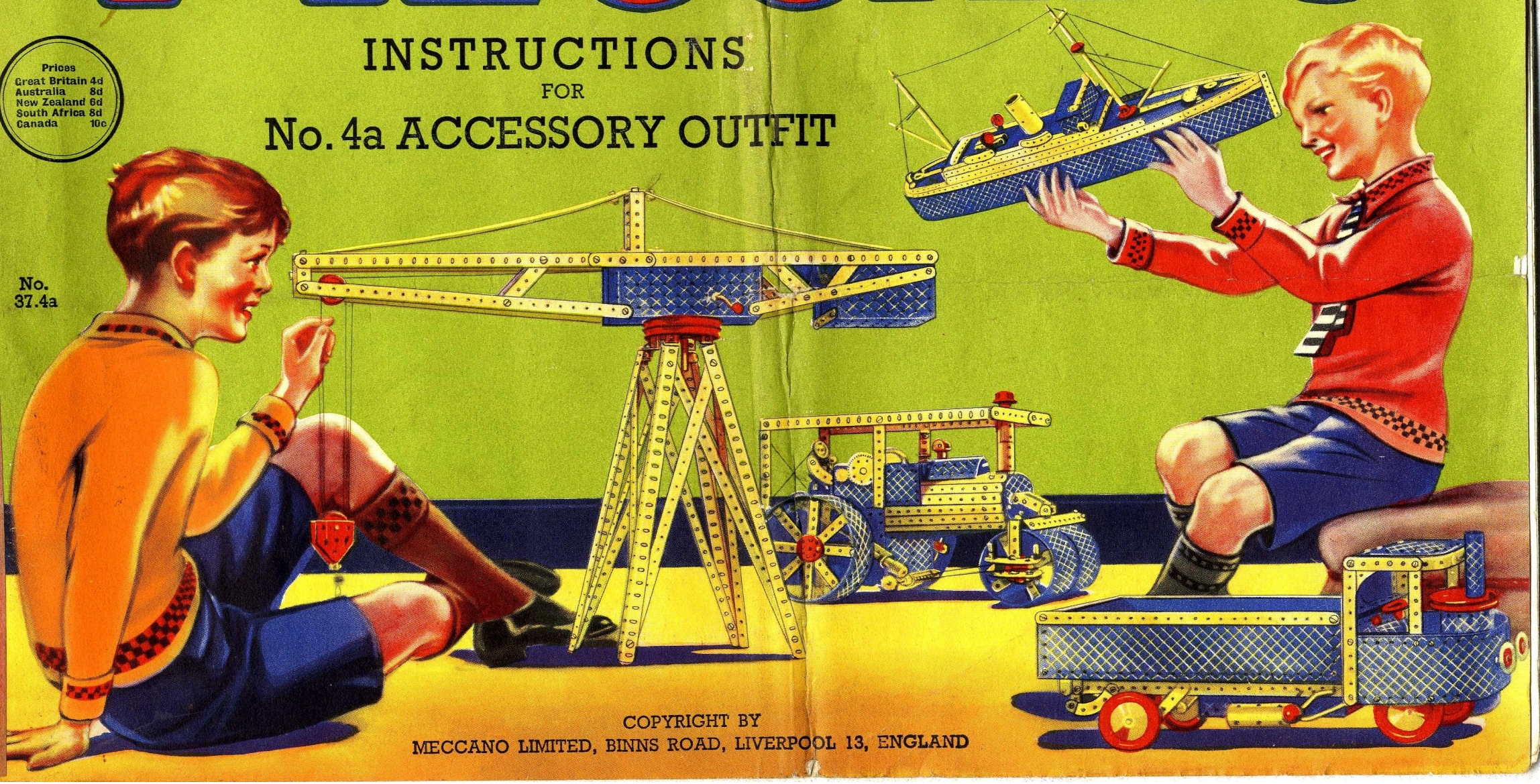
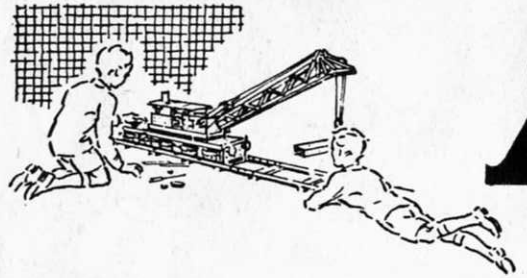
MECCANO

INSTRUCTIONS
FOR
No. 4a ACCESSORY OUTFIT

Prices
Great Britain 4d
Australia 8d
New Zealand 6d
South Africa 8d
Canada 10c

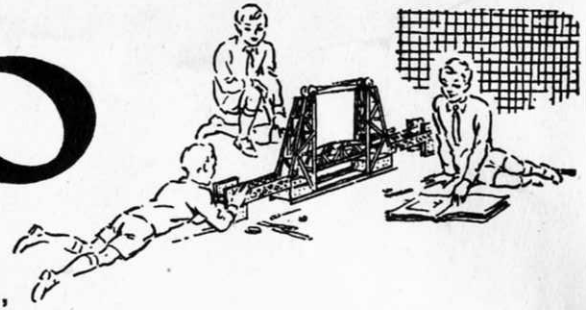
No. 37.4a





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. O 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.

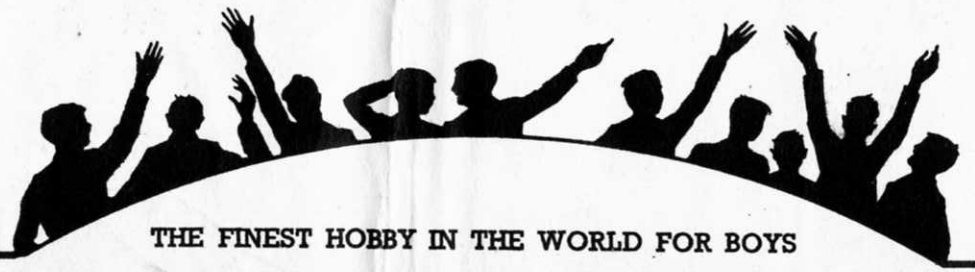
The " Meccano Magazine " is the finest of all papers for boys who are interested in the wonderful things going on in the world around them. It is published on the first of each month. If you are not already a reader write to the Editor for full particulars, or order a copy from your Meccano dealer, or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

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.



THE FINEST HOBBY IN THE WORLD FOR BOYS

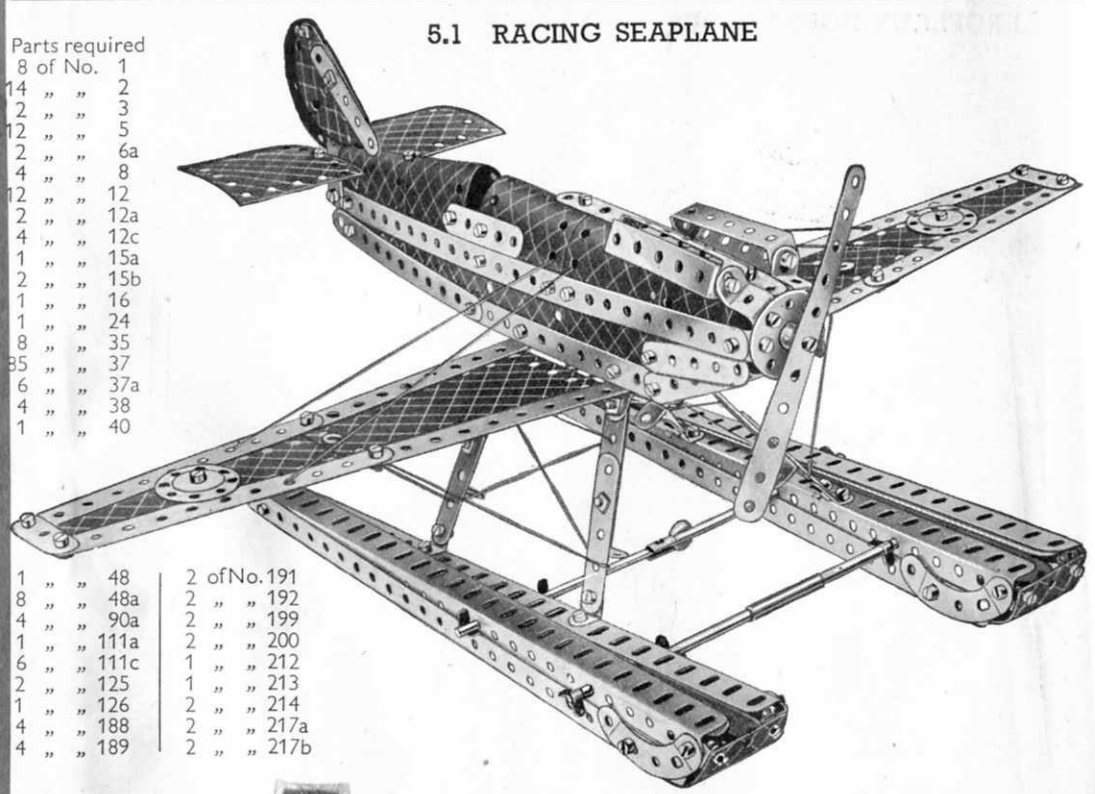
MECCANO SERVICE

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.

5.1 RACING SEAPLANE

Parts required

8	of No.	1
14	„ „	2
2	„ „	3
12	„ „	5
2	„ „	6a
4	„ „	8
12	„ „	12
2	„ „	12a
4	„ „	12c
1	„ „	15a
2	„ „	15b
1	„ „	16
1	„ „	24
8	„ „	35
85	„ „	37
6	„ „	37a
4	„ „	38
1	„ „	40
1	„ „	48
8	„ „	48a
4	„ „	90a
1	„ „	111a
6	„ „	111c
2	„ „	125
1	„ „	126
4	„ „	188
4	„ „	189
2	of No.	191
2	„ „	192
2	„ „	199
2	„ „	200
1	„ „	212
1	„ „	213
2	„ „	214
2	„ „	217a
2	„ „	217b



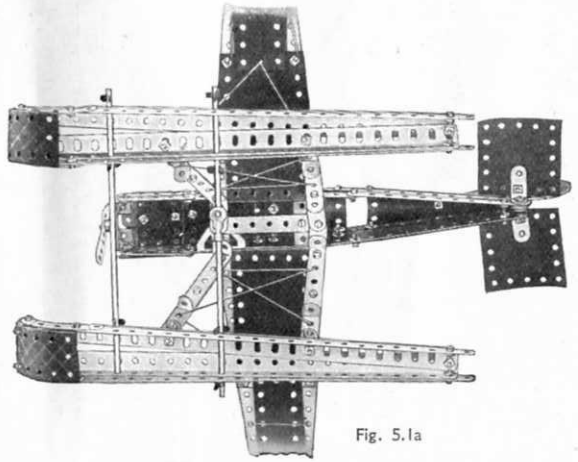
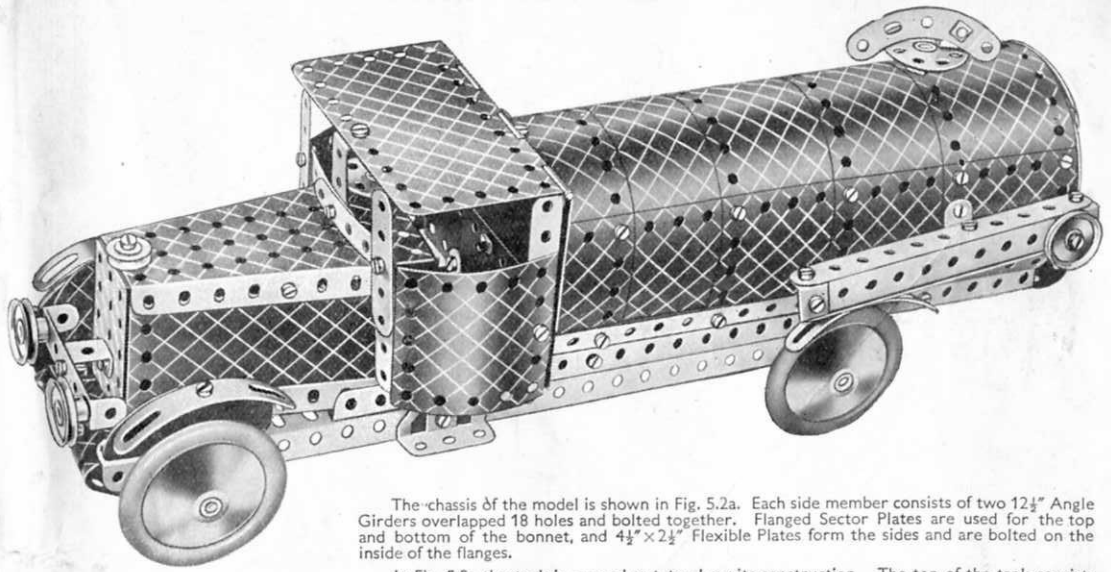


Fig. 5.1a

A 2½"×1½" Flexible Plate is bolted to Angle Brackets underneath the nose, but it is removed in Fig. 5.1a to show the construction of the fuselage. The rudder is bolted to a 3½" Strip, which is held upright between four spacing Washers (two on each side) on the ½" Bolt that holds the 12½" Strips together at the tail.

The leading edge of the wing is fastened to the fuselage by a Trunnion, and the trailing edge is fixed to a 1½"×½" Double Angle Strip that spaces the underside of the fuselage. The floats are attached by Obtuse Angle Brackets bolted to the wings. The front tie rod of the floats is made up of two 4" Rods joined by a Rod Connector, and the rear tie rod consists of a 4½" Rod and a 3½" Rod joined by a Rod and Strip Connector. A 12½" Strip is bolted between the two 12½" Angle Girders that form the top of each float.

5.2 PETROL TANK LORRY



The chassis of the model is shown in Fig. 5.2a. Each side member consists of two 12½" Angle Girders overlapped 18 holes and bolted together. Flanged Sector Plates are used for the top and bottom of the bonnet, and 4½"×2½" Flexible Plates form the sides and are bolted on the inside of the flanges.

In Fig. 5.2a the tank is opened out to show its construction. The top of the tank consists of four 5½"×2½" Flexible Plates and a 5½"×1½" Flexible Plate. It is extended on the rear side by two 5½"×2½" Flexible Plates and 12½" Strips are bolted to each longitudinal edge. The complete tank is attached to the Angle Girders by four Obtuse Angle Brackets. The tank filler cap is a Bush Wheel fitted with a 2½" small radius Curved Strip, and is fastened to the shank of the ½" Bolt at the top of the tank.

The steering wheel is a 1½" Disc lock-nutted to the Flanged Sector Plate.

The roof and back of the cab consist of a Hinged Flat Plate and two 2½"×1½" Flexible Plates overlapped one hole. The cab is fastened to the chassis by Angle Brackets, and to the bonnet by the 1½"×½" Double Angle Strip that forms the central division of the windscreen.

Parts required

7	of No.	2
1	„ „	3
8	„ „	5
4	„ „	8
3	„ „	11
10	„ „	12
2	„ „	12a
4	„ „	12c
2	„ „	15
3	„ „	22
1	„ „	22a
1	„ „	23
1	„ „	24
4	„ „	35
80	„ „	37
5	„ „	37a
9	„ „	38
1	„ „	48
1	„ „	48a
1	„ „	51
1	of No.	52
2	„ „	54a
4	„ „	90a
2	„ „	111a
5	„ „	111c
2	„ „	125
2	„ „	126
2	„ „	126a
4	„ „	187
4	„ „	188
3	„ „	189
4	„ „	190
2	„ „	191
4	„ „	192
1	„ „	198
2	„ „	199
2	„ „	200
2	„ „	214
4	„ „	215
1	„ „	217a

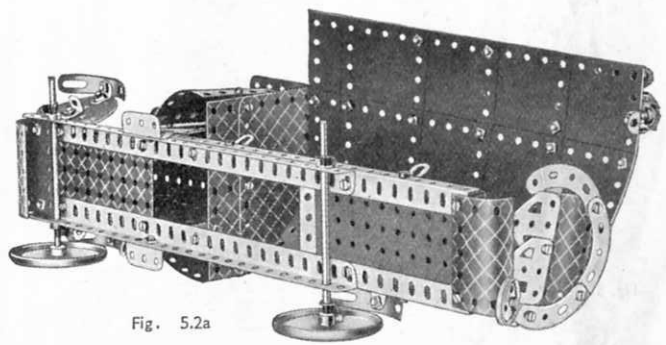
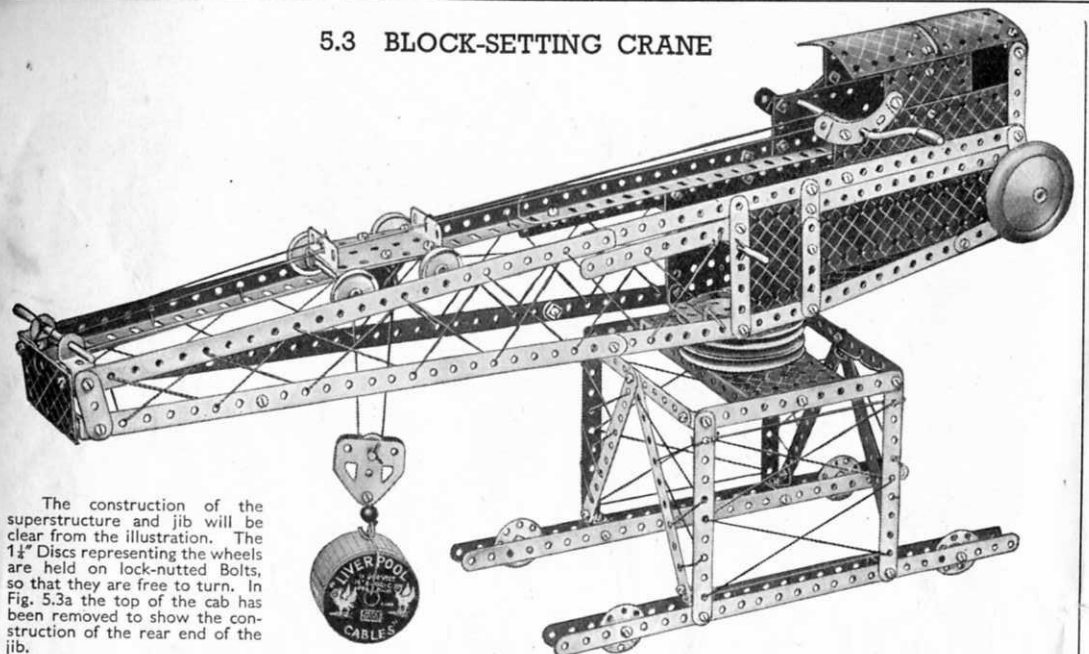


Fig. 5.2a

5.3 BLOCK-SETTING CRANE



The construction of the superstructure and jib will be clear from the illustration. The 1½" Discs representing the wheels are held on lock-nutted Bolts, so that they are free to turn. In Fig. 5.3a the top of the cab has been removed to show the construction of the rear end of the jib.

A 3" Pulley is bolted to the jib by two ⅜" Bolts, which hold also a 2½"×½" Double Angle Strip fixed along the length of the jib on the underside of the 3" Pulley, so that its ends form a bearing between two 3" Pulleys. A 3½" Rod fastened in the boss of the upper 3" Pulley passes through the boss of the lower 3" Pulley, which is bolted to a 5½"×2½" Flanged Plate forming part of the superstructure. The Rod is retained in position below the Flanged Plate as shown in Fig. 5.3b.

The hoisting carriage is shown in Fig. 5.3c ; it runs on rails formed by Angle Girders at the top of the jib. A Cord is tied to the front end of the carriage, and is taken over a 3½" Rod at the jib head and wound six times around the Crank Handle. It is then tied to the rear of the carriage.

A second Cord is tied to a Cord Anchoring Spring on the 3½" Rod carrying the Bush Wheel and the Road Wheel. The Cord is then led around one of the 1" loose Pulleys in the carriage, around the ½" loose Pulley in the pulley block, and back over the second 1" loose Pulley. Finally it is tied to the 2½"×1½" Flexible Plate at the jib head.

Fig. 5.3a

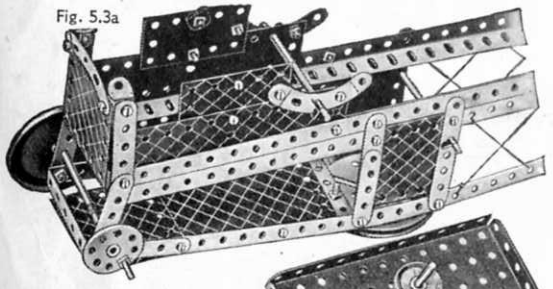


Fig. 5.3c

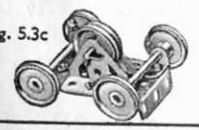
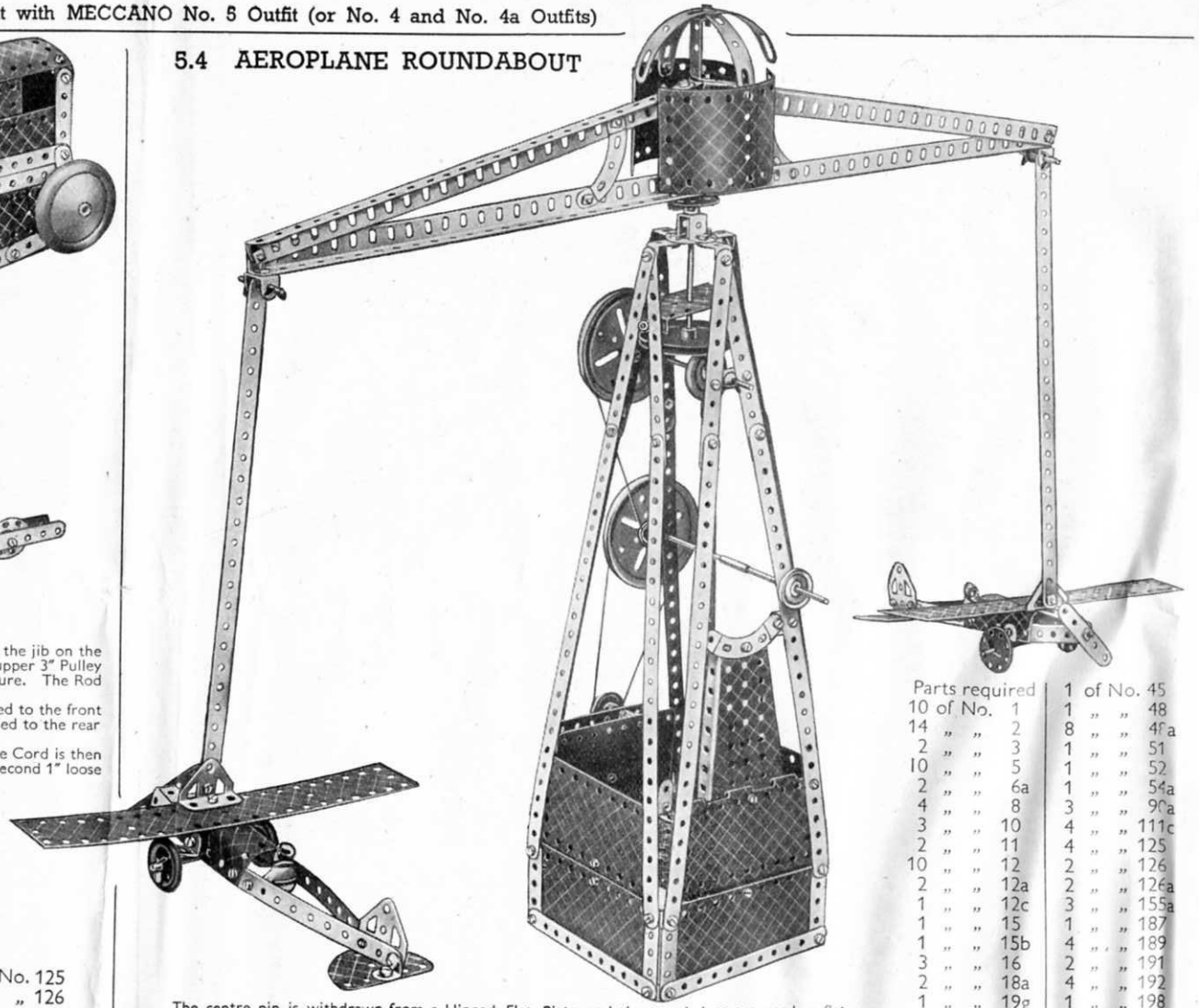


Fig. 5.3b

Parts required

10	of No.	1	2	of No.	22a	2	of No.	125
14	„ „	2	1	„ „	23	2	„ „	126
2	„ „	3	1	„ „	24	2	„ „	126a
12	„ „	5	10	„ „	35	1	„ „	176
2	„ „	6a	85	„ „	37	1	„ „	187
4	„ „	8	6	„ „	37a	3	„ „	188
4	„ „	11	11	„ „	38	4	„ „	189
12	„ „	12	1	„ „	40	4	„ „	190
2	„ „	12a	1	„ „	45	1	„ „	191
4	„ „	12c	1	„ „	48	2	„ „	200
1	„ „	15b	7	„ „	48a	4	„ „	217a
3	„ „	16	1	„ „	51			
2	„ „	17	1	„ „	52			
1	„ „	18a	1	„ „	57c			
1	„ „	18b	3	„ „	90a			
1	„ „	19g	1	„ „	111a			
2	„ „	19b	6	„ „	111c			
5	„ „	22	1	„ „	115			

5.4 AEROPLANE ROUNDABOUT



The centre pin is withdrawn from a Hinged Flat Plate and the two halves are used as flat plates in the construction of the base.

