " 59
1 " " 19S	2 " " 111
1 " " 19B	1 " " 111C
2 " " 20B	1 " " 116A
3 " " 22A	2 " " 126A
1 " " 26	1 " " 147B
2 " " 27A	1 " " 162
	2 " " 163
	1 " " 164
	1 " " 166

Electric Motor  
(not included in Outfit)

## Model No. 4.17 Butter Churn



### Parts required :

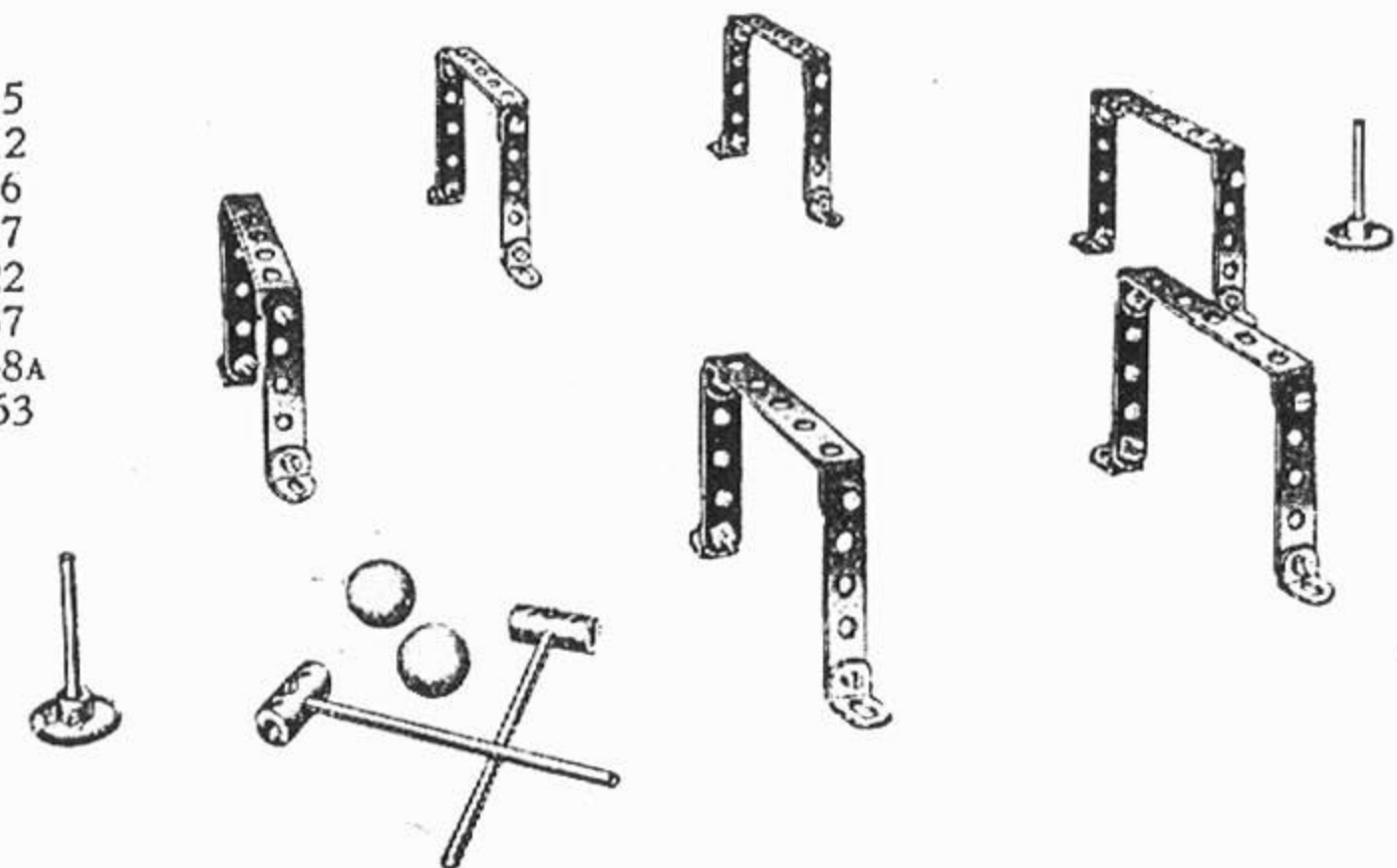
8 of No. 2	4 of No. 48A
2 " " 3	2 " " 54
4 " " 4	3 " " 59
2 " " 8	2 " " 62
4 " " 12	16 " " 94
2 " " 17	1 " " 95
1 " " 19	1 " " 96
2 " " 24	2 " " 126A
42 " " 37	

## Model No. 4.18 Table Croquet

A most diverting game. Coloured marbles may be used for the balls. Full instructions for playing croquet may be obtained from any sports or games dealer.

### Parts required :

12 of No. 5
12 " " 12
2 " " 16
2 " " 17
2 " " 22
24 " " 37
6 " " 48A
2 " " 63





## Model No. 4.19 Speed Indicator

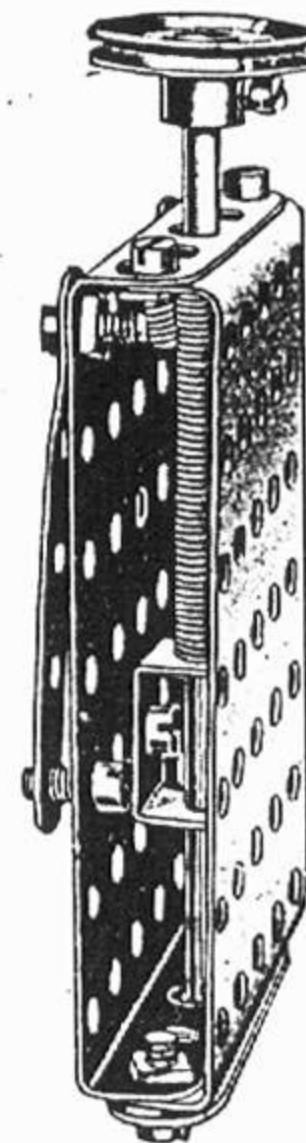
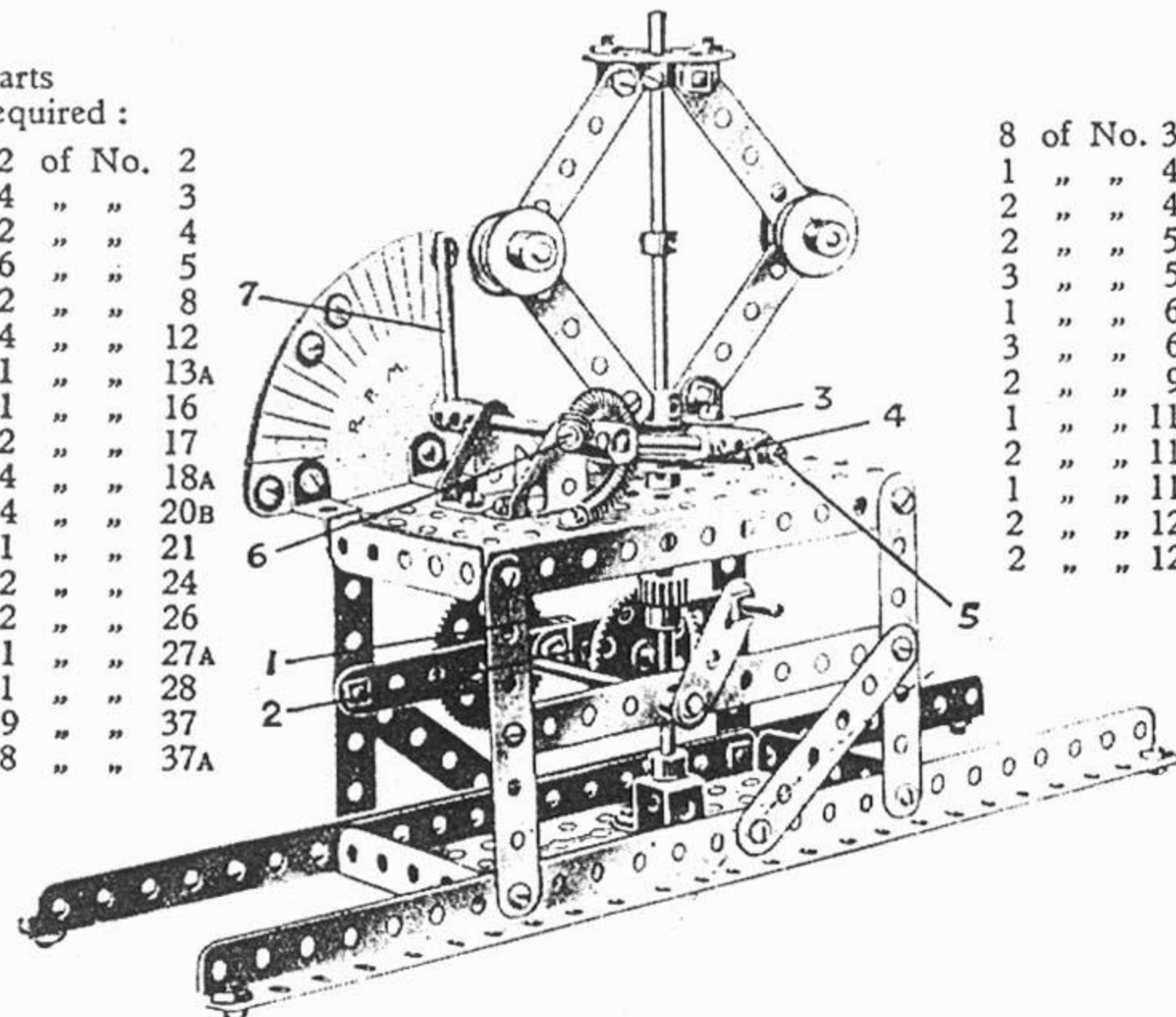
A Crank fitted with a Threaded Pin to form a handle is secured on a  $3\frac{1}{2}$ " Rod carrying a 57-teeth Gear that meshes with a  $\frac{1}{2}$ " Pinion 1 on a  $1\frac{1}{2}$ " Rod. The latter Rod carries a Contrate Wheel and is journalled in one of the holes of a  $5\frac{1}{2}$ " Strip and a Double Bent Strip 2. A Pinion on the vertical 8" Rod which carries the governor is in engagement with the Contrate.

The  $2\frac{1}{2}$ " Strips forming the governor arms are lock-nutted to Angle Brackets which in turn are secured rigidly to Bush Wheels. The upper Bush Wheel is secured to the Rod, while the lower wheel 3, which is free on the Rod, is connected to a  $1\frac{1}{2}$ " Pulley 4 by  $\frac{3}{8}$ " Bolts, but spaced therefrom by Nuts on the shanks of the Bolts. The  $\frac{3}{4}$ " Bolt 5 is passed through the end tapped hole of the Coupling and locked in position by a Nut so that its shank protrudes into the space between the Bush Wheel and Pulley. As the weights of the governor fly outward under centrifugal force the Bush Wheel and Pulley unit 3 rises, carrying with it the Bolt 5 and its Coupling and so actuating the pointer (a 2" Rod 7). The extent of the movement of the latter over the graduated scale indicates the speed at which the vertical shaft rotates. A Spring secured to the  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate is fixed by the Bolt 6 in such a manner that the pointer tends to return to its original position as the motion decreases.

Parts required :

2	of No.	2
4	" "	3
2	" "	4
6	" "	5
2	" "	8
4	" "	12
1	" "	13A
1	" "	16
2	" "	17
4	" "	18A
4	" "	20B
1	" "	21
2	" "	24
2	" "	26
1	" "	27A
1	" "	28
39	" "	37
8	" "	37A

8	of No.	38
1	" "	43
2	" "	45
2	" "	52
3	" "	59
1	" "	62
3	" "	63
2	" "	90
1	" "	111
2	" "	111c
1	" "	115
2	" "	125
2	" "	126



## Model No. 4.20 Conductor's Punch

This is just the thing for your younger brother ! He only needs a strap with which to hang it over his shoulder to make him into a conductor. The

$2\frac{1}{2}$ " Strip at the bottom is spaced by two Washers away from the body of the punch to allow the ticket to pass in to be punched. The punch Rod is passed completely through the Spring. The lower end of the latter presses against the Double Bracket and the upper end against a Collar secured to the Rod.

Parts required :

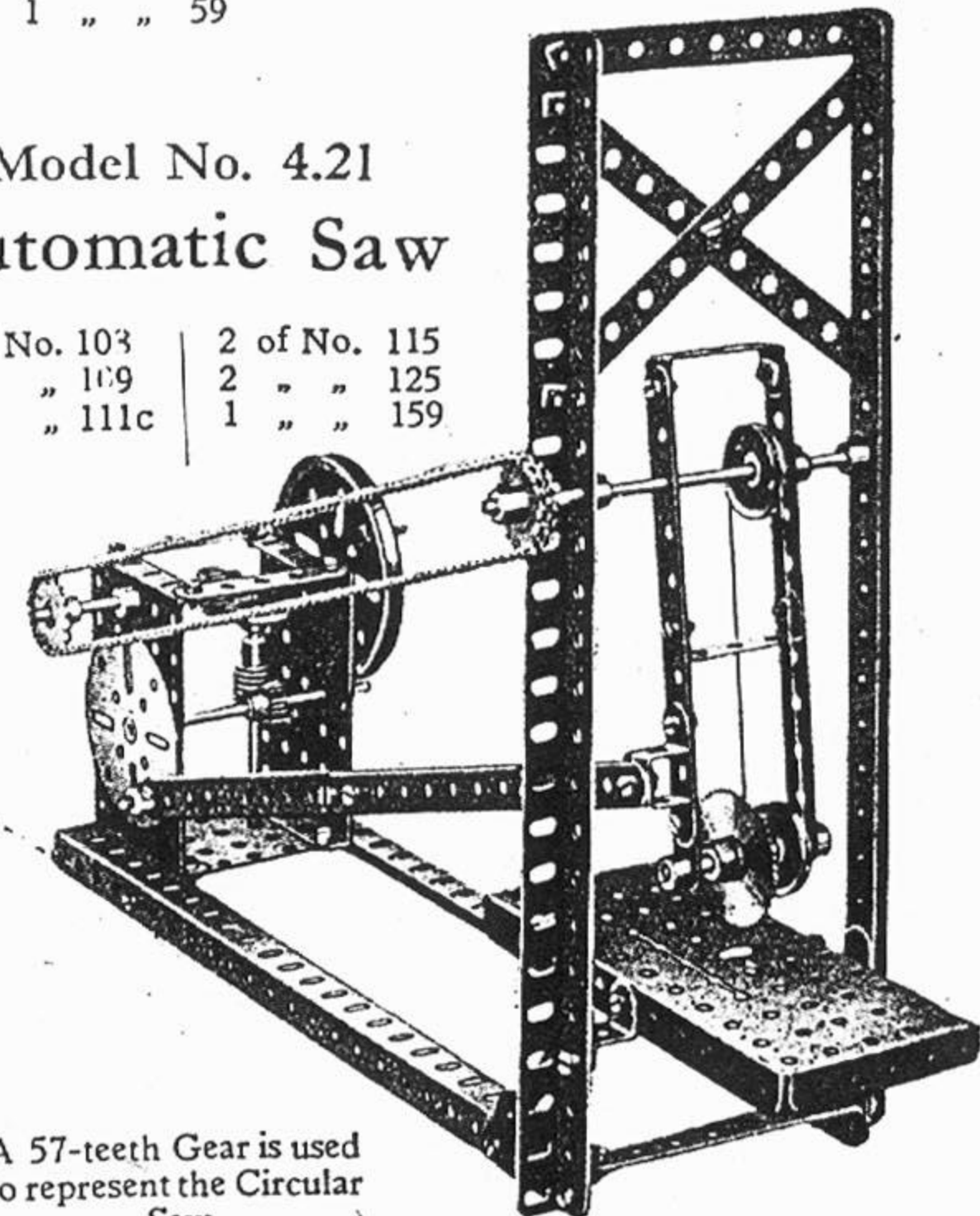
3	of No.	5
1	" "	11
1	" "	15A
1	" "	22
9	" "	37
2	" "	38
1	" "	43
2	" "	53
1	" "	59

## Model No. 4.21 Automatic Saw

Parts required :

7	of No.	2
1	" "	3
3	" "	5
4	" "	8
1	" "	15
1	" "	15A
2	" "	16
1	" "	17
1	" "	19B
2	" "	22
2	" "	26
1	" "	27A
1	" "	28
1	" "	32
41	" "	37
3	" "	37A
2	" "	38
1	" "	45
2	" "	48
1	" "	48A
1	" "	52
3	" "	53
9	" "	59
24	" "	94

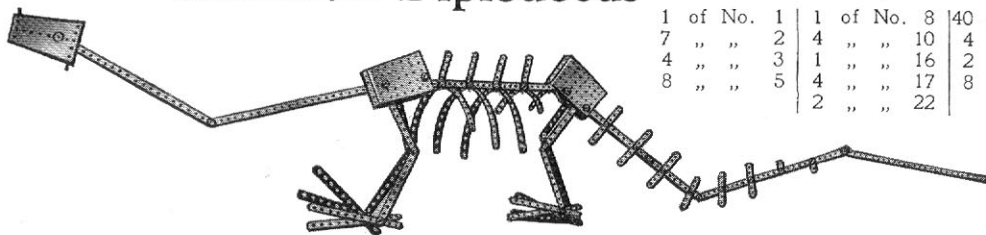
2	of No.	103
1	" "	109
1	" "	111c
2	of No.	115
2	" "	125
1	" "	159



A 57-teeth Gear is used to represent the Circular Saw

These Models can be built with MECCANO Outfit No. 4 (or No. 3 and No. 3A)

## Model No. 4.22 Diplodocus



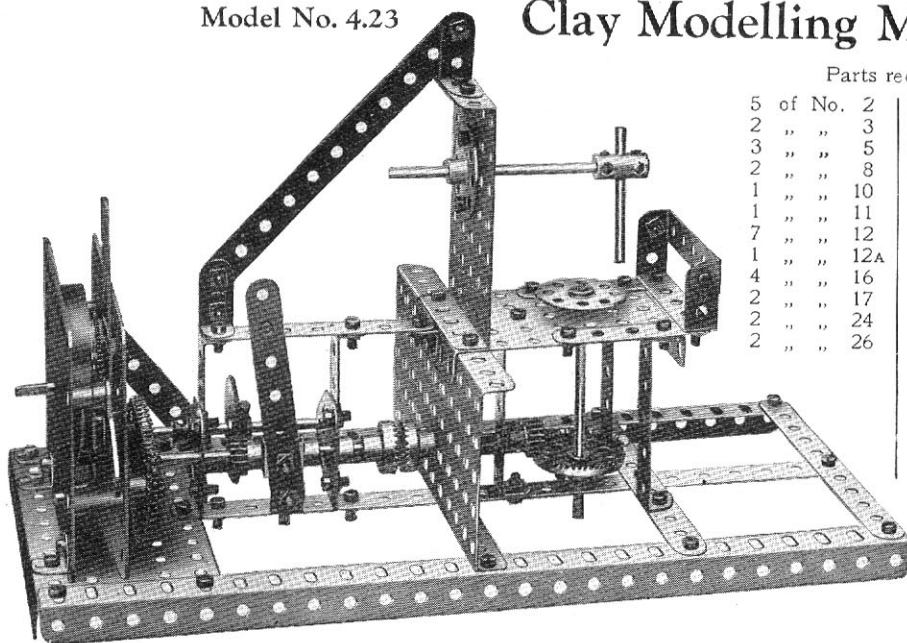
Parts required :

1 of No. 1	1 of No. 8	40 of No. 37
7 " " 2	4 " " 10	4 " " 53
4 " " 3	1 " " 16	2 " " 54
8 " " 5	4 " " 17	8 " " 59
	2 " " 22	

This representation of a prehistoric animal is a most extraordinary effort sent in by a young French boy to compete in one of the big Meccano Model-building Competitions. We could scarcely class it as an engineering model, but any boy with a brain clever enough and an imagination lively enough to conceive and construct such an animal as this from Meccano parts deserved a good prize, so we awarded him one. Screw the Nuts and Bolts up tightly because the Diplodocus looks most dejected when he droops.

## Model No. 4.23

## Clay Modelling Machine



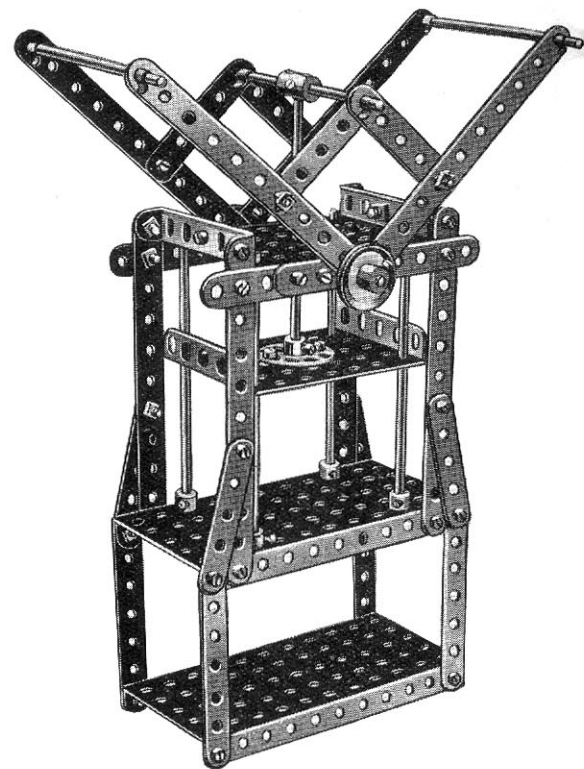
Parts required :

5 of No. 2	1 of No. 27A
2 " " 3	1 " " 28
3 " " 5	2 " " 29
2 " " 8	50 " " 37
1 " " 10	2 " " 37A
1 " " 11	2 " " 38
7 " " 12	1 " " 46
1 " " 12A	6 " " 48A
4 " " 16	2 " " 52
2 " " 17	2 " " 53
2 " " 24	4 " " 59
2 " " 26	1 " " 63
	6 " " 94
	2 " " 96
	2 " " 126A

Clockwork Motor

(not included in Outfit)

## Model No. 4.24 Bale Press



Parts required :

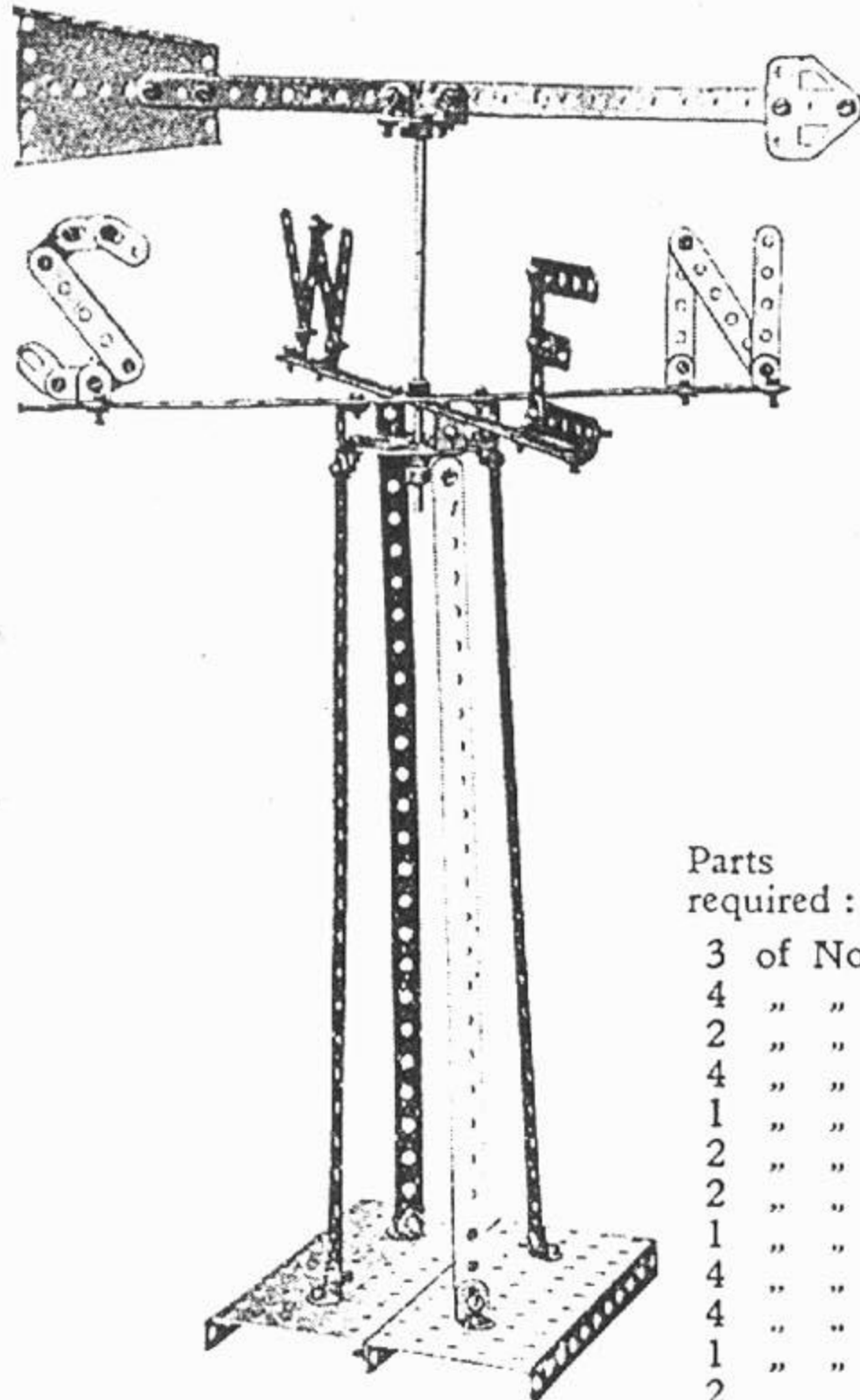
10 of No. 2	1 of No. 24	2 of No. 52
4 " " 3	8 " " 35	2 " " 53
8 " " 5	44 " " 37	4 " " 59
4 " " 15	14 " " 37A	1 " " 63
1 " " 15A	2 " " 38	2 " " 111
2 " " 17	2 " " 48A	



## Model No. 4.25 Weather Vane

Parts required :

7	of No. 1	54	of No. 37
11	" "	2	" "
8	" "	2	" "
4	" "	1	" "
17	" "	2	" "
1	" "	1	" "
1	" "	1	" "



Parts required :

3	of No. 2
4	" "
2	" "
4	" "
1	" "
2	" "
2	" "
1	" "
4	" "
4	" "
1	" "
2	" "
1	" "

2	of No. 29
45	" "
4	" "
3	" "
1	" "
1	" "
2	" "
2	" "

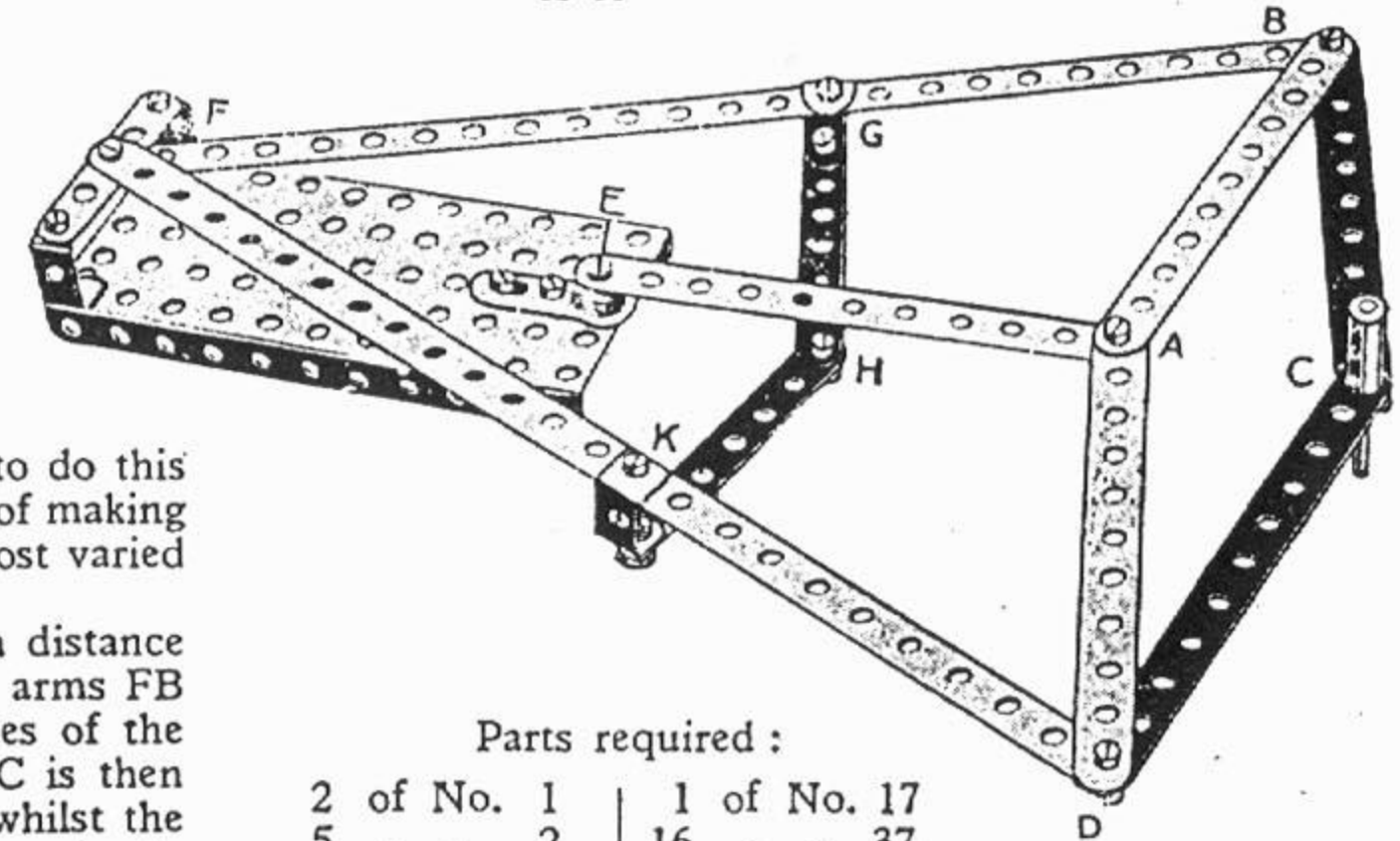
1	of No. 52
2	" "
2	" "
6	" "
4	" "
1	of No. 115
1	" "
2	" "
2	" "

## Model No. 4.26 Geometrical Apparatus

This most ingenious model for transforming a circular movement into a rectilinear movement was designed by M. Pierre-Th. Dufour, who used it in his Thesis (presented to the Faculty of Science in Paris) to obtain his degree of Doctor of the University of Paris. He required an instrument which would transform a circular movement into a movement rigorously rectilinear and he states in his published work that he was able to do this "with the aid of Meccano parts, which permit of making experiments so easily in mechanisms of the most varied types."

The point F is fixed, and is situated at a distance from the fixed point E, equal to AE, the two arms FB and FD being together equal to the four sides of the lozenge ABCD. The trajectory of the point C is then at right angles to EF. It will be found that whilst the point C is moving in a straight line at right angles to EF, the point A is describing a circle round the fixed point E.

Every Meccano Boy should make up this very interesting model and experiment with it.

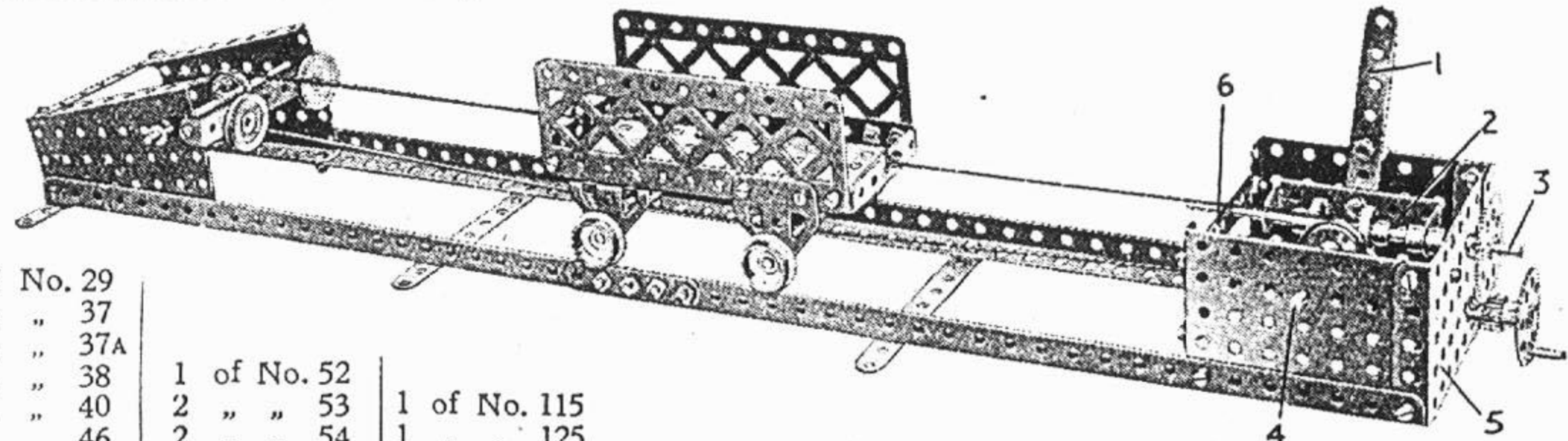


Parts required :

2	of No. 1	1	of No. 17
5	" "	16	" "
2	" "	1	" "
1	" "	7	" "
4	" "	1	" "
		1	of No. 63

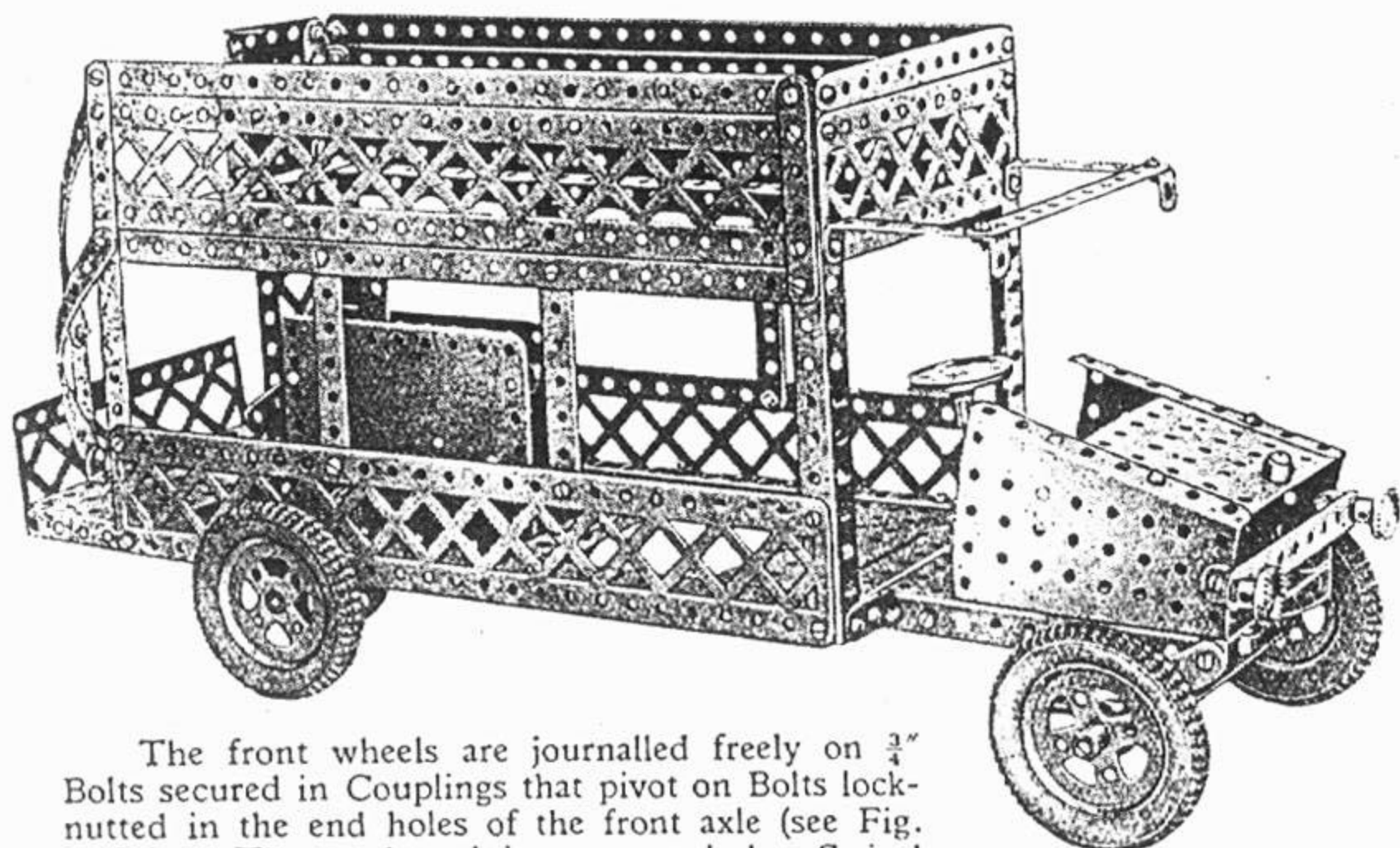
## Model No. 4.27 Cable Railway

The reversing lever 1 is pivoted near its centre to a Reversed Angle Bracket and at its lower end to a  $2\frac{1}{2} \times 1$ " Double Angle Strip 2. This Strip is kept in place on the Rod 3 by two Collars. The two  $\frac{3}{4}$ " Contrate Wheels are fastened on this Rod in such a position that one or other can be brought into gear with a  $\frac{1}{2}$ " Pinion, secured to the Rod 4, by moving the reversing lever. This Rod 4 is journaled in one of the sideplates of the gear box and in a  $3\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip bolted between Plate 5 and the Strip 7.





## Model No. 4.28 Motor 'Bus



The front wheels are journalled freely on  $\frac{3}{4}$ " Bolts secured in Couplings that pivot on Bolts lock-nutted in the end holes of the front axle (see Fig. 4.28A). The track rod is connected by Swivel Bearings to the ends of Rods 1 and 2, which are secured in the inner transverse holes of the Couplings. Connection is made, in the manner shown, with a Crank 3 on the bottom end of the steering column and the Rod 2.

The front springs are represented by a pair of  $2\frac{1}{2}$ " small radius Curved Strips, to which the axle is attached by means of  $\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Angle Brackets, the axle being spaced therefrom by a Collar on each Bolt.

