

MECCANO

INSTRUCTIONS

FOR

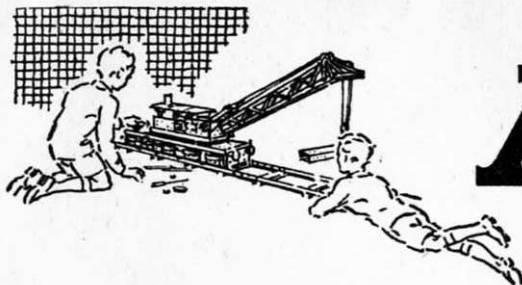
No. 1a ACCESSORY OUTFIT

Prices
Great Britain 3d
Australia 6d
New Zealand 4d
South Africa 5d
Canada 10c

No.
38.1a

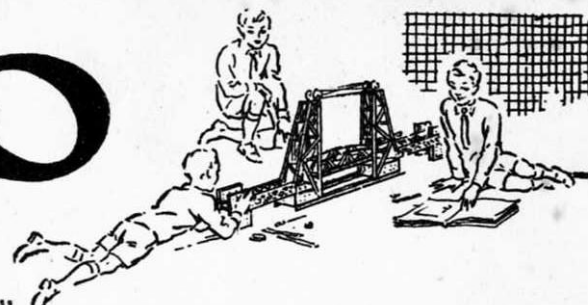


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MECCANO LIMITED, BINNS ROAD, LIVERPOOL 13, ENGLAND



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

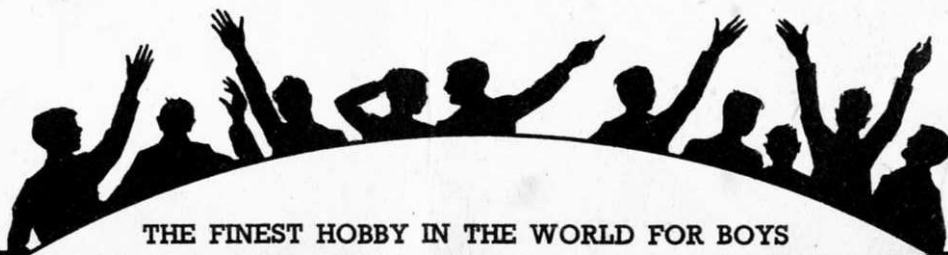
Every owner of a Meccano Outfit should join the Meccano Guild. This is a world-wide organisation, started at the request of Meccano boys. Its primary object is to bring boys together and to make them feel that they are all members of a great brotherhood, each trying to help others to get the very best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

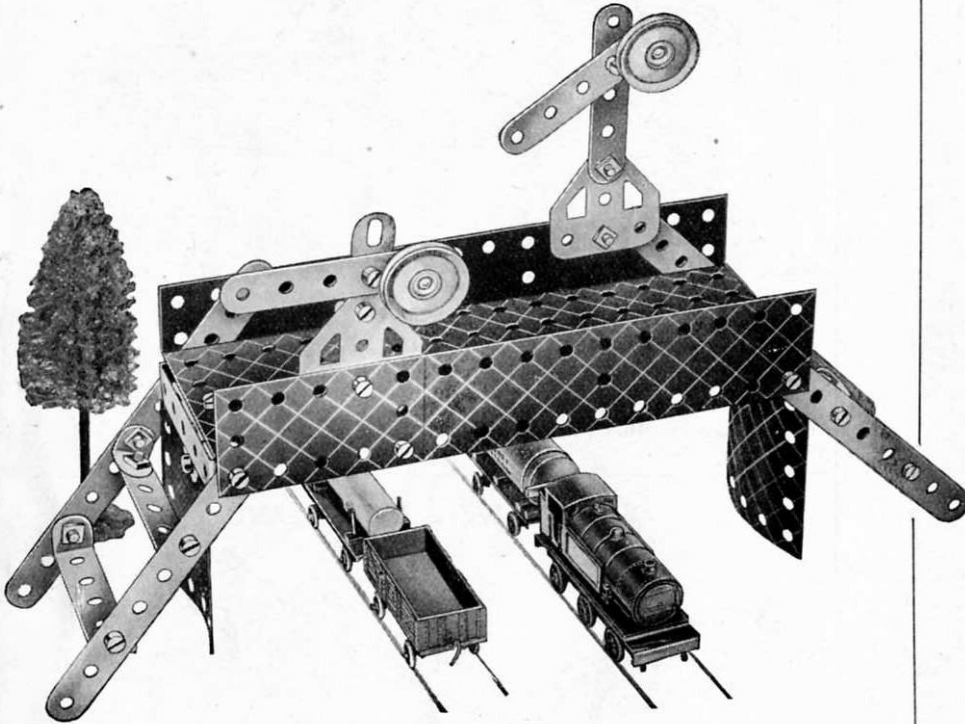
MECCANO SERVICE

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

2.1 RAILWAY FOOTBRIDGE



Parts required

4 of No. 2	2 of No. 22	1 of No. 52	2 of No. 188
6 " " 5	32 " " 37	2 " " 111c	2 " " 189
2 " " 10	2 " " 37a	2 " " 126	1 " " 190
6 " " 12	2 " " 48a	2 " " 126a	2 " " 200

The span of the bridge is a $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate, extended by a $2\frac{1}{2} \times 2\frac{1}{2}$ " Flexible Plate. Trunnions are bolted to each end of the span, and have $1\frac{1}{8}$ " radius Curved Plates fastened to them. The sides of the approach stairways are $5\frac{1}{2}$ " Strips. They are joined across by $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips and $2\frac{1}{2}$ " Strips fitted with Angle Brackets at each end.

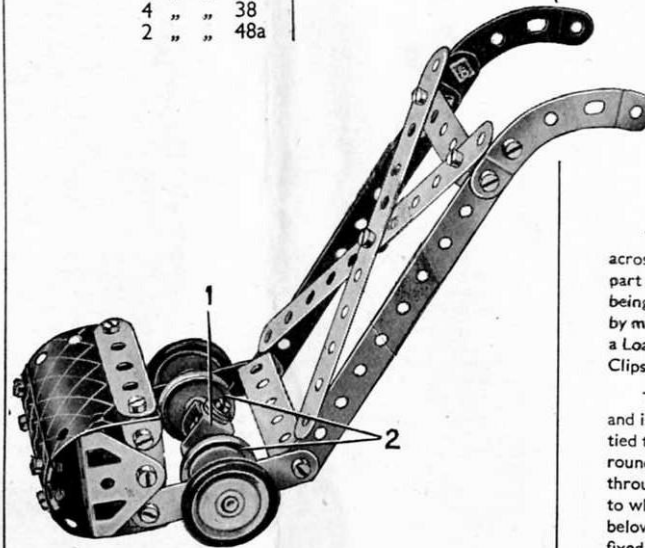
The signals are supported on Flat Trunnions bolted to the sides of the bridge. The smaller of the two signal posts is formed by two Flat Brackets, and the larger one is a $2\frac{1}{2}$ " Strip. The signal arms are $2\frac{1}{2}$ " Strips bolted to the posts in the second holes from one end. They are fitted at their shorter ends with 1" Pulleys, representing the spectacles, which are held in place by $\frac{3}{8}$ " Bolts passed through the Strips and inserted in their bosses.

2.2 LAWN MOWER

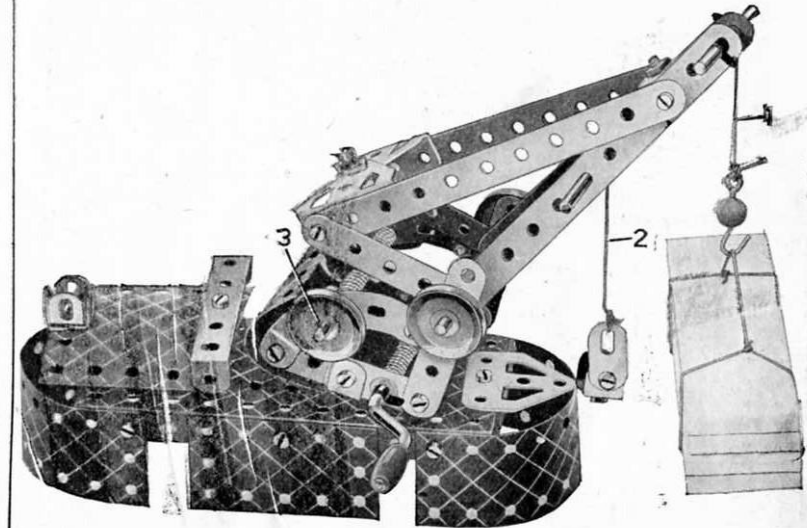
The "cutter" is made by bolting an Angle Bracket at each end of a Reversed Angle Bracket and then sliding an Axle Rod through the free holes of the Brackets. The two Pulleys 2 are fixed to the Rod and pushed tightly against the "cutter" to make it rotate with the Rod as the wheels revolve. The wheels are 1" Pulleys fitted with Rubber Rings.