The Clockwork Motor is fastened by two 1"×1" Angle Brackets to a 5½"×2½" Flanged Plate bolted inside the base. The drive is taken from a 1" fast Pulley on the driving shaft of the Motor, to a 3" Pulley fixed on a Crank Handle journalled in two of the 12½" Strips forming the tower.

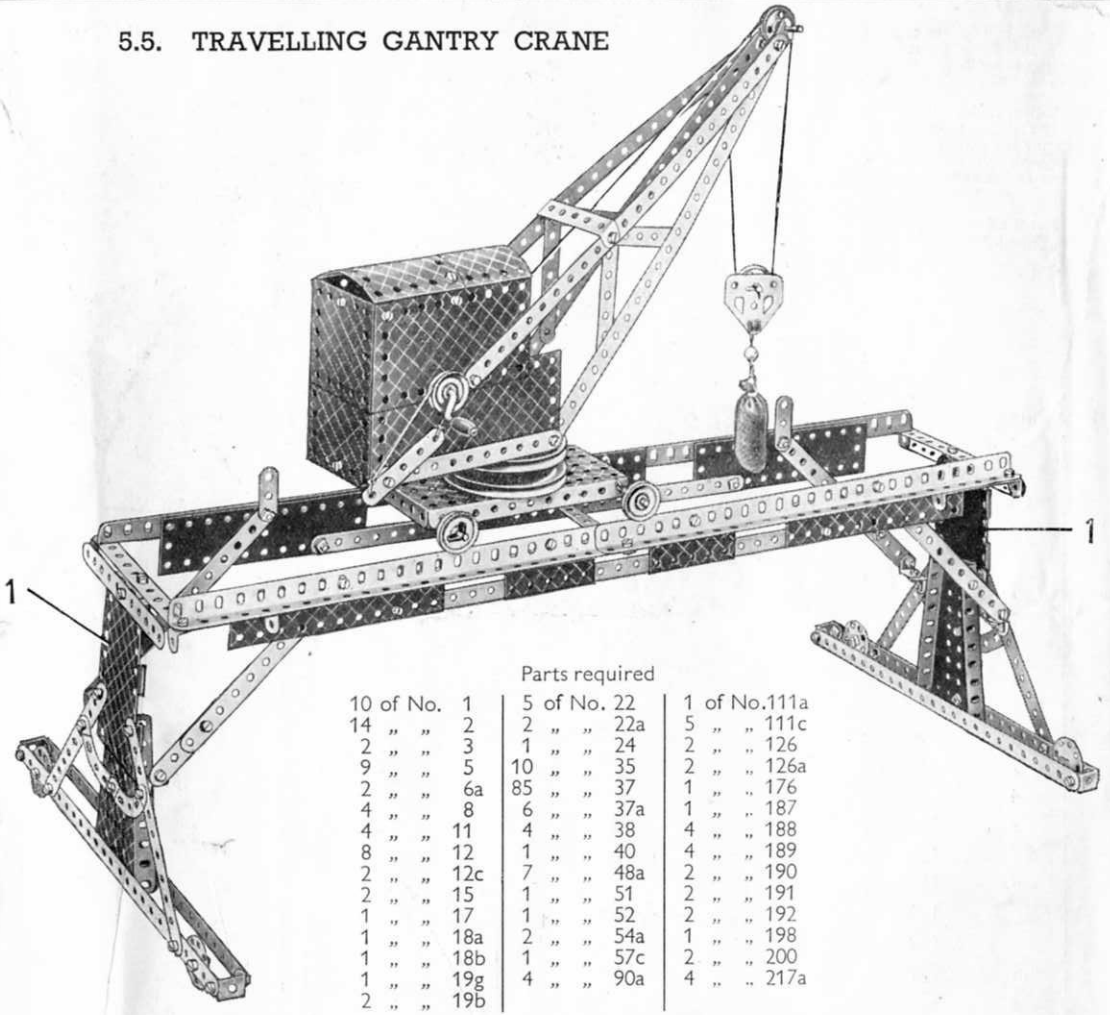
The Crank Handle is lengthened by joining to it a 3½" Rod with a Rod Connector. It carries also a 1" fast Pulley, which is connected by Cord to a second 3" Pulley mounted on a 5" Rod, bearings for which are provided by the centre holes of two 1½" Strips near the top of the tower. A 1" Pulley fitted with a Rubber Ring is fastened to this Rod, inside the tower. The Rubber Ring bears against the rim of a Road Wheel fastened on the lower end of the vertical 4" Rod to which the beam carrying the aeroplanes also is fastened.

The beam consists of two 12½" Angle Girders bolted to a Bush Wheel and overlapped one hole. The top Girders of the beam are joined together at the centre by an Obtuse Angle Bracket.

Parts required

10	of No.	1	1	of No.	45
14	„ „	2	1	„ „	48
2	„ „	3	8	„ „	48a
10	„ „	5	1	„ „	51
2	„ „	6a	1	„ „	52
4	„ „	8	1	„ „	54a
3	„ „	10	3	„ „	90a
2	„ „	11	4	„ „	111c
10	„ „	12	4	„ „	125
2	„ „	12a	2	„ „	126
1	„ „	12c	2	„ „	126a
1	„ „	15	3	„ „	155a
1	„ „	15b	1	„ „	187
3	„ „	16	4	„ „	189
2	„ „	18a	2	„ „	191
1	„ „	19g	4	„ „	192
2	„ „	19b	1	„ „	198
4	„ „	22	2	„ „	199
2	„ „	22a	4	„ „	200
1	„ „	24	1	„ „	213
10	„ „	35	2	„ „	214
83	„ „	37	4	„ „	215
4	„ „	37a	3	„ „	217a
6	„ „	38	1	No.	1 Clockwork Motor
1	„ „	40			

5.5. TRAVELLING GANTRY CRANE



Parts required

10	of No.	1	5	of No.	22	1	of No.	111a
14	„ „	2	2	„ „	22a	5	„ „	111c
2	„ „	3	1	„ „	24	2	„ „	126
9	„ „	5	10	„ „	35	2	„ „	126a
2	„ „	6a	85	„ „	37	1	„ „	176
4	„ „	8	6	„ „	37a	1	„ „	187
4	„ „	11	4	„ „	38	4	„ „	188
8	„ „	12	1	„ „	40	4	„ „	189
2	„ „	12c	7	„ „	48a	2	„ „	190
2	„ „	15	1	„ „	51	2	„ „	191
1	„ „	17	1	„ „	52	2	„ „	192
1	„ „	18a	2	„ „	54a	1	„ „	198
1	„ „	18b	1	„ „	57c	2	„ „	200
1	„ „	19g	4	„ „	90a	4	„ „	217a
2	„ „	19b						

The pin has been withdrawn from a Hinged Flat Plate and the two halves are used as flat plates 1 in the construction of the supports for the gantry. Four 1¼" Discs are fastened to the 12½" Strips by lock-nutted Bolts, so that the gantry can travel along the ground.

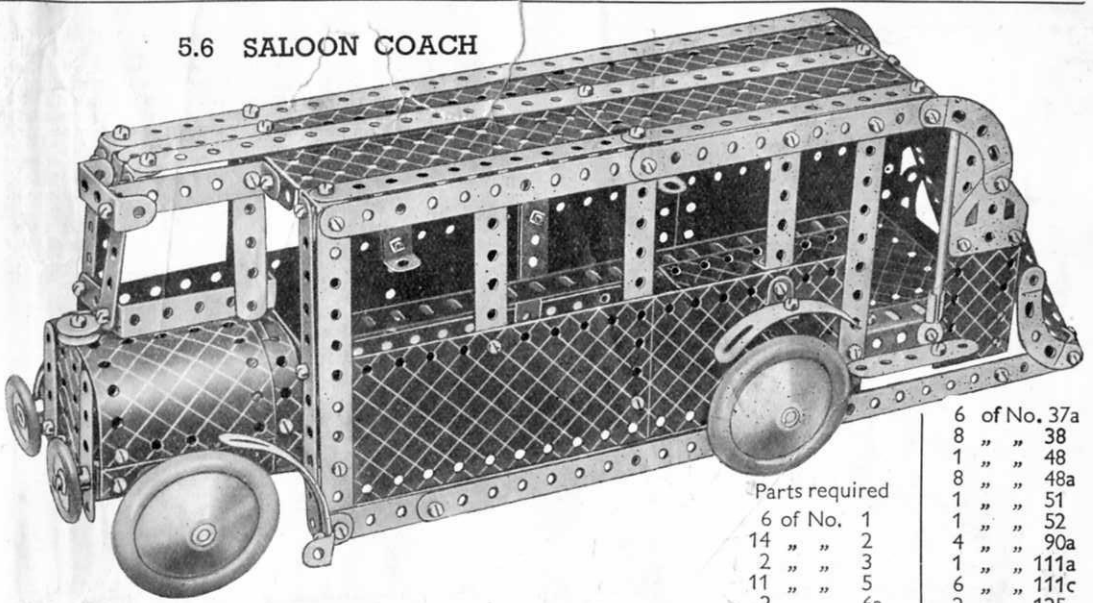
Each of the rails consists of two 12½" Angle Girders, overlapped three holes and joined across by 5½" Strips. Trunnions connect the rails to the supports.

A 5½"×2½" Flanged Plate fitted with a 3" Pulley forms the base of the crane, and the 1" Pulleys are fastened on 5" Rods journalled in the end holes of the Flanged Plates.

The cab of the crane consists of Flexible Plates fastened together by 2½"×½" Double Angle Strips, and a Crank Handle fitted with a 1" Pulley and a Road Wheel is passed through the sides. The Bolts that hold the lower 12½" Strips of the jib carry also a 2½"×1½" Flanged Plate that has a second 3" Pulley fixed to it. A 2" Rod in the boss of this Pulley passes through the lower Pulley and Flanged Plates, and is retained in position beneath it by a Bush Wheel.

A Cord is tied to a Cord Anchoring Spring on the shaft of a Crank Handle, and after passing over the 1" loose Pulleys at the jib head and in the pulley block, is fastened to the jib as shown.

5.6 SALOON COACH



Two 12½" Angle Girders joined by 3½" Strips at each end comprise the chassis, and to this the Flexible Plates forming the sides are bolted. Supports for the roof are provided by 5½" Strips, to which a 5½"×2½" Flanged Plate and two 5½"×1½" Flexible Plates are fastened by Angle Brackets. The Curved back of the coach is represented by two 1⅛" radius Curved Plates, a 5½"×1½" Flexible Plate, and a 5½"×2½" Flexible Plate. The Flexible Plates are curved and bolted to the 1⅛" radius Curved Plates so that they overlap three holes.

The tail lamp is a 1" Pulley, which is secured to a Threaded Pin fastened to one of the Flexible Plates.

The bonnet is built up from two U-Section Curved Plates and a 2½"×1½" Flexible Plate. The radiator is a 2½"×1½" Flanged Plate.

Parts required

6	of No.	1	6	of No.	37a			
14	„ „	2	8	„ „	38			
2	„ „	3	1	„ „	48			
11	„ „	5	8	„ „	48a			
2	„ „	6a	1	„ „	51			
3	„ „	8	1	„ „	52			
2	„ „	10	4	„ „	90a			
3	„ „	11	1	„ „	111a			
12	„ „	12	6	„ „	111c			
2	„ „	12c	2	„ „	125			
1	„ „	15	2	„ „	126a			
1	„ „	15a	2	„ „	155a			
1	„ „	16	4	„ „	187			
3	„ „	22	4	„ „	188			
1	„ „	23	3	„ „	189			
1	„ „	35	2	„ „	190			
85	„ „	37	2	„ „	191			
			4	„ „	192			
			2	„ „	199			
			2	„ „	200			
			1	„ „	212			
			4	„ „	215			

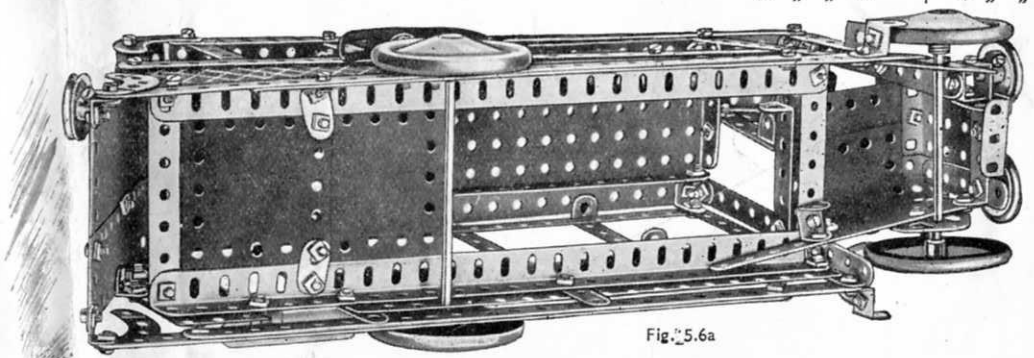
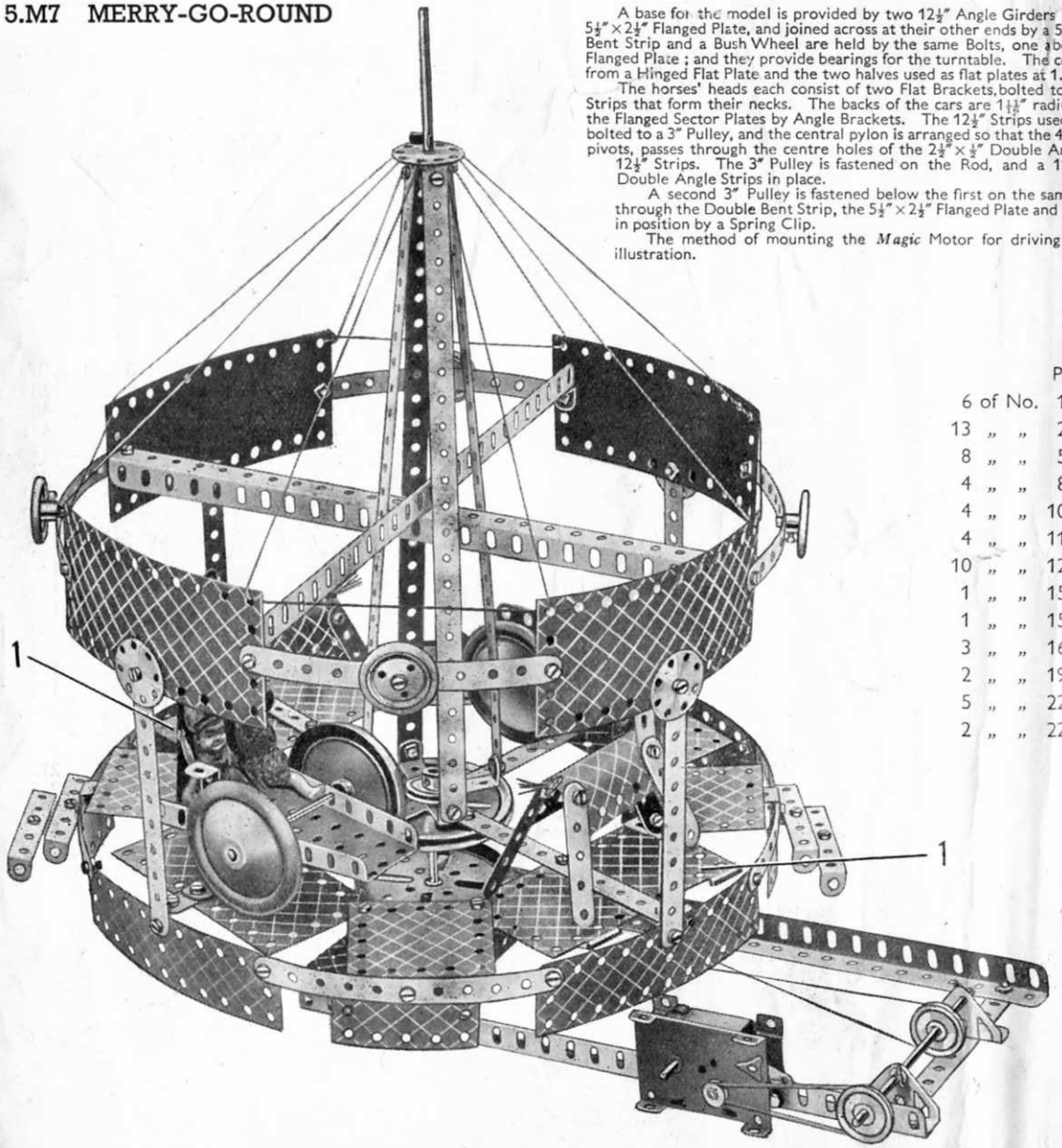


Fig. 5.6a

5.M7 MERRY-GO-ROUND



A base for the model is provided by two 12½" Angle Girders bolted to the end flanges of a 5½" × 2½" Flanged Plate, and joined across at their other ends by a 5½" Strip as shown. A Double Bent Strip and a Bush Wheel are held by the same Bolts, one above and the other below the Flanged Plate ; and they provide bearings for the turntable. The centre pin has been withdrawn from a Hinged Flat Plate and the two halves used as flat plates at **1**.

The horses' heads each consist of two Flat Brackets, bolted to the 2½" small radius Curved Strips that form their necks. The backs of the cars are 1½" radius Curved Plates, attached to the Flanged Sector Plates by Angle Brackets. The 12½" Strips used for bracing the platform are bolted to a 3" Pulley, and the central pylon is arranged so that the 4" Rod, on which the turntable pivots, passes through the centre holes of the 2½" × ½" Double Angle Strips at the ends of the 12½" Strips. The 3" Pulley is fastened on the Rod, and a 1" Pulley clamps the 2½" × ½" Double Angle Strips in place.

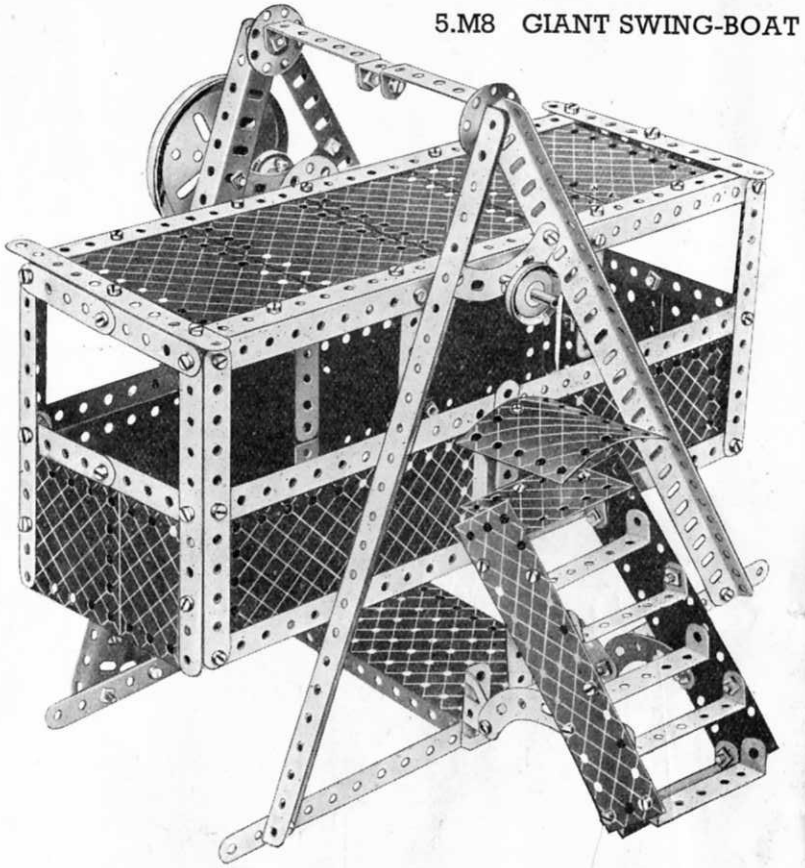
A second 3" Pulley is fastened below the first on the same Rod, and the Rod is passed through the Double Bent Strip, the 5½" × 2½" Flanged Plate and the Bush Wheel. It is retained in position by a Spring Clip.

The method of mounting the *Magic* Motor for driving the model is clear from the illustration.