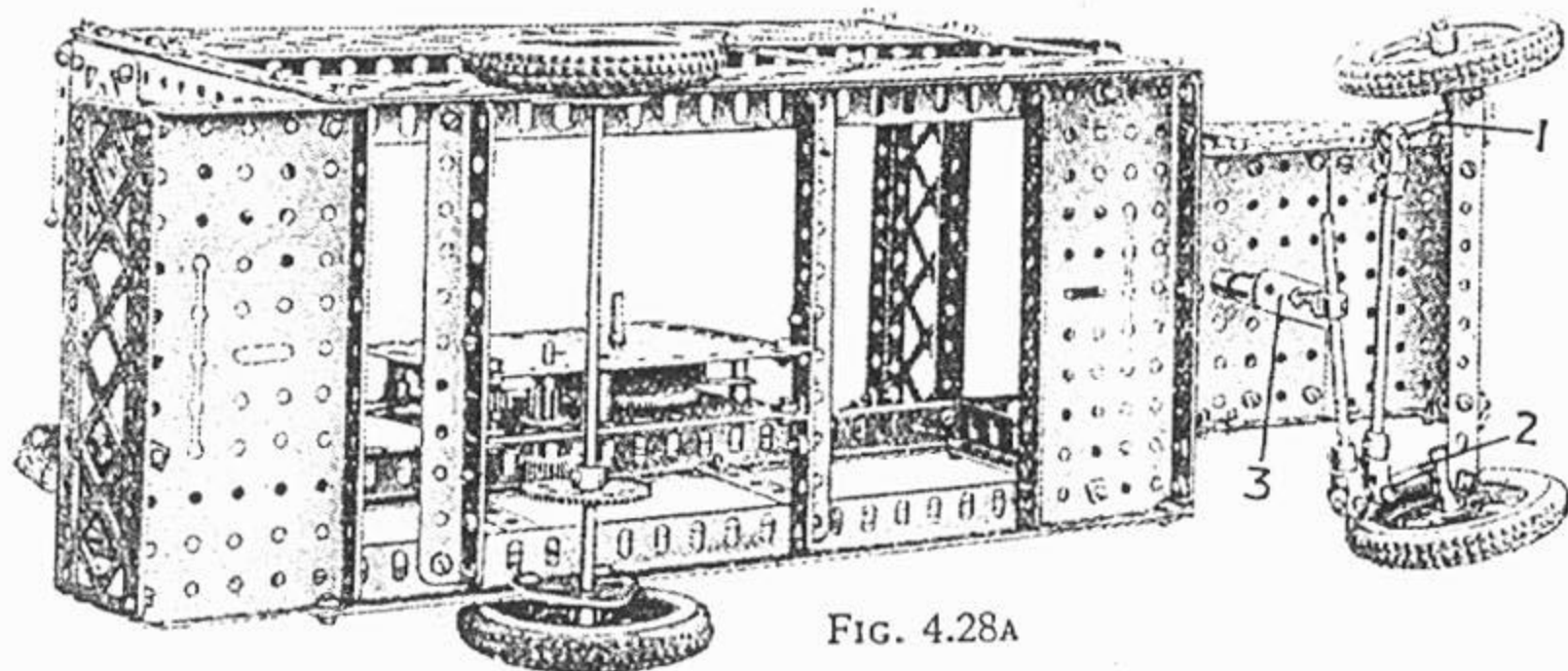


FIG. 4.28A

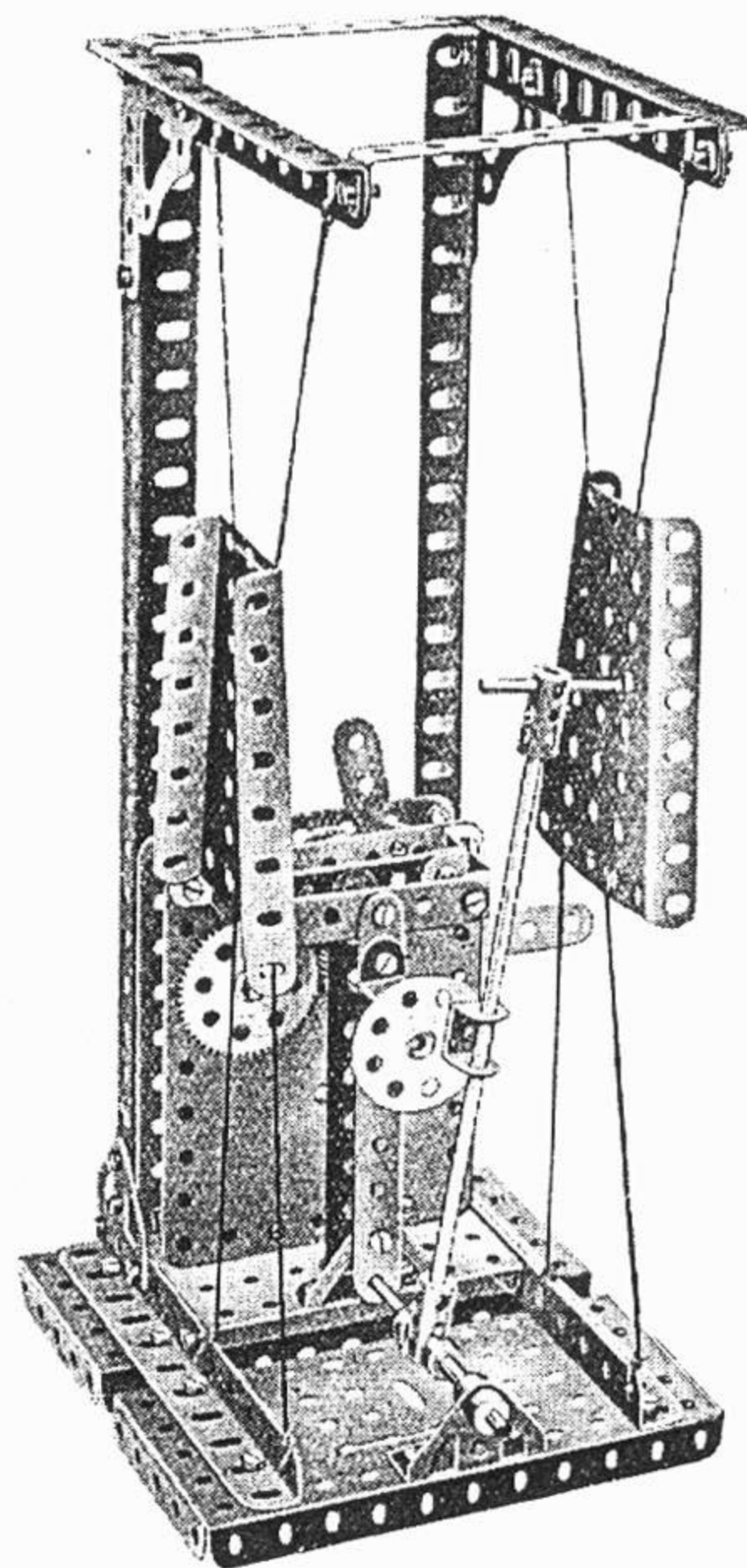
Parts  
required :

2	of No.	1
9	"	2
1	"	2A
4	"	3
4	"	4
2	"	5
4	"	8
4	"	9
3	"	10
14	"	12
2	"	12A
1	"	14
1	"	15A
2	"	16
1	"	17
1	"	18A
4	"	20A
1	"	21
1	"	26
1	"	27A
2	"	29
98	"	37
4	"	37A
3	"	38
3	"	48A
2	"	52
3	"	53
2	"	54
5	"	59
1	"	62
2	"	63
2	"	90A
1	"	98
4	"	99
3	"	100
3	"	111
3	"	111c
1	"	116A
1	"	125
2	"	126A
4	"	142A
1	"	147B
2	"	165

Clockwork  
Motor  
(not included  
in Outfit)

## Model No. 4.29

## Automatic Gong

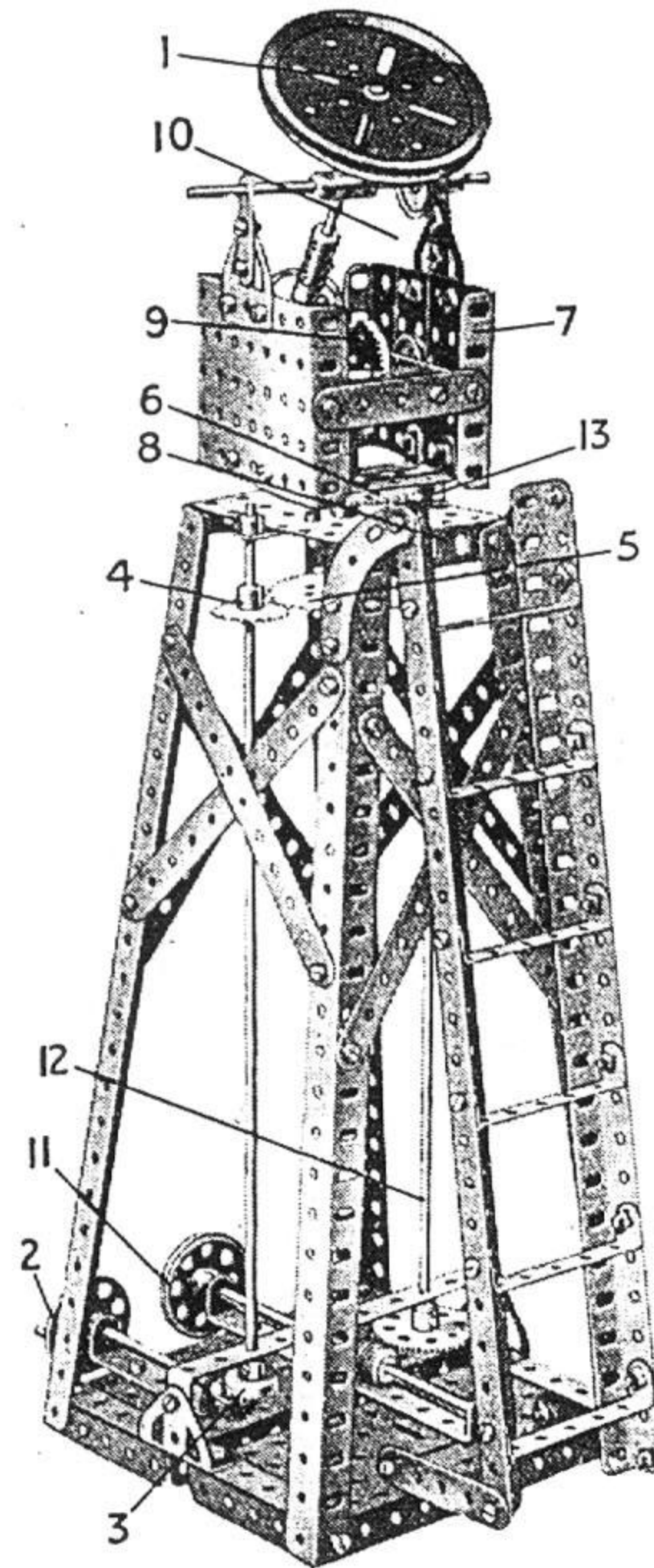
Parts  
required :

2	of No.	2A
2	"	5
2	"	8
4	"	9
3	"	11
1	"	12
1	"	14
1	"	16
1	"	17
1	"	18A
1	"	24
1	"	26
1	"	27A
45	"	37
2	"	37A
2	"	38
1	"	40
1	"	45
2	"	48B
2	"	52
1	"	53
2	"	54
4	"	59
2	"	63
2	"	108
1	"	111c
2	"	125
2	"	126
2	"	126A

Clockwork  
Motor  
(not included  
in Outfit)



## Model No. 4.30 Searchlight

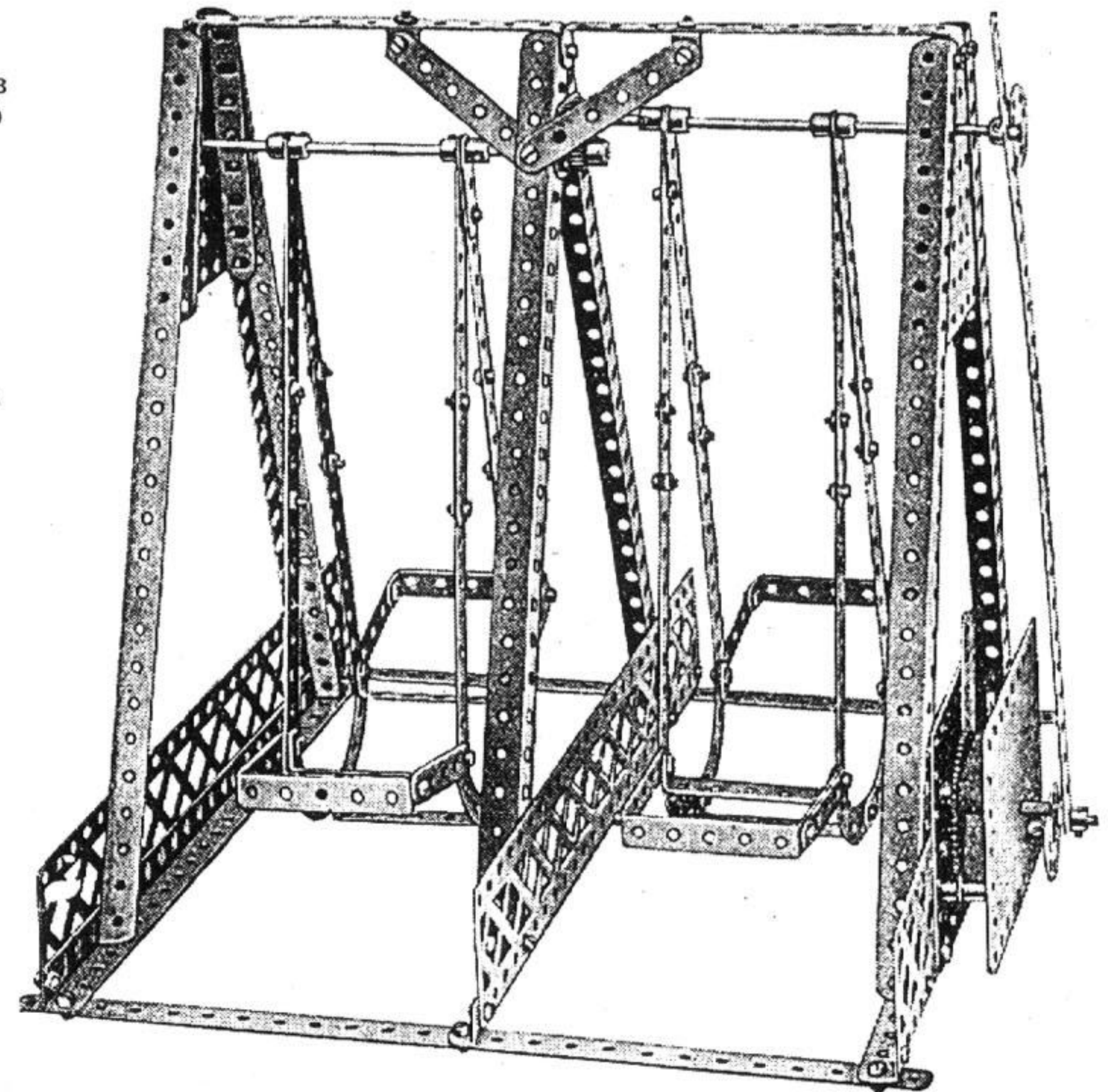


Parts required :

10 of No. 2	1 of No. 21	1 of No. 48B
1 " " 3	3 " " 22	2 " " 48D
4 " " 5	2 " " 24	2 " " 52
2 " " 6A	2 " " 26	3 " " 53
6 " " 8	1 " " 27A	4 " " 59
2 " " 12	1 " " 28	2 " " 63
2 " " 13	1 " " 29	2 " " 95
1 " " 14	1 " " 32	2 " " 96
3 " " 16	86 " " 37	2 " " 115
2 " " 17	7 " " 38	2 " " 126
1 " " 19B	1 " " 45	2 " " 126A
	9 " " 48A	

The elevation of the searchlight 1 is controlled by the hand wheel 2, the motion of which is transmitted by means of a  $\frac{1}{2}$ " Pinion and  $\frac{3}{4}$ " Contrate Wheel 3 and 1" Sprocket Wheel 4 to a 2" Sprocket Wheel 5. The latter is secured to a vertical Rod that is free to revolve in the boss of a second 2" Sprocket Wheel 6 bolted to two  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips, which in turn, are secured in the base of the rotating frame 7. This vertical Rod is journaled in a Double Bent Strip that is bolted beneath the Plate 8 to form an additional support, and it carries at its upper end a  $\frac{1}{2}$ " Pinion that engages with the  $1\frac{1}{2}$ " Contrate Wheel 9. The motion of the Contrate 9 is transmitted to the pivotal Rod of the searchlight by means of the Pulleys and belt 10. The searchlight is rotated by the second hand wheel 11, the drive from which is transmitted through Worm gearing to the vertical Rod 12, the upper end of which carries a 1" Sprocket Wheel 13, that engages with the 2" Sprocket Wheel 6.

## Model No. 4.31 Alternating Swing

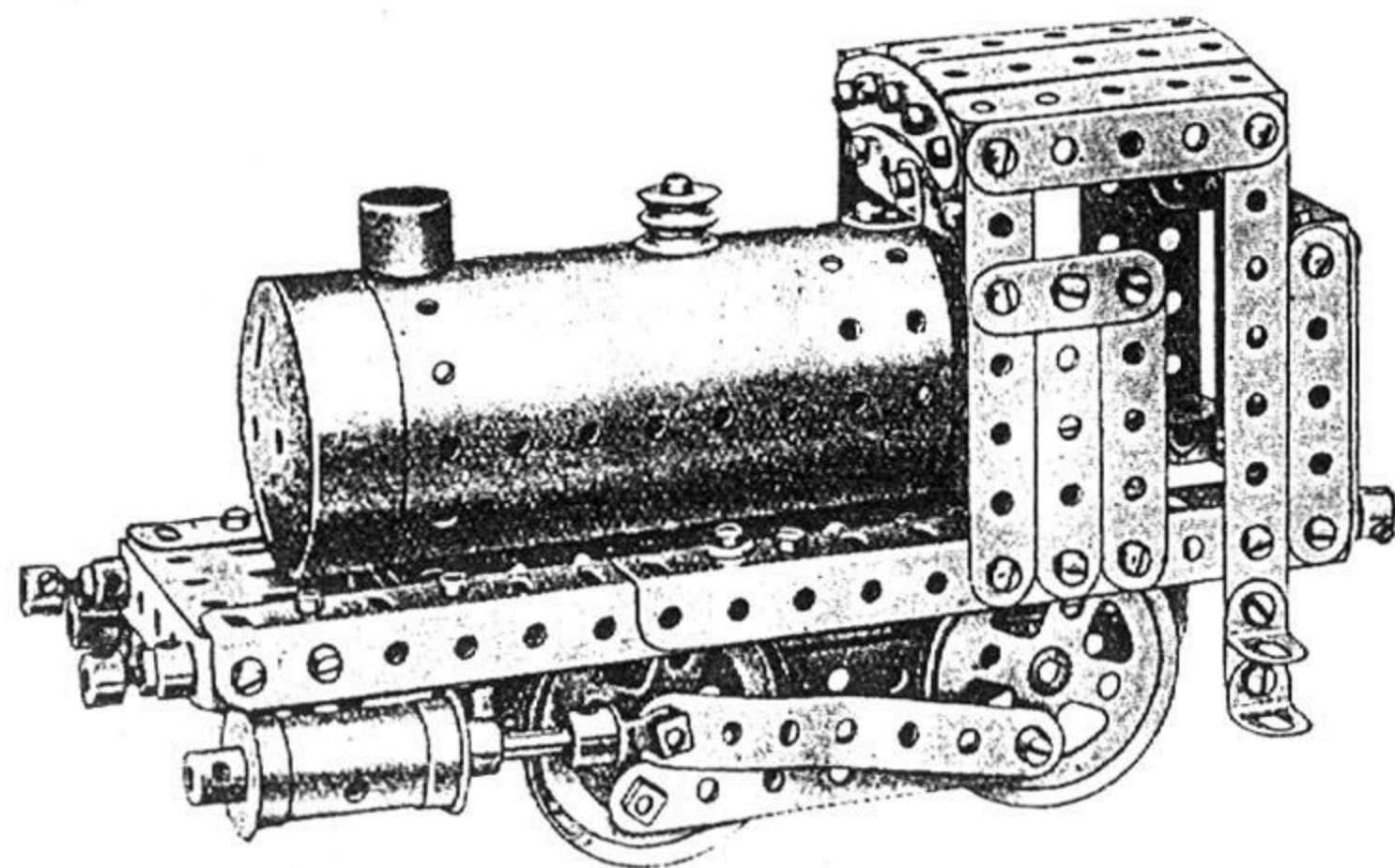


Parts required :

3 of No. 1	4 of No. 12	10 of No. 48A	4 of No. 90A
8 " " 2	2 " " 14	2 " " 48D	3 " " 99
2 " " 4	2 " " 24	2 " " 54	1 " " 111c
9 " " 5	2 " " 26	9 " " 59	1 " " 115
2 " " 6A	72 " " 37	2 " " 62	
8 " " 8	3 " " 37A	4 " " 90	

Clockwork Motor  
(not included in Outfit)





The coupling Rods 7 are attached to the front pair of Wheels by bolts and lock-nuts and to the back pair by  $\frac{3}{8}$ " Bolts and lock-nuts. The connecting Rods 8, which are bent slightly as shown, are attached at one end to the Bolts 9 and at the other are connected the End Bearings, which carry the  $1\frac{1}{2}$ " Rods forming the piston rods.

To assemble the model, the Bolts 5 are passed through the centre holes of the  $2\frac{1}{2}$ " Strips 6, and through the Boiler, and are then secured by their Nuts (the Washers shown being used to space the Strips 6 from the  $1\frac{1}{2}$ " Double Angle Strips).

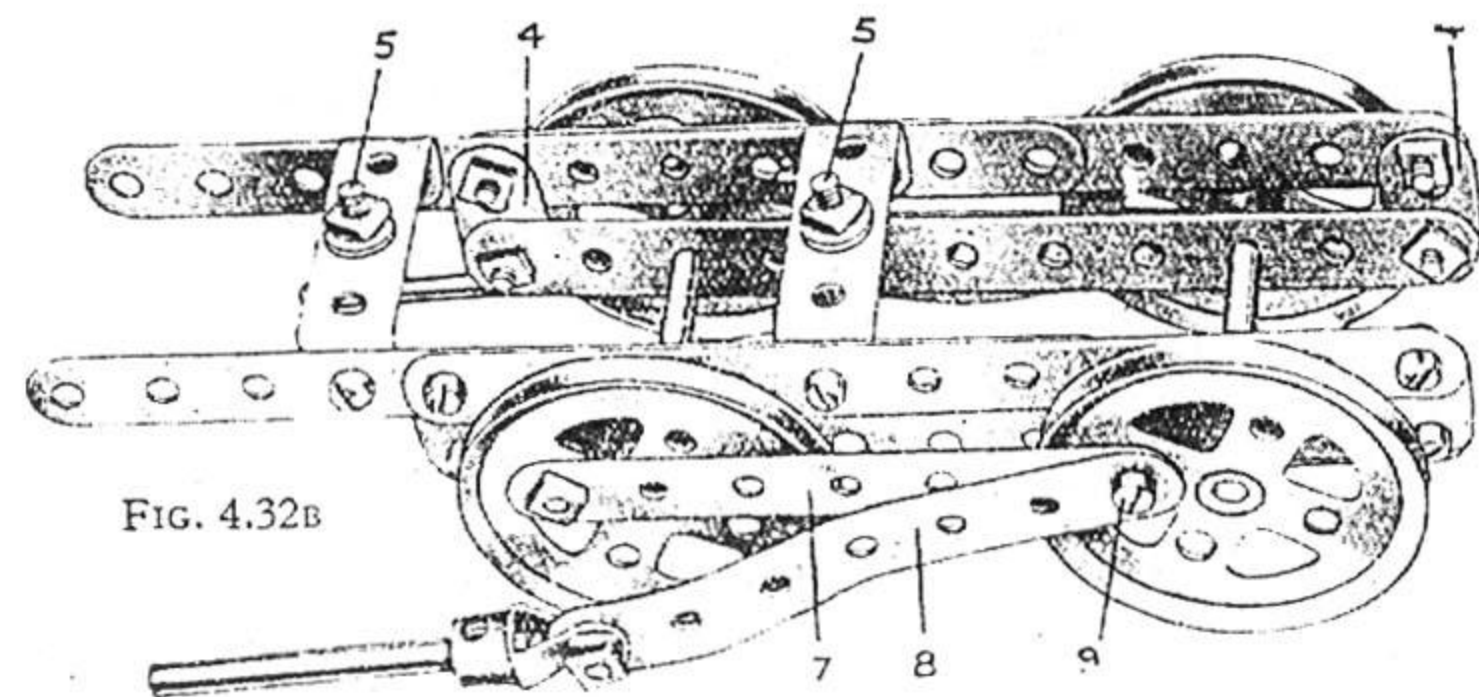


FIG. 4.32B

## Model No. 4.32

### o-4-o Shunting Locomotive

The superstructure is shown in detail in Fig. 4.32A. Each of the two side members is built up from two  $5\frac{1}{2}$ " Angle Girders overlapping five holes. The cab roof is composed of five  $2\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Double Angle Strips bolted to two  $2\frac{1}{2}$ " Curved Strips and is attached to the frame of the cab by Angle Brackets. The front of the cab is composed of three  $2\frac{1}{2}$ " Strips connected together so as to form three sides of a square and bolted to the Boiler by an Angle Bracket. The cylinders 2 are bolted to the side members by means of two Flat Brackets 3 which are bent slightly outward.

Each side of the frame that carries the wheels is composed of two  $5\frac{1}{2}$ " Strips overlapping seven holes and one  $5\frac{1}{2}$ " Strip attached by Flat Brackets 4 as shown in Fig. 4.32B.

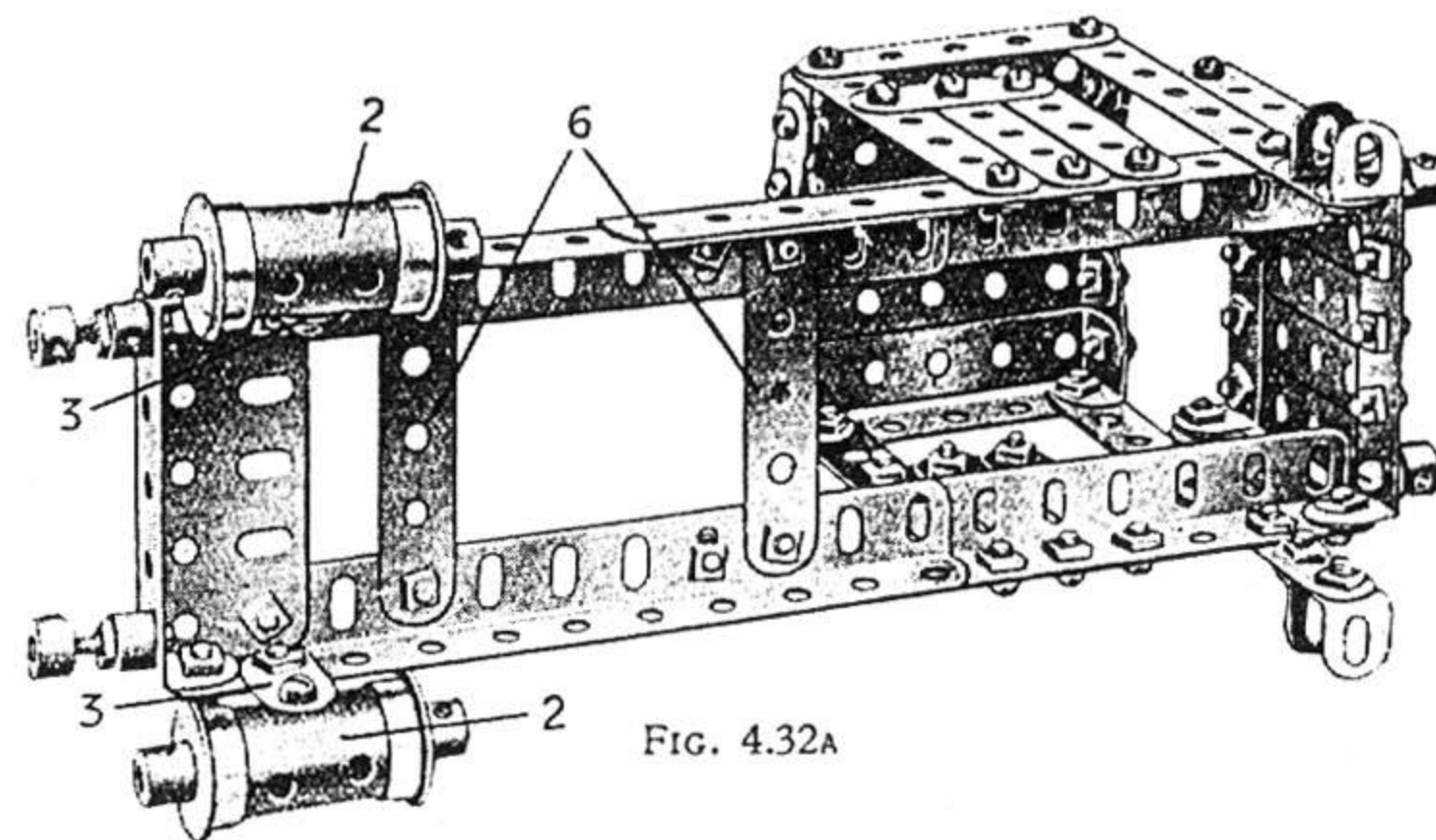


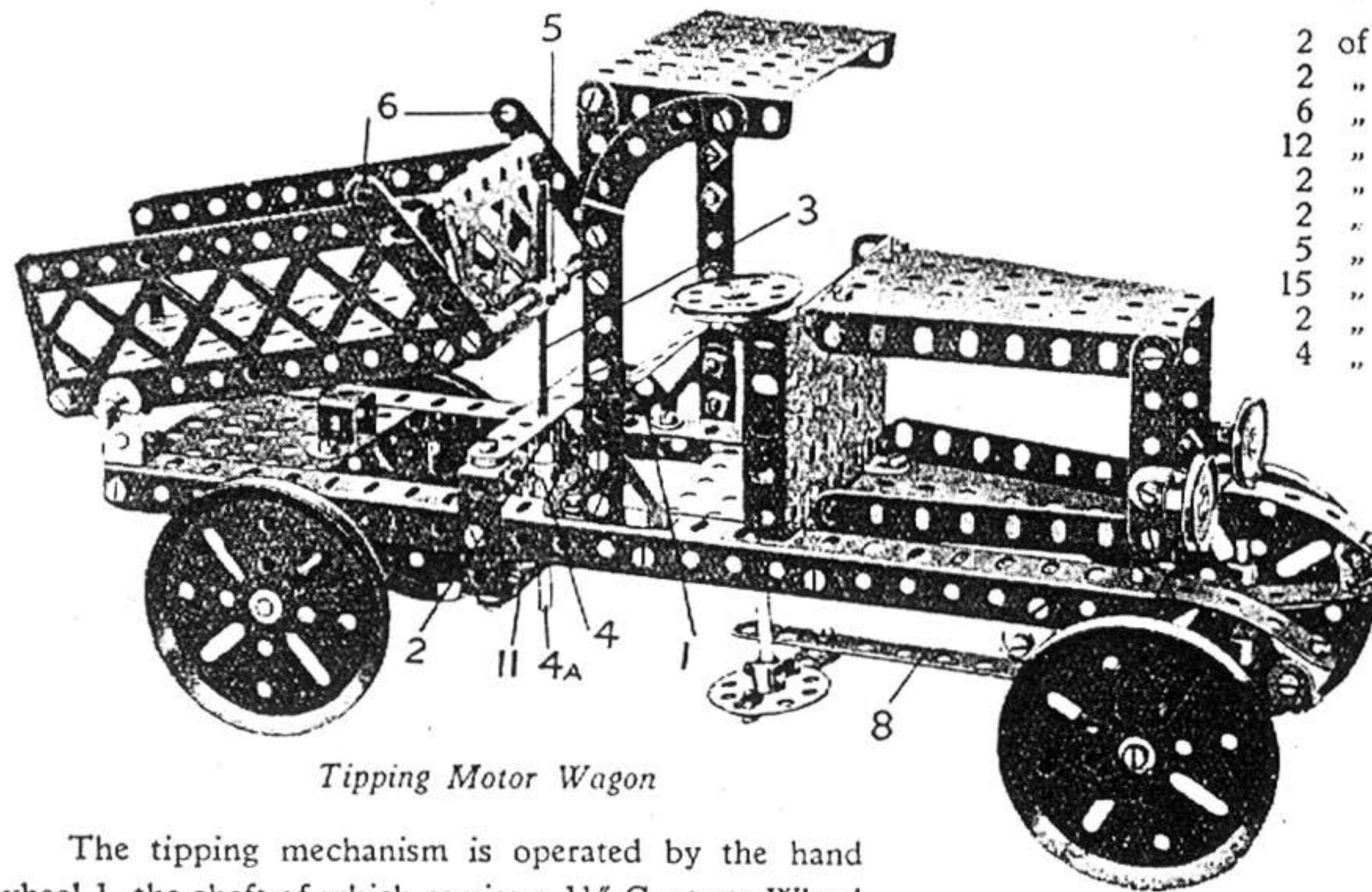
FIG. 4.32A

Parts required :

6 of No. 2	10 of No. 12	10 of No. 38	1 of No. 116A
2 " " 2A	4 " " 17	7 " " 48A	1 " " 162
6 " " 3	4 " " 20A	6 " " 59	2 " " 163
18 " " 5	4 " " 20B	2 " " 90	1 " " 164
2 " " 6A	2 " " 23	1 " " 103F	1 " " 166
4 " " 9	85 " " 37	2 " " 111	
6 " " 10	15 " " 37A	5 " " 111c	



# Model No. 4.33 Tipping Motor Wagon



Tipping Motor Wagon

The tipping mechanism is operated by the hand wheel 1, the shaft of which carries a  $1\frac{1}{2}$ " Contrate Wheel that engages with the  $\frac{1}{2}$ " Pinion 2. The  $3\frac{1}{2}$ " Threaded Rod 3, to which the Pinion 2 is secured, is journaled in one end of a Coupling 4 and passes through the central threaded bore of a second Coupling 5, which is mounted between the ends of two short Rods that are free to turn on Bolts passed through  $2\frac{1}{2}$ " Strips 6. These Strips 6 are attached pivotally to the body of the lorry. The short Rod 4A passes through the  $3\frac{1}{2}$ " Strip 11 and is secured in the lower end of the Coupling 4, the centre transverse hole of which forms a bearing for the Rod of the hand wheel 1.

The steering gear is shown in Fig. 4.33A. The  $2\frac{1}{2}$ " Strip 7 is pivoted to the Strip 8, but is secured rigidly at right-angles to the Crank 9. The Crank 9A is made to move simultaneously with the Crank 9 by means of the tie-rod 10. The front road wheels are mounted on  $\frac{3}{4}$ " Bolts secured in Collars 12.

## Parts required :

2 of No. 2	2 of No. 17	2 of No. 100
2 " " 2A	4 " " 18A	4 " " 111c
6 " " 3	4 " " 19B	1 " " 115
12 " " 5	1 " " 21	2 " " 125
2 " " 6A	2 " " 22	2 " " 126
2 " " 8	2 " " 24	2 " " 126A
5 " " 10	1 " " 26	
15 " " 12	1 " " 28	
2 " " 12A	8 " " 35	
4 " " 15A	89 " " 37	
	4 " " 37A	
	14 " " 38	
	2 " " 45	
	2 " " 48	
	1 " " 48B	
	1 " " 52	
	2 " " 53	
	2 " " 54	
	10 " " 59	
	2 " " 62	
	4 " " 63	
	1 " " 80A	
	2 " " 90A	
	1 " " 98	

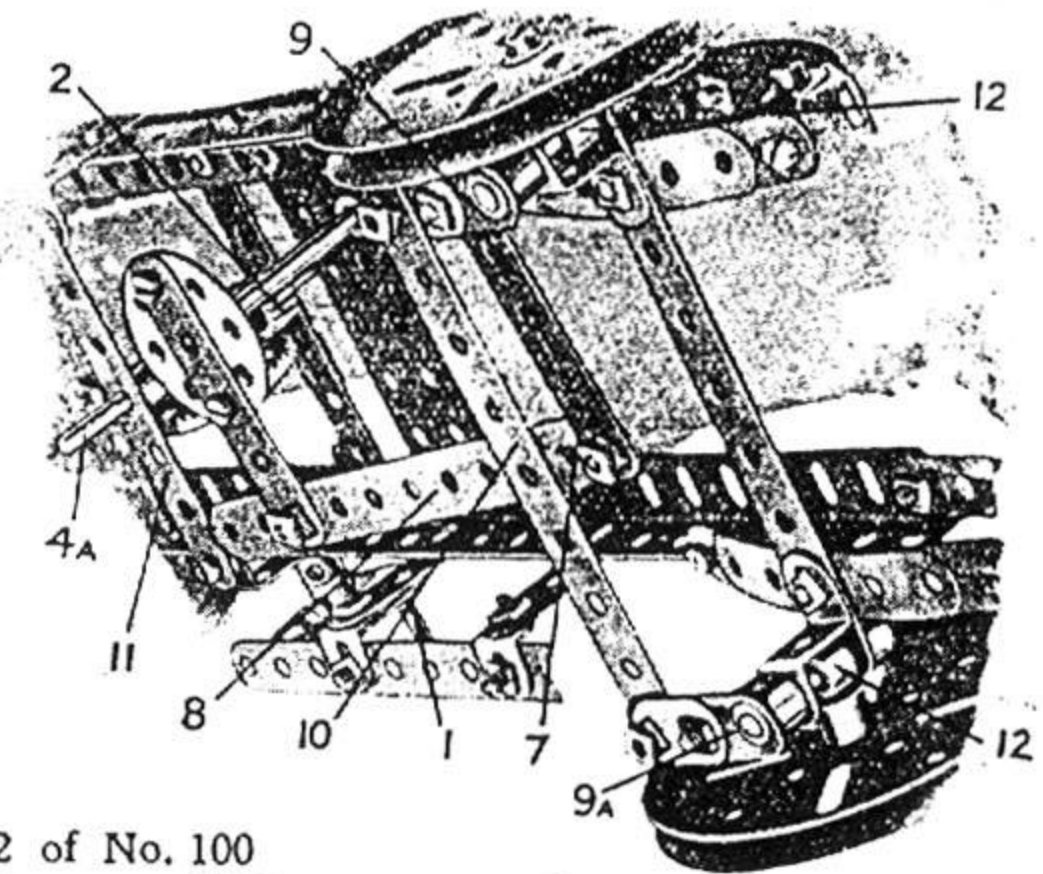
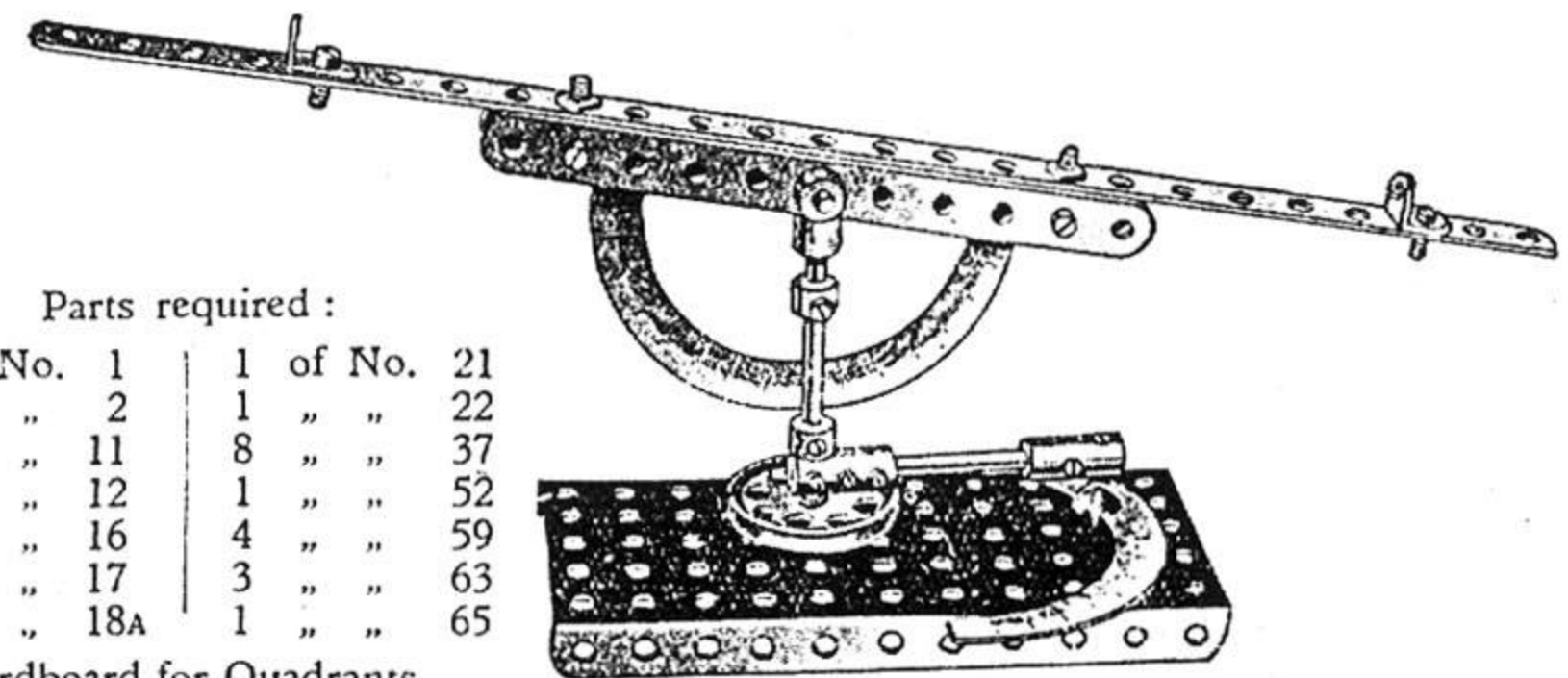