Parts required

4 of No. 2	2 of No. 90a
4 " " 5	1 " " 125
4 " " 10	2 " " 126
6 " " 12	2 " " 155a
1 " " 16	2 " " 200
4 " " 22	
25 " " 37	
4 " " 38	
2 " " 48a	



2.3 FLOATING CRANE



Parts required

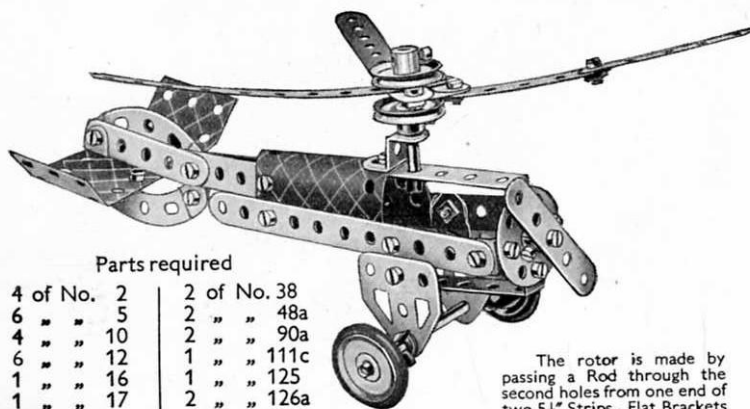
4 of No. 2	4 of No. 22	2 of No. 48a	1 of No. 126a
6 " " 5	1 " " 24	1 " " 52	1 " " 176
3 " " 10	4 " " 35	1 " " 57c	2 " " 188
8 " " 12	29 " " 37	2 " " 90a	2 " " 189
2 " " 16	3 " " 37a	4 " " 111c	1 " " 199
2 " " 17	4 " " 38	1 " " 125	1 " " 200
1 " " 19g	1 " " 40	2 " " 126	

The jib consists of $5\frac{1}{2}$ " Strips and $2\frac{1}{2}$ " Strips. At its upper end these are joined across by Angle Brackets, and at its lower end by Trunnions. Each side of the lower part of the crane consists of $2\frac{1}{2}$ " Strips and small radius Curved Strips, the two sides being connected by $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strips. The jib is pivoted to this structure by means of a $3\frac{1}{2}$ " Rod, which carries at each end a 1" Pulley. The Cord 1 fitted with a Loaded Hook, is passed over a 2" Rod held in place in the jib by means of Spring Clips, and is then wound round the Crank Handle.

The Cord 2 passes over a Rod held in place in the jib by an Anchoring Spring, and is then wound round the Rod that forms the pivot for the jib. A third Cord is tied to a Bolt fastened in the two Trunnions at the base of the jib, and is wound round Rod 3. This Cord controls the luffing motion of the crane. A $\frac{3}{8}$ " Bolt passes through the Flanged Plate and is held by a set screw in the boss of the Bush Wheel to which the jib is fastened. The Bush Wheel is bolted to the Double Angle Strip below the Rod 3. The roof of the cabin is bolted to a $\frac{1}{2}$ " Reversed Angle Bracket fixed to the Flanged Plate.

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

2.4 AUTOGIRO



Parts required

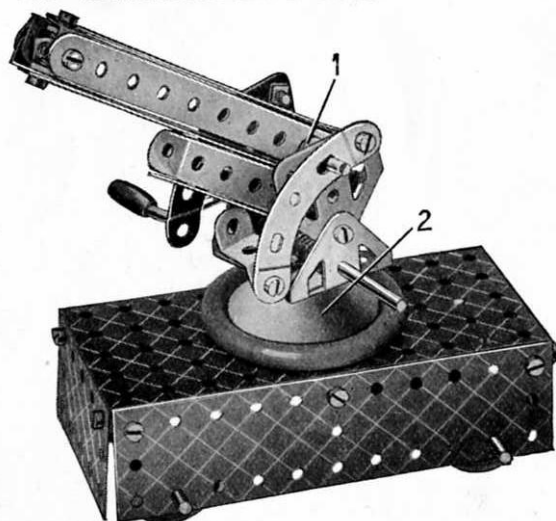
4 of No. 2	2 of No. 38
6 " " 5	2 " " 48a
4 " " 10	2 " " 90a
6 " " 12	1 " " 111c
1 " " 16	1 " " 125
1 " " 17	2 " " 126a
4 " " 22	2 " " 155a
1 " " 24	2 " " 188
3 " " 35	1 " " 199
25 " " 37	

The rotor is made by passing a Rod through the second holes from one end of two 5 1/2" Strips. Flat Brackets are bolted to the short ends of the Strips and the third blade of the rotor is fixed to them as shown.

2.5 ANTI-AIRCRAFT GUN

Parts required

4 of No. 2
1 " " 5
6 " " 12
2 " " 16
2 " " 17
1 " " 19g
4 " " 22
1 " " 24
3 " " 35
26 " " 37
4 " " 38
2 " " 48a
1 " " 52
2 " " 90a
1 " " 125
2 " " 126
2 " " 126a
4 " " 155a
1 " " 176
1 " " 187
2 " " 188
2 " " 189

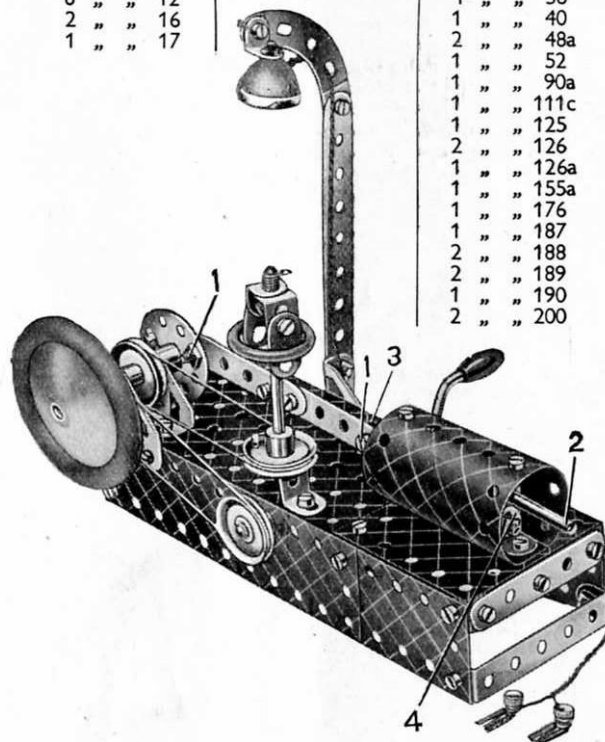


One end of a piece of Cord is fastened to the Crank Handle. It is wound round the Handle a few times and its other end is then fastened to the end of the gun. The two Trunnions are bolted to a Bush Wheel fixed on a 2" Rod that passes through the Rod Wheel 2 and the Flanged Plate and is held in place by an Anchoring Spring. The Spring Clips at 1 space the gun barrel from the Flat Trunnions.

2.6 GAS ENGINE

Parts required

1 of No. 2	1 of No. 19g
3 " " 5	4 " " 22
4 " " 10	1 " " 24
8 " " 12	
2 " " 16	
1 " " 17	



The bearings for the Rod representing the crankshaft are a Flat Trunnion and a Trunnion. The crankshaft carries a Rod Wheel and a 1" Pulley at one end, a second 1" Pulley between the bearings, and a Bush Wheel at its other end.

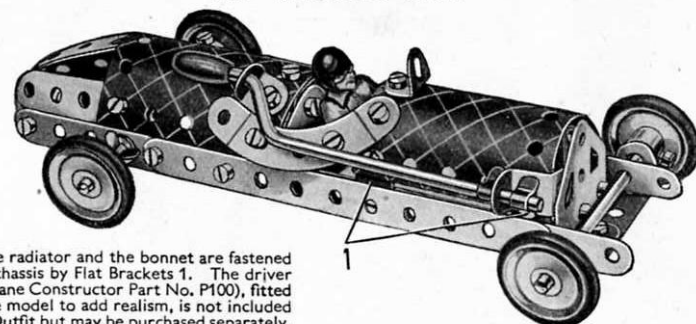
The connecting rod is fastened to the Bush Wheel and to an Angle Bracket by lock-nutted Bolts 1. The Rod 2 is held in the Angle Bracket 3 by means of Spring Clips, one on each side. An Angle Bracket 4, carrying a Flat Bracket, is bolted inside the cylinder, and a similar arrangement is fitted at the other end. These form bearings for the Rod 2.

The model is operated by the Crank Handle, which carries also a 1" Pulley connected to one of the 1" Pulleys on the crankshaft by a belt of Cord. A second Cord drives the governor, which is mounted on a 3 1/2" Rod journalled in the 5 1/2" x 2 1/2" Flanged Plate and a Reversed Angle Bracket.

The model is fitted with a Spotlight from the Meccano Lighting Set, current being supplied by a 4.5-volt pocket-lamp battery housed in the base of the model.

4 of No. 35
39 " " 37
3 " " 37a
4 " " 38
1 " " 40
2 " " 48a
1 " " 52
1 " " 90a
1 " " 111c
1 " " 125
2 " " 126
1 " " 126a
1 " " 155a
1 " " 176
1 " " 187
2 " " 188
2 " " 189
1 " " 190
2 " " 200

2.7 RACING CAR

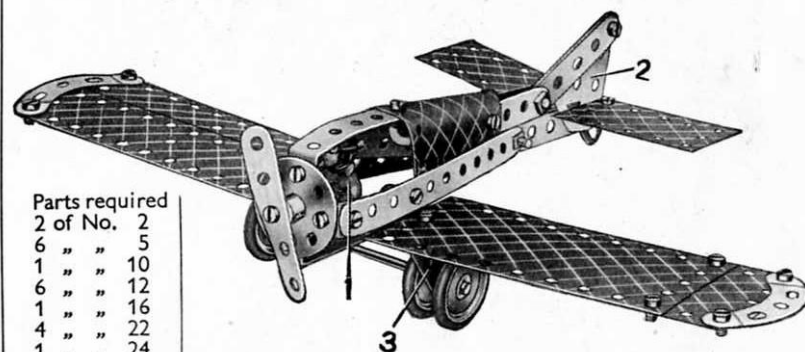


The radiator and the bonnet are fastened to the chassis by Flat Brackets 1. The driver (Aeroplane Constructor Part No. P100), fitted into the model to add realism, is not included in the Outfit but may be purchased separately.

