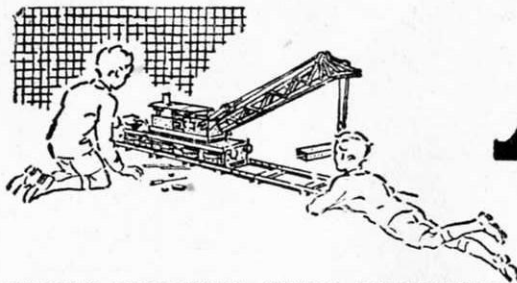


MECCANO

INSTRUCTIONS FOR
No. 1 OUTFIT

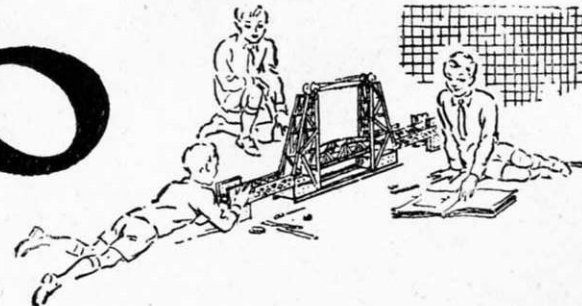
No.
41.1





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

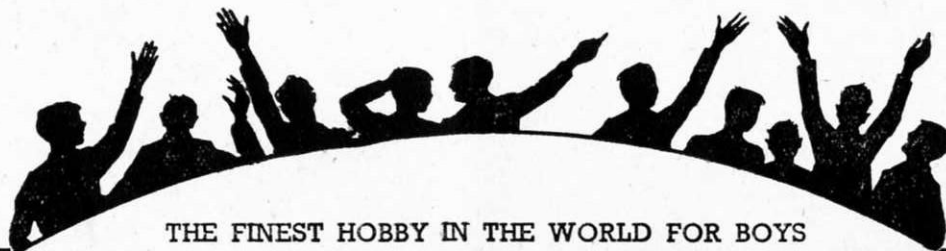
Every owner of a Meccano Outfit should join the Meccano Guild. This is a world-wide organisation, started at the request of Meccano boys. Its primary object is to bring boys together and to make them feel that they are all members of a great brotherhood, each trying to help others to get the very best 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

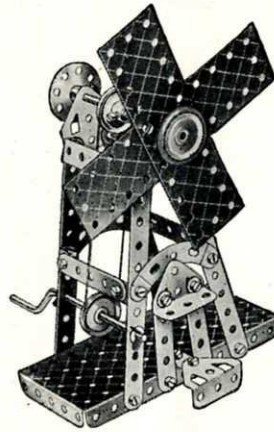
THE MOST FASCINATING OF ALL HOBBIES

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

ing structures in opportunities for So he acquires

s can be started in different ways, the following hints commencing the fun.

ual of Instructions is given a list is a good plan to lay out on the d, and put the remainder of the parts for your model a complete all the principal parts are illus-cases their measurements are find out which is which, as the o holes are spaced $\frac{1}{2}$ " apart, so can be found at once. For look in your Outfit for a Strip Plate, so you look for a Flexible e time a few models have been



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.

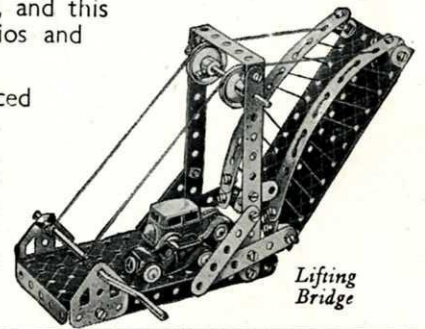
MOTORS AND GEARING

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

IMPORTANT

Wartime conditions and restrictions have made necessary certain alterations in the introductory page of this Manual. The most important are the following:—

The Meccano Lighting Set has been withdrawn, but the models shown with lighting arrangements can readily be built with only slight changes.

The Aeroplane and Motor Car Constructor Outfits also are withdrawn, and the miniature pilots and drivers shown in certain models are no longer available.

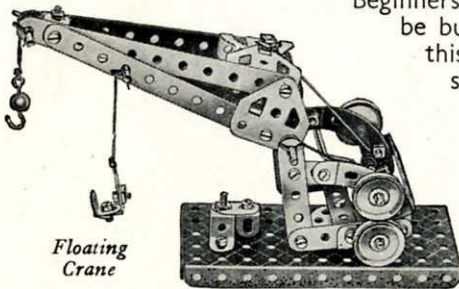
The Meccano Plates (Flanged, Flat, Curved, etc.,) are shown in the Manuals with diagonal lines. On the new Meccano Plates these lines are omitted.

The only Meccano Motor at present available is the "MAGIC" Clockwork Motor. It is not included in Outfits.

MECCANO LIMITED

built the names of the parts will have become familiar.

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 $5\frac{1}{2}$ " x $2\frac{1}{2}$ " 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.



Floating Crane

HOW TO COMMENCE THE FUN

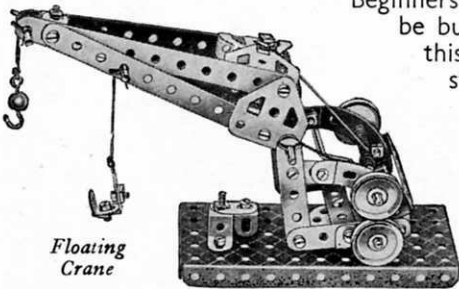
THE MOST FASCINATING OF ALL HOBBIES

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.

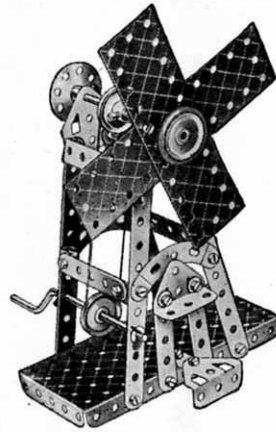
A FEW USEFUL HINTS

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 a 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

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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.

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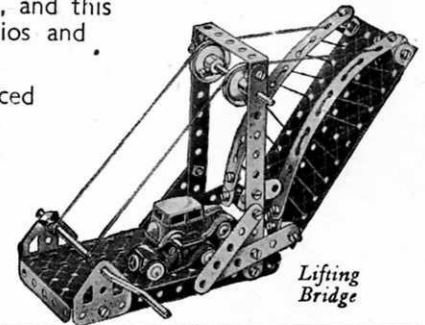
MOTORS AND GEARING

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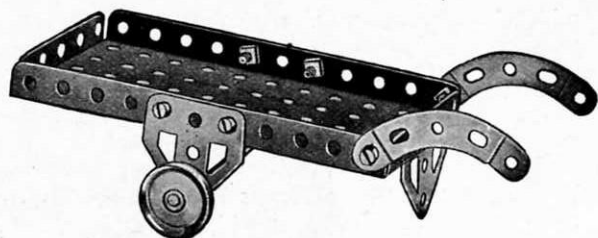
The Electric Motors have the advantage of giving long continuous runs. Their speed is much higher than that of the Clockwork Motors, and this makes it possible to employ higher reduction ratios and thus obtain greater power.

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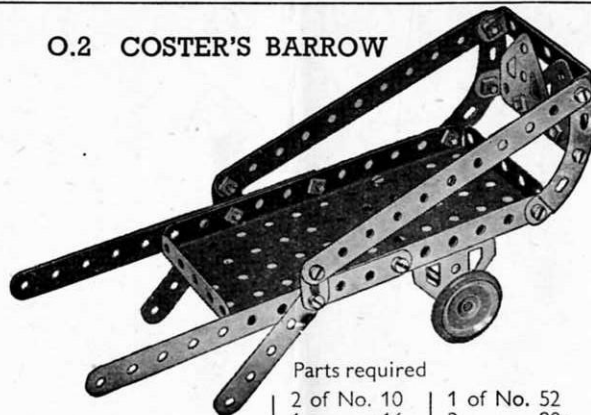
Lifting
Bridge

O.1 HAND CART



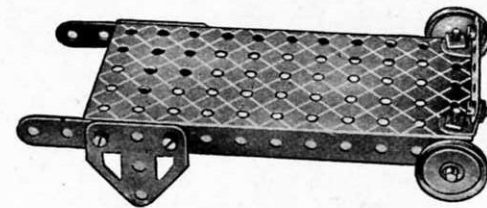
Parts required		
1 of No. 16	1 of No. 52	2 of No. 126a
2 " " 22	2 " " 90a	2 " " 155a
8 " " 37	1 " " 126	

O.2 COSTER'S BARROW



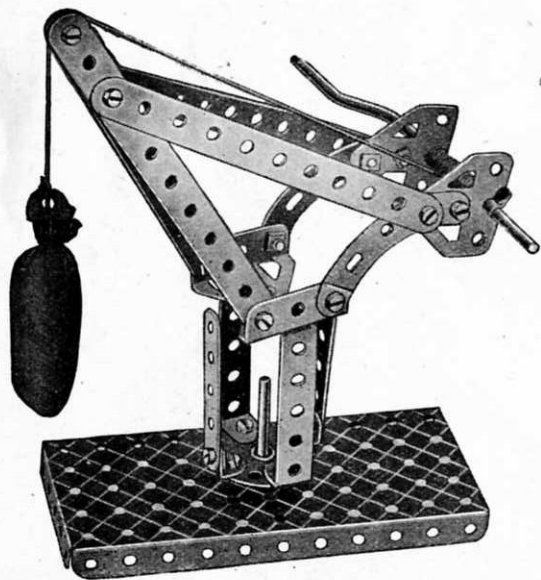
Parts required		
2 of No. 10	1 of No. 52	
1 " " 16	2 " " 90a	
2 " " 22	2 " " 126	
16 " " 37	2 " " 126a	
2 " " 48a	2 " " 155a	
4 of No. 2		
2 " " 5		