FIG. 4.33A

# Model No. 4.34 Sextant and Theodolite



## Parts required :

1 of No. 1	1 of No. 21
2 " " 2	1 " " 22
2 " " 11	8 " " 37
2 " " 12	1 " " 52
1 " " 16	4 " " 59
1 " " 17	3 " " 63
2 " " 18A	1 " " 65

Cardboard for Quadrants  
(not included in Outfit)

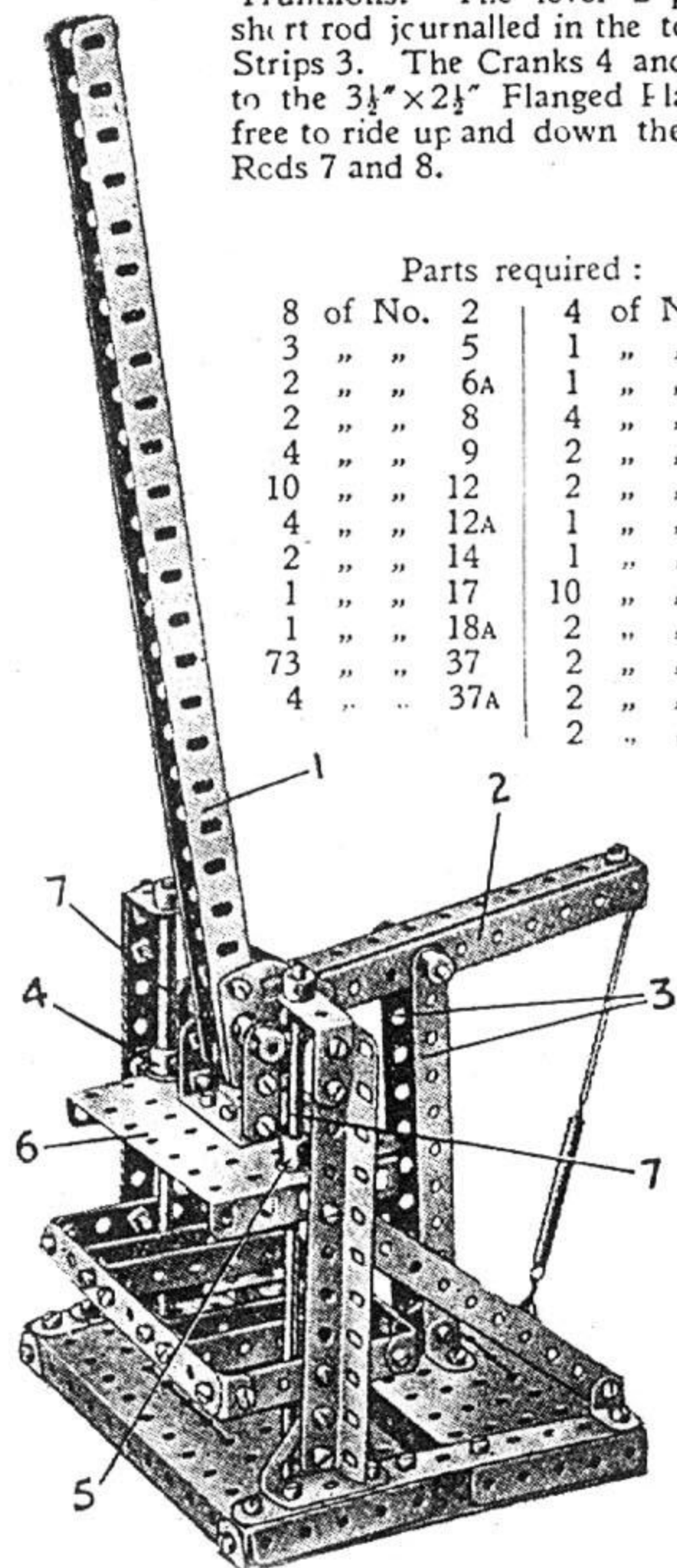


## Model No. 4.35 Potato Chopper

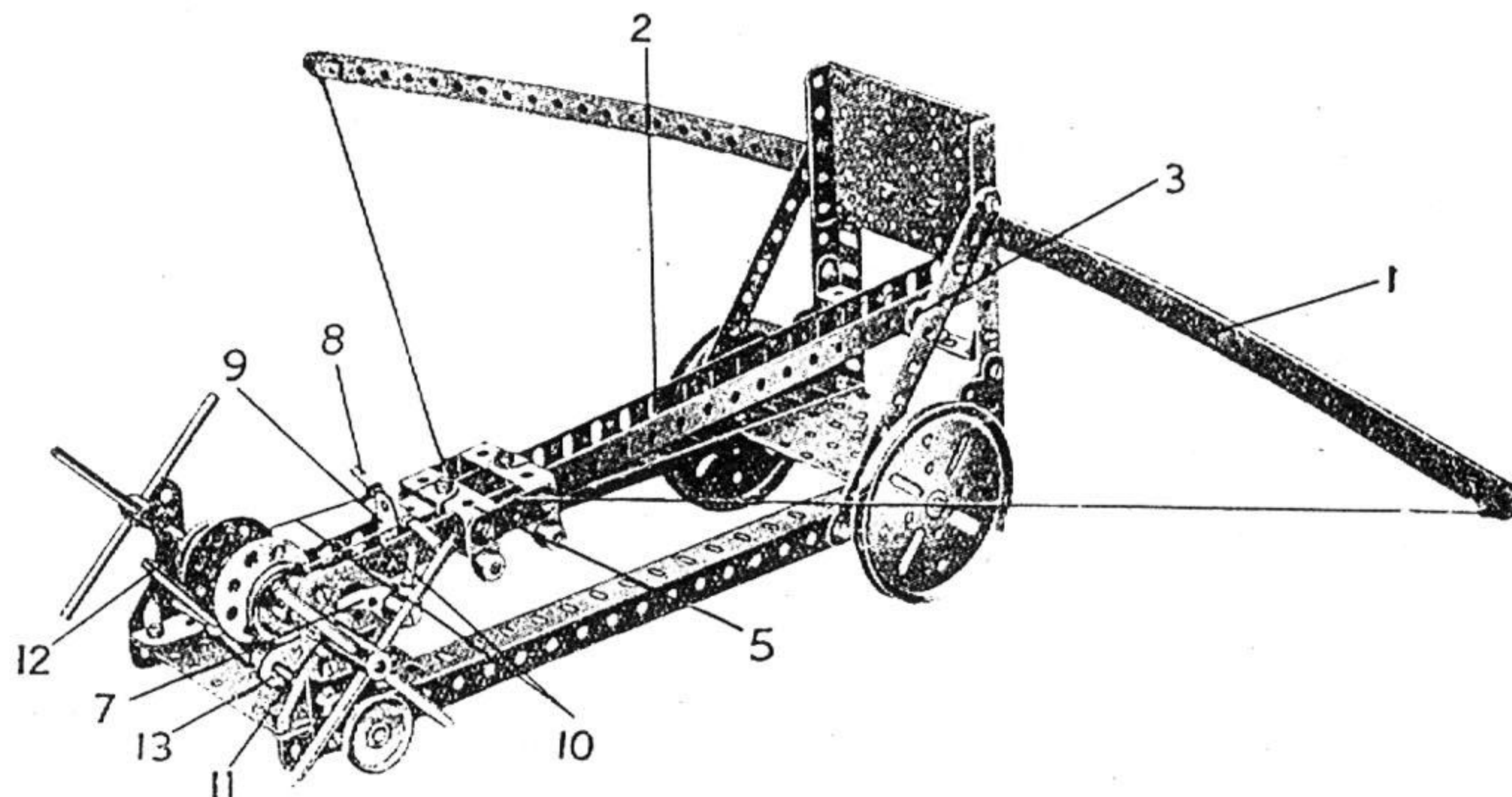
The levers 1 and 2 are secured at right angles to each other by means of two Flat Trunnions. The lever 2 pivots about a short rod journalled in the tops of the  $5\frac{1}{2}$ " Strips 3. The Cranks 4 and 5 are bolted to the  $3\frac{1}{2}$ " $\times$  $2\frac{1}{2}$ " Flanged Plate 6 and are free to ride up and down the vertical Axle Rods 7 and 8.

### Parts required :

8 of No. 2	4 of No. 38
3 " " 5	1 " " 40
2 " " 6A	1 " " 43
2 " " 8	4 " " 48A
4 " " 9	2 " " 48D
10 " " 12	2 " " 52
4 " " 12A	1 " " 53
2 " " 14	1 " " 57C
1 " " 17	10 " " 59
1 " " 18A	2 " " 62
73 " " 37	2 " " 111C
4 " " 37A	2 " " 126
	2 " " 126A



## Model No. 4.36 Mechanical Cross Bow



This model represents a large military weapon of the type used before the invention of gunpowder. It is built on the principle of the crossbow. Each side of the bow 1 is composed of three  $12\frac{1}{2}$ " Strips bolted together, the centre being strengthened by three  $2\frac{1}{2}$ " Strips. The trough 2, which is formed from two  $12\frac{1}{2}$ " Angle Girders, is held loosely between a pair of Angle Brackets 3, and its rear end is secured to a Double Bent Strip bolted to the  $3\frac{1}{2}$ " $\times$  $2\frac{1}{2}$ " Flanged Plate. The carriage 5 is composed of four  $1"$  $\times$  $1"$  Angle Brackets joined by a pair of  $1\frac{1}{2}$ " Strips and guided by two  $\frac{1}{2}"$  $\times$  $\frac{1}{2}"$  Angle Brackets. A Double Bracket is bolted to one of the latter, and carries in its turn a Flat Bracket 9. When the handles are turned in an anti-clockwise direction, the Cords 10 draw the carriage back, and are prevented from unwinding by the Pawl 7 engaging a  $\frac{1}{2}"$  Pinion Wheel 11. When the lever 12 is depressed, the ends of a pair of  $2\frac{1}{2}"$  Strips bolted to Cranks 13 lift the 2" Rod 8 off the Flat Bracket 9. This releases the carriage, and the projectile (a marble) is shot out of the trough 2 with considerable force.

### Parts required :

6 of No. 1	53 of No. 37
7 " " 5	2 " " 37A
2 " " 6A	5 " " 38
4 " " 8	1 " " 40
2 " " 9	1 " " 45
1 " " 10	1 " " 48
1 " " 11	1 " " 48B
4 " " 12	3 " " 53
4 " " 12A	4 " " 59
1 " " 15	2 " " 62
3 " " 15A	3 " " 63
4 " " 16	2 " " 108
4 " " 17	2 " " 111
2 " " 19B	1 " " 115
4 " " 22	2 " " 126
2 " " 24	1 " " 126A
1 " " 26	1 " " 147A

1 of No. 147B



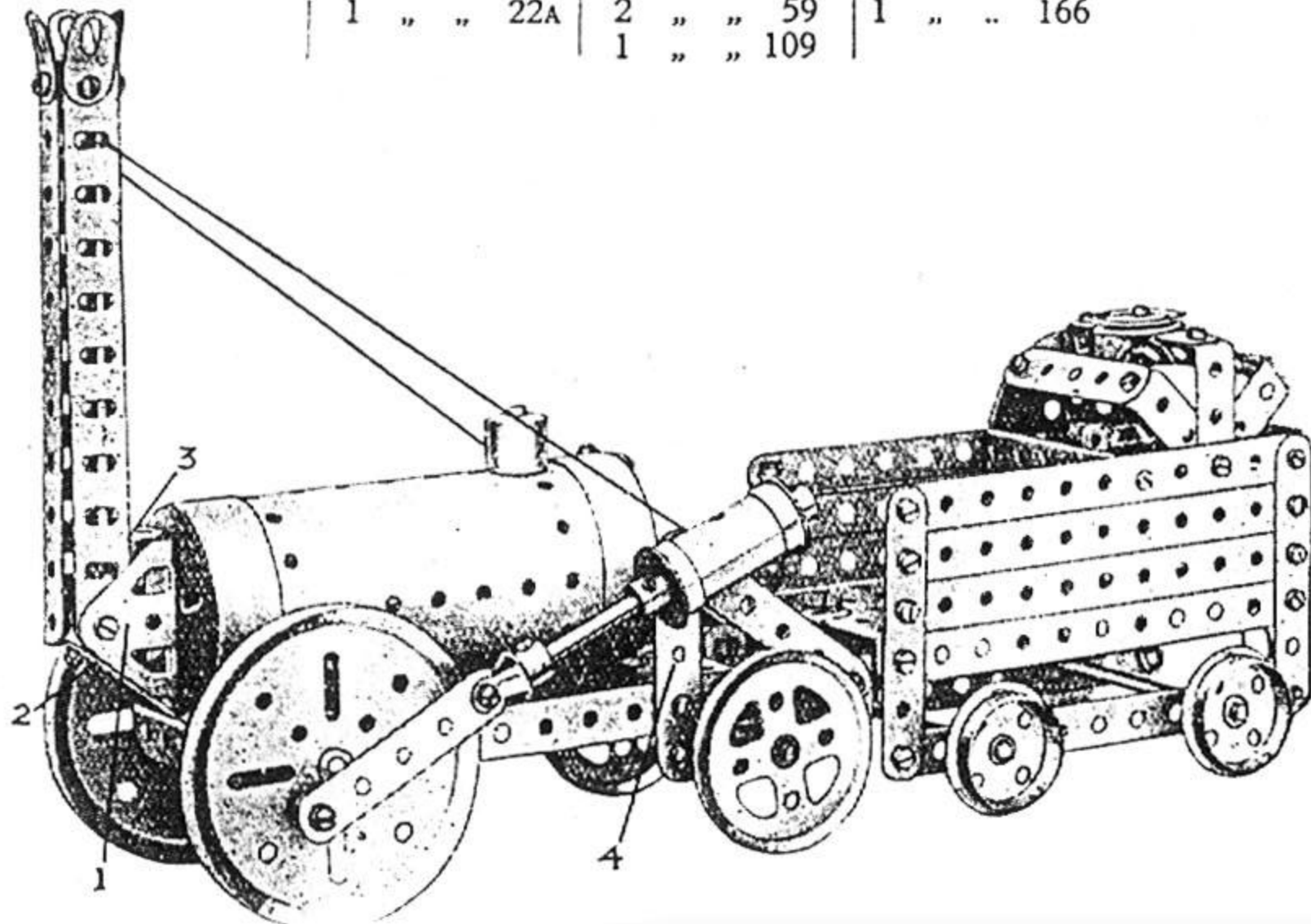
## Model No. 4.37 Stephenson's "Rocket" Locomotive

The chimney is attached at its lower end to two Trunnions 1 that are bolted to the front of the boiler. A  $1\frac{1}{2}$ " Strip 2, held in place by a  $\frac{1}{2} \times \frac{1}{2}$ " Angle Bracket, closes in the space between the Trunnions at the bottom, and a  $\frac{1}{2} \times \frac{1}{2}$ " Angle Bracket 3 performs a similar function at the top.

The trailing wheels are secured on an axle that is journalled in  $2\frac{1}{2}$ " Strips attached to the bottom extremities of the  $2\frac{1}{2}$ " Strips 4. The rearmost ends of the horizontal Strips are secured by Flat Brackets. The upper ends of the Strips 4 serve as mountings for the cylinders, which are secured rigidly thereon by  $\frac{3}{8}$ " Bolts, on each of which are four Washers between the cylinder and the Strip.

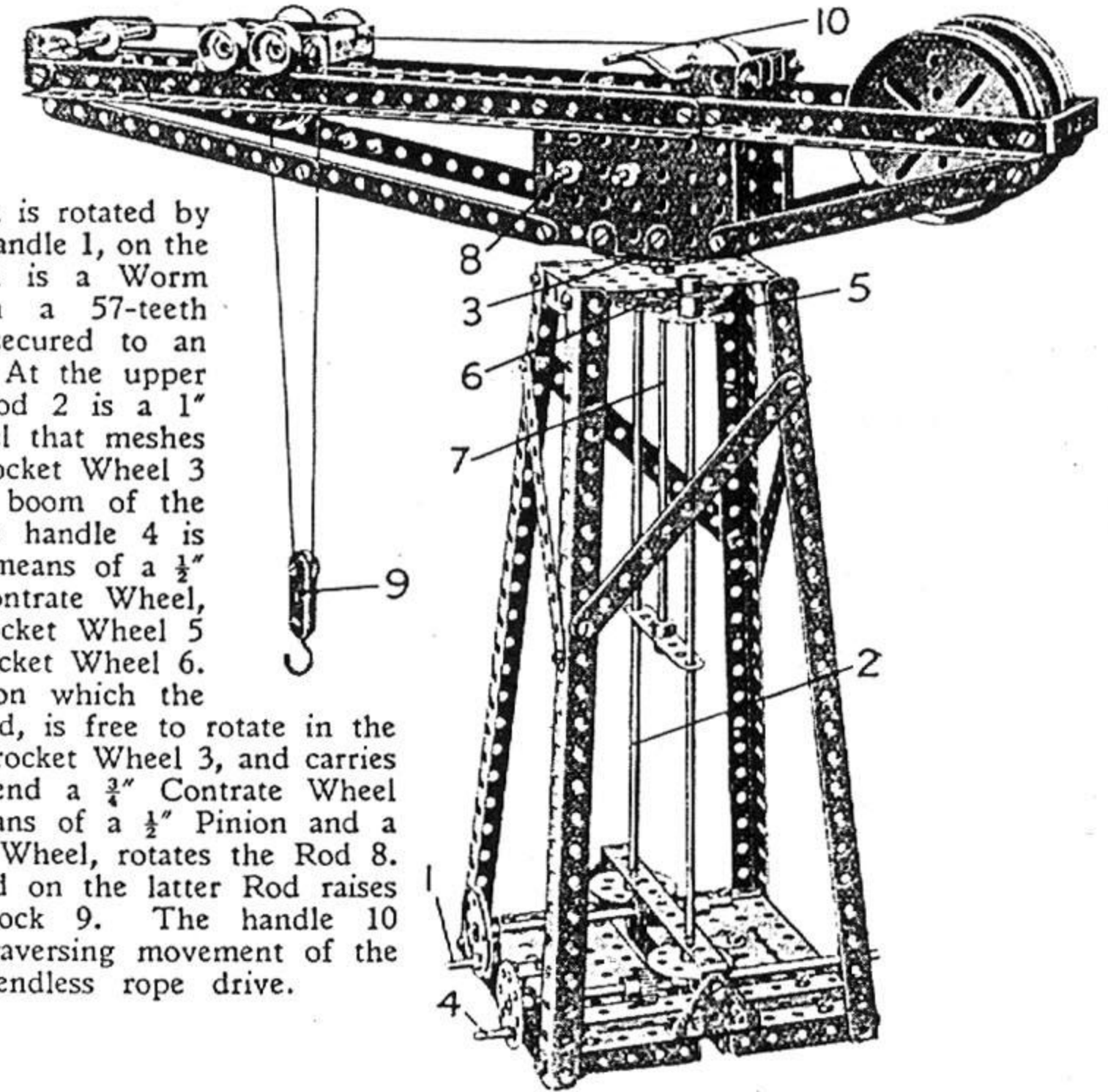
### Parts required :

8 of No. 2	10 of No. 12	56 of No. 37	1 of No. 111
4 " " 3	4 " " 16	8 " " 37A	5 " " 111c
2 " " 4	2 " " 17	8 " " 38	1 " " 116A
11 " " 5	2 " " 19B	1 " " 40	2 " " 126
1 " " 6A	4 " " 20	9 " " 48A	1 " " 162
2 " " 9	2 " " 20A	2 " " 52	2 " " 163
6 " " 10	4 " " 20B	1 " " 57C	1 " " 164
	1 " " 22A	2 " " 59	1 " " 166
		1 " " 109	



## Model No. 4.38 Girder Crane

The boom is rotated by means of the handle 1, on the axle of which is a Worm engaging with a 57-teeth Gear Wheel secured to an  $11\frac{1}{2}$ " Rod 2. At the upper end of the Rod 2 is a 1" Sprocket Wheel that meshes with a 2" Sprocket Wheel 3 bolted to the boom of the crane. The handle 4 is connected by means of a  $\frac{1}{2}$ " Pinion,  $1\frac{1}{2}$ " Contrate Wheel, and a 1" Sprocket Wheel 5 to the 2" Sprocket Wheel 6. The Rod 7, on which the latter is secured, is free to rotate in the boss of the Sprocket Wheel 3, and carries at its upper end a  $\frac{3}{4}$ " Contrate Wheel which, by means of a  $\frac{1}{2}$ " Pinion and a 57-teeth Gear Wheel, rotates the Rod 8. A Cord wound on the latter Rod raises the pulley block 9. The handle 10 controls the traversing movement of the trolley by an endless rope drive.

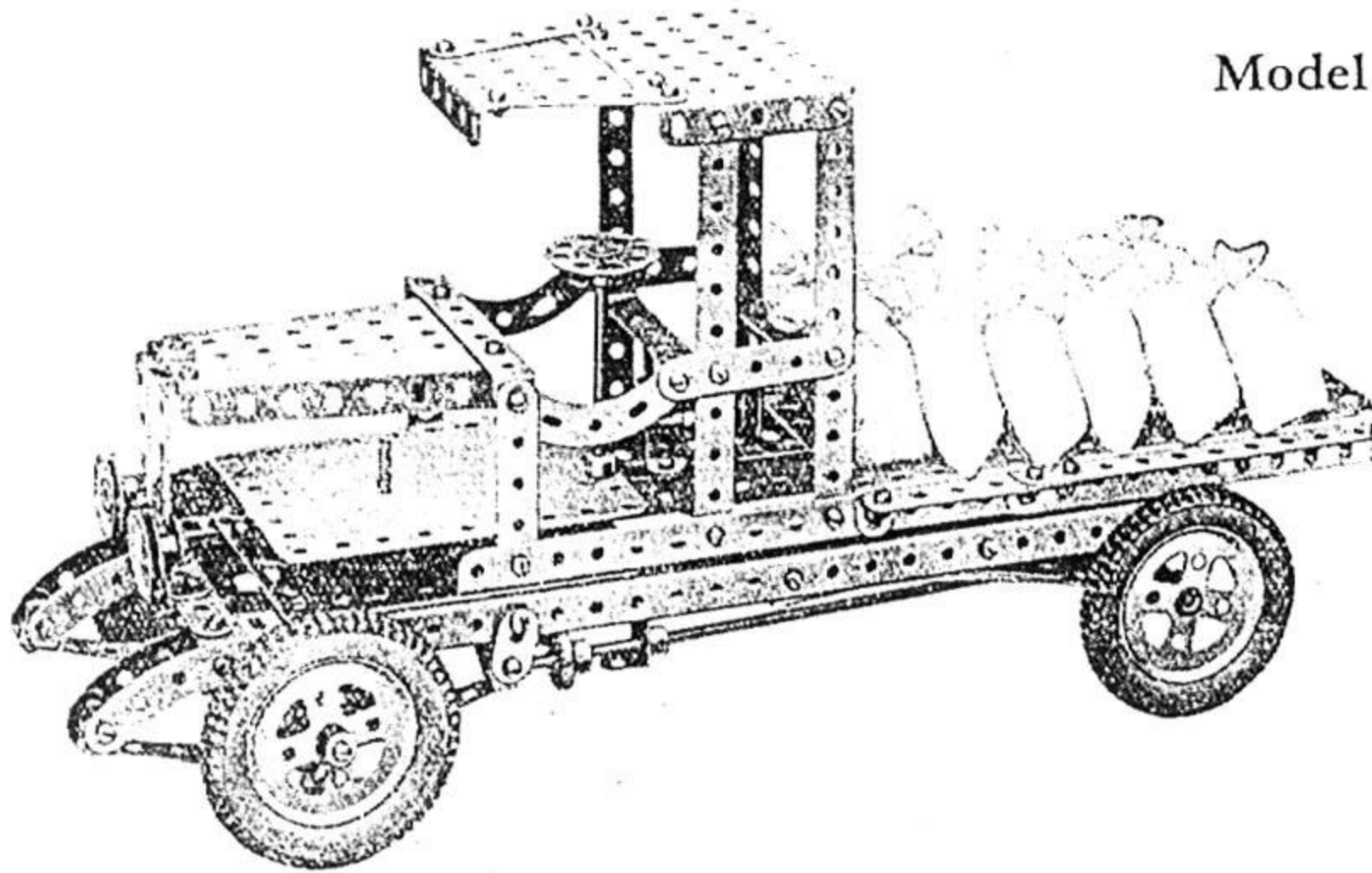


### Parts required :

12 of No. 2	1 of No. 15A	2 of No. 27A	2 of No. 48D
2 " " 3	4 " " 16	1 " " 28	2 " " 52
2 " " 5	3 " " 17	1 " " 29	3 " " 53
2 " " 6A	4 " " 19B	1 " " 32	1 " " 57C
6 " " 8	1 " " 19S	8 " " 35	9 " " 59
2 " " 9	4 " " 20B	76 " " 37	2 " " 90A
9 " " 10	1 " " 21	5 " " 37A	2 " " 95
2 " " 12A	1 " " 22	2 " " 38	2 " " 96
2 " " 13	2 " " 22A	1 " " 40	2 " " 103F
1 " " 13A	2 " " 23	2 " " 46	4 " " 111C
1 " " 14	2 " " 24	2 " " 48	2 " " 115
	2 " " 26	1 " " 49	2 " " 126



## Model No. 4.39 Motor Lorry



Parts required :

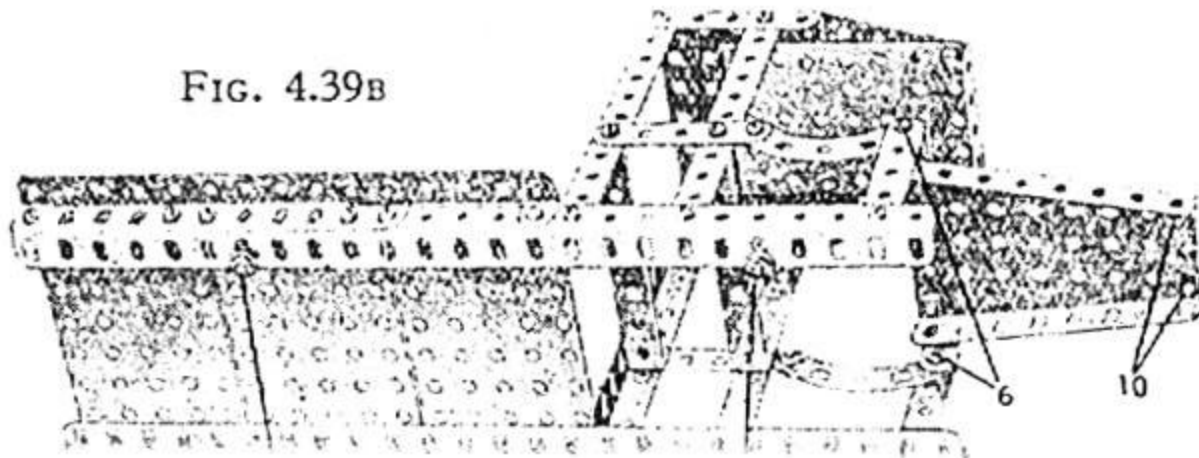
6 of No. 2	1 of No. 13A	1 of No. 29	6 of No. 63
2 " " 2A	1 " " 15	95 " " 37	4 " " 90
5 " " 3	1 " " 15A	14 " " 37A	2 " " 90A
2 " " 4	1 " " 16	15 " " 38	2 " " 111
11 " " 5	3 " " 17	1 " " 48	6 " " 111C
1 " " 6A	4 " " 18A	2 " " 48A	1 " " 115
6 " " 8	4 " " 20A	3 " " 48B	1 " " 116A
4 " " 9	2 " " 22	5 " " 53	1 " " 125
4 " " 10	1 " " 24	1 " " 54	4 " " 142A
4 " " 11	2 " " 26	10 " " 59	1 " " 147B
8 " " 12	1 " " 28	1 " " 62	2 " " 165

Clockwork Motor and  
Meccano Loaded Sacks  
(not included in outfit)

The front wheels are mounted on  $\frac{3}{4}$ " Bolts, which form the stub axles and are secured in Couplings 1 (Fig. 4.39A). Each of the latter carries in its centre transverse hole a  $1\frac{1}{2}$ " Rod 2, which is passed through the end holes of two  $4\frac{1}{2}$ " Strips laid one upon the other, and loosely clamped in place by Collars. The end transverse holes of the Couplings hold the Rods 3 and 4 which are connected pivotally together at their ends by Swivel Bearings and two short Rods joined by a Coupling. A 2" Rod 5 is held in another Coupling on the Rod 4 and is connected by means of a Swivel Bearing and  $3\frac{1}{2}$ " Rod to a Crank on the lower end of the steering column. A Pivot Bolt is passed through the end transverse hole of the Coupling on the  $3\frac{1}{2}$ " Rod and is secured to the Crank by two nuts.

The bonnet is attached pivotally to the body by bolts 6 and lock-nuts so that it may be raised to allow the winding key of the Motor to be inserted. The shanks of the bolts 10 enter the top holes of the  $2\frac{1}{2}$ " Double Angle Strips in the front of the chassis, but they are not secured to the Strips.

FIG. 4.39B



The complete body shown in Fig. 4.39B can be detached from the chassis (Fig. 4.39A) by undoing the  $\frac{3}{4}$ " Bolts 7 and 8, which are passed through holes in the Angle Girders of the chassis and spaced therefrom by Washers. The Bolts 7 are inserted in the hole marked 9 (Fig. 4.39A) and the corresponding hole in the other side Girder, whilst Bolts 8 are passed through the end holes but one of the two side Girders.

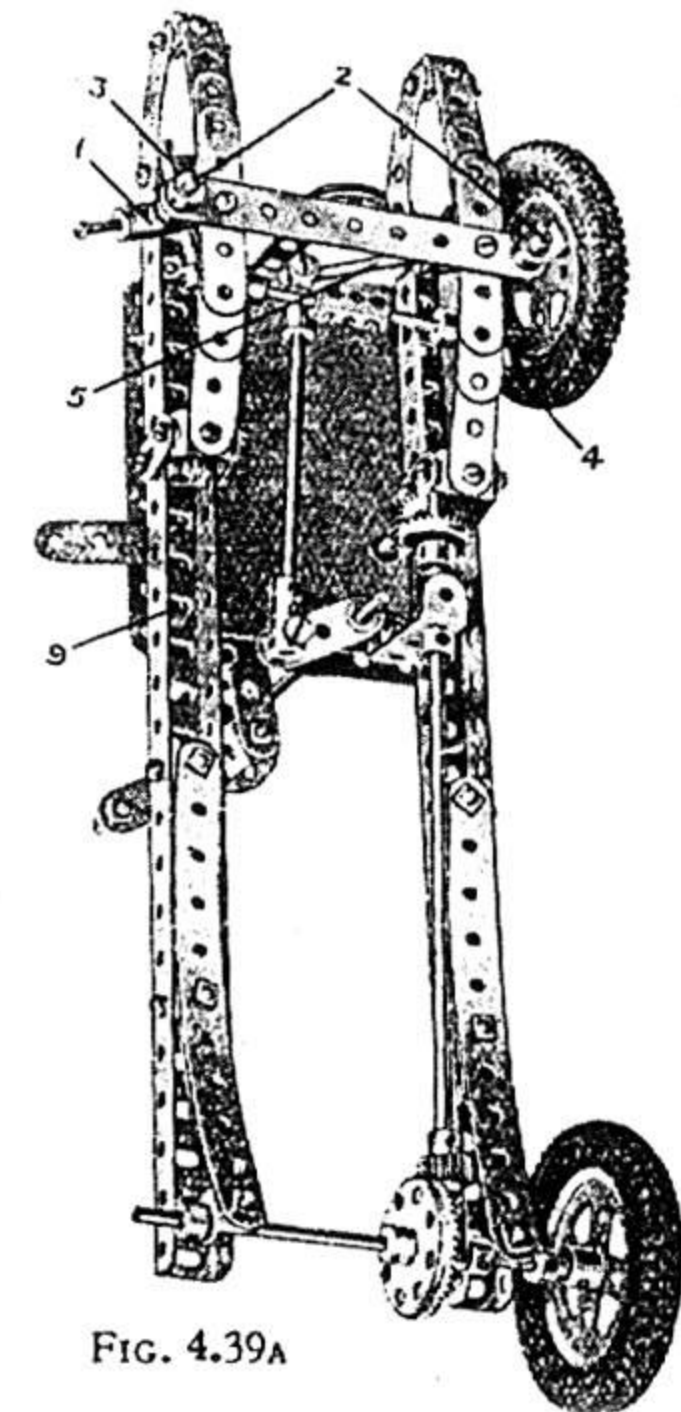
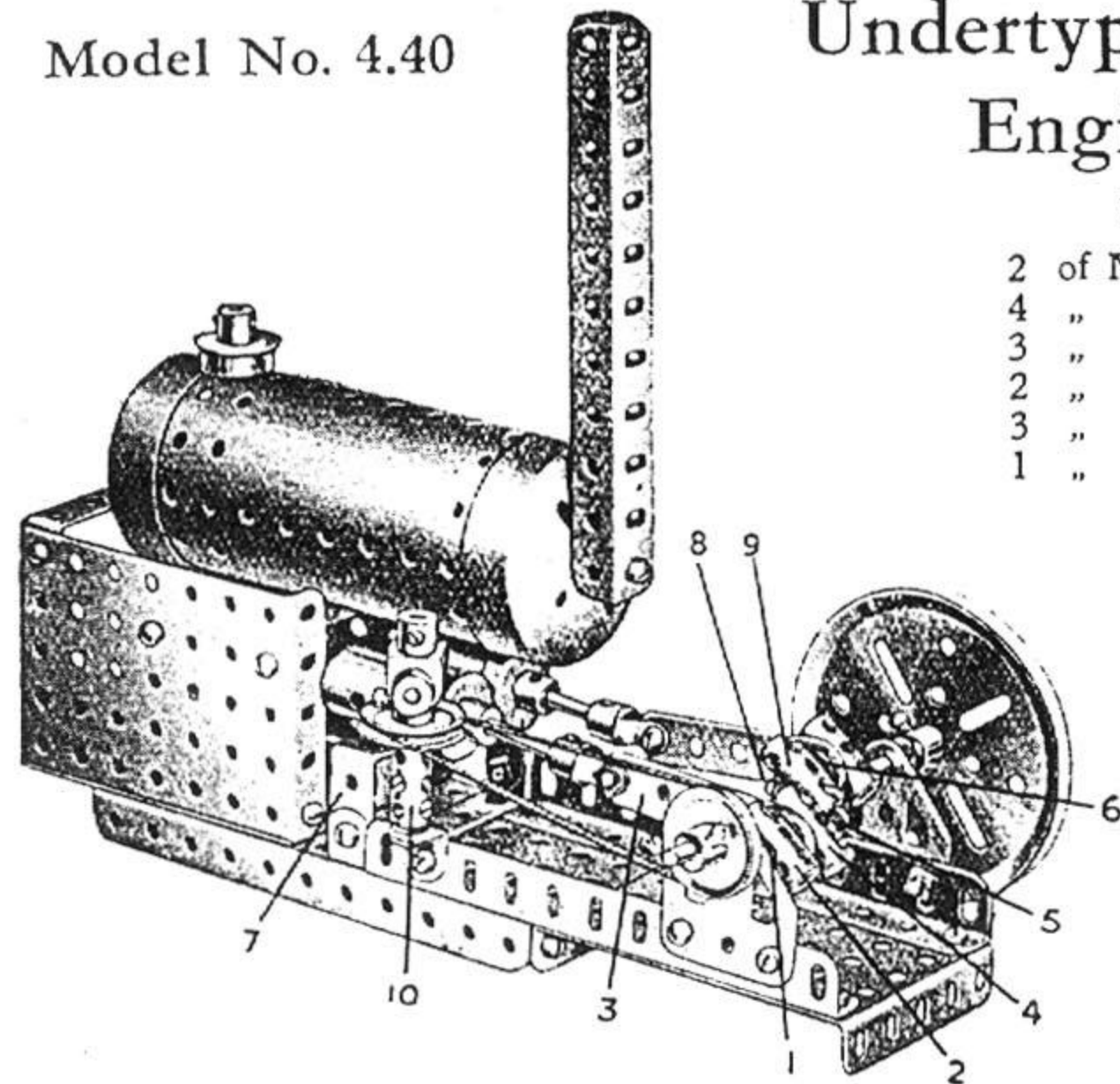


FIG. 4.39A



Model No. 4.40

# Undertype Steam Engine



Parts required :

2 of No. 5	3 of No. 20B
4 " " 9	2 " " 22
3 " " 12	40 " " 37
2 " " 17	4 " " 37A
3 " " 18A	6 " " 38
1 " " 19B	1 " " 40
	1 " " 46
	4 " " 48A
	1 " " 52
	4 " " 53
	4 " " 59
	5 " " 63
	2 " " 111
	4 " " 111c
	2 " " 115
	1 " " 116
	1 " " 116A
	2 " " 126A
	1 " " 162
	2 " " 163
	1 " " 166

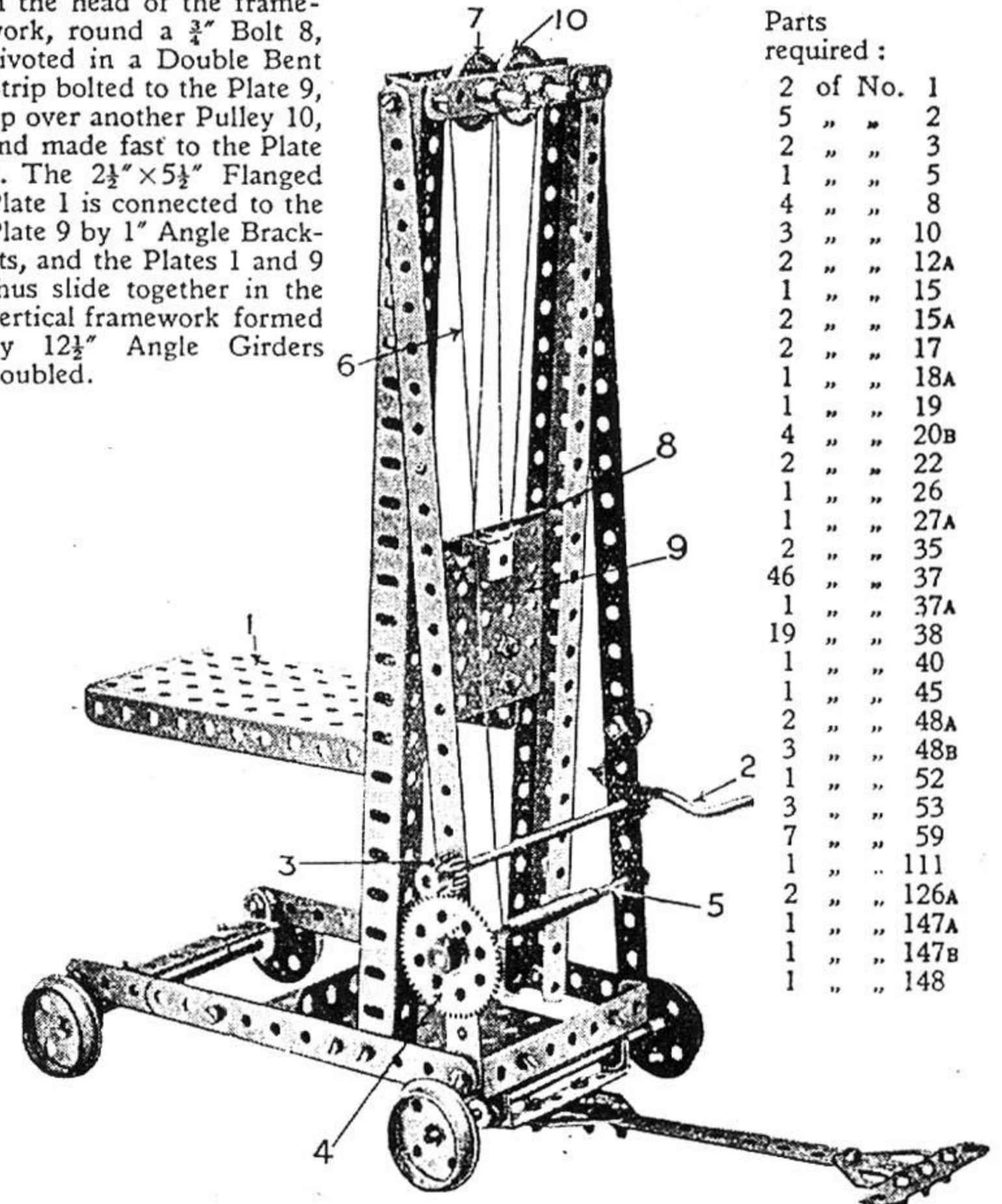
The crankshaft is built up of four Couplings joined together by  $\frac{3}{4}$ " Bolts. A  $\frac{3}{4}$ " Bolt 1 is passed through the centre threaded hole of the Coupling 2 and screwed up as tightly as possible. The connecting Rod 3 is now slipped on and spaced by two Washers, one on each side of the Strip, after which the Coupling 4 is screwed on to the Bolt 1 so that the connecting Rod revolves easily in the intervening space. A  $\frac{3}{4}$ " Bolt 5 is next screwed into the Coupling 4 until it strikes the end of Bolt 1. The second crank is assembled in the same way—that is, a  $\frac{3}{4}$ " Bolt is passed through the centre threaded holes of two Couplings—but two Washers are placed at 6 and a  $\frac{3}{8}$ " Bolt 8 is inserted in the Coupling 9 in the same way as the Bolt 5 in Coupling 4. A  $\frac{3}{4}$ " Bolt is now passed through the inner transverse hole of Coupling 9 and through the corresponding hole in Coupling 4, and is gripped securely by the set-screws of both Couplings. The whole crankshaft is held rigid by the  $\frac{3}{8}$ " Bolts, for the head of Bolt 5 engages with the hole in the end of Coupling 9 whilst the head of Bolt 8 engages the end of Coupling 4.

