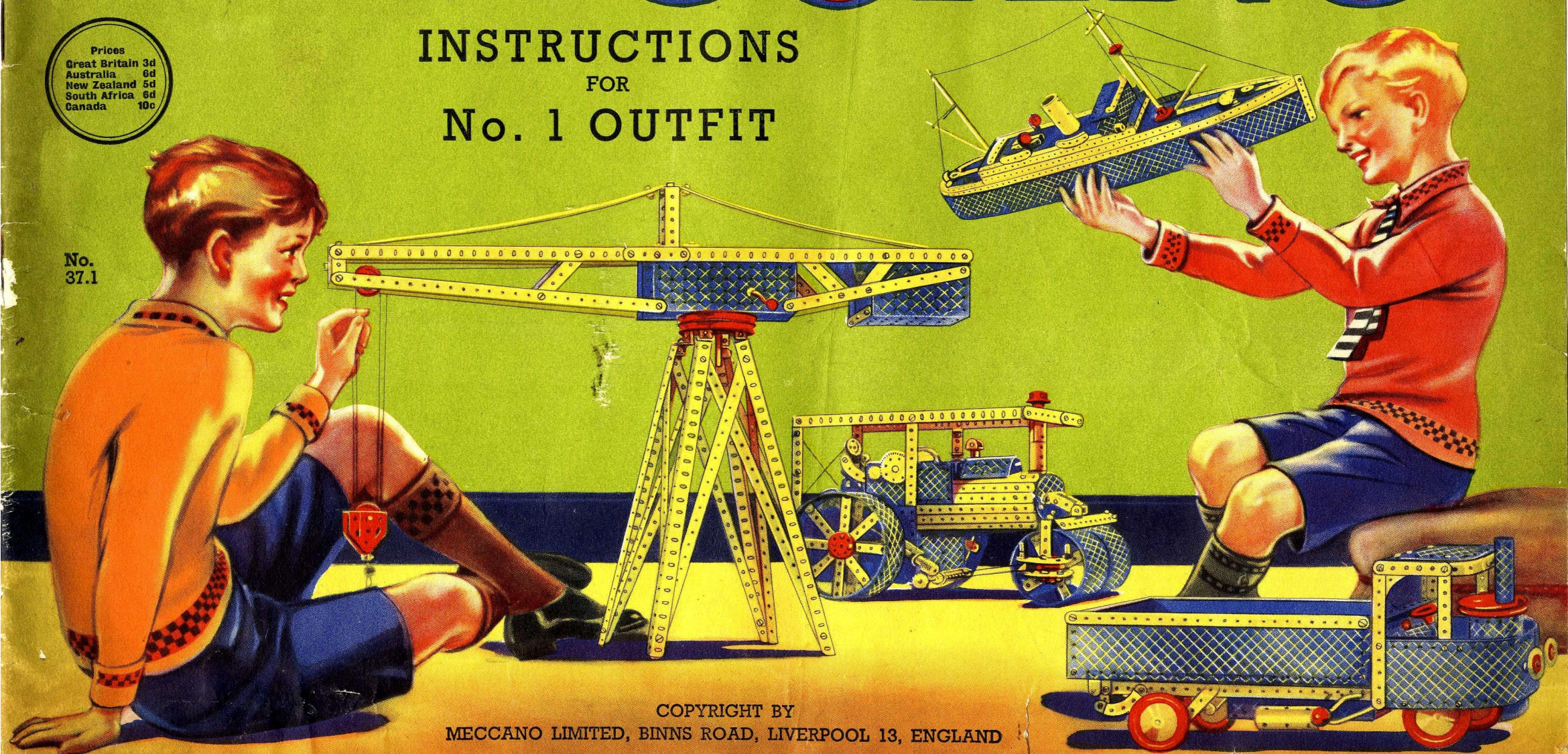


MECCANO

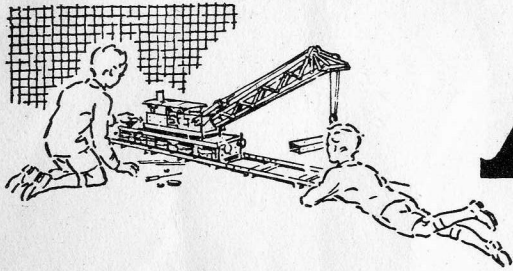
INSTRUCTIONS FOR No. 1 OUTFIT

Prices
Great Britain 3d
Australia 6d
New Zealand 5d
South Africa 6d
Canada 10c

No.
37.1

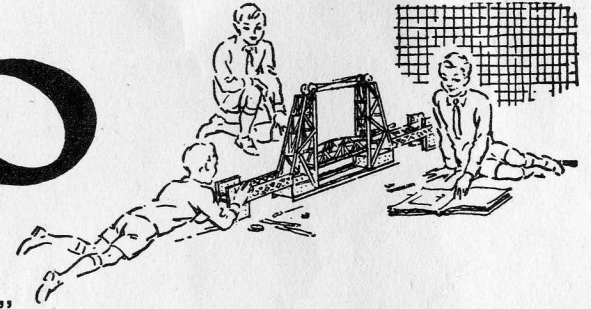


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MECCANO

Real Engineering in Miniature



MODEL-BUILDING WITH MECCANO

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. A screwdriver and a spanner, both of which are provided in each Outfit, are the only tools necessary.

When you have built all the models illustrated in the Manuals of Instruction the fun is not over, but is just beginning. Now comes the chance to make use of your own ideas. First of all, re-build some of the models with small changes in construction that may occur to you; then try building models entirely of your own design. In doing this you will feel the real thrill of the engineer and the inventor.

HOW TO BUILD UP YOUR OUTFIT

Meccano is sold in eleven different Outfits, ranging from No. 0 to No. 10. Each Outfit from No. 1 upwards can be converted into the next one larger by the purchase of an Accessory Outfit. Thus, Meccano No. 1 Outfit can be converted into No. 2 Outfit by adding to it a No. 1a Accessory Outfit. No. 2a Outfit would then convert it into a No. 3 and so on. In this way, no matter with which Outfit you commence, you can build it up by degrees until you possess a No. 10 Outfit.

All Meccano parts are of the same high quality and finish, but the larger Outfits contain a greater quantity and variety, making possible the construction of more elaborate models.

As shown in the illustrations, the realism of many models can be increased by the inclusion of the figures, motor vehicles and other items from the Dinky Toys Series; pilots and drivers from the Aeroplane and Motor Car Constructor Outfits; trees and hedges from the Hornby Railway Series; Meccano sacks, cable drums, etc. These items are not included in any of the Outfits. A Clockwork Motor is included in Outfits 7a, 8, 9 and 10 only, and an Electric Motor in Outfits 9a and 10 only.

ELECTRIC LIGHTING OF MECCANO MODELS

It is great fun to illuminate your Meccano models by electric light, and a special Meccano Lighting Set can be obtained from your dealer for this purpose. This consists of two spot lights with plain and coloured imitation glass discs, one stand lamp, two special brackets, and two pea lamps, operated from a 4-volt flash-lamp battery (not included in the Set). The stand lamp is used for decorative purposes, and the spot lights can be used as headlamps, floodlights on cranes, and in countless other ways.

THE "MECCANO MAGAZINE"

The "Meccano Magazine" is published specially for Meccano boys. Every month it describes and illustrates new Meccano models for Outfits of all sizes, and deals with suggestions from readers for new Meccano parts and for new methods of using the existing parts. There are model-building competitions specially planned to give an equal chance to the owners of small and large Outfits. In addition, there are splendid articles on such subjects as Railways, Famous Engineers and Inventors, Electricity, Chemistry, Bridges, Cranes and Aeroplanes, and special sections dealing with the latest Engineering, Aviation, Shipping and Road and Track News. Other pages deal with Stamp Collecting, and Books of interest to boys; and a feature of outstanding interest is the section devoted to short articles from readers.

The "Meccano Magazine" is the finest of all papers for boys who are interested in the wonderful things going on in the world around them. It is published on the first of each month. If you are not already a reader write to the Editor for full particulars, or order a copy from your Meccano dealer, or from any news-agent.

THE MECCANO GUILD

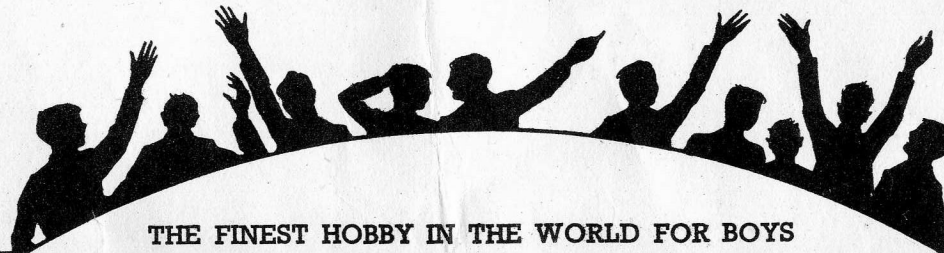
Every owner of a Meccano Outfit should join the Meccano Guild. This is a world-wide organisation, started at the request of Meccano boys. Its primary object is to bring boys together and to make them feel that they are all members of a great brotherhood, each trying to help others to get the very best out of life. Its members are in constant touch with Headquarters, giving news of their activities and being guided in their hobbies and interests. Write for full particulars and an application form to the Secretary, Meccano Guild, Binns Road, Liverpool 13.

Clubs founded and established under the guidance of the Guild Secretary provide Meccano boys with opportunities of enjoying to the utmost the fun of model-building. There are nearly 200 active clubs in Great Britain, and nearly 100 in countries overseas, each with its Leader, Secretary, Treasurer and other officials. With the exception of the Leader, all the officials are boys, and as far as possible the proceedings of the clubs are conducted by boys.

Recruiting Medallions are awarded to members who are successful in securing recruits for the Guild, and good work on behalf of Meccano clubs, or of the Guild generally, is recognised by the presentation of special Merit Medallions. Full particulars of both these awards will be sent post free on request.

MECCANO SERVICE

The service of Meccano does not end with selling an Outfit and an Instruction Manual. If ever you are in any difficulty with your models, or if you want advice on anything connected with this great hobby, write to us. We receive every day hundreds of letters from boys in all parts of the world, and each of these is answered personally by one of our staff of experts. Whatever your problem may be, write to us about it.



THE FINEST HOBBY IN THE WORLD FOR BOYS

HOW TO COMMENCE THE FUN

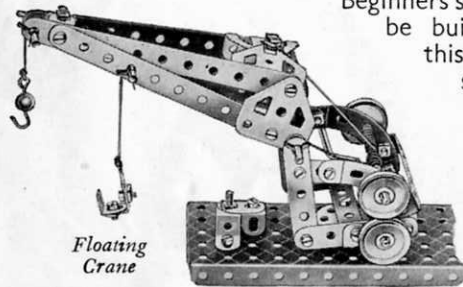
THE MOST FASCINATING OF ALL HOBBIES

Meccano model-building is the most fascinating of all hobbies, because it never becomes dull. There is always something new to be done. First of all there is the fun of building a new model, and watching it take shape as part after part is added. Then, when the model is complete, comes the thrill of setting it to work just like the real structure it represents, by means of a Meccano Motor. This wonderful process can be repeated indefinitely, for there is no end to the number of Meccano models that can be built. Another point is that models built with Meccano are real engineering structures in miniature, and the keen model-builder has wonderful opportunities for learning the working of machines and mechanisms of all kinds. So he acquires practical engineering knowledge without special study.

It is so simple to build Meccano models that operations can be started as soon as the first Outfit is opened. Different boys build in different ways, but in the end they all reach the same splendid results. The following hints are given with the object of showing boys who are just commencing the wonderful Meccano hobby how to obtain the greatest possible fun.

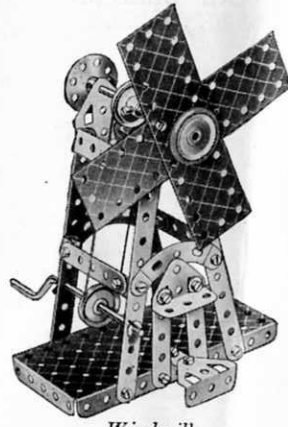
A FEW USEFUL HINTS

It will be noticed that with each model shown in this Manual of Instructions is given a list of the parts required to build it. For the first few models it is a good plan to lay out on the table all the parts required for the one it is proposed to build, and put the remainder of the Outfit on one side. To help you to pick out the correct parts for your model a complete list of Meccano parts is given at the back of this Manual, and all the principal parts are illustrated. In the list the parts are all numbered, and in most cases their measurements are given. There is no need, however, to measure the parts to find out which is which, as the size is easily found from the number of holes. All Meccano holes are spaced $\frac{1}{2}$ " apart, so that by counting two holes to the inch the size of any part can be found at once. For instance, Part No. 2 is listed as a $5\frac{1}{2}$ " Perforated Strip, so you look in your Outfit for a Strip with eleven holes. Similarly No. 192 is a $5\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flexible Plate, so you look for a Flexible Plate eleven holes in length and five holes in width. By the time a few models have been built the names of the parts will have become familiar.



Floating
Crane

Beginners sometimes wonder which section of a model should be built first. There cannot be any definite rule for this, as it depends on the design of the model. In stationary models the base usually should be built first. In most of the smaller models a $5\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flanged Plate forms an important part of the structure, and often the best plan is to start building by bolting parts to this Plate. For other models a good general rule is that the sections that form supports for a number of other parts should be built first.



Windmill

THE IMPORTANCE OF "LOCK-NUTTING"

In building models in which Rods revolve in the holes of other parts it is important to make sure that such holes are exactly in line with one another. This can be done very easily by pushing through the holes a long Rod before the Bolts holding the various parts are tightened up.

In some models it is necessary to join certain parts together, so that, although they cannot come apart, they are free to pivot or move in relation to one another. To do this the parts are bolted together as usual, but the Nut is not screwed up tightly, so that the parts are not gripped. Then, to prevent the Nut from unscrewing, a second Nut is screwed up tightly against it, the first, meanwhile, being held with a spanner. This method of using a second Nut is known as lock-nutting, and it is employed in a large number of Meccano models.

During the construction of a model it is best to screw up the Nuts with the fingers, followed by just a light turn with the screwdriver, leaving the final tightening with spanner and screwdriver until all the parts are connected up.

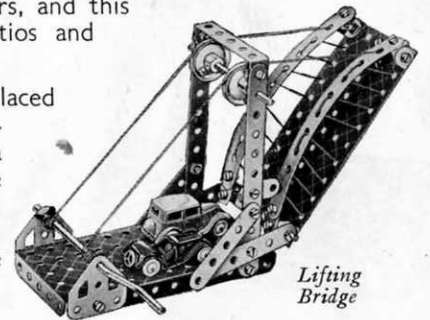
MOTORS AND GEARING

Models can be operated by means of either Meccano Clockwork or Electric Motors.

The Clockwork Motors have the advantage of being self-contained and extremely simple. If only a small amount of power is needed, the model may be driven direct from the driving spindle of the Motor or through a belt running over two pulleys of the same size, giving what is described as a 1:1 (one-to-one) ratio. Greater power can be obtained by a reduction in the speed of the drive, which can be produced in a simple manner by connecting a small pulley on the Motor to a larger pulley by means of a belt. Thus if a 1" Pulley is made to drive a 3" Pulley, a reduction ratio of approximately 1:3 is obtained. This means that the driven shaft will take about three times the load that the driving shaft would handle, but will rotate at only one-third of the speed. Rubber bands are better than Cord for driving belts for most purposes.

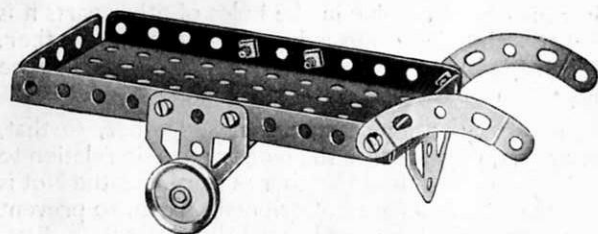
The Electric Motors have the advantage of giving long continuous runs. Their speed is much higher than that of the Clockwork Motors, and this makes it possible to employ higher reduction ratios and thus obtain greater power.

With the larger Outfits, belt drive can be replaced with advantage by gearing. To operate a slow-moving model demanding great power, such as a traction engine, gears that will provide a considerable reduction must be used. For example, a Worm meshed with a $\frac{1}{2}$ " Pinion will give a 1:19 reduction; while a Worm meshed with a 57-teeth Gear will give a 1:57 reduction.



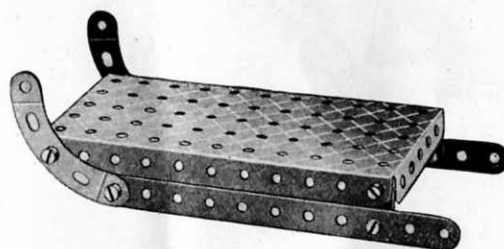
Lifting
Bridge

O.1 HAND CART



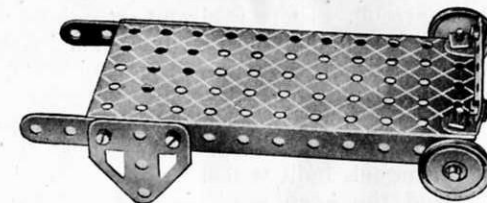
Parts required		
1 of No. 16	1 of No. 52	2 of No. 126a
2 " " 22	2 " " 90a	2 " " 155a
8 " " 37	1 " " 126	

O.2 SLEDGE



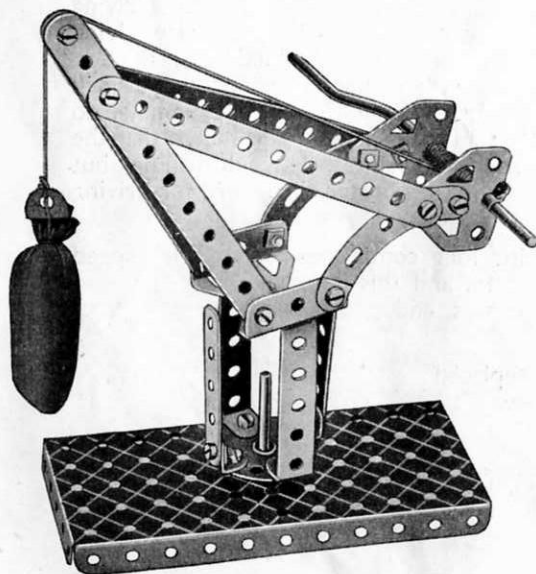
Parts required		
2 of No. 2	8 of No. 37	2 of No. 90a
2 " " 10	1 " " 52	

O.3 FLAT TRUCK



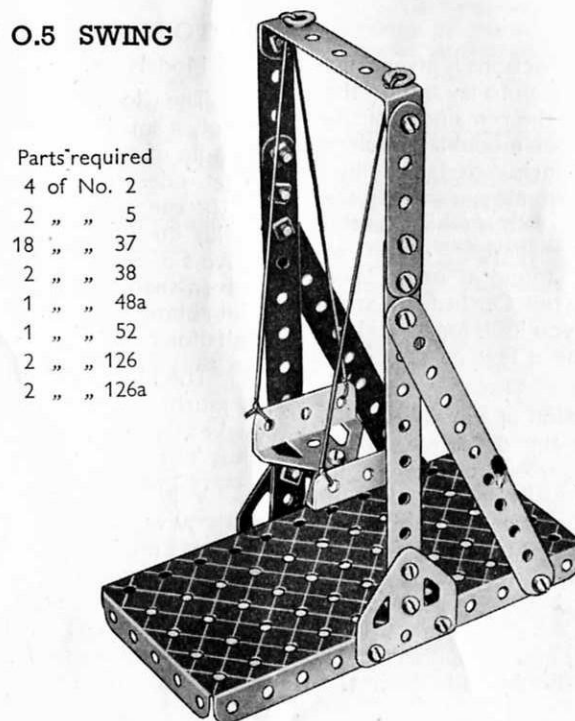
Parts required		
2 of No. 5	2 of No. 22	1 of No. 90a
2 " " 12	8 " " 37	2 " " 126a
1 " " 16	1 " " 52	2 " " 155a