Parts required

6	of No. 1	1	of No. 24
13	„ „ 2	5	„ „ 35
8	„ „ 5	85	„ „ 37
4	„ „ 8	2	„ „ 37a
4	„ „ 10	2	„ „ 38
4	„ „ 11	1	„ „ 40
10	„ „ 12	1	„ „ 45
1	„ „ 15	8	„ „ 48a
1	„ „ 15b	1	„ „ 52
3	„ „ 16	2	„ „ 54a
2	„ „ 19b	4	„ „ 90a
5	„ „ 22	2	„ „ 111c
2	„ „ 22a	4	„ „ 125
		2	„ „ 126
		4	„ „ 155a
		4	„ „ 187
		4	„ „ 188
		4	„ „ 189
		4	„ „ 190
		2	„ „ 191
		4	„ „ 192
		1	„ „ 198
		2	„ „ 199
		2	„ „ 200
		4	„ „ 217a
		1	*Magic* Motor

5.M8 GIANT SWING-BOAT



Parts required

10	of No. 1	4	of No. 22	6	of No. 111c
12	„ „ 2	1	„ „ 24	2	„ „ 126
2	„ „ 3	3	„ „ 35	2	„ „ 126a
12	„ „ 5	85	„ „ 37	1	„ „ 147b
4	„ „ 8	6	„ „ 37a	3	„ „ 188
4	„ „ 11	6	„ „ 38	2	„ „ 189
6	„ „ 12	1	„ „ 45	4	„ „ 190
2	„ „ 12a	8	„ „ 48a	2	„ „ 191
1	„ „ 15	1	„ „ 51	4	„ „ 192
1	„ „ 16	1	„ „ 52	1	„ „ 198
1	„ „ 17	2	„ „ 54a	1	„ „ 200
1	„ „ 19g	4	„ „ 90a	1	„ „ 213
2	„ „ 19b	1	„ „ 111a	2	„ „ 217a

1 *Magic* Motor

5.M8 GIANT SWING-BOAT—continued.

The main supports for the swing-boat are formed by 12½" Angle Girders, which are bolted to a base made by fastening two 12½" Strips to a 5½"×2½" Flanged Plate. The steps are supported by two 2½" small radius Curved Strips, bolted to the sides of the staircase and to two Trunnions fastened to the base. The platform at the top consists of a 2½"×1½" Flexible Plate held in position by two 1"×1" Angle Brackets.

The 1 11/16" radius Curved Plate is fastened to a Double Bent Strip bolted to one end of a 5½" Strip, the other end of which is fastened to the base.

The swing-boat is pivoted on a compound rod consisting of a 5" Rod and a 4" Rod joined by a Rod Connector. The compound rod is held in the boss of a Bush Wheel bolted to the side of the swing-boat (see Fig. 5.M8a)

The *Magic* Motor is bolted direct to the base. The drive is taken by a Driving Band from the small pulley of the Motor to a 1" Pulley on the shaft of a 3½" Crank Handle journalled in holes in two Flanged Sector Plates. A second 1" Pulley on the Crank Handle is connected by a Driving Band to a 3" Pulley on a 2" Rod journalled in the Flanged Sector Plates. A 5½" Strip is attached to a Pivot Bolt, and its free end is lock-nutted to the top 3" Pulley. The two Flanged Sector Plates are bolted at the bottom to a 2½"×1½" Flanged Plate and to two Double Brackets.

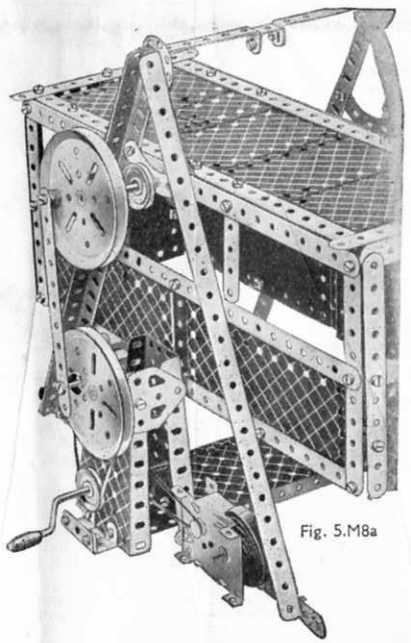
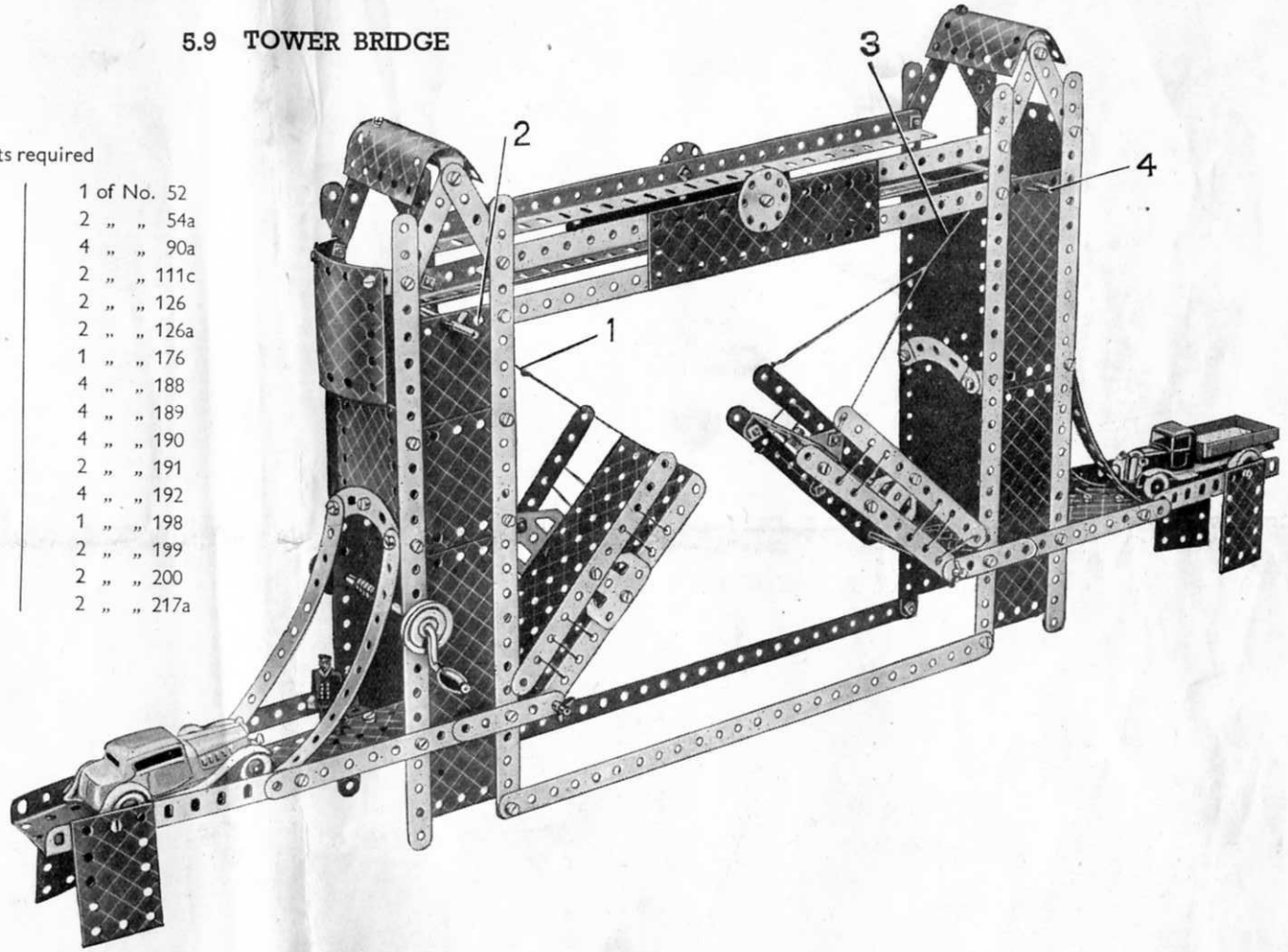


Fig. 5.M8a

5.9 TOWER BRIDGE

Parts required

10 of No.	1	1 of No.	52
14 „ „	2	2 „ „	54a
12 „ „	5	4 „ „	90a
4 „ „	8	2 „ „	111c
10 „ „	12	2 „ „	126
4 „ „	12c	2 „ „	126a
4 „ „	16	1 „ „	176
1 „ „	19g	4 „ „	188
2 „ „	22	4 „ „	189
8 „ „	35	4 „ „	190
84 „ „	37	2 „ „	191
4 „ „	37a	4 „ „	192
8 „ „	38	1 „ „	198
1 „ „	40	2 „ „	199
8 „ „	48a	2 „ „	200
1 „ „	51	2 „ „	217a

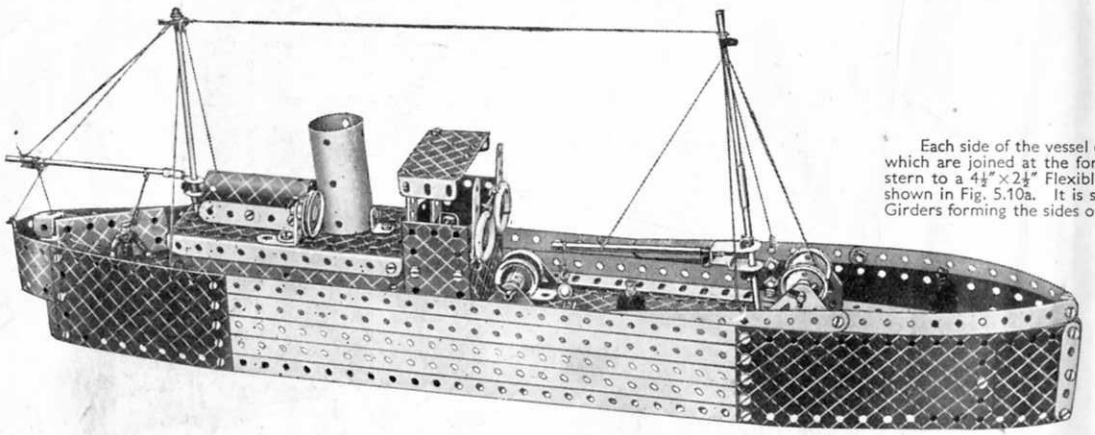


The centre pin has been withdrawn from a Hinged Flat Plate, and one of the halves is used in the construction of the side of one of the towers. Each of the main towers consists of four 12½" Strips to which are bolted Flexible Plates as shown. The 12½" Strips are braced across by the 2½"×½" Double Angle Strips that support the approach roadway, the 2½" small radius Curved Strips, and a further Double Angle Strip at the top of the tower. The U-Section Curved Plates are spaced from the 2½"×½" Double Angle Strips by three Washers. The two towers are joined across at the top by four Angle Girders, and at the bottom by two 12½" Strips.

Four 2½" Strips form bearings for the 3½" Rods on which the halves of the span are pivoted. The left-hand half is a 5½"×2½" Flanged Plate fitted with Flat Trunnions and 5½" Strips as shown. The other half of the span is a part of the Hinged Flat Plate, and is connected to two 5½" Strips by a 2½"×½" Double Angle Strip and Angle Brackets.

The halves of the span are raised and lowered by turning a Crank Handle journalled in the sides of the left-hand tower. Cord 1 passes over Rod 2 and is fastened to a Cord Anchoring Spring on the Crank Handle. Cord 3 passes over Rod 4 and around Rod 2, and is then knotted to Cord 1 inside the tower.

5.10 TRAWLER

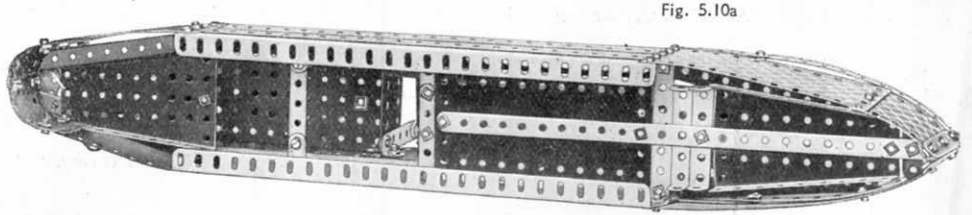


Each side of the vessel consists of three 12½" Strips and two Angle Girders which are joined at the forward end to a 5½"×2½" Flexible Plate, and at the stern to a 4½"×2½" Flexible Plate. The deck of the model is constructed as shown in Fig. 5.10a. It is secured to Strips bolted between two of the Angle Girders forming the sides of the ship.

The sides of the cabin behind the bridge are attached by a 2½"×½" Double Angle Strip and Flat Brackets to the two Angle Girders in the sides of the ship. The back of the cabin is completed with 2½"×½" Double Angle Strips. The back of the wheelhouse, a 2½"×2½" Flexible Plate, is bolted to the 5½"×2½" Flanged Plate, the Bolts holding also Angle Brackets and 2½" Strips. The front of the wheelhouse is a 2½"×1½" Flexible Plate, which is held in position by two Angle Brackets.

The funnel, a 2½" Cylinder, is fastened to the top of the cabin by an Angle Bracket.

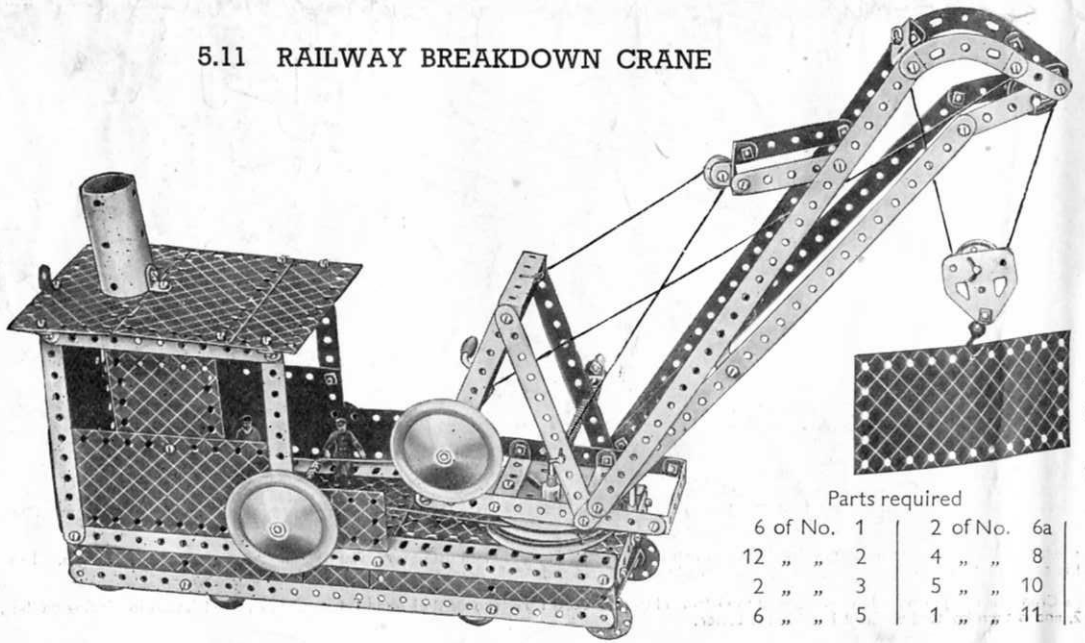
Fig. 5.10a



Parts required

7 of No.	1	1 of No.	15a	1 of No.	48	1 of No.	176
8 „ „	2	2 „ „	15b	5 „ „	48a	4 „ „	188
2 „ „	3	1 „ „	16	1 „ „	51	3 „ „	189
9 „ „	5	2 „ „	17	1 „ „	52	4 „ „	190
2 „ „	6a	4 „ „	22	2 „ „	54a	2 „ „	191
4 „ „	8	2 „ „	22a	1 „ „	57c	3 „ „	192
5 „ „	10	1 „ „	24	2 „ „	111a	2 „ „	199
1 „ „	11	14 „ „	35	6 „ „	111c	1 „ „	212
10 „ „	12	85 „ „	37	2 „ „	125	1 „ „	213
2 „ „	12a	6 „ „	37a	2 „ „	126	1 „ „	216
1 „ „	12c	1 „ „	40	2 „ „	126a	1 „ „	217a
1 „ „	15	1 „ „	44	2 „ „	155a		

5.11 RAILWAY BREAKDOWN CRANE



Parts required

6 of No.	1	2 of No.	6a	10 of No.	12	1 of No.	57c
12 „ „	2	4 „ „	8	1 „ „	15	2 „ „	90a
2 „ „	3	5 „ „	10	4 „ „	16	2 „ „	111a
6 „ „	5	1 „ „	11	1 „ „	17	6 „ „	111c
				2 „ „	18a	1 „ „	115
				1 „ „	18b	3 „ „	125
				1 „ „	19g	2 „ „	126a
				2 „ „	19b	1 „ „	147b
				5 „ „	22	1 „ „	176
				2 „ „	22a	1 „ „	186a
				1 „ „	23	4 „ „	187
				1 „ „	24	4 „ „	188
				14 „ „	35	4 „ „	189
				85 „ „	37	4 „ „	190
				6 „ „	37a	2 „ „	191
				14 „ „	38	4 „ „	192
				1 „ „	40	1 „ „	198
				1 „ „	48	1 „ „	212
				6 „ „	48a	1 „ „	216
				1 „ „	52	4 „ „	217a
				2 „ „	54a	1 „ „	217b

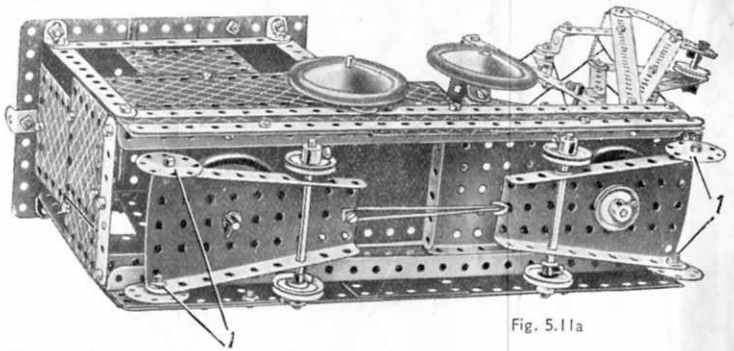


Fig. 5.11a

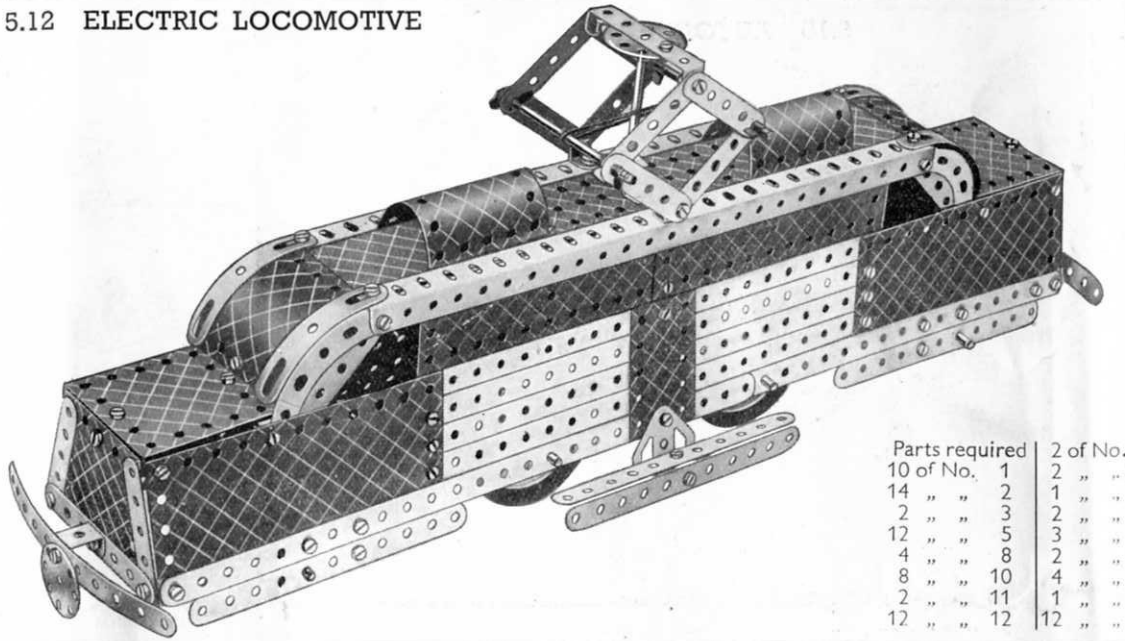
The chassis of the model consists of two U-section girders, built up from Angle Girders and joined at each end by 3½" Strips and Angle Brackets. A 5½"×2½" Flanged Plate and a 5½"×2½" Strip Plate, overlapping one hole, are attached to the Angle Girders by Flat Brackets. The framework on which the jib is pivoted is fastened to a 3" Pulley by two ⅜" Bolts, which have two Washers on their shanks for spacing purposes. The ⅜" Bolts on which the jib luffs are lock-nutted.

The 3" Pulley on the jib swivels on a 3½" Rod passed through its boss, and is held in place by a Cord Anchoring Spring.

The front bogie (Fig. 5.11a) pivots on the 3½" Rod and is held between a Road Wheel and a 1" Pulley as shown. The rear bogie is similarly pivoted on a 2" Rod, bearings for which are provided by the 5½"×2½" Flexible Plate and two 2½" Strips overlapped three holes. The bogies are connected by a Driving Band, and the Bolts 1 are lock-nutted. Luffing of the jib is controlled by the built-up crank handle, consisting of a Double Bracket fitted with an Angle Bracket that carries a Pivot Bolt. The Bolt holding the Angle Bracket clamps the Double Bracket to the Rod.

Hoisting is controlled by the Crank Handle, and the slewing movement is carried out by a belt of Cord passed around the upper 3" Pulley in the jib and then wound several times around the Rod journalled in the sides of the cab.

5.12 ELECTRIC LOCOMOTIVE



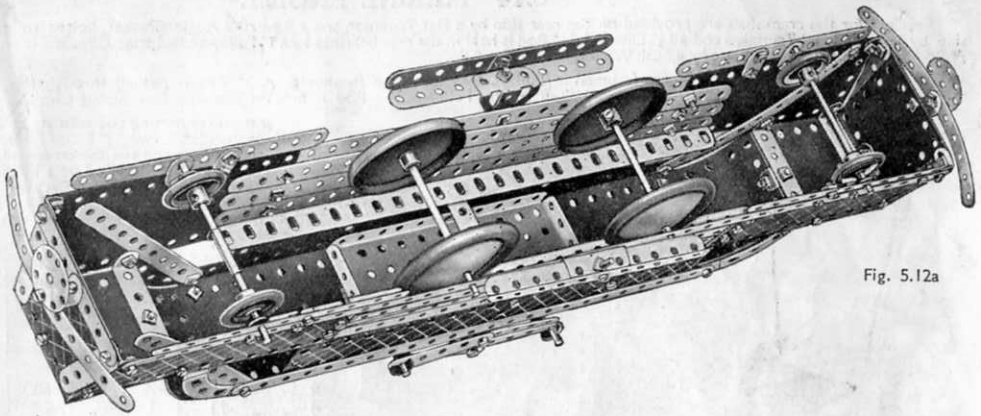


Fig. 5.12a

Parts required																	
10 of No.	1	2 of No.	12a	83 of No.	37	2 of No.	126	4 of No.	192
14 „ „	2	2 „ „	12c	6 „ „	37a	4 „ „	155a	2 „ „	199
2 „ „	3	1 „ „	15	4 „ „	38	1 „ „	176	2 „ „	200
12 „ „	5	2 „ „	15b	1 „ „	45	1 „ „	186	1 „ „	213
4 „ „	8	3 „ „	16	5 „ „	48a	4 „ „	187	4 „ „	215
8 „ „	10	2 „ „	17	1 „ „	52	2 „ „	188	2 „ „	217a
2 „ „	11	4 „ „	22	4 „ „	90a	4 „ „	189		
12 „ „	12	1 „ „	24	2 „ „	111a	4 „ „	190		
		12 „ „	35	6 „ „	111c	2 „ „	191		

The method of constructing the sides and roof will be clear from the illustrations. The front wheel axle consists of two 2" Rods joined by a Rod Connector.