Two 2" Rods are used for the ends of the crankshaft, one carrying a 3" Pulley to represent a flywheel and the other a 1" Pulley round which a length of cord is passed and takes the drive to a 1" Pulley on the centrifugal governor. The latter is built up from a Large Fork Piece with Collars attached by means of  $\frac{3}{8}$ " Bolts, to represent the governor weights. The Fork Piece and 1" Pulley are attached to a  $1\frac{1}{2}$ " Rod that turns in the top of the Coupling 10, which is secured on a Threaded Pin and attached to the base by an Angle Bracket.

The cylinders are composed of two Sleeve Pieces, each fitted with one  $\frac{3}{4}$ " Flanged Wheel, and are bolted to a  $2\frac{1}{2}$ " x 1" Double Angle Strip 7.

Model No. 4.41 Bale Lifter

The bale platform 1, consisting of a  $2\frac{1}{2}$ " x  $5\frac{1}{2}$ " Flanged Plate, is raised by a Crank Handle 2, operating a Pinion 3 which engages with a 57-teeth Wheel 4 on a Rod 5. This Rod carries the Cord 6, passing over a Pulley 7, in the head of the framework, round a  $\frac{3}{4}$ " Bolt 8, pivoted in a Double Bent Strip bolted to the Plate 9, up over another Pulley 10, and made fast to the Plate 9. The  $2\frac{1}{2}$ " x  $5\frac{1}{2}$ " Flanged Plate 1 is connected to the Plate 9 by 1" Angle Brackets, and the Plates 1 and 9 thus slide together in the vertical framework formed by  $12\frac{1}{2}$ " Angle Girders doubled.

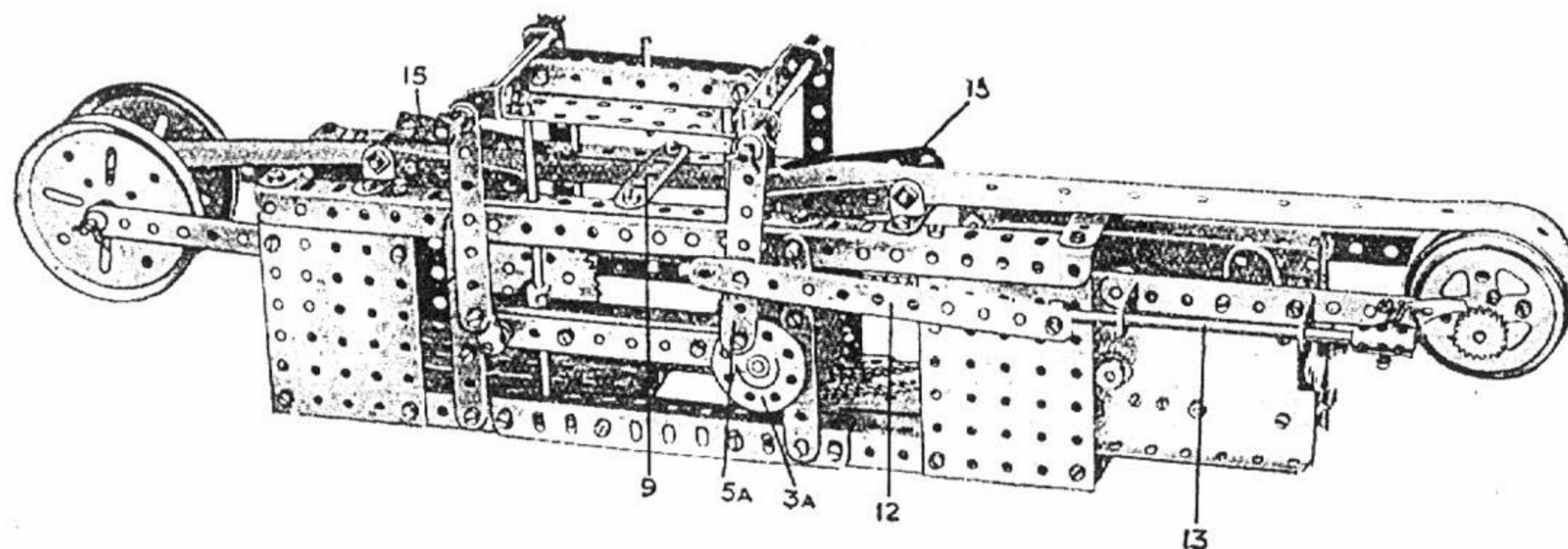


Parts required :

2 of No. 1	1
5 " " 2	2
2 " " 3	3
1 " " 5	5
4 " " 8	8
3 " " 10	10
2 " " 12A	12A
1 " " 15	15
2 " " 15A	15A
2 " " 17	17
1 " " 18A	18A
1 " " 19	19
4 " " 20B	20B
2 " " 22	22
1 " " 26	26
1 " " 27A	27A
2 " " 35	35
46 " " 37	37
1 " " 37A	37A
19 " " 38	38
1 " " 40	40
1 " " 45	45
2 " " 48A	48A
3 " " 48B	48B
1 " " 52	52
3 " " 53	53
7 " " 59	59
1 " " 111	111
2 " " 126A	126A
1 " " 147A	147A
1 " " 147B	147B
1 " " 148	148



## Model No. 4.42 Power Press



The model shown in the illustration represents a type of automatic press used in factories for stamping out small metal parts. Although the model does not stamp out steel parts, it will cut neat round holes at equal distances in a strip of paper with great rapidity.

The drive from the Electric Motor is transmitted via the  $\frac{1}{2}$ " Pinion on the armature shaft to a 57-teeth Gear on the Rod 1A, and from another  $\frac{1}{2}$ " Pinion on this Rod to a second 57-teeth Gear on the Rod 1. Two 1" Sprocket Wheels on the latter Rod are connected by Sprocket Chain to 2" Sprocket Wheels on the "crankshafts" 2. One crankshaft is formed from a  $3\frac{1}{2}$ " Rod and two Bush Wheels 3, 3A, and the other from a  $3\frac{1}{2}$ " Rod carrying two Couplings 4 placed at exactly similar angles. Four Strips 5, which form connecting links between the "die platen" 6 and the crankshafts, are lock-nutted to the Bush Wheels and attached pivotally to the Couplings by  $\frac{3}{8}$ " Bolts. They are pivoted to the die platen by means of two  $4\frac{1}{2}$ " Rods and retained in place by Spring Clips.

The  $3\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate forming the die platen is strengthened with two  $3\frac{1}{2}$ " Strips 7 bolted to the Plate by Double Brackets. The die 8, a  $1\frac{1}{2}$ " Rod, is secured rigidly to the platen by means of a Crank. Two  $2\frac{1}{2}$ " Strips 9 bolted to the frame of the model and spaced apart by Washers form the "sink" through which passes the paper strip. Guides 15 are provided to keep the material in correct alignment.

The driven drum is composed of two Boiler Ends attached to the Rod 10 by means of

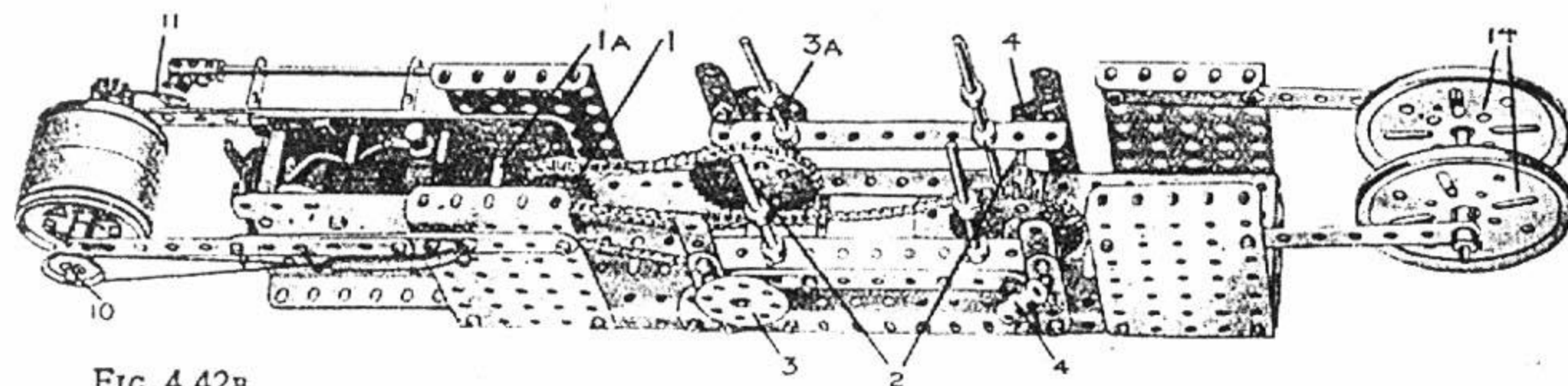


FIG. 4.42B

## Parts required :

8	of No. 2	1	of No. 46
2	" " 2A	2	" " 48
6	" " 3	2	" " 48A
18	" " 5	2	" " 52
2	" " 8	5	" " 53
4	" " 9	10	" " 59
2	" " 11	1	" " 62
1	" " 15	3	" " 63
5	" " 15A	30"	" " 94
5	" " 16	2	" " 95
2	" " 17	2	" " 96
1	" " 18A	2	" " 111c
2	" " 19B	1	" " 147A
2	" " 20A	1	" " 147B
2	" " 24	1	" " 148
1	" " 26	2	" " 162A
2	" " 27A		
13	" " 35		
102	" " 37		
19	" " 38		
1	" " 43		

Electric Motor  
(not included  
in Outfit)

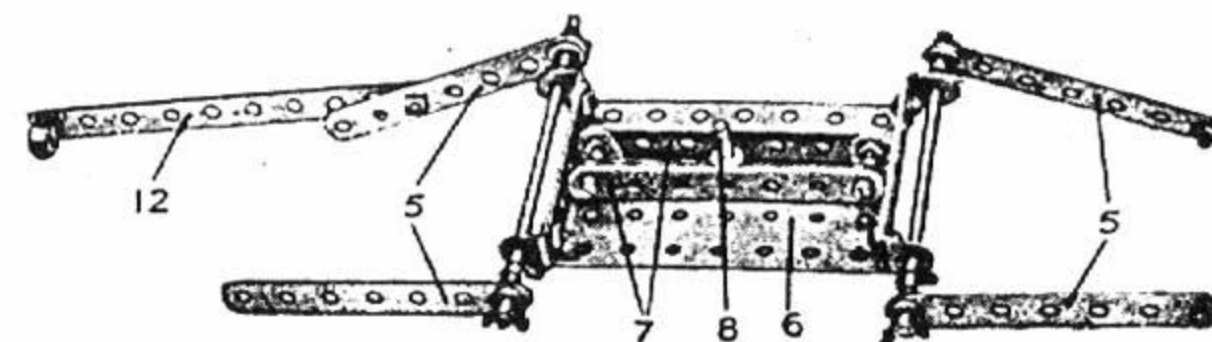


FIG. 4.42A

two 2" Pulleys. At one end of this Rod is affixed a 1" Pulley on which works a spring-controlled brake, and on the other end is attached a Ratchet Wheel that engages with a Pawl 11, which is retained in constant engagement by means of a piece of Spring Cord or elastic. The Pawl is attached to a  $4\frac{1}{2}$ " Rod 13 by means of a Coupling and the Rod is pivotally connected by a  $5\frac{1}{2}$ " Strip 12 to the Strip 5A.

The arrow on the Bush Wheel 3A shows the direction of travel, this being very important as the drum must only turn when the die platen is at the top of its stroke. The paper to be stamped is first wound on to the feed drum 14, then passed through the guides 15 and through the guide 9 and its end is stuck to the drum at the other end of the model.



# Model No. 4.43 Motor Breakdown Crane

Parts required :

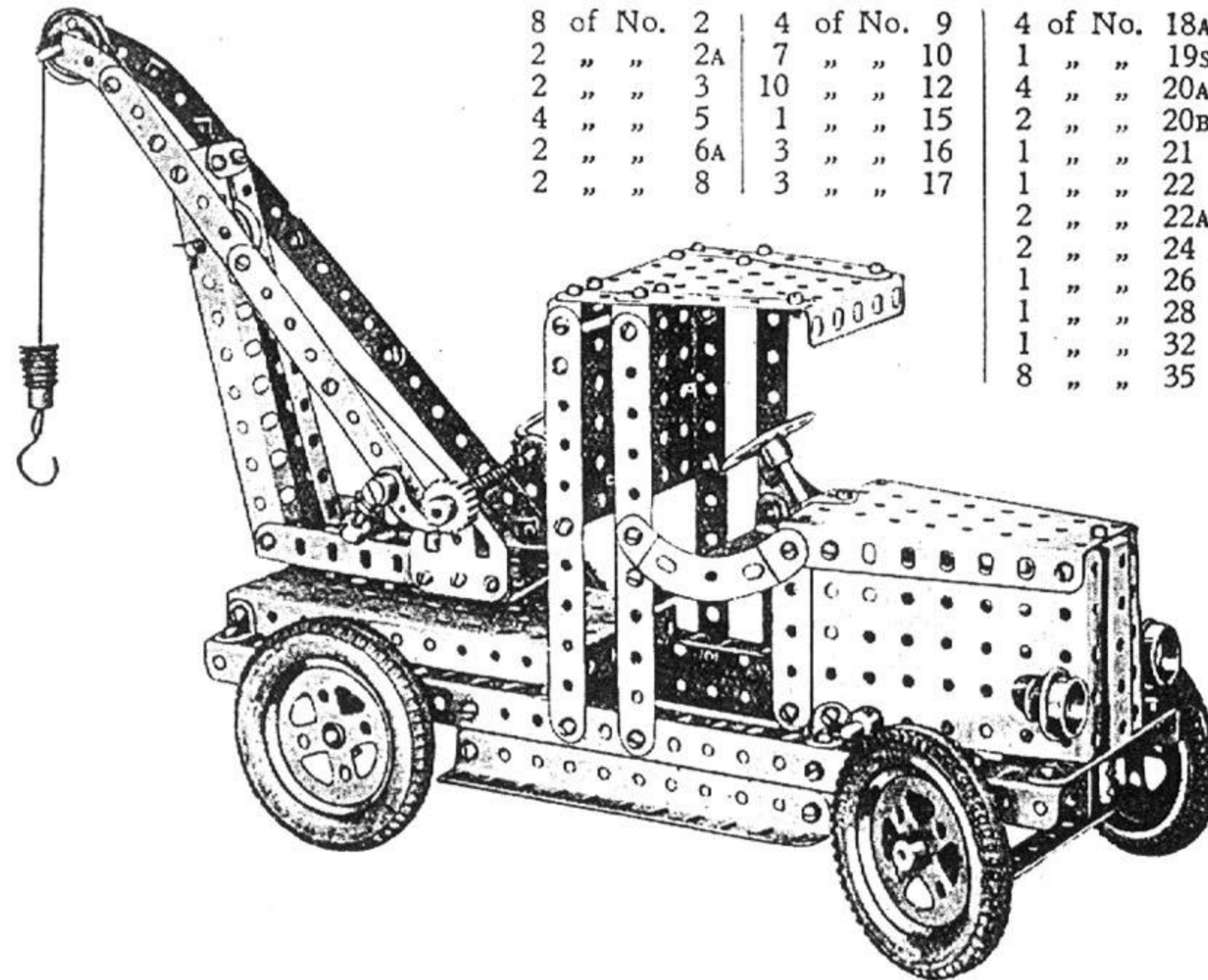
8 of No. 2	4 of No. 9	4 of No. 18A	94 of No. 37
2 " " 2A	7 " " 10	1 " " 19s	7 " " 38
2 " " 3	10 " " 12	4 " " 20A	1 " " 40
4 " " 5	1 " " 15	2 " " 20B	2 " " 48
2 " " 6A	3 " " 16	1 " " 21	1 " " 48A
2 " " 8	3 " " 17	1 " " 22	3 " " 48B
		2 " " 22A	1 " " 52
		2 " " 24	4 " " 53
		1 " " 26	2 " " 54
		1 " " 28	1 " " 57C
		1 " " 32	10 " " 59
		8 " " 35	1 " " 62
			3 " " 63
			2 " " 77
			2 " " 90
			2 " " 90A
			4 " " 111C
			1 " " 115
			1 " " 116A
			2 " " 126A
			4 " " 142A
			1 " " 147A
			1 " " 147B
			1 " " 148
			2 " " 165

# Model No. 4.44 Opisometer

Parts required :

7 of No. 37
1 " " 46
2 " " 48B
2 " " 62
1 " " 63
1 " " 80A
1 " " 109

This instrument can be put to practical use for measuring curved lines, the perimeter of bodies, map routes, etc. The Face Plate 1 is free on the Screwed Rod 3, but is attached by a Bolt to a Coupling 2, the end transverse tapped hole of which engages with the thread of the Rod. The scale 4 may be graduated by running the Face Plate along a line of given length and marking its position in relation to the scale for every inch. The Screwed Rod is of course immovable, being gripped by the set-screws of the two Cranks.



Bearings for the steering column 1 (Fig. 4.43A) are formed by a Flat Bracket and Coupling 2. A  $3\frac{1}{2}$ " Rod passes through the centre transverse hole of the latter and carries a  $1\frac{1}{2}$ " Contrate Wheel which is spaced by means of three Washers from the Coupling. The teeth of the Contrate are engaged by a  $\frac{1}{2}$ " Pinion on the Rod 1. The Crank 3 carries a Flat Bracket bolted so that its round hole is over the elongated perforation of the Crank, and a Bolt passed through both is screwed into the tapped bore of a Collar on a 2" Rod. This Rod is attached pivotally to the inner end of a stub axle by means of a swivel bearing formed from a Collar and Small Fork Piece.

The front road wheels rotate freely on the  $1\frac{1}{2}$ " Rods, and are held in position by Collars. The Couplings 4 are pivoted by means of  $\frac{3}{4}$ " Bolts to the extremities of two  $4\frac{1}{2}$ " Strips that are bolted together face to face to form the front axle. Two  $1\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips 5 secure the  $4\frac{1}{2}$ " Strips to the side Girders of the model.

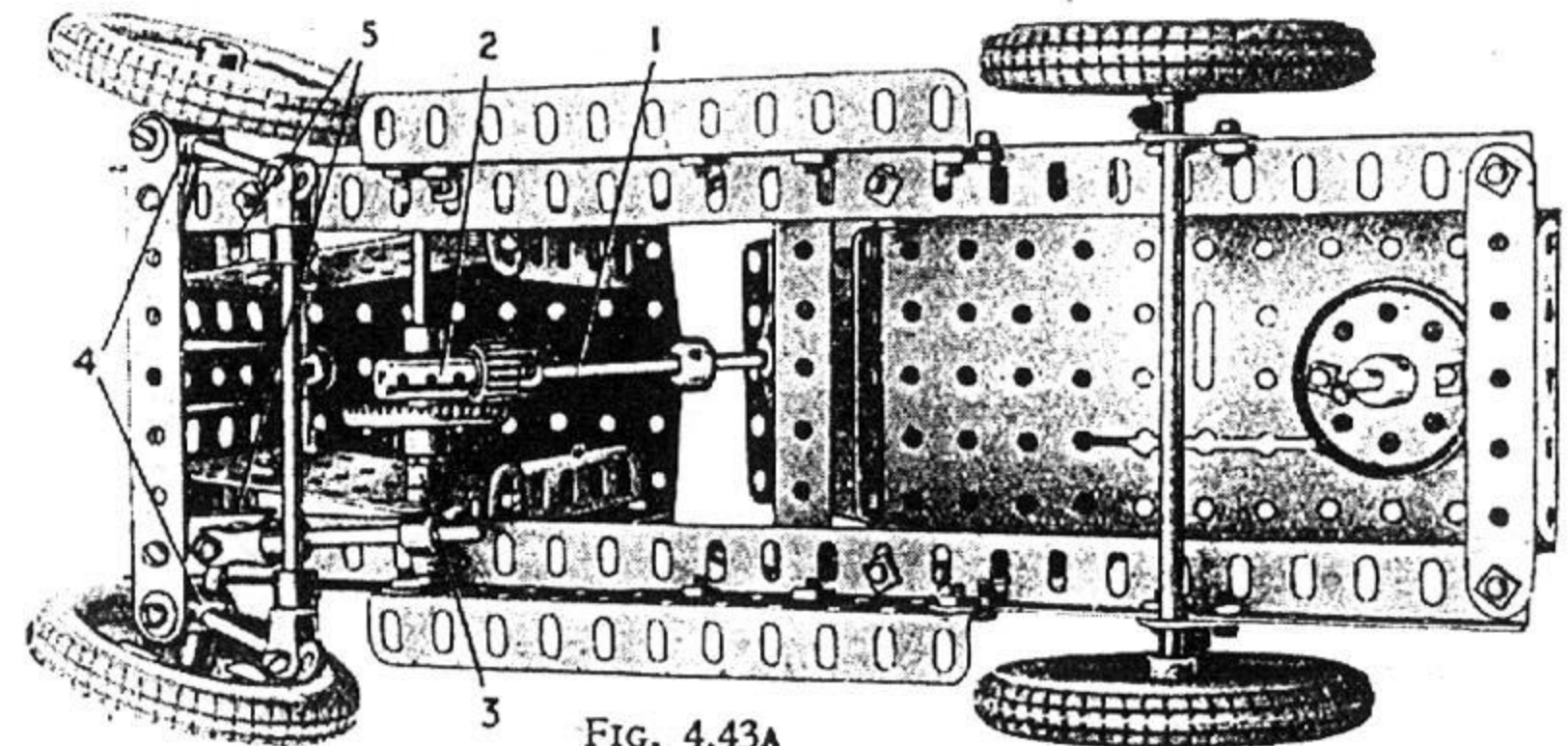


FIG. 4.43A



## Model No. 4.45 Level Luffing Jib Crane

The side plates of the gear box ( $5\frac{1}{2}" \times 2\frac{1}{2}"$  Flanged Plates) are connected together at each end by  $2\frac{1}{2}"$  Strips, the front also being fitted with a  $2\frac{1}{2}" \times \frac{1}{2}"$  Double Angle Strip 1, which forms a bearing for the jib pivot. A 3" Pulley 2 bolted to the bottom of the gear box slides on the rim of a second 3" Pulley 3, which is fixed to the travelling base, and a 2" Rod is secured in the boss of Pulley 3 and passed through the boss of Pulley 2. A  $1\frac{1}{2}"$  Contrate 4 (Fig. 4.45A) is next secured to the Rod, together with a Coupling 5, the latter being spaced from the Contrate by Washers and held in place by a Collar. A  $3\frac{1}{2}"$  Rod, on which is fixed a  $\frac{1}{2}"$  Pinion engaging with the Contrate, is journaled in the Coupling 5 and in the  $2\frac{1}{2}"$  Strip 6. A handle consisting of a Bush Wheel and a Threaded Pin attached to this Rod manipulates the slewing movement.

The Crank Handle 7 carrying a  $\frac{1}{2}"$  Pinion slides in the side plates of the gear box, so that the Pinion may be engaged with either of the two 57-teeth Gears 8 and 9. The Gear 8 is attached to a  $3\frac{1}{2}"$  Rod on which are fixed two drums consisting of four small Flanged Wheels. These form the luffing barrel. Two lengths of cord are attached to the jib head, passed over the 1" Pulleys 10, and are then wound four times round the luffing barrel. From here they are carried over the two  $1\frac{1}{2}"$  Rods 11 and the  $4\frac{1}{2}"$  Rod 12, and finally are secured to the moving carriage 13. When the model is working the Boiler End on the carriage should be weighed until it exactly counterbalances the jib.

The 57-teeth Gear 9 is fixed to the  $3\frac{1}{2}"$  Rod forming the hoisting barrel. A length of cord attached to this is passed over one of the remaining 1" loose Pulleys on the Rod 14, round one of the  $\frac{1}{2}"$  loose Pulleys at the jib head, back to the remaining 1" loose Pulley at 14, and finally over the other  $\frac{1}{2}"$  loose Pulley at the jib head and down to the hook. When a load is put on the hook the cords between the jib head and the top of the superstructure tend to contract, thus taking the load off the luffing cords.

The rails of the carriage 13 should be kept well oiled, so that the carriage slides easily.

### Parts required:

10	of No. 1	
20	" "	2
5	" "	3
5	" "	5
2	" "	6A
6	" "	8
1	" "	11
2	" "	12
2	" "	14
1	" "	15A
5	" "	16
2	" "	17
2	" "	18A
1	" "	19S
2	" "	19B
4	" "	20
4	" "	20B
2	" "	22
2	" "	22A
2	" "	23
2	" "	24
1	" "	26
2	of No. 27A	
9	" "	35
105	" "	37
8	" "	37A
24	" "	38
2	" "	40
2	" "	46
2	" "	48
3	" "	48A
1	" "	48B
2	" "	52
1	" "	57C
7	" "	59
3	" "	63
1	" "	111
6	" "	111C
1	" "	115
1	" "	147B
1	" "	162A

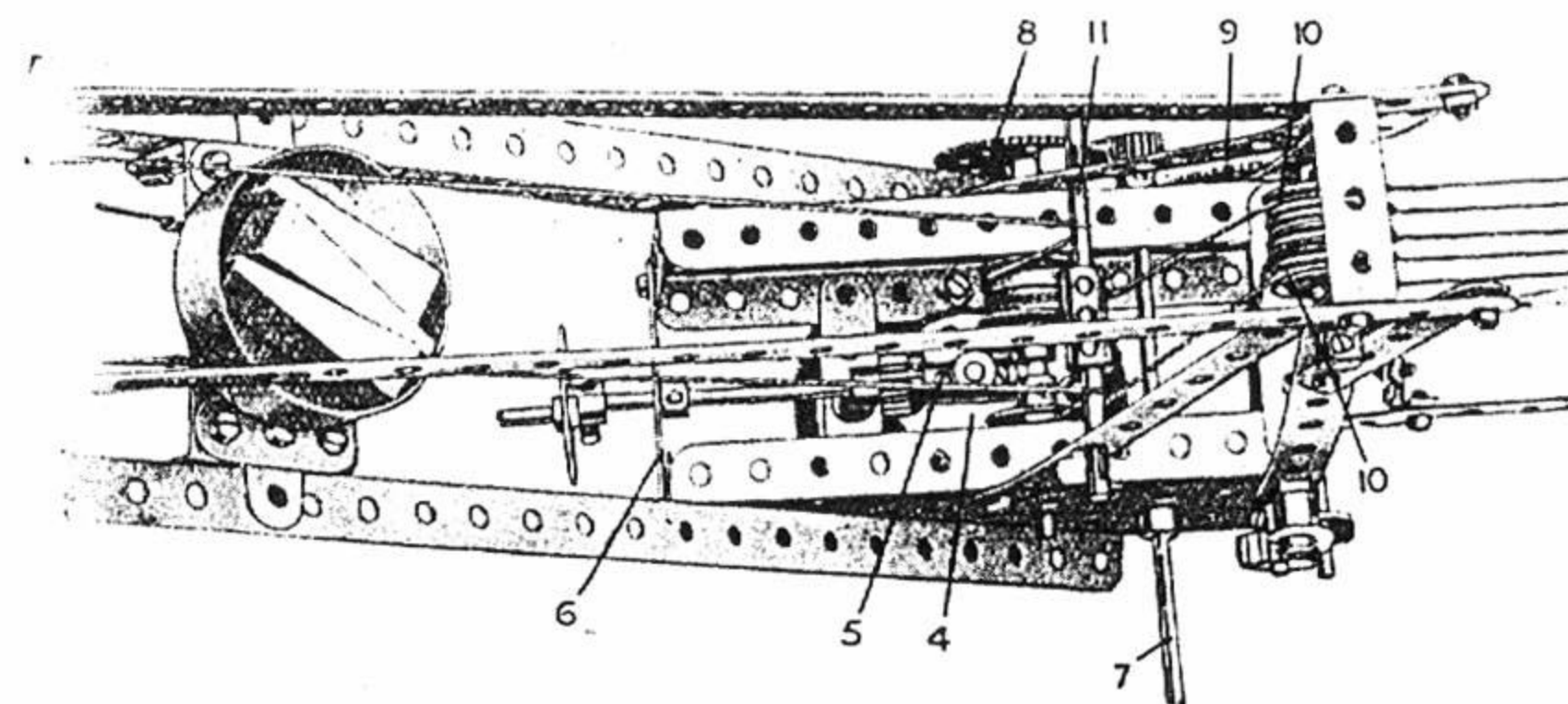
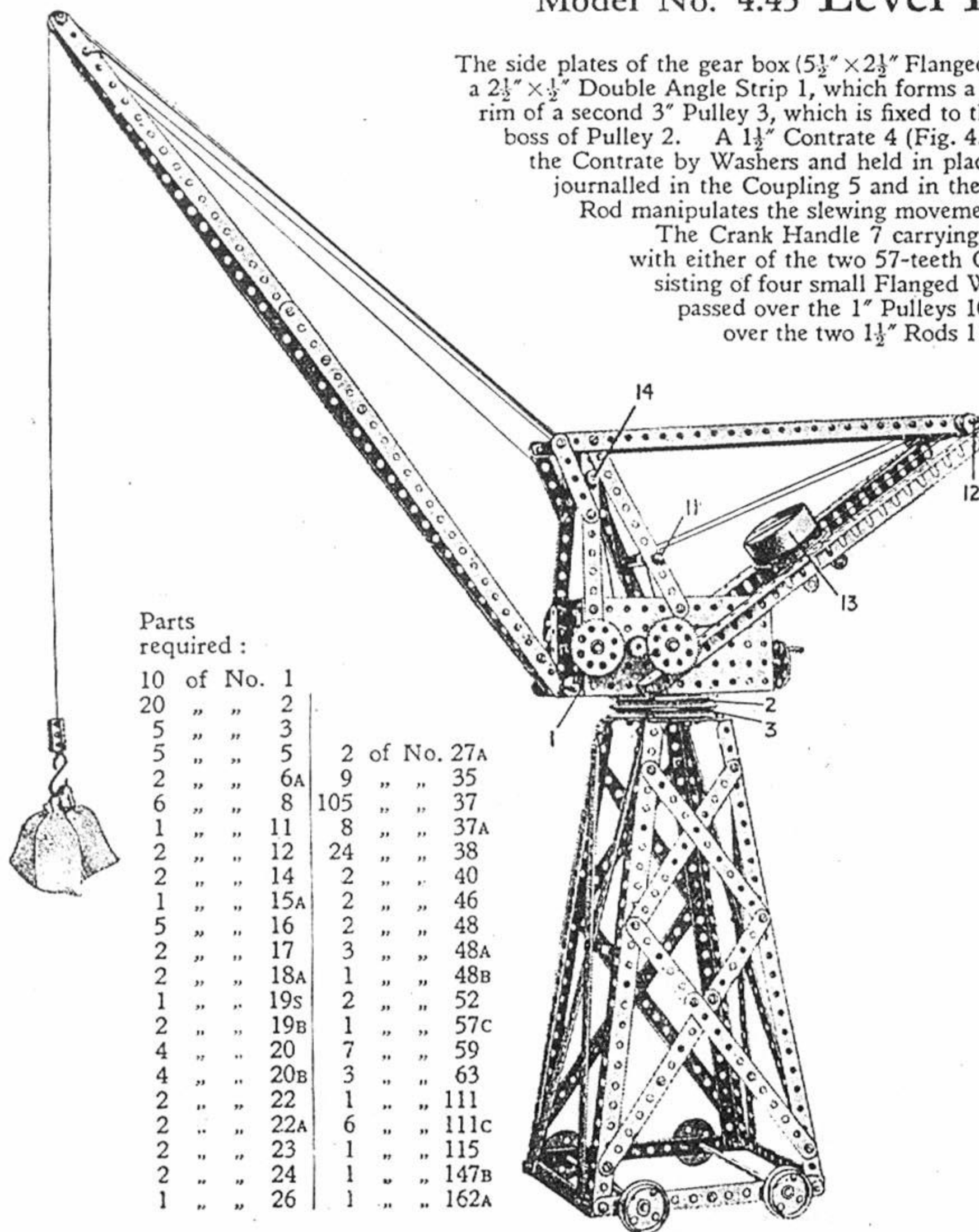
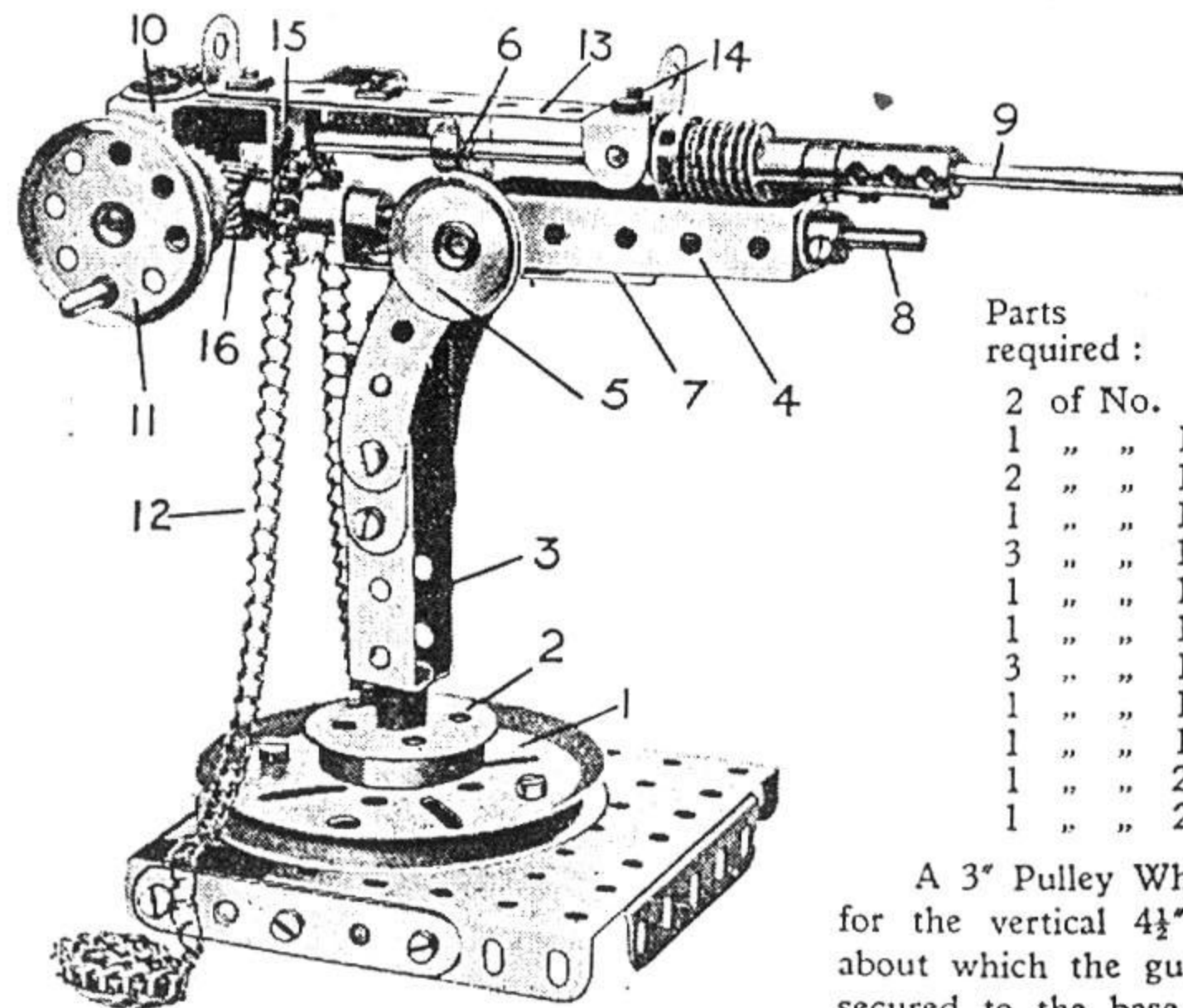


FIG. 4.45A. Plan view of gear box.