O.3 FLAT TRUCK



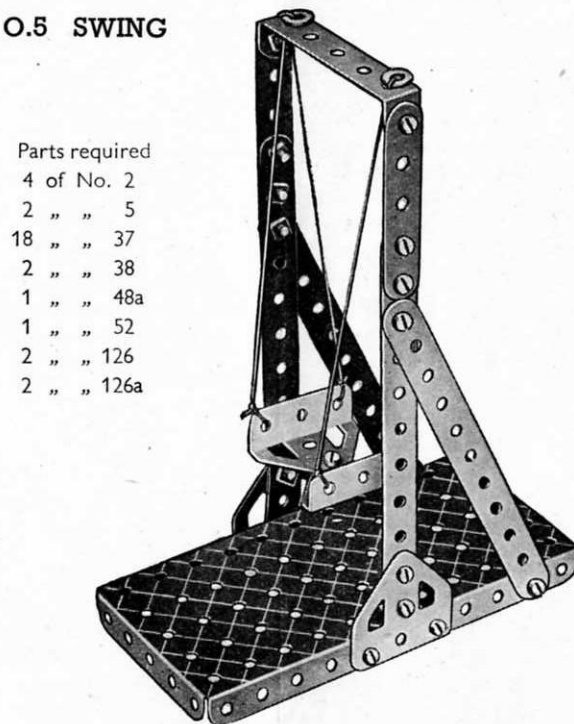
Parts required		
2 of No. 5	2 of No. 22	1 of No. 90a
2 " " 12	8 " " 37	2 " " 126a
1 " " 16	1 " " 52	2 " " 155a

O.4 DOCKSIDE CRANE



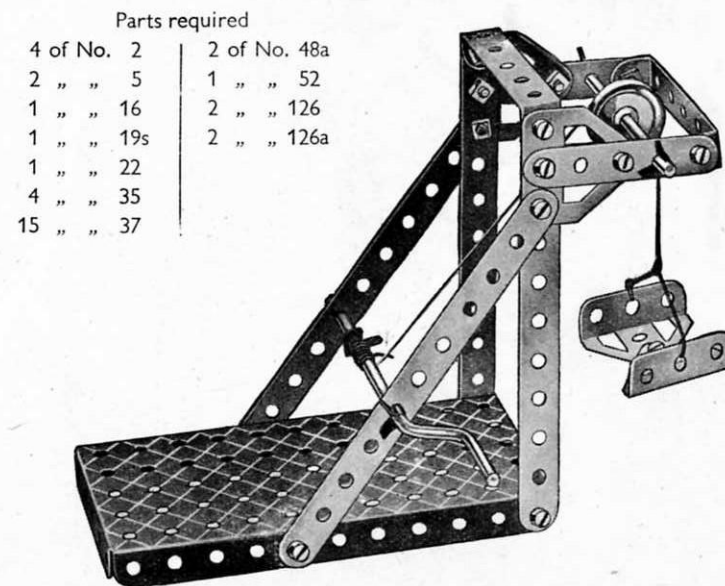
Parts required	
4 of No. 2	
2 " " 5	
3 " " 12	
1 " " 17	
1 " " 19s	
1 " " 22	
1 " " 24	
2 " " 35	
18 " " 37	
2 " " 37a	
2 " " 38	
2 " " 48a	
1 " " 52	
2 " " 90a	
2 " " 111c	
2 " " 126	
2 " " 126a	

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	

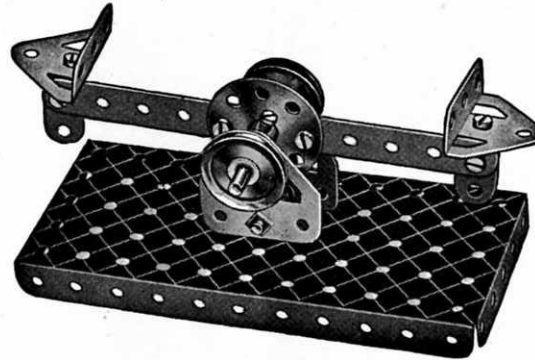
O.7 GARDEN SEAT



Parts required

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

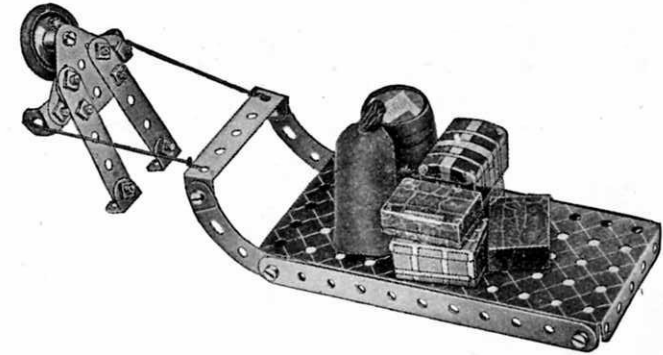
O.8 COUNTER SCALES



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 ESKIMO BOY AND SLEDGE



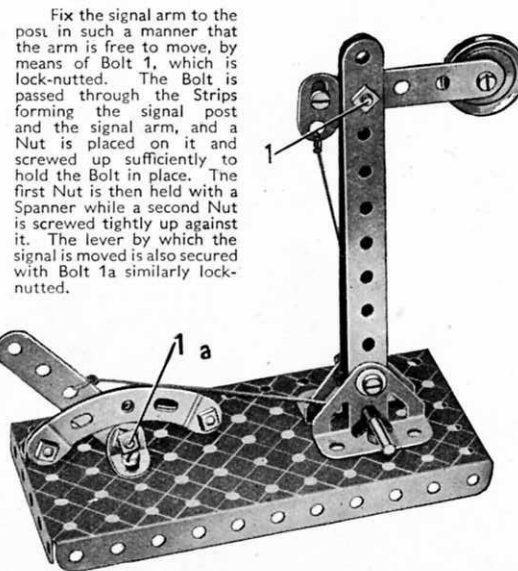
Parts required

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.10 SIGNAL

Parts required

2 of No. 2
2 " " 5
1 " " 10
3 " " 12
1 " " 17
1 " " 22
2 " " 35
11 " " 37
3 " " 37a
2 " " 38
1 " " 52
2 " " 90a
2 " " 111c
2 " " 126

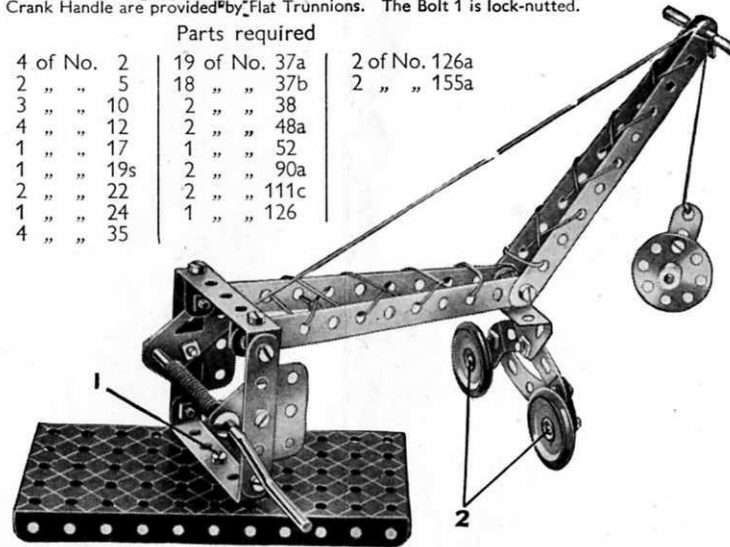


O.11 RADIAL CRANE

The wheeled bogie that carries the boom and jib is formed from two Curved Strips and two Flat Brackets. The $\frac{1}{2}$ " Bolts 2 pass through the Flat Brackets and are gripped in the bosses of the 1" Pulleys. Bearings for the Crank Handle are provided by Flat Trunnions. The Bolt 1 is lock-nutted.

Parts required

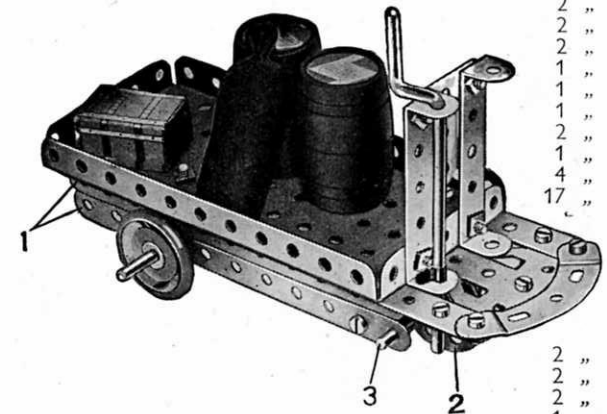
4 of No. 2	19 of No. 37a	2 of No. 126a
2 " " 5	18 " " 37b	2 " " 155a
3 " " 10	2 " " 38	
4 " " 12	2 " " 48a	
1 " " 17	1 " " 52	
1 " " 19s	2 " " 90a	
2 " " 22	2 " " 111c	
1 " " 24	1 " " 126	
4 " " 35		



O.12 ELECTRIC TRUCK

Parts required

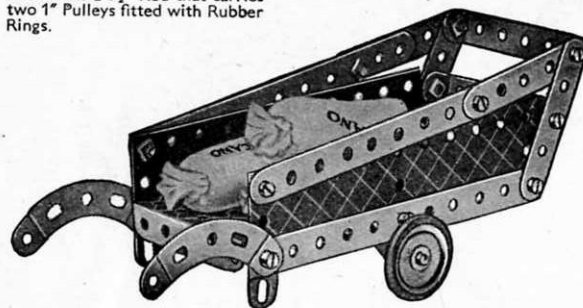
4 of No. 2
2 " " 5
2 " " 10
2 " " 12
1 " " 16
1 " " 17
1 " " 19s
2 " " 22
1 " " 24
4 " " 35
17 " " 37
2 " " 37a
2 " " 38
2 " " 48a
1 " " 52
2 " " 90a
2 " " 111c
2 " " 126
2 " " 126a
2 " " 155a



The two $5\frac{1}{2}$ " 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 $5\frac{1}{2}$ " Strips that form the sides of the truck frame.