Each side of the pantagraph consists of four 2½" Strips, pairs of which are lock-nutted to an Angle Bracket and a 2½"×½" Double Angle Strip respectively. They are pivoted together on 3½" Rods, and a Driving Band is stretched between the Rods as shown. The Bush Wheel carries in its boss a 5" Rod that passes through a Double Bent Strip and the 5½"×2½" Flanged Plate.

The two U-Section Curved Plates are attached to the roof by Obtuse Angle Brackets.

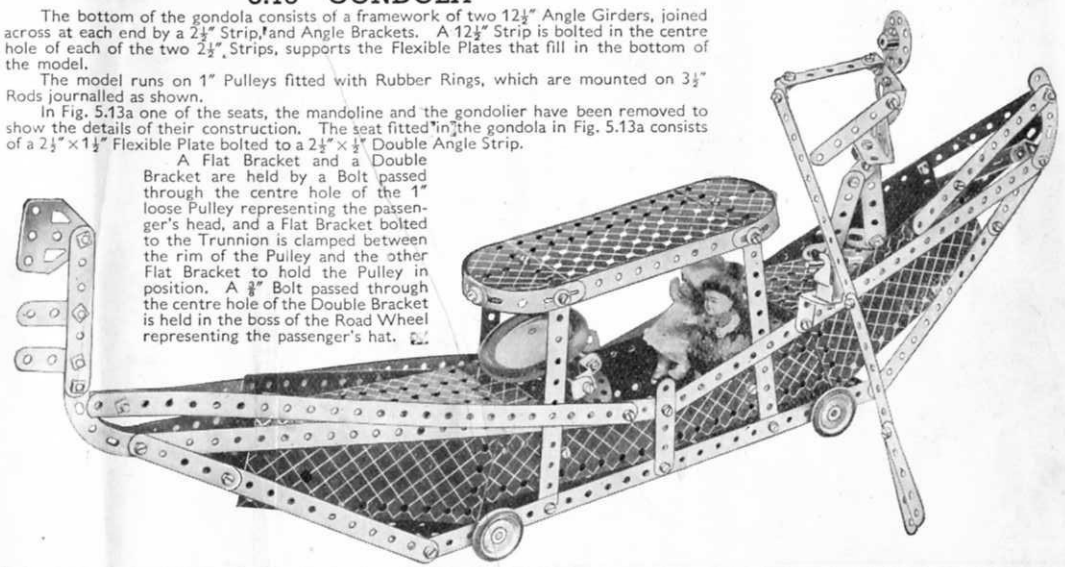
5.13 GONDOLA

The bottom of the gondola consists of a framework of two 12½" Angle Girders, joined across at each end by a 2½" Strip, and Angle Brackets. A 12½" Strip is bolted in the centre hole of each of the two 2½" Strips, supports the Flexible Plates that fill in the bottom of the model.

The model runs on 1" Pulleys fitted with Rubber Rings, which are mounted on 3½" Rods journalled as shown.

In Fig. 5.13a one of the seats, the mandoline and the gondolier have been removed to show the details of their construction. The seat fitted in the gondola in Fig. 5.13a consists of a 2½"×1½" Flexible Plate bolted to a 2½"×½" Double Angle Strip.

A Flat Bracket and a Double Bracket are held by a Bolt passed through the centre hole of the 1" loose Pulley representing the passenger's head, and a Flat Bracket bolted to the Trunnion is clamped between the rim of the Pulley and the other Flat Bracket to hold the Pulley in position. A ⅜" Bolt passed through the centre hole of the Double Bracket is held in the boss of the Road Wheel representing the passenger's hat.



Parts required																	
7 of No.	1																
14 „ „	2																
2 „ „	3																
12 „ „	5	1 of No.	51														
2 „ „	6a	1 „ „	52														
2 „ „	8	2 „ „	54a														
7 „ „	10	4 „ „	90a														
3 „ „	11	6 „ „	111c														
5 „ „	12	1 „ „	115														
1 „ „	12a	3 „ „	125														
4 „ „	12c	2 „ „	126														
2 „ „	16	2 „ „	126a														
1 „ „	18a	4 „ „	155a														
4 „ „	22	1 „ „	187														
1 „ „	22a	1 „ „	188														
1 „ „	24	4 „ „	189														
2 „ „	35	1 „ „	190														
85 „ „	37	2 „ „	191														
6 „ „	37a	4 „ „	192														
6 „ „	38	2 „ „	199														
1 „ „	44	2 „ „	214														
1 „ „	48	4 „ „	215														
3 „ „	48a	1 „ „	217a														

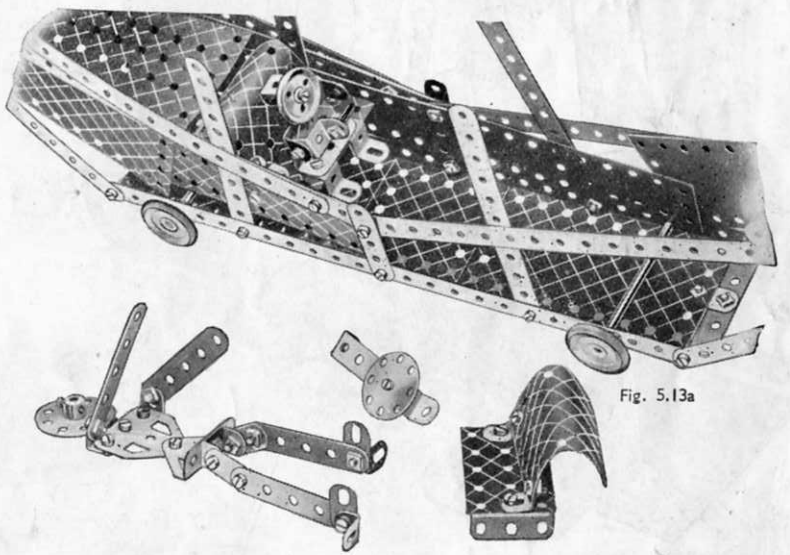


Fig. 5.13a

5.14 MARINE ENGINE

Bearings for the crankshaft are provided on the rear side by a Flat Trunnion and a Reversed Angle Bracket bolted to it, and on the other side by a second Flat Trunnion and a 1½" Disc. A 3½" Rod is held in the rear bearings by a 1" Pulley and a Spring Clip, and in the other bearings is a 2" Rod, which is retained in place by a Bush Wheel and a Spring Clip.

To the inner ends of these Rods are fastened 3" Pulleys that form the flywheels. A 2" Rod is pushed through the outer hole of one of these and then into a Reversed Angle Bracket bolted to the Pulley. The Rod is held in place by four Spring Clips.

The main connecting rod consists of two 5½" Strips overlapped seven holes. Two 5½" Strips bolted together provide a guide for the piston rod and the crosshead is a Double Bracket pivoted to the Connecting Rod by a 1½" Rod. Two 3½" Rods joined by a Rod Connector form the slide valve, which is held in the Cranked Bent Strip by a Cord Anchoring Spring and a 1" Pulley. The 5½" Strip forming the valve connecting rod is lock-nutted to the Bush Wheel.

Parts required

6 of No. 1	1 of No. 52	4 of No. 189
12 „ „ 2	1 „ „ 54a	4 „ „ 190
1 „ „ 3	1 „ „ 80c	2 „ „ 191
6 „ „ 5	2 „ „ 111c	4 „ „ 192
1 „ „ 6a	3 „ „ 125	1 „ „ 212
4 „ „ 8	2 „ „ 126	1 „ „ 213
4 „ „ 11	2 „ „ 126a	1 „ „ 214
11 „ „ 12	1 „ „ 176	4 „ „ 215
1 „ „ 12a	3 „ „ 187	1 „ „ 216
2 „ „ 15	4 „ „ 188	2 „ „ 217a
3 „ „ 16		
2 „ „ 17		
2 „ „ 18a		
2 „ „ 19b		
4 „ „ 22		
1 „ „ 24		
9 „ „ 35		
85 „ „ 37		
5 „ „ 37a		
3 „ „ 38		
1 „ „ 44		
1 „ „ 48		
7 „ „ 48a		

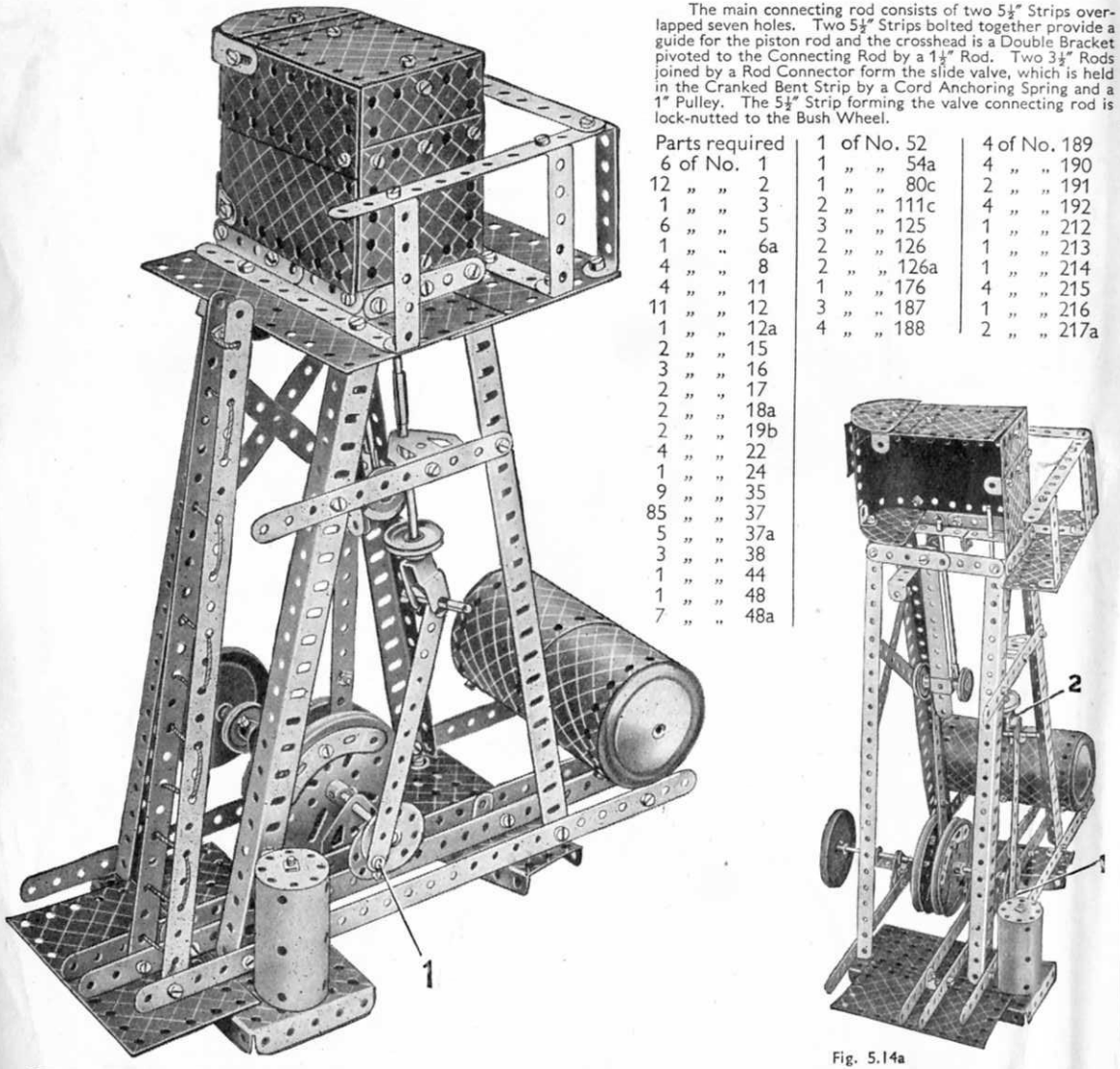
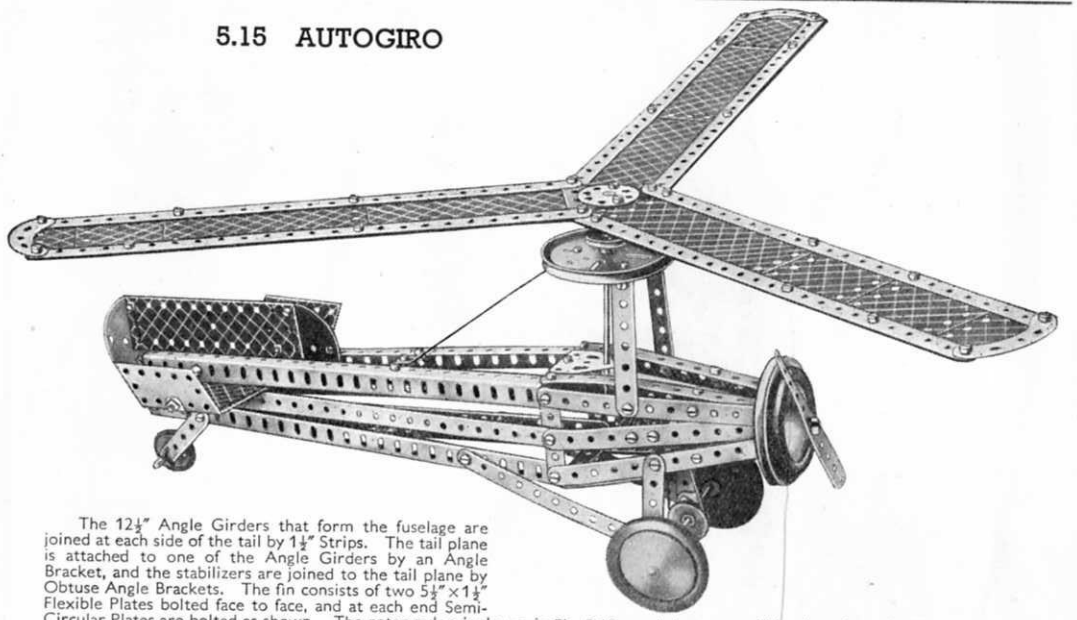


Fig. 5.14a

5.15 AUTOGIRO



The 12½" Angle Girders that form the fuselage are joined at each side of the tail by 1½" Strips. The tail plane is attached to one of the Angle Girders by an Angle Bracket, and the stabilizers are joined to the tail plane by Obtuse Angle Brackets. The fin consists of two 5½"×1½" Flexible Plates bolted face to face, and at each end Semi-Circular Plates are bolted as shown. The rotor pylon is shown in Fig. 5.15a, and the rotor will be clear from the illustration. The 12½" Strips are bolted at the hub to a triangle of 2½" Strips, two of which are fastened to the Bush Wheel.

In Fig. 5.15a part of the nose has been removed to show the method of driving the rotor and propeller. The propeller shaft is a 5" Rod, bearings for which are provided by the 3" Pulley in the nose, and the hole of a Flat Bracket fastened to a 1"×1" Angle Bracket. The rotor shaft also is a 5" Rod. The drive is taken from a 1" Pulley on the axle of the landing wheels, through a Driving Band to a second 1" Pulley on the propeller shaft. A 1" Pulley fitted with a Rubber Ring transmits the drive to the rotor by making frictional contact with a further 1" Pulley fixed on the rotor shaft.

Parts required

8 of No. 1	3 of No. 35
14 „ „ 2	85 „ „ 37
2 „ „ 3	6 „ „ 37a
11 „ „ 5	4 „ „ 38
2 „ „ 6a	3 „ „ 90a
4 „ „ 8	6 „ „ 111c
4 „ „ 10	2 „ „ 125
12 „ „ 12	1 „ „ 126a
1 „ „ 12a	2 „ „ 155a
4 „ „ 12c	1 „ „ 186
2 „ „ 15	3 „ „ 187
1 „ „ 15a	4 „ „ 188
1 „ „ 18a	2 „ „ 189
2 „ „ 19b	4 „ „ 190
5 „ „ 22	2 „ „ 191
1 „ „ 22a	4 „ „ 192
1 „ „ 24	2 „ „ 214

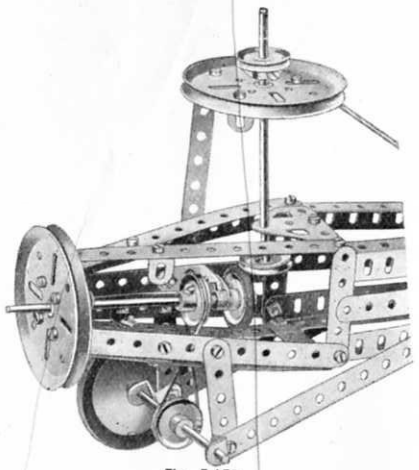
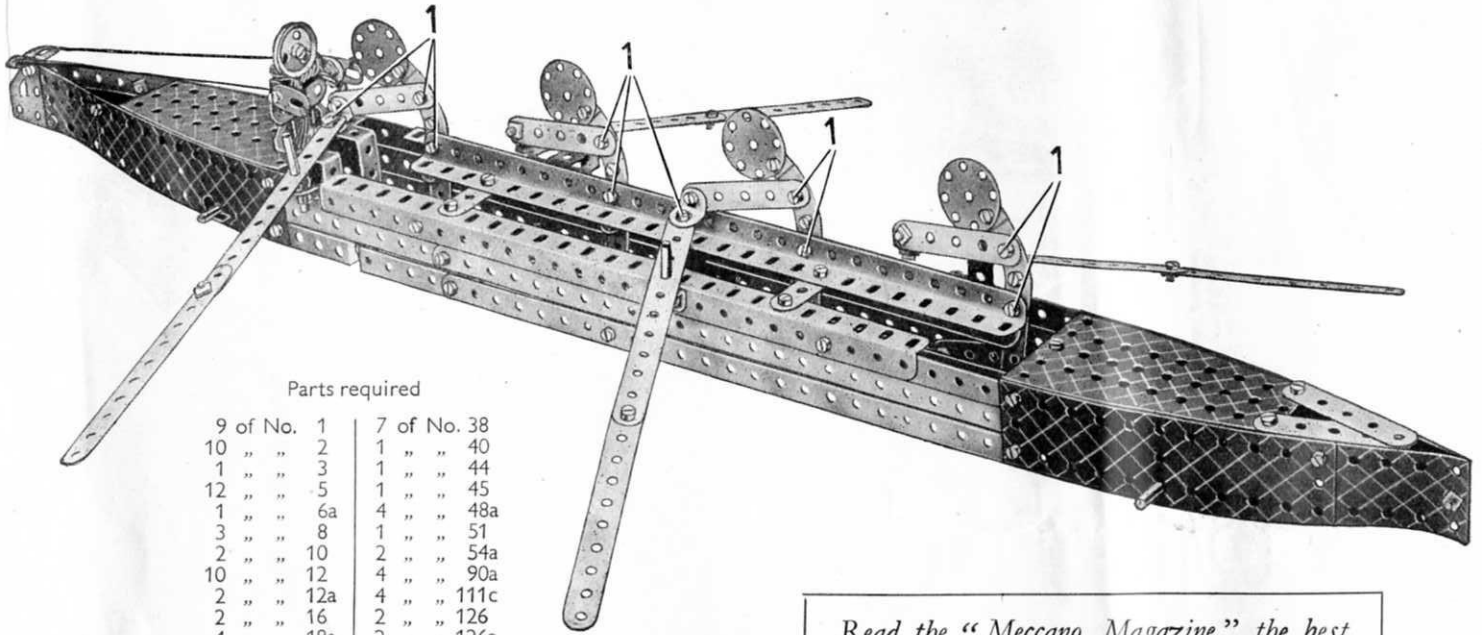


Fig. 5.15a

5.16 ROWING FOUR



Parts required

9	of No.	1	7	of No.	38
10	„ „	2	1	„ „	40
1	„ „	3	1	„ „	44
12	„ „	5	1	„ „	45
1	„ „	6a	4	„ „	48a
3	„ „	8	1	„ „	51
2	„ „	10	2	„ „	54a
10	„ „	12	4	„ „	90a
2	„ „	12a	4	„ „	111c
2	„ „	16	2	„ „	126
4	„ „	18a	2	„ „	126a
1	„ „	18b	1	„ „	147b
5	„ „	22	4	„ „	155a
2	„ „	22a	1	„ „	186
1	„ „	24	4	„ „	188
11	„ „	35	4	„ „	189
85	„ „	37	4	„ „	217a
6	„ „	37a			

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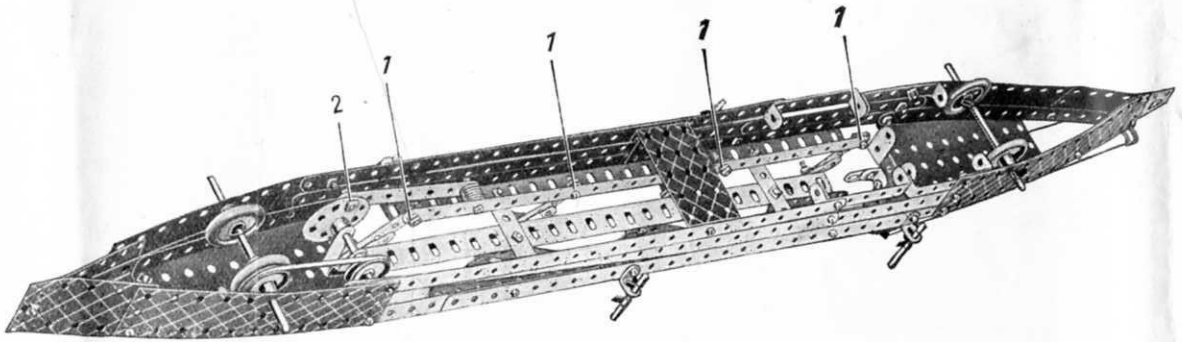


Fig. 5.16a

Each side of the boat consists of an Angle Girder extended by 12½" Strips, the one at the stern overlapping nine holes, and that at the bows overlapping eight holes. Two 5½"×1½" Flexible Plates are bolted to the 12½" Strips at the bows and stern as shown. The sides are filled in by 12½" Strips and 2½"×½" Double Angle Strips bolted to the 5½"×1½" Flexible Plates. Flanged Sector Plates form the deck and are bolted to the sides at their broad ends.