## Model No. 4.46 Naval Quick-firing Gun



Parts  
required :

2 of No. 5	2 of No. 22
1 " " 10	1 " " 23
2 " " 11	1 " " 26
1 " " 12	1 " " 29
3 " " 12A	1 " " 32
1 " " 14	2 " " 35
1 " " 15A	24 " " 37
3 " " 17	2 " " 38
1 " " 18A	1 " " 45
1 " " 19B	1 " " 46
1 " " 20B	5 " " 48A
1 " " 21	2 " " 48B
	2 " " 53
	8 " " 59
	1 " " 63
	4 " " 90
	40 " " 94
	1 " " 96A
	2 " " 111c
	1 " " 115
	1 " " 125

A 3" Pulley Wheel 1 provides a bearing for the vertical 4½" Rod forming the axis about which the gun pivots. The Rod is secured to the base by a Flanged Wheel 2 and a 1" Pulley Wheel attached to the lower end of the Rod. Two Double Angle

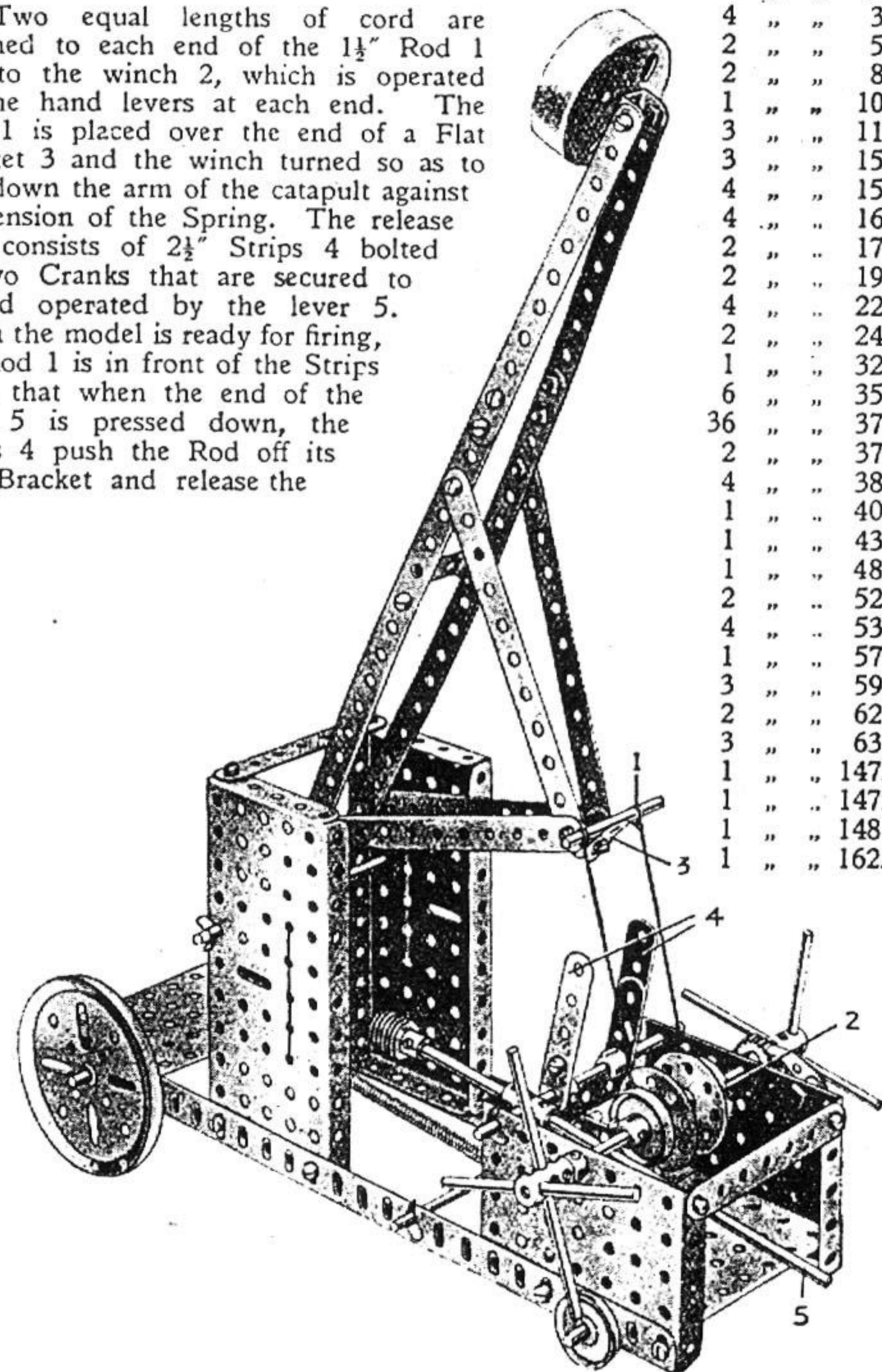
Strips 3, spaced apart by a Double Bracket, are mounted upon this vertical Rod and held in place by a Collar secured to its upper end. Two 2½" Curved Strips, overlapped 4 holes, are bolted to each of the Double Angle Strips 3, and their upper holes form bearings for a short Rod passing through the ends of further Double Angle Strips 4, and carrying a hand wheel 5. Two Spring Clips are mounted on this Rod inside the Strips 4 to secure it to the pivoting portion of the gun, the elevation of which may be altered on turning the Wheel 5. The Strips 4 are bolted to the end of a Double Angle Strip 6, and the same Bolt secures an Angle Bracket which in turn is bolted to the Double Angle Strip 7. The Rod 8 passes through the end holes of the Strips 4 and 7 and is held in place by two Collars. On the top of the Strip 6 is bolted a 3½" Double Angle Strip 13, the upturned ends of which form the sighting apertures. The bolt 14 secures a Double Bracket and an Angle Bracket, the latter together with one of the holes in the Strip 6 forming bearings for the barrel 9. A 1" x 1" Angle Bracket 15, bolted beneath the Strip 6, and the end of the Strip 7 provide bearings for the short Rod carrying a ¾" Sprocket Wheel and ½" Pinion 16. Two 1" x 1" Angle Brackets 10 form bearings for a 2" Rod carrying the hand wheel 11. This Rod is fitted with a ¾" Contrate Wheel which engages with the Pinion 16. On rotation of the Wheel 11, the small Sprocket Wheel actuates the Sprocket Chain 12 which represents the cartridge belt.

## Model No. 4.47 Catapult

Two equal lengths of cord are attached to each end of the 1½" Rod 1 and to the winch 2, which is operated by the hand levers at each end. The Rod 1 is placed over the end of a Flat Bracket 3 and the winch turned so as to pull down the arm of the catapult against the tension of the Spring. The release gear consists of 2½" Strips 4 bolted to two Cranks that are secured to a Rod operated by the lever 5. When the model is ready for firing, the Rod 1 is in front of the Strips 4, so that when the end of the lever 5 is pressed down, the Strips 4 push the Rod off its Flat Bracket and release the arm.

Parts  
required :

2 of No. 1	2 of No. 1
6 " " 2	6 " " 2
4 " " 3	4 " " 3
2 " " 5	2 " " 5
2 " " 8	2 " " 8
1 " " 10	1 " " 10
3 " " 11	3 " " 11
3 " " 15	3 " " 15
4 " " 15A	4 " " 15A
4 " " 16	4 " " 16
2 " " 17	2 " " 17
2 " " 19B	2 " " 19B
4 " " 22	4 " " 22
2 " " 24	2 " " 24
1 " " 32	1 " " 32
6 " " 35	6 " " 35
36 " " 37	36 " " 37
2 " " 37A	2 " " 37A
4 " " 38	4 " " 38
1 " " 40	1 " " 40
1 " " 43	1 " " 43
1 " " 48	1 " " 48
2 " " 52	2 " " 52
4 " " 53	4 " " 53
1 " " 57C	1 " " 57C
3 " " 59	3 " " 59
2 " " 62	2 " " 62
3 " " 63	3 " " 63
1 " " 147A	1 " " 147A
1 " " 147B	1 " " 147B
1 " " 148	1 " " 148
1 " " 162A	1 " " 162A





## Model No. 4.48 Flying Machine

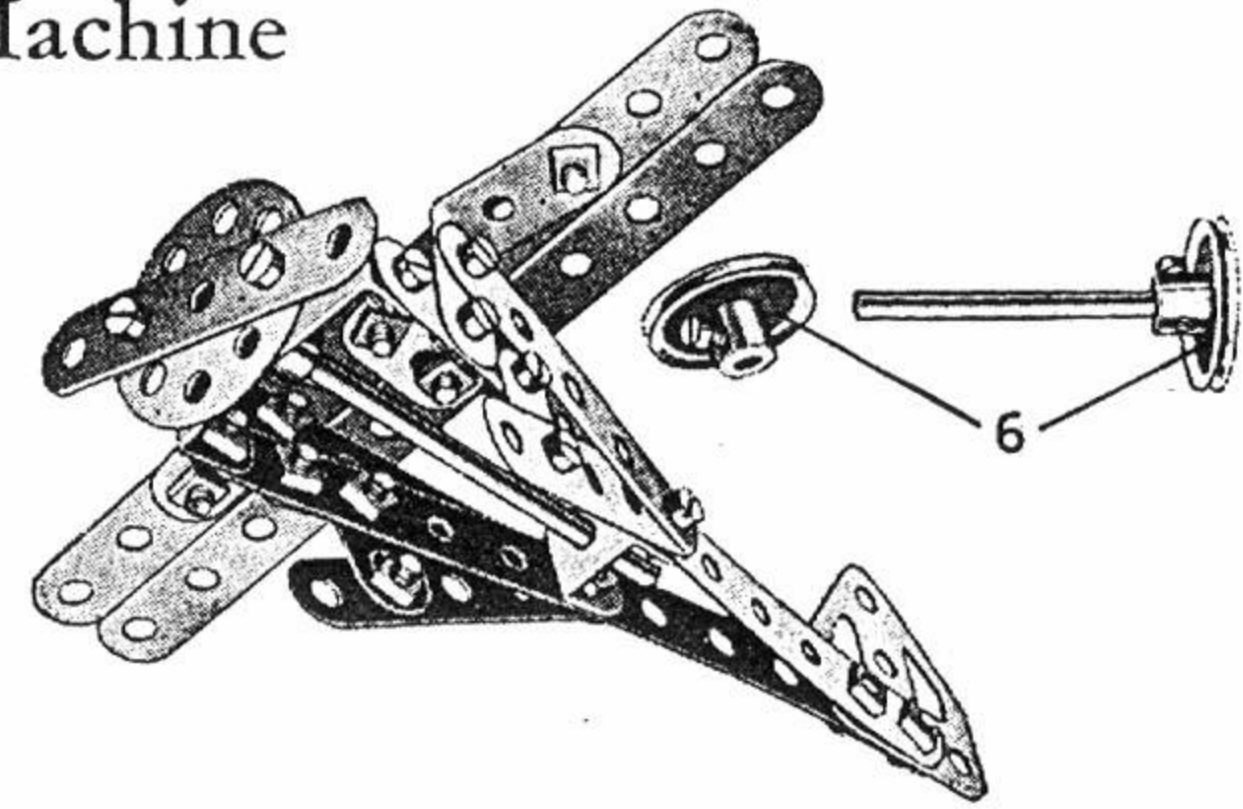
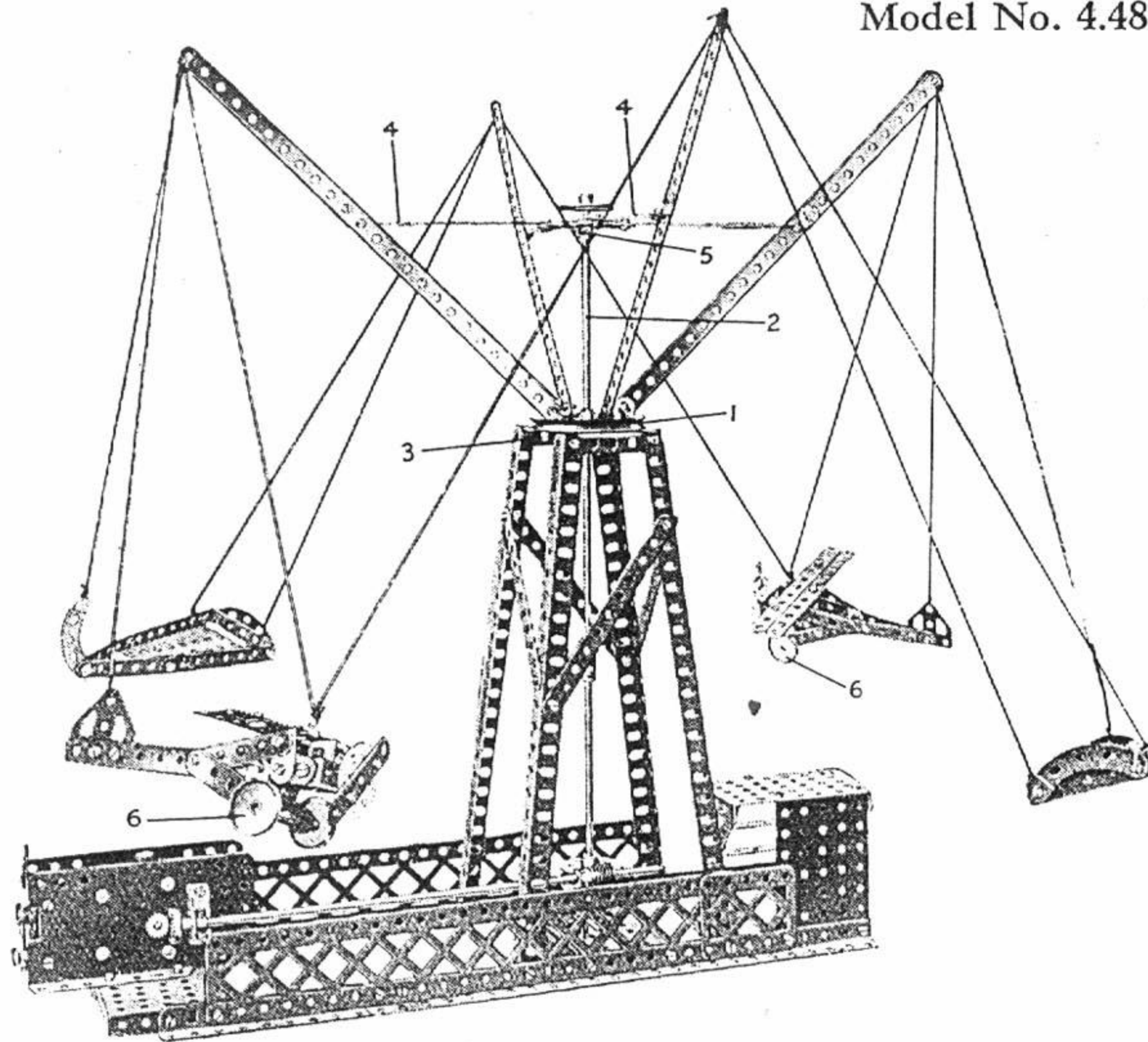


FIG. 4.48B

In Fig. 4.48 the model is shown equipped with a Meccano Electric Motor. Fig. 4.48A, which shows the base of the model only, indicates an alternative arrangement by which the model may be operated by hand if a Motor is not available. The revolving portion of the model consists of four  $12\frac{1}{2}$ " Strips bolted to the 3" Pulley Wheel 1 (Fig. 4.48) which is secured to the main vertical shaft 2 and rests directly on the  $3\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate 3. The  $12\frac{1}{2}$ " Strips are supported by two further  $12\frac{1}{2}$ " Strips 4, crossed and bolted to a Face Plate 5 secured to the Rod 2. One of the aeroplanes attached to the model is shown in detail in Fig. 4.48B. The Wheels 6 are shown removed from their bearings.

## Parts required :

6	of No. 1	4	of No. 12A	1	of No. 27A	3	of No. 53
16	" " 2	2	" " 13	1	" " 29	2	" " 54
2	" " 2A	1	" " 14	1	" " 32	3	" " 59
11	" " 5	2	" " 16	122	" " 37	1	" " 63
1	" " 6A	2	" " 17	2	" " 37A	4	" " 90A
6	" " 8	1	" " 19B	2	" " 40	1	" " 98
3	" " 9	1	" " 21	1	" " 46	2	" " 99
6	" " 10	4	" " 22	2	" " 48	1	" " 109
3	" " 11	2	" " 24	6	" " 48A	2	" " 111c
2	" " 12	1	" " 26	2	" " 52	2	" " 126
						2	" " 126A

Electric Motor  
(not included in Outfit)

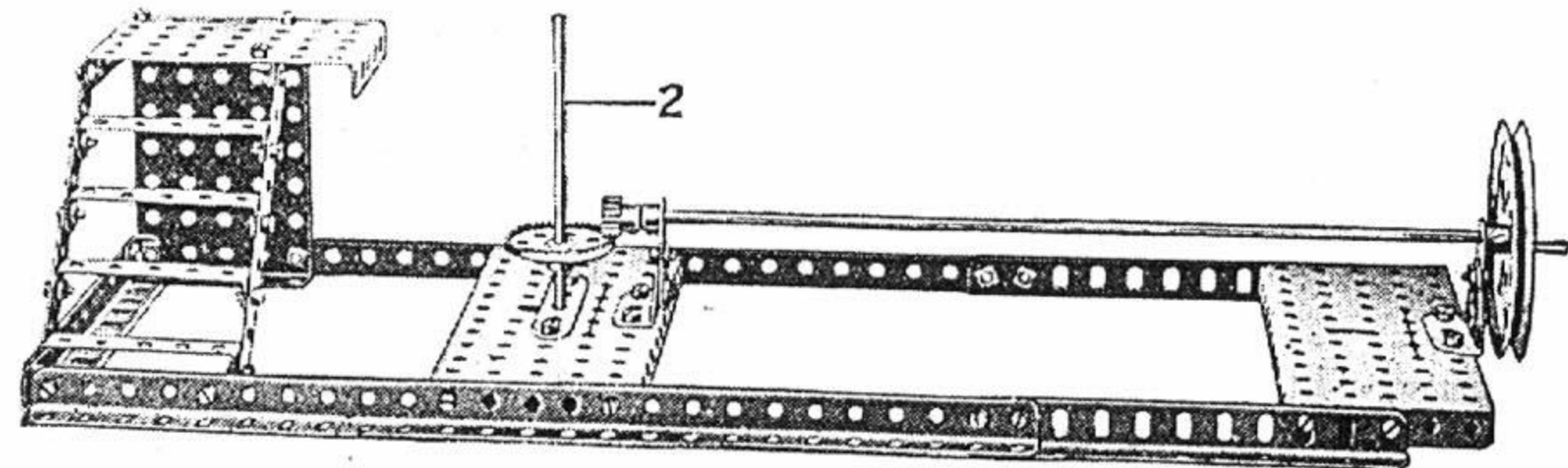
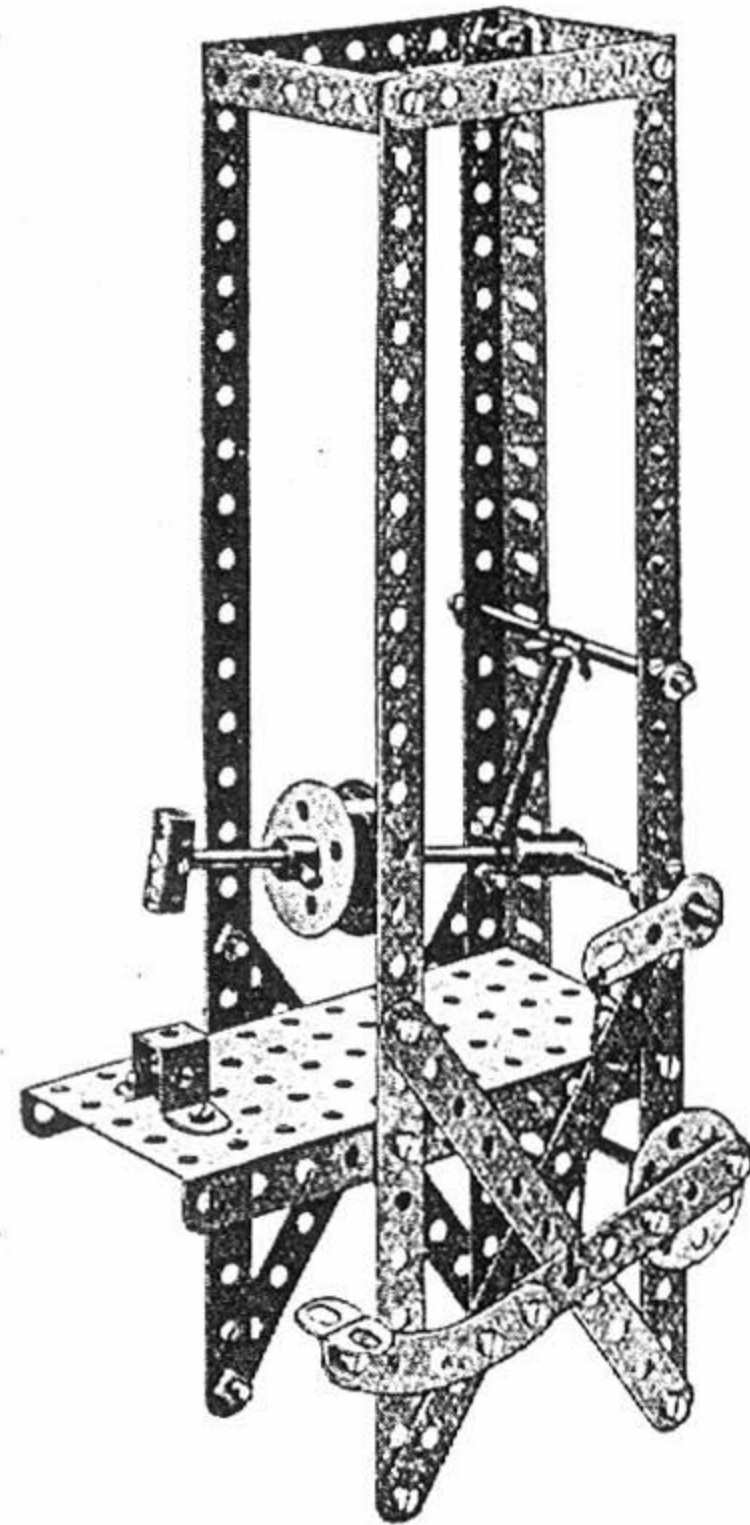


FIG. 4.48A



# Model No. 4.49

## Treadle Hammer



Parts required :

2 of No. 1	3 of No. 16	1 of No. 45
4 " " 2	2 " " 20B	1 " " 48A
3 " " 3	1 " " 24	1 " " 52
1 " " 5	2 " " 35	5 " " 59
2 " " 8	23 " " 37	1 " " 62
2 " " 12	2 " " 38	2 " " 63
1 " " 15A	1 " " 43	1 " " 90

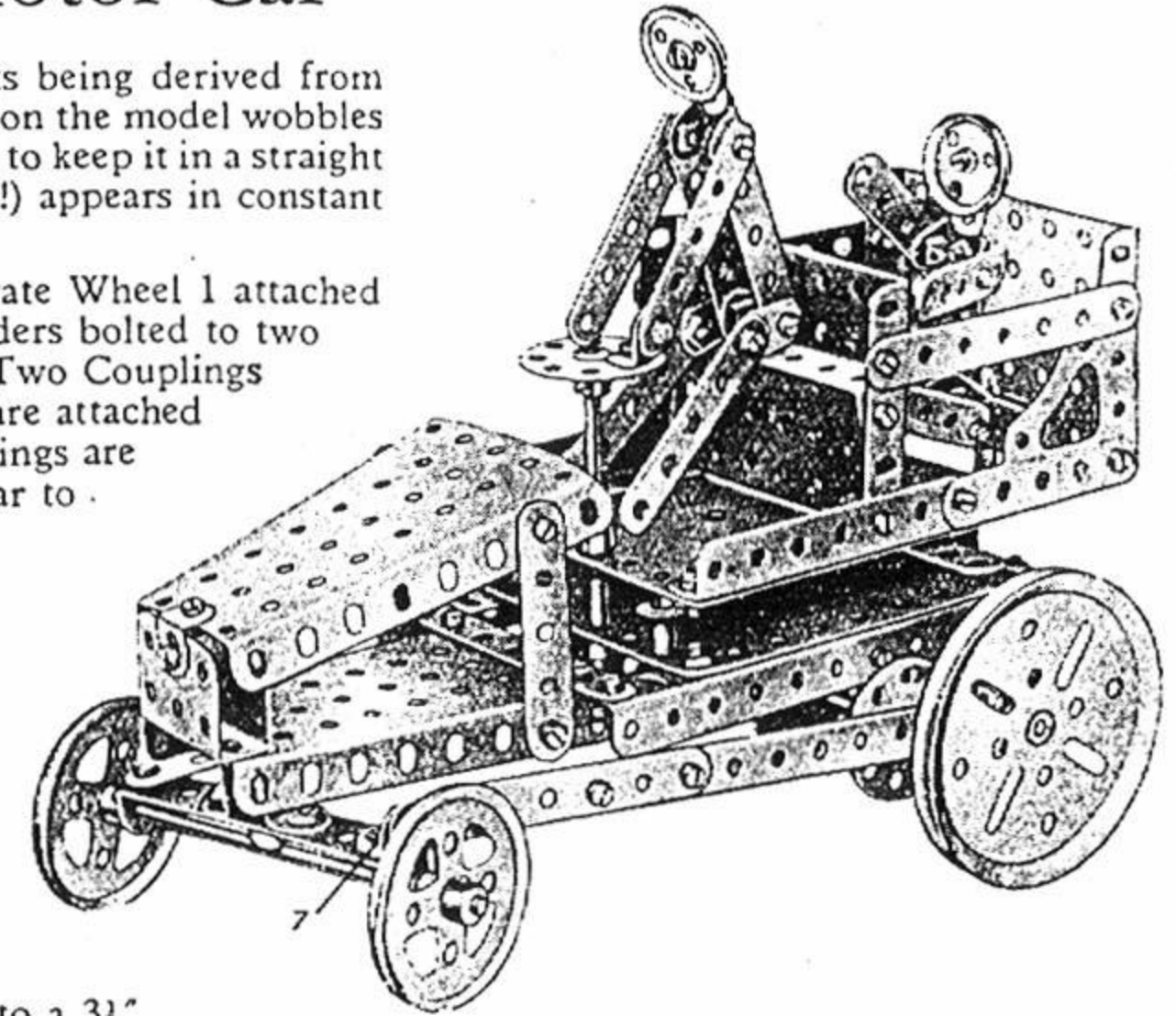
# Model No. 4.50 Ancient Motor Car

This model performs very amusing antics, all its movements being derived from a Clockwork Motor in the chassis. When the Motor is set in motion the model wobbles violently along the floor, while the driver seems to be endeavouring to keep it in a straight line and the passenger (who seems to have fallen on to the floor !) appears in constant danger of being thrown completely out of the car !

A  $\frac{1}{2}$ " Pinion on the Motor shaft engages with the  $1\frac{1}{2}$ " Contrate Wheel 1 attached to the back axle 2. The latter is journaled in two  $2\frac{1}{2}$ " Flat Girders bolted to two  $5\frac{1}{2}$ " Angle Girders to which the Clockwork Motor is attached. Two Couplings 3 are fixed to each extremity of the Rod 2, and the road wheels are attached to their centre threaded holes by Threaded Pins. The Couplings are set at an angle of 180 degrees to one another and so cause the car to wobble in a most peculiar manner when it is running.

A 57-teeth Gear 4 is fixed to a  $4\frac{1}{2}$ " Rod 5 that carries at one end a Bush Wheel. This is connected to the front wheels by a link built up of  $3\frac{1}{2}$ " and  $4\frac{1}{2}$ " Strips and attached by an Angle Bracket 7 to the  $2\frac{1}{2}$ " Double Angle Strip 8 that forms a bearing for the front axle. This results in the front road wheels being turned alternately from side to side. The  $1\frac{1}{2}$ " Rod forming the pivot for the steering should be kept fairly loose to allow for the rolling of the chassis.

A  $4\frac{1}{2}$ " Strip 6 is lock-nutted to the Double Angle Strip 8 at one end and at the other to a Crank 9 which is fixed to a  $3\frac{1}{2}$ " Rod. This is journaled in the holes of the Clockwork Motor and at its top a Bush Wheel is secured. The driver is attached pivotally to the Bush Wheel by an Angle Bracket and  $2\frac{1}{2}$ " Strip, so that when the Motor is in motion he steers quite realistically. The passenger at the back is attached to the frame by a Spring clamped between two  $1\frac{1}{2}$ " Strips.



Parts required :

2 of No. 2A	3 of No. 12	8 of No. 38
3 " " 3	1 " " 15	1 " " 43
13 " " 5	2 " " 15A	1 " " 45
2 " " 6A	1 " " 16	2 " " 48B
4 " " 9	1 " " 17	2 " " 53
4 " " 10	2 " " 19B	2 " " 54
4 " " 11	2 " " 20A	10 " " 59
	2 " " 22A	1 " " 62
	2 " " 24	2 " " 63
	2 " " 26	2 " " 103F
	1 " " 27A	2 " " 108
	1 " " 28	5 " " 111C
	57 " " 37	2 " " 115
	14 " " 37A	1 " " 160

Clockwork Motor  
(not included in outfit)

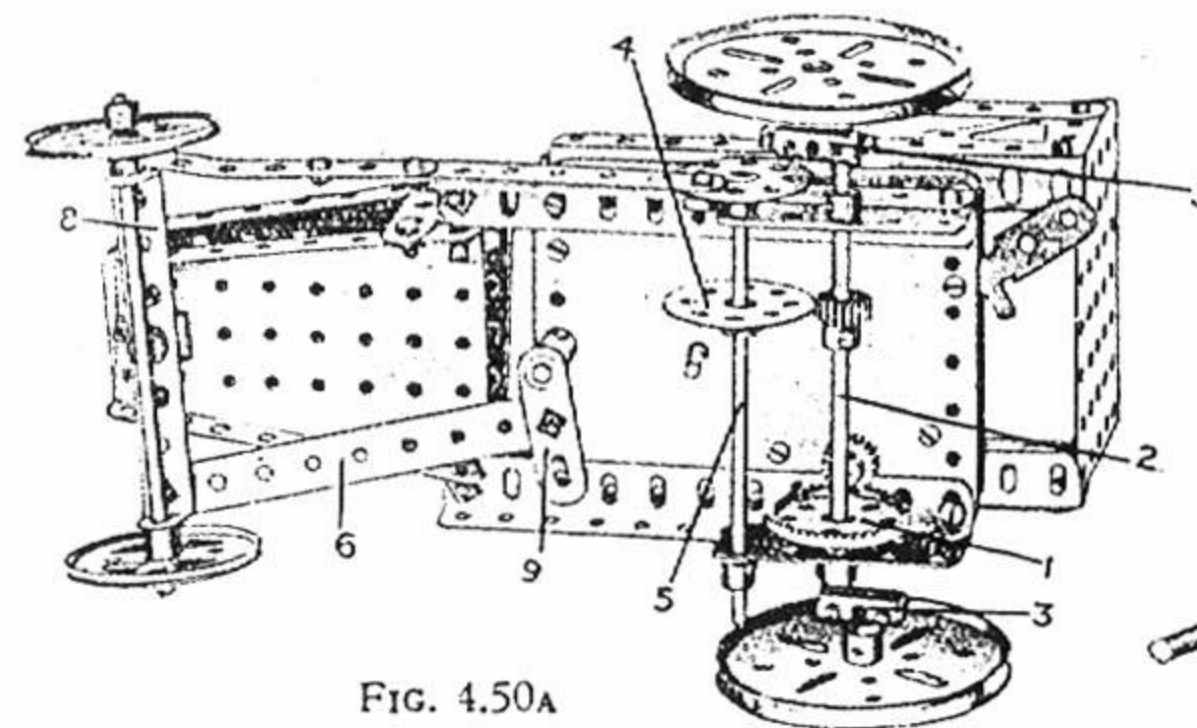


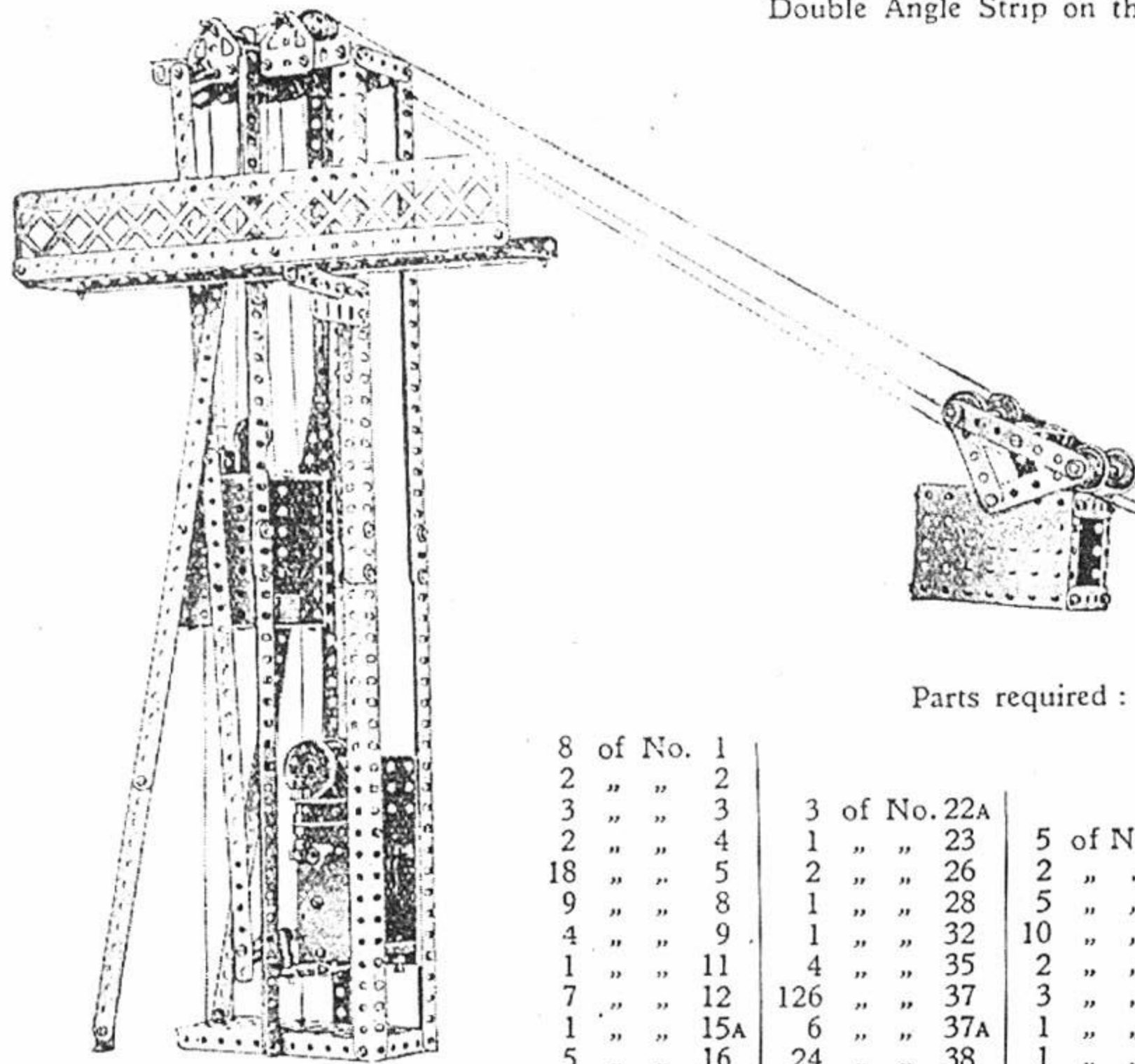
FIG. 4.50A



## Model No. 4.51 Telfer Span

A Worm Wheel on the armature spindle of the Electric Motor engages with a  $\frac{1}{2}$ " Pinion that is secured, together with a second  $\frac{1}{2}$ " Pinion, on a vertical 2" Rod. This Rod is journalled in a Channel Bearing secured to the Motor side plates. The second  $\frac{1}{2}$ " Pinion engages with a  $1\frac{1}{2}$ " Contrate Wheel carried on the hoisting drum, the latter being formed by a  $2\frac{1}{2}$ " Rod journalled in the end holes of the Motor side plates. The lift and telfer hoisting rope, which is continuous, is wound round the hoisting drum three turns, and is then connected to the lift and telfer in the following manner.

One side of the cord is passed over 1" and  $\frac{1}{2}$ " loose Pulleys at the top of the tower, then over a 1" fast Pulley attached to the cage, and is finally attached to a Flat Bracket that is carried on the same Rod as the  $\frac{1}{2}$ " Pulley. The other side of the cord is passed over a second 1" loose Pulley at the top of the tower, and down to a  $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip on the telfer.

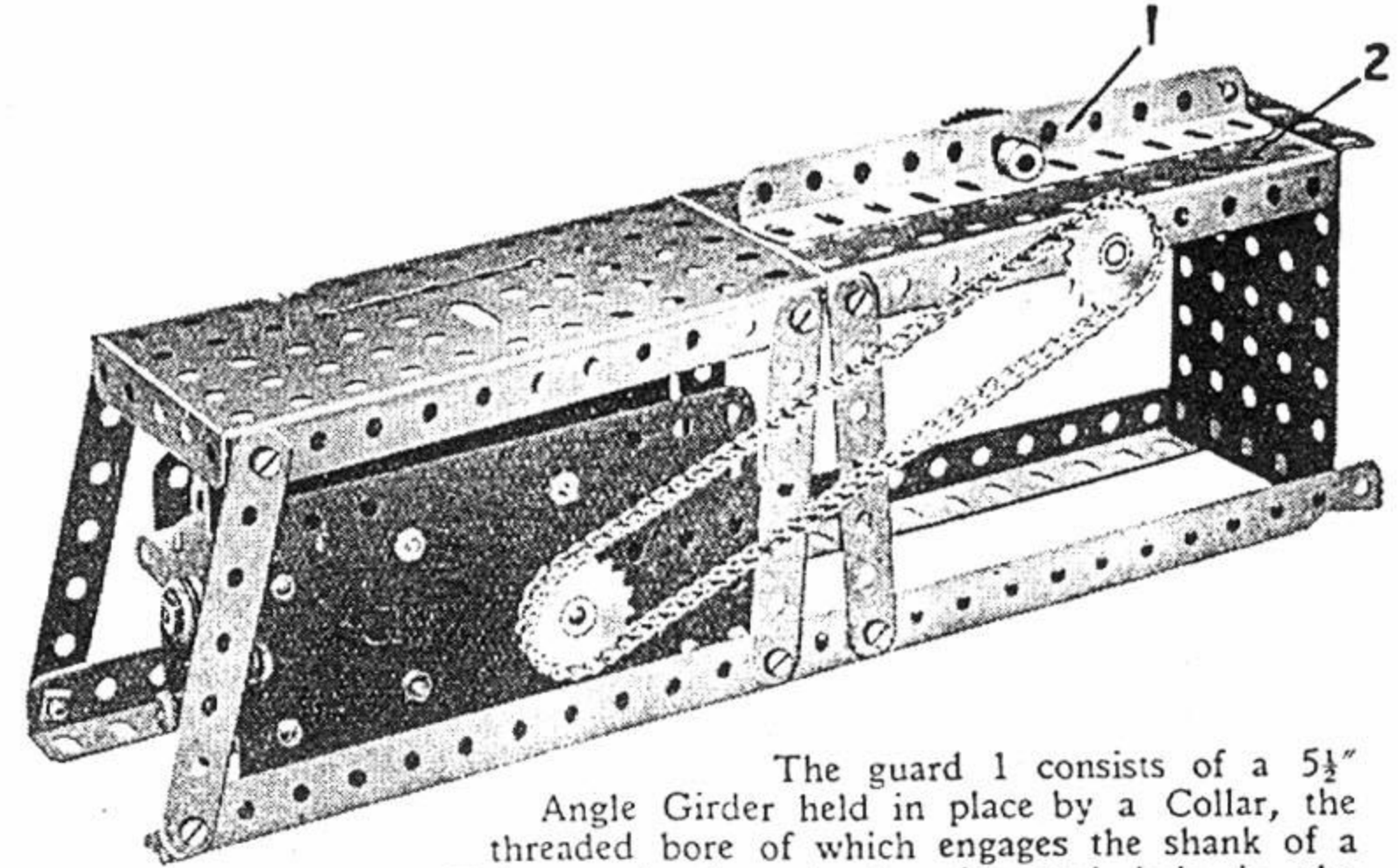


Parts required :

8 of No. 1	3 of No. 22A	5 of No. 48A	4 of No. 126A
2 " " 2	1 " " 23	2 " " 52	1 " " 160
3 " " 3	2 " " 26	5 " " 53	1 " " 162A
2 " " 4	1 " " 28	10 " " 59	1 " " 165
18 " " 5	1 " " 32	2 " " 62	1 " " 166
9 " " 8	4 " " 35	3 " " 63	
4 " " 9	126 " " 37	1 " " 98	
1 " " 11	6 " " 37A	1 " " 99	
7 " " 12	24 " " 38	2 " " 103F	
1 " " 15A	1 " " 40	4 " " 111C	
5 " " 16	1 " " 44	1 " " 115	
2 " " 18A	1 " " 45		
2 " " 20			
4 " " 22			

Electric  
Motor  
(not included  
in outfit)

## Model No. 4.52 Saw Bench

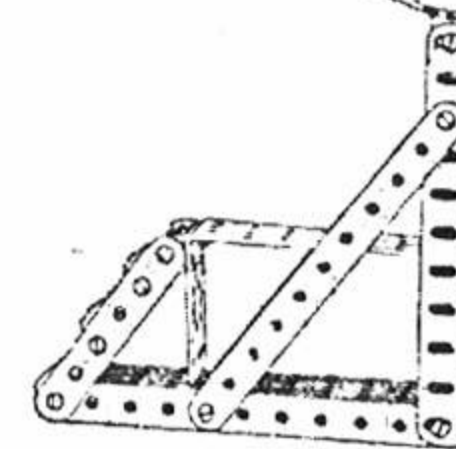


The guard 1 consists of a  $5\frac{1}{2}$ " Angle Girder held in place by a Collar, the threaded bore of which engages the shank of a Bolt passed through the elongated hole in the Flanged Plate 2. Hence the guard may be moved nearer or further from the Circular Saw as required to allow for different thicknesses of material.