1.1 PORTER'S TRUCK

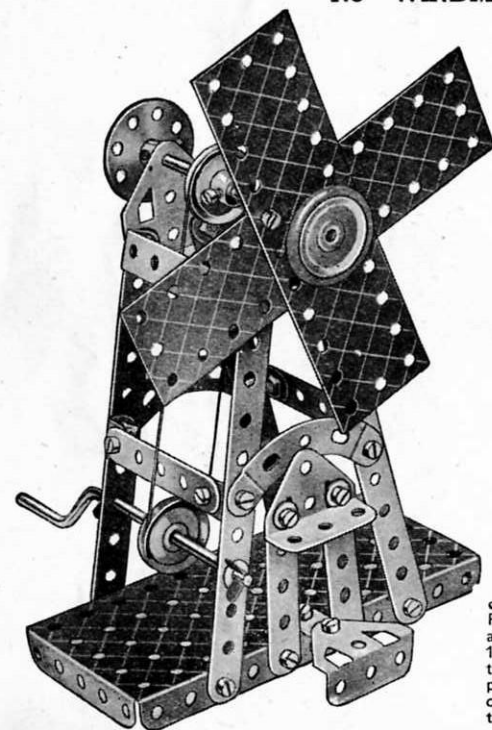
The bearings for the axle are Flat Trunnions fastened on the insides of the Flexible Plates, and the axle is a $3\frac{1}{2}$ " Rod that carries two 1" Pulleys fitted with Rubber Rings.



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 " "	126a
2 " "	155a
2 " "	189

1.3 WINDMILL

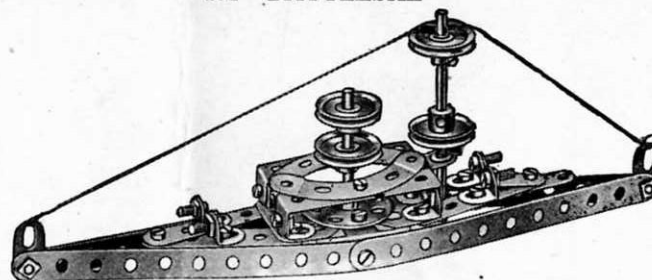


Parts required

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

The sails are gripped on the $3\frac{1}{2}$ " Rod by the 1" Pulley (with Rubber Ring) 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.

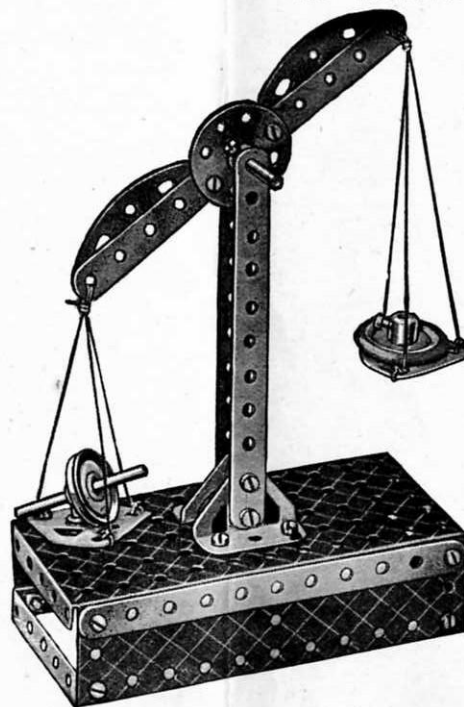
1.2 BATTLESHIP



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		

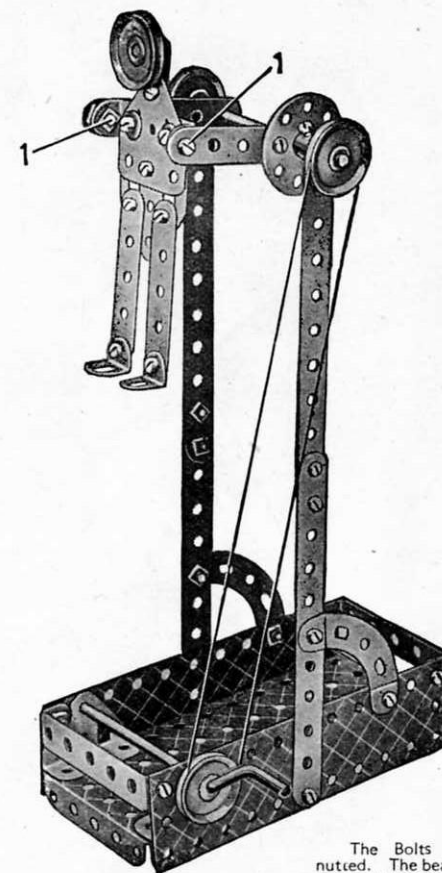
1.4 SCALES



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	5 " "	37a	2 " "	126
1 " "	16	4 " "	38	2 " "	126a
1 " "	19s	1 " "	40	2 " "	189
4 " "	22	2 " "	48a		

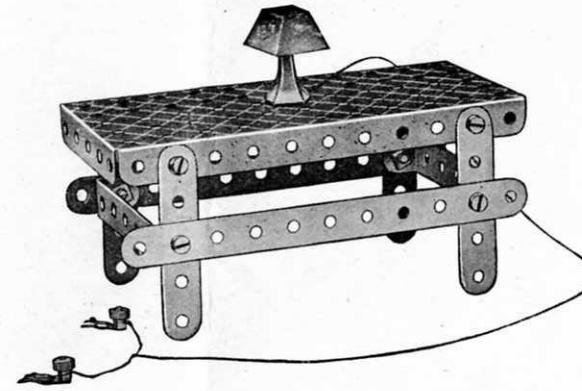
1.6 LETTER BALANCE

The Bolts 1 are lock-nutted. The 3" Bolt 2 is passed through the hole of the Angle Bracket and then locked in the boss of the 1" Pulley.

Parts required

4 of No. 2	1 of No. 52	4 of No. 111c	2 of No. 126a
4 " " 5	1 " " 57c	1 " " 125	4 " " 155a
4 " " 10	1 " " 90a	2 " " 126	2 " " 189
2 " " 12			
1 " " 16			
2 " " 17			
4 " " 22			
1 " " 24			
4 " " 35			
28 " " 37a			
24 " " 37b			
4 " " 38			
2 " " 48a			

1.7 TABLE

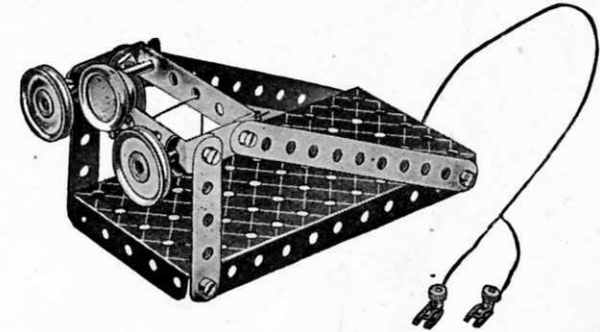


Parts required

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

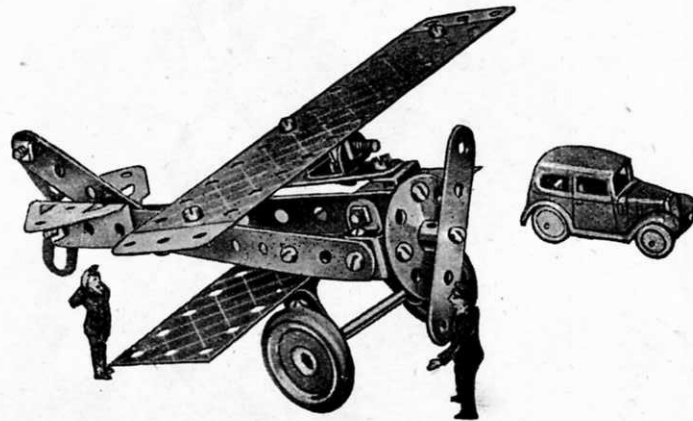


Parts required

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 Spot light from a Meccano Lighting Set.

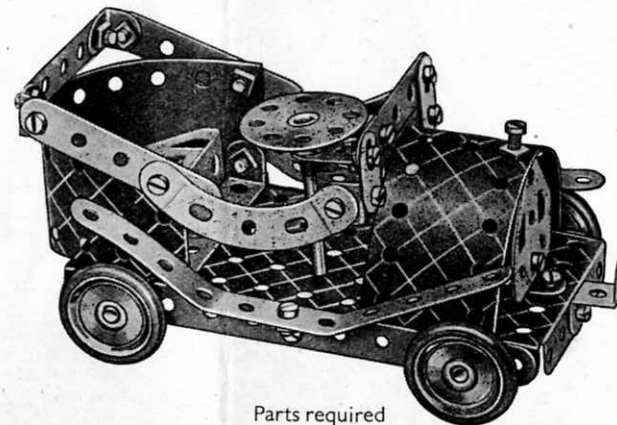
1.9 AEROPLANE



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

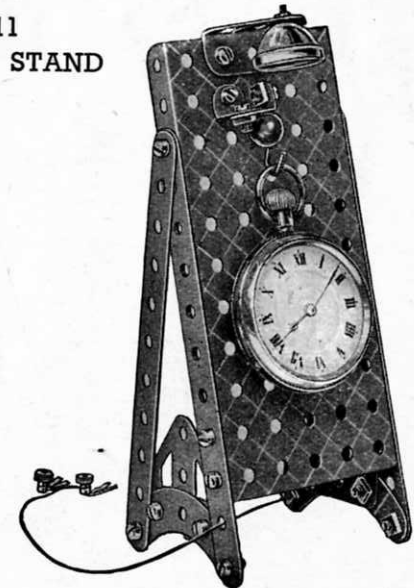
4 of No. 2	1 of No. 17	3 of No. 37a	1 of No. 125
4 " " 5	4 " " 22	2 " " 48a	2 " " 126
3 " " 10	1 " " 24	1 " " 52	1 " " 126a
7 " " 12	1 " " 35	2 " " 90a	4 " " 155a
2 " " 16	24 " " 37	2 " " 111c	2 " " 189