The hull is braced by a 2½"×1½" Flanged Plate bolted across it as shown in Fig. 5.16a. The rowing crew are carried on an Angle Girder bolted to two 2½" Strips fastened to the Angle Girders forming the sides. Each member of the crew consists of a 2½" small radius Curved Strip overlapping a 2½" Strip three holes. A further 2½" Strip fitted with an Angle Bracket and bolted to the "body" forms the arms, and a 1¼" Disc represents the head. The four figures are pivotally attached to the Angle Girder in the positions shown. The lower end of the 2½" Strip forming part of the body of each figure is also pivotally attached to a 12½" Strip underneath the boat. The oars are pivotally attached to the Angle Brackets and they also are pivoted on 1½" Rods as shown.

The Nuts on Bolts 1 are left sufficiently loose to enable the oars to move easily, but for better working they should all be lock-nutted. To do this seven Nuts more than are included in the Outfit will be required.

The drive is taken from the Pulleys on which the model runs to the Rod carrying the Bush Wheel. The Bush Wheel is connected to the Pivot Bolt on the 12½" Strip by a 3½" Strip. The Pivot Bolt carries six Washers on its shank. Bolt 2 should be lock-nutted.

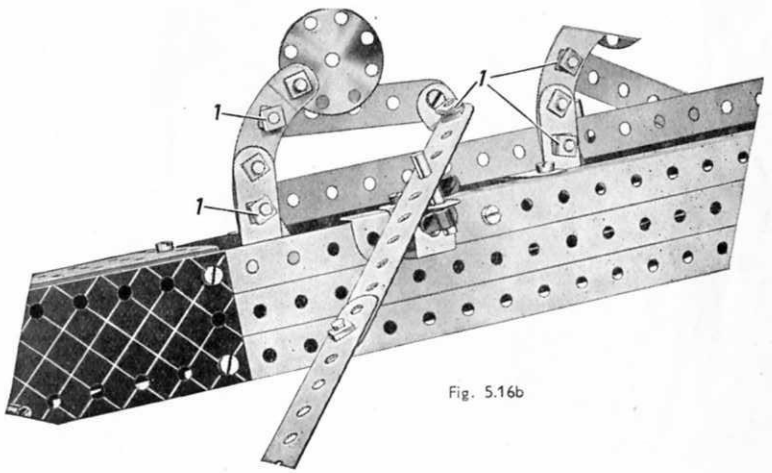
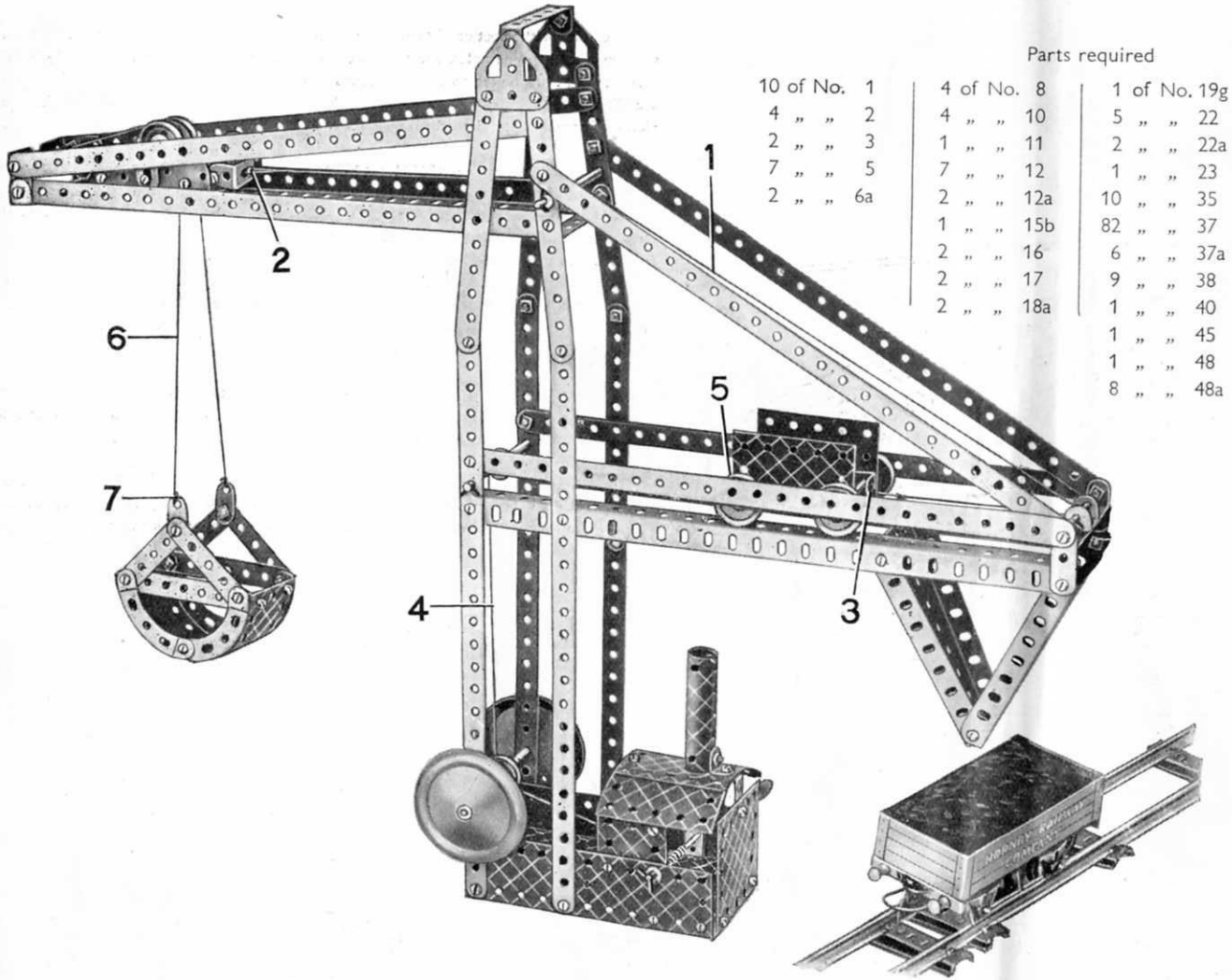


Fig. 5.16b

5.17 AUTOMATIC SHIP-COALER



Parts required

10 of No. 1	4 of No. 8	1 of No. 19g	1 of No. 51
4 „ „ 2	4 „ „ 10	5 „ „ 22	1 „ „ 52
2 „ „ 3	1 „ „ 11	2 „ „ 22a	2 „ „ 54a
7 „ „ 5	7 „ „ 12	1 „ „ 23	4 „ „ 90a
2 „ „ 6a	2 „ „ 12a	10 „ „ 35	5 „ „ 111c
	1 „ „ 15b	82 „ „ 37	4 „ „ 125
	2 „ „ 16	6 „ „ 37a	2 „ „ 126a
	2 „ „ 17	9 „ „ 38	2 „ „ 187
	2 „ „ 18a	1 „ „ 40	4 „ „ 188
		1 „ „ 45	3 „ „ 189
		1 „ „ 48	1 „ „ 190
		8 „ „ 48a	1 „ „ 199
			2 „ „ 200
			4 „ „ 217a
			2 „ „ 217b

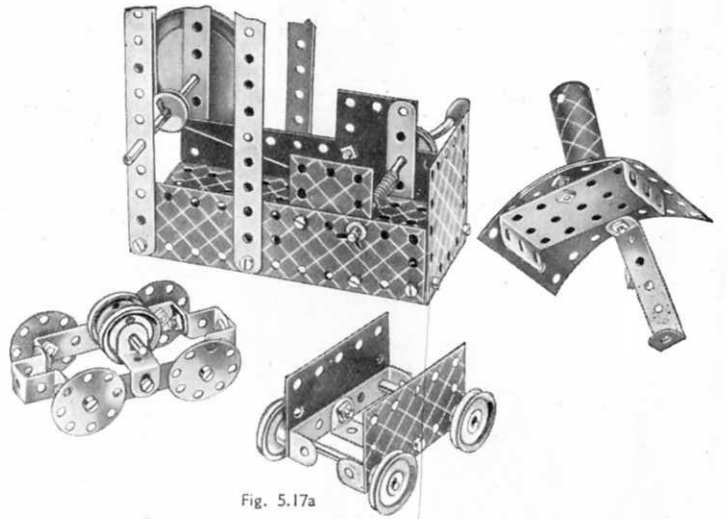


Fig. 5.17a

The construction of the control cabin, hoisting carriage and truck is shown in Fig. 5.17a. The 2½" × 1½" Flanged Plate is lock-nutted to the 1$\frac{1}{16}$" radius Curved Plates, which are overlapped three holes. The chimney is a U-Section Curved Plate, bent to shape. The built-up pulley on the same 4" Rod as the Road Wheels consists of two ¾" Discs spaced by two Washers, and is retained in position by two Spring Clips.

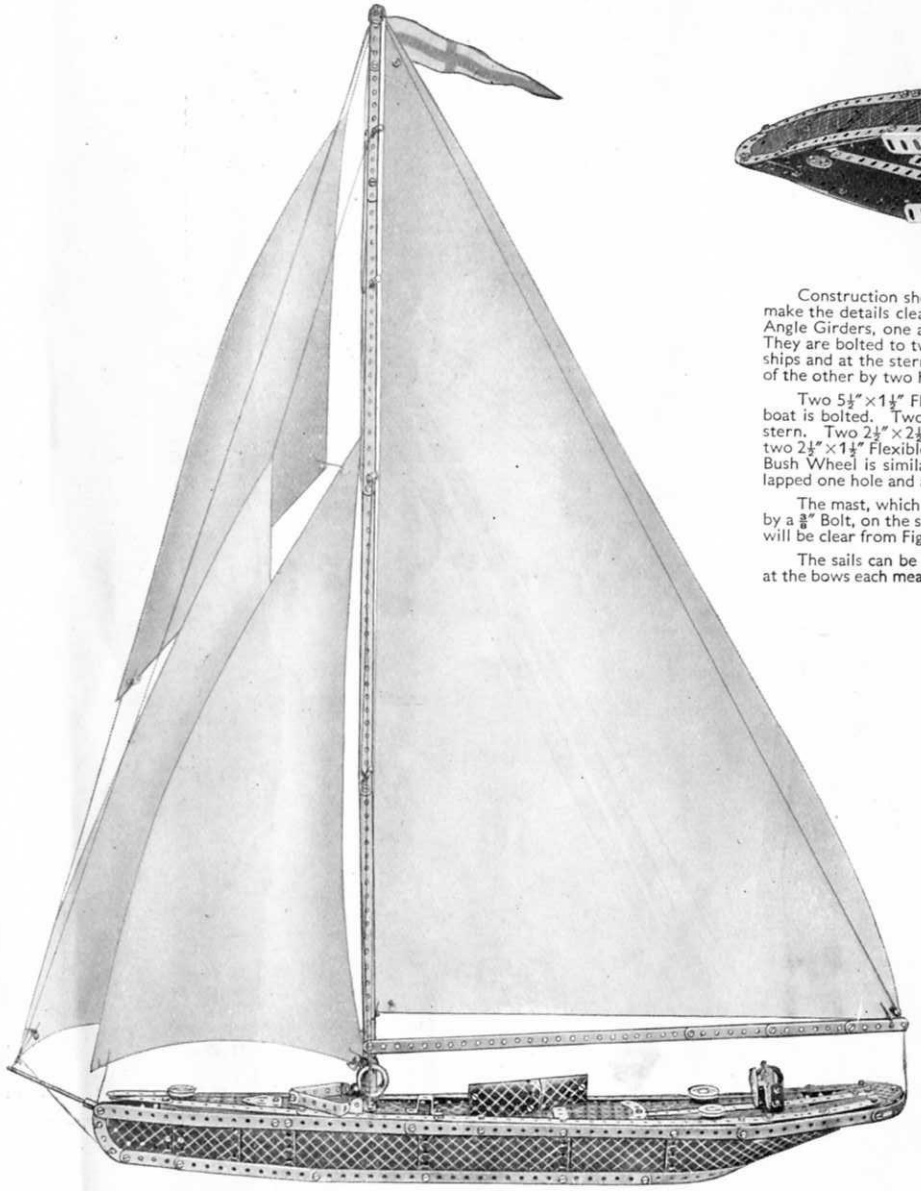
The rails on which the grab hoist and truck run are Angle Girders. Those forming the rails for the grab hoist are bolted at their inner ends to the rear pair of 5½" Strips at the top of the tower, but are not connected to the second pair of Strips. This enables the hoist to travel the full length of the rails. The 1¼" Discs that form the wheels of the grab hoist are lock-nutted to the 2½" × ½" Double Angle Strips.

The grab consists of 2½" small radius Curved Strips bolted to 3½" Strips, and the 5½" × 1½" Flexible Plate is attached to them by Angle Brackets.

The operating Cords are arranged as follows. Cord 1 is tied at 2 to the grab hoist, passed over a 3½" Rod in the tower, and then around a 1½" Rod held by Spring Clips in a Double Bracket. Finally it is tied to the rear of the truck at 3. Cord 4 is fastened to the truck at 5, led over a ½" loose Pulley on a 3½" Rod halfway up the tower, and around the built-up pulley on the Rod that carries the Road Wheels. It is then wound around the Crank Handle.

Cord 6 is fastened to Flat Bracket 7 on the grab, and is taken over one of the 1" loose Pulleys on the grab hoist. It then passes through the end holes of the 1" × 1" Angle Brackets at the end of the jib, and is led over the second 1" loose Pulley and finally tied to the other Flat Bracket on the grab.

The length of the grab operating Cord should be adjusted so that the grab reaches the top at the same time as the truck reaches the inner end of the rails.



5.18 RACING YACHT

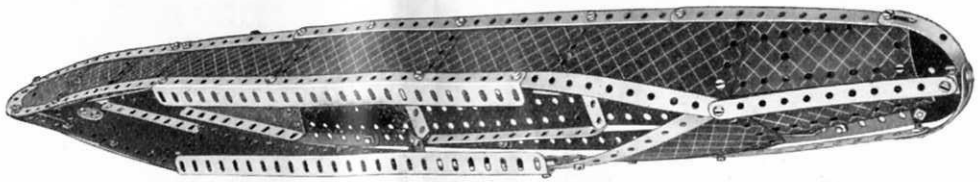


Fig. 5.18a

Construction should be commenced by building up the sides of the hull, and reference to the illustrations will make the details clear. The pin has been withdrawn from a Hinged Flat Plate, and the two parts are bolted to the Angle Girders, one at each side of the hull near the stern. The Strips along the sides of the deck are then added. They are bolted to two Flanged Sector Plates forming the forward part of the deck, and to two Angle Brackets amidships and at the stern. The Flanged Sector Plates are bolted so that the narrow end of one overlaps the broad end of the other by two holes.

Two 5½" × 1½" Flexible Plates connect the Flanged Sector Plate to a 5½" × 2½" Flanged Plate, to which the small boat is bolted. Two 5½" Strips overlapped three holes are fastened to the Flanged Plate and to a 2½" Strip at the stern. Two 2½" × 2½" Flexible Plates are bolted to this compound strip, together with a 2½" × 1½" Flanged Plate and two 2½" × 1½" Flexible Plates. The 1" Pulleys are secured by Bolts that pass through the deck into their bosses. The Bush Wheel is similarly fastened to the Trunnion. The small boat consists of two 2½" × 2½" Flexible Plates overlapped one hole and attached to the deck by an Angle Bracket.

The mast, which consists of three 12½" Strips, a 5½" Strip and a 2½" Strip, is fastened between two Angle Brackets by a ⅜" Bolt, on the shank of which are four Washers between the Angle Brackets. The method of rigging the model will be clear from Fig. 5.18b.

The sails can be cut from white cardboard or stiff paper. The mainsail measures 20" × 38" × 43". The two sails at the bows each measure 10" × 22" × 25". The topsail is 12" × 14" × 24", and is 6" in width at its widest part.

Parts required

10 of No.	1	8 of No.	35	1 of No.	126a
14 „ „	2	85 „ „	37	3 „ „	155a
2 „ „	3	4 „ „	37a	1 „ „	176
12 „ „	5	14 „ „	38	4 „ „	188
1 „ „	6a	1 „ „	40	4 „ „	189
2 „ „	8	1 „ „	45	4 „ „	190
2 „ „	10	3 „ „	48a	2 „ „	191
10 „ „	12	1 „ „	51	4 „ „	192
2 „ „	12a	1 „ „	52	1 „ „	198
2 „ „	15	2 „ „	54a	2 „ „	199
1 „ „	15b	3 „ „	90a	2 „ „	200
2 „ „	16	2 „ „	111a	1 „ „	212
3 „ „	22	6 „ „	111c	1 „ „	214
1 „ „	24	1 „ „	126	2 „ „	215

In this illustration the mast is shown with a section cut out so that the details of the upper part of the mast may be included in the page.

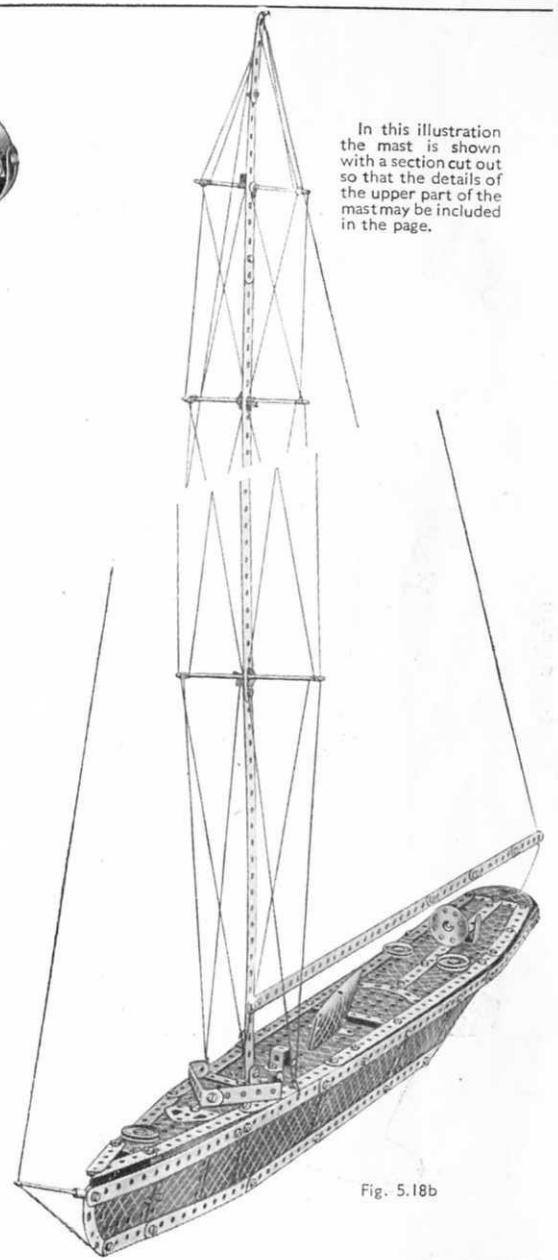
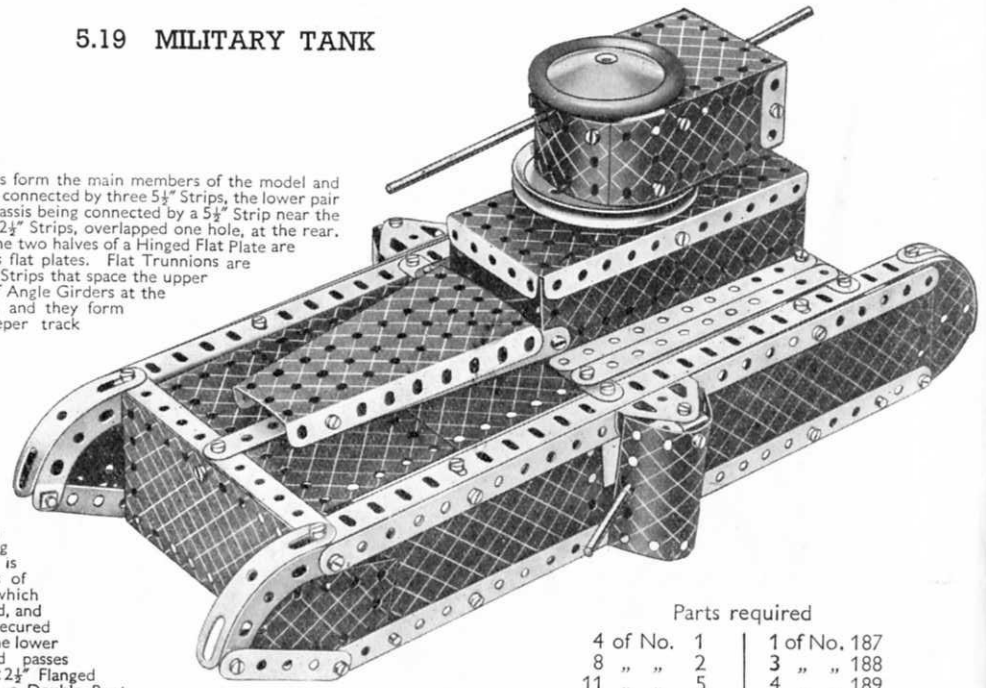


Fig. 5.18b

5.19 MILITARY TANK



Angle Girders form the main members of the model and the upper pair are connected by three 5½" Strips, the lower pair comprising the chassis being connected by a 5½" Strip near the front and by two 2½" Strips, overlapped one hole, at the rear. At 1 (Fig. 5.19a) the two halves of a Hinged Flat Plate are used separately as flat plates. Flat Trunnions are bolted to the 2½" Strips that space the upper and lower pairs of Angle Girders at the rear of the tank, and they form part of the creeper track covers.

The revolving gun turret is shown in Fig. 5.19a. The rear gun is a 3½" Rod, which is fitted with a Reversed Angle Bracket on the inside of the Flanged Plate, and is retained in position by Spring Clips. A 5" Rod is fixed in the boss of the 3" Pulley to which the turret is bolted, and a Road Wheel is secured to its top end. The lower end of the Rod passes through the 5½"×2½" Flanged Plate and through a Double Bent Strip. A 1" Pulley retains the complete unit in position. The Flanged Sector Plate shown in the larger illustration is bolted to a second Flanged Sector Plate, and overlaps it by eight holes.