Parts  
required :

6 of No. 3
2 " " 8
1 " " 9
1 " " 16
22 " " 37
2 " " 52
1 " " 53
1 " " 59
15 " " 94
2 " " 96
1 " " 111C
1 " " 159
1 " " 160

Electric  
Motor  
(not included  
in outfit)

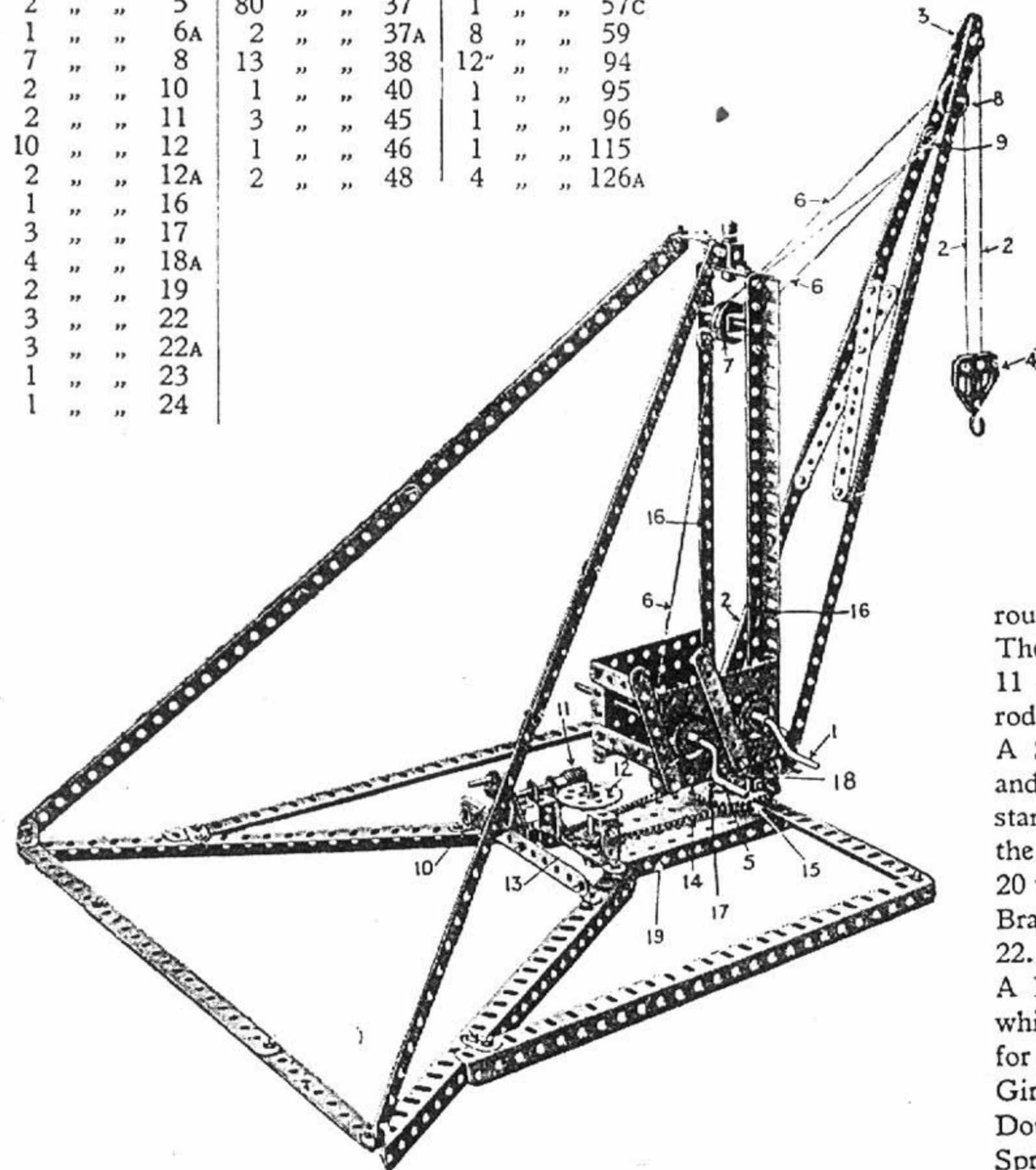




## Model No. 4.53 Swivelling and Luffing Jib Crane

Parts required :

10 of No. 1	1 of No. 27A	3 of No. 48A
3 " " 2	1 " " 32	1 " " 52
3 " " 3	2 " " 35	2 " " 53
2 " " 5	80 " " 37	1 " " 57C
1 " " 6A	2 " " 37A	8 " " 59
7 " " 8	13 " " 38	12 " " 94
2 " " 10	1 " " 40	1 " " 95
2 " " 11	3 " " 45	1 " " 96
10 " " 12	1 " " 46	1 " " 115
2 " " 12A	2 " " 48	4 " " 126A
1 " " 16		
3 " " 17		
4 " " 18A		
2 " " 19		
3 " " 22		
3 " " 22A		
1 " " 23		
1 " " 24		



In this model three separate actions are provided, for raising the load, raising the jib, and swivelling the jib. The load is raised by means of a Crank Handle 1 on which the Cord 2 is wound and passes over the 1" Pulley 3, thence round the  $\frac{1}{2}$ " Pulley in the block 4 (spacing Washers being used to give clearance to the  $\frac{1}{2}$ " Pulley), the end of the Cord 2 being made fast to the top of the jib. By turning the Handle 1 the load is raised or lowered. The jib itself is raised or lowered by the operation of the Crank Handle 5 on the rod of which a cord is wound, and passes over one of two Pulleys 7 to and round another 1" Pulley 8 in the jib, whence it returns to and passes round the other Pulley 7, being finally made fast to the Double Bracket 9 bolted to the jib.

As the Handle 5 is turned the Cord 6 is wound round the pulleys and the angle of the jib varied. The jib is swivelled by the hand wheel 10, a Worm 11 on which engages a 57-toothed Wheel 12 on the rod of which a 1" Sprocket Wheel 13 is mounted. A Sprocket Chain 14 passes round this Wheel 13 and round a 2" Sprocket Wheel 15 secured to the standard 16 of the crane. The bearing for the Rod of the Worm 11 is made by bolting a 1" x 1" Bracket 20 to the  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate 19, and to the Angle Bracket 20 is secured a  $1\frac{1}{2}$ " Strip 21 and a 1" Bracket 22. To the Bracket 22 is bolted a Double Bracket 23. A Flat Trunnion 24 is bolted to the  $5\frac{1}{2}$ " Strip 25 which forms with the Bracket 23 the front bearing for the Rod. The standard is built up of two  $12\frac{1}{2}$ " Girders 16 which are connected at the base by a  $1\frac{1}{2}$ " Double Angle Strip 17 which is bolted to the 2" Sprocket Wheel 15. The 1" Rod 18 is secured in the bush of the Sprocket Wheel 15 and fitted with a Collar below the  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate 19, Fig. 4.53B.

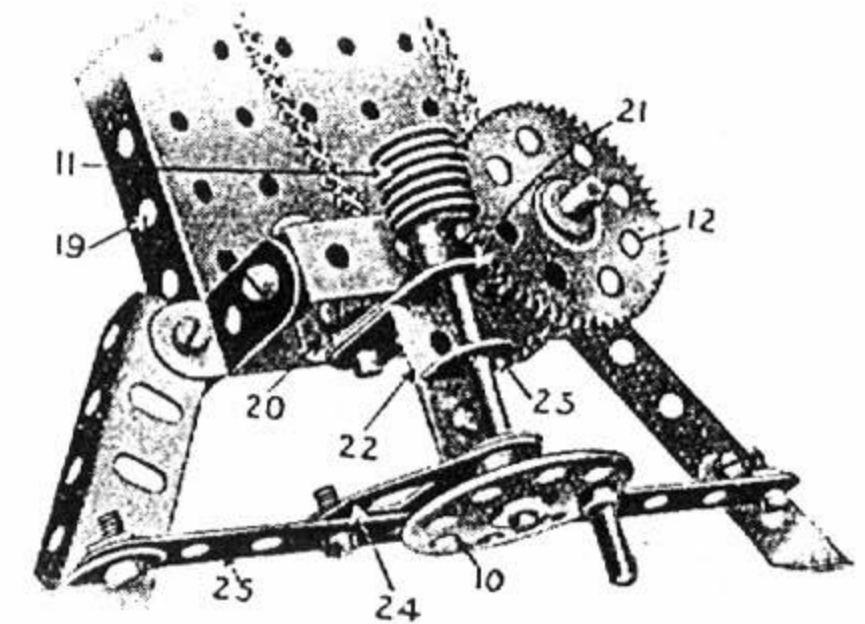


FIG. 4.53A

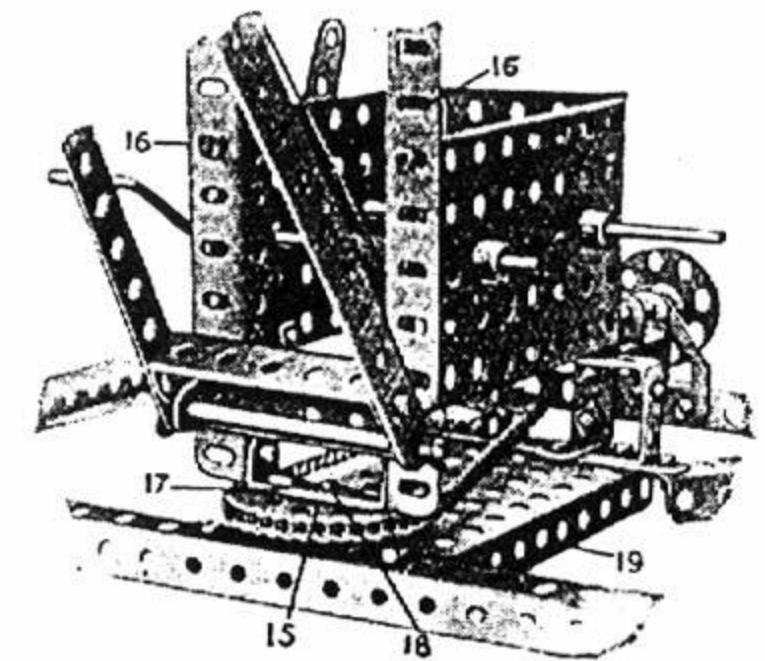
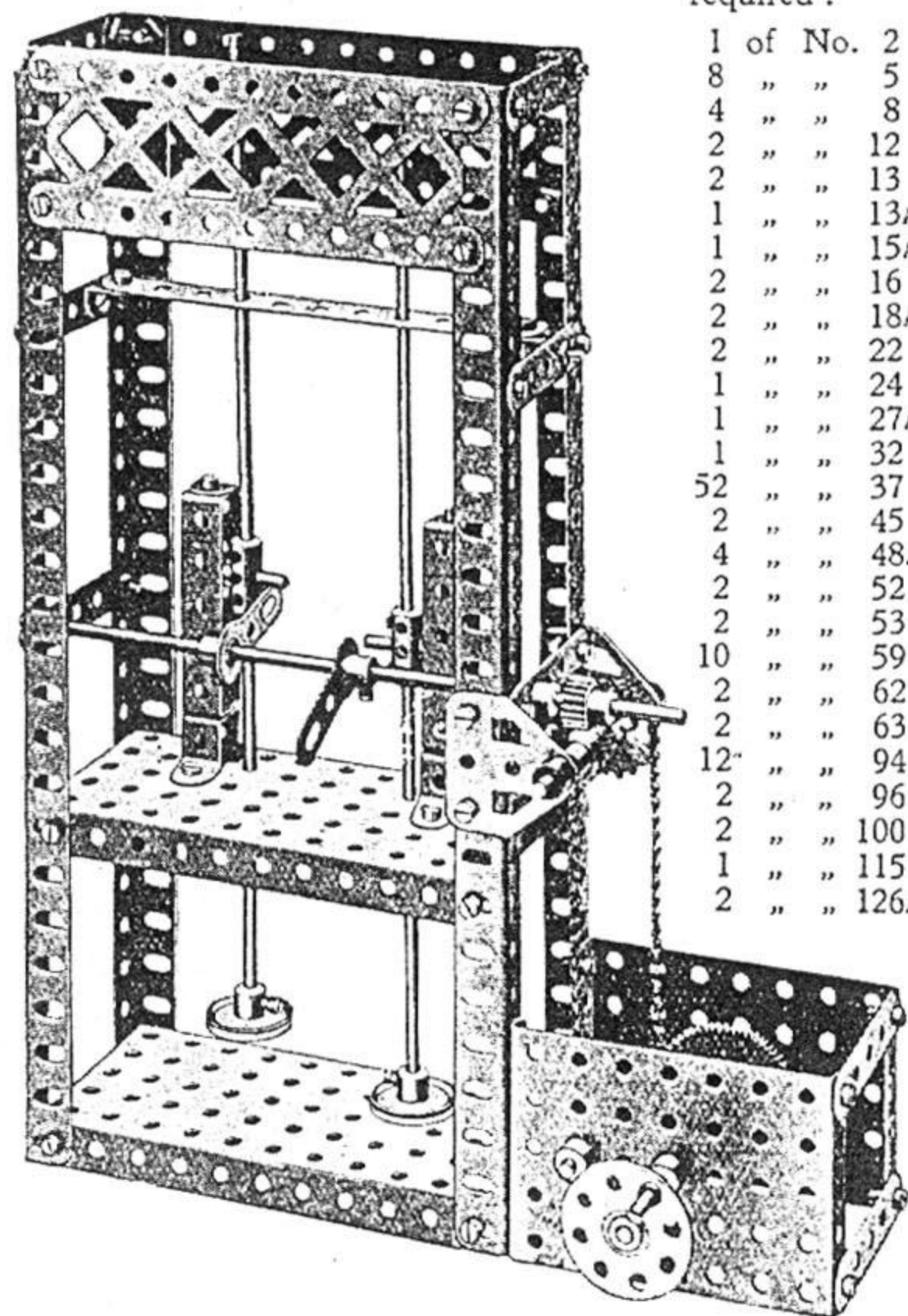


FIG. 4.53B



## Model No. 4.54 Trip Hammer

The shafts carrying the hammers are prevented from rotating in their bearings by means of  $2\frac{1}{2}'' \times \frac{1}{2}''$  Double Angle Strips bolted in pairs to form guides, in which slide the heads of Bolts or short Rods secured to the Couplings in the centre of the hammer shafts. As the Rod carrying the Cranks slowly rotates the hammers rise and fall alternately.



Parts  
required :

1	of	No. 2
8	"	5
4	"	8
2	"	12
2	"	13
1	"	13A
1	"	15A
2	"	16
2	"	18A
2	"	22
1	"	24
1	"	27A
1	"	32
52	"	37
2	"	45
4	"	48A
2	"	52
2	"	53
10	"	59
2	"	62
2	"	63
12	"	94
2	"	96
2	"	100
1	"	115
2	"	126A

## Model No. 4.55 Coal Tipper

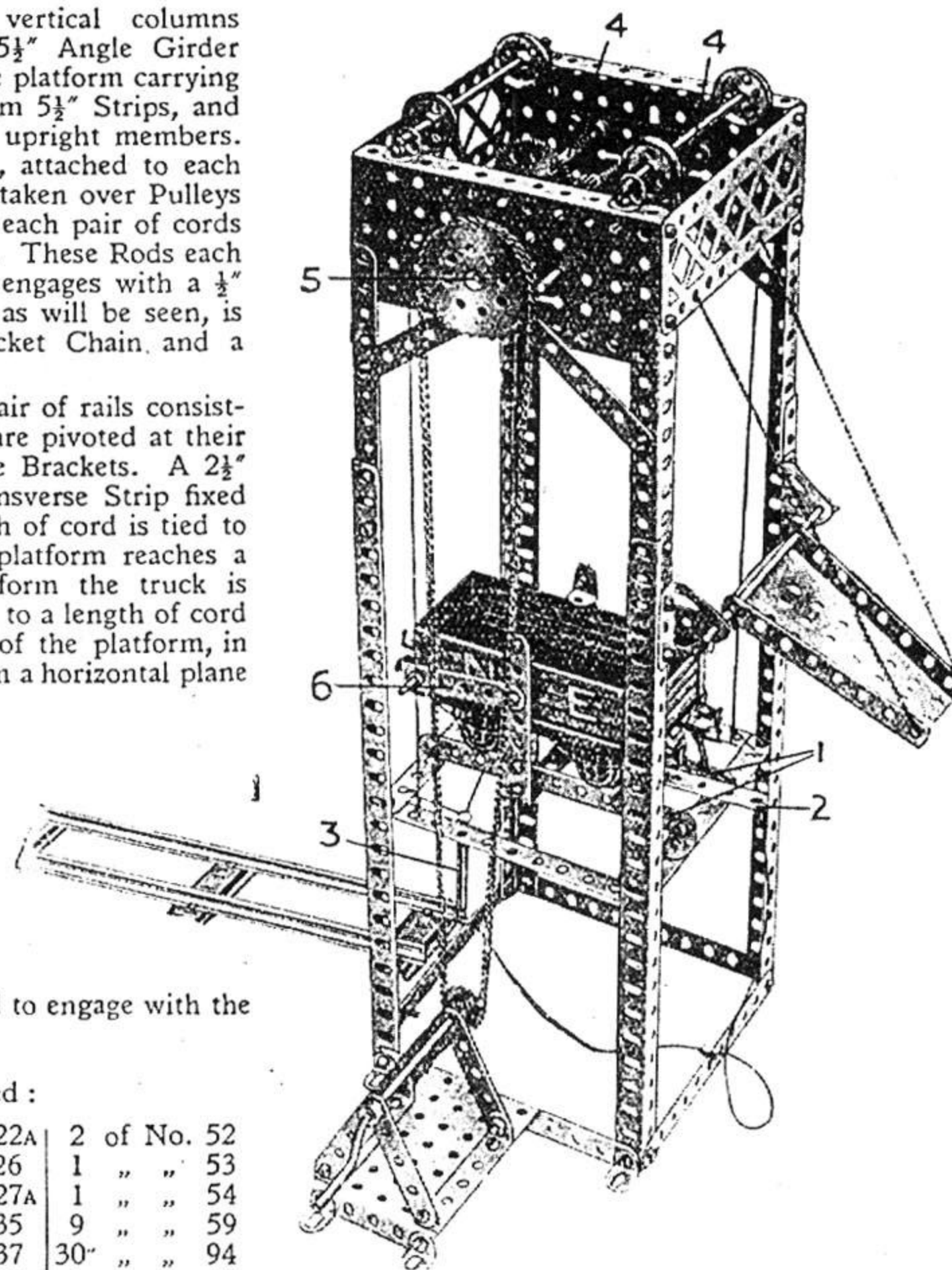
Each of the main vertical columns consists of a  $12\frac{1}{2}''$  and a  $5\frac{1}{2}''$  Angle Girder overlapped three holes. The platform carrying the truck is constructed from  $5\frac{1}{2}''$  Strips, and it slides freely between the upright members. Four cords of equal length, attached to each corner of the platform, are taken over Pulleys at the top of the structure, each pair of cords being wound on to a Rod 4. These Rods each carry a 57-teeth Gear that engages with a  $\frac{1}{2}''$  Pinion on a Rod 5. This, as will be seen, is driven by means of Sprocket Chain, and a Crank Handle.

The truck rests on a pair of rails consisting of  $5\frac{1}{2}''$  Strips 1, which are pivoted at their front ends on  $\frac{1}{2}'' \times \frac{1}{2}''$  Angle Brackets. A  $2\frac{1}{2}''$  Strip 2 is secured to a transverse Strip fixed across the rails, and a length of cord is tied to its end so that when the platform reaches a certain height of the platform the truck is tipped. A Spring 3 secured to a length of cord is attached to the rear end of the platform, in order to keep the platform in a horizontal plane when the truck tips.

To keep the truck in place on the rails, a pivoted Strip 6, with a  $\frac{1}{2}'' \times \frac{1}{2}''$  Angle Bracket on its end, can be swung round so that the Angle Bracket engages with the back of the truck; while further  $\frac{1}{2}'' \times \frac{1}{2}''$  Angle Brackets on the top of the vertical Strips are arranged to engage with the top edges of the truck.

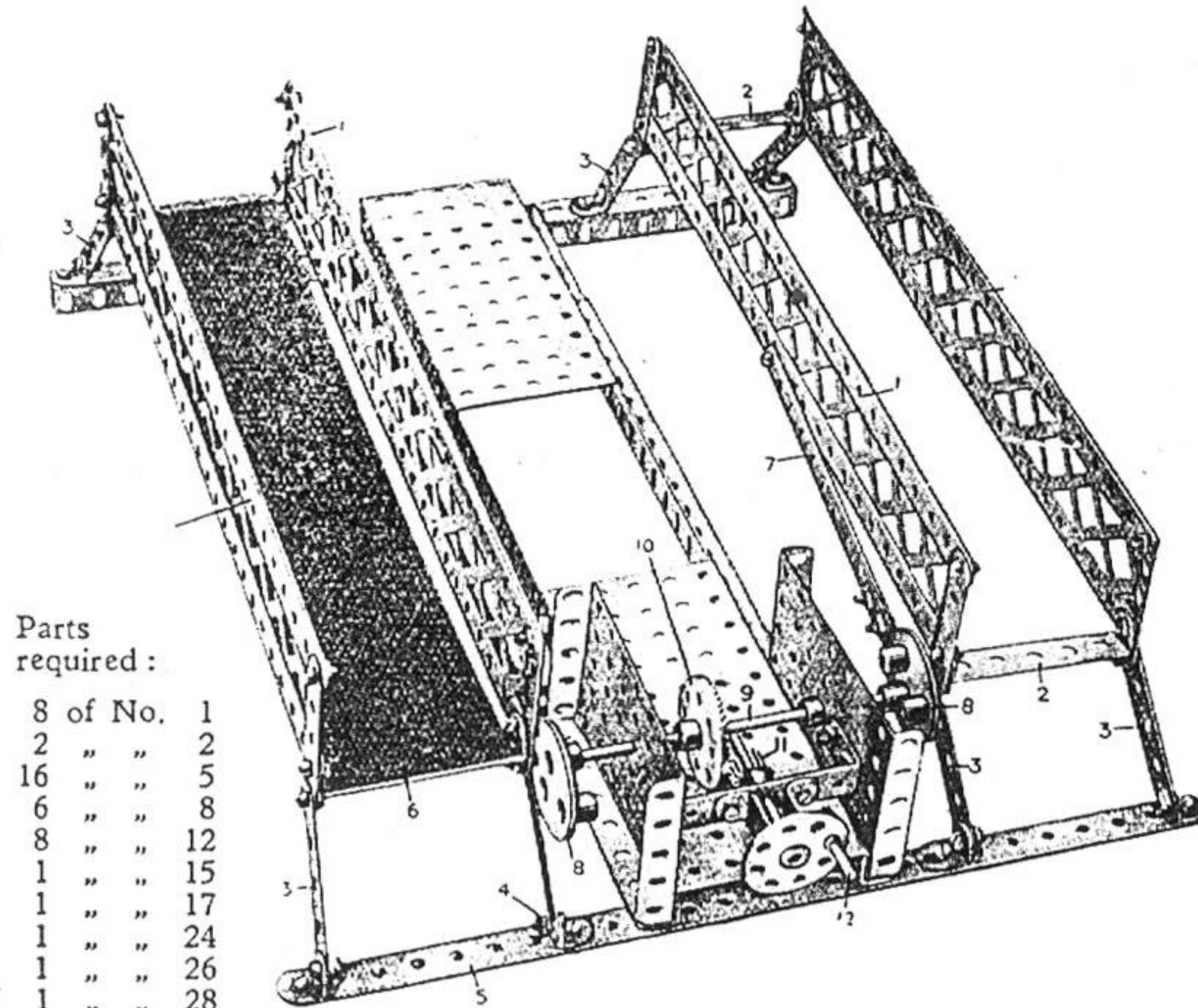
Parts required :

10	of	No. 2	3	of	No. 22A	2	of	No. 52
2	"	3	1	"	26	1	"	53
6	"	4	2	"	27A	1	"	54
9	"	5	12	"	35	9	"	59
4	"	8	85	"	37	30	"	94
4	"	9	9	"	37A	1	"	95
21	"	12	6	"	38	1	"	96A
3	"	14	1	"	40	2	"	100
3	"	15	1	"	43	2	"	111
1	"	19s	1	"	46	1	"	115
1	"	22	3	"	48A	2	"	126





## Model No. 4.56 Cake Walk



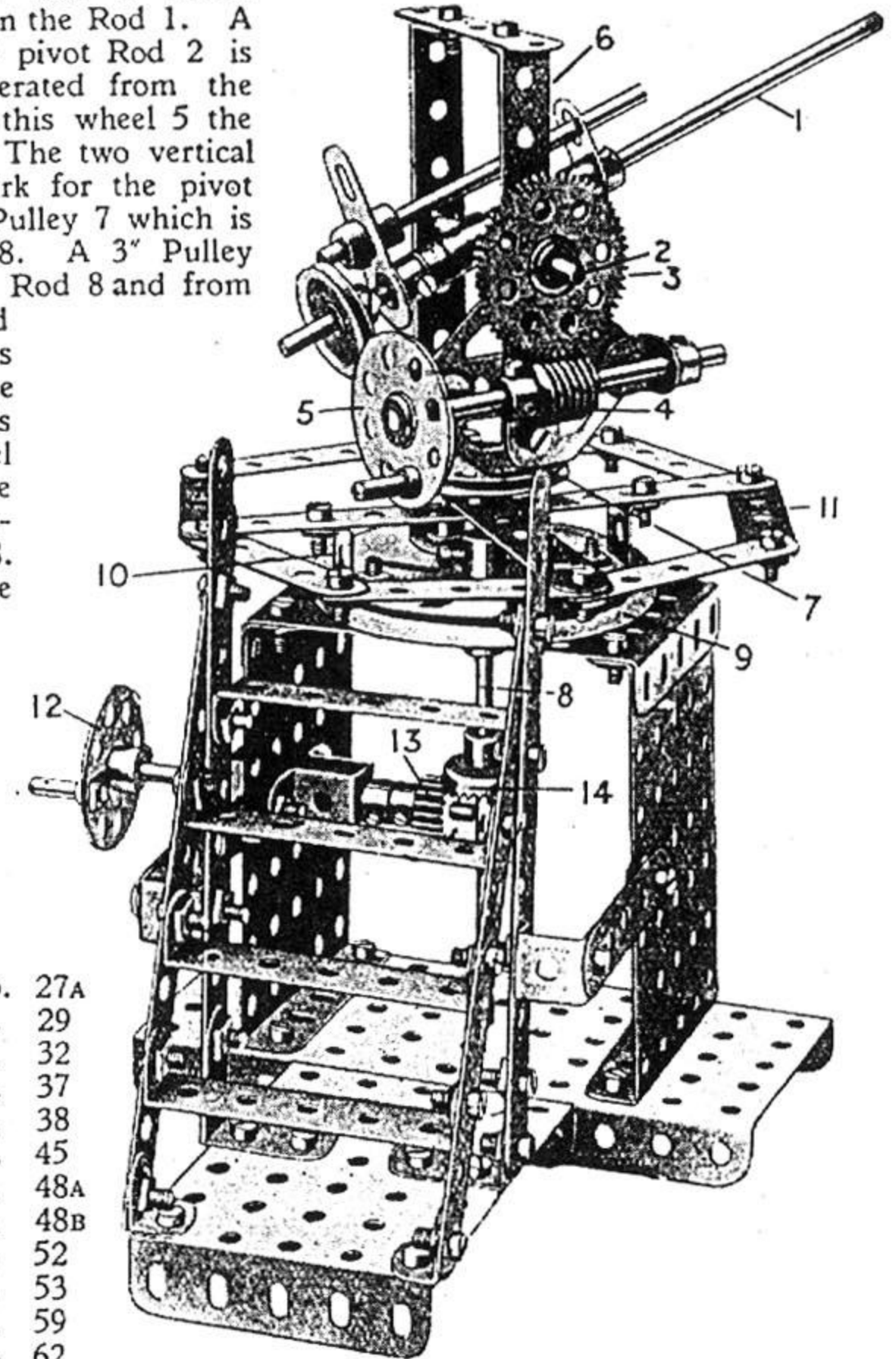
Parts required :

8	of No.	1
2	" "	2
16	" "	5
6	" "	8
8	" "	12
1	" "	15
1	" "	17
1	" "	24
1	" "	26
1	" "	28
66	" "	37
1	" "	38
1	" "	45
1	" "	46
4	" "	48A
2	" "	52
2	" "	53
2	" "	59
4	" "	99
1	" "	115
2	" "	130

The rocking platforms are built up of Braced Girders 1 connected by the end Strips 2 and pivotally bolted and lock-nutted to the Strips 3 forming rocking links. These latter are bolted and lock-nutted at 4 to the Angle Girders 5. Strips 6 of cardboard are secured to the end Strips 2. The platforms are rocked by means of Strips 7, one of which is connected to each rocking platform and to Eccentrics 8 fixed on the Rod 9 on which is secured a Contrate Wheel 10 driven by a Pinion 11 from the handle 12. As the handle 12 is turned the platforms are rocked to and fro on the Strips 3. The eccentrics 8 should be so arranged that the platforms rock in opposite directions.

## Model No. 4.57 Anti-Aircraft Gun

The gun, represented by the Rod 1, is pivoted upon a transverse Rod 2 which passes through a Coupling on the Rod 1. A 57-toothed Wheel 3 on the pivot Rod 2 is engaged by a Worm 4 operated from the hand wheel 5. By turning this wheel 5 the gun is lifted or lowered. The two vertical Strips forming the framework for the pivot Rod 2 are bolted to a  $1\frac{1}{2}$ " Pulley 7 which is secured on a vertical Rod 8. A 3" Pulley Wheel 9 is also bolted to a Rod 8 and from the Pulley Wheel is carried by reversed Angle Brackets 10 to a framework 11. The Rod 8 with the framework is rotated from the hand wheel 12, a Pinion 13 on the spindle of which engages a  $\frac{3}{4}$ " Contrate Wheel 14 on the Rod 8. By turning the wheel 12 the gun is swivelled round.



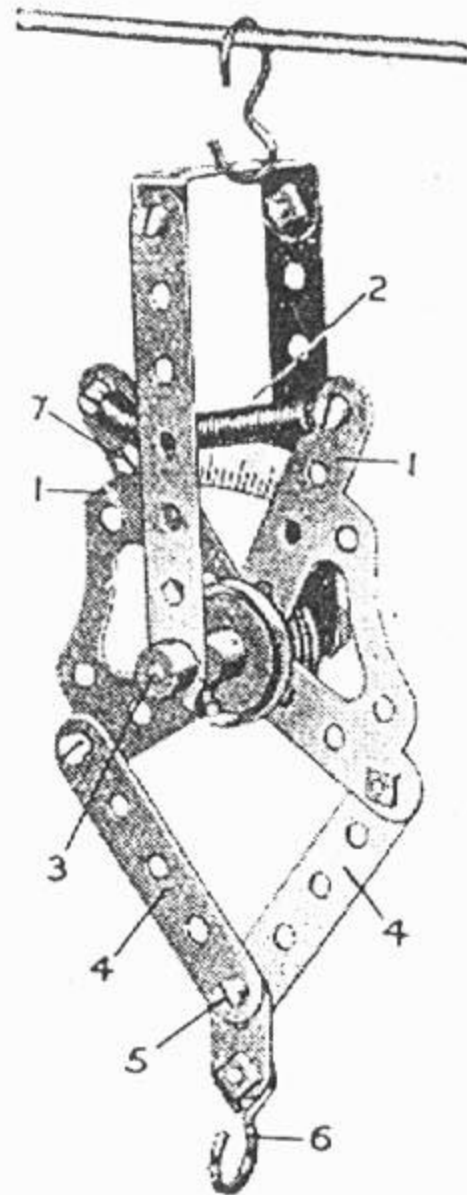
Parts required :

6	of No.	2	1	of No.	27A
11	" "	5	1	" "	29
1	" "	10	1	" "	32
2	" "	11	64	" "	37
4	" "	12	12	" "	38
2	" "	12A	2	" "	45
1	" "	15	4	" "	48A
1	" "	15A	2	" "	48B
4	" "	16	1	" "	52
1	" "	17	4	" "	53
1	" "	19B	8	" "	59
1	" "	21	1	" "	62
2	" "	22	2	" "	63
2	" "	24	2	" "	115
1	" "	26	4	" "	125
2 of No. 126A					



## Model No. 4.58 Spring Balance

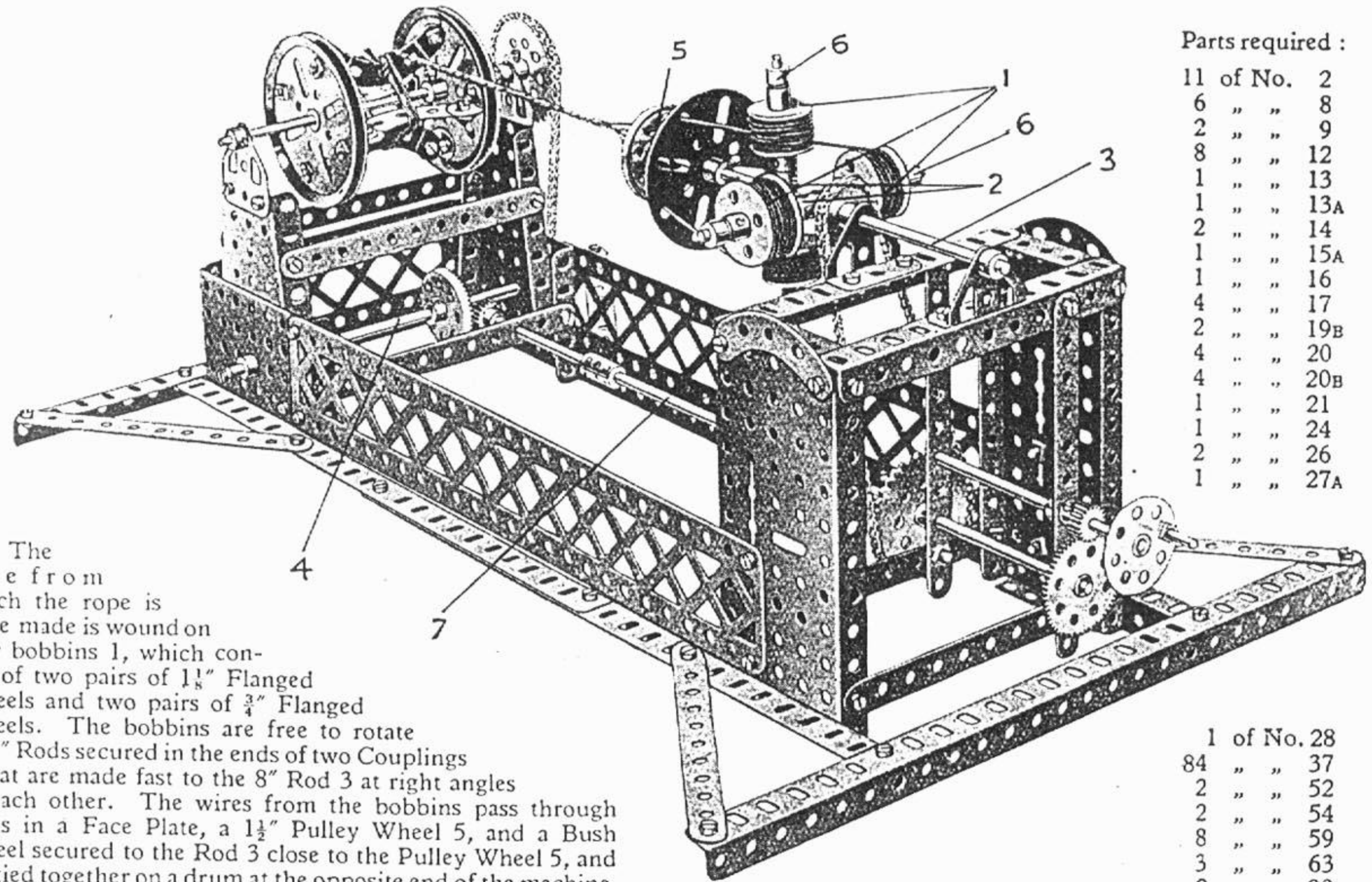
The architraves 1 are pivoted on the Rod 3 and secured at their upper ends to a Spring 2. Two 2½" Strips 4 are attached pivotally to their lower ends by Bolts and lock Nuts and connected together in a similar manner. The Hook 6 suspended from a Flat Bracket receives the article to be weighed, which causes the upper ends of the Architraves to move outward, and the weight may be ascertained from the scale that is bolted in position at 7.



Parts  
required :

2	of No.	3
2	" "	5
1	" "	10
1	" "	17
2	" "	22
8	" "	37
3	" "	37A
1	" "	43
1	" "	48
1	" "	57C
2	" "	59
2	" "	108

## Model No. 4.59 Wire Rope-Making Machine



The wire from which the rope is to be made is wound on four bobbins 1, which consist of two pairs of 1½" Flanged Wheels and two pairs of ¾" Flanged Wheels. The bobbins are free to rotate on 2" Rods secured in the ends of two Couplings 2 that are made fast to the 8" Rod 3 at right angles to each other. The wires from the bobbins pass through holes in a Face Plate, a 1½" Pulley Wheel 5, and a Bush Wheel secured to the Rod 3 close to the Pulley Wheel 5, and are tied together on a drum at the opposite end of the machine. The drum is mounted on a 6½" Rod that is connected by Sprocket Chain to a 1" Sprocket Wheel on the Rod 4, which is revolved slowly from the hand wheel through the gearing shown.

The Rod 3, together with the bobbins, Face Plate, Pulley Wheel 5, and the Bush Wheel, are rotated from the main driving shaft 7 by means of 2" and 1" Sprocket Wheels. The wires are thus twisted together between the Pulley Wheel 5 and the drum, and are wound on the latter in the form of a cable. In order to prevent the wire from unwinding too rapidly, Washers are placed on the 2" Rods between the Couplings and the bosses of the Flanged Wheels 1, and the Collars 6 are pressed hard against the wheels before being secured to the 2" Rods.

A considerable amount of tension is essential to the production of good wire rope, and for this reason the 1½" Pulley Wheel 5 and the Bush Wheel behind it are secured close together on the Rod 3 in such a manner that the friction generated by the wires in passing through the holes in the wheels keeps the cable taut while it is being twisted. String or thin wire may be used in the model.