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

1.11
WATCH STAND

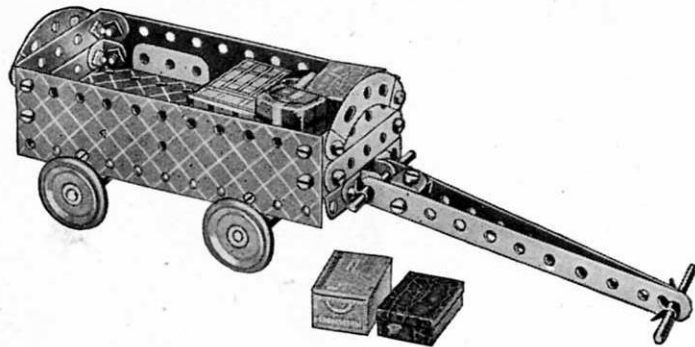
Parts required

4 of No. 2
2 " " 12
19 " " 37
1 " " 38
1 " " 52
1 " " 57c
2 " " 90a
1 " " 126
2 " " 126a



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

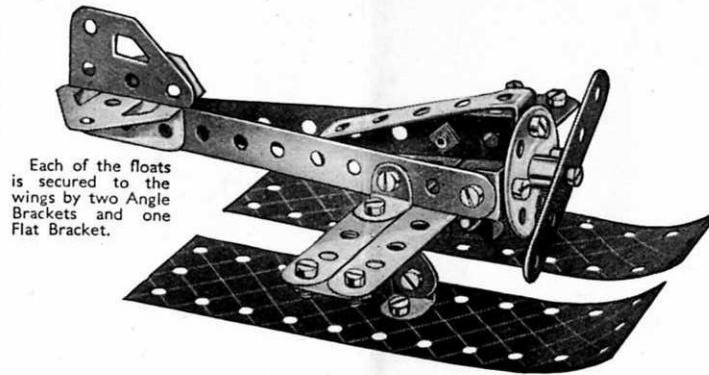
1.12 BAGGAGE TRUCK



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



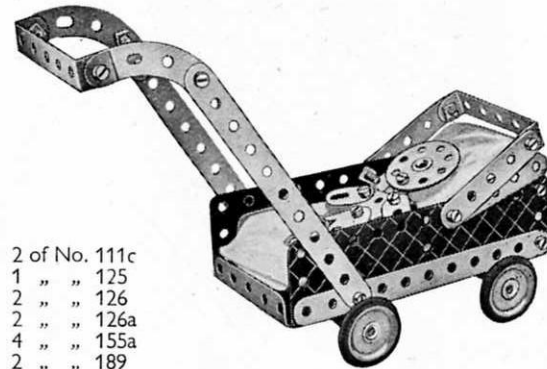
Each of the floats is secured to the wings by two Angle Brackets and one Flat Bracket.

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 CHILD'S PRAM

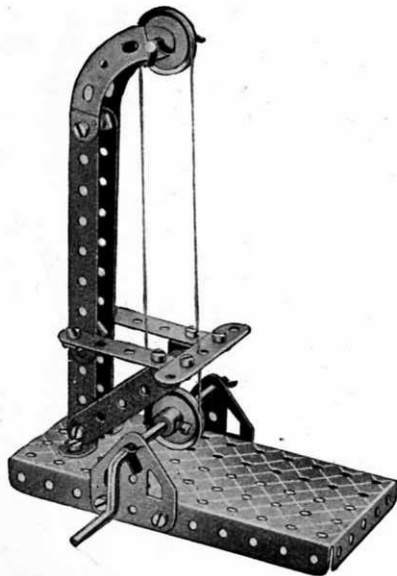
Flat Trunnions bolted between the Flexible Plates and the Flanged Plate provide bearings for the rear axle. Angle Brackets bolted under the Flanged Plate form the bearings for the front axle. The body of the "baby" consists of two Trunnions, and its arms and legs are Flat Brackets. Its head is fixed in place by a Reversed Angle Bracket.



Parts required

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

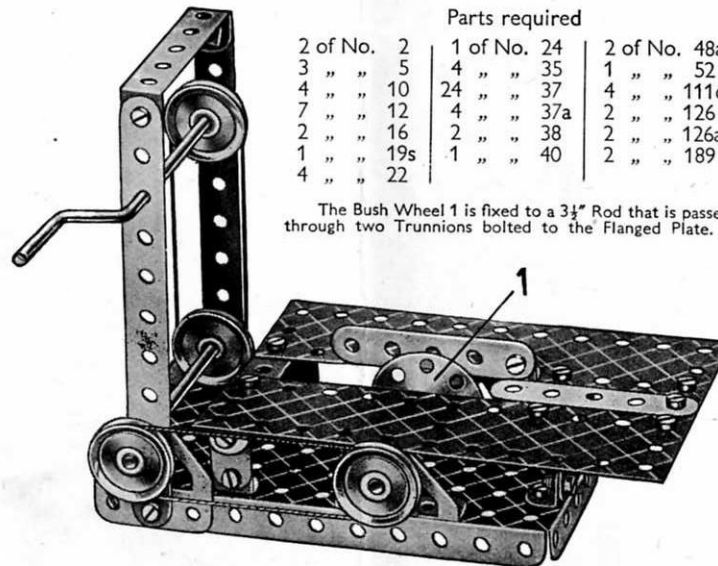
1.15 BAND SAW



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

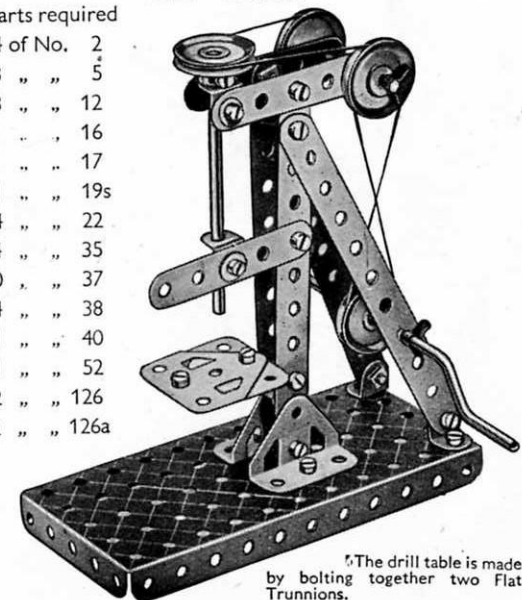
2 of No. 2	1 of No. 24	2 of No. 48a
3 " " 5	4 " " 35	1 " " 52
4 " " 10	24 " " 37	4 " " 111c
7 " " 12	4 " " 37a	2 " " 126
2 " " 16	2 " " 38	2 " " 126a
1 " " 19s	1 " " 40	2 " " 189
4 " " 22		

The Bush Wheel 1 is fixed to a 3 1/2" Rod that is passed through two Trunnions bolted to the Flanged Plate.

1.17 DRILL

Parts required

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

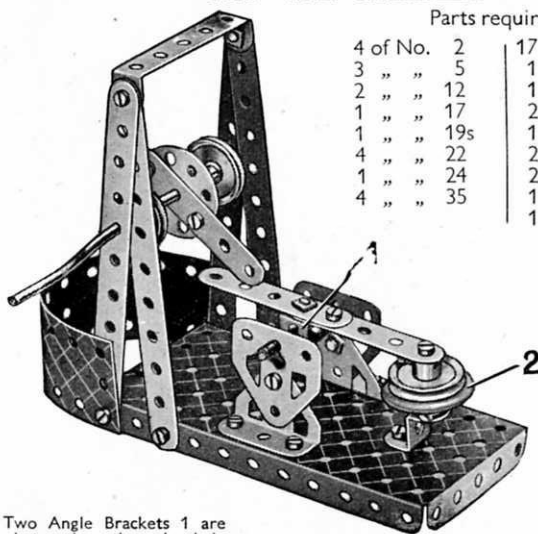


The drill table is made by bolting together two Flat Trunnions.

1.18 TRIP HAMMER

Parts required

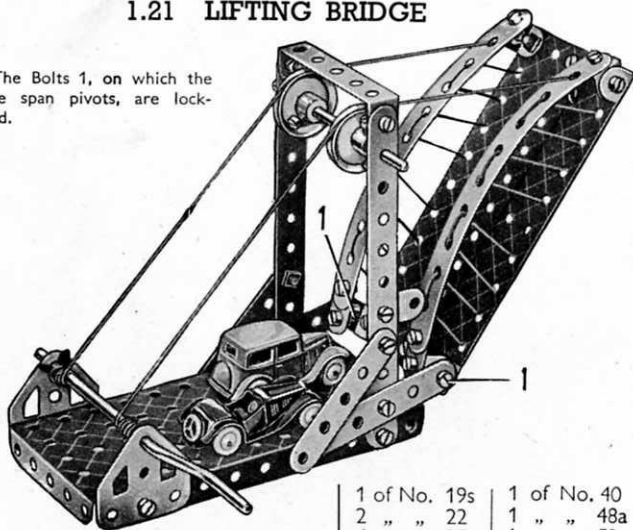
4 of No. 2	17 of No. 37
3 " " 5	1 " " 48a
2 " " 12	1 " " 52
1 " " 17	2 " " 111c
1 " " 19s	1 " " 125
4 " " 22	2 " " 126
1 " " 24	2 " " 126a
4 " " 35	1 " " 155a
	1 " " 189



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

1.21 LIFTING BRIDGE

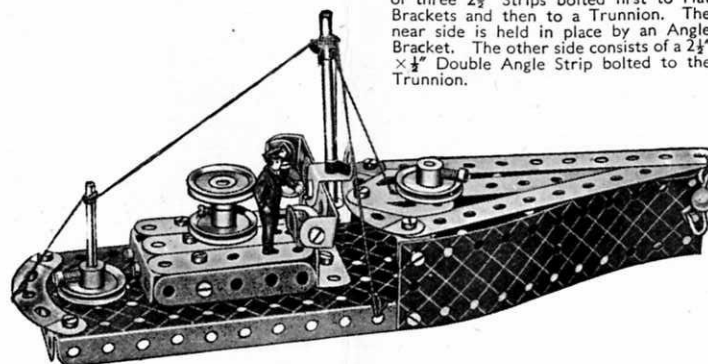
The Bolts 1, on which the bridge span pivots, are lock-nutted.