O.4 DOCKSIDE CRANE



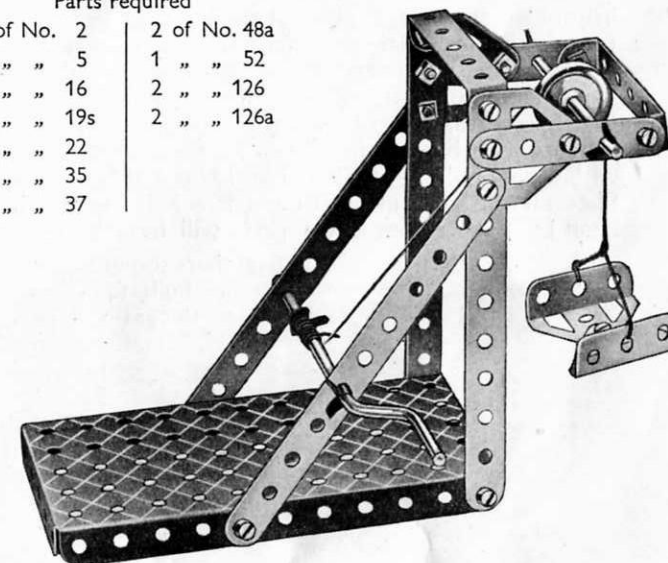
Parts required	
4 of No. 2	
2 " " 5	
3 " " 12	
1 " " 17	
1 " " 19s	
1 " " 22	
1 " " 24	
2 " " 35	
18 " " 37	
2 " " 37a	
2 " " 38	
2 " " 48a	
1 " " 52	
2 " " 90a	
2 " " 111c	
2 " " 126	
2 " " 126a	

O.5 SWING



Parts required	
4 of No. 2	
2 " " 5	
18 " " 37	
2 " " 38	
1 " " 48a	
1 " " 52	
2 " " 126	
2 " " 126a	

O.6 ELEVATOR



Parts required	
4 of No. 2	2 of No. 48a
2 " " 5	1 " " 52
1 " " 16	2 " " 126
1 " " 19s	2 " " 126a
1 " " 22	
4 " " 35	
15 " " 37	

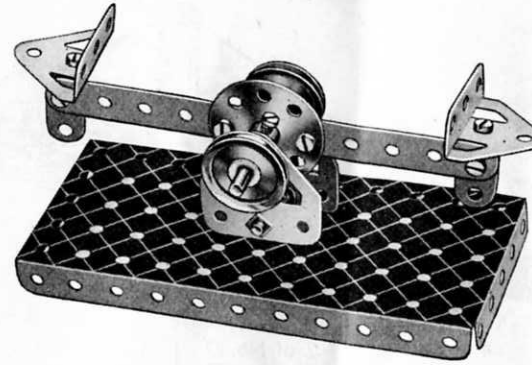
O.7 GARDEN SEAT



Parts required

4 of No. 2
2 " " 5
10 " " 37
2 " " 48a
1 " " 52

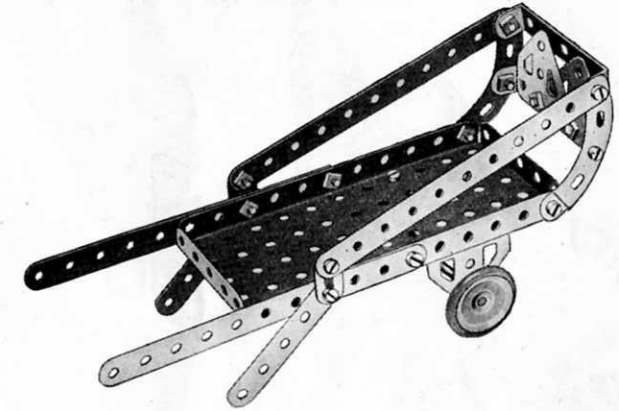
O.8 COUNTER SCALES



Parts required

1 of No. 2	2 of No. 22	1 of No. 52
2 " " 10	1 " " 24	2 " " 126
4 " " 12	9 " " 37	2 " " 126a
1 " " 17	2 " " 38	

O.9 COSTER'S BARROW



Parts required

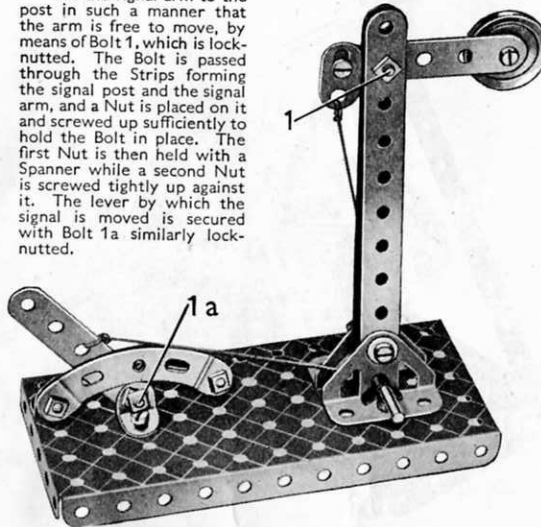
4 of No. 2	2 of No. 22	2 of No. 90a
2 " " 5	16 " " 37	2 " " 126
2 " " 10	2 " " 48a	2 " " 126a
1 " " 16	1 " " 52	2 " " 155a

O.10 SIGNAL

Parts required

2 of No. 2
2 " " 5
1 " " 10
3 " " 12
1 " " 17
1 " " 22
2 " " 35
12 " " 37
2 " " 37a
4 " " 38
1 " " 52
2 " " 90a
2 " " 111c
2 " " 126

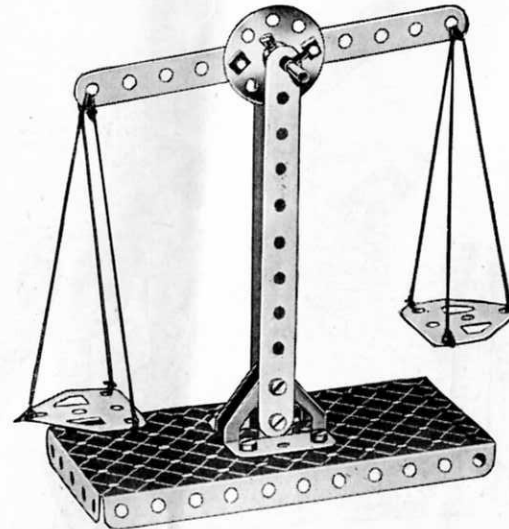
Fix the signal arm to the post in such a manner that the arm is free to move, by means of Bolt 1, which is lock-nutted. The Bolt is passed through the Strips forming the signal post and the signal arm, and a Nut is placed on it and screwed up sufficiently to hold the Bolt in place. The first Nut is then held with a Spanner while a second Nut is screwed tightly up against it. The lever by which the signal is moved is secured with Bolt 1a similarly lock-nutted.



O.11 SCALES

Parts required

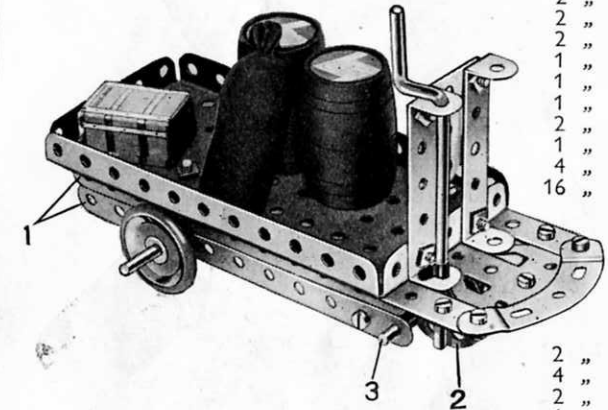
3 of No. 2
1 " " 17
1 " " 24
2 " " 35
10 " " 37
1 " " 52
2 " " 126
2 " " 126a



O.12 ELECTRIC TRUCK

Parts required

4 of No. 2
2 " " 5
2 " " 10
2 " " 12
1 " " 16
1 " " 17
1 " " 19s
2 " " 22
1 " " 24
4 " " 35
16 " " 37

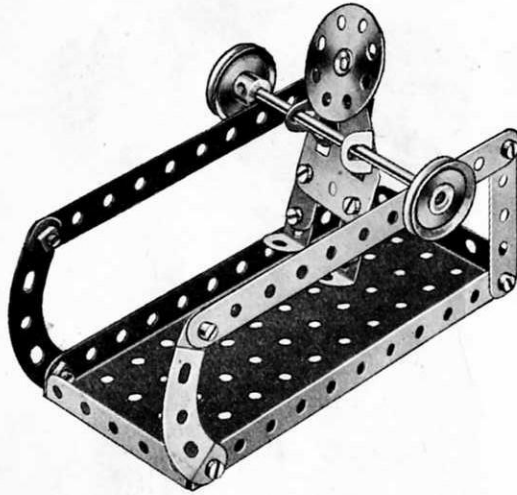


The two 5½" Strips 1 are fastened to the Flanged Plate by two Trunnions secured to the Plate on the underneath side. A Bush Wheel 2 is fixed on the Axle Rod 3, which passes through the end holes of the 5½" Strips that form the sides of the truck frame.

2 " " 37a
4 " " 38
2 " " 48a
1 " " 52
2 " " 90a
2 " " 111c
2 " " 126
2 " " 126a
2 " " 155a

These Models can be built with MECCANO No. O Outfit

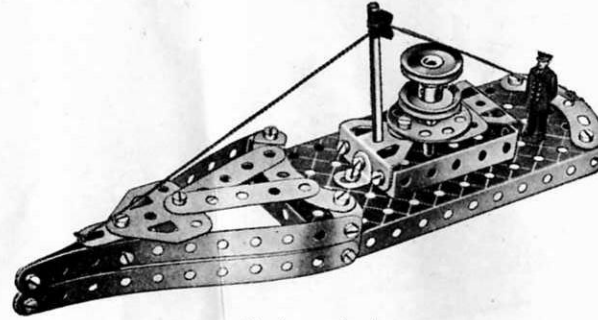
O.13 ACROBAT



Parts required

2 of No.	2
2 "	5
3 "	10
4 "	12
1 "	16
2 "	22
1 "	24
15 "	37
1 "	52
2 "	90a
1 "	111c
1 "	126a

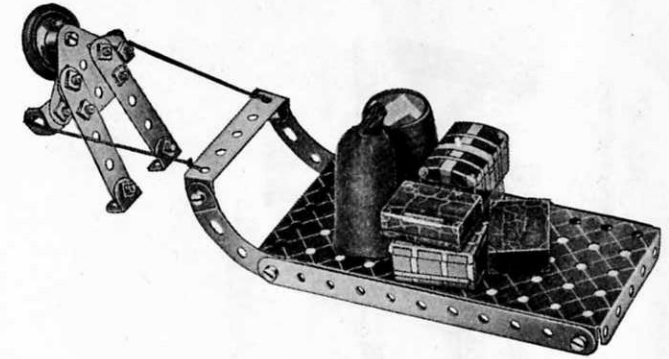
O.14 BATTLESHIP



Parts required

4 of No.	2	2 of No.	22	1 of No.	52
2 "	5	1 "	24	2 "	90a
3 "	10	3 "	35	1 "	111c
4 "	12	18 "	37	2 "	126
1 "	16	1 "	37a	2 "	126a
1 "	17	2 "	48a		

O.15 ESKIMO BOY AND SLEDGE



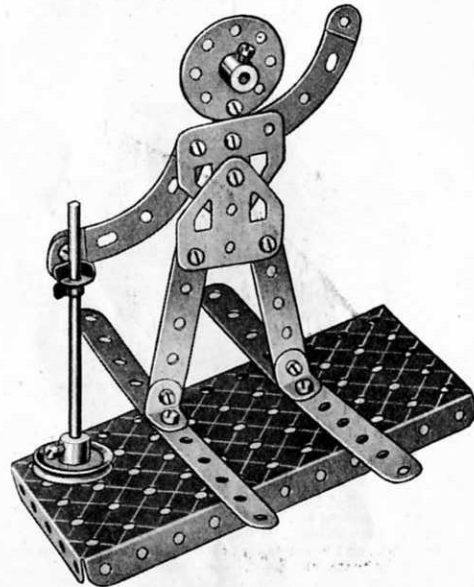
Parts required

2 of No.	2	1 of No.	22	2 of No.	90a
2 "	5	14 "	37	1 "	111c
2 "	10	1 "	48a	1 "	126a
4 "	12	1 "	52	1 "	155a

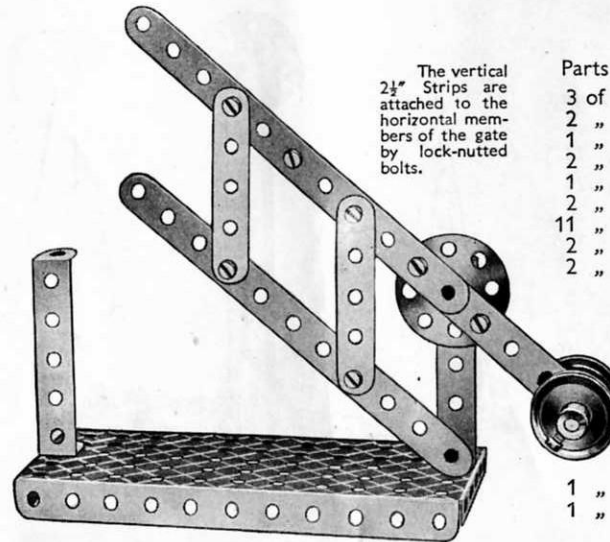
O.16 SKIER

Parts required

2 of No.	2
2 "	5
1 "	10
3 "	12
1 "	16
1 "	22
1 "	24
2 "	35
11 "	37
1 "	37a
1 "	52
2 "	90a
2 "	126a



O.17 LEVEL CROSSING BARRIER

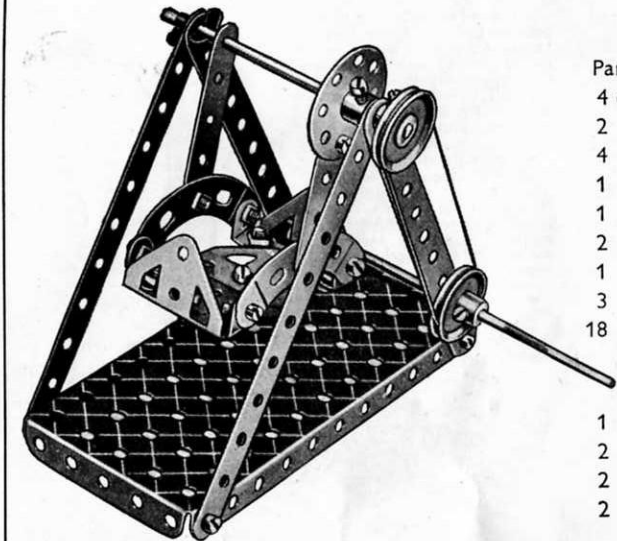


The vertical
2½" Strips are
attached to the
horizontal mem-
bers of the gate
by lock-nutted
bolts.

Parts required

3 of No.	2
2 "	5
1 "	17
2 "	22
1 "	24
2 "	35
11 "	37
2 "	37a
2 "	48a
1 "	52
1 "	111c

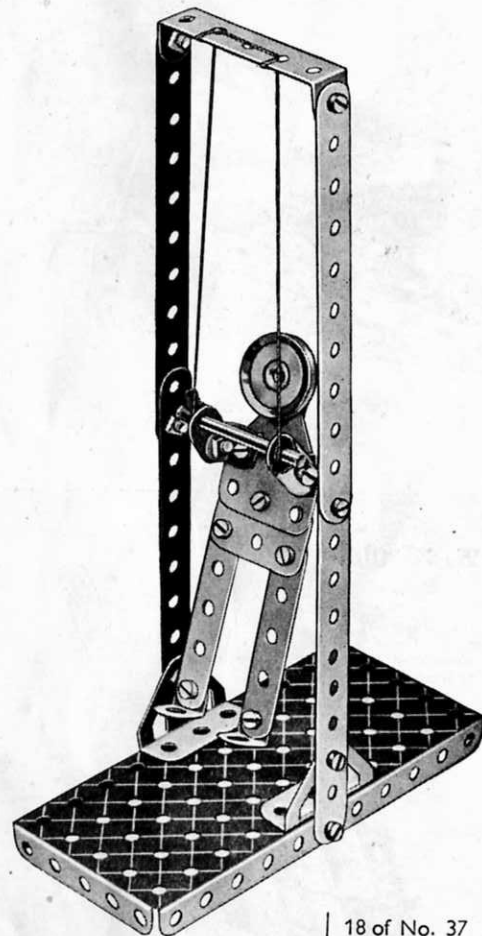
O.18 SWING-BOAT



Parts required

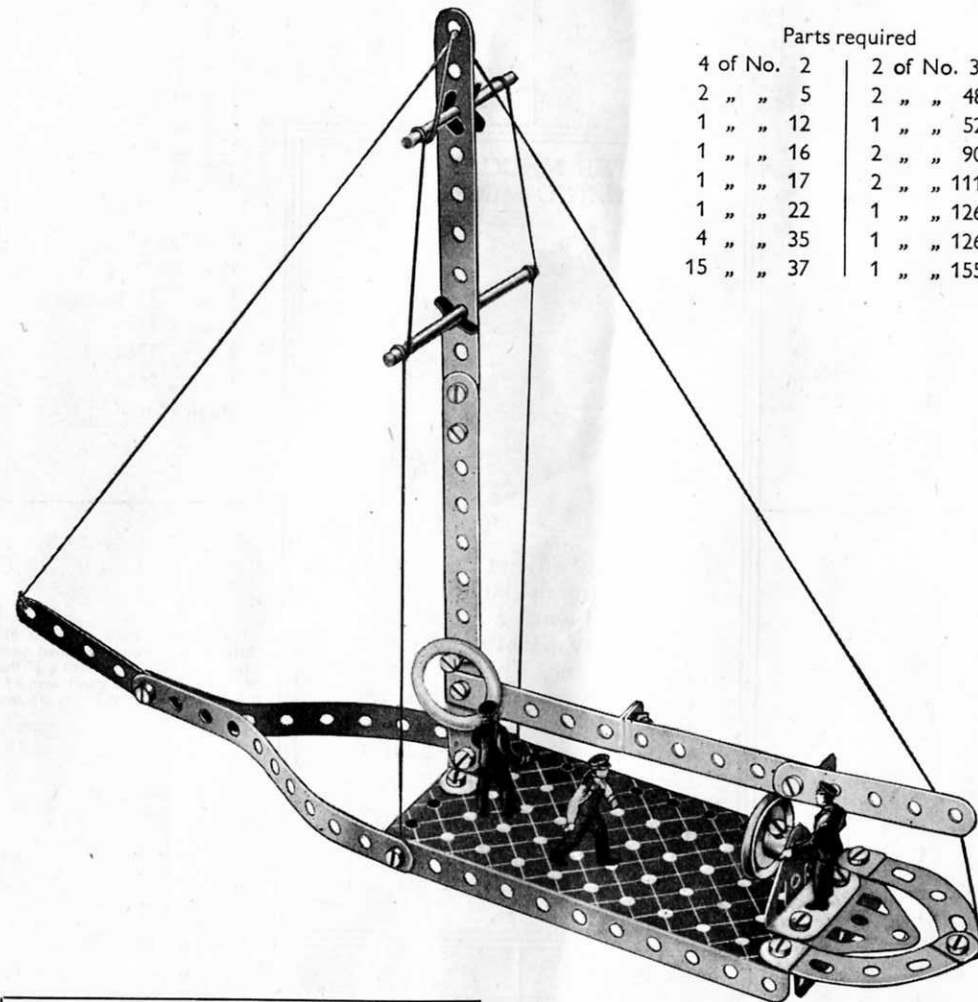
4 of No.	2
2 "	5
4 "	12
1 "	16
1 "	19s
2 "	22
1 "	24
3 "	35
18 "	37
1 "	52
2 "	90a
2 "	126
2 "	126a

O.19 TRAPEZE ARTIST



Parts required		18 of No. 37
4 of No. 2	4 of No. 12	1 " " 48a
2 " " 5	1 " " 17	1 " " 52
3 " " 10	1 " " 22	1 " " 111c
	2 " " 35	2 " " 126
		2 " " 126a

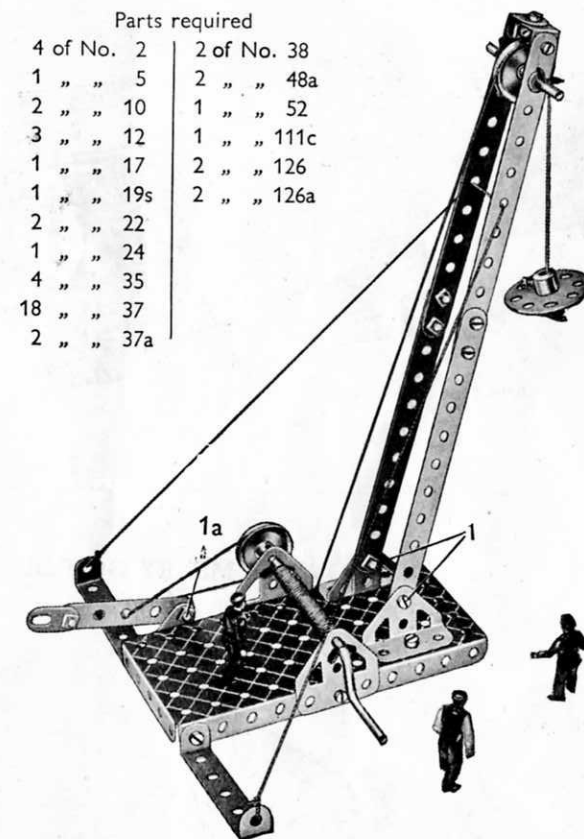
O.20 SAILING BOAT



Parts required		2 of No. 37a
4 of No. 2	2 " " 48a	
2 " " 5	1 " " 52	
1 " " 12	2 " " 90a	
1 " " 16	2 " " 111c	
1 " " 17	1 " " 126	
1 " " 22	1 " " 126a	
4 " " 35	1 " " 155a	
15 " " 37		

*Read the "Meccano Magazine,"
published monthly. Ask your
dealer for full particulars.*

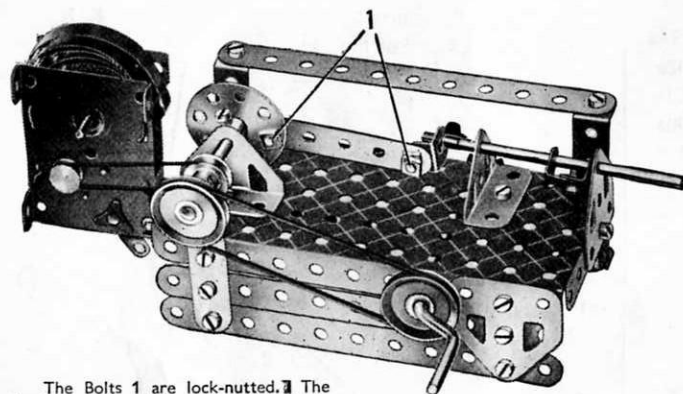
O.21 DERRICK CRANE



Parts required		2 of No. 38
4 of No. 2	2 " " 48a	
1 " " 5	1 " " 52	
2 " " 10	1 " " 111c	
3 " " 12	2 " " 126	
1 " " 17	2 " " 126a	
1 " " 19s		
2 " " 22		
1 " " 24		
4 " " 35		
18 " " 37		
2 " " 37a		

The construction of the model is commenced by bolting the Trunnions and Flat Trunnions that support the jib and Crank Handle respectively to the $5\frac{1}{2}'' \times 2\frac{1}{4}''$ Flanged Plate that forms the base of the model. The jib is then assembled and fastened to the Trunnions by means of the lock-nutted Bolts 1. The brake lever is a $2\frac{1}{2}''$ Strip extended by a Flat Bracket and is fastened to a second Flat Bracket bolted to the Flanged Plate, by means of a lock-nutted Bolt 1a. A length of Cord is fastened to the lever and then passed round the 1" Pulley on the Crank Handle.