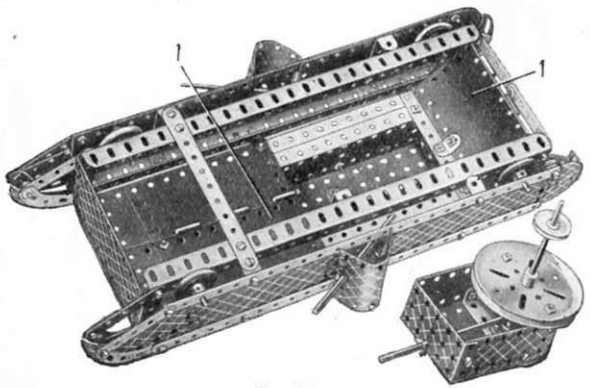


Fig. 5.19a

Parts required

4	of No.	1	1	of No.	187
8	„	„ 2	3	„	„ 188
11	„	„ 5	4	„	„ 189
4	„	„ 8	3	„	„ 190
6	„	„ 12	2	„	„ 191
1	„	„ 12c	4	„	„ 192
2	„	„ 15	1	„	„ 198
1	„	„ 15b	2	„	„ 199
2	„	„ 16	2	„	„ 214
4	„	„ 18a	4	„	„ 215
1	„	„ 19b			
5	„	„ 22			
8	„	„ 35			
83	„	„ 37			
2	„	„ 38			
1	„	„ 45			
6	„	„ 48a			
1	„	„ 51			
1	„	„ 52			
2	„	„ 54a			
4	„	„ 90a			
1	„	„ 125			
2	„	„ 126			
2	„	„ 126a			
4	„	„ 155a			

5.20 DERRICK CRANE

Reference to the illustrations will make clear the construction of the base and cabin.

Each side of the jib consists of three 12½" Strips, which are joined across at the bottom by a 1½"×½" Double Angle Strip, in the centre by a 2½"×½" Double Angle Strip, and at the top by a Cranked Bent Strip. A 1½" Rod locked in the boss of the upper 3" Pulley passes through a second 3" Pulley bolted to the base, and is held in position by a Spring Clip. The Double Bracket at the upper ends of the 12½" Strips is lock-nutted to the 2½"×1½" Flanged Plate.

The 5" Rod 1, which controls the swivelling of the jib, has a belt of Cord wound around it several times. The Cord is taken round the 3" Pulley at the bottom of the jib. Crank Handle 2 controls the hoisting movement. Cord is wound a few turns around the shaft of the Crank Handle, then passed under a 2" Rod at the base of the jib, and over a 1" loose Pulley on a 1½" Rod at the top of the jib. The Cord is then led through the pulley block and tied to an Angle Bracket bolted to the jib. The 3½" Rod 3 carries a Bush Wheel, to which a Threaded Pin is fitted to form a handle for controlling the luffing movement of the jib.

Cord is tied to a Flat Bracket on the 2" Rod in the jib post and is taken around a 1" Pulley on the jib. It is then passed around a ½" loose Pulley on the 2" Rod and led over a second Pulley on the same Rod as the first 1" Pulley. Finally it is led back over the 2" Rod and wound around Rod 3.

Parts required

10	of No.	1	1	of No.	23
10	„	„ 2	1	„	„ 24
2	„	„ 3	14	„	„ 35
2	„	„ 5	69	„	„ 37
3	„	„ 8	6	„	„ 37a
1	„	„ 10	10	„	„ 38
1	„	„ 11	1	„	„ 40
6	„	„ 12	1	„	„ 44
2	„	„ 12a	1	„	„ 48
4	„	„ 12c	1	„	„ 48a
1	„	„ 15	1	„	„ 51
3	„	„ 16	1	„	„ 52
2	„	„ 17	2	„	„ 54a
2	„	„ 18a			
1	„	„ 18b			
1	„	„ 19g			
2	„	„ 19b			
5	„	„ 22			
2	„	„ 22a			

1	of No.	57c	1	of No.	213
2	„	„ 90a	2	„	„ 217a
4	„	„ 111c			
1	„	„ 115			
2	„	„ 126			
2	„	„ 126a			
1	„	„ 147b			
1	„	„ 176			
1	„	„ 198			

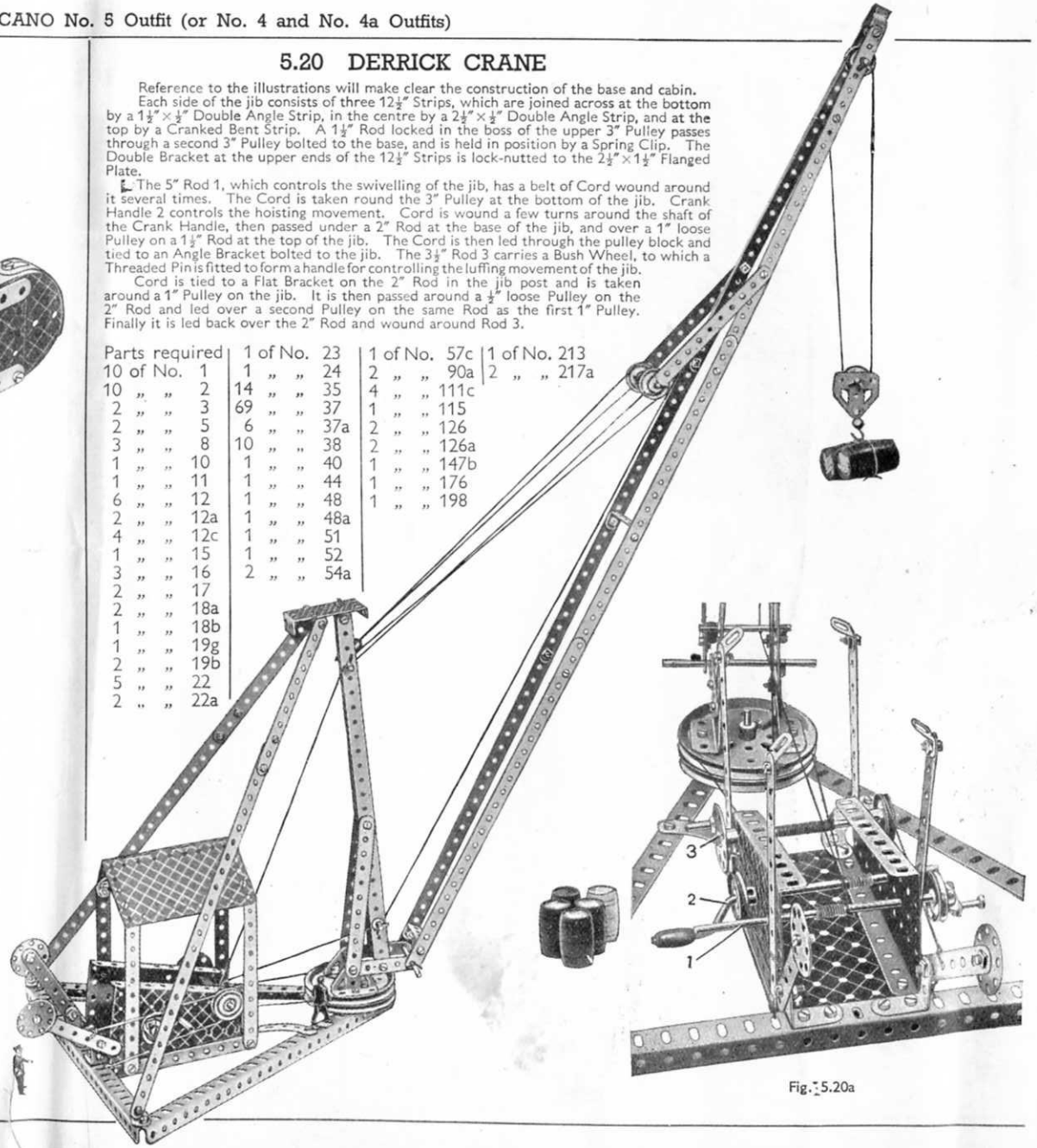
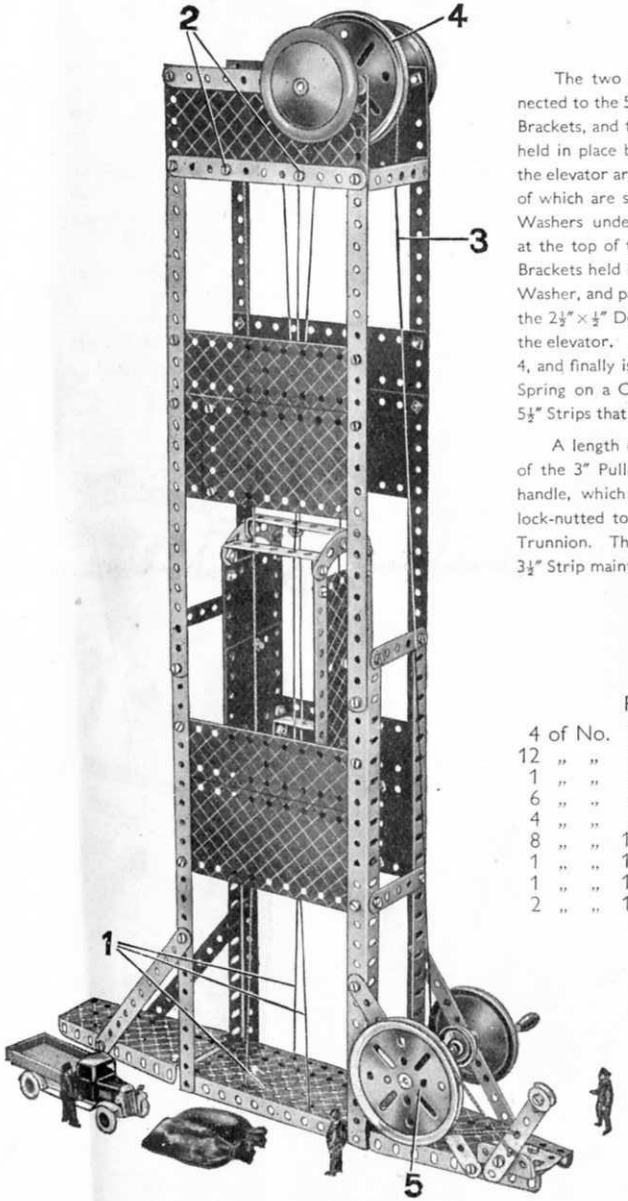


Fig. 5.20a

5.21 ELEVATOR



The two Flanged Sector Plates are connected to the 5½" × 2½" Flanged Plate by Angle Brackets, and the four 12½" Angle Girders are held in place by the same Bolts. Guides for the elevator are provided by four Cords, three of which are shown at 1. These are tied to Washers underneath the Flanged Plate, and at the top of the shaft are fastened to Angle Brackets held by Bolts 2. Cord 3 is tied to a Washer, and passes through the centre hole of the 2½" × ½" Double Angle Strip at the top of the elevator. It then passes over the 3" Pulley 4, and finally is fastened to a Cord Anchoring Spring on a Crank Handle journalled in the 5½" Strips that brace the elevator shaft.

A length of Cord passes around the rim of the 3" Pulley 5 and is tied to the brake handle, which is a 3½" Strip. This Strip is lock-nutted to a Trunnion fastened to a Flat Trunnion. The ½" loose Pulley bolted to the 3½" Strip maintains the brake band in tension.

Parts required

4	of No.	1	2	of No.	22
12	„	„ 2	1	„	„ 23
1	„	„ 3	83	„	„ 37
6	„	„ 5	2	„	„ 37a
4	„	„ 8	7	„	„ 38
8	„	„ 12	1	„	„ 40
1	„	„ 15b	7	„	„ 48a
1	„	„ 19g	1	„	„ 52
2	„	„ 19b	2	„	„ 54a
			2	„	„ 90a
			1	„	„ 111c
			1	„	„ 126
			1	„	„ 126a
			1	„	„ 176
			3	„	„ 187
			2	„	„ 188
			4	„	„ 189
			4	„	„ 190
			2	„	„ 191
			4	„	„ 192

5.22 BIG WHEEL

Each rim of the wheel consists of four 12½" Strips bolted so that they overlap three holes. The rims are connected by 4" compound strips, and are secured by 6½" compound strips to a Bush Wheel and the inside holes of a 3" Pulley on the supporting shaft. The shaft consists of a 5" and a 4" Rod fastened together by a Rod Connector, and is journalled in the centre holes of two 1¼" Discs secured to the ends of two 12½" Angle Girders bolted to the base. The base is formed by bolting 5½" Strips to the shorter flanges of a 5½" × 2½" Flanged Plate, and then extending the length of the Flanged Plate by a Flanged Sector Plate. The construction of the cars can be seen from the illustration.

The drive is taken by Cord from a 1" Pulley on the shaft of a Crank Handle to a 3" Pulley on the shaft of the wheel. The Crank Handle is journalled in the holes of a Cranked Bent Strip bolted to the Flanged Sector Plate, and also in the centre hole of a 1½" × ½" Double Angle Strip fixed to the 5½" × 2½" Flanged Plate. The Flexible Plates forming the pay-box are joined together and secured to the framework of the model by 2½" × ½" Double Angle Strips.

Fig. 5.22a shows the Big Wheel driven by an E120 Electric Motor. The drive is taken through a Worm meshed with a 1" Gear, and the 1" Pulley held on a Rod in the Cranked Bent Strip is driven by a Driving Band which runs on the same Rod as the 1" Gear, in order to give a slow drive.

Parts required

8	of No.	1	1	of No.	24
14	„	„ 2	9	„	„ 35
2	„	„ 3	85	„	„ 37
11	„	„ 5	3	„	„ 37a
2	„	„ 6a	12	„	„ 38
4	„	„ 8	1	„	„ 40
5	„	„ 10	1	„	„ 44
4	„	„ 11	1	„	„ 48
12	„	„ 12	4	„	„ 48a
2	„	„ 12a	1	„	„ 51
1	„	„ 15	1	„	„ 52
1	„	„ 15b	1	„	„ 54a
4	„	„ 16	3	„	„ 111c
1	„	„ 19g			
2	„	„ 19b			
3	„	„ 22			
2	„	„ 22a			
1	„	„ 23			

1	of No.	125	
2	„	„	126
2	„	„	126a
1	„	„	147b
2	„	„	187
4	„	„	188
2	„	„	190
3	„	„	192
2	„	„	199
2	„	„	200
1	„	„	213
1	„	„	214
2	„	„	215
4	„	„	217a

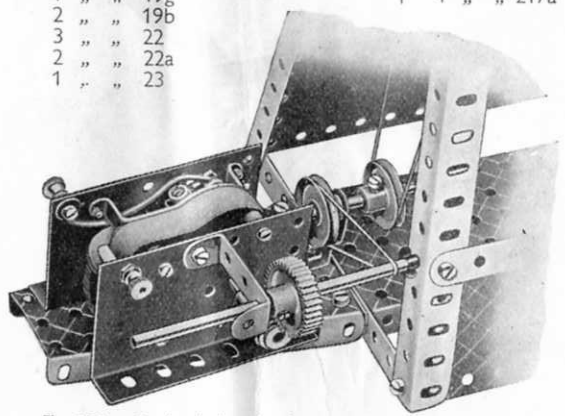
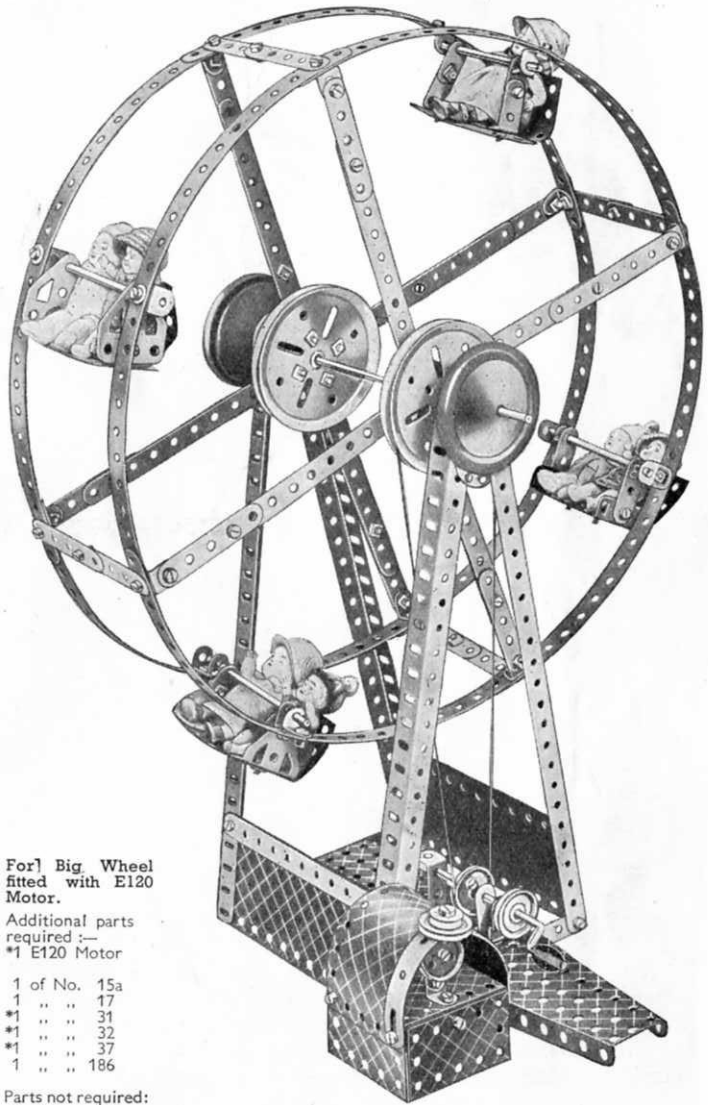


Fig. 5.22a. Sectional view showing Motor fitted.



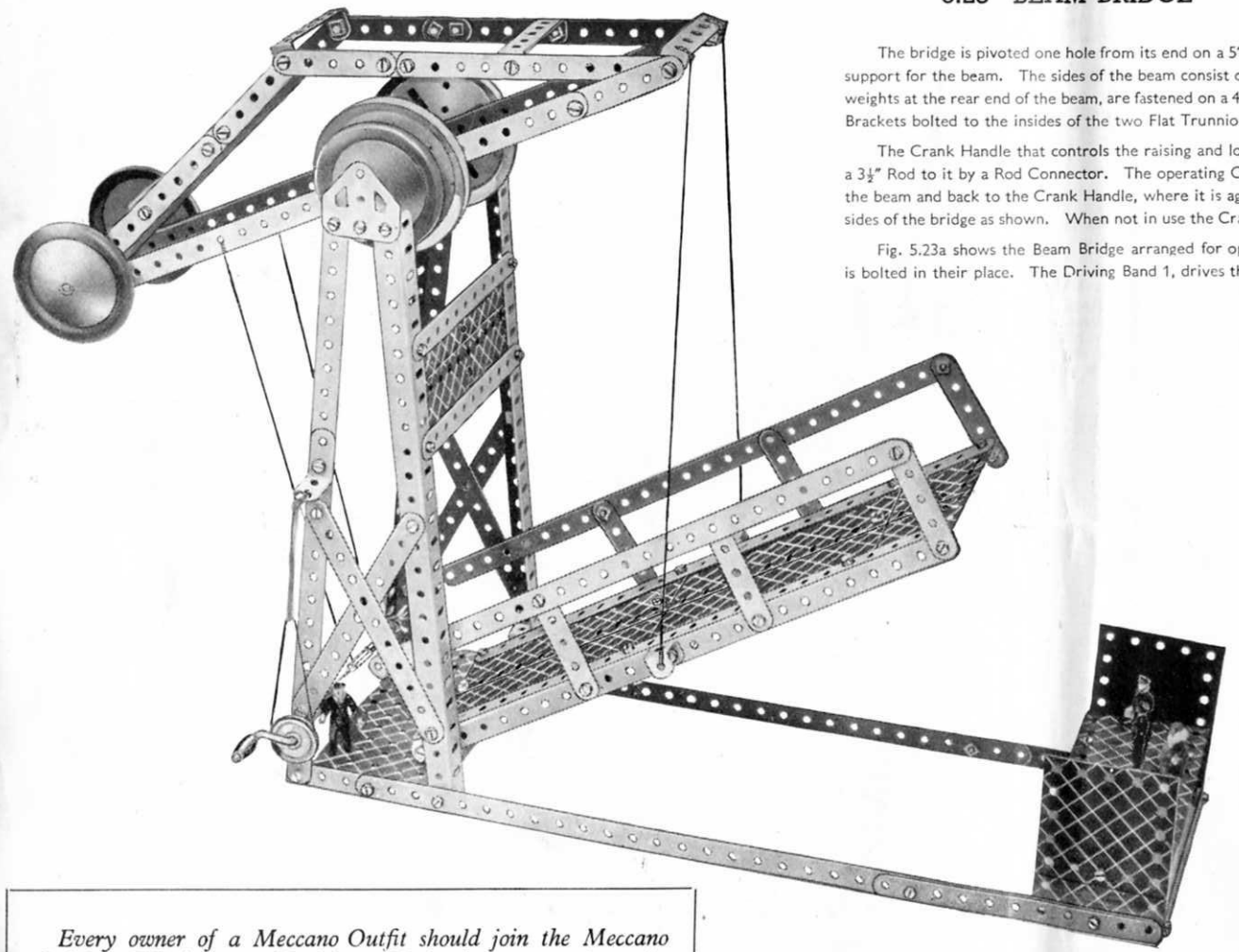
For] Big Wheel fitted with E120 Motor.

Additional parts required :—
*1 E120 Motor

1	of No.	15a	
1	„	„	17
*1	„	„	31
*1	„	„	32
*1	„	„	37
1	„	„	186

Parts not required:
1 of No. 19g

*Not included in Outfit.



5.23 BEAM BRIDGE

The bridge is pivoted one hole from its end on a 5" Rod, which is supported in two Reversed Angle Brackets bolted to two of the 12½" Angle Girders forming the support for the beam. The sides of the beam consist of compound strips, and they are joined by 2½" × ½" Double Angle Strips. The Road Wheels, which act as counter-weights at the rear end of the beam, are fastened on a 4" Rod. The beam is pivoted 1" out of centre to the front on a 5" Rod, which is supported in two Reversed Angle Brackets bolted to the insides of the two Flat Trunnions at the tops of the towers.

The Crank Handle that controls the raising and lowering of the bridge is journalled near the lower ends of the rear beam supports, and is lengthened by joining a 3½" Rod to it by a Rod Connector. The operating Cord is fastened to the Crank Handle by a Spring Clip, wound around its shaft several times and then taken through the beam and back to the Crank Handle, where it is again tied. Cords attached to the front end of the beam are tied to Double Brackets fastened halfway along the sides of the bridge as shown. When not in use the Crank Handle is kept stationary by a Cord band brake, tensioned by a Driving Band.

Fig. 5.23a shows the Beam Bridge arranged for operation by an E20b Electric Motor. The two 5½" Strips bracing the beam supports are removed, and the Motor is bolted in their place. The Driving Band 1, drives the 1" Pulley 2 direct from the Rod carrying the ½" Pinion

Parts required

10	of No. 1	4	of No. 187
13	„ „ 2	2	„ „ 188
2	„ „ 3	2	„ „ 189
10	„ „ 5	4	„ „ 190
4	„ „ 8	2	„ „ 191
5	„ „ 10	4	„ „ 192
2	„ „ 11	1	„ „ 213
8	„ „ 12		
1	„ „ 12a		
2	„ „ 15		
1	„ „ 15b		
1	„ „ 16		
1	„ „ 19g		
2	„ „ 19b		
1	„ „ 22		
4	„ „ 35		
82	„ „ 37		
1	„ „ 40		
7	„ „ 48a		
1	„ „ 52		
4	„ „ 125		
2	„ „ 126a		
1	„ „ 186a		

For Beam Bridge fitted with E20b Electric Motor.