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

1.19 STEAM LAUNCH

The top of the deck-house consists of three 2 1/2" 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 2 1/2" x 1/2" Double Angle Strip bolted to the Trunnion.



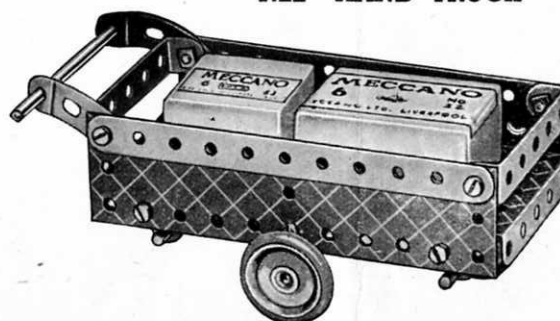
Parts required

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	

1.22 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 3 1/2" 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 3 1/2" 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.

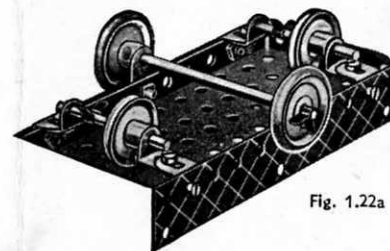
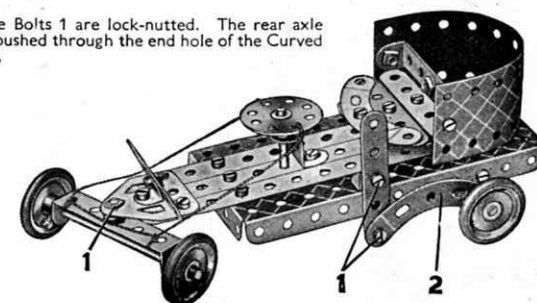


Fig. 1.22a

1.20 COASTER

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



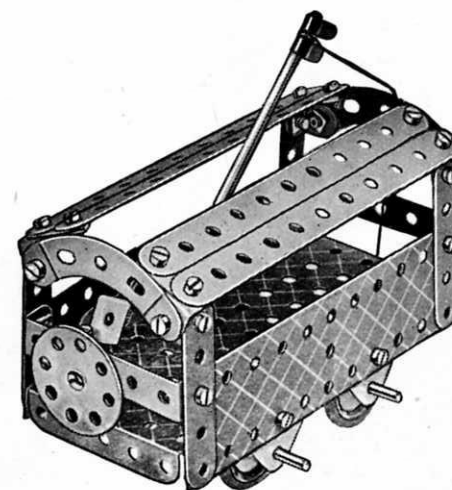
Parts required

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

1.23 TROLLEY BUS

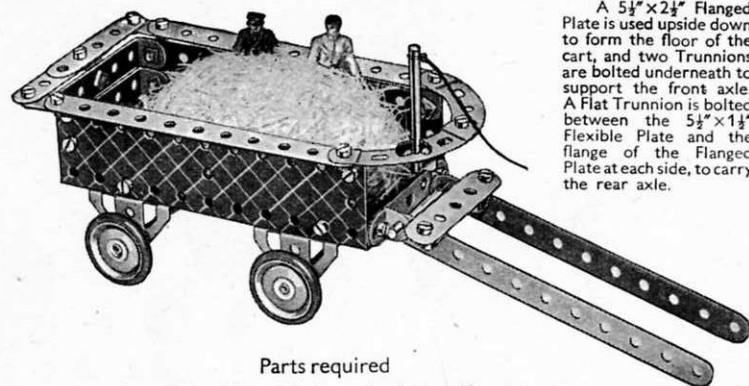
Parts required

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.

1.24 HAY CART

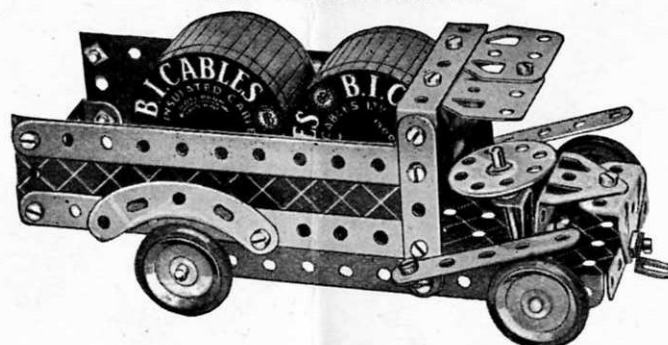


A $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate is used upside down to form the floor of the cart, and two Trunnions are bolted underneath to support the front axle. A Flat Trunnion is bolted between the $5\frac{1}{2} \times 1\frac{1}{2}$ " Flexible Plate and the flange of the Flanged Plate at each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

1.25 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.

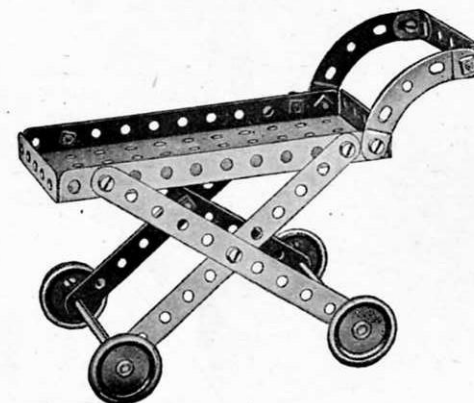
Parts required

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	

1.26 HOSPITAL TROLLEY

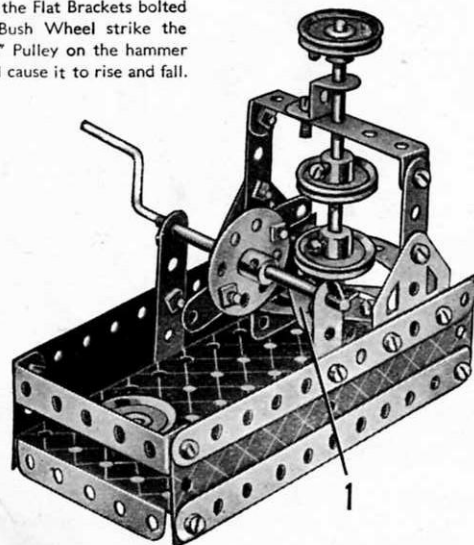
Parts required

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



1.27 STAMPING MILL

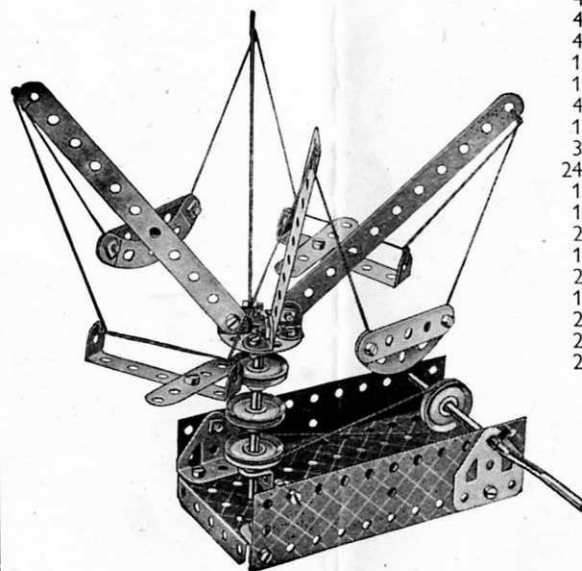
The anvil 1 is made up of two Trunnions bolted together. When the Crank Handle is rotated, the Flat Brackets bolted to the Bush Wheel strike the centre 1" Pulley on the hammer shaft and cause it to rise and fall.



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

1.28 FLYING BOATS



Parts required

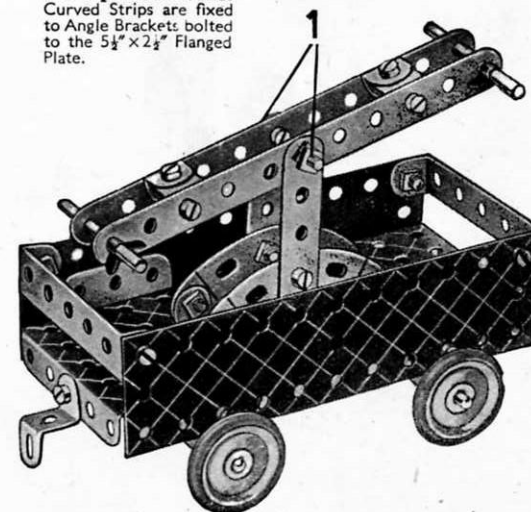
4 of No. 2
4 " " 5
4 " " 12
1 " " 16
1 " " 19s
4 " " 22
1 " " 24
3 " " 35
24 " " 37
1 " " 38
1 " " 40
2 " " 48a
1 " " 52
2 " " 90a
1 " " 125
2 " " 126
2 " " 126a
2 " " 189

1.29 HAND CAR

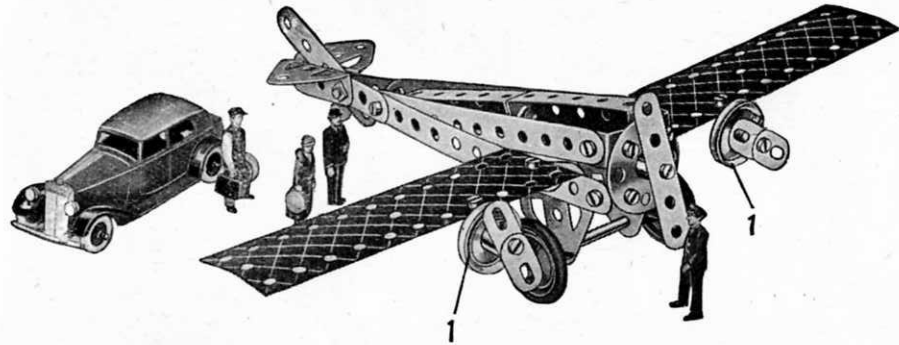
The Bolts 1 on which the $5\frac{1}{2}$ " Strips are pivoted, are lock-nutted. The $2\frac{1}{2}$ " small radius Curved Strips are fixed to Angle Brackets bolted to the $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate.