O.M22 STATIONARY STEAM ENGINE

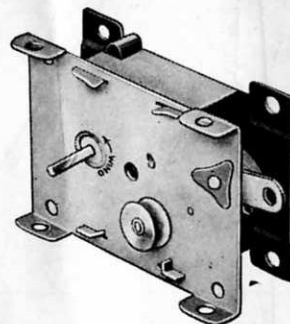


The Bolts 1 are lock-nutted. The Angle Brackets representing the piston are clamped to the Rod by a Nut and Bolt fastened in their elongated holes.

Parts required

4 of No. 2
2 " " 5
3 " " 12
1 " " 16
1 " " 17
1 " " 19s
2 " " 22
1 " " 24
3 " " 35
18 " " 37
2 " " 37a
1 " " 38
2 " " 48a
1 " " 52

2 of No.126
2 " " 126a
Magic Motor

THE MECCANO
MAGIC MOTOR

The greatest thrill in Meccano model-building is experienced when a model is set to work by means of a Meccano Magic Motor. The illustrations on this page show how the Magic Motor can be fitted without any difficulty to No. O Outfit models of various types. Fit the model you have just built with one of these wonderful Motors, and enjoy the fun of watching it work just like the real thing!

Parts required

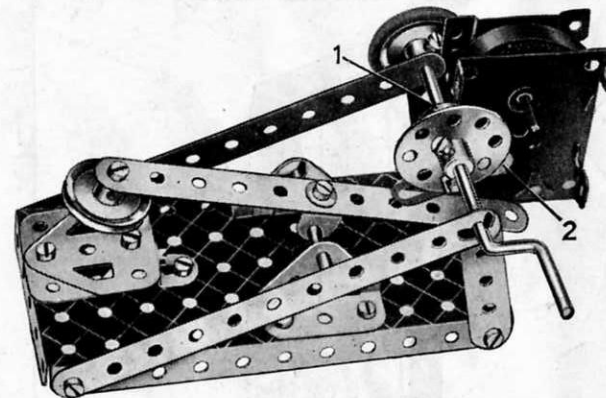
4 of No. 2
2 " " 5
4 " " 12
1 " " 16
1 " " 19s
2 " " 22
1 " " 24
4 " " 35
18 " " 37
2 " " 37a
4 " " 38
1 " " 48a
1 " " 52
2 " " 90a

2 of No.111c
2 " " 126
2 " " 126a
Magic Motor

Parts required
3 of No. 2
2 " " 5

1 of No. 52
2 " " 90a
2 " " 126
2 " " 126a

O.M23 MECHANICAL HAMMER



The $\frac{1}{2}$ " fast Pulley 1 is driven from the pulley 2 on the Magic Motor by the Driving Band supplied with the Motor.

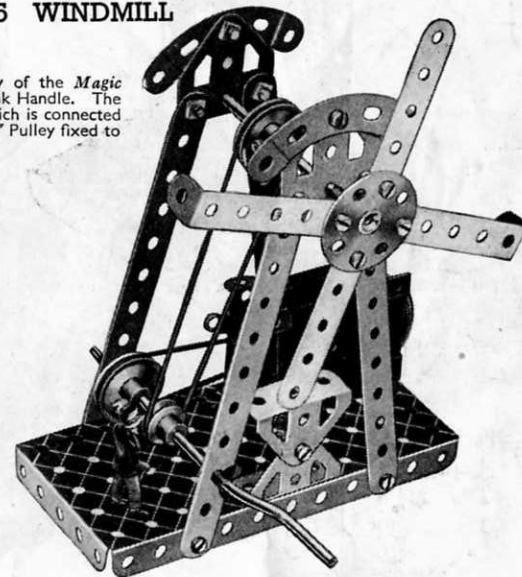
1 of No. 10
4 " " 12
1 " " 17
1 " " 19s
2 " " 22
1 " " 24
3 " " 35
15 " " 37
1 " " 38
1 " " 52
1 " " 111c
2 " " 126
2 " " 126a
1 " " 155a
Magic Motor

O.M25 WINDMILL

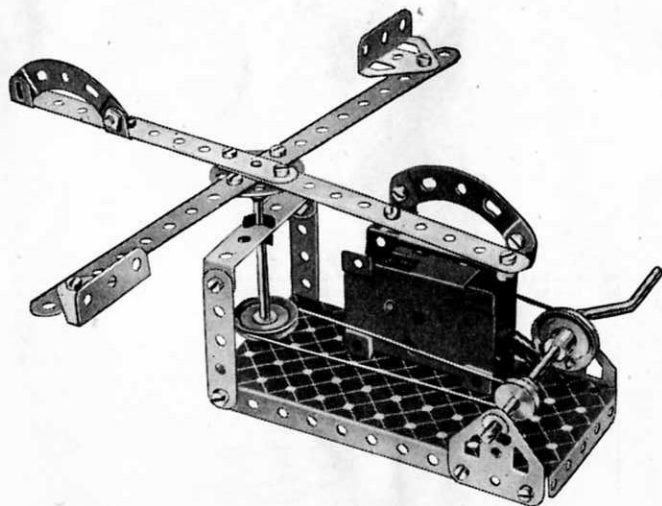
A Driving Band connects the pulley of the Magic Motor to a $1\frac{1}{2}$ " Pulley fastened on the Crank Handle. The Crank Handle carries also a $\frac{1}{2}$ " Pulley, which is connected by a second Driving Band with a further $1\frac{1}{2}$ " Pulley fixed to the Rod on which the sails are mounted.

Parts required

4 of No. 2
2 " " 5
1 " " 16
1 " " 19s
2 " " 22
1 " " 24
3 " " 35
18 " " 37
2 " " 38
2 " " 48a
Magic Motor

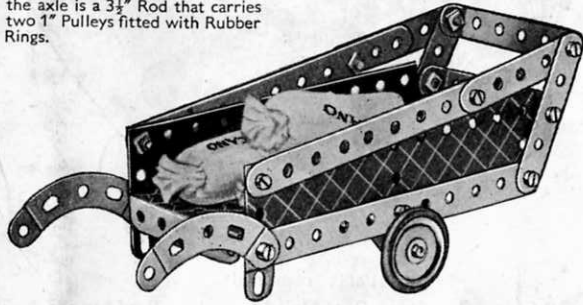


O.M24 MERRY-GO-ROUND



1.1 PORTER'S TRUCK

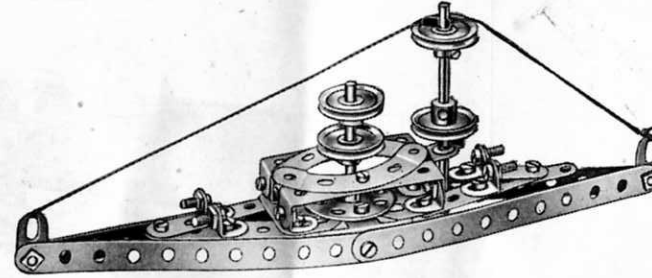
The bearings for the axle are Flat Trunnions fastened on the insides of the Flexible Plates, and the axle is a $3\frac{1}{2}$ " Rod that carries two 1" Pulleys fitted with Rubber Rings.



Parts required

4 of No. 2
4 " " 5
2 " " 10
1 " " 16
2 " " 22
14 " " 37
2 " " 38
2 " " 48a
1 " " 52
2 " " 90a
2 " " 126
2 " " 155a
2 " " 189

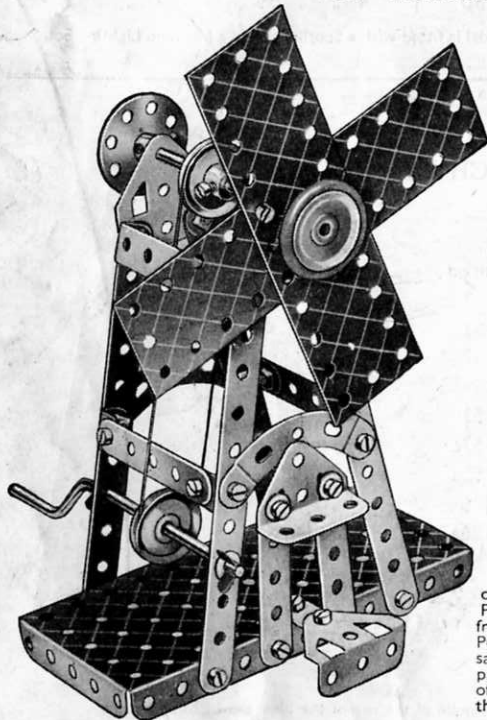
1.2 BATTLESHIP



Parts required

4 of No. 2	1 of No. 17	4 of No. 37a	4 of No. 111c
4 " " 5	4 " " 22	2 " " 38	1 " " 125
4 " " 10	1 " " 24	1 " " 40	2 " " 126
8 " " 12	3 " " 35	2 " " 48a	2 " " 126a
1 " " 16	24 " " 37	2 " " 90a	

1.3 WINDMILL

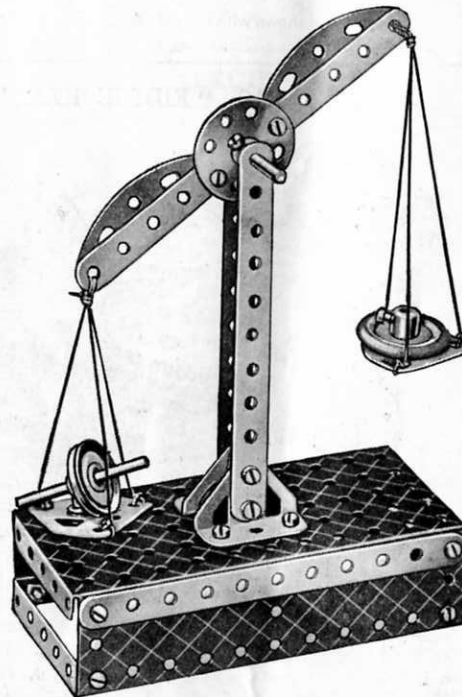


The sails are gripped on the $3\frac{1}{2}$ " Rod by the 1" Pulley (with tyre) at the front and another 1" Pulley at the back of the sails. The Pulleys are pressed against the faces of the sails and locked on the Rod.

Parts required

4 of No. 2
4 " " 5
1 " " 10
4 " " 12
1 " " 16
1 " " 19s
4 " " 22
1 " " 24
3 " " 35
24 " " 37
4 " " 38
1 " " 40
2 " " 48a
1 " " 52
2 " " 90a
2 " " 126
2 " " 126a
1 " " 155a
2 " " 189

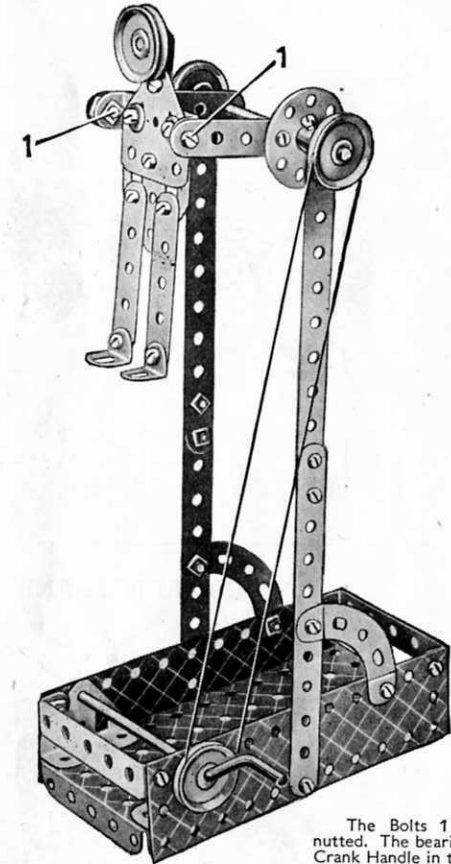
1.4 SCALES



Parts required

4 of No. 2
2 " " 5
2 " " 17
2 " " 22
1 " " 24
19 " " 37
1 " " 38
1 " " 40
2 " " 48a
1 " " 52
2 " " 90a
1 " " 111c
2 " " 126
2 " " 126a
1 " " 155a
2 " " 189

1.5 GYMNAST



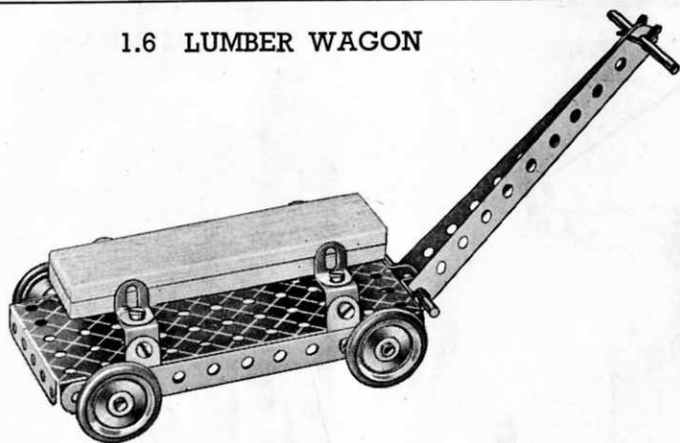
The Bolts 1 are lock-nutted. The bearings for the Crank Handle in the Flexible Plates are reinforced by Trunnions bolted to the Flanged Plate.

Parts required

4 of No. 2	1 of No. 24	1 of No. 52
4 " " 5	2 " " 35	2 " " 90a
1 " " 10	24 " " 37	4 " " 111c
4 " " 12	4 " " 37a	2 " " 126
1 " " 16	4 " " 38	2 " " 126a
1 " " 19s	1 " " 40	2 " " 189
4 " " 22	2 " " 48a	

These Models can be built with MECCANO No. 1 Outfit

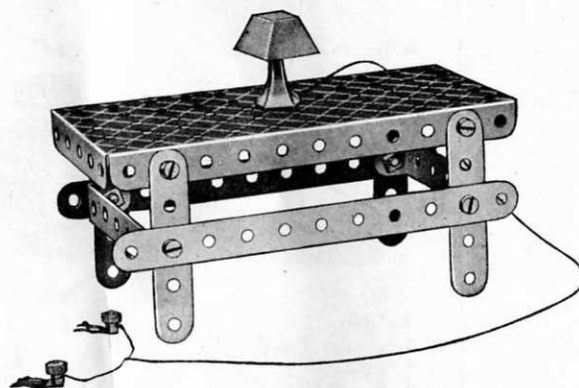
1.6 LUMBER WAGON



Parts required

4 of No. 2	2 of No. 16	4 of No. 35	1 of No. 52
4 " " 10	2 " " 17	14 " " 37	4 " " 155a
6 " " 12	4 " " 22	2 " " 48a	

1.7 TABLE

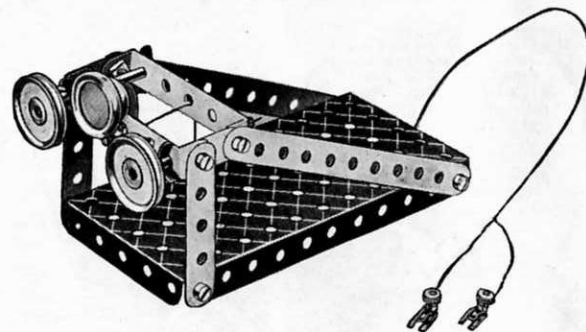


Parts required

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

The model is shown with a Stand Lamp from a Meccano Lighting Set.

1.8 BUFFER STOPS

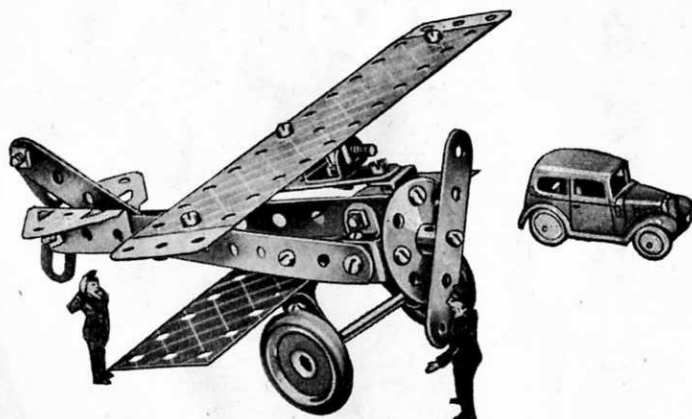


Parts required

2 of No. 2	2 of No. 17	9 of No. 37
2 " " 5	2 " " 22	2 " " 48a
3 " " 10	4 " " 35	1 " " 52

The model is fitted with a Spotlight from a Meccano Lighting Set.