Additional parts required :—
*1 E20b Motor
1 of No. 15
1 „ „ 22
*1 „ „ 23a
*1 „ „ 32
2 „ „ 37
2 „ „ 126
1 „ „ 186

Parts not required :—
2 of No. 2
1 „ „ 19g
1 „ „ 186a
1 „ „ 213

*Not included in Outfit.

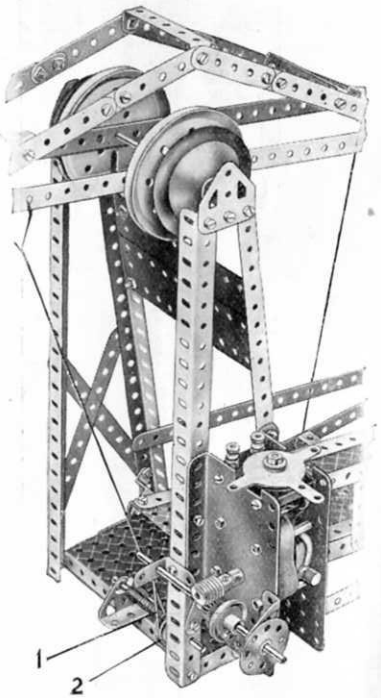


Fig. 5.23a. Sectional view showing Motor fitted.

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5.24 PITHEAD GEAR

The rear side of the engine house consists of a Flanged Sector Plate and a 2½"×1½" Flanged Plate, which are bolted to an Angle Girder that forms part of the base of the model.

The 2½" Cylinder lock-nutted to the 5½"×2½" Flanged Plate, is fitted at each end with 1¼" Discs by passing a 3" Screwed Rod through holes in their circumference and screwing Nuts on each end of it. The piston is a 4½" Rod fitted with a Rod and Strip Connector, and is retained in position by a Cord Anchoring Spring on a Threaded Pin fastened to a Bush Wheel. A 5" Rod is journalled in the holes of the two 2½" Strips at the head of the shaft, and it carries at its centre a 1" fast Pulley. On each side of the Pulley are a 3" Pulley and a Road Wheel.

A 4" Rod is held in place in the holes of the 5½" Strips by Spring Clips, and directly below this Rod, at the bottom of the shaft, is a 3½" Rod, which is supported in the holes of two Reversed Angle Brackets. This Rod carries a ½" loose Pulley between two Spring Clips. The arrangement of the Cord forming the guides for the cage can be seen in the illustration. A length of Cord is tied through one of the holes in the 1" loose Pulley at the top of the cage, and is passed over the 1" fast Pulley between the two 3" Pulleys at the top of the shaft. It is then wound six times around the 5" Rod in the engine house, and then led around the ½" loose Pulley. Finally the Cord is tied to another hole in the 1" loose Pulley.

Fig. 5.24a shows the Pithead Gear adapted for Clockwork Motor drive. The Motor is bolted to the Angle Girder at the base, and the drive is taken from the 1" Pulley fastened on the Motor shaft to a 1" Pulley on the 5" Rod carrying the Bush Wheel.

Parts required

10 of No. 1	2 of No. 12a	5 of No. 22	1 of No. 48
14 „ „ 2	4 „ „ 12c	1 „ „ 22a	7 „ „ 48a
2 „ „ 3	2 „ „ 15	1 „ „ 23	1 „ „ 51
11 „ „ 5	1 „ „ 15a	1 „ „ 24	1 „ „ 52
1 „ „ 6a	1 „ „ 15b	9 „ „ 35	1 „ „ 54a
4 „ „ 8	1 „ „ 16	85 „ „ 37	1 „ „ 80c
2 „ „ 10	1 „ „ 17	4 „ „ 37a	1 „ „ 111a
2 „ „ 11	1 „ „ 19g	10 „ „ 38	3 „ „ 111c
5 „ „ 12	2 „ „ 19b	1 „ „ 40	1 „ „ 115

2 of No. 125
1 „ „ 126
1 „ „ 126a
2 „ „ 155a
1 „ „ 176
1 „ „ 186
3 „ „ 187
3 „ „ 188
4 „ „ 189
4 „ „ 190
1 „ „ 191
4 „ „ 192
1 „ „ 198
1 „ „ 199
1 „ „ 212
1 „ „ 216
2 „ „ 217a

For model Pithead Gear fitted with No. 2 Clockwork Motor.

Additional Parts required :—

*1 No. 2 Clockwork Motor

Parts not required
2 of No. 155a

* Not included in Outfit.

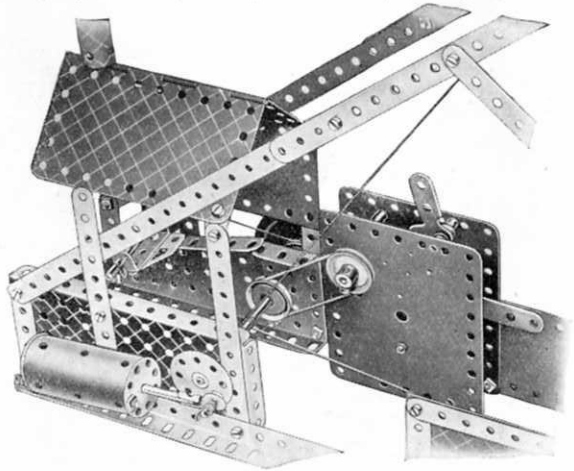
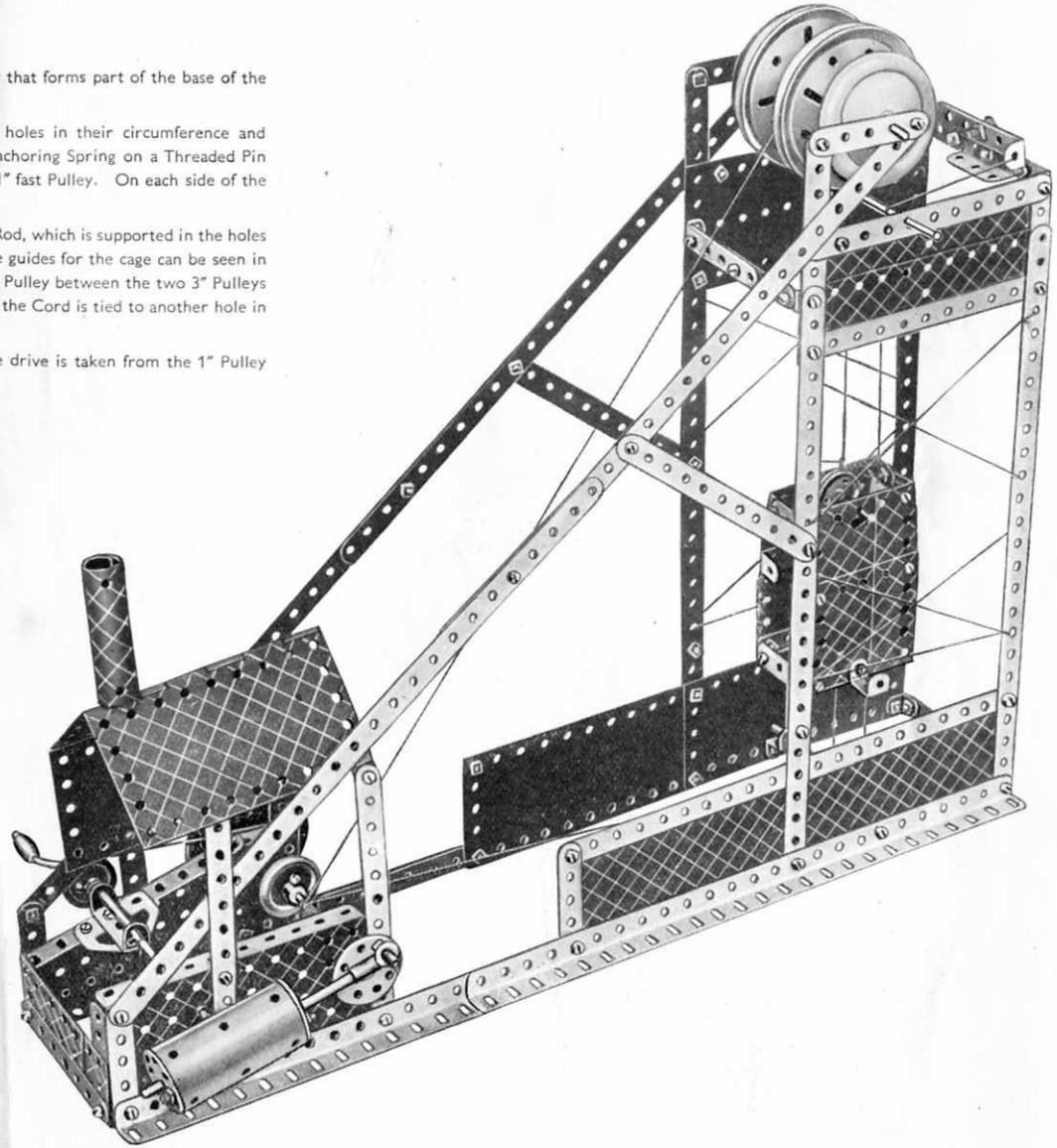
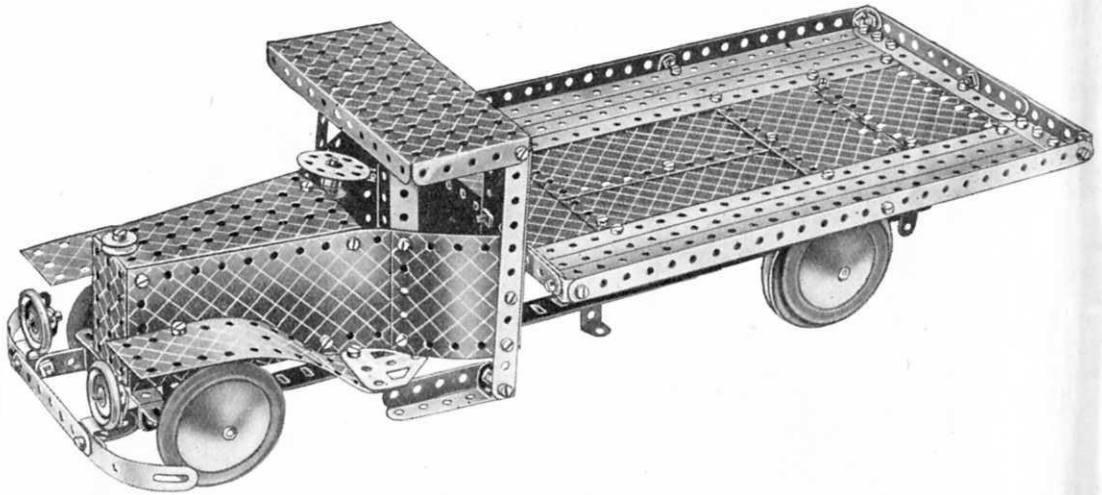


Fig. 5.24a Sectional view showing Motor fitted.





Parts required

10 of No. 1	2 of No. 11	1 of No. 17	6 of No. 37a	6 of No. 111c	2 of No. 189
12 „ „ 2	8 „ „ 12	2 „ „ 19b	12 „ „ 38	2 „ „ 125	2 „ „ 191
1 „ „ 3	2 „ „ 12a	2 „ „ 22	8 „ „ 48a	2 „ „ 126	4 „ „ 192
9 „ „ 5	1 „ „ 12c	1 „ „ 23	1 „ „ 51	2 „ „ 126a	1 „ „ 198
2 „ „ 6a	1 „ „ 15	1 „ „ 24	1 „ „ 52	2 „ „ 155a	2 „ „ 200
4 „ „ 8	1 „ „ 15b	4 „ „ 35	2 „ „ 54a	4 „ „ 187	1 „ „ 213
2 „ „ 10	1 „ „ 16	85 „ „ 37	2 „ „ 111a	3 „ „ 188	2 „ „ 215

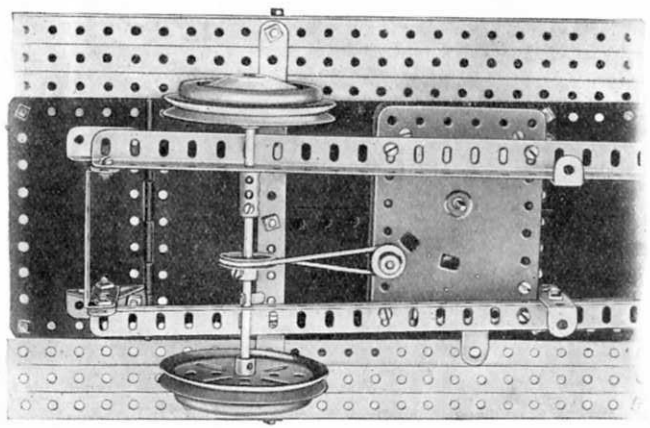


Fig. 5.25b. Sectional view showing Motor fitted.

For Motor Lorry fitted with No. 1 Clockwork Motor.

Additional Parts required :—

*1 No. 1 Clockwork Motor
1 of No. 22
*1 „ „ 23a
*4 „ „ 37
*1 „ „ 63
1 „ „ 186a

Parts not required
1 of No. 213

*Not included in Outfit.

5.25 MOTOR LORRY

The chassis of the lorry consists of two side members each built upf rom two 12½" Angle Girders overlapped 14 holes, and joined at each end by 2½"×½" Double Angle Strips. The front Road Wheels are mounted on a 5" Rod passed through the side members of the chassis, and the back Road Wheels are secured on a compound rod consisting of a 3½" and a 1½" Rod joined by a Rod Connector and journalled in a similar manner.

Flanged Sector Plates form the top and base for the bonnet and radiator. The narrow end of the bonnet is bolted to the centre hole of the 2½"×½" Double Angle Strip joining the forward ends of the chassis, and the wider end is attached to the centre of a 5½" Strip bolted across the chassis. The sides of the bonnet are 5½"×2½" Flexible Plates, and are bolted to the flanges of the Flanged Sector Plate. The radiator is a 2½"×1½" Flanged Plate, which is fastened by its flanges to the forward ends of the two Flanged Sector Plates. The radiator cap is represented by a ½" loose Pulley. The bumper consists of a 3½" Strip, to the ends of which are bolted 3" Formed Slotted Strips, and it is fastened to the front end of the chassis by 1"×1" Angle Brackets and 1½" Strips.

The platform of the lorry is secured to the chassis at the front by 2½"×½" Double Angle Strips, and at the rear by Trunnions and 2½" Strips.

Fig. 5.25b shows the Motor Lorry fitted with a No. 1 Clockwork Motor. The Motor is held to the chassis by four Bolts, and a ½" fast Pulley is fastened to the Motor shaft as shown. The drive is transmitted by a Driving Band to a 1" Pulley on the rear axle.

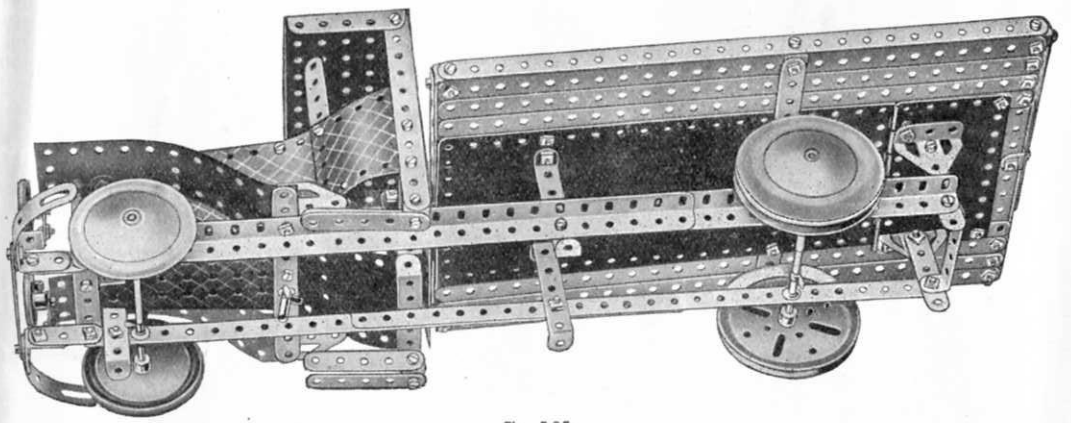


Fig. 5.25a

MECCANO MOTORS FOR OPERATING MECCANO MODELS

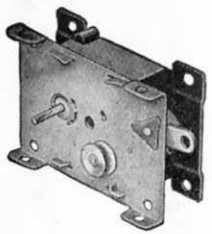
If you want to obtain the fullest enjoyment from the Meccano hobby you should operate your models by means of one of the Meccano Motors described on this page. You push over the control lever of the clockwork or electric Motor and immediately your Crane, Motor Car, Ship Coaler or Windmill commences to work in exactly the same manner as its prototype in real life.

Each Motor is pierced with the standard Meccano equidistant holes.

MECCANO CLOCKWORK MOTORS

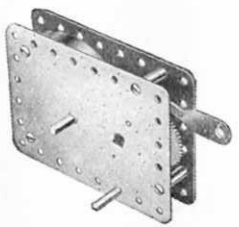
These are the finest clockwork motors obtainable for model driving. They have exceptional power and length of run and their gears are cut with such precision as to make them perfectly smooth and steady in operation.

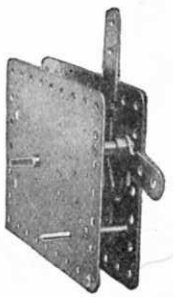
Meccano Clockwork Motors are especially suitable for small models built with a limited range of parts. They are extremely simple to operate and have the advantage of being self contained.



THE MECCANO *MAGIC* MOTOR

The Meccano ***Magic*** Motor is well designed and strongly constructed, and is fitted with a powerful spring giving a long and steady run. It is non-reversing. Each ***Magic*** Motor is supplied with a separate ½" fast Pulley and three pairs of Driving Bands of different lengths. It is capable of driving all light models built with the smaller Outfits.





No. 2 Clockwork Motor.

No. 1 Clockwork Motor

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

No. 1a Clockwork Motor

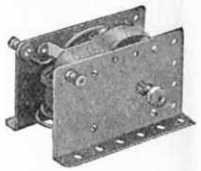
This Motor is more powerful than the No. 1 Motor and is fitted with reversing motion. It has brake and reverse levers.

No. 2 Clockwork Motor

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

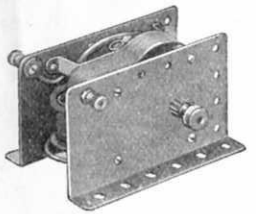
MECCANO ELECTRIC MOTORS

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



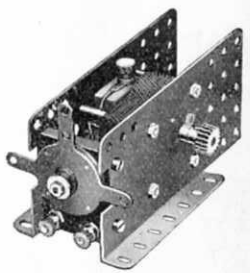
No. E1 Electric Motor (6 volt)

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



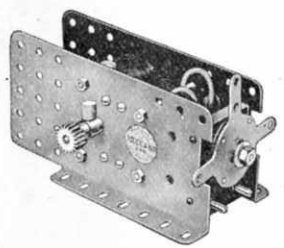
No. E120 Electric Motor (20 volt)

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



No. E6 Electric Motor (6 volt)

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



No. E20b Electric Motor (20 volt)

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

Ask your dealer for the latest Meccano Price List

MECCANO TRANSFORMERS

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

No. T20A Transformer

No. T6 Transformer

FOR 20-volt ELECTRIC MOTORS

No. T20A TRANSFORMER (Output 35 VA at 20/3½ volts). Has two separate circuits at 20 volts, one of which is controlled by a 5-stud speed regulator, and a third circuit at 3½ volts for lighting up to 14 lamps.

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

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

FOR 6-volt ELECTRIC MOTORS

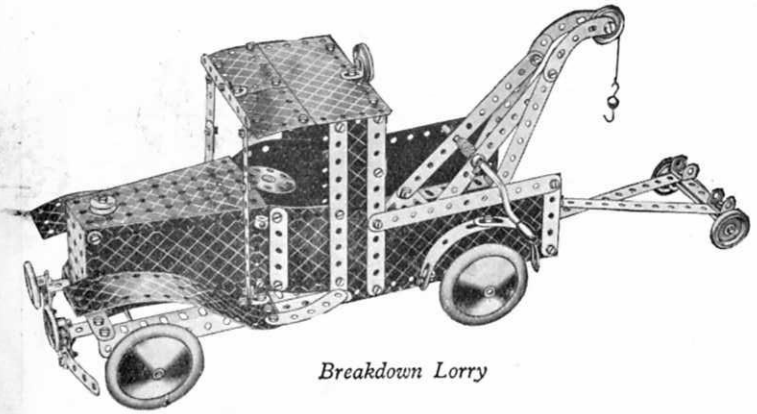
No. T6A TRANSFORMER (Output 40 VA at 9/3½ volts). Has two separate circuits at 9 volts, one of which is controlled by a 5-stud speed regulator, and a third circuit at 3½ volts for lighting up to 18 lamps.

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

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

Resistance Controllers

By means of these Controllers the speed of Meccano 6-volt and 20-volt Motors can be regulated exactly as desired.



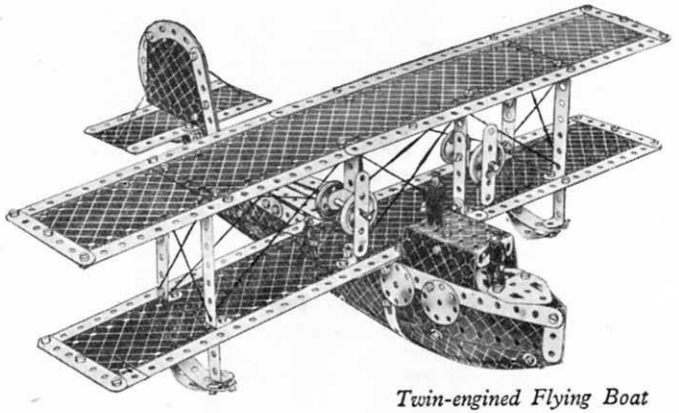
Breakdown Lorry

BUILD BIGGER AND BETTER MODELS

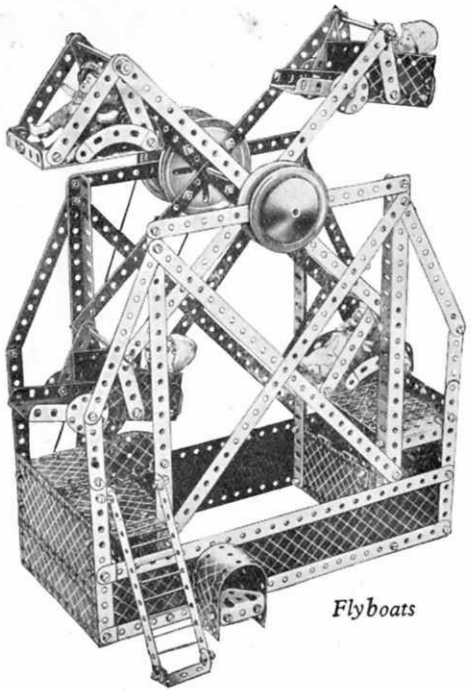
When you have built all the models shown in this Manual you will be keen to build bigger and more elaborate models. Your next step is to purchase a Meccano No. 5a Accessory Outfit containing all the parts required to convert your No. 5 into a No. 6 Outfit. You will thus be able to build the full range of No. 6 Outfit models, a selection of which is illustrated on this page and opposite.