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



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.

Parts required

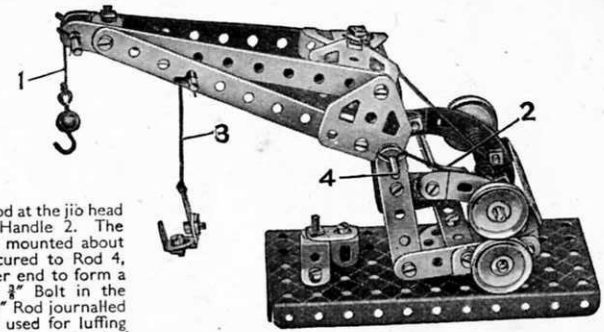
4 of No.	2
4 "	5
4 "	10
8 "	12
1 "	16
1 "	22
1 "	24
2 "	35
20 "	37
3 "	37a
2 "	48a
1 "	57c
4 "	111c
2 "	126
2 "	126a
2 "	155a
2 "	189

1.31 FLOATING CRANE

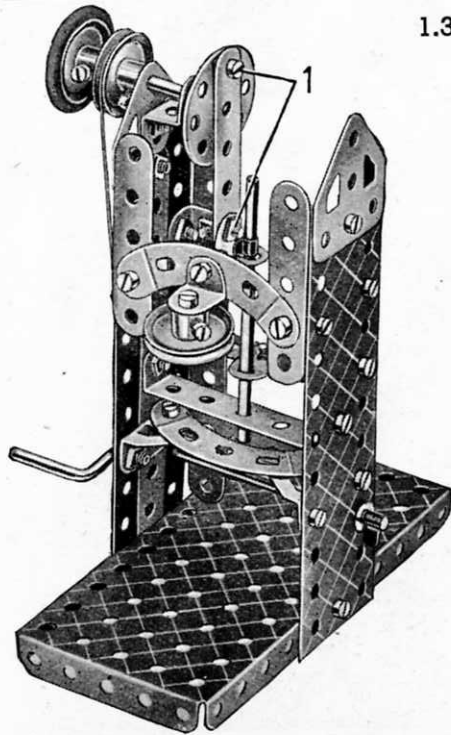
Parts required

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 $\frac{3}{8}$ " 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

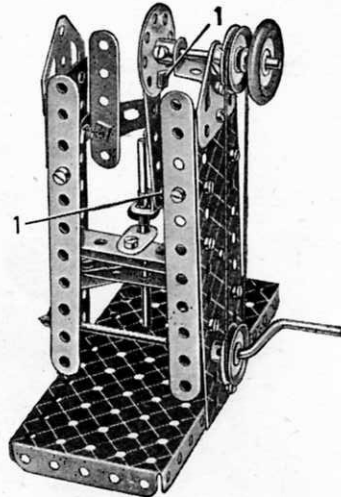
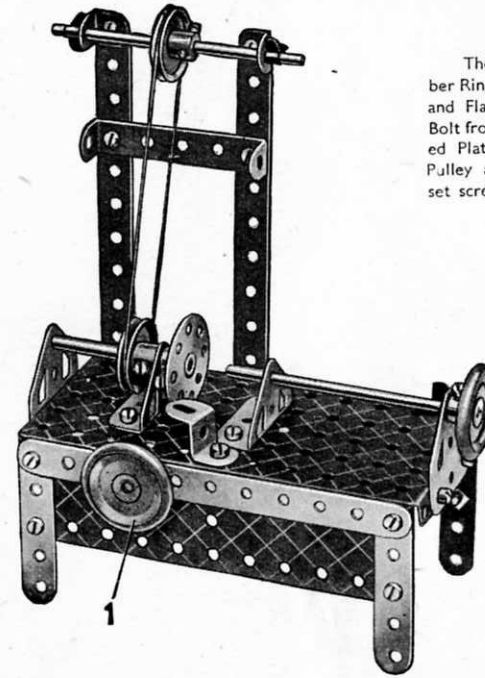


Fig. 1.32a

1.33 LATHE

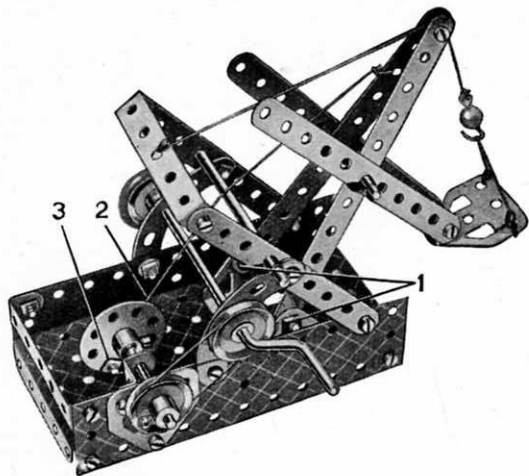


The 1" fast Pulley with Rubber Ring 1 is secured to the Strip and Flanged Plate by passing a Bolt from the inside of the Flanged Plate into the boss of the Pulley and then tightening the set screw.

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



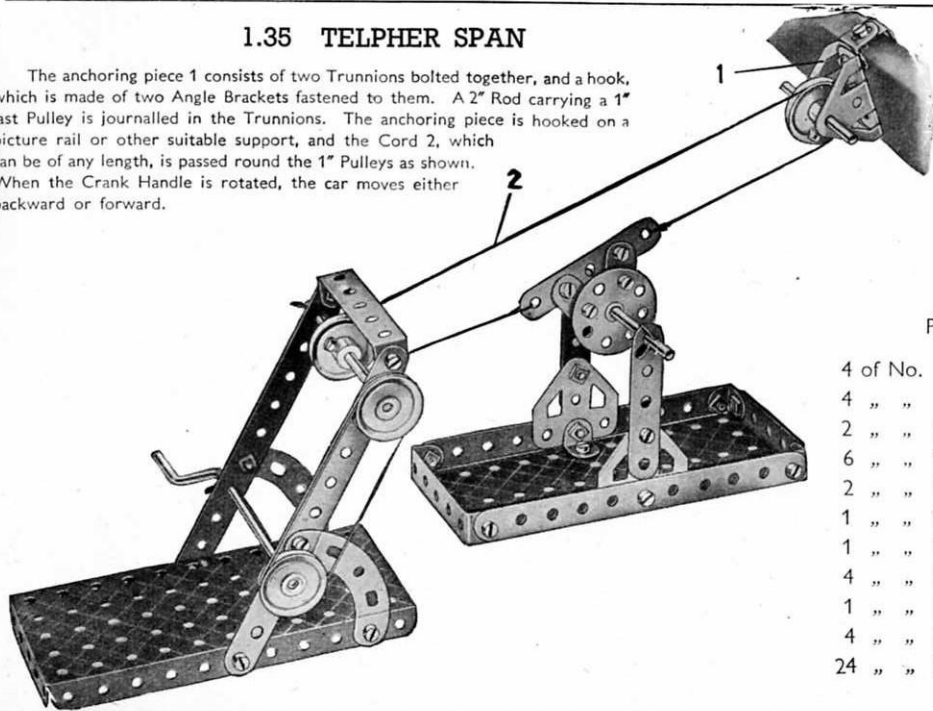
The Bolts 1, on which the jib pivots, are lock-nutted. The shovel arm is pivoted on a 2" Rod and the shovel is supported by a Cord that passes over the $\frac{3}{8}$ " Bolt at the jib head and is fastened to a $2\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip as shown. The Cord 2 is fastened to the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