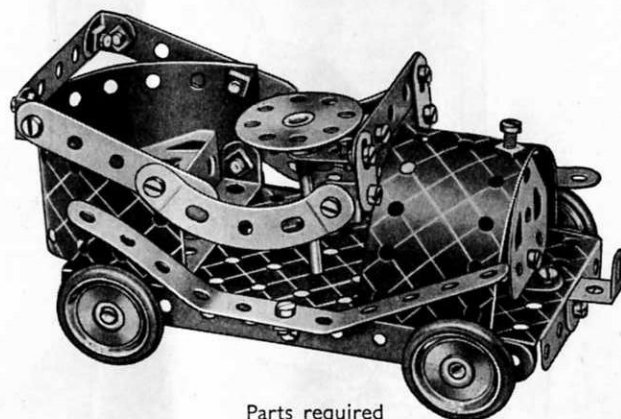
1.9 AEROPLANE



Parts required

2 of No. 2	1 of No. 17	2 of No. 37a	2 of No. 126
3 " " 5	2 " " 22	1 " " 38	2 " " 126a
4 " " 10	1 " " 24	3 " " 111c	2 " " 155a
8 " " 12	17 " " 37	1 " " 125	2 " " 189

1.10 "KIDDIE KAR"



Parts required

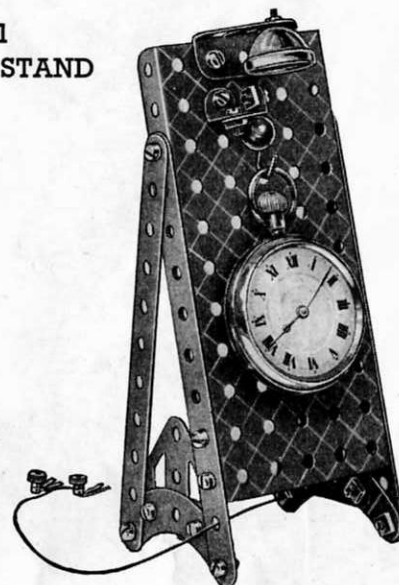
4 of No. 2	1 of No. 17	3 of No. 37a	1 of No. 125
4 " " 5	4 " " 22	2 " " 48a	2 " " 126
3 " " 10	1 " " 24	1 " " 52	1 " " 126a
7 " " 12	1 " " 35	2 " " 90a	4 " " 155a
2 " " 16	24 " " 37	2 " " 111c	2 " " 189

Two Trunnions overlapped one hole, and fastened to the Flanged Plate by an Angle Bracket, form the seat.

1.11 WATCH STAND

Parts required

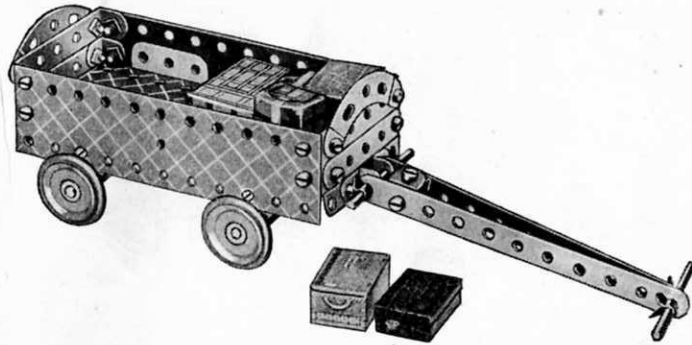
4 of No. 2
2 " " 12
17 " " 37
1 " " 38
1 " " 52
1 " " 57c
2 " " 90a
1 " " 126
2 " " 126a



A good example of the use of the Meccano Lighting Set.

These Models can be built with MECCANO No. 1 Outfit

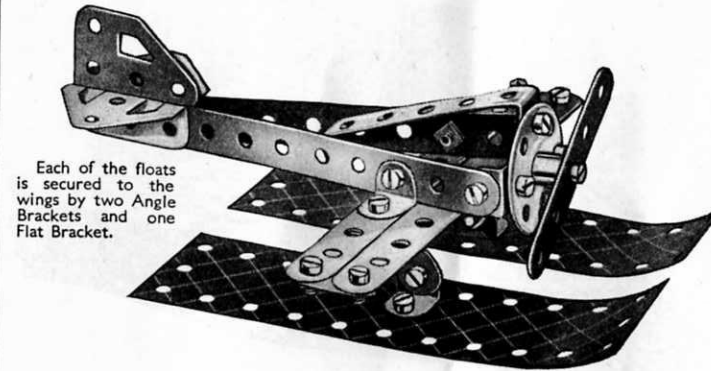
1.12 BAGGAGE TRUCK



Parts required

2 of No. 2	4 of No. 35	2 of No. 90a
2 " " 5	24 " " 37	1 " " 111c
8 " " 12	1 " " 37a	2 " " 126
2 " " 16	2 " " 38	2 " " 126a
2 " " 17	2 " " 48a	4 " " 155a
4 " " 22	1 " " 52	2 " " 189

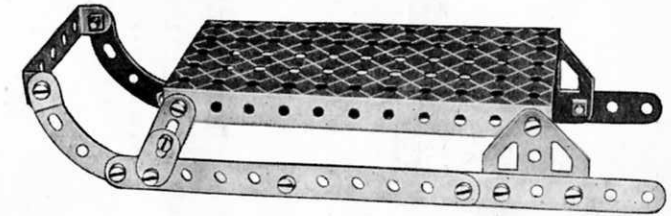
1.13 RACING SEAPLANE



Parts required

3 of No. 2	1 of No. 24	2 of No. 111c
3 " " 5	19 " " 37	2 " " 126
4 " " 10	1 " " 37a	1 " " 126a
8 " " 12	1 " " 48a	2 " " 189

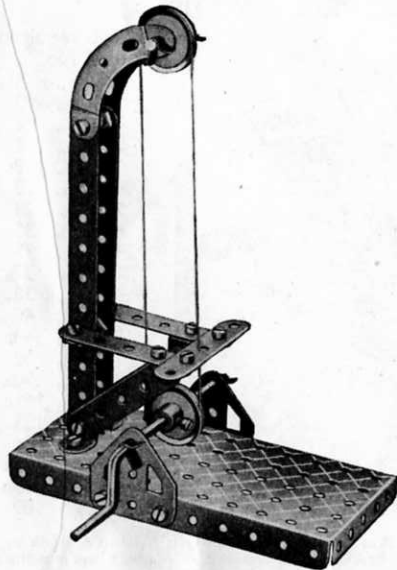
1.14 SLEDGE



Parts required

4 of No. 2	1 of No. 48a	2 of No. 126a
4 " " 10	1 " " 52	
20 " " 37	2 " " 90a	

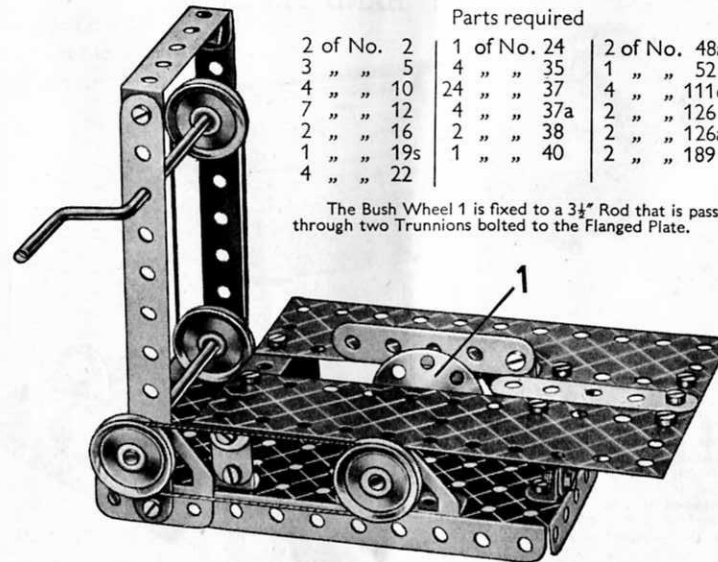
1.15 BAND SAW



Parts required

2 of No. 2
4 " " 5
6 " " 12
1 " " 17
1 " " 19s
2 " " 22
4 " " 35
19 " " 37
1 " " 40
1 " " 52
2 " " 90a
2 " " 126a

1.16 CIRCULAR SAW



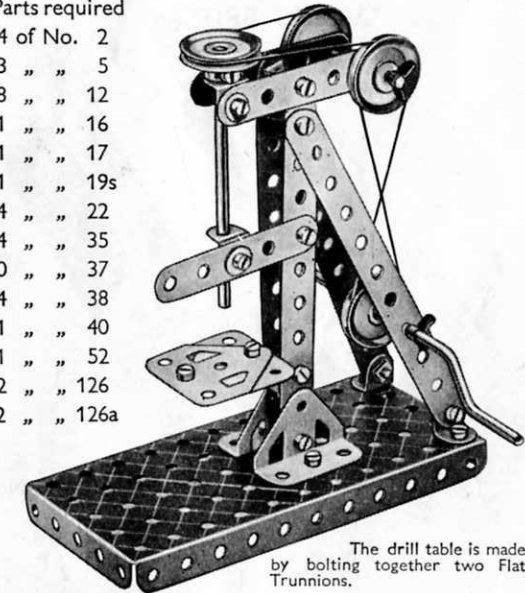
Parts required

2 of No. 2	1 of No. 24	2 of No. 48a
3 " " 5	4 " " 35	1 " " 52
4 " " 10	24 " " 37	4 " " 111c
7 " " 12	4 " " 37a	2 " " 126
2 " " 16	2 " " 38	2 " " 126a
1 " " 19s	1 " " 40	2 " " 189
4 " " 22		

1.17 DRILL

Parts required

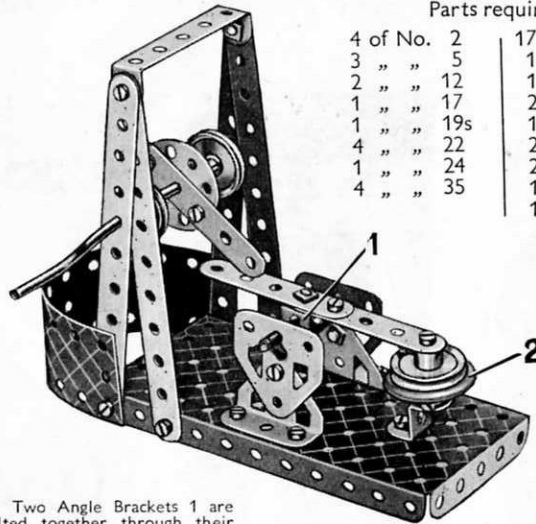
4 of No. 2
3 " " 5
8 " " 12
1 " " 16
1 " " 17
1 " " 19s
4 " " 22
14 " " 35
20 " " 37
4 " " 38
1 " " 40
1 " " 52
2 " " 126
2 " " 126a



1.18 TRIP HAMMER

Parts required

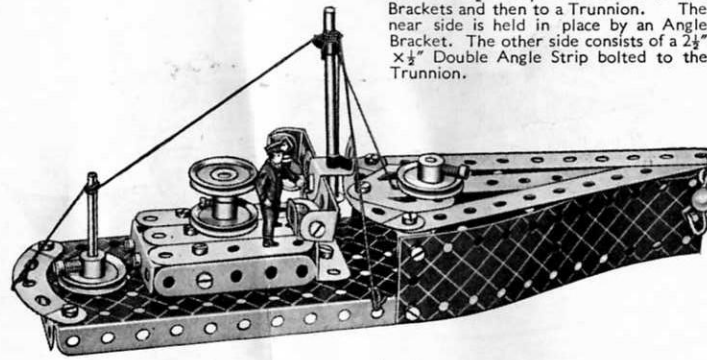
4 of No. 2	17 of No. 37
3 " " 5	1 " " 48a
2 " " 12	1 " " 52
1 " " 17	2 " " 111c
1 " " 19s	1 " " 125
4 " " 22	2 " " 126
1 " " 24	2 " " 126a
4 " " 35	1 " " 155a
	1 " " 189



Two Angle Brackets 1 are bolted together through their holes and also are bolted to two 2½" Strips to form a double bracket. The 1" fast Pulley 2 is fitted with a 1" Rubber Ring.

1.19 STEAM LAUNCH

The top of the deck-house consists of three 2½" Strips bolted first to Flat Brackets and then to a Trunnion. The rear side is held in place by an Angle Bracket. The other side consists of a 2½" x ½" Double Angle Strip bolted to the Trunnion.

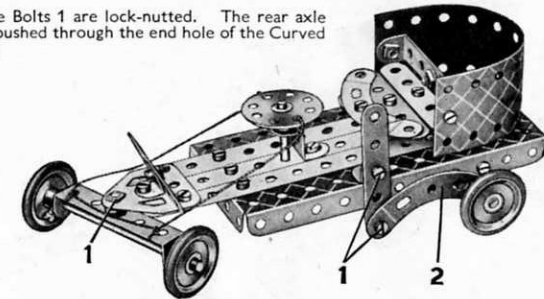


Parts required

3 of No. 2	4 of No. 22	1 of No. 52	2 of No. 126a
4 " " 5	4 " " 35	1 " " 57c	2 " " 189
3 " " 10	23 " " 37	2 " " 90a	
8 " " 12	4 " " 38	2 " " 111c	
1 " " 16	1 " " 40	1 " " 125	
2 " " 17	2 " " 48a	2 " " 126	

1.20 COASTER

The Bolts 1 are lock-nutted. The rear axle Rod is pushed through the end hole of the Curved Strip 2.

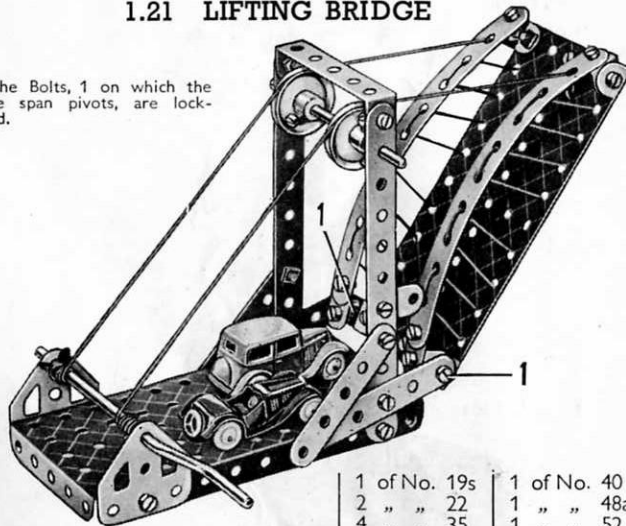


Parts required

3 of No. 2	1 of No. 35	2 of No. 90a
4 " " 5	20 " " 37	2 " " 111c
5 " " 12	4 " " 37a	1 " " 125
2 " " 16	4 " " 38	2 " " 126
1 " " 17	1 " " 40	2 " " 126a
4 " " 22	2 " " 48a	4 " " 155a
1 " " 24	1 " " 52	1 " " 189

1.21 LIFTING BRIDGE

The Bolts, 1 on which the bridge span pivots, are lock-nutted.

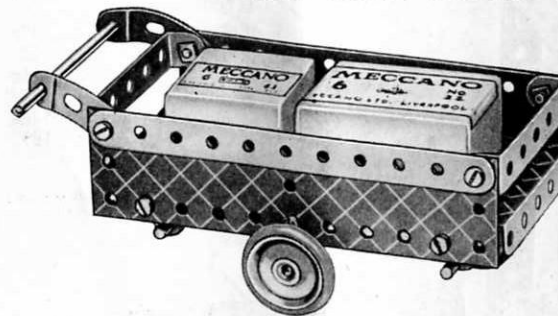


Parts required	1 of No. 19s	1 of No. 40
4 of No. 2	2 " " 22	1 " " 48a
4 " " 5	4 " " 35	1 " " 52
	24 " " 37	3 " " 111c
	5 " " 37a	2 " " 126a
	4 " " 38	2 " " 189

1.22 HAND TRUCK

Parts required

2 of No. 2
2 " " 10
8 " " 12
2 " " 16
2 " " 17
4 " " 22
3 " " 35
14 " " 37
2 " " 48a
1 " " 52
2 " " 90a
2 " " 155a
2 " " 189



The bearings for the 3½" Rod are Flat Brackets and the front and rear axle bearings are reversed angle brackets built up from Angle Brackets. The right-hand 1" Pulley on the 3½" Rod is loose on the Rod, but is retained in place by a Spring Clip. The front and rear 1" Pulleys are fixed on their respective 2" Rods.

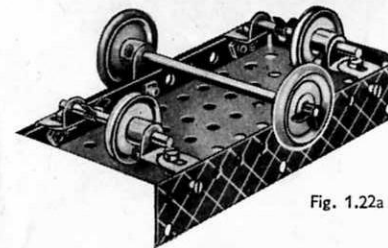
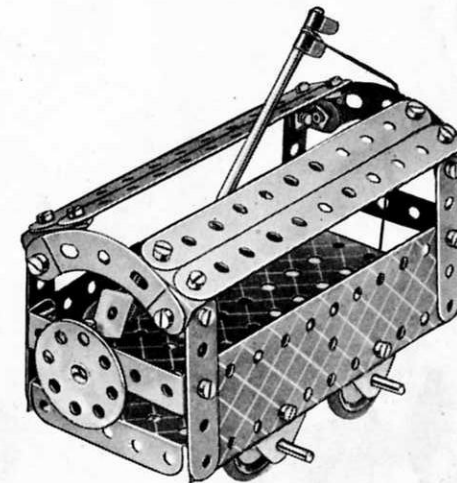


Fig. 1.22a

1.23 TROLLEY BUS

Parts required

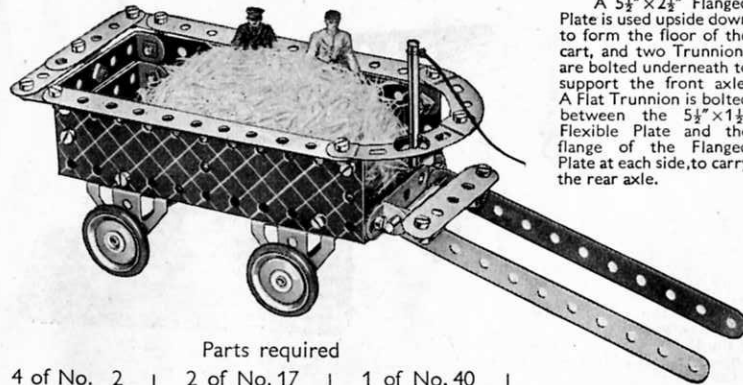
4 of No. 2
4 " " 5
4 " " 10
8 " " 12
2 " " 16
1 " " 19s
4 " " 22
1 " " 24
4 " " 35
24 " " 37
1 " " 37a
4 " " 38
1 " " 40
2 " " 48a
1 " " 52
2 " " 90a
2 " " 111c
1 " " 125
2 " " 126
2 " " 126a
4 " " 155a
2 " " 189



The Reversed Angle Bracket that holds the trolley is fixed in position by a Bolt passed through the slot in the Bracket, then through two Washers, and into the boss of the Bush Wheel.

These Models can be built with MECCANO No. 1 Outfit

1.24 HAY CART



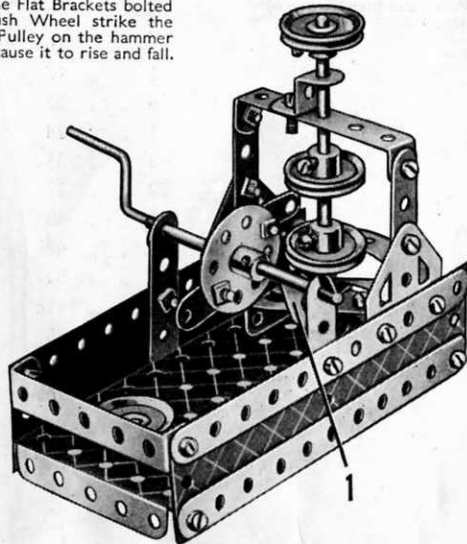
A $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate is used upside down to form the floor of the cart, and two Trunnions are bolted underneath to support the front axle. A Flat Trunnion is bolted between the $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate and the flange of the Flanged Plate at each side, to carry the rear axle.

Parts required

4 of No. 2	2 of No. 17	1 of No. 40	
3 " " 5	4 " " 22	2 " " 48a	2 of No. 126
2 " " 10	4 " " 35	1 " " 52	2 " " 126a
7 " " 12	24 " " 37	2 " " 90a	4 " " 155a
2 " " 16	1 " " 37a	1 " " 111c	2 " " 189

1.27 STAMPING MILL

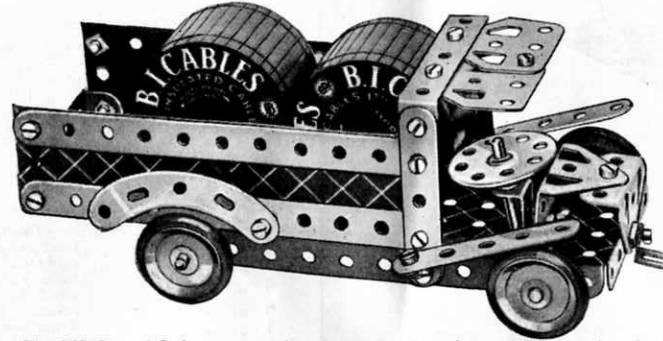
The anvil 1 is made up of two Trunnions bolted together. When the Crank Handle is rotated, the Flat Brackets bolted to the Bush Wheel strike the centre 1" Pulley on the hammer shaft and cause it to rise and fall.