Parts required :

11	of No.	2
6	" "	8
2	" "	9
8	" "	12
1	" "	13
1	" "	13A
2	" "	14
1	" "	15A
1	" "	16
4	" "	17
2	" "	19B
4	" "	20
4	" "	20B
1	" "	21
1	" "	24
2	" "	26
1	" "	27A

1	of No.	28
84	" "	37
2	" "	52
2	" "	54
8	" "	59
3	" "	63
2	" "	90
4	" "	90A
15"	" "	94
2	" "	95
2	" "	96
2	" "	99
1	" "	100
1	" "	109
1	" "	115
2	" "	126
2	" "	126A



## Model No. 4.60 Elevated Jib Crane

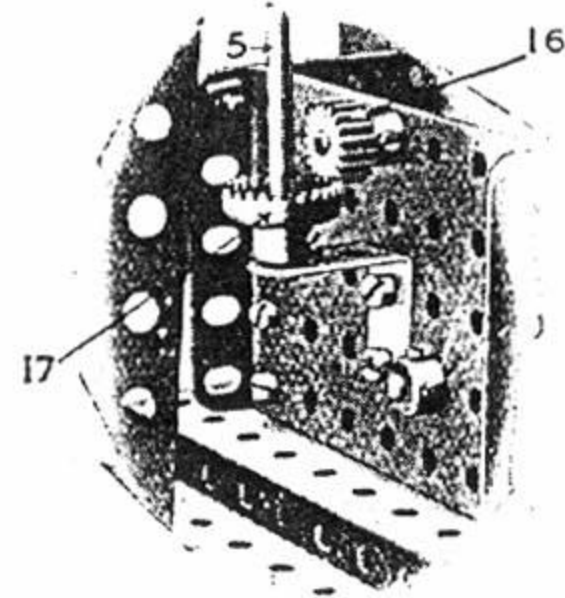


FIG. 4.60A

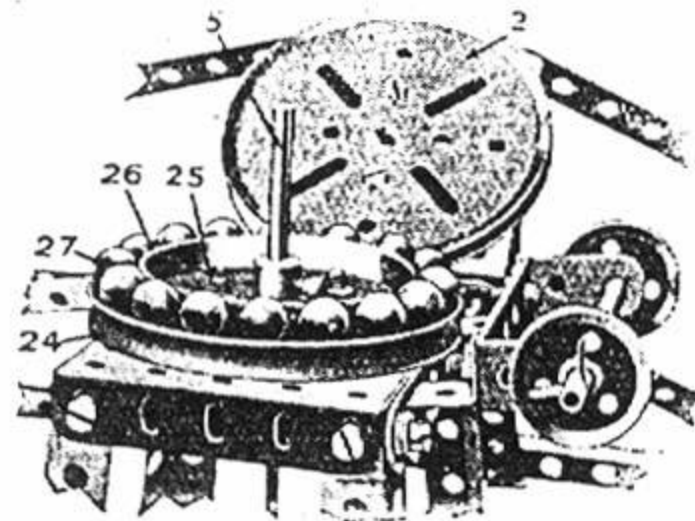


FIG. 4.60B

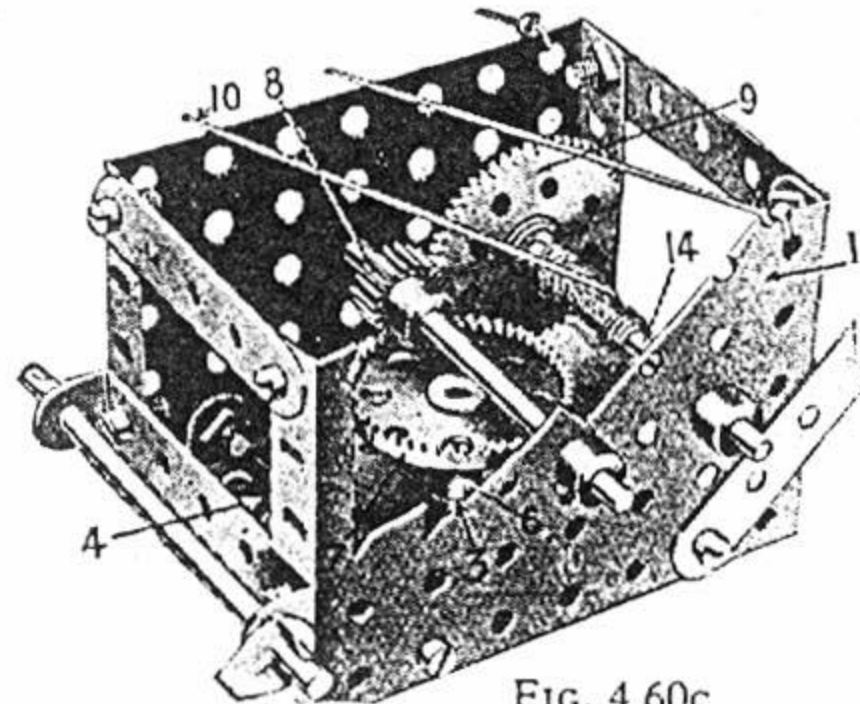


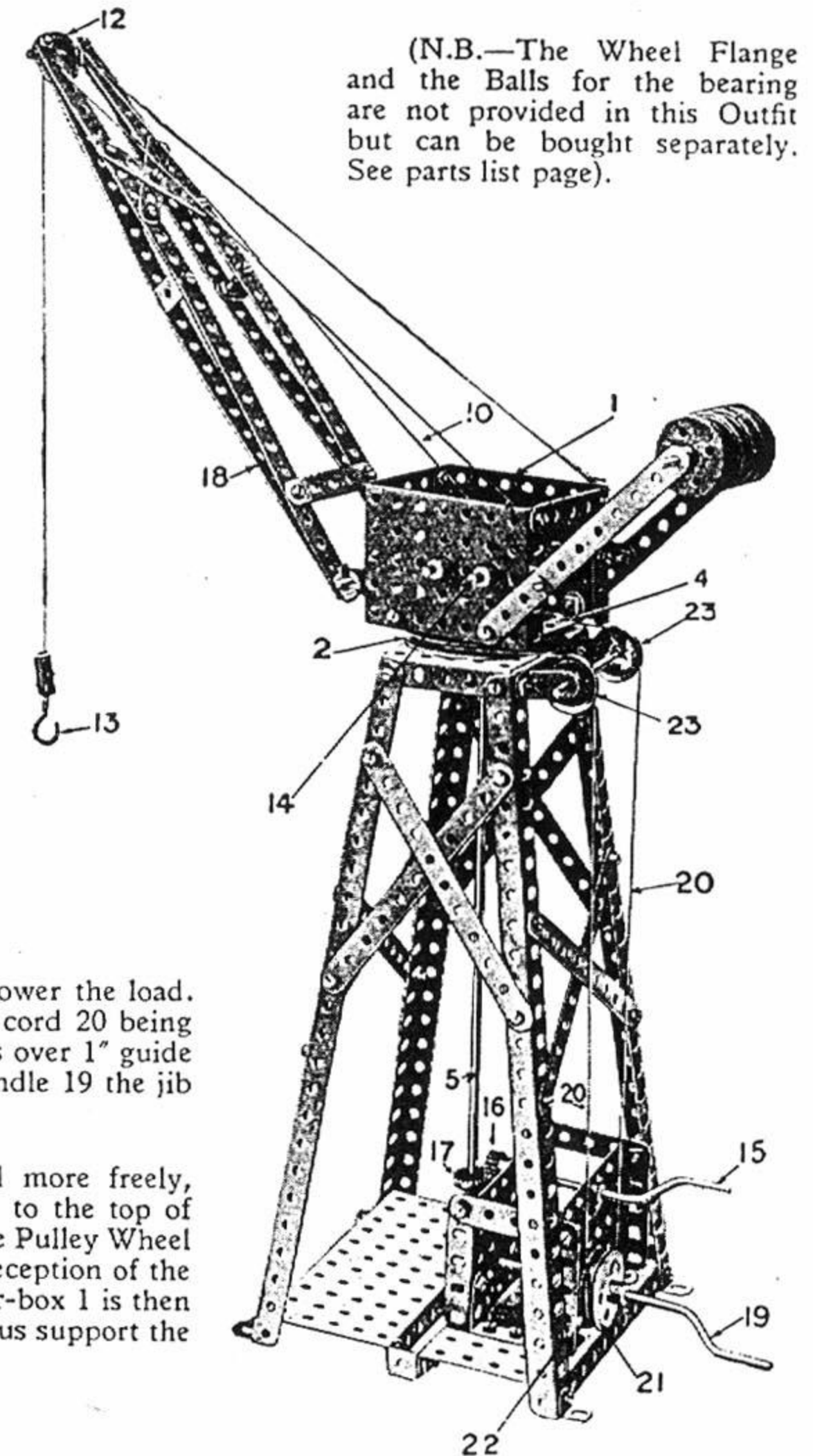
FIG. 4.60C

## Parts required :

4 of No. 1	1 of No. 19	1 of No. 29
10 " " 2	1 " " 19B	4 " " 35
1 " " 3	1 " " 19s	85 " " 37
8 " " 5	4 " " 20	1 " " 40
4 " " 8	2 " " 20B	1 " " 46
4 " " 11	1 " " 21	3 " " 48A
14 " " 12	1 " " 22	2 " " 52
3 " " 12A	2 " " 22A	5 " " 53
1 " " 13	2 " " 26	1 " " 57C
5 " " 16	1 " " 27A	6 " " 59
1 " " 18A	1 " " 28	1 " " 63

The gear-box 1 is secured to a 3" Pulley Wheel 2 (the boss 3 of which is upward) by means of two  $2\frac{1}{2}" \times \frac{1}{2}"$  Double Angle Strips 4. The  $11\frac{1}{2}"$  Rod 5 passes up through the boss 3, a Collar 6 being placed on top of the boss. The Contrate Wheel 7 is then secured to the top of the Rod 5. A  $\frac{1}{2}"$  Pinion 8 engages the Contrate Wheel 7 and also a 57-toothed Wheel 9 on the Rod 14 on which latter the hoisting cord 10 is wound, passing over the 1" Pulley 12 to the Hook 13. The Rod 5 is actuated from the Crank Handle 15 by the Pinion 16 engaging a  $\frac{3}{4}"$  Contrate Wheel 17 and through the Gear Wheels 7, 8, and 9, and operates the cord 10 to raise or lower the load. The jib 18 is swivelled from the Crank Handle 19, a continuous cord 20 being wound twice round the  $\frac{3}{4}"$  Flange Wheels 21. The cord 20 passes over 1" guide Pulleys 23 and round the 3" Pulley Wheel 2. By turning the handle 19 the jib is swivelled.

*Alternative Construction.* In order to make the jib swivel more freely, a ball-race, Fig. 4.60B, may be fitted. This is made by bolting to the top of the frame a 3" Pulley Wheel 24 by Bolts 25 which also secure in the Pulley Wheel 24 a Wheel Flange 26. This provides a circular groove for the reception of the Ball Bearings 27. The Pulley Wheel 2 which is bolted to the gear-box 1 is then placed over the Rod 5 and rests on the Ball Bearings 27, which thus support the weight of the superstructure.



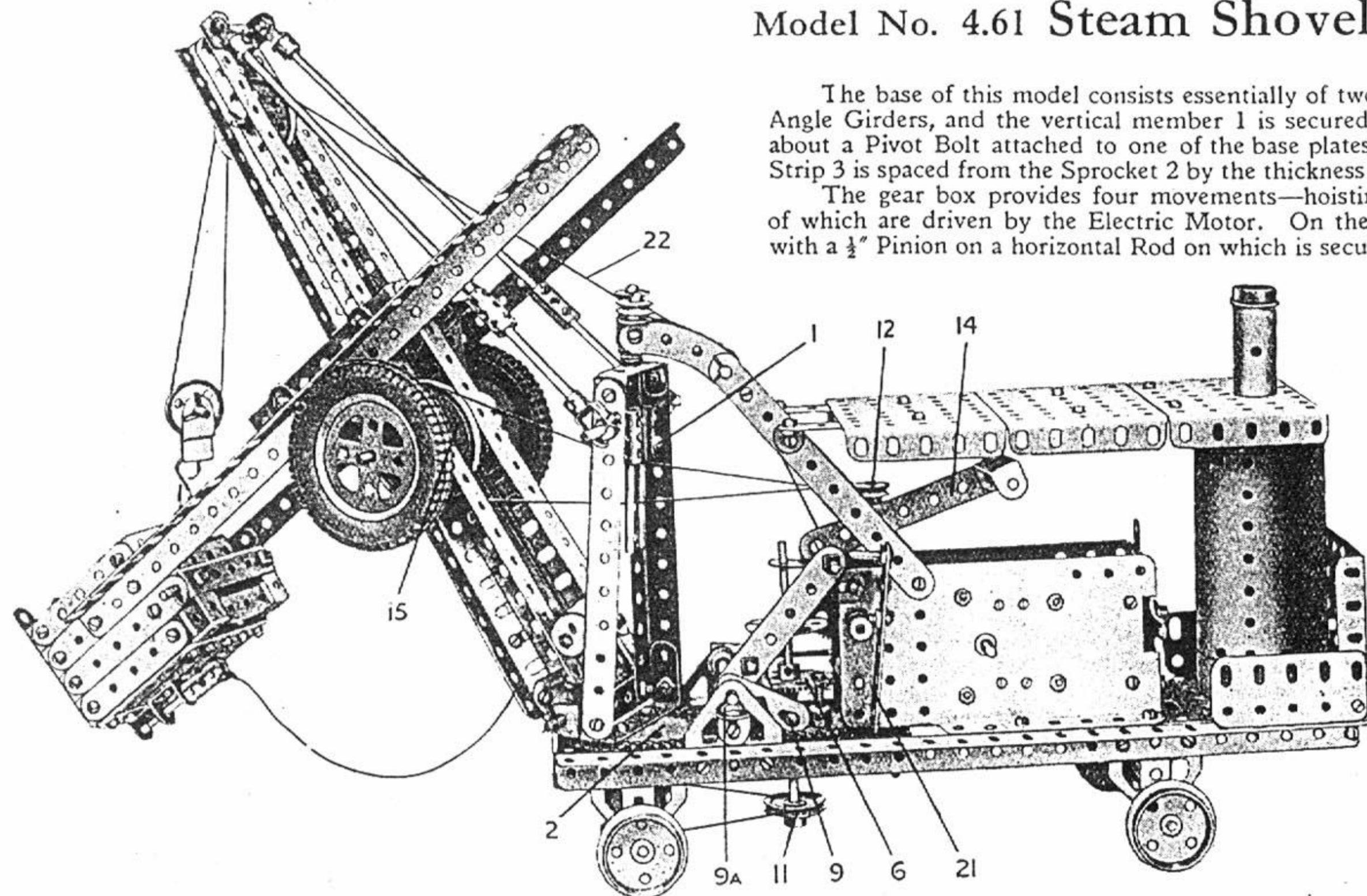


## Model No. 4.61 Steam Shovel

The base of this model consists essentially of two  $5\frac{1}{2}" \times 2\frac{1}{2}"$  Flanged Plates connected together by  $12\frac{1}{2}"$  Angle Girders, and the vertical member 1 is secured firmly to a 2" Sprocket Wheel 2 that is free to turn about a Pivot Bolt attached to one of the base plates. It should be noted that the  $2\frac{1}{2}" \times 1"$  Double Angle Strip 3 is spaced from the Sprocket 2 by the thickness of two Washers.

The gear box provides four movements—hoisting and lowering, racking, slewing, and travelling, all of which are driven by the Electric Motor. On the armature spindle of the Motor is a Worm meshing with a  $\frac{1}{2}"$  Pinion on a horizontal Rod on which is secured also a  $\frac{3}{4}"$  Contrate. The latter is in constant mesh with a  $\frac{1}{2}"$  Pinion 4 on a short Rod that is journaled in the Motor side plates and carries a Worm 5.

The slewing and travelling motions are actuated through a novel form of clutch, shown in Figs. 4.61 and 4.61c. A 57-teeth Gear 6 meshes with the Worm 5. It is loose on its Rod 10 and may be raised or lowered by means of two Cranks 9, which are secured to a Rod and have in their end holes, Bolts, the shanks of which engage with the underside of the Gear. When the Gear is moved downwards, one of two  $\frac{3}{4}"$  Bolts 6A secured to it, engages with one of the holes in a 2" Sprocket 7, which is loose on the Rod 10 and is connected to the Sprocket 2 by a length of Sprocket Chain. By this means the model is slewed. By raising the Gear 6 the second  $\frac{3}{4}"$  Bolt engages with a Bush Wheel 8, which is fastened to the Rod 10. A 1" fast Pulley 11 on the lower end of this shaft is connected by a short belt of cord to a similar Pulley on the front axle.



### Parts required :

6 of No. 2	3 of No. 14	3 of No. 23	1 of No. 44	3 of No. 90	1 of No. 162
2 " " 2A	1 " " 15	1 " " 23A	1 " " 45	11 " " 94	1 " " 163
6 " " 3	5 " " 15A	2 " " 24	1 " " 46	2 " " 95	1 " " 164
4 " " 4	5 " " 16	2 " " 26	2 " " 48	2 " " 103F	2 " " 165
18 " " 5	5 " " 17	2 " " 27A	10 " " 48A	2 " " 111	1 " " 166
2 " " 6A	4 " " 18A	1 " " 29	2 " " 52	3 " " 111c	
8 " " 8	4 " " 20	2 " " 32	4 " " 53	2 " " 115	
2 " " 9	3 " " 20A	10 " " 35	1 " " 57c	1 " " 116A	
3 " " 10	1 " " 20B	125 " " 37	10 " " 59	3 " " 126	
1 " " 11	1 " " 21	7 " " 37A	2 " " 62	4 " " 126A	
12 " " 12	2 " " 22	21 " " 38	6 " " 63	2 " " 142A	
4 " " 12A	1 " " 22A	1 " " 40	2 " " 77	1 " " 147B	

Electric  
Motor  
(not included  
in Outfit)

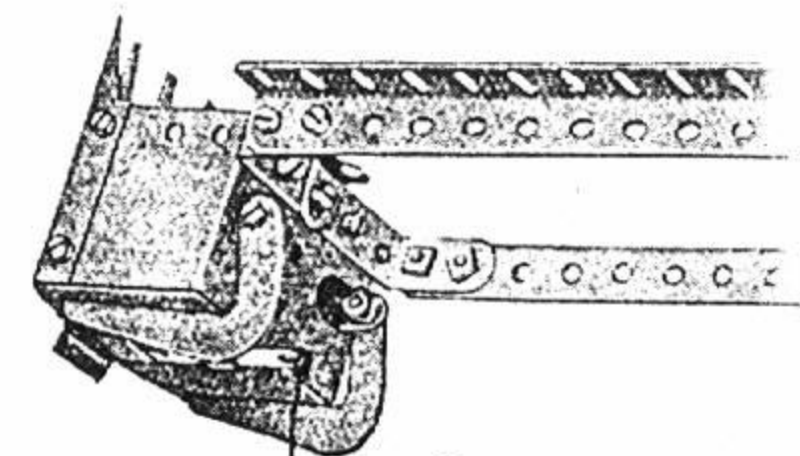


FIG. 4.61A. If available, the Meccano Digger Bucket (part No. 169) may be used with advantage in place of the built-up Bucket, as shown.



## Model No. 4.61 Steam Shovel (continued)

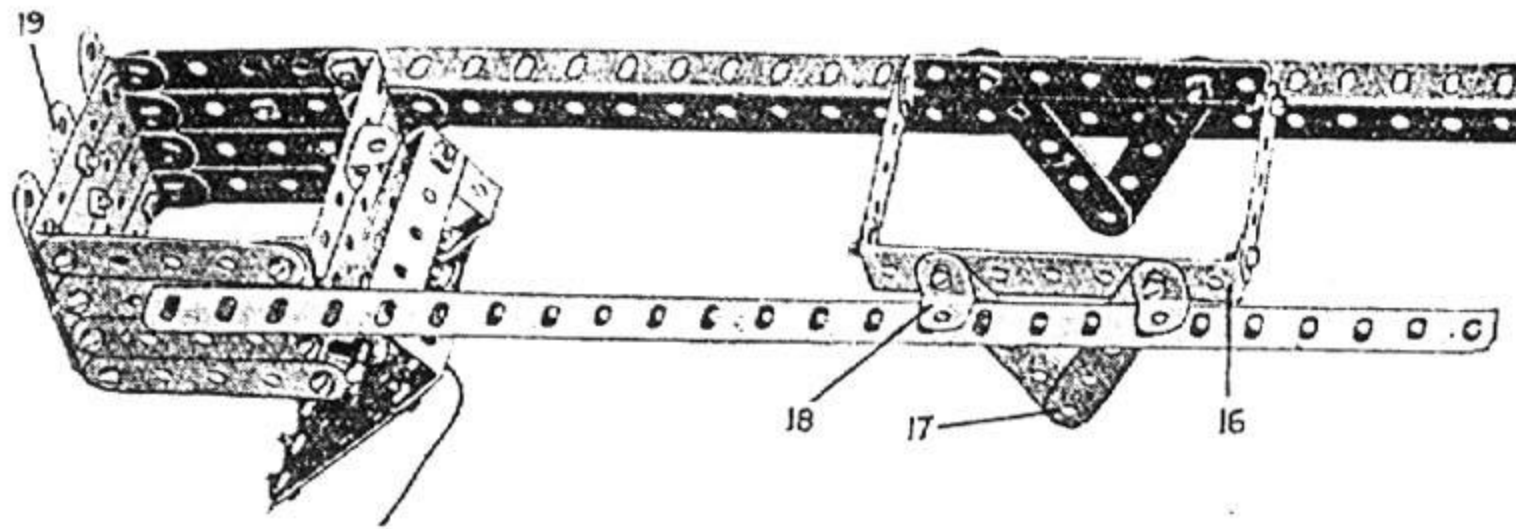


FIG. 4.61b. The Bucket arm, with Bucket and Guide Frame in position.

to the top end of a Rod that carries a  $\frac{1}{2}$ " Pinion 13, which may be brought into mesh with the Worm 5 by sliding the Rod downward with the aid of the lever 14. A belt of cord connects the Pulley 12 with a 2" Pulley 15 secured on a Rod that is journalled in the sides of the jib and which carries two other 2" Pulleys shod with Dunlop Tyres. The frame 16 (Fig. 4.61b) also is mounted on this Rod in the holes 17, and the Girders of the bucket arm engage between the  $\frac{1}{2} \times \frac{1}{2}$ " Angle Brackets 18 and the tyre-shod Pulleys. The Brackets 18 should press the bucket arm only lightly into contact with the Tyres, and the driving belt should be taken several times round the Pulleys 12 and 15.

The construction of the bucket itself should be fairly obvious from Fig. 4.61b, with the exception of the catch for releasing the hinged bottom. The catch consists of a  $1\frac{1}{2}$ " Rod free to slide in a Double Bracket that is bolted rigidly to the underneath of the bucket. One end of the Rod is fitted with a Coupling, to which the release cord is attached, and the other end fits into the lower hole of a 3" Strip 19.

The hoisting barrel consists of a  $3\frac{1}{2}$ " Rod 20 that is free to slide in the Motor side plates and is controlled by the lever 21, so that the 57-teeth Gear on its extremity may be thrown into or out of engagement with the  $\frac{1}{2}$ " Pinion 4. When out of gear the projecting shank of a Bolt on the Motor side plate engages with one of the holes of the 57-teeth Gear and thus prevents the unwinding of the barrel. The grub-screw in the boss of the Pinion 4 should be filed, if necessary, so that it does not foul the teeth of the 57-teeth Gear.

The pair of  $\frac{1}{2}$ " loose Pulleys mounted at the top of the vertical member form guides round which the hoisting cord 22 passes when the jib is slewed round. The Boiler is retained in position by a  $6\frac{1}{2}$ " Rod, which passes completely through it, and through the base plate, and is secured by a Bush Wheel on its lower end, and at its upper extremity by a  $\frac{3}{4}$ " Flanged Wheel that forms the chimney cap.

It is an advantage to fill the Boiler with heavy objects so as to prevent the machine from tipping forward. Also, when working cross-track it is advisable to provide "out riggers." These should take the form of arms pivoted to the truck so that they may be swung out at right angles, and by having their ends packed up, used to relieve the wheels and axles from strain.

Much fun may be had with this model, not only during its construction but afterwards when it is set to work. Also, it may easily be converted into a crane by detaching the bucket arm and unhooking the bucket from the Pulley Block.

It should be borne in mind that the Gear 6 must be always in mesh with the Worm 5, unless it is required to throw it out of gear entirely, when it is only necessary to slide it up the Rod to its fullest extent. To prevent the Gear coming out of mesh with the Worm when in the slewing position, a Collar is fixed on the lower  $\frac{3}{4}$ " Bolt, and in order to maintain the operating lever in position after movement, a Spring Clip 9A is mounted on the end of the Rod carrying the Cranks 9, and prevented from rotation by its ends engaging with a  $\frac{1}{2} \times \frac{1}{2}$ " Angle Bracket bolted to the Flat Trunnion. Hence the required stiffness in the movement of the lever is obtained.

The drive for the racking movement is taken off a  $\frac{1}{2}$ " fast Pulley 12 secured

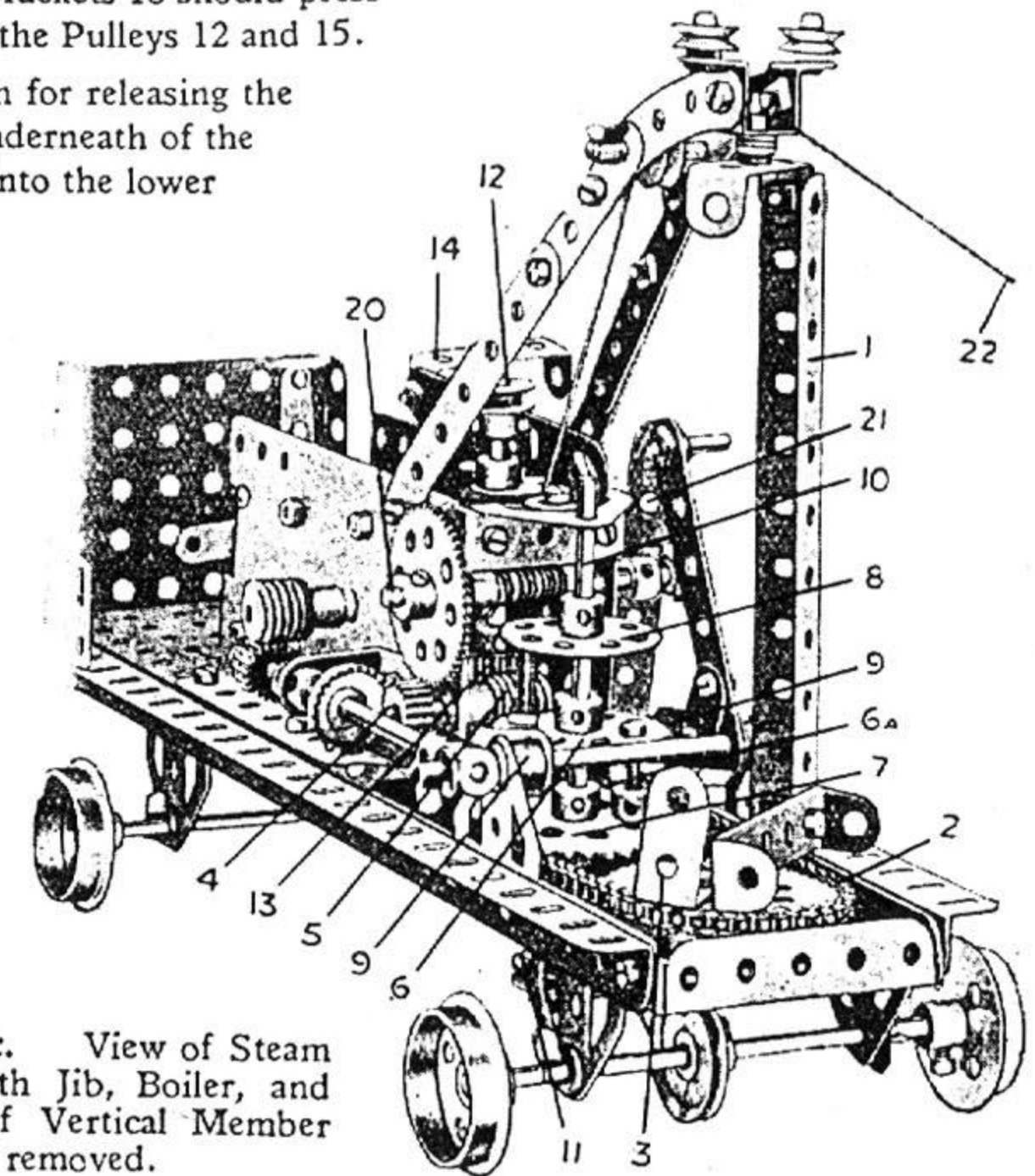


FIG. 4.61c. View of Steam Shovel with Jib, Boiler, and portion of Vertical Member removed.



## Model No. 4.62 Steam Wagon

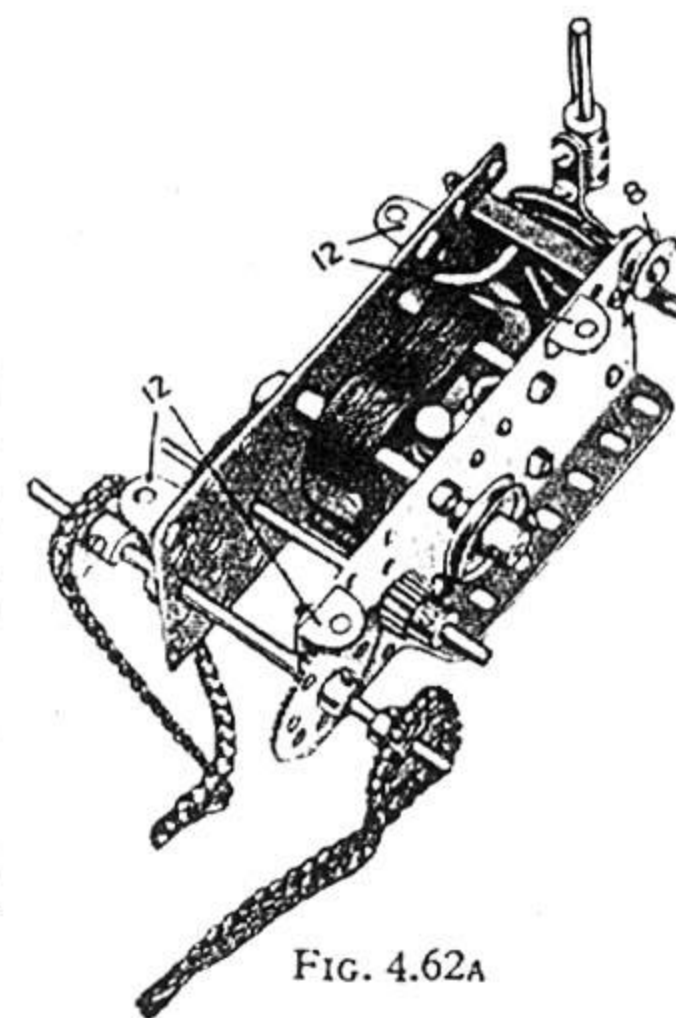
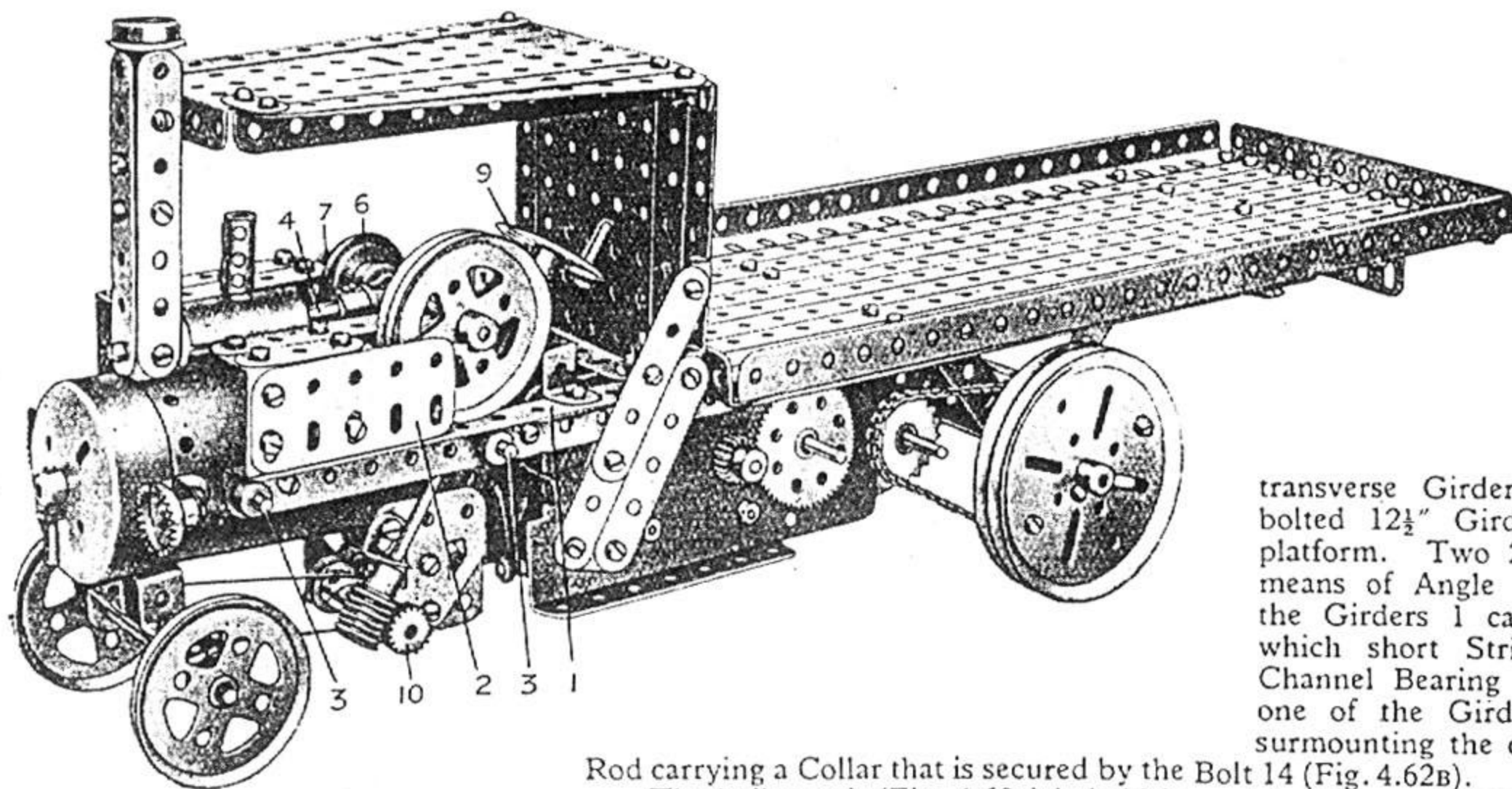


FIG. 4.62A

The main frame and the bodywork (Fig. 4.62B) should first be constructed. The frame consists essentially of two Girders 1 each formed from two  $12\frac{1}{2}$ " Angle Girders overlapped and bolted together. The Girders 1 are spaced apart by  $5\frac{1}{2}$ " transverse Girders, to the ends of which are bolted  $12\frac{1}{2}$ " Girders forming the sides of the platform. Two  $2\frac{1}{2}$ " Flat Girders 2 secured by means of Angle Brackets to the front ends of the Girders 1 carry  $1" \times 1"$  Angle Brackets, to which short Strips are bolted as shown. A Channel Bearing is also secured in position to one of the Girders. The  $\frac{3}{4}"$  Flanged Wheel surmounting the chimney is mounted on a short

Rod carrying a Collar that is secured by the Bolt 14 (Fig. 4.62B).

The boiler unit (Fig. 4.62C) is held in position by two  $3\frac{1}{2}"$  Rods 3 that are passed through holes in the Girders 1,  $5\frac{1}{2}"$  Strips being bolted to the Girders to cover the elongated holes. A Sleeve Piece represents the cylinder, on the inside of which an Angle Bracket is secured to hold a short Rod 4 representing the piston connecting Rod. A small Fork Piece is carried on the Rod so that its fork engages with the  $3"$  Rod 5, journals for which are provided by a Double Bracket secured to the Boiler and by a Flat Bracket 7 that is bolted to the Channel Bearing on the frame. Two  $2"$  Pulleys serve as a flywheel while a  $1"$  Pulley 6 on the Rod takes up the drive from the armature spindle of the Electric Motor.

### Parts required :

9 of No. 1	5 of No. 16	1 of No. 35	2 of No. 96
6 " " 2	3 " " 17	127 " " 37	2 " " 103F
6 " " 3	2 " " 18A	5 " " 37A	2 " " 111
10 " " 5	4 " " 19B	24 " " 38	6 " " 111C
1 " " 6A	4 " " 20A	1 " " 45	2 " " 115
6 " " 8	1 " " 20B	2 " " 48	1 " " 116A
3 " " 9	2 " " 22	3 " " 48A	1 " " 125
4 " " 10	3 " " 23	1 " " 52	4 " " 126A
5 " " 11	1 " " 24	1 " " 53	1 " " 160
19 " " 12	2 " " 26	10 " " 59	1 " " 162A
4 " " 12A	2 " " 27A	2 " " 63	1 " " 162B
1 " " 15	2 " " 29	19 " " 94	1 " " 163
2 " " 15A	1 " " 32	2 " " 95	1 " " 164

Electric Motor  
(not included in Outfit)

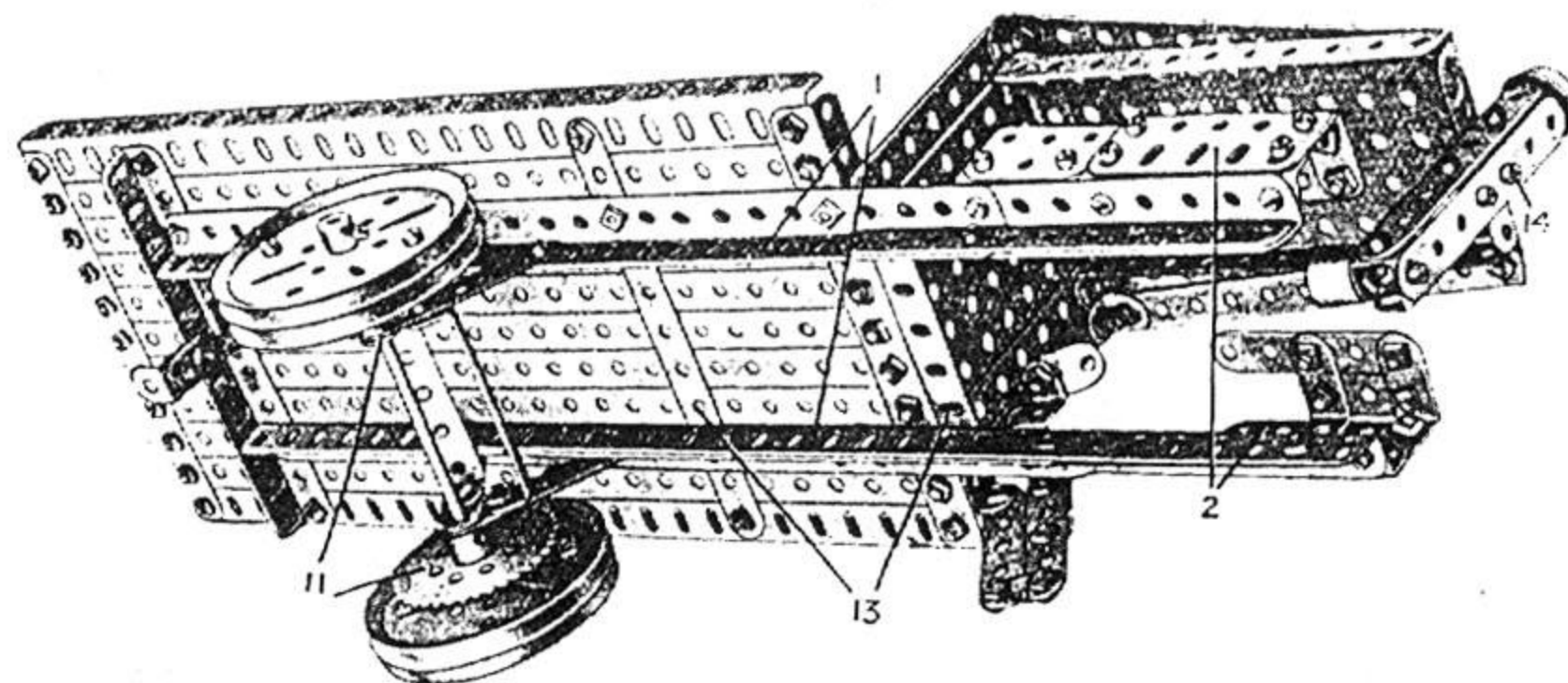


FIG. 4.62B



## Model No. 4.62 Steam Wagon (continued)

The "firebox" is formed by two pairs of Flat Trunnions held together by  $1\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips, one of which is secured to the Boiler. The frame so formed holds the steering mechanism, which is operated by the hand wheel 9, the Rod of which carries a Worm engaging the  $\frac{1}{2}$ " Pinion 10. This Pinion is secured on the end of a 2" Rod carrying a Coupling between two  $\frac{1}{2}$ " Pulleys, and a length of cord wound round the Coupling has its ends secured to the Double Angle Strip carrying the front axle. The Double Angle Strip is bolted to a Double Bent Strip, which is pivoted by a Bolt and two Nuts to the underside of the Boiler.