Parts required

4 of No. 2	1 of No. 19g	2 of No. 38	1 of No. 126a
5 " " 5	4 " " 22	1 " " 48a	4 " " 155a
4 " " 10	4 " " 35	2 " " 90a	1 " " 199
8 " " 12	30 " " 37	1 " " 125	1 " " 200
2 " " 16	1 " " 37a	1 " " 126	

2.8 LOW WING MONOPLANE



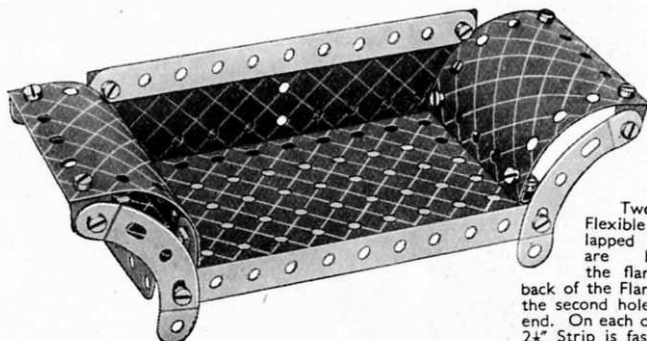
Parts required

2 of No. 2	2 of No. 126	2 of No. 189
6 " " 5	1 " " 126a	1 " " 190
1 " " 10	4 " " 155a	1 " " 191
6 " " 12	2 " " 188	1 " " 199
1 " " 16		
4 " " 22		
1 " " 24		
1 " " 37		
23 " " 37a		
2 " " 38		
2 " " 48a		
2 " " 90a		
3 " " 111c		

The pilot 1 (Aeroplane Constructor Part No. P100) is not included in the Outfit, but may be bought separately. The fin 2 is a Flat Trunnion, and it is clamped between the two 2 1/2" Strips. The bearings 3 for the axle of the landing wheels are Trunnions, bolted to the wings. The wings are attached to the fuselage by Angle Brackets.

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

2.9 SETTEE

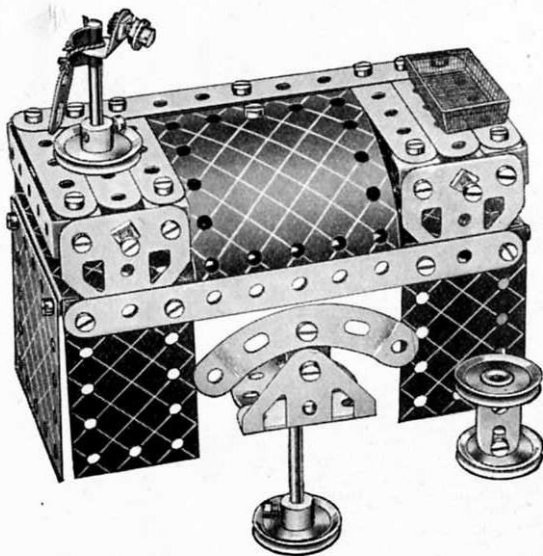


Two $5\frac{1}{2} \times 1\frac{1}{2}$ " Flexible Plates overlapped two holes are bolted to the flange at the back of the Flanged Plate in the second holes from each end. On each of the Bolts a $2\frac{1}{2}$ " Strip is fastened by its end hole, and the other end of the Strip is bolted to the turned down ends of the $2\frac{1}{2}$ " Double Angle Strips under the arm rests. $2\frac{1}{2}$ " Strips are bolted behind the $5\frac{1}{2} \times 1\frac{1}{2}$ " Flexible Plates at each end to form the back legs.

Parts required

2 of No. 2	24 of No. 37	2 of No. 90a
4 " " 5	2 " " 48a	2 " " 189
4 " " 12	1 " " 52	2 " " 200

2.10 ROLL TOP DESK



Parts required

2 of No. 2	6 " " 5	4 " " 10	7 " " 12	2 " " 17	4 " " 22	1 " " 24	3 " " 35	38 " " 37	5 " " 37a	1 " " 38	2 " " 48a	1 " " 52	1 " " 90a	3 " " 111c	1 " " 126	2 " " 126a	2 " " 188	1 " " 189	2 " " 190	1 " " 200
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2.11 TRAVELLING CRANE

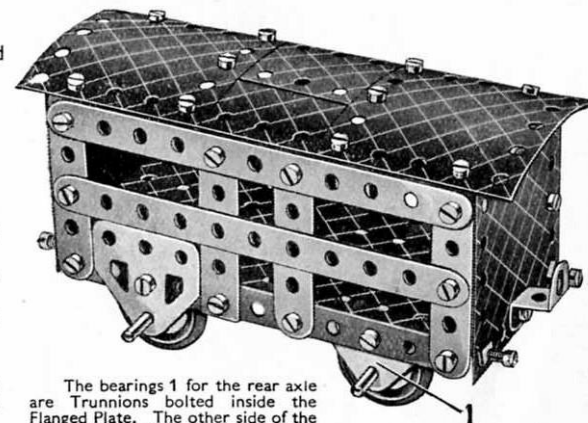


Parts required

4 of No. 2	1 of No. 19g	3 of No. 38	2 of No. 111c
6 " " 5	4 " " 22	1 " " 40	2 " " 126
4 " " 10	1 " " 24	2 " " 48a	2 " " 126a
6 " " 12	4 " " 35	1 " " 52	1 " " 176
2 " " 16	38 " " 37	1 " " 57c	1 " " 187
2 " " 17	2 " " 37a	2 " " 90a	2 " " 188
	2 of No. 189	1 of No. 200	

A 2" Rod is secured in the boss of the Bush Wheel 3. It then passes through the Road Wheel and through the centre of a $2\frac{1}{2} \times 1\frac{1}{2}$ " Double Angle Strip bolted between the two Trunnions 1. A Washer and a Cord Anchoring Spring are pushed on to the Rod to hold it in position. The crane jib is attached to the Bush Wheel by the Angle Brackets 2.

2.12 CATTLE TRUCK



Parts required

4 of No. 2	6 " " 5	4 " " 10	5 " " 12	2 " " 16	4 " " 22	38 " " 37	8 " " 37a	4 " " 38	2 " " 48a	1 " " 52	4 " " 111c	1 " " 125	2 " " 126	2 " " 126a	4 " " 155a	2 " " 188	2 " " 190	2 " " 200
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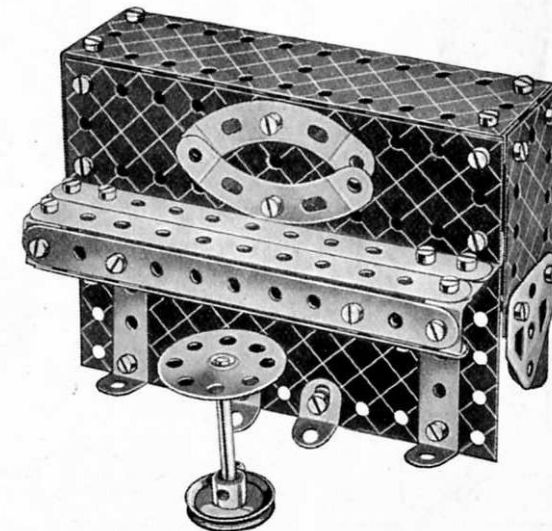
The bearings 1 for the rear axle are Trunnions bolted inside the Flanged Plate. The other side of the truck is constructed in a similar manner to the side shown in the illustration.

2.13 PLANO

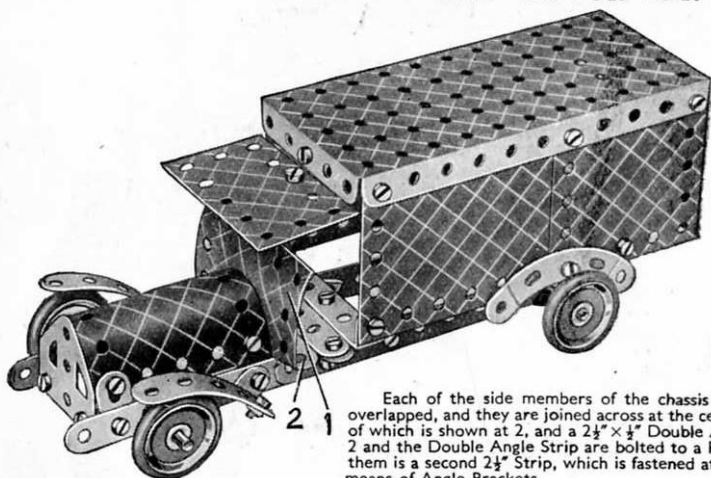
A $5\frac{1}{2} \times 2\frac{1}{2}$ " Flanged Plate is used for the upper part of the back and to each end of this a $2\frac{1}{2}$ " Strip is bolted to form the rear legs.