Parts required

4 of No. 2	
4 " " 5	
4 " " 10	
5 " " 12	
1 " " 16	
1 " " 19s	
4 " " 22	
1 " " 24	
2 " " 35	
24 " " 37	
3 " " 37a	
2 " " 48a	
1 " " 52	
1 " " 90a	
4 " " 111c	
1 " " 125	
2 " " 126	
2 " " 126a	
2 " " 189	

1.25 MOTOR LORRY

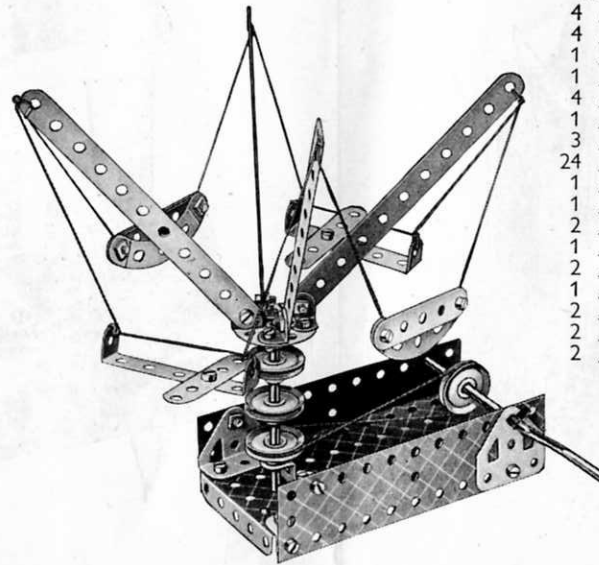


The $2\frac{1}{2}''$ Curved Strips representing the rear mudguards are each fastened to the sides by a $\frac{3}{8}''$ Bolt and Nut, with a Spring Clip between the mudguards and the $5\frac{1}{2}''$ Strip to form a distance piece.

Parts required

4 of No. 2	1 of No. 17	19 of No. 37	2 of No. 90a	2 of No. 126a
4 " " 5	4 " " 22	4 " " 37a	3 " " 111c	4 " " 155a
3 " " 12	1 " " 24	2 " " 48a	1 " " 125	2 " " 189
2 " " 16	2 " " 35	1 " " 52	2 " " 126	

1.28 FLYING BOATS



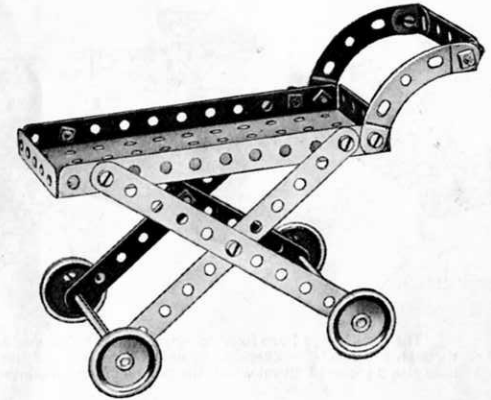
Parts required

4 of No. 2	
4 " " 5	
4 " " 12	
1 " " 16	
1 " " 19s	
4 " " 22	
1 " " 24	
3 " " 35	
24 " " 37	
1 " " 38	
1 " " 40	
2 " " 48a	
1 " " 52	
2 " " 90a	
1 " " 125	
2 " " 126	
2 " " 126a	
2 " " 189	

1.26 HOSPITAL TROLLEY

Parts required

4 of No. 2	
1 " " 5	
2 " " 12	
2 " " 16	
4 " " 22	
12 " " 37	
1 " " 52	
2 " " 90a	
4 " " 155a	

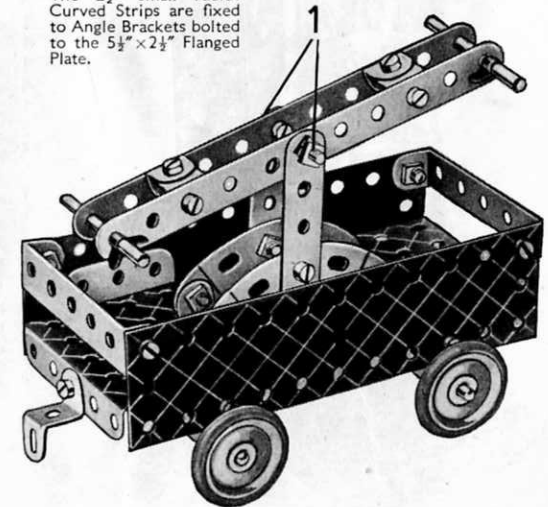


1.29 HAND CAR

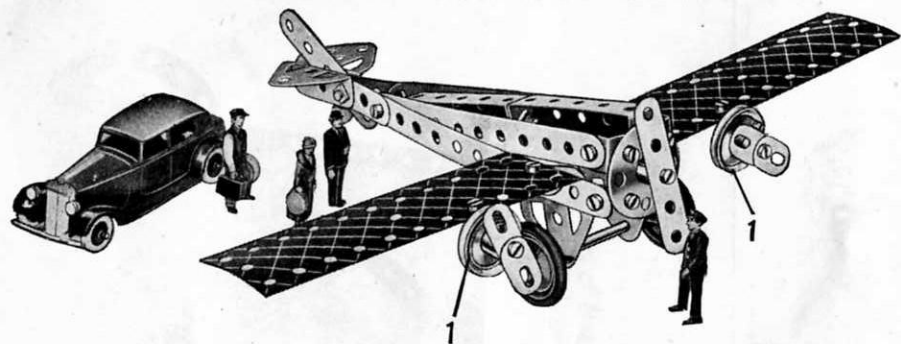
The Bolts 1, on which the $5\frac{1}{2}''$ Strips are pivoted, are lock-nutted. The $2\frac{1}{2}''$ small radius Curved Strips are fixed to Angle Brackets bolted to the $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate.

Parts required

2 of No. 2	
2 " " 5	
8 " " 12	
2 " " 16	
2 " " 17	
4 " " 22	
4 " " 35	
23 " " 37	
4 " " 37a	
4 " " 38	
2 " " 48a	
1 " " 52	
2 " " 90a	
2 " " 111c	
1 " " 125	
2 " " 126	
2 " " 126a	
4 " " 155a	
2 " " 189	



1.30 MONOPLANE



Parts required

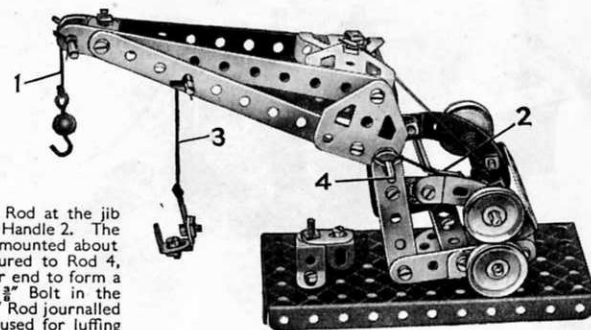
4 of No.	2
4 " "	5
4 " "	10
8 " "	12
1 " "	16
4 " "	22
1 " "	24
2 " "	35
20 " "	37
3 " "	37a
2 " "	48a
1 " "	57c
4 " "	111c
2 " "	126
2 " "	126a
2 " "	155a
2 " "	189

The fast Pulleys 1 are fixed to Angle Brackets fastened to the wing by $\frac{3}{8}$ " Bolts, which are passed through the Angle Brackets, and held in the bosses of the Pulleys. The set screws of the Pulleys hold also a second Bolt on which the propellers are mounted.

1.31 FLOATING CRANE

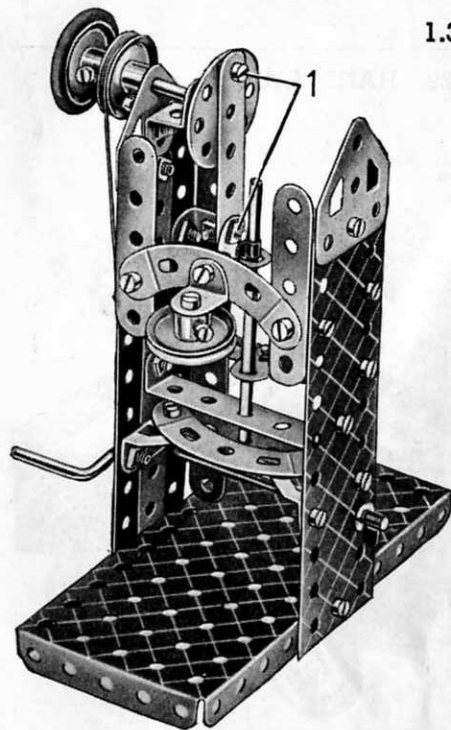
Parts required

4 of No.	2	2 of No.	90a
4 " "	5	3 " "	111c
4 " "	10	1 " "	125
7 " "	12	2 " "	126
2 " "	16	2 " "	126a
2 " "	17		
1 " "	19s		
4 " "	22		
1 " "	24		
4 " "	35		
24 " "	37		
4 " "	37a		
4 " "	38		
1 " "	40		
2 " "	48a		
1 " "	52		
1 " "	57c		



The Cord 1 passes over the Rod at the jib head and is fastened to the Crank Handle 2. The other Cord 3 passes over a Rod mounted about halfway along the jib, and is secured to Rod 4, which has a 1" Pulley at the other end to form a handle. The Cord tied to the $\frac{3}{8}$ " Bolt in the Trunnions is taken around the $3\frac{1}{2}$ " Rod journalled above the Crank Handle, and is used for luffing the jib by turning the 1" Pulley at the rear end of the Rod. Two Angle Brackets and a Flat Bracket form the hook on Cord 3.

1.32 POWER PRESS



Parts required

4 of No.	2
4 " "	5
1 " "	10
6 " "	12
1 " "	16
1 " "	17
1 " "	19s
4 " "	22
1 " "	24
3 " "	35
24 " "	37
5 " "	37a
1 " "	38
1 " "	40
2 " "	48a
1 " "	52
2 " "	90a
4 " "	111c
1 " "	125
2 " "	126
2 " "	126a
1 " "	155a
2 " "	189

The Bolts 1 are lock-nutted, and the Angle Bracket at the lower end of the $2\frac{1}{2}$ " Strip has a $4\frac{1}{2}$ " Rod in its elongated hole, where it is held by means of two Spring Clips.

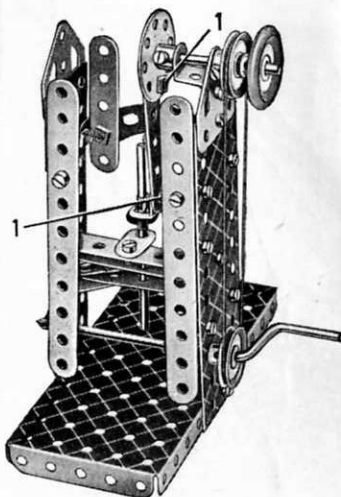
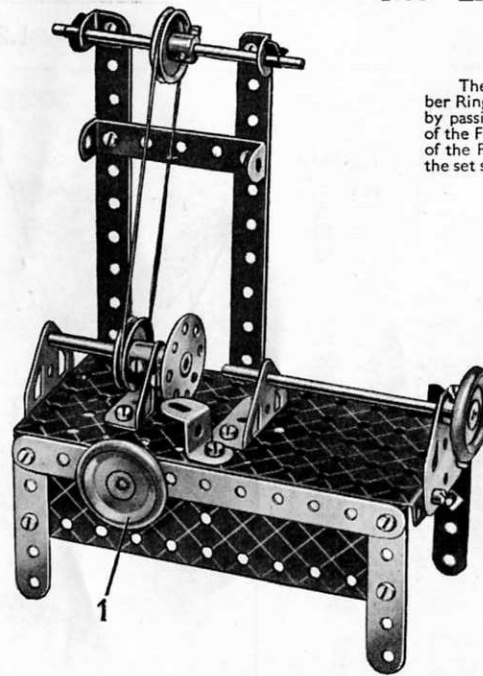


Fig. 1.32a

1.33 LATHE

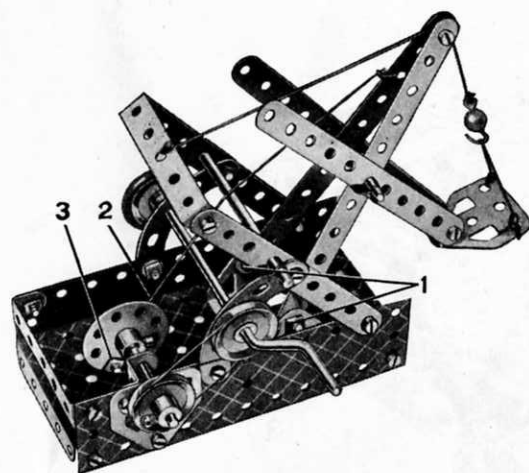


The 1" fast Pulley with Rubber Ring 1 is secured to the Strip by passing a Bolt from the inside of the Flexible Plate into the boss of the Pulley and then tightening the set screw.

Parts required

4 of No.	2
4 " "	5
2 " "	12
2 " "	16
1 " "	17
4 " "	22
1 " "	24
3 " "	35
22 " "	37
1 " "	40
1 " "	48a
1 " "	52
1 " "	111c
1 " "	125
2 " "	126
2 " "	126a
2 " "	155a
2 " "	189

1.34 MECHANICAL SHOVEL



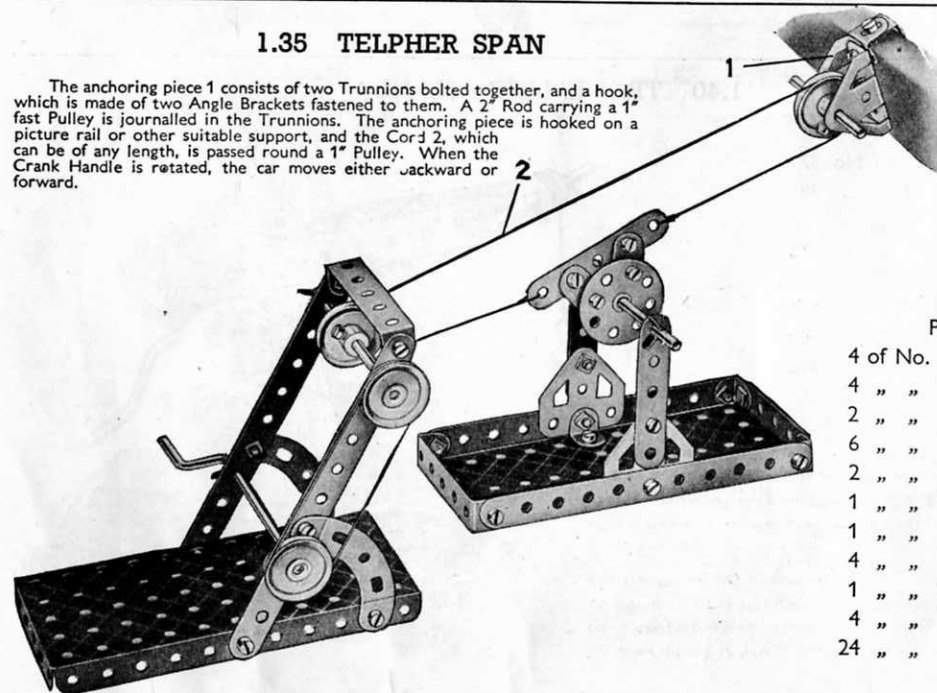
The Bolts 1, on which the jib pivots, are lock-nutted. The shovel arm is pivoted on a 2" Rod, and the shovel is supported by a Cord that passes over the $\frac{3}{8}$ " Bolt at the jib head and is fastened to a $2\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip as shown. The Cord 2 is fastened to the jib and then passes over a $3\frac{1}{2}$ " Rod journaled in the holes above the $2\frac{1}{2}$ " Curved Strips, and is attached to a Flat Bracket fastened by the lock-nutted Bolt 3 to the Bush Wheel.

When the Crank Handle is rotated, the Bush Wheel imparts a digging motion to the jib and shovel arm.

Parts required	
4 of No.	2
4 "	5
1 "	10
2 "	12
1 "	16
2 "	17
1 "	19s
3 "	22
1 "	24
4 "	35
24 "	37
4 "	37a
4 "	38
1 "	40
2 "	48a
1 "	52
1 "	57c
2 "	90a
4 "	111c
1 "	125
2 "	126
2 "	126a
1 "	155a
2 "	189

1.35 TELPHER SPAN

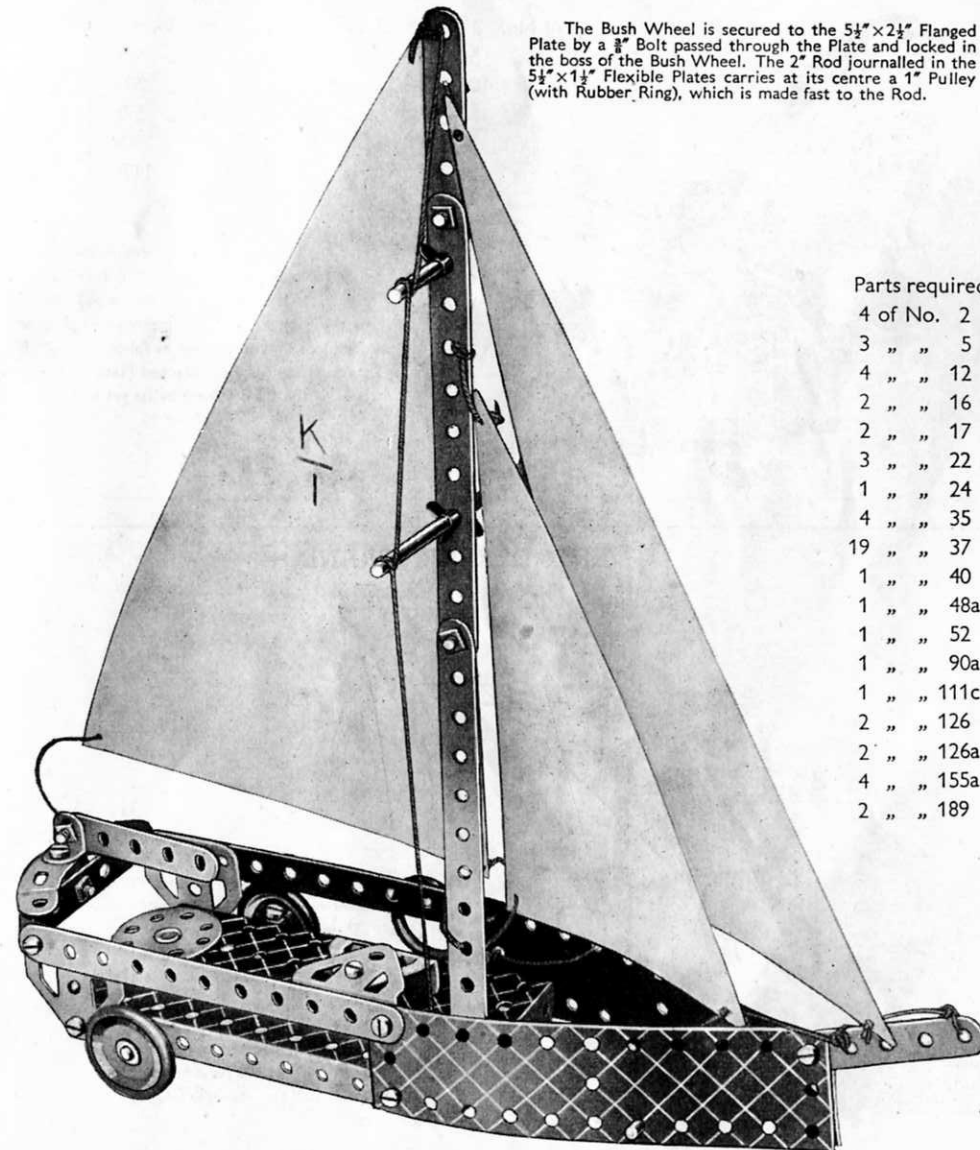
The anchoring piece 1 consists of two Trunnions bolted together, and a hook, which is made of two Angle Brackets fastened to them. A 2" Rod carrying a 1" fast Pulley is journaled in the Trunnions. The anchoring piece is hooked on a picture rail or other suitable support, and the Cord 2, which can be of any length, is passed round a 1" Pulley. When the Crank Handle is rotated, the car moves either backward or forward.



Parts required	
4 of No.	2
4 "	5
2 "	10
6 "	12
2 "	16
1 "	17
1 "	19s
4 "	22
1 "	24
4 "	35
24 "	37
4 of No.	37a
4 "	38
1 "	40
2 "	48a
1 "	52
2 "	90a
4 "	111c
2 "	126
2 "	126a
2 "	189

1.36 LAND YACHT

The Bush Wheel is secured to the $5\frac{1}{2}$ " x $2\frac{1}{2}$ " Flanged Plate by a $\frac{3}{8}$ " Bolt passed through the Plate and locked in the boss of the Bush Wheel. The 2" Rod journaled in the $5\frac{1}{2}$ " x $1\frac{1}{2}$ " Flexible Plates carries at its centre a 1" Pulley (with Rubber Ring), which is made fast to the Rod.