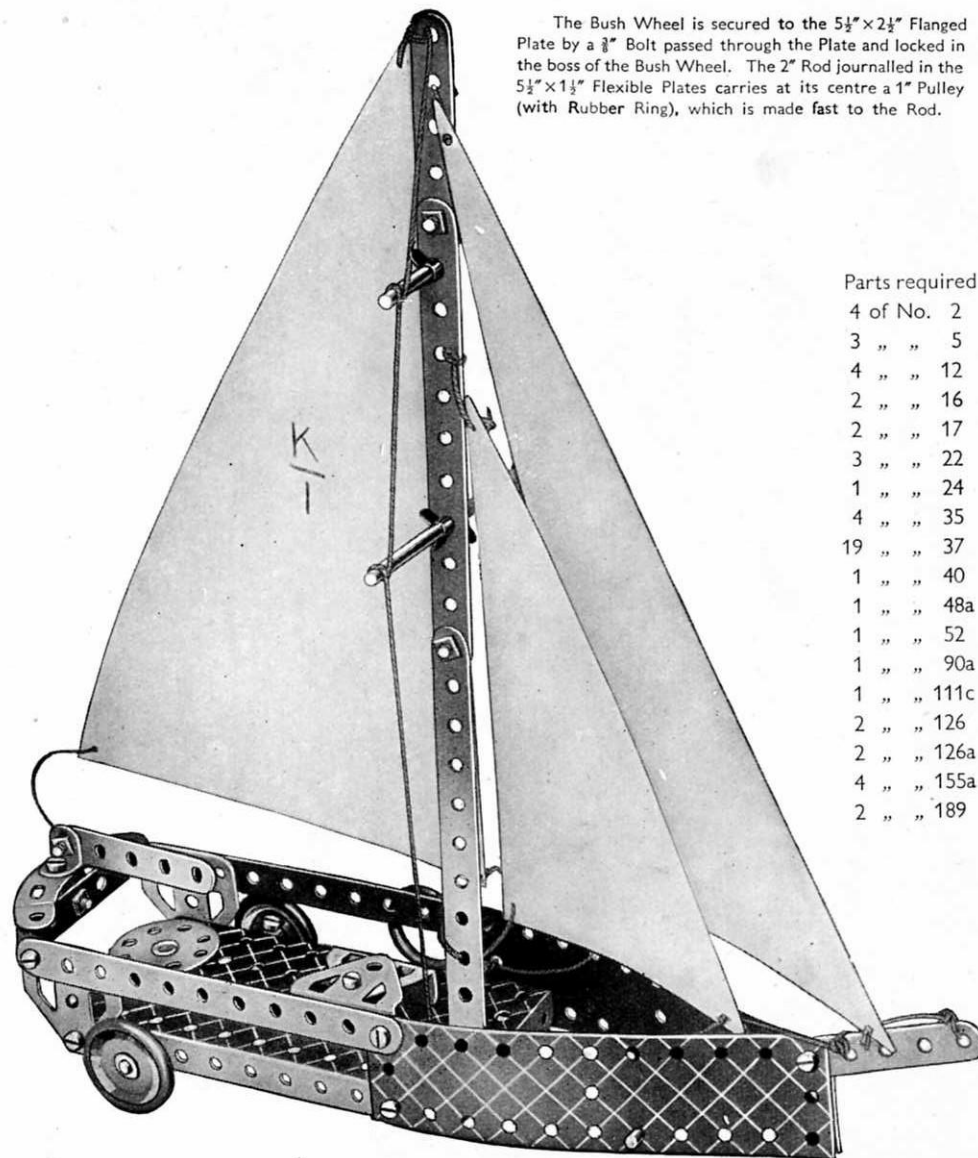
The anchoring piece 1 consists of two Trunnions bolted together, and a hook, which is made of two Angle Brackets fastened to them. A 2" Rod carrying a 1" Fast Pulley is journalled in the Trunnions. The anchoring piece is hooked on a picture rail or other suitable support, and the Cord 2, which can be of any length, is passed round the 1" Pulleys as shown. 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 journalled 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.



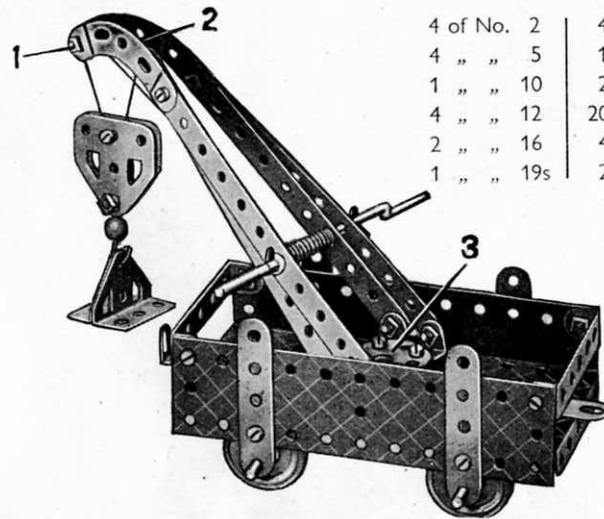
Parts required	
4 of No.	2
3 "	5
4 "	12
2 "	16
2 "	17
3 "	22
1 "	24
4 "	35
19 "	37
1 "	40
1 "	48a
1 "	52
1 "	90a
1 "	111c
2 "	126
2 "	126a
4 "	155a
2 "	189

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 $5\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flanged Plate, and is secured in the boss of the Bush Wheel by its set screw.

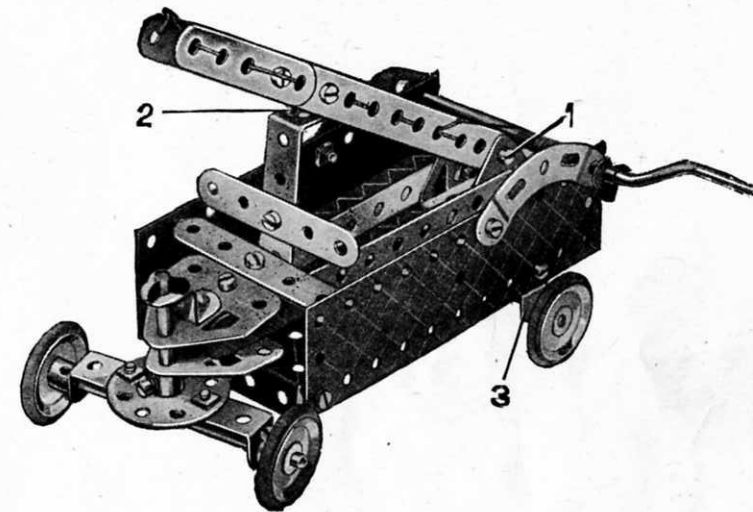


1.38 FIRE ENGINE

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.

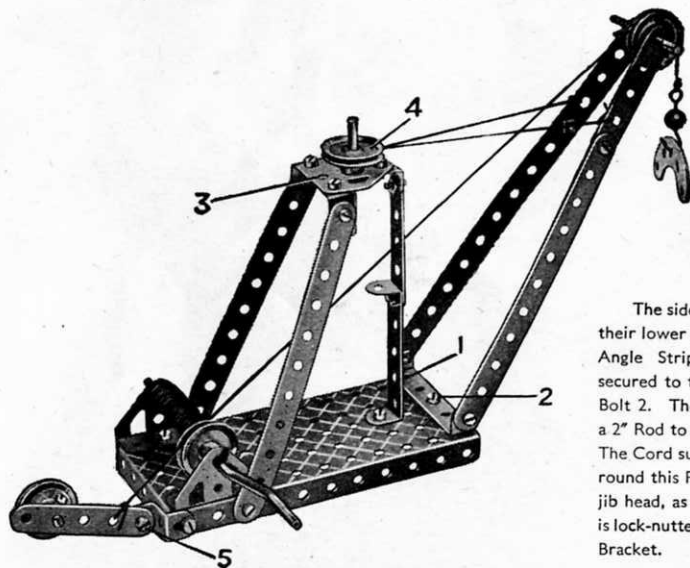


1.39 DERRICK CRANE

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 $2\frac{1}{2}$ " \times $\frac{1}{2}$ " 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.