Parts required

4 of No. 2	4 " " 5	4 " " 10	8 " " 12	1 " " 17	1 " " 22	1 " " 24	38 " " 37	4 " " 38	2 " " 48a	1 " " 52	2 " " 90a	2 " " 126	2 " " 126a	2 " " 188	2 " " 189	1 " " 190	1 " " 191
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2.14 MOTOR VAN



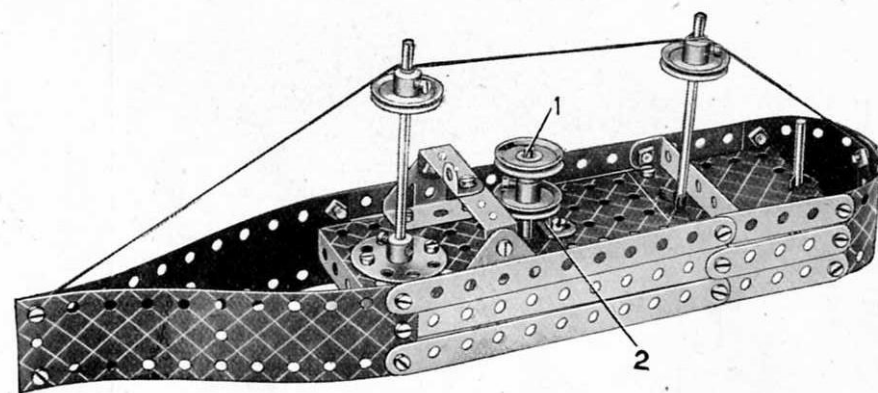
Each of the side members of the chassis consists of two $5\frac{1}{2}$ " Strips overlapped, and they are joined across at the centre by two $2\frac{1}{2}$ " Strips, one of which is shown at 2, and a $2\frac{1}{2}$ " \times $\frac{1}{2}$ " Double Angle Strip. The $2\frac{1}{2}$ " Strip 2 and the Double Angle Strip are bolted to a Flat Trunnion, and between them is a second $2\frac{1}{2}$ " Strip, which is fastened at each end to the chassis by means of Angle Brackets.

The Plate 1 is fastened to an Angle Bracket that is bolted to Strip 2. The body is fixed to the chassis by a Double Angle Strip and an Angle Bracket.

Parts required:

4 of No. 2
4 " " 5
4 " " 10
8 " " 12
2 " " 16
4 " " 22
4 " " 35
40 " " 37
4 " " 38
2 " " 48a
1 " " 52
2 " " 90a
1 " " 126
2 " " 126a
4 " " 155a
2 " " 188
2 " " 189
2 " " 190
1 " " 191
1 " " 199

2.16 STEAMSHIP



The deck of the model is a $5\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flanged Plate extended by a $2\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flexible Plate. A $2\frac{1}{2}$ " \times $\frac{1}{2}$ " Double Angle Strip fitted with an Angle Bracket represents the bridge, and it is supported by two Trunnions bolted to the deck. The funnel consists of a Rod 1 fitted with two 1" fast Pulleys. The Rod passes through the hole in a Reversed Angle Bracket 2 and then through the Flanged Plate.

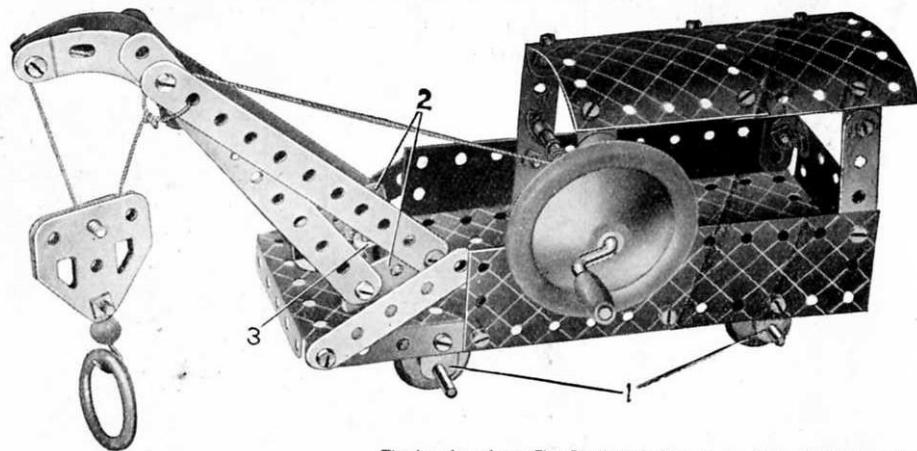
Parts required

4 of No. 2
6 " " 5
1 " " 12
2 " " 16
2 " " 17
4 " " 22
1 " " 24
4 " " 35
34 " " 37
1 " " 40
2 " " 48a
1 " " 52
1 " " 125
2 " " 126
2 " " 188
2 " " 189
1 " " 190

2.15 RAILWAY BREAKDOWN CRANE

Parts required

4 of No. 2
6 " " 5
4 " " 10
3 " " 12
2 " " 16
1 " " 17
1 " " 19g
4 " " 22
1 " " 24
2 " " 35
39 " " 37
3 " " 37a
3 " " 38
1 " " 40
2 " " 48a
1 " " 52
1 " " 57c
2 " " 90a
3 " " 111c
2 " " 126
2 " " 126a
1 " " 155a
1 " " 176
1 " " 187

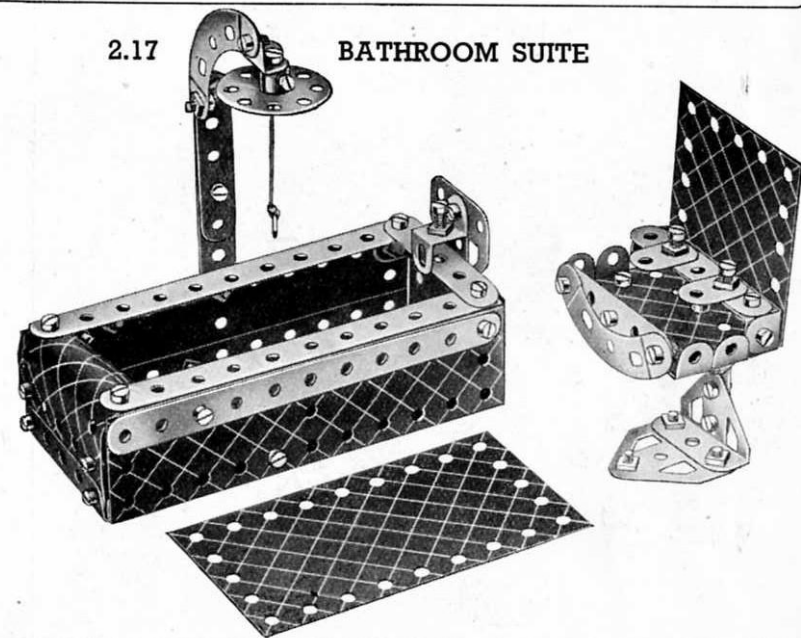


The bearings 1 are Flat Brackets bolted to the Flanged Plate and the Flexible Plates respectively. The jib is fastened to two Trunnions 2, which are bolted to the Bush Wheel 3. A 2" Rod is secured in the boss of the Bush Wheel 3. It then passes through a hole in the Flanged Plate, and is held in position by a Spring Clip underneath the Plate.

1 of No. 188
2 " " 189
1 " " 190
1 " " 191
2 " " 200

2.17

BATHROOM SUITE

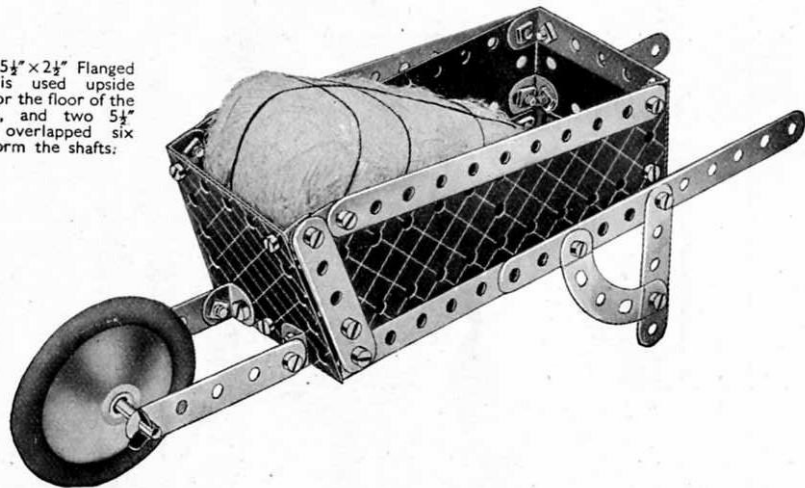


Parts required

4 of No. 2
6 " " 5
4 " " 10
8 " " 12
1 " " 24
40 " " 37
6 " " 37a
2 " " 38
2 " " 48a
1 " " 52
2 " " 90a
4 " " 111c
1 " " 125
2 " " 126
2 " " 126a
2 " " 188
2 " " 189
1 " " 190
1 " " 191
1 " " 199
1 " " 200

2.18 WHEELBARROW

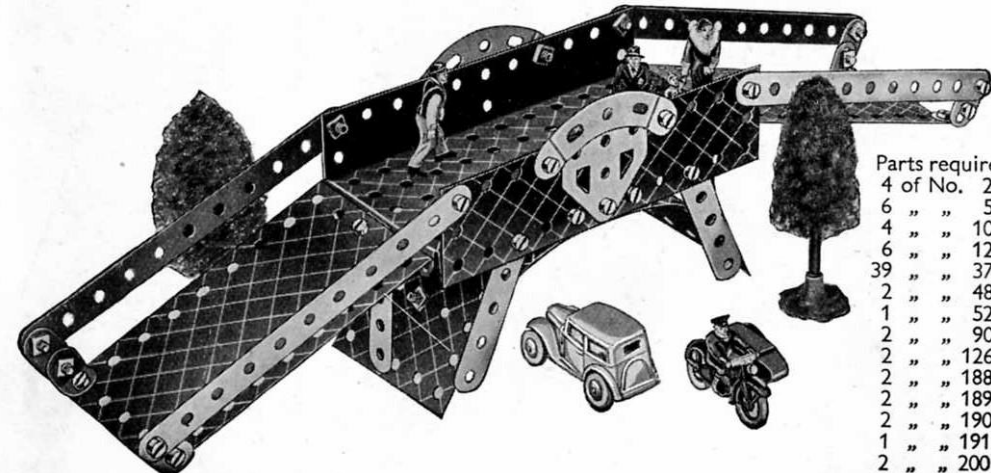
A $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate is used upside down for the floor of the barrow, and two $5\frac{1}{2}"$ Strips overlapped six holes form the shafts:



Parts required

4 of No. 2
6 " " 5
2 " " 10
4 " " 12
1 " " 17
2 " " 35
29 " " 37
2 " " 48a
1 " " 52
2 " " 90a
1 " " 187
1 " " 188
2 " " 189
1 " " 190

2.20 ROAD BRIDGE

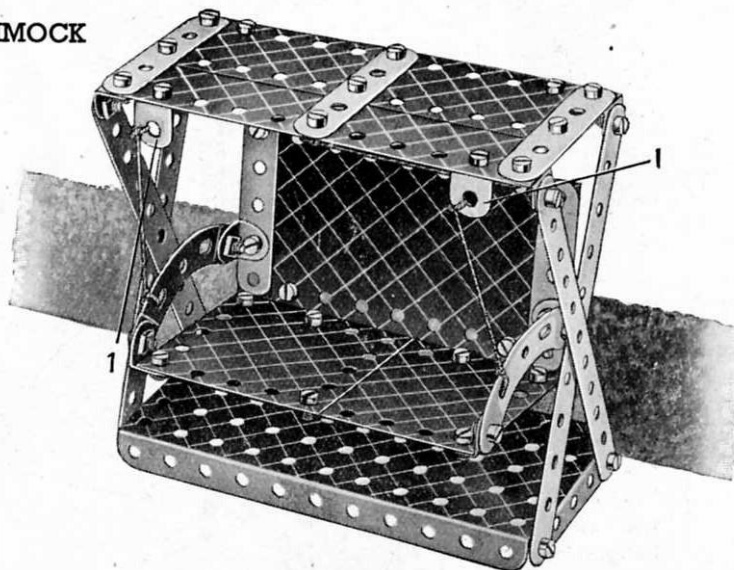


Parts required

4 of No. 2
6 " " 5
4 " " 10
6 " " 12
39 " " 37
2 " " 48a
1 " " 52
2 " " 90a
2 " " 126a
2 " " 188
2 " " 189
2 " " 190
1 " " 191
2 " " 200

2.19 GARDEN HAMMOCK

The Cord by which the back of the hammock is suspended is tied to the rear ends of the Double Angle Strips 1. The seat, which consists of two $2\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plates, is attached to the back of the hammock by two Trunnions.



Parts required

4 of No. 2	1 of No. 52
5 " " 5	2 " " 90a
8 " " 12	2 " " 126
38 " " 37	2 " " 189
1 " " 40	2 " " 190
2 " " 48a	1 " " 191

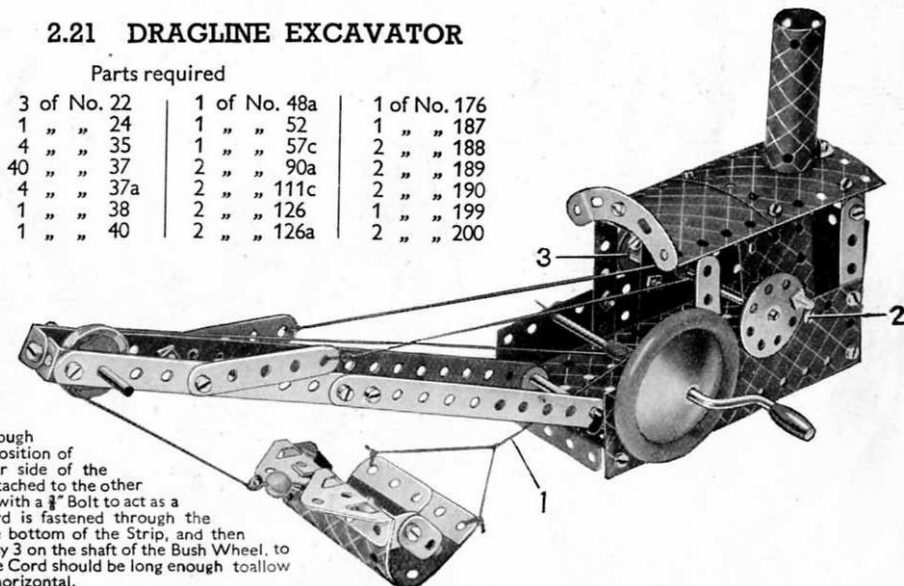
2.21 DRAGLINE EXCAVATOR

Parts required

4 of No. 2	3 of No. 22	1 of No. 48a	1 of No. 176
6 " " 5	1 " " 24	1 " " 52	1 " " 187
2 " " 10	4 " " 35	1 " " 57c	2 " " 188
8 " " 12	40 " " 37	2 " " 90a	2 " " 189
1 " " 16	4 " " 37a	2 " " 111c	2 " " 190
2 " " 17	1 " " 38	2 " " 126	1 " " 199
1 " " 19g	1 " " 40	2 " " 126a	2 " " 200

The Cord 1 is wound round the Crank Handle about 12 times, then one end of it is fastened to a small Loaded Hook and the other end to the Cord on the bucket.

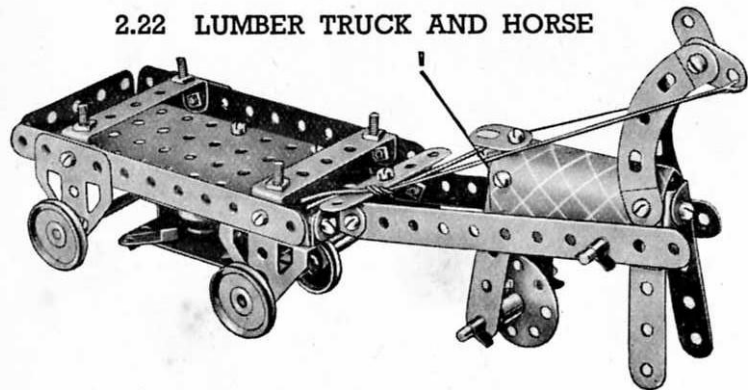
A Curved Strip is pivoted by a $\frac{3}{8}"$ Bolt through one of its ends, in the position of Bolt 2, but on the rear side of the model. A 1" Pulley is attached to the other end of the Curved Strip, with a $\frac{3}{8}"$ Bolt to act as a weight. A loop of Cord is fastened through the slotted hole next to the bottom of the Strip, and then passes round the 1" Pulley 3 on the shaft of the Bush Wheel, to act as a brake band. The Cord should be long enough to allow the Strip to lie nearly horizontal.



No. 2 Outfit Models fitted with 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 Motor. The illustrations below show how the Meccano *Magic* Motor can be fitted without any difficulty to No. 2 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.

2.22 LUMBER TRUCK AND HORSE

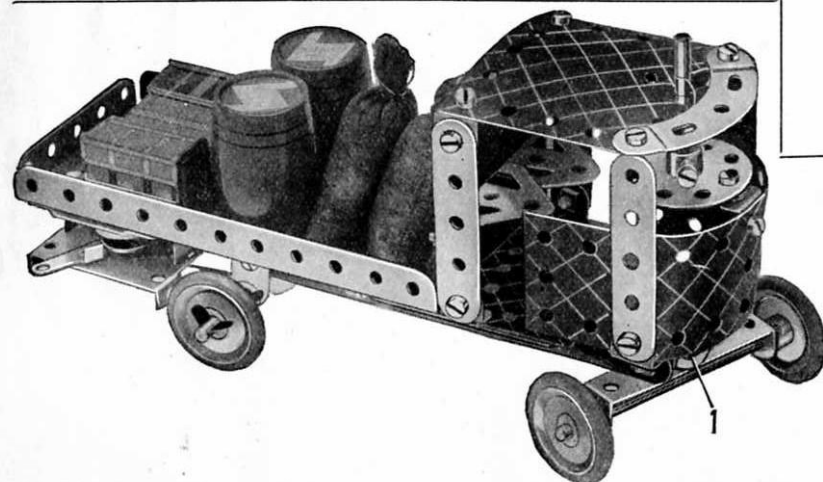


Parts required

4 of No. 2	4 of No. 37a
5 " " 5	2 " " 48a
3 " " 10	1 " " 52
5 " " 12	2 " " 90a
2 " " 16	4 " " 111c
2 " " 17	2 " " 126
4 " " 22	2 " " 126a
1 " " 24	4 " " 155a
4 " " 35	1 " " 199
23 " " 37	1 <i>Magic</i> Motor

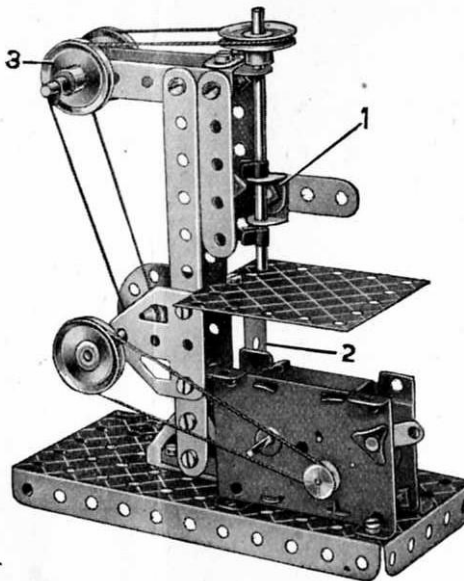
A *Magic* Motor is mounted beneath the cart and the Driving Band is taken from the pulley on the Motor to a $\frac{1}{2}$ " fast Pulley (supplied with the Motor) fastened on the $3\frac{1}{2}$ " Rod that forms the front axle.

The forelegs of the horse are held together by means of two Angle Brackets bolted in the positions shown. This construction is duplicated at 1 for the hind-legs. The forelegs of the horse are held clear of the ground by means of the reins.