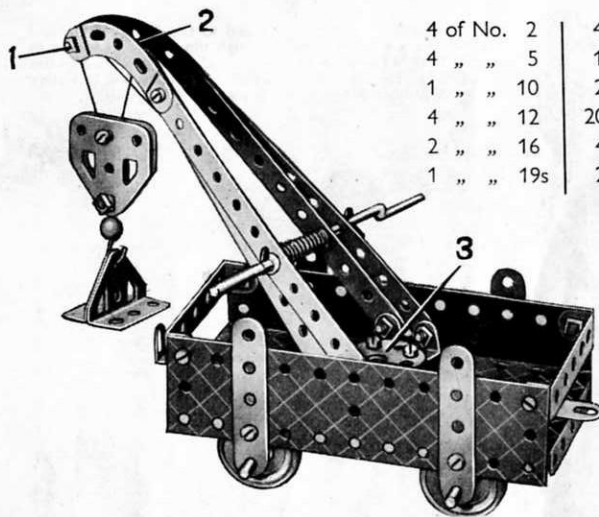


Parts required	
4 of No.	2
3 "	5
4 "	12
2 "	16
2 "	17
3 "	22
1 "	24
4 "	35
19 "	37
1 "	40
1 "	48a
1 "	52
1 "	90a
1 "	111c
2 "	126
2 "	126a
4 "	155a
2 "	189

1.37 RAILWAY BREAKDOWN CRANE

Parts required

4 of No. 2	4 of No. 22	1 of No. 40	1 of No. 125
4 " " 5	1 " " 24	2 " " 48a	2 " " 126
1 " " 10	2 " " 35	1 " " 52	2 " " 126a
4 " " 12	20 " " 37	1 " " 57c	4 " " 155a
2 " " 16	4 " " 37a	2 " " 90a	2 " " 189
1 " " 19s	2 " " 38	4 " " 111c	

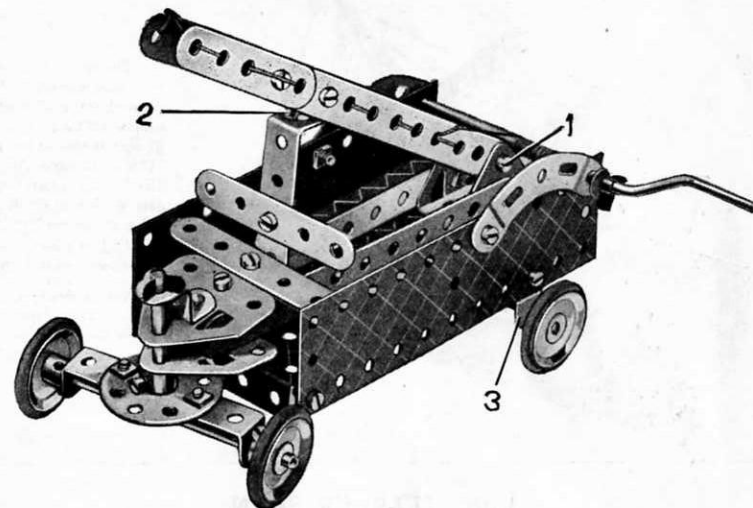


The hoisting cord is secured to the Crank Handle, and then led over the $\frac{3}{8}$ " Bolt 1. It is then passed through the pulley block and fastened to the jib at 2. The jib is attached to the Bush Wheel 3 by means of Angle Brackets and the complete unit is pivoted as follows. A $\frac{3}{8}$ " Bolt is passed through the $5\frac{1}{2}$ " x $2\frac{1}{2}$ " Flanged Plate, and is secured in the boss of the Bush Wheel by its set screw.

1.38 FIRE ENGINE

Parts required

4 of No. 2	2 of No. 38
4 " " 5	1 " " 40
3 " " 10	2 " " 48a
5 " " 12	1 " " 52
2 " " 16	2 " " 90a
1 " " 17	2 " " 111c
1 " " 19s	1 " " 125
4 " " 22	2 " " 126
1 " " 24	2 " " 126a
4 " " 35	4 " " 155a
24 " " 37	2 " " 189
4 " " 37a	

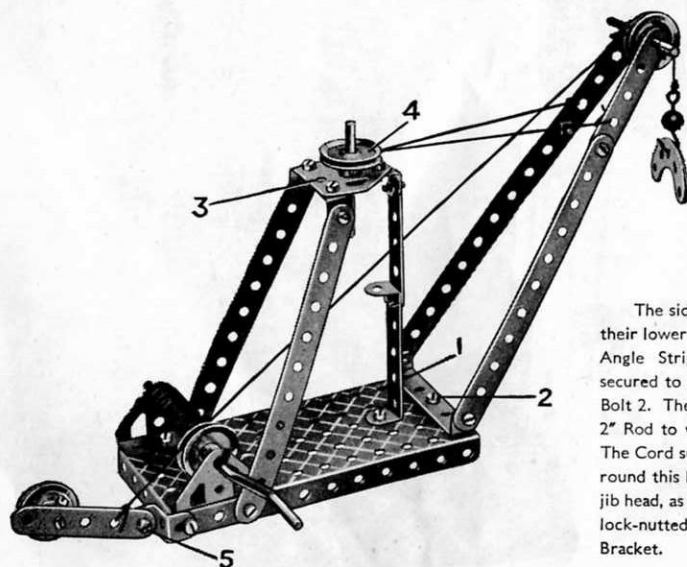


Bolts 1 are lock-nutted. The sides of the ladder are held together by two Angle Brackets 2, which are bolted together to form a double bracket. The rear axle bearings 3 are Flat Brackets bolted inside the flange of the Flanged Plate. The Cord from the Crank Handle is tied in the fourth hole up the ladder so that when the Handle is turned it causes the ladder to lift.

1.39 DERRICK CRANE

Parts required

4 of No. 2
4 " " 5
3 " " 12
2 " " 17
1 " " 19s
4 " " 22
4 " " 35
19 " " 37
4 " " 37a
1 " " 40
2 " " 48a
1 " " 52
1 " " 57c
2 " " 90a
1 " " 111c
1 " " 125
2 " " 126
1 " " 126a



The sides of the jib are bolted at their lower ends to a $2\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip 1, which is pivotally secured to the base by a lock-nutted Bolt 2. The Flat Trunnion 3 carries a 2" Rod to which is fitted a Pulley 4. The Cord supporting the jib is passed round this Pulley and attached to the jib head, as shown. The band brake is lock-nutted at 5 to a Reversed Angle Bracket.

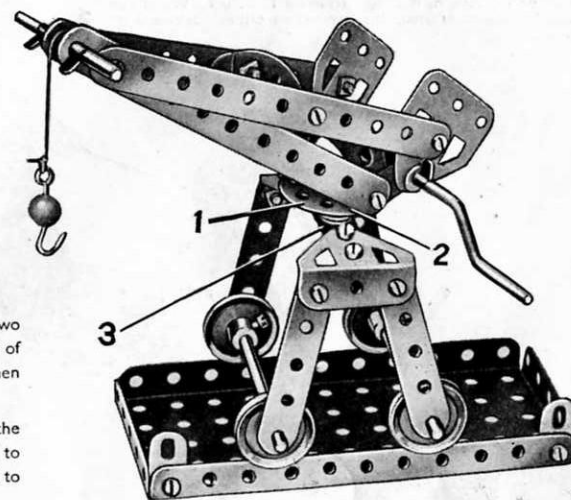
1.40 TRAVELLING CRANE

Parts required

4 of No. 2	20 of No. 37
4 " " 5	4 " " 38
4 " " 10	1 " " 40
2 " " 12	1 " " 48a
2 " " 16	1 " " 52
1 " " 17	1 " " 57c
1 " " 19s	2 " " 90a
4 " " 22	1 " " 111c
1 " " 24	2 " " 126
4 " " 35	2 " " 126a

The sides of the jib are secured to the Bush Wheel 1 by two Angle Brackets 2. A $\frac{3}{8}$ " Bolt is passed from the underneath side of Strip 3 into the boss of the Bush Wheel 1 and the set screw is then tightened.

The Flat Trunnions at the lower end of the jib support the Crank Handle, which also passes through Flat Brackets bolted to the Angle Brackets 2 on the Bush Wheel 1. The Cord is fastened to the Crank Handle, and passes over the 2" Rod at the jib head.

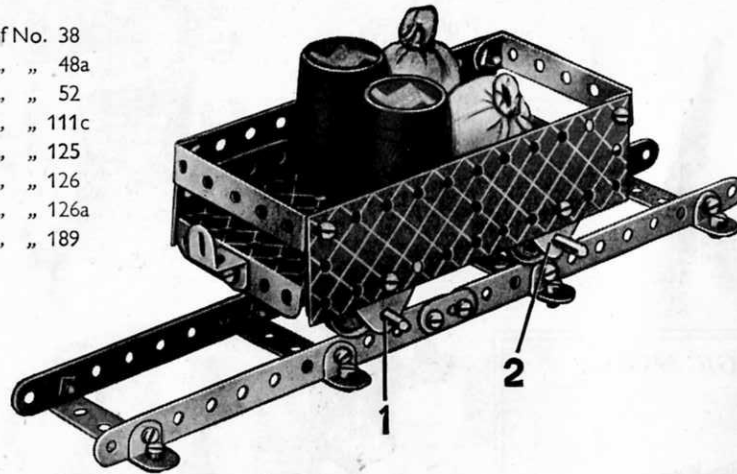


1.41 RAILWAY TRUCK

Parts required

4 of No. 2	4 of No. 38
4 " " 5	2 " " 48a
2 " " 10	1 " " 52
8 " " 12	4 " " 111c
2 " " 16	1 " " 125
4 " " 22	2 " " 126
24 " " 37	2 " " 126a
4 " " 37a	2 " " 189

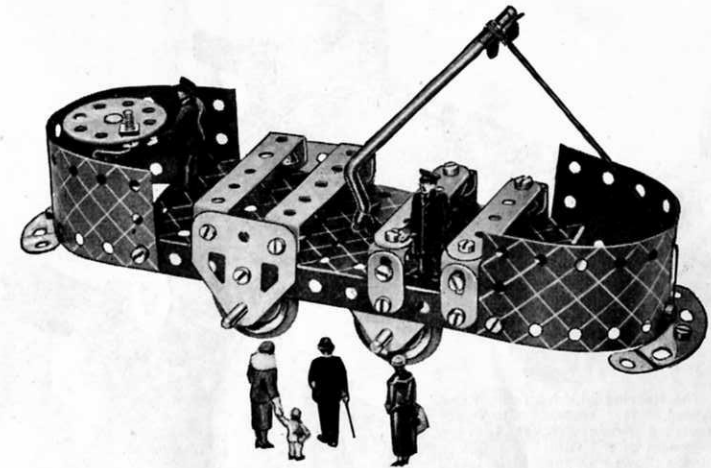
The axle bearings 1 are Flat Trunnions, and Trunnions 2 are used for the bearings 2, which fit underneath the Flanged Plate in the manner shown in the underneath view of the model Side Tipping Wagon (1.M46).



1.42 OPEN TRAMCAR

Parts required

2 of No. 5	1 of No. 40
4 " " 10	2 " " 48a
7 " " 12	1 " " 52
2 " " 16	2 " " 90a
1 " " 19s	4 " " 111c
4 " " 22	1 " " 125
1 " " 24	2 " " 126
4 " " 35	2 " " 126a
24 " " 37	4 " " 155a
3 " " 37a	2 " " 189



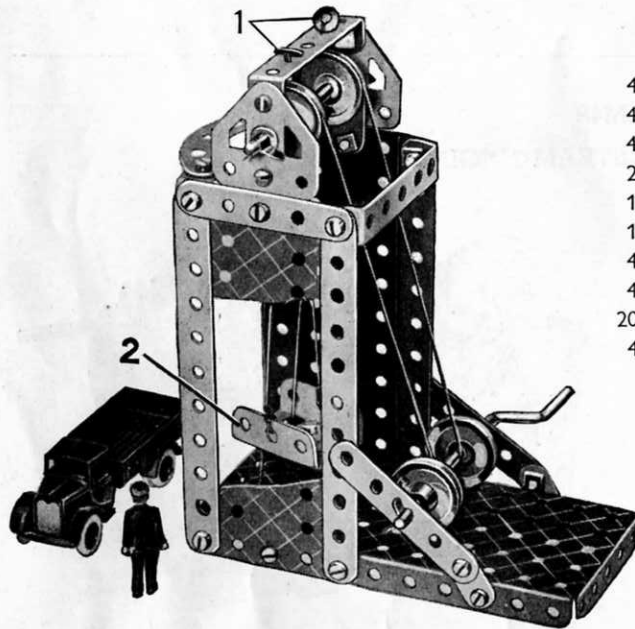
1.43 PITHEAD GEAR

Parts required

4 of No. 2	4 of No. 38
4 " " 5	1 " " 40
4 " " 10	2 " " 48a
2 " " 12	1 " " 52
1 " " 16	1 " " 90a
1 " " 19s	4 " " 111c
4 " " 22	2 " " 126
4 " " 35	2 " " 126a
20 " " 37	2 " " 189
4 " " 37a	

A Cord is taken from each side of the lift cage over the 1" Pulleys and secured to each end of the Crank Handle. The Cords must both be the same length otherwise the lift will tilt.

The two guides for the lift consist of two pieces of Cord fastened to the Washers 1. The Cords are then passed through holes in the Double Angle Strip, through two corresponding holes in the lift cage 2, and then through the two corresponding holes in the Flanged Plate. Two more Washers are tied to the Cords beneath the Flanged Plate to keep the Cords tight. The lift cage 2 is made up of two Trunnions.



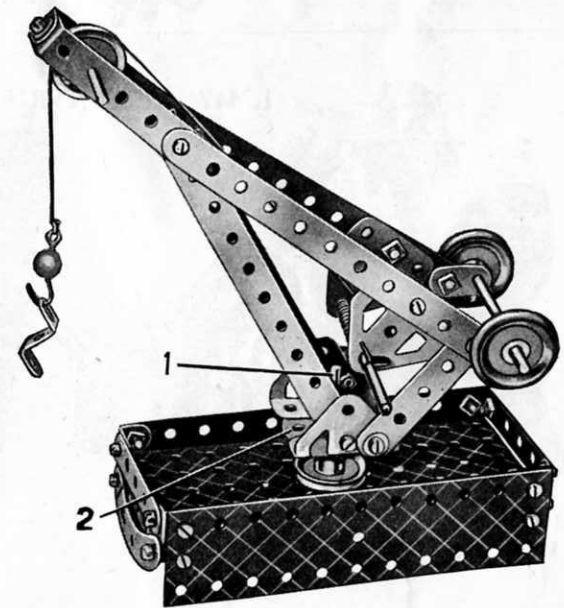
1.44 DOCKSIDE CRANE

Parts required

4 of No. 2	4 of No. 38
4 " " 5	1 " " 40
2 " " 10	2 " " 48a
4 " " 12	1 " " 52
1 " " 16	1 " " 57c
2 " " 17	2 " " 90a
1 " " 19s	4 " " 111c
4 " " 22	1 " " 125
1 " " 24	2 " " 126
4 " " 35	2 " " 126a
24 " " 37	2 " " 155a
4 " " 37a	2 " " 189

The Rod 1 passes through the bosses of the Bush Wheel 2 and the 1" Pulley, and is held in position by a Spring Clip underneath the Flanged Plate. The set screw of the Bush Wheel 2 is tightened on the Rod.

The 5 1/2" Strips that form the jib are extended at the head by 2 1/2" x 1/2" Double Angle Strips, in which a 2" Rod is journaled.



MECCANO No. 1 Outfit Models fitted with the *Magic Motor*

1.M45 ELECTRIC TRUCK

Parts required

2 of No. 2	4 of No. 22
2 " " 5	1 " " 24
4 " " 10	18 " " 37
4 " " 12	2 " " 48a
1 " " 16	1 " " 52
1 " " 17	1 " " 111c
	1 " " 125
	1 " " 126
	1 <i>Magic Motor</i>

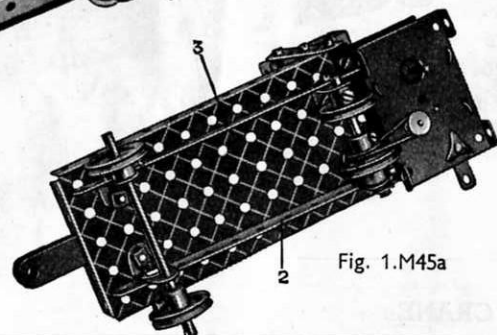
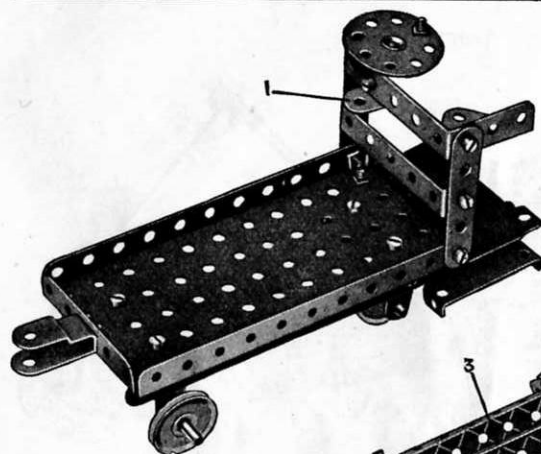


Fig. 1.M45a

The steering wheel, a Bush Wheel, is secured to Reversed Angle Bracket 1 by means of a $\frac{3}{8}$ " Bolt. Fig. 1.M45a shows how the *Magic Motor* is mounted to drive the front wheels. The front wheel axle is journalled in two Flat Brackets bolted to the $5\frac{1}{2}$ " Strips 2 and 3.

1.M46 SIDE TIPPING WAGON

Parts required

3 of No. 2	2 of No. 90a
4 " " 5	4 " " 111c
4 " " 10	1 " " 125
7 " " 12	2 " " 126
2 " " 16	2 " " 126a
1 " " 17	4 " " 155a
4 " " 22	2 " " 189
1 " " 24	1 <i>Magic Motor</i>
24 " " 37	
4 " " 37a	
3 " " 38	
2 " " 48a	
1 " " 52	

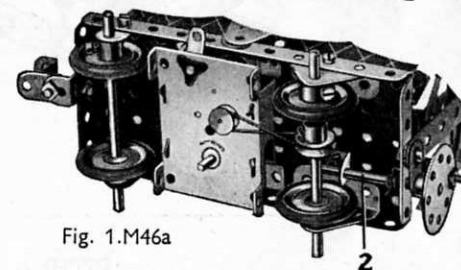
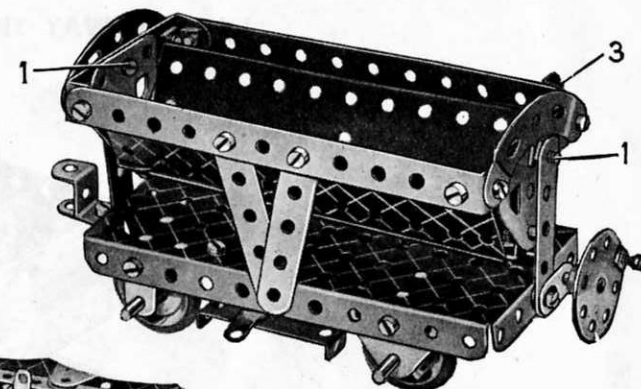
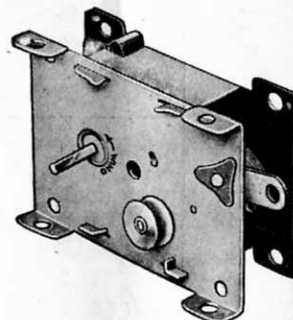


Fig. 1.M46a

Each of the Bolts 1 is lock-nutted. A piece of Cord is fastened to the Rod 2 (Fig. 1.M46a) wrapped round it two or three times, and then is taken through the hole in the Flanged Plate above the Rod and secured to the Angle Bracket 3.

By turning the Bush Wheel the container is tipped sideways.

THE MECCANO MAGIC MOTOR



The greatest thrill in Meccano model-building is experienced when a model is set to work by means of a Meccano *Magic Motor*. The illustrations on this page show how the *Magic Motor* can be fitted without any difficulty to No. 1 Outfit models of various types. Fit the model you have just built with one of these wonderful Motors, and enjoy the fun of watching it work just like the real thing!