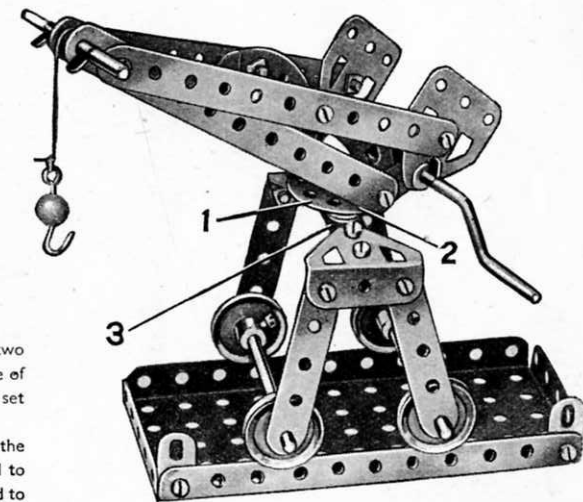
1.40 TRAVELLING CRANE

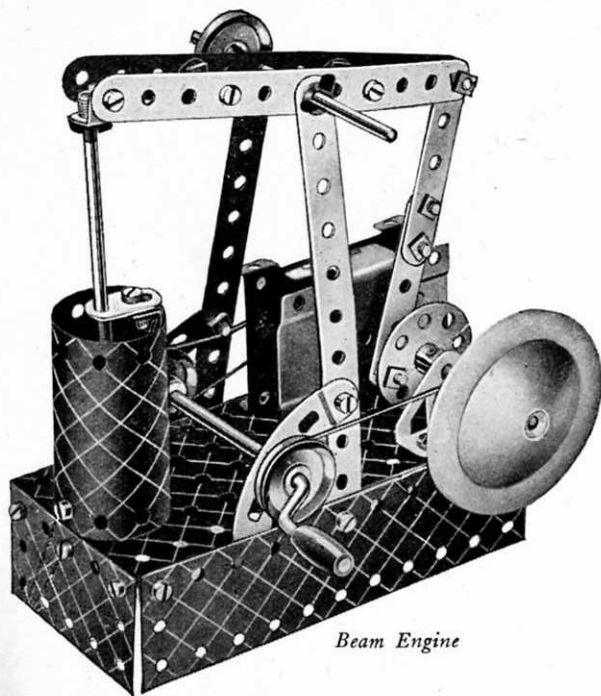
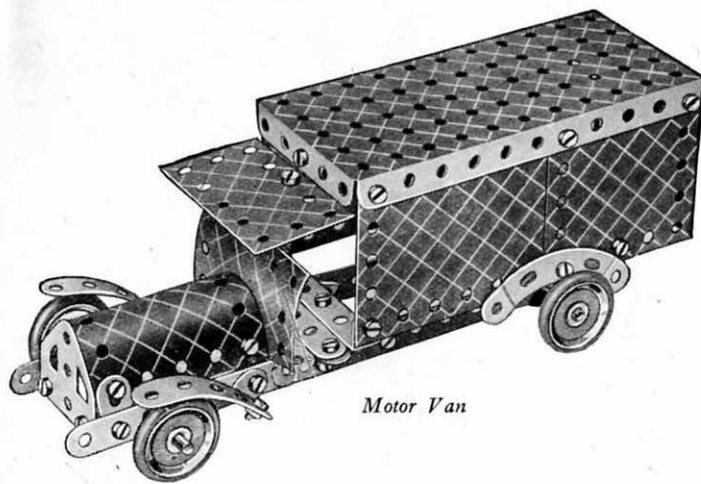
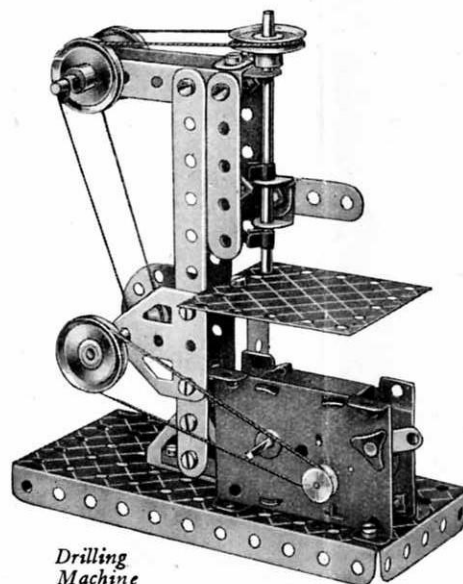
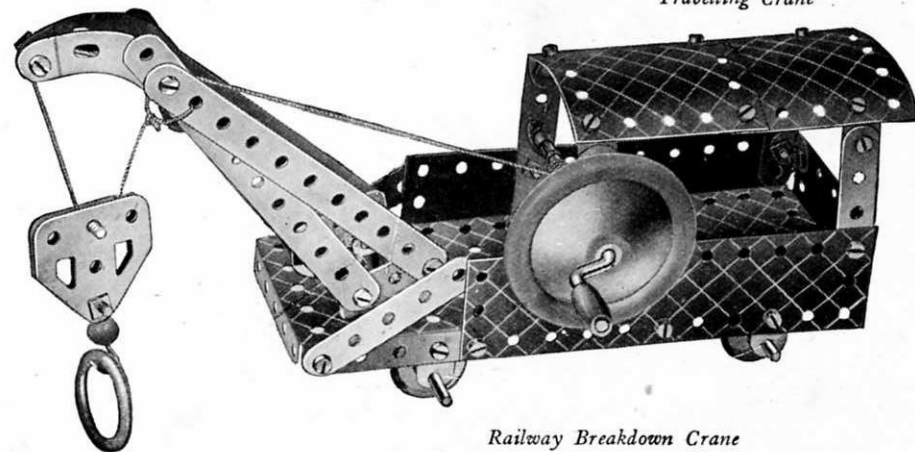
Parts required

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 Double Angle 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.



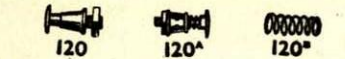
*Beam Engine**Motor Van**Drilling Machine**Travelling Crane**Railway Breakdown Crane*

BUILD BIGGER AND BETTER MODELS

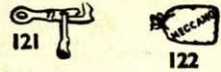
When you have built all the models shown in this Manual you will be keen to build bigger and more elaborate models. Your next step is to purchase a Meccano No. 1a Accessory Outfit containing all the parts required to convert your No. 1 into a No. 2 Outfit. You will then be able to build the full range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

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.

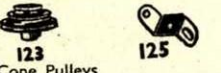
Ask your dealer to post to you regularly the latest Meccano parts lists and other Meccano literature.



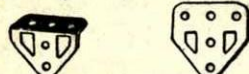
- No. 120. Buffers
120b. Compression Springs
120a. Spring Buffers



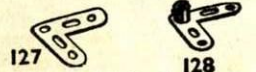
121. Train Couplings
122. Miniature Loaded Sacks



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



126. Trunnions
126a. Flat Trunnions



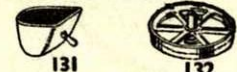
127. Simple Bell Cranks
128. Boss Bell Cranks



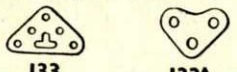
129. Rack Segments, 3" diam.



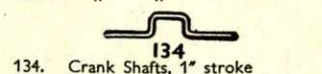
130. Eccentrics, Triple Throw
132. Flywheels, 2 1/2" diam.



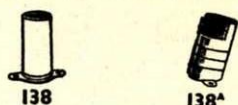
131. Dredger Buckets
133. Corner Brackets, 1"
133a. " " "



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



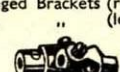
136. Handrail Supports
136a. Handrail Couplings
137. Wheel Flanges



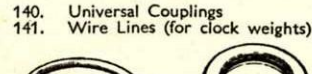
- No. 138. Ships' Funnels
138a-z. " " Raked



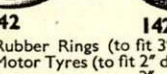
139. Flanged Brackets (right)
139a. " " (left)



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



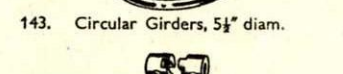
142. Rubber Rings (to fit 3" diam. rims)
142a. Motor Tyres (to fit 2" diam. rims)
142b. " " " 3" " "
142c. " " " 1" " "
142d. " " " 1 1/2" " "



143. Circular Girders, 5 1/2" diam.



144. Dog Clutches



145. Circular Strips, 7 1/2" 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

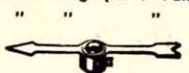


- No. 151. Pulley Blocks, Single Sheave
152. " " Two " "
153. " " Three " "

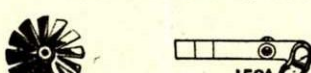


154. Corner Angle Brackets, 1/2"
(right-hand)
154a. Corner Angle Brackets, 1/2"
(left-hand)

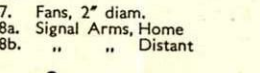
155. Rubber Rings (for 1" Pulleys) Black
155a. " " " White



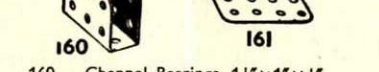
156. Pointers (with boss) 2 1/2" overall



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



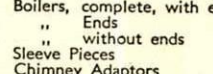
160. Channel Bearings, 1 1/2" x 1" x 1/2"
161. Girder Brackets, 2" x 1" x 1/2"



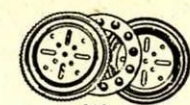
162. Boilers, complete, with ends
162a. " " Ends
162b. " " without ends
163. Sleeve Pieces
164. Chimney Adaptors



165. Swivel Bearings
166. End " "



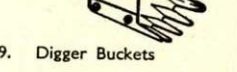
167. Geared Roller Bearings
167a. Roller Races, geared, 192 teeth
167b. Ring Frames for Rollers
167c. Pinions for Roller Bearings (16 teeth)



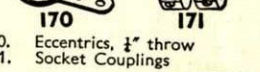
- No. 168. Ball Bearings, 4" diam.
168a. " Races, flanged discs
168b. " " toothed " "
168c. " Casings, complete with balls



169. Digger Buckets



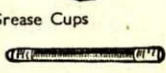
170. Eccentrics, 1/2" throw
171. Socket Couplings



172. Pendulum Connections
173. Rail Adaptors



174. Grease Cups



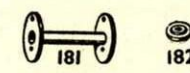
175. Flexible Coupling Units



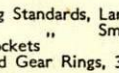
176. Anchoring Springs for Cord



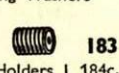
177. Shafting Standards, Large
178. " " Small
179. Rod Sockets
180. Toothed Gear Rings, 3 1/2" diam.



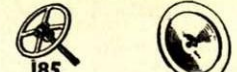
181. Bobbins
182. Insulating Bushes
182a. Insulating Washers



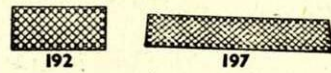
183. Lamp Holders
184a. 2 1/2-volt Lamps
184b. 3 1/2 " " "



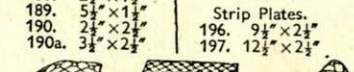
185. Steering Wheels, 1 1/2" diam.
186. Driving Bands, 2 1/2" (Light)
186a. " " 6 " "
186b. " " 10 " "
186c. " " 10" (Heavy)
186d. " " 15 " "
186e. " " 20 " "
187. Road Wheels



- No. 185. Steering Wheels, 1 1/2" diam.
186. Driving Bands, 2 1/2" (Light)
186a. " " 6 " "
186b. " " 10 " "
186c. " " 10" (Heavy)
186d. " " 15 " "
186e. " " 20 " "
187. Road Wheels



191. 4 1/2" x 2 1/2"
192. 5 1/2" x 2 1/2"
Strip Plates.
196. 9 1/2" x 2 1/2"
197. 12 1/2" x 2 1/2"



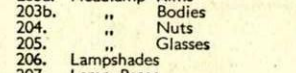
198. Hinged Flat Plates, 4 1/2" x 2 1/2"
199. Curved Plates, U-Section 2 1/2" x 2 1/2" x 1/8"
200. " " 2 1/2" x 2 1/2", 1 1/8" radius



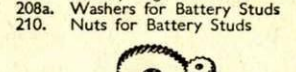
201. Lamps with Flex (3 1/2 volts)
202. Angle Brackets (for Headlamps)
203. Headlamps
203a. Headlamp Rims
203b. " Bodies
204. " Nuts
205. " Glasses
206. Lampshades
207. Lamp Bases
207a. Lamp with Standard and Flex
208. Battery Tags and Studs
208a. Washers for Battery Studs
210. Nuts for Battery Studs



- 207A. Lamps with Flex (3 1/2 volts)
206. Angle Brackets (for Headlamps)



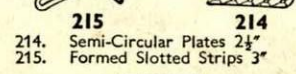
- 211a. Helical Gear 1/2" { Can only be
211b. " " 1 1/2" { used together



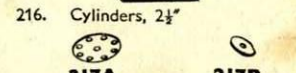
212. Rod and Strip Connectors
213. Rod Connectors



214. Semi-Circular Plates 2 1/2"
215. Formed Slotted Strips 3"



216. Cylinders, 2 1/2"
217A. Discs, 1 1/2"
217B. Discs 3/4"



- 217A. Discs, 1 1/2"
217B. Discs 3/4"