2.23
DRILLING
MACHINE

Parts required

2 of No. 2	
5 " " 5	
1 " " 10	
5 " " 12	
1 " " 16	
2 " " 17	
4 " " 22	
1 " " 24	
4 " " 35	
22 " " 37	
2 " " 37a	
1 " " 40	
1 " " 48a	
1 " " 52	
1 " " 111c	
2 " " 126	
2 " " 126a	
1 " " 190	
1 <i>Magic</i> Motor	



The horizontal $2\frac{1}{2}$ " Strips at the top of the drill are joined together, and also to the vertical $2\frac{1}{2}$ " Strips, by means of Angle Brackets. The lower bearings 1 are two Angle Brackets bolted to a $2\frac{1}{2}$ " Strip, and the Rod forming the drill is journaled in these, and in a Flat Bracket at its upper end. A $2\frac{1}{2}$ " x $2\frac{1}{2}$ " Flexible Plate is supported by a Double Angle Strip 2, and represents the table.

The drive is taken from the Motor to the $1\frac{1}{2}$ " Pulley on the lower shaft. A second Driving Band passes round the $\frac{1}{2}$ " fast Pulley supplied with the Motor, round the two Pulleys at 3, and finally round the $1\frac{1}{2}$ " Pulley fastened on the vertical drill shaft.

2.25 STEAM WAGON

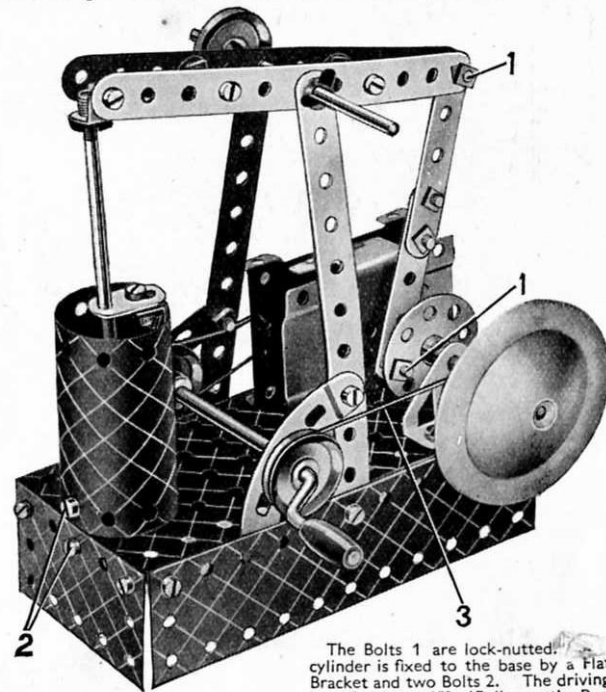
Parts required

2 of No. 2	4 of No. 35	2 of No. 126
6 " " 5	31 " " 37	4 " " 155a
2 " " 10	1 " " 37a	1 " " 188
8 " " 12	4 " " 38	1 " " 189
2 " " 16	2 " " 48a	1 " " 190
1 " " 17	1 " " 52	1 " " 200
4 " " 22	1 " " 90a	1 <i>Magic</i> Motor
1 " " 24	1 " " 125	

2.24
BEAM
ENGINE

Parts required

4 of No. 2	
2 " " 5	
2 " " 10	
6 " " 12	
2 " " 16	
1 " " 17	
1 " " 19g	
4 " " 22	
1 " " 24	
4 " " 35	
31 " " 37	
4 " " 37a	
4 " " 38	
1 " " 52	
2 " " 90a	
2 " " 111c	
1 " " 126	
1 " " 126a	
1 " " 176	
1 " " 187	
2 " " 188	
2 " " 189	
1 " " 191	
1 <i>Magic</i> Motor	



The Bolts 1 are lock-nutted: cylinder is fixed to the base by a Flat Bracket and two Bolts 2. The driving band 3 drives a $1\frac{1}{2}$ " fast Pulley on the Rod on which the Road Wheel is fastened.

The front axle is carried in a $2\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip that is pivoted to a Reversed Angle Bracket fastened to a $2\frac{1}{2}$ " Strip below the cab by means of the lock-nutted Bolt 1, which is tightened up sufficiently to hold the two front wheels in position when running along. The rear axle is a $3\frac{1}{2}$ " Rod and it carries the $\frac{1}{2}$ " fast Pulley supplied with the *Magic* Motor.

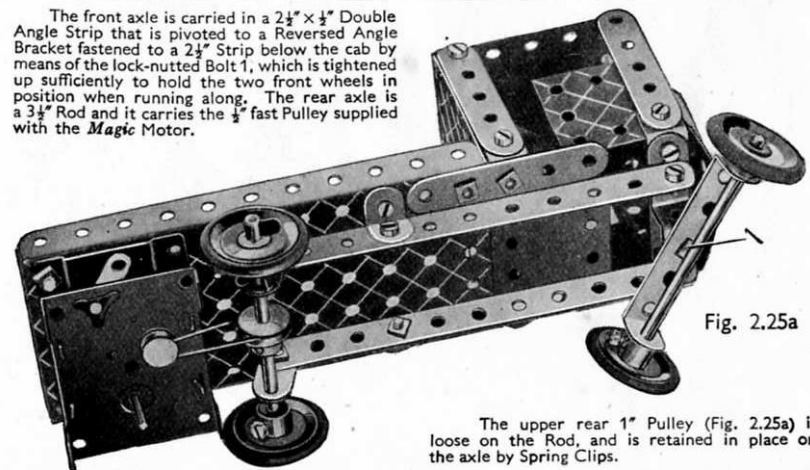


Fig. 2.25a

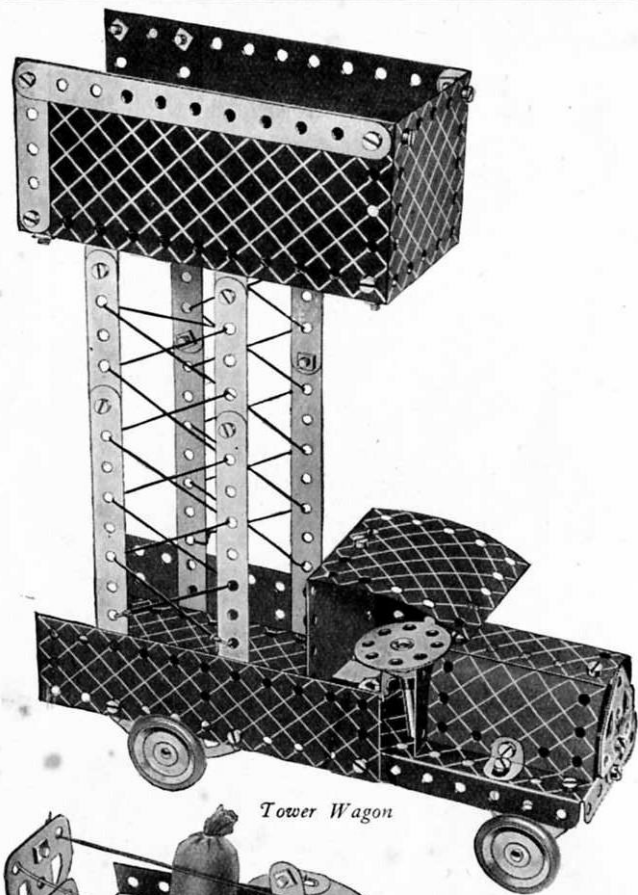
The upper rear $1\frac{1}{2}$ " Pulley (Fig. 2.25a) is loose on the Rod, and is retained in place on the axle by Spring Clips.

BUILD BIGGER AND BETTER MODELS

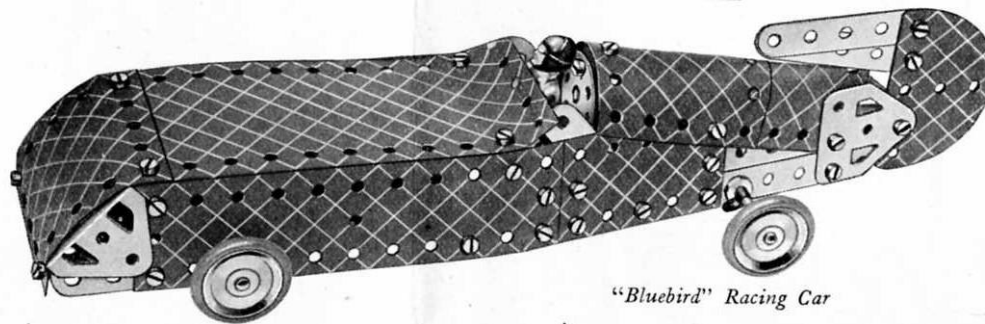
When you have built all the models shown in this Manual you will be keen to build bigger and more elaborate models. Your next step is to purchase a Meccano No. 2a Accessory Outfit containing all the parts required to convert your No. 2 into a No. 3 Outfit. You will then be able to build the full range of No. 3 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.