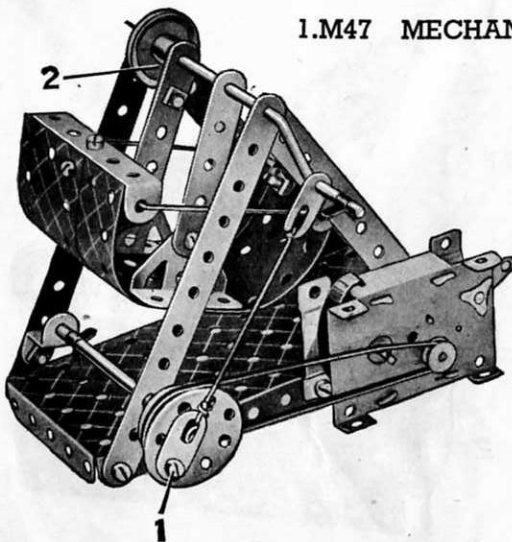
The left-hand $2\frac{1}{2}$ " Strip that supports the swing is connected to the Crank Handle by passing the set screw of the 1" Pulley Wheel 2 through the hole in an Angle Bracket bolted to the Strip and then into the boss of the Pulley. Bolt 1 on the Bush Wheel is fitted with lock-nuts.

The Bolts 1 are lock-nutted. The Rod 2 is secured to an Angle Bracket by means of two Spring Clips 3. The model is driven by a *Magic Motor* bolted to the $5\frac{1}{2}$ " x $2\frac{1}{2}$ " Flanged Plate. The pulley of the Motor is connected to a 1" fast Pulley on the crankshaft of the engine by a Driving Band.

1.M47 MECHANICAL SWING

Parts required

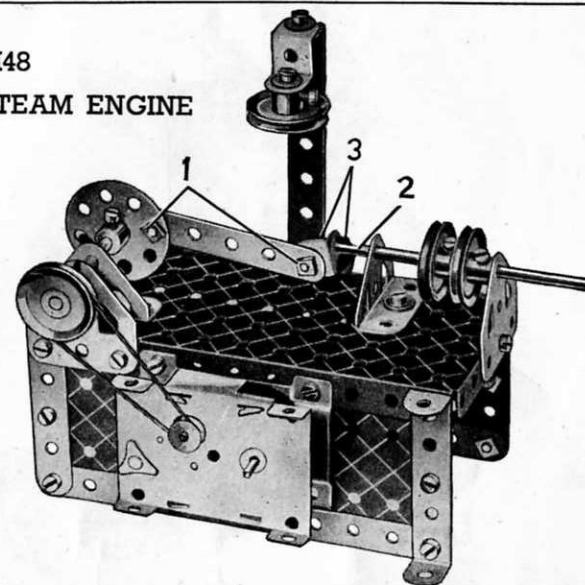
4 of No. 2
2 " " 5
2 " " 10
3 " " 12
1 " " 16
1 " " 19s
2 " " 22
1 " " 24
4 " " 35
15 " " 37
2 " " 37a
4 " " 38
1 " " 40
2 " " 48a
1 " " 52
1 " " 111c
1 " " 125
2 " " 126
2 " " 189
1 <i>Magic Motor</i>



1.M48 HORIZONTAL STEAM ENGINE

Parts required

3 of No. 2
4 " " 5
2 " " 12
1 " " 16
1 " " 17
4 " " 22
1 " " 24
4 " " 35
24 " " 37
2 " " 37a
3 " " 38
1 " " 48a
1 " " 52
1 " " 111c
1 " " 125
2 " " 126
2 " " 126a
2 " " 189
1 <i>Magic Motor</i>



MECCANO MOTORS FOR OPERATING MECCANO MODELS

If you want to obtain the fullest enjoyment from the Meccano hobby you should operate your models by means of one of the Meccano Motors described on this page. You push over the control lever of the clockwork or electric Motor and immediately your Crane,

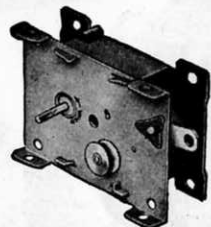
Motor Car, Ship Coaler or Windmill commences to work in exactly the same manner as its prototype in real life.

Each Motor is pierced with the standard Meccano equidistant holes.

MECCANO CLOCKWORK MOTORS

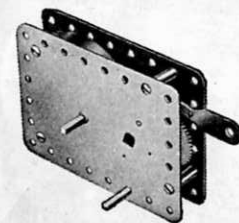
These are the finest clockwork motors obtainable for model driving. They have exceptional power and length of run and their gears are cut with such precision as to make them perfectly smooth and steady in operation.

Meccano Clockwork Motors are especially suitable for small models built with a limited range of parts. They are extremely simple to operate and have the advantage of being self contained.



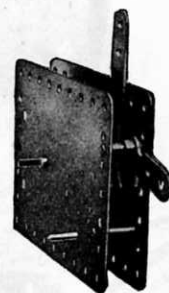
THE MECCANO MAGIC MOTOR

The Meccano *Magic* Motor is well designed and strongly constructed, and is fitted with a powerful spring giving a long and steady run. It is non-reversing. Each *Magic* Motor is supplied with a separate $\frac{1}{4}$ " fast Pulley and three pairs of Driving Bands of different lengths. It is capable of driving all light models built with the smaller Outfits.



No. 1 Clockwork Motor

This strongly built and efficient Motor is fitted with a powerful spring that gives a long and steady run, and is exceptionally smooth in action. The Motor is provided with a conveniently-placed brake lever by means of which it can be started and stopped. The Motor is of the non-reversing type.



No. 2 Clockwork Motor.

No. 1a Clockwork Motor

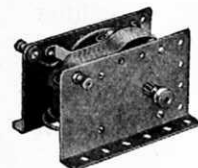
This Motor is more powerful than the No. 1 Motor and is fitted with reversing motion. It has brake and reverse levers.

No. 2 Clockwork Motor

This is a Motor of super quality. Brake and reverse levers enable it to be started, stopped or reversed, as required.

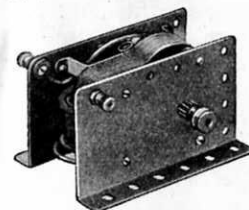
MECCANO ELECTRIC MOTORS

The four Meccano Electric Motors shown here have been designed specially to provide smooth-running power units for the operation of Meccano models. The 6-volt Motors may be operated through a Meccano Transformer direct from the mains, providing that the supply is alternating current, or from a 6-volt accumulator. The 20-volt Motors are operated through a 20-volt Transformer from alternating current supply mains.



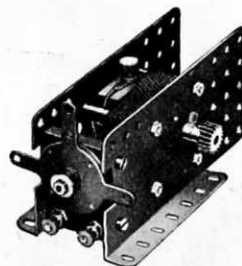
No. E1 Electric Motor (6 volt)

This is a highly efficient Motor (non-reversing) that will give excellent service. It can be operated through a 9-volt Meccano Transformer from the mains, providing that the supply is alternating current, or from a 6-volt accumulator.



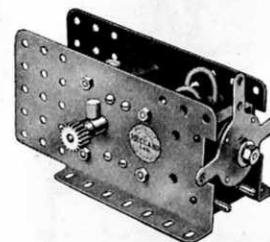
No. E120 Electric Motor (20 volt)

The E120 Electric Motor is a very reliable and smooth-running power unit. It is operated through a Meccano 20-volt Transformer from alternating current supply mains. Non-reversing.



No. E6 Electric Motor (6 volt)

This fine Motor is fitted with reversing motion and provided with stopping and starting controls. It can be operated through a 9-volt Meccano Transformer from the mains, providing that the supply is alternating current, or from a 6-volt accumulator.



No. E20b Electric Motor (20 volt)

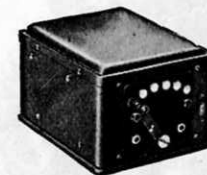
This 20-volt Electric Motor is an extremely efficient power unit, fitted with reversing motion and provided with stopping and starting controls. It is operated through a Meccano 20-volt Transformer from alternating current supply mains.

MECCANO TRANSFORMERS

There are six Transformers in the series, as described below, all of which are available for the following A.C. supplies :—100/110 volts, 50 cycles ; 200/225 volts, 50 cycles ; 225/250 volts, 50 cycles. Any of the Transformers can be specially wound for supplies other than these at a small extra charge. When ordering a Transformer the voltage and frequency of the supply must always be stated.



No. T20A Transformer



No. T6 Transformer

FOR 20-volt ELECTRIC MOTORS

No. T20A TRANSFORMER (Output 35 VA at 20 $\frac{1}{2}$ volts). Has two separate circuits at 20 volts, one of which is controlled by a 5-stud speed regulator, and a third circuit at 3 $\frac{1}{2}$ volts for lighting up to 14 lamps.

No. T20 TRANSFORMER (Output 20 VA at 20 volts). Has one 20-volt circuit controlled by a 5-stud speed regulator.

No. T20M TRANSFORMER (Output 20 VA at 20 volts). This Transformer is provided with one 20-volt circuit, but is not fitted with speed regulator.

FOR 6-volt ELECTRIC MOTORS

No. T6A TRANSFORMER (Output 40 VA at 9 $\frac{1}{2}$ volts). Has two separate circuits at 9 volts, one of which is controlled by a 5-stud speed regulator, and a third circuit at 3 $\frac{1}{2}$ volts for lighting up to 18 lamps.

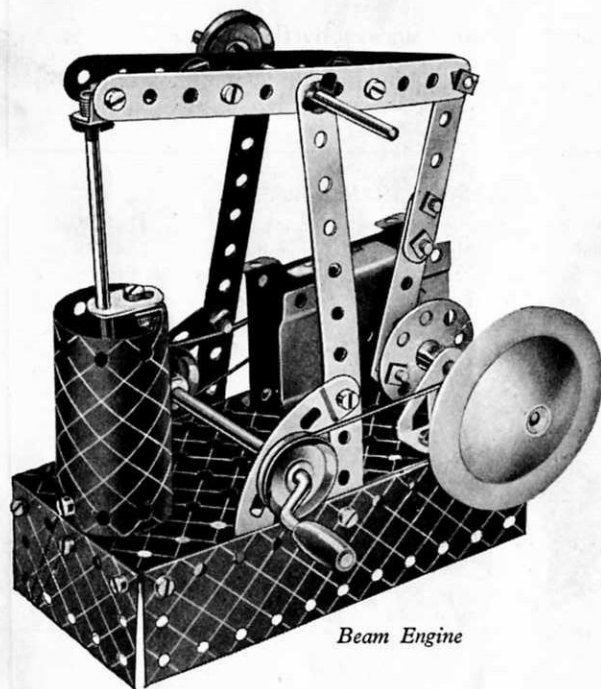
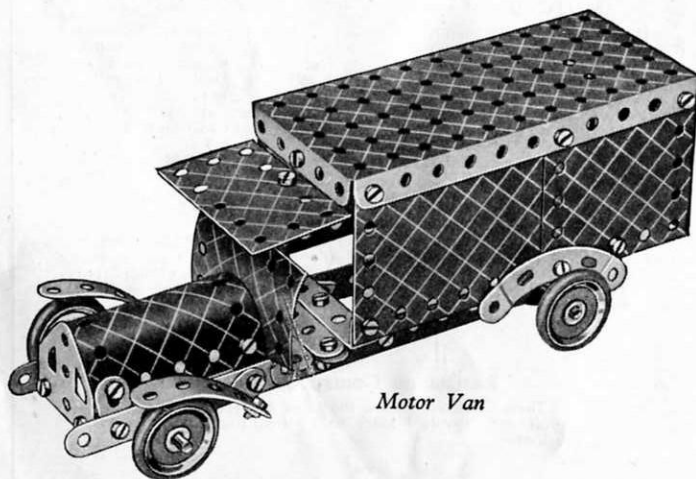
No. T6 TRANSFORMER (Output 25 VA at 9 volts). Has one 9-volt circuit and is fitted with a 5-stud speed regulator.

No. T6M TRANSFORMER (Output 25 VA at 9 volts). Has one 9-volt circuit, but is not fitted with a speed regulator.

Resistance Controllers

These Controllers allow the speed of Meccano 6-volt and 20-volt Motors to be regulated as desired.

Ask your dealer for the latest Meccano Price List

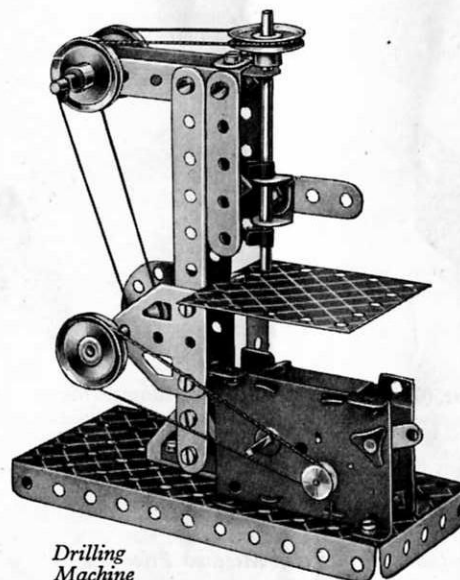
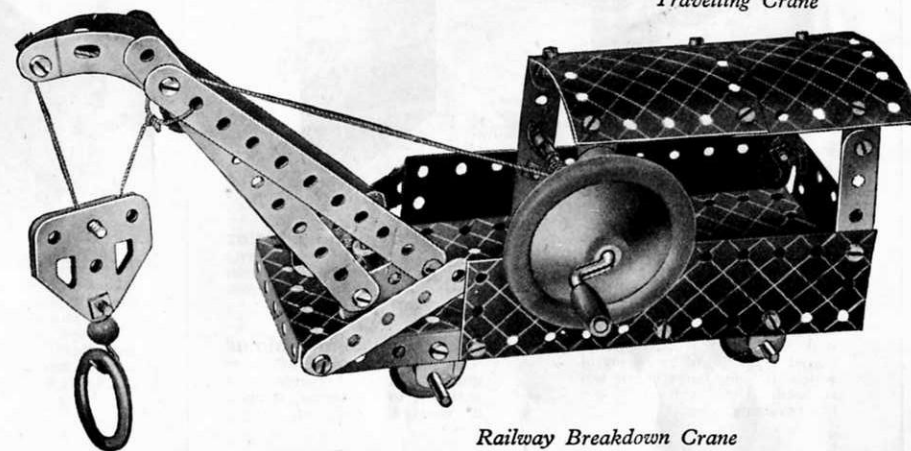
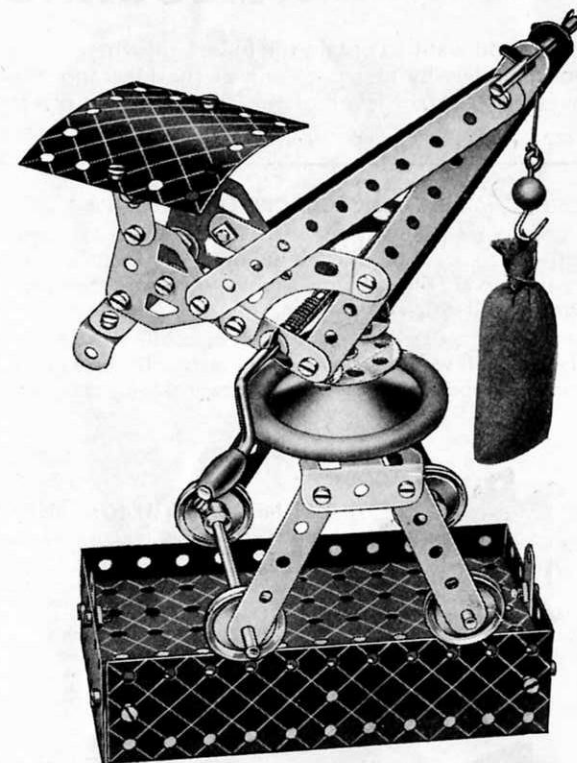
*Beam Engine**Motor Van*

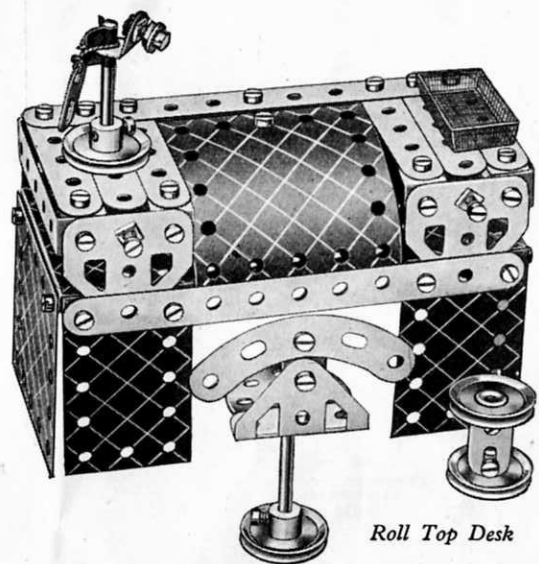
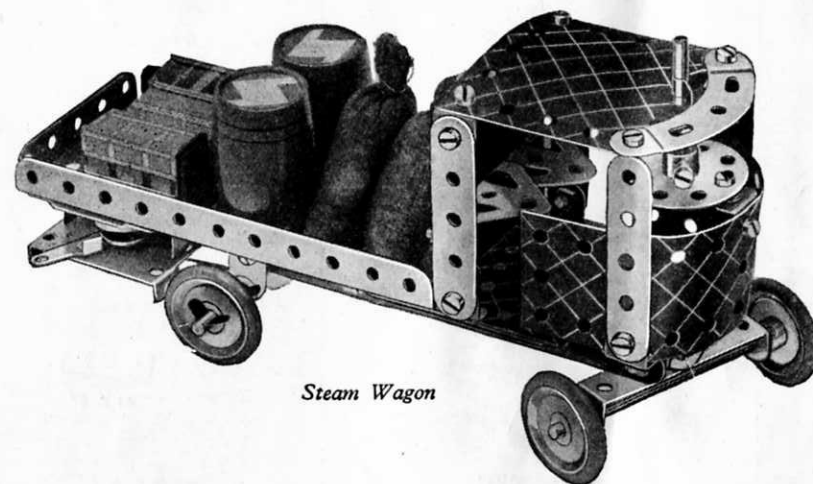
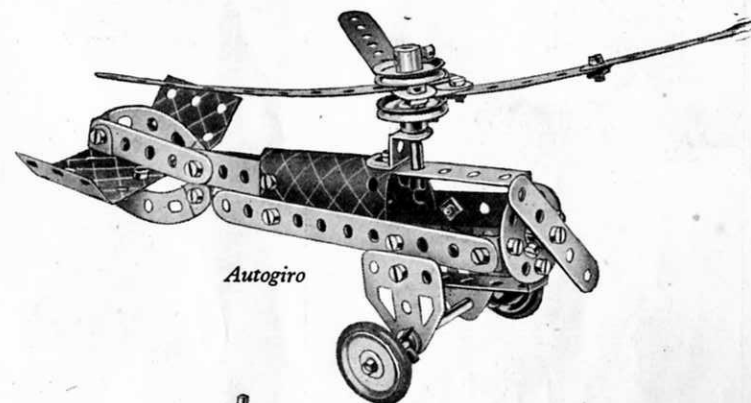
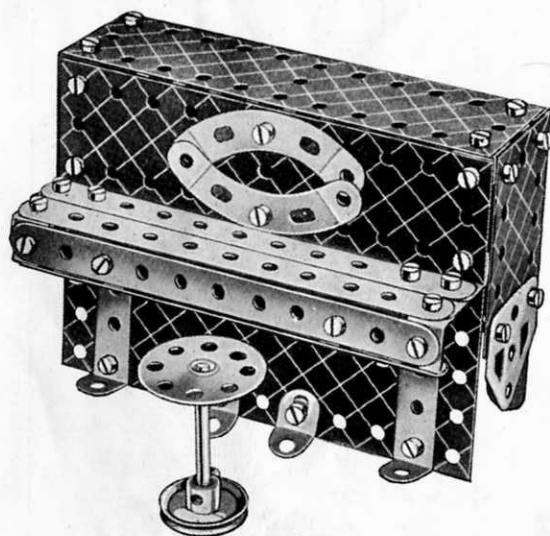
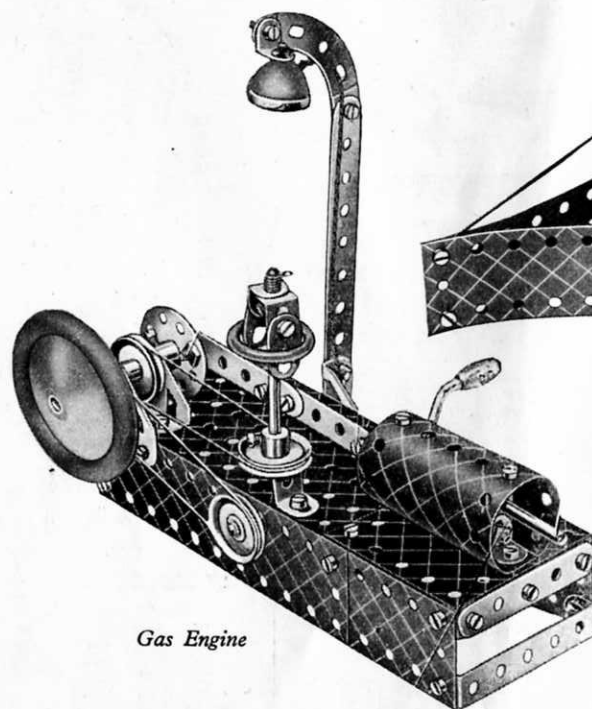
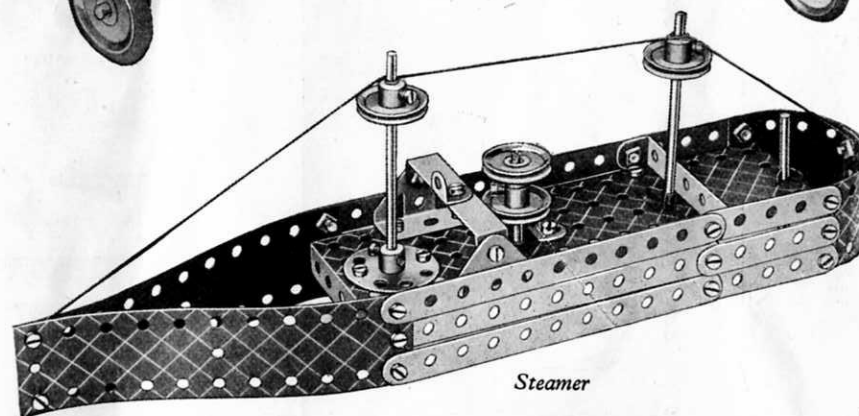
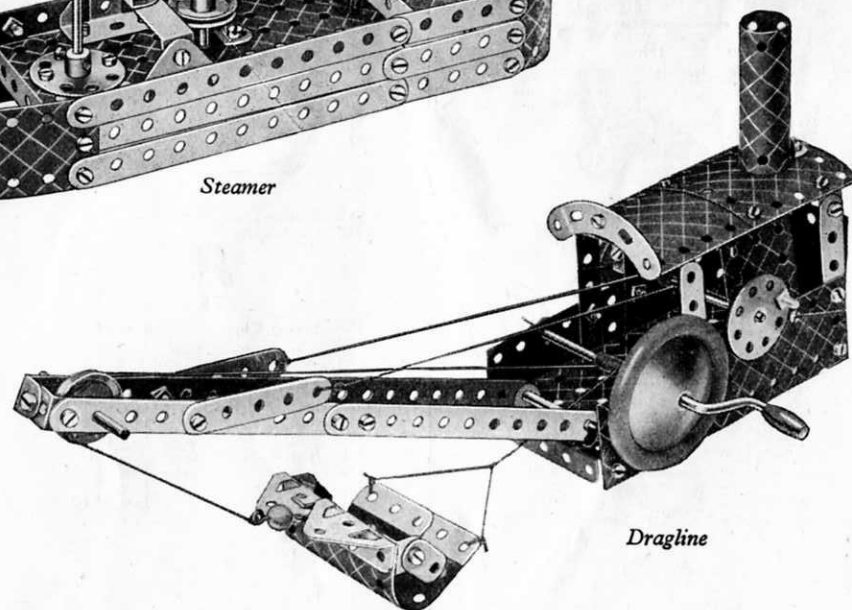
BUILD BIGGER AND BETTER MODELS