Fig 4.62A shows the arrangement of the gearing for the drive to the rear axle. A  $\frac{1}{2}$ " Pinion on the Motor armature spindle engages a 57-teeth Gear on a Rod that carries a further Pinion engaging a second Gear. The Rod of the latter

carries two  $\frac{1}{2}$ " Sprockets from which the drive is led by means of chain to the Sprockets 11 (Fig. 4.62B). The armature shaft of the Motor also carries a 1" Pulley which transmits the drive via a belt to the Rod carrying the flywheel. The belt after passing round the Pulley 6 is crossed, passed on either side of the Pulley 8 (Fig. 4.62A), and again crossed before being led round the Pulley on the Motor spindle. The Motor is held in position by the Angle Brackets 12, the Bolts of which pass through the holes 13 (Fig. 4.62B) and corresponding holes on the opposite side of the wagon.

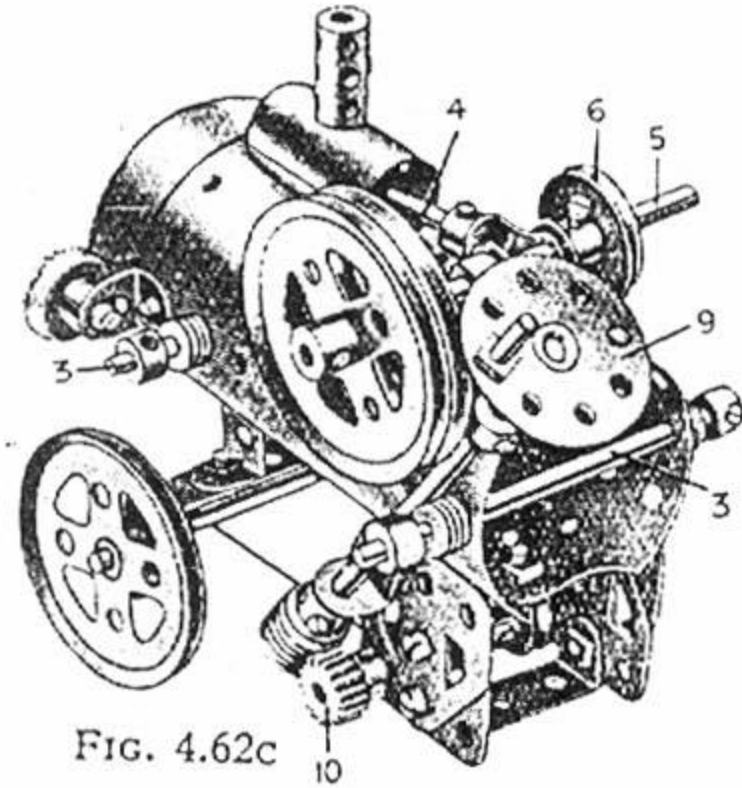


FIG. 4.62c

The switch arm of the Motor is extended by means of a short Rod held in a Coupling, to facilitate control from the cab. The Coupling is secured by two bolts passed through holes in the switch arm and screwed into the tapped holes of the Coupling. Each of the Bolts carries a Nut for spacing purposes.

When the three units, Figs. 4.62A, 4.62B, and 4.62C have been assembled and fitted together to form the complete model, all moving parts should be examined to see if they work freely. Rotating shafts should be oiled, and for this purpose Meccano Lubricating Oil is excellent.

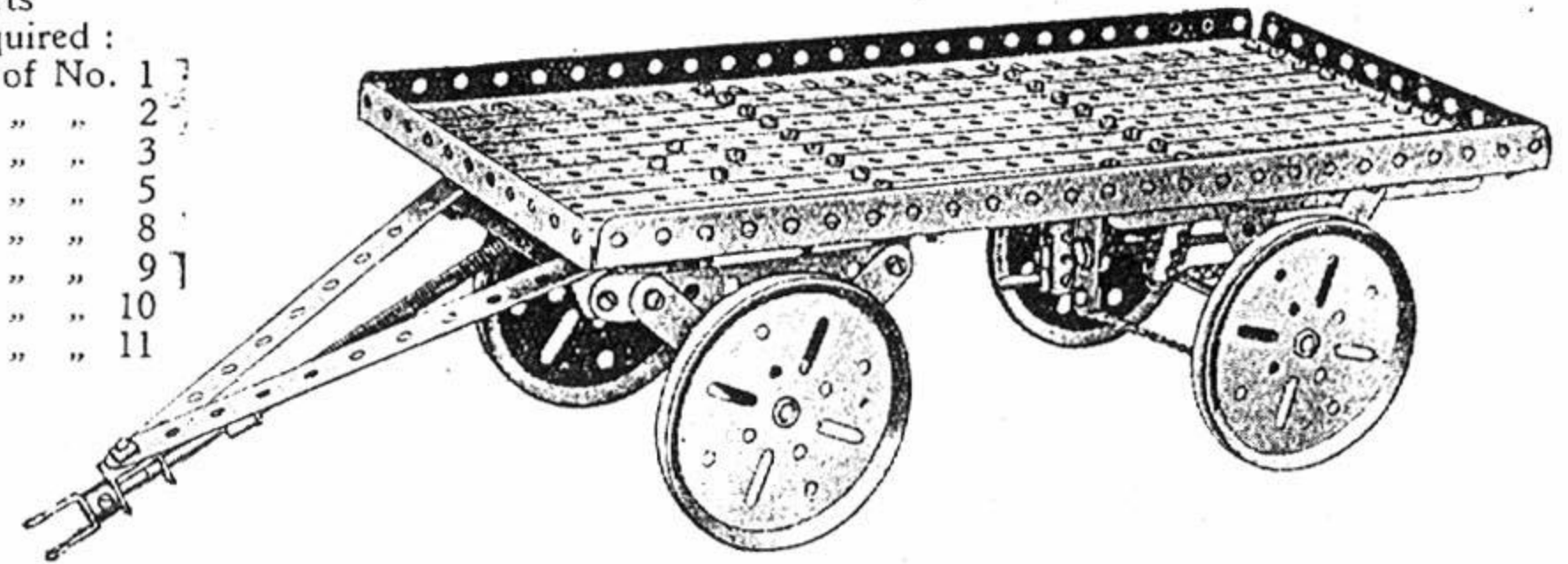
Rubber covered wire is used for connecting the Accumulator and Motor.

## Model No. 4.63 Trailer (for Lorry or Traction Engine)

Parts required:

9	of No. 1
4	" " 2
4	" " 3
8	" " 5
2	" " 8
4	" " 9
2	" " 10
1	" " 11

2	of No. 15A
1	" " 17
1	" " 18A
4	" " 19B
1	" " 20
1	" " 24
68	" " 37
7	" " 37A
6	" " 38
1	" " 43
1	" " 46
3	" " 48B
3	" " 59
2	" " 63
1	" " 80A
7	" " 94
1	" " 109
2	" " 111
1	" " 111c
1	" " 115
1	" " 116
1	" " 162A
1	" " 166



A Face Plate 1 (Fig. 4.63A) is bolted to the Strips of the platform and a  $1\frac{1}{2}$ " Rod 2 secured in its boss passes through the centre hole of a Boiler End, which is held in position on the Rod by a Collar. Two  $3\frac{1}{2}$ " Strips are bolted to the Boiler End and to these  $3\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips are secured but spaced by means of Collars and Washers. A further Double Angle Strip, to which the drawbar is connected, is attached loosely by lock-nutted Bolts 3.

A brake is provided by the Sprocket Chain 4, which passes over a drum formed from a Flanged Wheel and Bush Wheel on the back axle. The tension on the Chain is varied by operating the hand Wheel 5 on a Threaded Rod, along which travels a Coupling carrying one end of the Chain.

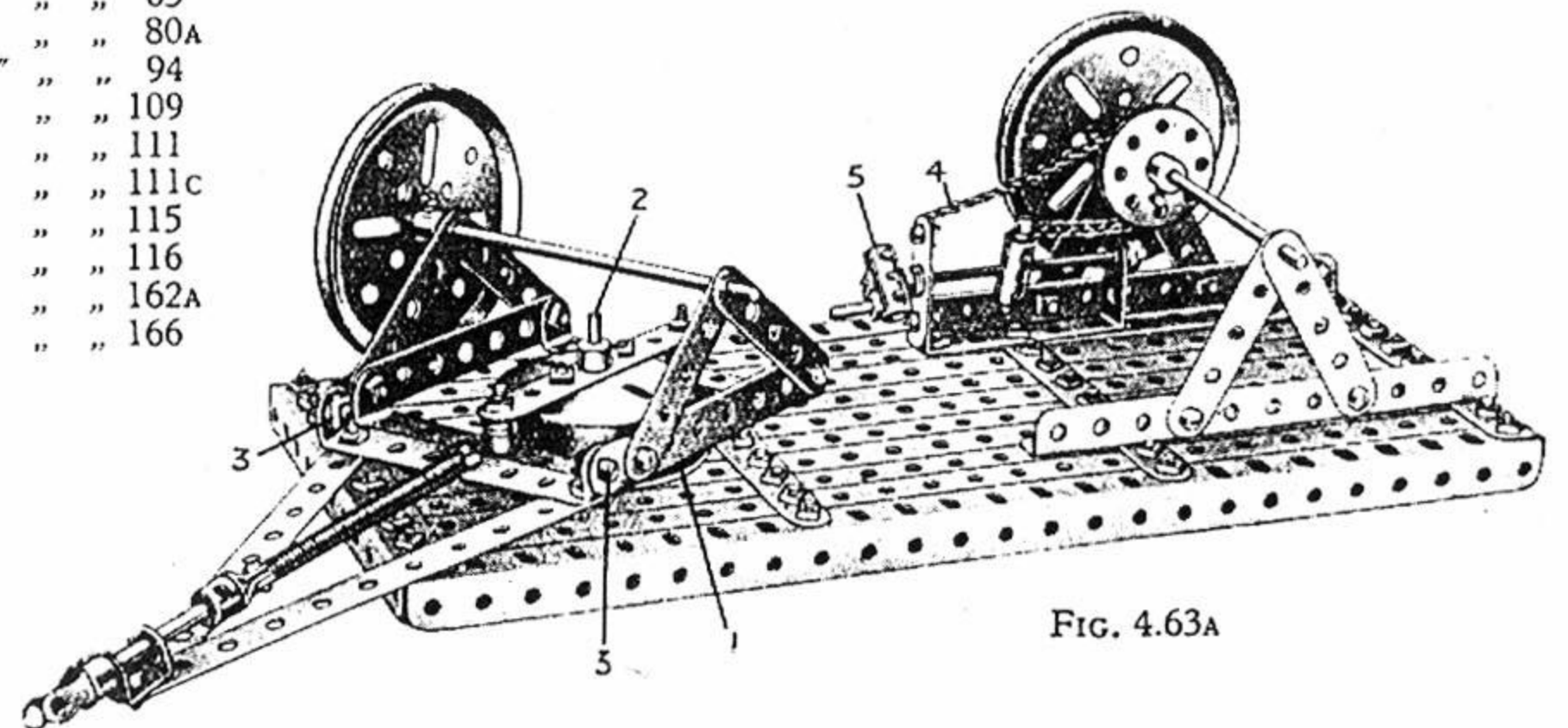


FIG. 4.63A



## Model No. 4.64 Rotating Crane

The jib of the crane is raised or lowered by means of the cord 1 the end of which is tied to a Flat Bracket 2 mounted on the Rod 4 in the gear box. The cord is led over the Rod 3, round Rod 4, again over Rod 3, and then is wound on the Rod 5. One end of the cord 6, which raises the Hook 7, is tied to the jib of the crane and the other end is wound on the Rod 8. Each of the Rods 5, 8 carries a 57-teeth Gear Wheel (see Fig. 4.64A) that meshes with a Worm secured to a sliding 5" Rod 14, 15, to the opposite end of which is secured a  $\frac{3}{4}$ " Contrate Wheel. Two  $6\frac{1}{2}$ " Rods 9, 10 are connected to the Rods 14, 15 by means of Cranks, so that by operating their respective handles the  $\frac{3}{4}$ " Contrate Wheels may be brought into engagement with  $\frac{1}{2}$ " Pinions 11, 12 secured one on each end of the armature of the Electric Motor.

A Spring 13, secured to the clutch Rod 9 by means of a Collar, ensures that the load is raised or lowered only while the clutch is held in position by the hand, but the clutch for raising and lowering the jib may be left in operation as long as desired.

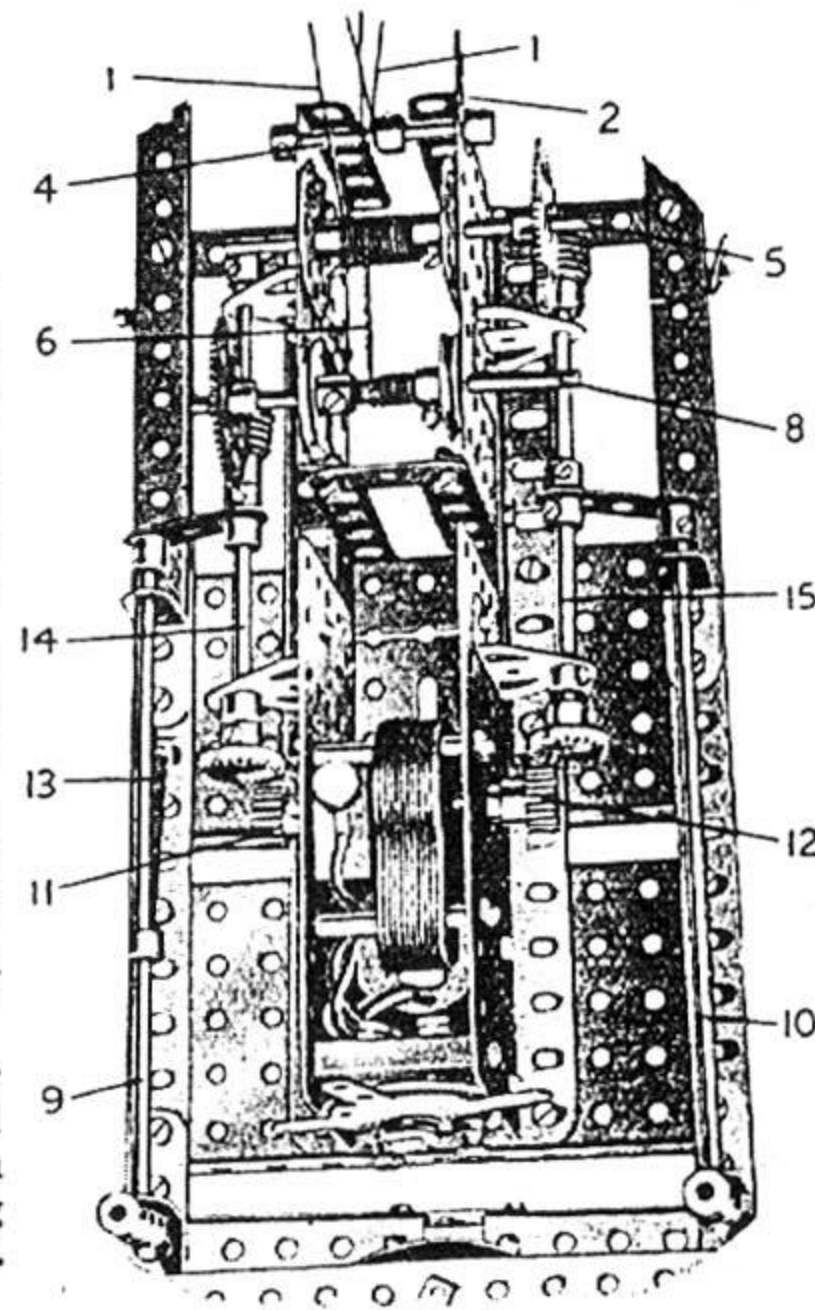


FIG. 4.64A

Parts  
required

(continued):

2	of No. 54
1	" " 57c
10	" " 59
2	" " 62
2	" " 63
2	" " 111
5	" " 111c
4	" " 126
1	" " 147B

Electric Motor

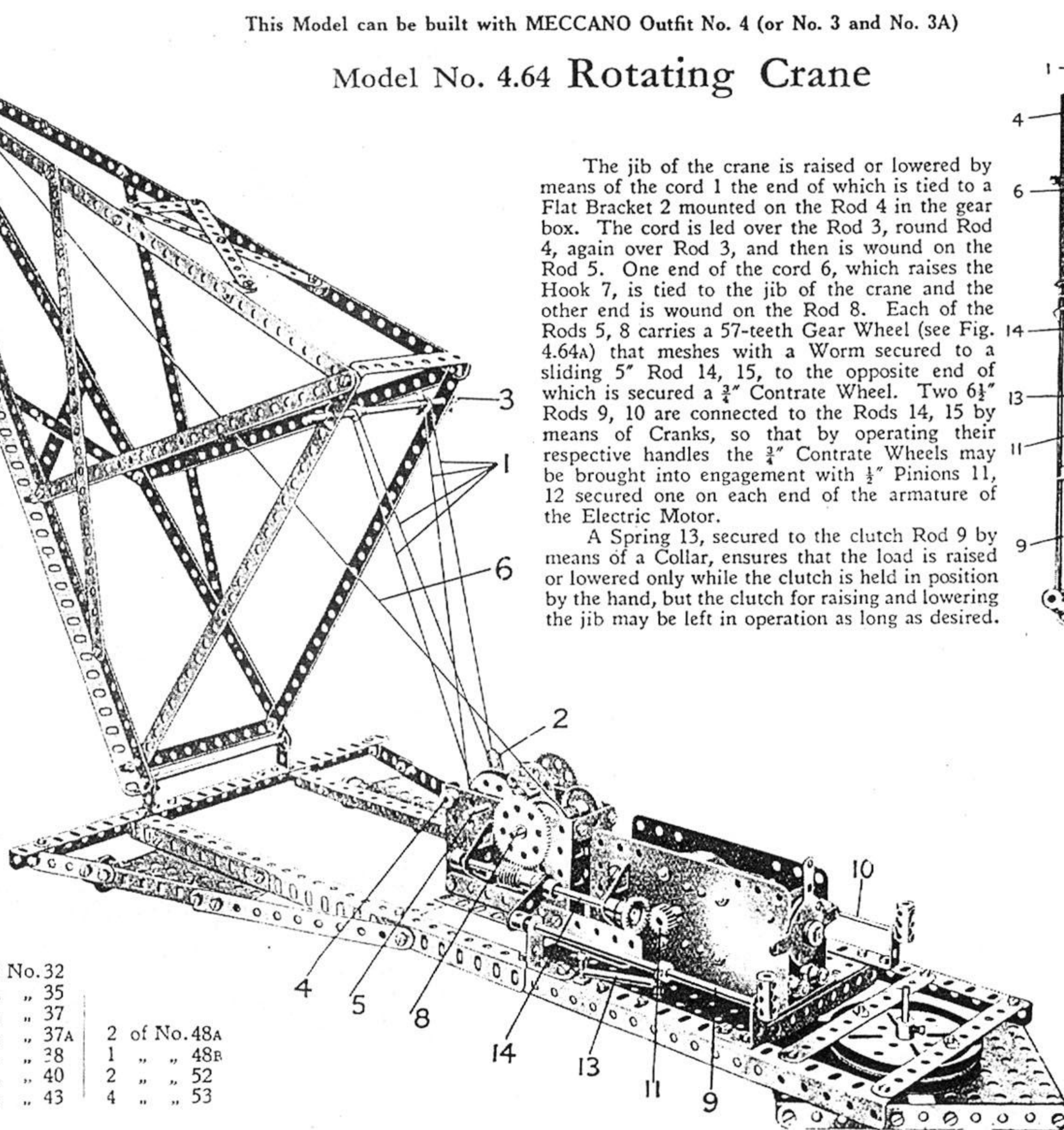
(not included in Outfit)

Parts  
required:

10	of No. 1
12	" " 2
5	" " 5
1	" " 6A
9	" " 8
2	" " 9
1	" " 10
6	" " 12
6	" " 12A
2	" " 14
4	" " 15
2	" " 15A
2	" " 16
2	" " 17
2	" " 19B
2	" " 20B
2	" " 22
2	" " 22A
2	" " 24
2	" " 26
2	" " 27A
2	" " 29

2	of No. 32
8	" " 35
107	" " 37
6	" " 37A
10	" " 38
1	" " 40
1	" " 43

2	of No. 48A
1	" " 48B
2	" " 52
4	" " 53









## Model No. 4.66 Gantry Crane

The Pulley 1 is capable of being hoisted to raise the load, or traversed. In order to raise the load the Crank Handle 2 is operated, which winds the Cord 3 passing over the rear Pulley Wheel 4 round the  $\frac{1}{2}$ " Pulley 5 and a corresponding Pulley in the block, thence round another  $\frac{1}{2}$ " Pulley 6 and is made fast at the end of the gantry. For traversing a continuous Cord 7 is wound several turns on the  $3\frac{1}{2}$ " Rod 8 to which is secured a hand wheel 9. The cord passes over the Pulley Wheel 10 and is secured to one of the side Plates 11, and continues round the Pulley 12 returning to and passing over the nearest Pulley Wheel 13 back to the Rod 8. Consequently by turning the hand wheel 8 in one or other direction, the carriage is traversed to and fro along the top Angle Girders 14, which form the travelling rails. The construction of the travelling carriage is shown in Fig. 4.66A, three Washers 15 being placed on each of the outer Bolts, passed through the two Plates 11; and  $\frac{1}{2}$ " Pulley Wheels 5, 6, on the inner Bolts. The outer plates being then bolted together, the Rods 16 of the Flanged Wheels are passed through both plates in the end elongated holes, and Collars 17 secured on the exterior, after which the remaining Flanged Wheels 18 are secured on the ends of the Rods 16.

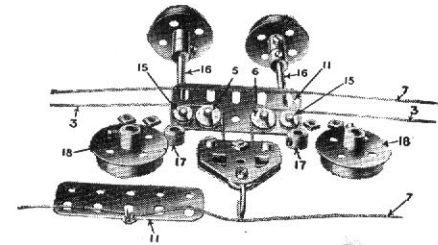


FIG. 4.66A

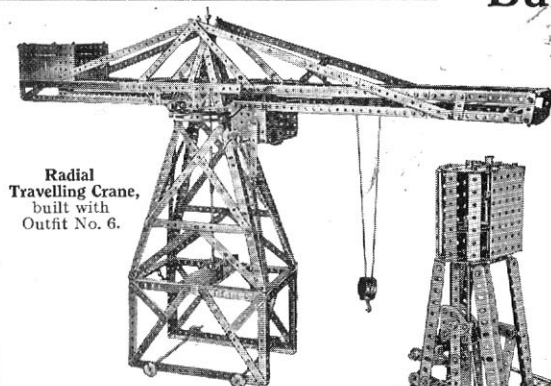
### Parts required :

2 of No. 1	1 of No. 24
8 " " 2	6 " " 35
6 " " 3	59 " " 37
6 " " 4	1 " " 37A
2 " " 5	12 " " 38
6 " " 8	1 " " 40
3 " " 16	2 " " 46
2 " " 17	2 " " 53
1 " " 19	1 " " 57C
4 " " 20B	4 " " 59
3 " " 22	2 " " 103F
2 " " 22A	1 " " 115
3 " " 23	2 " " 126A

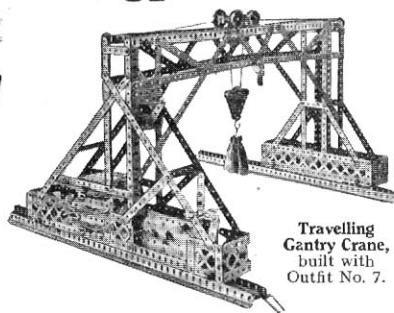
### HOW TO CONTINUE

This completes our examples of models that may be made with MECCANO Outfit No. 4 (or No. 3 and No. 3A). The next models are a little more advanced, requiring extra parts to construct them. The necessary parts are all contained in a No. 4A Accessory Outfit, the price of which may be obtained from any Meccano dealer.

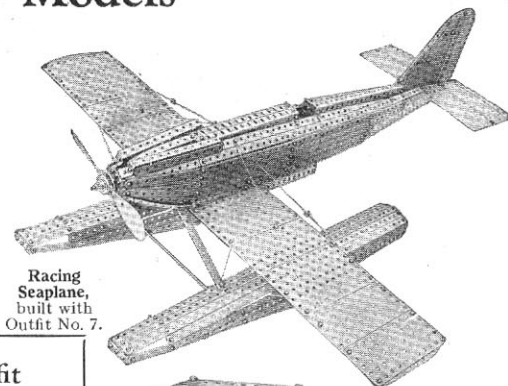
# Build Bigger and Better Models



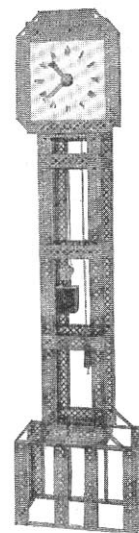
**Radial  
Travelling Crane,**  
built with  
Outfit No. 6.



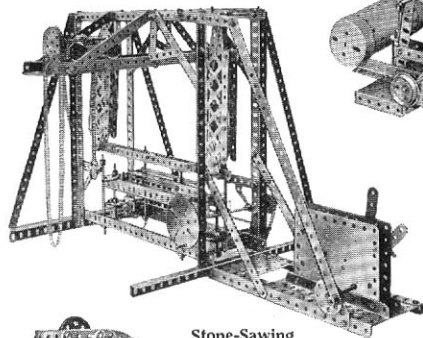
**Travelling  
Gantry Crane,**  
built with  
Outfit No. 7.



**Racing  
Seaplane,**  
built with  
Outfit No. 7.



**Grandfather  
Clock,**  
built with  
Outfit No. 7.



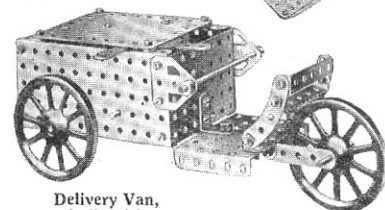
**Vertical  
Marine Engine,**  
built with  
Outfit No. 5.

## Keep Adding to Your Outfit

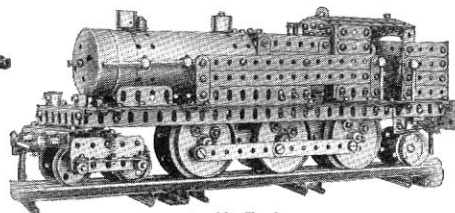
The more Meccano parts you have, the bigger and better the models you are able to build. Keen and enthusiastic model-builders keep adding to their Outfits, until they are able to build all the wonderful models shown in the Meccano Manuals.

The model-building possibilities of the Meccano System are limitless. All the fine models illustrated on this page are examples of the types you will be able to build as your Outfit develops.

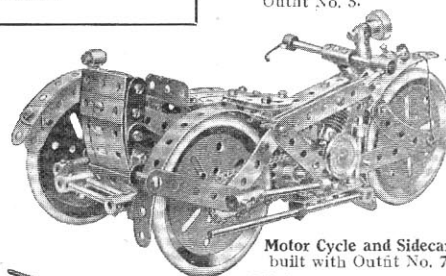
You can purchase separate Meccano parts as you require them, or, if you prefer, you can purchase Accessory Outfits that connect all the main Outfits.



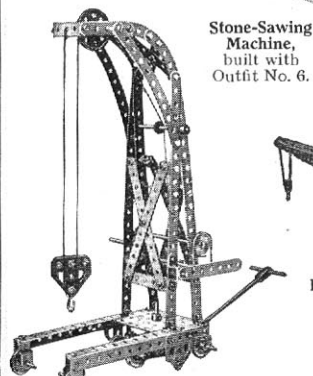
**Delivery Van,**  
built with  
Outfit No. 5.



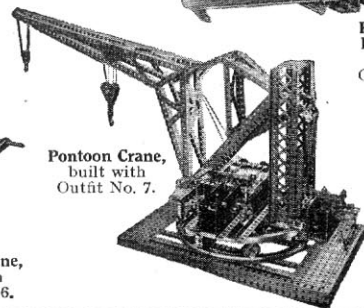
**Pacific Tank  
Locomotive,**  
built with  
Outfit No. 7.



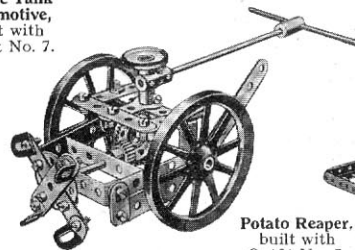
**Motor Cycle and Sidecar,**  
built with Outfit No. 7.



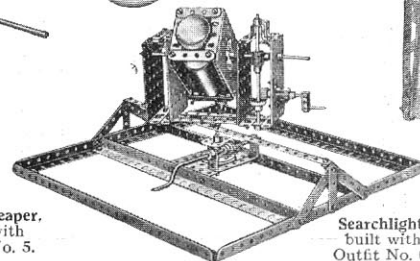
**Stone-Sawing  
Machine,**  
built with  
Outfit No. 6.



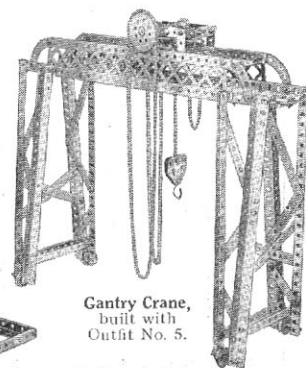
**Pontoon Crane,**  
built with  
Outfit No. 7.



**Potato Reaper,**  
built with  
Outfit No. 5.



**Searchlight,**  
built with  
Outfit No. 6.



**Gantry Crane,**  
built with  
Outfit No. 5.

**Portable Crane,**  
built with  
Outfit No. 6.

No.	DESCRIPTION OF PART.																										
1	Perforated Strips, 12 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
1A	" " 9 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
1B	" " 7 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2	" " 5 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	4	4	4	8	6	14	10	10	18	3	21	5	26	2	28	12	40
2A	" " 4 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
3	" " 3 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
4	" " 3"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
5	" " 2 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	6	3	9	...	9	3	12	...	12	6	18	18	36	...	84	120	
6	" " 2"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
6A	" " 1 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
7	Angle Girders, 2 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
7A	" " 18 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
8	" " 12 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
8A	" " 9 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
8B	" " 7 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9	" " 5 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9A	" " 4 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9B	" " 3 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9C	" " 3"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9D	" " 2 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9E	" " 2"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
9F	" " 1 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
10	Flat Brackets...	...	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
11	Double Brackets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
12	Angle Brackets, 1" x 1 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
12A	" " 1" x 1"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
12B	" " 1" x 1 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
13	Axle Rods, 11 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
13A	" " 8"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
14	" " 6 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
15	" " 5"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
15A	" " 4 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16	" " 3 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16A	" " 2 <sup>1</sup> / <sub>2</sub> "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16B	" " 3"	...	...	...	...	...	...	...	...	...	...	...	...	...													



# Contents of Outfits continued

No.	DESCRIPTION OF PART.	00	00A	0	0A	1	1A	2	2A	3	3A	4	4A	5	5A	6	6A	7
43	Springs ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44	Cranked Bent Strips	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45	Double Bent Strips	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
46	Double Angle Strips, 2½" x 1"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47	" " " 2½" x 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47A	" " " 3" x 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48	" " " 1½" x 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48A	" " " 2½" x 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48B	" " " 3½" x 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48C	" " " 4½" x 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
48D	" " " 5½" x 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
50A	Eye Pieces, with boss ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
52	Perforated Flanged Plates, 5½" x 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
52A	Flat Plates, 5½" x 3½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
53	Perforated Flanged Plates, 3½" x 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
53A	Flat Plates, 4½" x 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
54	Perforated Flanged Sector Plates...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55A	" Strips, slotted, 2"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
56C	Mecano Standard Mechanisms Manuals	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
57A	How to use Mecano Parts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
57C	Hooks, Loaded (Large)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
57D	" " (Small)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
58A	Spring Cord, 40" length	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
59	Coupling Screws for Spring Cord	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62	Collars with Set Screws	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62A	Cranks ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62B	Threaded Cranks ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
62C	Double Arm Cranks	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
63	Couplings ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
63A	Strip Couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
64	Threaded Bosses ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65	Centre Forks ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
70	Flat Plates, 5½" x 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
72	" " 2½" x 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
76	Triangular Plates, 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
77	" " 1"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
78	Screwed Rods, 11½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
80	" " 5"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
80A	" " 3½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
80B	" " 4½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
81	" " 2"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
82	" " 1"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
89	Curved Strips, 5½", 10" radius	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
90	" " 2½", large "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
90A	" " 2½", 23"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
94	Sprocket Chain ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95	" " Wheels, 2"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95A	" " 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95B	" " 3"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
96	" " 1"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
96A	" " 3"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
97	Braced Girders, 3½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
98	" " 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
99	" " 12½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
99A	" " 9½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
99B	" " 7½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
100	" " 5½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
101	Heads for Looms	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
102	Single Bent Strips	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103	Flat Girders, 5½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103A	" " 9½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103B	" " 12½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103C	" " 4½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103D	" " 3½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103E	" " 3"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103F	" " 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103G	" " 2"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103H	" " 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
103K	" " 7½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
104	Shuttles for Looms	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
105	Reed Hooks ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
106	Wood Rollers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
106A	Sand	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
107	Designing Tables ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
108	Architraves ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
109	Face Plates, 2½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
110	Rack Strips, 3½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
111	Bolts, 3½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
111A	" " 3"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
111C	" " 2"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
111D	" " 1½"	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
115	Hinges ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
116	Threaded Pins	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
116A	Fork Pieces ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
116B	Small Fork Pieces	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

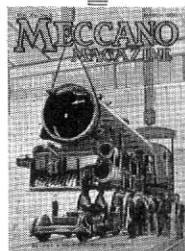
## Contents of Outfits—continued

No.	DESCRIPTION OF PART.	00	0	0A	1	1A	2	2A	3	3A	4	4A	5	5A	6	6A	7
118	Hub Dies ( $\frac{5}{16}$ " diam.) ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
119	Channel Segments (8 to circle)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
120A	Spring Buffers ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
120B	Compression Springs ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
121	Train Couplings ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
124	Reversed Angle Brackets, $\frac{1}{2}$ "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
125	Trunnions " " "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
126	Flat Trunnions ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
126A	Boss Bell Cranks ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
128	Rack Segments (3" diam.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
129	Eccentrics, Triple Throw	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
130	Dropper Buckets ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
131	Flywheels, 2 $\frac{1}{2}$ "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
132	Corner Brackets ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
133	Theodolite Protractors	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
135	Handrail Supports	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
137	Universal Couplings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
140	Wire Lines ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
141	Rubber Rings, 3" diam.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
142	Dunlop Tyres, 2 $\frac{1}{2}$ " internal diam.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
142A	Circular Girders ( $\frac{5}{16}$ " diam.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
143	Dog Clutches ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
144	Circular Strips ( $\frac{7}{16}$ " diam. overall)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
145	Plates, 6" ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
146	Pawls ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
147A	Pivot Bolts with two nuts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
147B	Ratchet Wheels ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
148	Rubber Rings, $\frac{1}{2}$ "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
155	Fans, 2" diam.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
157	Circular Saws	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
159	Channel Bearings, $1\frac{1}{2} \times 1 \times \frac{1}{2}$ "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
160	Girder Brackets, $2 \times 1 \times \frac{1}{2}$ "	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
161	Boilers, Complete with Ends	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
162	Boiler Ends ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
162A	Sleeve Pieces ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
163	Chimney Adaptors	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
164	Swivel Bearings	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
165	End " " 4" diam.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
166	Ball " " 4" diam.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
168	Eccentrics, $\frac{1}{2}$ " throw	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
170	Socket Couplings ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
171	Pendulum Connection	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
172	Bobbins ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
801	Bushes, Insulating	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
802	Washers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
803	6 B.A. Screws	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
804	" " Nuts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
805	Terminals	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
806	Contact Screws	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
807	Pole Pieces	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
808	Coil Cheeks	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
809	Lamp Holders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
810	Lamps ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
311	27 Gauge B.I. Wire, 30" coils	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
312	26 " S.C.C. Wire, reel 50 yds.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
313	23 " Copper Wire, 4 yds. coils	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
314	Clockwork Motor No. 2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
815	Electric Motor No. B6 (6 volt)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
<b>Instruction Leaflets</b>																	
No.	1—Motor Chassis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	2—High-speed Ship-Coaler	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	3—Motor Cycle and Sidecar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	5—Dredger	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	6—Stuff Leg Derrick	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	7—Platform Scales	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	9—Bagatelle Table	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	10—Log Saw	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	11—Horizontal Steam Engine	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	12—Stone-sawing Machine...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	13—Mecanograph	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	14A—New Grandfather Clock	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	16A—New Loom	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	17—Planing Machine	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	18—Revolving Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	19—Steam Shovel	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	20—Electric Mobile Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	21—Transporter Bridge	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	22—Traction Engine	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	23—Vertical Log Saw	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	24—Travelling Gantry Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	25—Hydraulic Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	26—Twin-elliptic Harmonograph	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	28—Pontoon Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	29—Hammerhead Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	30—Breakdown Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	31—Warehouse	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	35—Automatic Grabbing Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	36—Electric Derrick Crane	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
"	37—Howitzer Limber and Tractor	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1

Full instructions for building a fine range of models are included with each Outfit.

# MECCANO

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The *Meccano Magazine* is the Meccano boy's own newspaper. It tells him of the latest Meccano models ; what Meccano Clubs are doing ; how to correspond with other Meccano boys ; the Competitions that are running, etc. It contains splendid articles on such subjects as Railways, Famous Engineers and Inventors, Electricity, Bridges, Cranes, Wonderful Machinery, Aeronautics, Latest Patents, Radio, Stamps, Photography, Books and other topics of interest to boys, including suggestions from Meccano boys for new Meccano parts and correspondence columns in which the Editor replies to his readers' enquiries. The publishing date is the first of each month. If you are not already a reader of the *Meccano Magazine* write to the Editor for full particulars, or order a copy from your Meccano dealer or from any newsagent.

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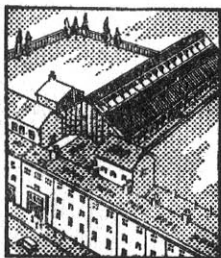
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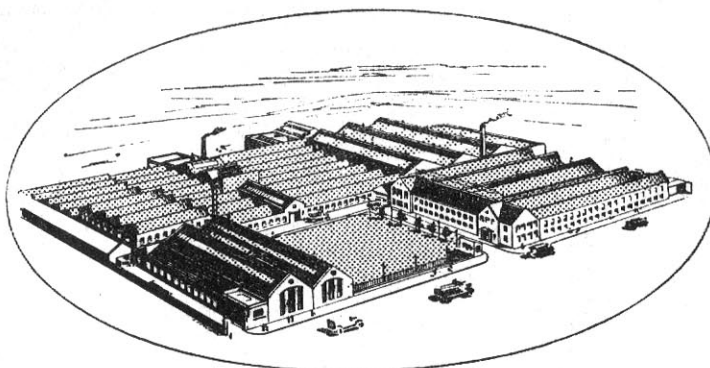
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