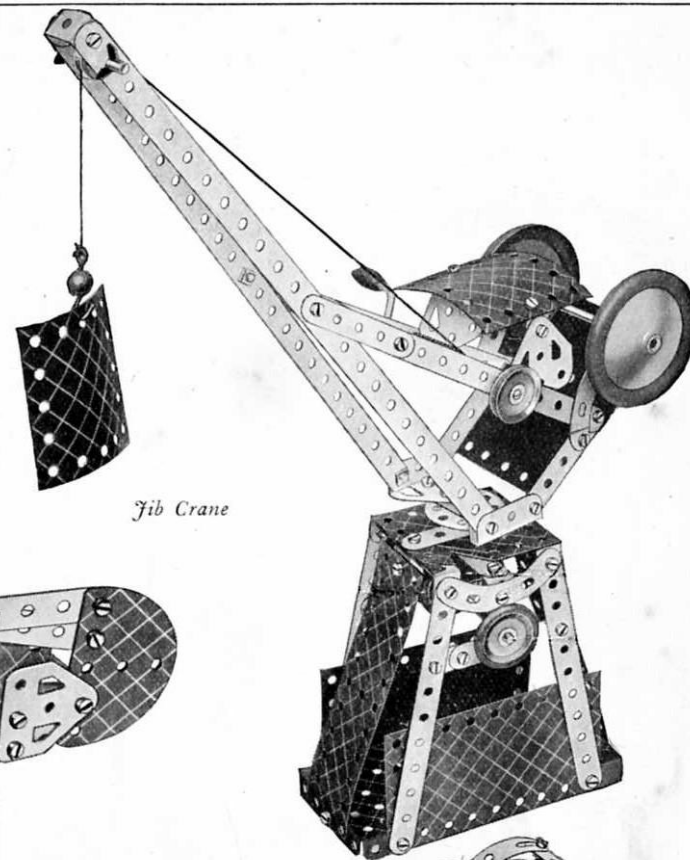
Ask your dealer to post to you regularly the latest Meccano parts lists and other Meccano literature.



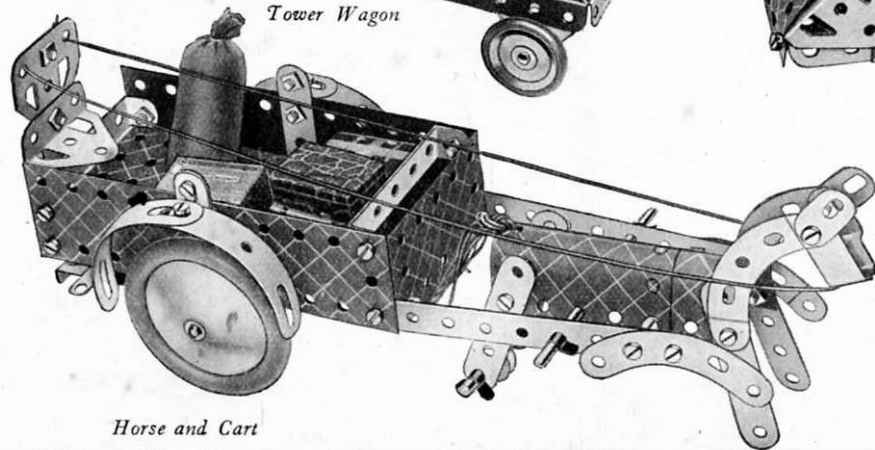
Tower Wagon



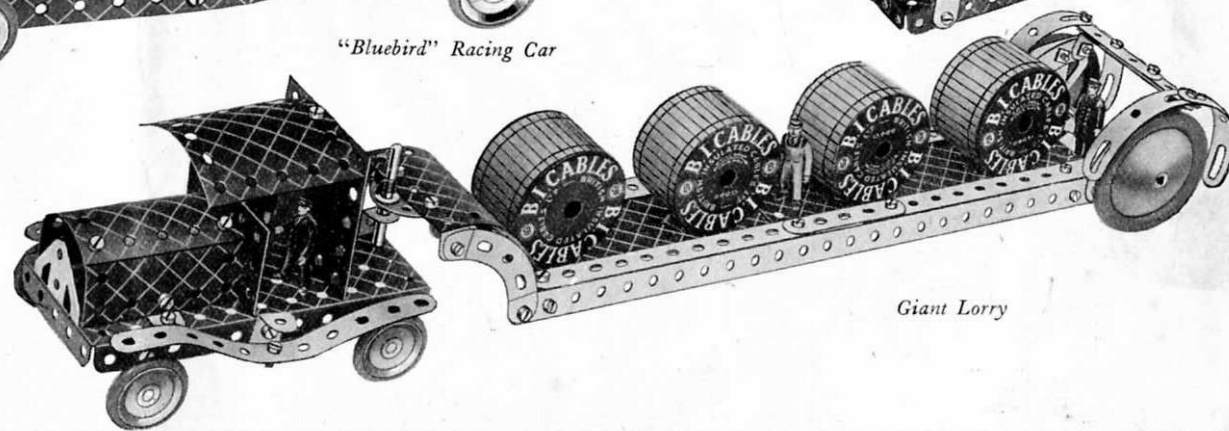
"Bluebird" Racing Car



Jib Crane



Horse and Cart



Giant Lorry

MECCANO PARTS

Perforated Strips	
No.	
1.	12 $\frac{1}{2}$ "
1a.	9 $\frac{1}{2}$ "
1b.	7 $\frac{1}{2}$ "
2.	5 $\frac{1}{2}$ "
2a.	4 $\frac{1}{2}$ "



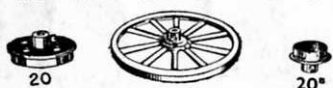
Angle Girders	
No.	
7.	24 $\frac{1}{2}$ "
7a.	18 $\frac{1}{2}$ "
8.	12 $\frac{1}{2}$ "
8a.	9 $\frac{1}{2}$ "
8b.	7 $\frac{1}{2}$ "
9.	5 $\frac{1}{2}$ "



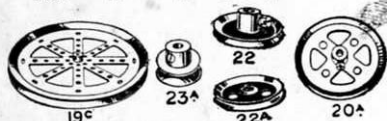
10. Flat Brackets
11. Double Brackets
12. Angle Brackets, $\frac{1}{2}$ " x $\frac{1}{2}$ "
12a. " " " " " " " "
12b. " " " " " " " "
12c. Obtuse Angle Brackets, $\frac{1}{2}$ " x $\frac{1}{2}$ "

Axle Rods	
No.	
13.	11 $\frac{1}{2}$ "
13a.	8 $\frac{1}{2}$ "
14.	6 $\frac{1}{2}$ "
15.	5 $\frac{1}{2}$ "
15a.	4 $\frac{1}{2}$ "
15b.	4"

- 19g. Crank Handles, 3 $\frac{1}{2}$ " with Erinoid grip
19h. " " 5"
19s. " " 3 $\frac{1}{2}$ " without "



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



- Pulley Wheels
19b. 3" diam. with centre boss & set-screw
19c. 6" " " " " "
20a. 2" " " " " "
21. 1 $\frac{1}{2}$ " " " " " "
22. 1" " " " " "
23a. 1 $\frac{1}{2}$ " " " " " and grub-screw
22a. 1" " " " " "
23. 1 $\frac{1}{2}$ " " " " " "

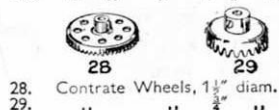


24. Bush Wheels

Pinion Wheels	
No.	
25.	Pinion Wheels, $\frac{1}{2}$ " diam., $\frac{1}{2}$ " face
25a.	" " " " " "
25b.	" " " " " "
26.	" " " " " "
26a.	" " " " " "
26b.	" " " " " "



- Gear Wheels
27. 50 teeth, to gear with $\frac{1}{2}$ " pinion
27a. 57 " " " " " "
27b. 133 " " " " " (3 $\frac{1}{2}$ " diam.)
27c. 95 " " " " " (2 $\frac{1}{2}$ " diam.)



28. Contrate Wheels, 1 $\frac{1}{2}$ " diam.
29. " " " " " "
30. Bevel Gears, $\frac{1}{2}$ " 26 teeth
30a. " " " " " " Can only be
30c. " " " " " " used together



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



34. Spanners
34b. Box Spanners

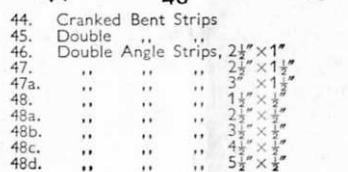


35. Spring Clips ... box of 20
35s. " " " " " box of 60
36. Screwdrivers
36a. " " Extra Long
36b. " " Special
37. Nuts and Bolts, $\frac{1}{16}$ " ... box of 12
37a. Nuts ... box of 50
37b. Bolts, $\frac{1}{16}$ " ... box of 50
37f. Nuts and Bolts, $\frac{1}{16}$ " ... box of 50
37g. " " " " " box of 144
38. Washers ... box of 20
38s. " " " " " box of 60
40. Hanks of Cord



41. Propeller Blades

43. Springs
44. Cranked Bent Strips
45. Double Angle Strips, 2 $\frac{1}{2}$ " x 1"



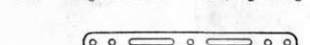
- 50a. Eye Pieces, with boss



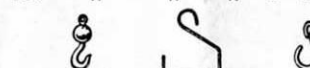
51. Flanged Plates, 2 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ "
52. " " 5 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ "
52a. Flat Plates, 5 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ "
53. Flanged Plates, 3 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ "
53a. Flat Plates, 4 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ "



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



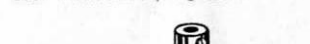
55. Perforated Strips, slotted, 5 $\frac{1}{2}$ " long
55a. " " " " 2" long



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. " 25 "
68. Woodscrews, $\frac{1}{2}$ " "
69. Set Screws
69a. Grub Screws, $\frac{1}{2}$ " "
69b. " " " "
69c. " " " "



70. Flat Plates, 5 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ "
72. " " 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ "
73. " " 3 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ "
76. Triangular Plates, 2 $\frac{1}{2}$ "
77. " " 1"



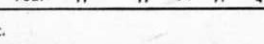
- 80a. Screws
80b. 4 $\frac{1}{2}$ "
80c. 3"
80d. 2"
80e. 1"