When you have built all the models shown in this Manual you will be keen to build bigger and more elaborate models. Your next step is to purchase a Meccano No. 1a Accessory Outfit containing all the parts required to convert your No. 1 into a No. 2 Outfit. You will then be able to build the full range of No. 2 Outfit models, a selection of which is illustrated on this page and opposite.

If you prefer to do so, you can build up and develop your Outfit quite easily by adding various parts to it from time to time. The model-building possibilities of the Meccano System are limitless, and the more Meccano parts you have the bigger and better the models you will be able to build.

Ask your dealer to post to you regularly the latest Meccano parts lists and other Meccano literature.

*Drilling Machine**Railway Breakdown Crane**Travelling Crane*

*Roll Top Desk**Steam Wagon**Autogiro**Piano**Gas Engine**Steamer**Dragline*

MECCANO PARTS



3 Perforated Strips

No.	12"	No.	3 1/2"
1.	9 1/2"	3.	3 1/2"
1a.	9 1/2"	4.	3 1/2"
1b.	7 1/2"	5.	2 1/2"
2.	5 1/2"	6.	2 1/2"
2a.	4 1/2"	6a.	1 1/2"

9a Angle Girders

No.	24 1/2"	No.	4 1/2"
7.	24 1/2"	9a.	4 1/2"
7a.	18 1/2"	9b.	3 1/2"
8.	12 1/2"	9c.	3 1/2"
8a.	9 1/2"	9d.	2 1/2"
8b.	7 1/2"	9e.	2 1/2"
9.	5 1/2"	9f.	1 1/2"



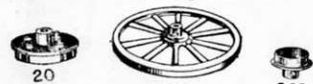
10. Flat Brackets
11. Double Brackets
12. Angle Brackets, $\frac{1}{2} \times \frac{1}{2}$
12a. " " " " " " " "
12b. " " " " " " " "
12c. Obtuse Angle Brackets, $\frac{1}{2} \times \frac{1}{2}$

Axle Rods

No.	11 1/2"	No.	3 1/2"
13.	8 1/2"	16.	3 1/2"
13a.	8 1/2"	16a.	2 1/2"
14.	6 1/2"	16b.	3 1/2"
15.	5 1/2"	17.	2 1/2"
15a.	4 1/2"	18a.	1 1/2"
15b.	4 1/2"	18b.	1 1/2"

19h

- 19g. Crank Handles $3 \frac{1}{2}$ " with Erinoid grip
19h. " " " " " " " "
19s. " " " " " " " "



- 19a. Wheels, 3" diam., with set-screws
20. Flanged Wheels, $1 \frac{1}{2}$ " diam.
20b. " " " " " " " "



Pulley Wheels

- 19b. 3" dia. with centre boss & set-screw
19c. 6" " " " " " "
20a. 2" " " " " " "
21. 1 1/2" " " " " " "
22. 1" " " " " " "
23a. 1" " " " " " "
22a. 1" " without " " and grub-screw
23. 1/2" " " " " " "

24. Bush Wheels



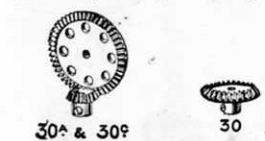
25. Pinion Wheels, 3" diam., " face
25a. " " " " " " "
25b. " " " " " " "
26. " " " " " " "
26a. " " " " " " "
26b. " " " " " " "



27. Gear Wheels
27a. 50 teeth to gear with 1" pinion
27b. 133 " " " " " " " "
27c. 95 " " " " " " " " (3 1/2" diam.) (2 1/2" diam.)



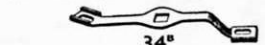
28. Contrate Wheels, $1 \frac{1}{2}$ " diam.
29. " " " " " " "



30. Bevel Gears, 7" 26 teeth
30a. " " " " " " " " " " " " " "
30b. " " " " " " " " " " " " " "
30c. " " " " " " " " " " " " " " (Can only be used together)



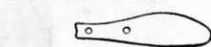
31. Gear Wheels, 1", 38 teeth
32. Worms



34. Spanners
34b. Box Spanners

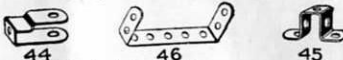


35. Spring Clips box of 20
35s. " " box of 60
36. Screwdrivers
36a. " Extra Long
36b. " Special
37. Nuts and Bolts, 3/16" box of 12
37a. Nuts " " box of 50
37b. Bolts, 3/16" " box of 50
37f. Nuts and Bolts, 1/4" " " "
37g. " " " " " "
37h. " " " " " "
38. Washers " " box of 144
38s. " " box of 20
40. Hanks of Cord



41. Propeller Blades

43. Springs



44. Cranked Bent Strips
45. Double
46. Angle Strips, $2 \frac{1}{2} \times 1$
47. " " " " " "
47a. " " " " " "
48. " " " " " "
48a. " " " " " "
48b. " " " " " "
48c. " " " " " "
48d. " " " " " "



- 50a. Eye Pieces, with boss



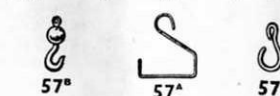
51. Flanged Plates, $2 \frac{1}{2} \times 1 \frac{1}{2}$
52. " " " " " " "
52a. Flat Plates, $5 \frac{1}{2} \times 2 \frac{1}{2}$
53. Flanged Plates, $3 \frac{1}{2} \times 2 \frac{1}{2}$
53a. Flat Plates, $4 \frac{1}{2} \times 2 \frac{1}{2}$



- 54a. Flanged Sector Plates, $4 \frac{1}{2}$ " long



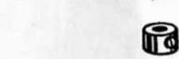
55. Perforated Strips, slotted, $5 \frac{1}{2}$ " long
55a. " " " " " " "



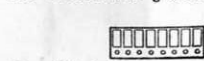
57. Hooks
57a. " Scientific
57b. " Loaded, Large
57c. " Loaded, Small



58. Spring Cord, 40" Length
58a. Coupling Screws for Spring Cord
58b. Hooks for Spring Cord



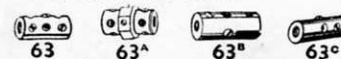
59. Collars with grub-screws



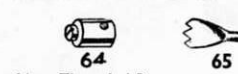
61. Windmill Sails



62. Cranks
62a. Threaded Cranks
62b. Double Arm Cranks



63. Couplings
63a. Octagonal Couplings
63b. Strip Couplings
63c. Threaded Couplings

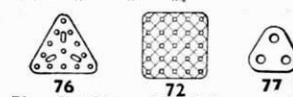


64. Threaded Bosses
65. Centre Forks

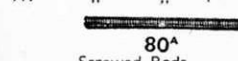


66. Weights, 50 grammes

67. Woodscrews, $\frac{1}{2}$ "
68. Set Screws
69a. Grub Screws, $\frac{1}{8}$ "
69b. " " " "
69c. " " " "



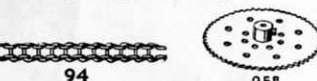
70. Flat Plates, $5 \frac{1}{2} \times 2 \frac{1}{2}$
71. " " " " " " "
72. " " " " " " "
73. " " " " " " "
76. Triangular Plates, $2 \frac{1}{2}$ "
77. " " " " " " "



- 80a. Screws
80b. 4 1/2"
80c. 3"
80d. 2"
80e. 1"



89. 5 1/2" Curved Strips, 10" radius
89a. 3" " " cranked, 1 1/2" radius
89b. 4" Curved Strips cranked, 4 1/2" radius, 8 to circle
90. 2 1/2" Curved Strips, 2 1/2" radius
90a. 2 1/2" " " cranked, 1 1/2" radius, 4 to circle



94. Sprocket Chain, per 40" length
95. " Wheels, 36 teeth, 2" diam.
95a. " " " " " " "
95b. " " " " " " "
96. " " " " " " "
96a. " " " " " " "



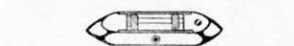
103. Flat Girders
103a. 5 1/2" long 103b. 3" long
103c. 9 1/2" long 103d. 2 1/2" long
103e. 12 1/2" long 103f. 2 1/2" long
103g. 4 1/2" long 103h. 1 1/2" long
103i. 3 1/2" long 103j. 7 1/2" long



101. Healds, for looms
102. Single Bent Strips



104. Reed Hooks, for looms
105. Shuttles, for looms
106. Wood Rollers
106a. Sand Rollers
107. Tables for designing machines



106. Wood Rollers
106a. Sand Rollers
107. Tables for designing machines



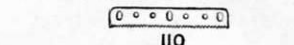
110. Rack Strips, $3 \frac{1}{2}$ " long
110a. " " " " " " "
111. Bolts, $\frac{1}{2}$ "
111a. " " " " " " "
111c. " " " " " " "



108. Architraves
109. Face Plates, $2 \frac{1}{2}$ " diam.



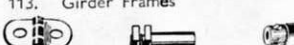
113. Girder Frames



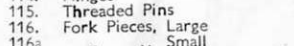
114. Hinges
115. Threaded Pins
116. Fork Pieces, Large
116a. " " Small
117. Steel Balls, $\frac{3}{8}$ " diam.



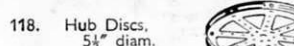
118. Hub Discs, $5 \frac{1}{2}$ " diam.



61. Windmill Sails



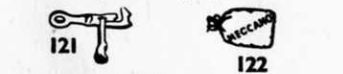
61. Windmill Sails



61. Windmill Sails

MECCANO PARTS

- No. 120. Buffers
120a. Spring Buffers
120b. Compression Springs



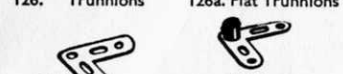
121. Train Couplings
122. Miniature Loaded Sacks



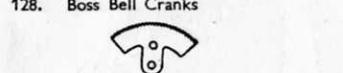
123. Cone Pulleys
124. Reversed Angle Brackets, 1"
125. " " " "



126. Trunnions
126a. Flat Trunnions



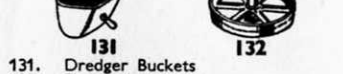
127. Simple Bell Cranks
128. Boss Bell Cranks



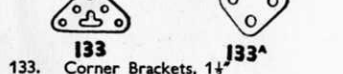
129. Rack Segments, 3" diam.



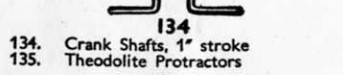
130. Eccentrics, Triple Throw



131. Dredger Buckets
132. Flywheels, 2½" diam.



133. Corner Brackets, 1½"
133a. " " " "



134. Crank Shafts, 1" stroke
135. Theodolite Protractors



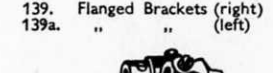
136. Handrail Supports
136a. Handrail Couplings
137. Wheel Flanges



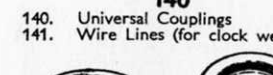
- No. 138. Ships' Funnels
†138a-z. " " Raked



139. Flanged Brackets (right)
139a. " " (left)



140. Universal Couplings
141. Wire Lines (for clock weights)



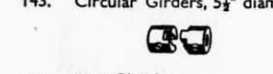
142. Rubber Rings, 3" rim
142a. Motor Tyres (to fit 2" diam. rims)
142b. " " " 3"
142c. " " " 1"
142d. " " " 1½"



143. Circular Girders, 5½" diam.



144. Dog Clutches



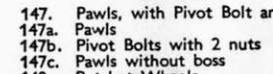
145. Circular Strips, 7½" diam. overall
146. " Plates, 6" " "
146a. " " 4" " "



147. Pawls, with Pivot Bolt and Nuts
147a. Pawls
147b. Pivot Bolts with 2 nuts
147c. Pawls without boss
148. Ratchet Wheels



149. Collecting Shoes for Electric Locos
150. Crane Grabs



151. Pulley Blocks, Single Sheave
152. " " Two
153. " " Three



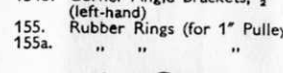
- 154a. Corner Angle Brackets, ½"
(right-hand)
154b. Corner Angle Brackets, ½"
(left-hand)
155. Rubber Rings (for 1" Pulleys) Black
155a. " " " White



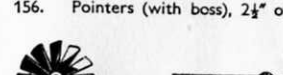
156. Pointers (with boss), 2½" overall



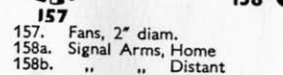
157. Fans, 2" diam.
158a. Signal Arms, Home
158b. " " Distant



159. Channel Bearings, 1½" x 1" x ½"
160. Girder Brackets, 2" x 1" x ½"



161. Boilers, complete, with ends
162a. " " Ends
162b. " " without ends
163. Sleeve Pieces
164. Chimney Adaptors



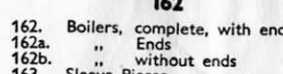
165. Swivel Bearings
166. End " "



167. Geared Roller Bearings
167a. Roller Races, geared, 192 teeth
167b. Ring Frames for Rollers
167c. Pinions for Roller Bearings (16 teeth)



169. Digger Buckets



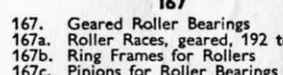
171. Eccentrics, ½" throw
172. Socket Couplings



173. Pendulum Connections
174. Rail Adaptors



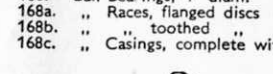
175. Grease Cups



177. Flexible Coupling Units



181. Ball Bearings, 4" diam.
182a. " Races, flanged discs
182b. " " toothed
182c. " Casings, complete with balls



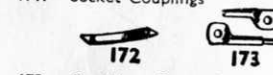
183. Lamp Holders
184a. 2½-volt Lamps
184b. 3½ " " "



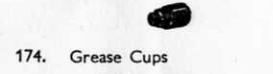
185. Steering Wheels, 1½" diam.
186. Driving Bands, 3" diam. (Light)
186a. " " 6" " "
186b. " " 10" " "
186c. " " 10" " " (Heavy)
186d. " " 15" " "
186e. " " 20" " "



187. Road Wheels



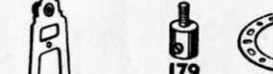
189. Flexible Plates, 2½" x 1½"
189. 5½" x 1½"
190. 2½" x 2½"
191. 4½" x 2½"
192. 5½" x 2½"



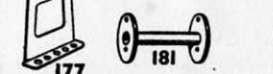
193. Strip Plates, 2½" x 2½"
194. 3½" x 2½"
195. 5½" x 2½"
196. 9½" x 2½"
197. 12½" x 2½"



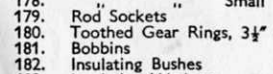
198. Hinged Flat Plates, 4½" x 2½"
199. Curved Plates, U-Section 2½" x 2½" x ⅛"
200. " " 2½" x 2½", 1½" radius



201. Lamps with Flex (3½ volts)
202. Angle Brackets (for Headlamps)
203. Headlamps
203a. Headlamp Rims
203b. " Bodies
204. " Nuts
205. " Glasses



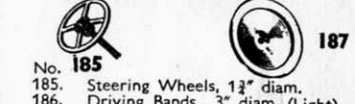
206. Lampshades
207. Lamp Bases
207a. Lamp with Standard and Flex
208. Battery Tags and Studs
208a. Washers for Battery Studs
210. Nuts for Battery Studs



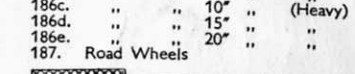
- 211a. Helical Gear ½"
211b. " " 1½" { Can only be used together



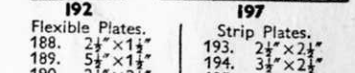
212. Rod and Strip Connectors
213. Rod Connectors



216. Cylinders, 2½"



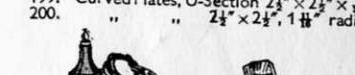
- 217a. Discs, 1½"
217b. Discs ½"



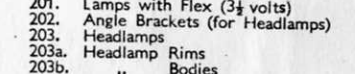
218. Semi-Circular Plates 2½"
219. Formed Slotted Strips 3"



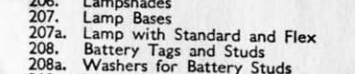
220. " " " "



221. " " " "



222. " " " "



223. " " " "



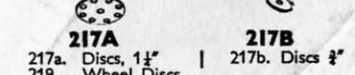
224. " " " "



225. " " " "



226. " " " "



227. " " " "



HORNBY SCALE MODEL OF
"Princess Elizabeth" -
 MIGHTY L.M.S.R. WORLD
 RECORD-BREAKER

**FITTED WITH 20-VOLT
 AUTO-REVERSING MOTOR**

Four hundred miles non-stop from Glasgow to London at an average of 70 m.p.h., with a 260-ton load !
 This remarkable feat was performed by L.M.S.R. Locomotive
"Princess Elizabeth" in charge of Driver T. J. Clarke, and it set up
 a world record.

Think of the thrill of owning a model of such an engine ; not merely a perfect reproduction in miniature, but one having the same qualities of power, speed and efficiency ! This is now made possible by the latest product of Meccano Limited—the magnificent Hornby scale model locomotive *"Princess Elizabeth"* illustrated above, driven by a 20-volt electric motor, and fitted with the Hornby Remote Control.

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