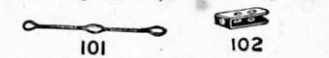
89. 5 $\frac{1}{2}$ " Curved Strips, 10" radius
89a. 3 $\frac{1}{2}$ " " " cranked, 1 $\frac{1}{2}$ " radius
89b. 4" Curved Strips, cranked, 4 $\frac{1}{2}$ " radius, 8 to circle
90. 2 $\frac{1}{2}$ " Curved Strips, 2 $\frac{1}{2}$ " radius
90a. 2 $\frac{1}{2}$ " " " cranked, 1 $\frac{1}{2}$ " radius, 4 to circle



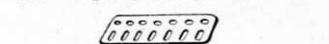
94. Sprocket Chain, per 40" length
95. " Wheels, 36 teeth, 2" diam.
95a. " " 28 " 1 $\frac{1}{2}$ " "
95b. " " 56 " 3" "
96. " " 18 " 1" "
96a. " " 14 " 3" "



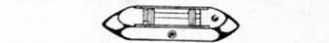
99. Braced Girders
97. 3 $\frac{1}{2}$ " long
97a. 3" " " " " " " " "
98. 2 $\frac{1}{2}$ " " " " " " " " "
99. 12 $\frac{1}{2}$ " " " " " " " " "



101. Healds, for looms
102. Single Bent Strips



103. Flat Girders
103a. 5 $\frac{1}{2}$ " long
103b. 12 $\frac{1}{2}$ " " " " " " " " "
103c. 4 $\frac{1}{2}$ " " " " " " " " "
103d. 3 $\frac{1}{2}$ " " " " " " " " "



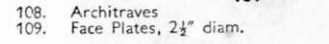
104. Shuttles, for looms
105. Reed Hooks, for looms



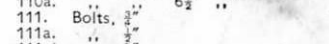
106. Wood Rollers
106a. Sand Rollers
107. Tables for designing machines



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



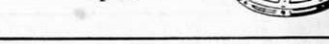
110. Rack Strips, 3 $\frac{1}{2}$ " long
110a. Bolts, " " " " " "
111a. " " " " " " " "
111c. " " " " " " " "



113. Girder Frames
114. Hinges
115. Threaded Pins
116. Fork Pieces, Large
116a. " " Small
117. Steel Balls, $\frac{1}{8}$ " diam.

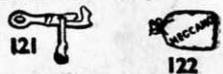


118. Hub Discs, 5 $\frac{1}{2}$ " diam.



MECCANO PARTS

120. Buffers
120b. Compression Springs
120a. Spring Buffers



121. Train Couplings
122. Miniature Loaded Sacks



123. Cone Pulleys
124. Reversed Angle Brackets, 1" $\frac{1}{2}$ "
125. " " "



126. Trunnions
126a. Flat Trunnions



127. Simple Bell Cranks
128. Boss Bell Cranks



129. Rack Segments, 3" diam.



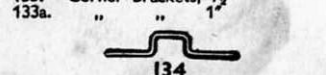
130. Eccentrics, Triple Throw
131. Flywheels, 2 1/2" diam.



132. Dredger Buckets
133. Corner Brackets, 1 1/2" $\frac{1}{2}$ "
133a. " " "



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



136. Handrail Supports
136a. Handrail Couplings



137. Wheel Flanges
137a. Wheel Discs

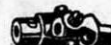
136. Handrail Supports
136a. Handrail Couplings
137. Wheel Flanges



138. Ships' Funnels, Raked
138a. " " "



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



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



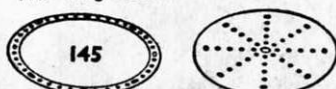
142. Rubber Rings (to fit 3" diam. rims)
142a. Motor Tyres (to fit 2" diam. rims)
142b. " " " 3" " "
142c. " " " 1 1/2" " "
142d. " " " 1 1/2" " "



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



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



- 154a. Corner Angle Brackets, 1/2" (right-hand)
154b. Corner Angle Brackets, 1/2" (left-hand)
155. Rubber Rings (for 1" Pulleys) Black White
155a. " " " "



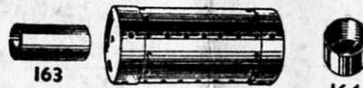
156. Pointers (with boss), 2 1/2" overall



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



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. " " without ends
162b. " " " "
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)



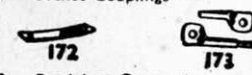
168. Ball Bearings, 4" diam.
168a. " Races, flanged discs
168b. " " toothed " "
168c. " Casings, complete with balls



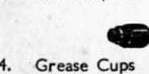
169. Digger Buckets



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 Small
178. Rod Sockets " "



179. Toothed Gear Rings, 3 1/2" diam.
180. Bobbins



181. Insulating Bushes
182a. Insulating Washers



183. Lamp Holders
184a. 2 1/2-volt Lamps
184b. 3 1/2 " " "
184c. 6-volt Lamps
184d. 10 " " "
184e. 20 " " "



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



192. Flexible Plates.
197. Strip Plates.

188. 2 1/2" x 1 1/2"
189. 5 1/2" x 1 1/2"
190. 2 1/2" x 2 1/2"
190a. 3 1/2" x 2 1/2"
191. 4 1/2" x 2 1/2"
192. 5 1/2" x 2 1/2"
196. 9 1/2" x 2 1/2"
197. 12 1/2" x 2 1/2"



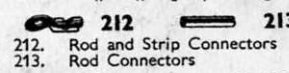
198. Hinged Flat Plates, 4 1/2" x 2 1/2"
199. Curved Plates, U-Section 2 1/2" x 2 1/2" x 1/8" radius
200. " " 2 1/2" x 2 1/2", 1 1/8" radius



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



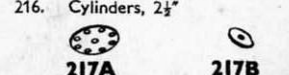
- 211a. Helical Gear 1/2" { Can only be used together
211b. " " 1 1/2" " "



212. Rod and Strip Connectors
213. Rod Connectors



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



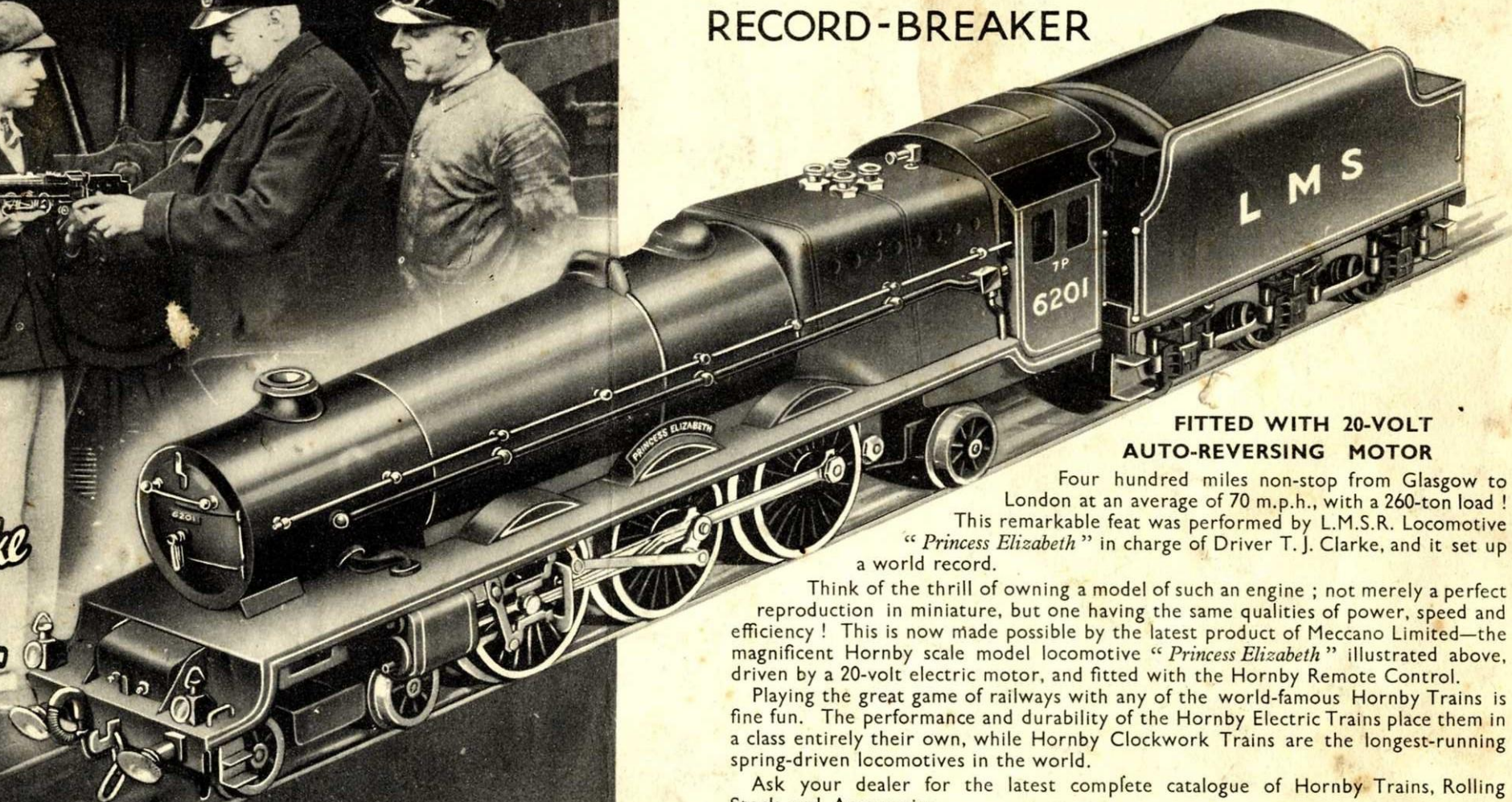
216. Cylinders, 2 1/2"
217a. Discs, 1 1/2"
217b. Discs 1/2"



*Driver Clarke
says
"It's fine!"*

HORNBY TRAINS

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



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