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

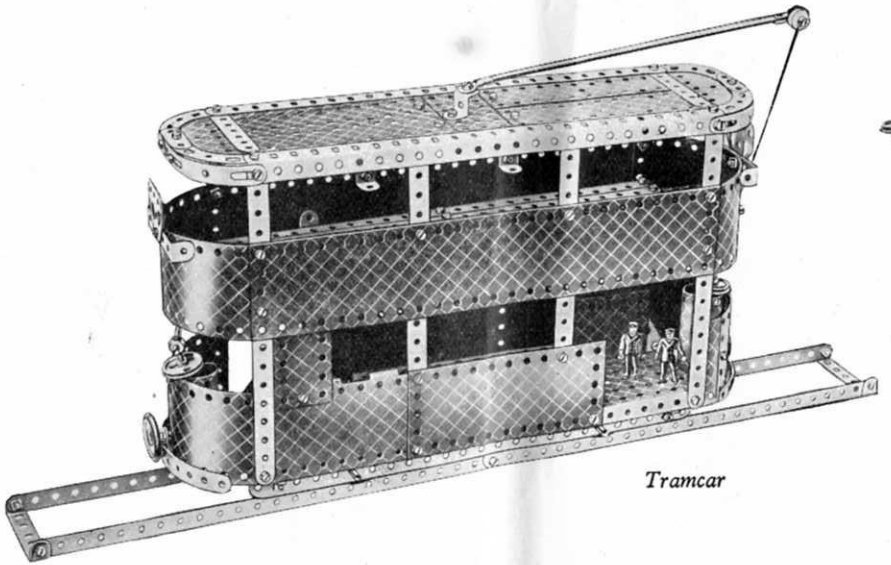
Ask your dealer to post you regularly the latest Meccano parts lists and other Meccano literature.



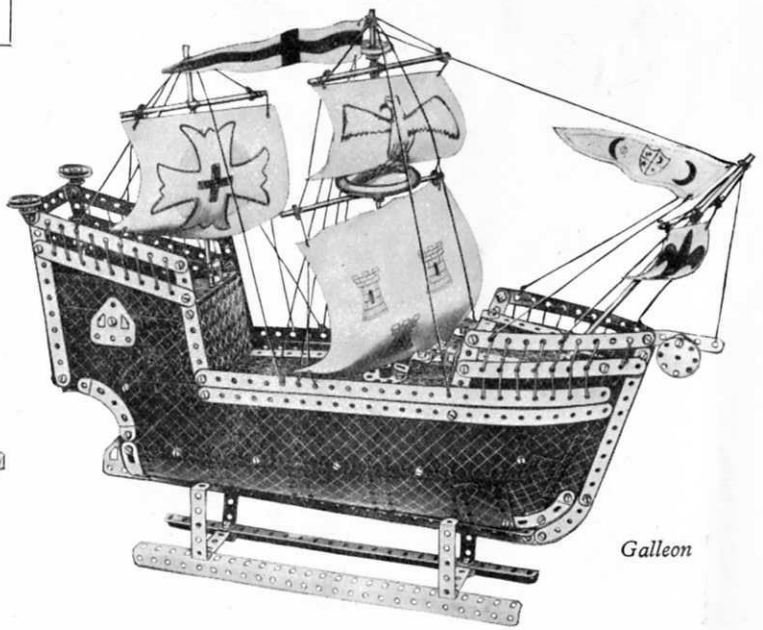
Twin-engined Flying Boat



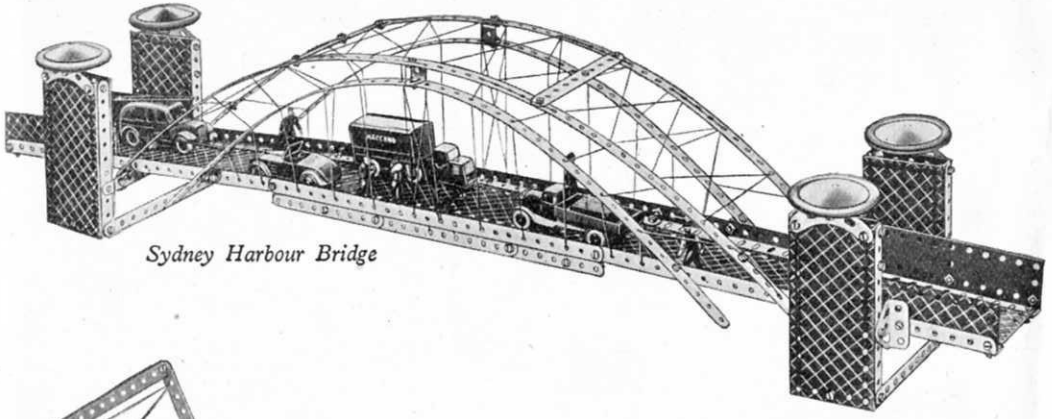
Flyboats



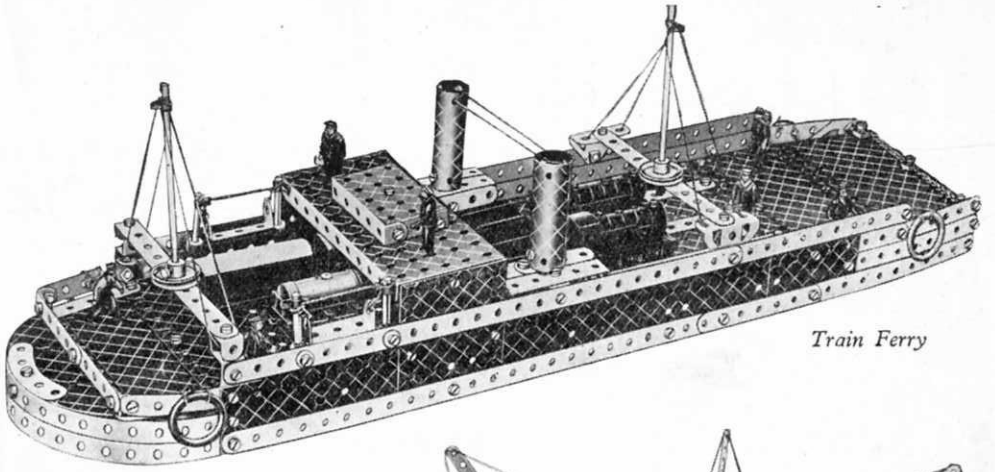
Tramcar



Galleon

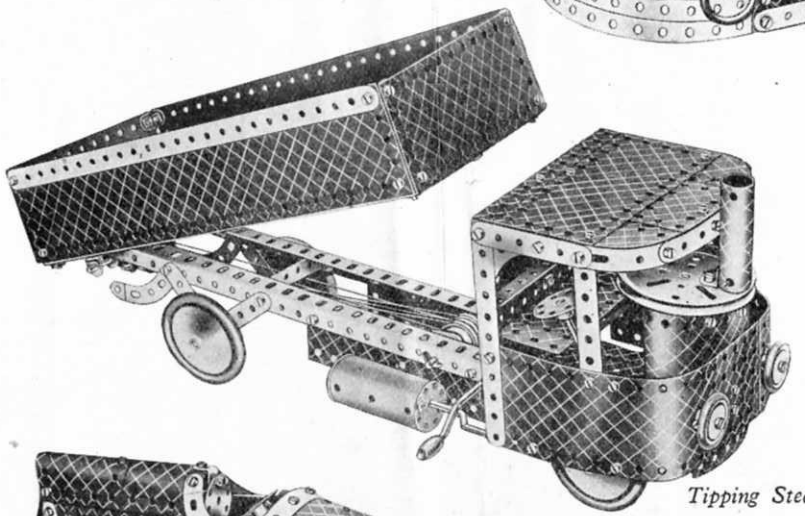


Sydney Harbour Bridge

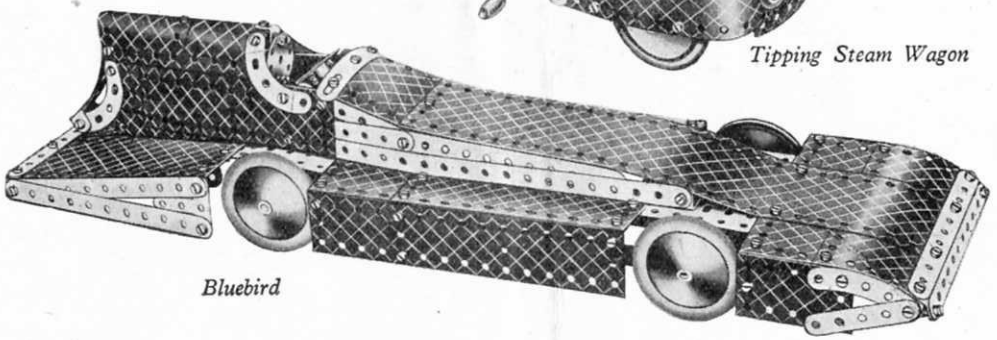


Train Ferry

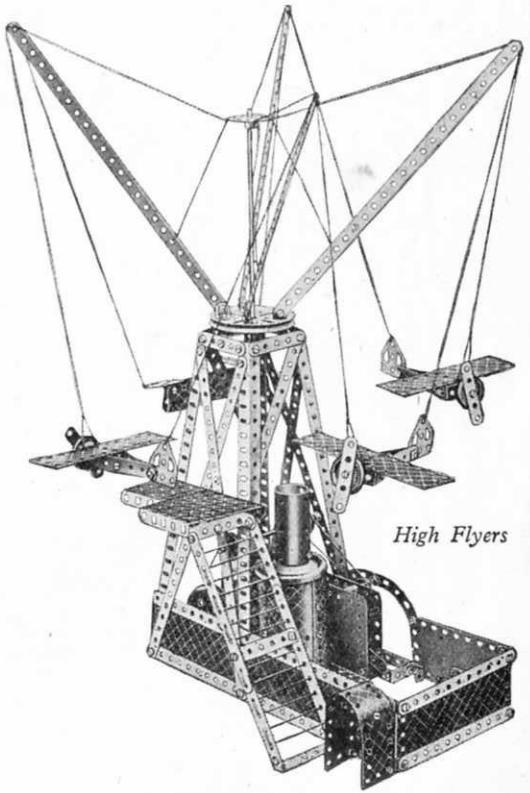
Windmill



Tipping Steam Wagon

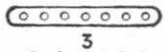


Bluebird



High Flyers

MECCANO PARTS



3

Perforated Strips

No.		No.	
1.	12½"	3.	3½"
1a.	9½"	4.	3"
1b.	7½"	5.	2½"
2.	5½"	6.	2"
2a.	4½"	6a.	1½"

9B

Angle Girders

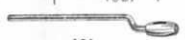
7.	24½"	9a.	4½"
7a.	18½"	9b.	3½"
8.	12½"	9c.	3"
8a.	9½"	9d.	2½"
8b.	7½"	9e.	2"
9.	5½"	9f.	1½"

10 11 12

10. Flat Brackets
11. Double Brackets
12. Angle Brackets, ½"×½"
12a. " " 1"×1"
12b. " 1"×½"
12c. Obtuse Angle Brackets, ½"×½"

Axle Rods

13.	11½"	16.	3½"
13a.	8"	16a.	2½"
14	6½"	16b.	3"
15.	5"	17.	2"
15a.	4½"	18a.	1½"
15b.	4"	18b.	1"

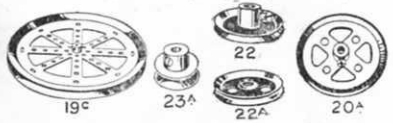


19h

19g Crank Handles 3½" with Erinoid grip
19h " " 5" " "
19s " " 3½" without "

20 19A 20B

19a. Wheels, 3" diam., with set-screws
20. Flanged Wheels, 1½" diam.
20b. " " ¾" "



19C 23A 22 22A 20A

Pulley Wheels

19b. 3" dia. with centre boss & set-screw
19c. 6" " " " "
20a. 2" " " " "
21. 1½" " " " "
22. 1" " " " "
23a. ½" " " " and grub-screw
22a. 1" " without " " "
23. ½" " " " "

24. Bush Wheels

No. 26B

25. Pinion Wheels, ¾" diam., ¼" face
25a. " " ¾" " ¼" "
25b. " " ½" " ¼" "
26. " " ¾" " ⅛" "
26a. " " ½" " ⅛" "
26b. " " ½" " 1/16" "

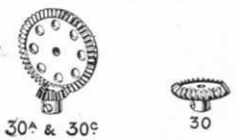
27 27A 27B

Gear Wheels

27. 50 teeth to gear with ¾" pinion
27a. 57 " " " ½" "
27b. 133 " " " ½" " (3½" diam.)
27c 95 " " " ½" " (2½" diam.)

28 29

28. Contrate Wheels, 1½" diam.
29. " " ¾" "

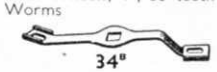


30A & 30C 30

30. Bevel Gears, ⅞", 26 teeth
30a. " " ½", 16 " } Can only be
30c. " " 1½", 48 " } used together

31 32

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



34B

34. Spanners
34b. Box Spanners

35

35. Spring Clips box of 20
35s. " " box of 60
36. Screwdrivers
36a. " Extra Long
36b. " Special
37. Nuts and Bolts, 3/32", box of 12
37af. Nuts ... box of 50
37bf. Bolts, 3/32" ... box of 50
37f. Nuts and Bolts, 3/32" " "
37g. " " 3/32" box of 144
38. Washers ... box of 20
38s. " ... ... box of 60
40. Hanks of Cord

41. Propeller Blades

No.
43. Springs

44 46 45

44. Cranked Bent Strips
45. Double " "
46. " Angle Strips, 2½"×1"
47. " " " 2½"×1½"
47a. " " " 3"×1½"
48. " " " 1½"×½"
48a. " " " 2½"×½"
48b. " " " 3½"×½"
48c. " " " 4½"×½"
48d. " " " 5½"×½"

50a Eye Pieces, with boss

52 53

51. Flanged Plates, 2½"×1½"
52. " " 5½"×2½"
52a. Flat Plates, 5½"×3½"
53. Flanged Plates, 3½"×2½"
53a. Flat Plates, 4½"×2½"

54a. Flanged Sector Plates, 4½" long

55. Perforated Strips, slotted, 5½" long
55a. " " " 2" long

57B 57A 57

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

58 53B

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 62B

No.
62. Cranks
62a. Threaded Cranks
62b. Double Arm Cranks

63 63A 63B 63C

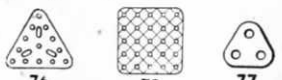
63. Couplings
63a. Octagonal Couplings
63b. Strip Couplings
63c. Threaded Couplings

64 65

64. Threaded Bosses
65. Centre Forks

66 & 67

66. Weights, 50 grammes
67. " 25
68. Woodscrews, ½"
69. Set Screws
69a. Grub Screws, 3/32"
69b. " " 1/16"
69c. " " 1/64"



76 72 77

70. Flat Plates, 5½"×2½"
72. " " 2½"×2½"
73. " " 3" ×1½"
76. Triangular Plates, 2½"
77. " " 1"

80A

Screwed Rods

78.	11½"	80b.	4½"
79.	8"	80c.	3"
79a.	6"	81.	2"
80.	5"	82.	1"
80a.	3½"		

90

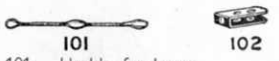
89. 5½" Curved Strips, 10" radius
89a. 3" " " cranked, 1¾" radius 4 to circle
89b. 4" Curved Strips cranked, 4½" radius, 8 to circle
90. 2½" Curved Strips, 2⅜" radius
90a. 2½" " cranked, 1⅜" radius, 4 to circle

94 95B

94. Sprocket Chain, per 40" length
95. " Wheels, 36 teeth, 2" diam.
95a. " " 28 " 1½" "
95b. " " 56 " 3" "
96. " " 18 " 1" "
96a. " " 14 " ¾" "

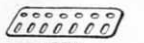
No. 99 No.

97.	3½" long	99a.	9½" long
97a.	3" "	99b.	7½" "
98.	2½" "	100.	5½" "
99.	12½" "	100a.	4½" "



101 102

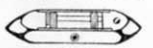
101. Healds, for looms
102. Single Bent Strips



103D

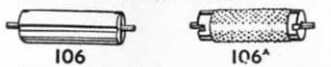
Flat Girders

103.	5½" long	103e.	3" long
103a.	9½" "	103f.	2½" "
103b.	12½" "	103g.	2" "
103c.	4½" "	103h.	1½" "
103d.	3½" "	103k.	7½" "



104

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

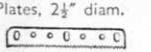


106 106A

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

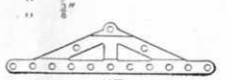
108 109

108. Architraves
109. Face Plates, 2½" diam.



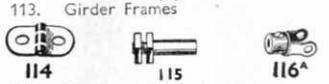
110

110. Rack Strips, 3½" long
110a. " " 6½" "
111. Bolts, ¾"
111a. " ½"
111c. " ⅜"



113

113. Girder Frames

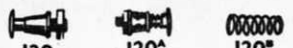


114 115 116A

114. Hinges
115. Threaded Pins
116. Fork Pieces, Large
116a " " Small
117. Steel Balls, ⅜" diam.

118. Hub Discs, 5½" diam.

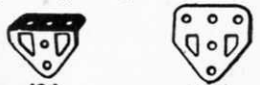
MECCANO PARTS



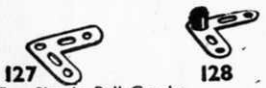
No.
120. Buffers 120a. Spring Buffers
120b. Compression Springs

121. Train Couplings
122. Miniature Loaded Sacks

123. Cone Pulleys
124. Reversed Angle Brackets, 1"
125. " " " ½"



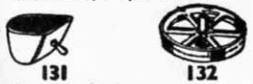
126. Trunnions 126a. Flat Trunnions



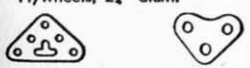
127. Simple Bell Cranks
128. Boss Bell Cranks

129. Rack Segments, 3" diam.

130. Eccentrics, Triple Throw



131. Dredger Buckets
132. Flywheels, 2¾" diam.



133. Corner Brackets, 1½"
133a. " " 1"

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

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

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

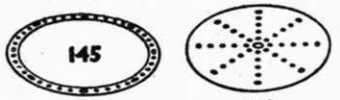
139. Flanged Brackets (right)
139a. " " (left)

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

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

143. Circular Girders, 5½" diam.

144. Dog Clutches



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

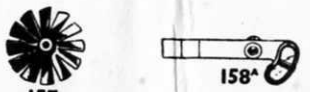
147 & 148. Pawls, with Pivot Bolt and Nuts
147a. Pawls
147b. Pivot Bolts with 2 nuts
147c. Pawls without boss
148. Ratchet Wheels

149. Collecting Shoes for Electric Locos
150. Crane Grabs

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

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

156. Pointers (with boss), 2½" overall

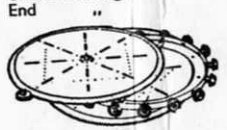


157. Fans, 2" diam.
158a. Signal Arms, Home
158b. " " Distant

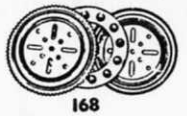
160. Channel Bearings, 1½"×1"×½"
161. Girder Brackets, 2"×1"×½"

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

165. Swivel Bearings
166. End "



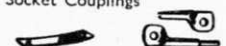
167. Geared Roller Bearings
167a. Roller Races, geared, 192 teeth
167b. Ring Frames for Rollers
167c. Pinions for Roller Bearings (16 teeth)



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

169. Digger Buckets

170. Eccentrics, ½" throw
171. Socket Couplings

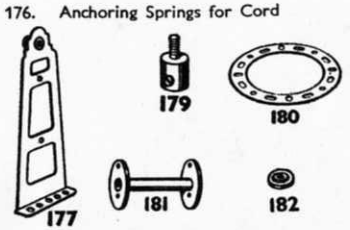


172. Pendulum Connections
173. Rail Adaptors

174. Grease Cups

175. Flexible Coupling Units

176. Anchoring Springs for Cord



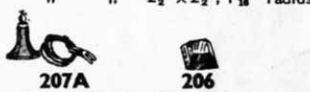
177. Shafting Standards, Large
178. " " Small
179. Rod Sockets
180. Toothed Gear Rings, 3½" diam
181. Bobbins
182. Insulating Bushes
182a. Insulating Washers

183	Lamp Holders	184c.	6-volt Lamps
184a.	2½-volt Lamps	184d.	10 " "
184b.	3½ " "	184e.	20 " "

No.
185. Steering Wheels, 1¾" diam.
186. Driving Bands, 3" diam. (Light)
186a. " " 6" " "
186b. " " 10" " "
186c. " " 10" " (Heavy)
186d. " " 15" " "
186e. " " 20" " "
187. Road Wheels

Flexible Plates.		Strip Plates.	
188.	2½"×1½"	193.	2½"×2½"
189.	5½"×1½"	194.	3½"×2½"
190.	2½"×2½"	195.	5½"×2½"
191.	4½"×2½"	196.	9½"×2½"
192.	5½"×2½"	197.	12½"×2½"

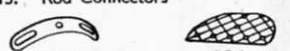
198. Hinged Flat Plates, 4½"×2½"
199. Curved Plates, U-Section 2½"×2½"×½"
200. " " 2½"×2½", 1 11/16" radius



201. Lamps with Flex (3½ volts)
202. Angle Brackets (for Headlamps)
203. Headlamps
203a. Headlamp Rims
203b. " Bodies
204. " Nuts
205. " Glasses
206. Lampshades
207. Lamp Bases
207a. Lamp with Standard and Flex
208. Battery Tags and Studs
208a. Washers for Battery Studs
210. Nuts for Battery Studs

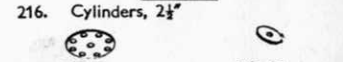
211a. Helical Gear ½" { *Can only be*
211b. " " 1½" { *used together*

212. Rod and Strip Connectors
213. Rod Connectors



214. Semi-Circular Plates 2½"
215. Formed Slotted Strips 3"

216. Cylinders, 2½"



217a. Discs, 1½" | 217b. Discs ¾"
219. Wheel Discs

† The series includes 26 Funnels in the correct designs and colours of leading shipping companies.

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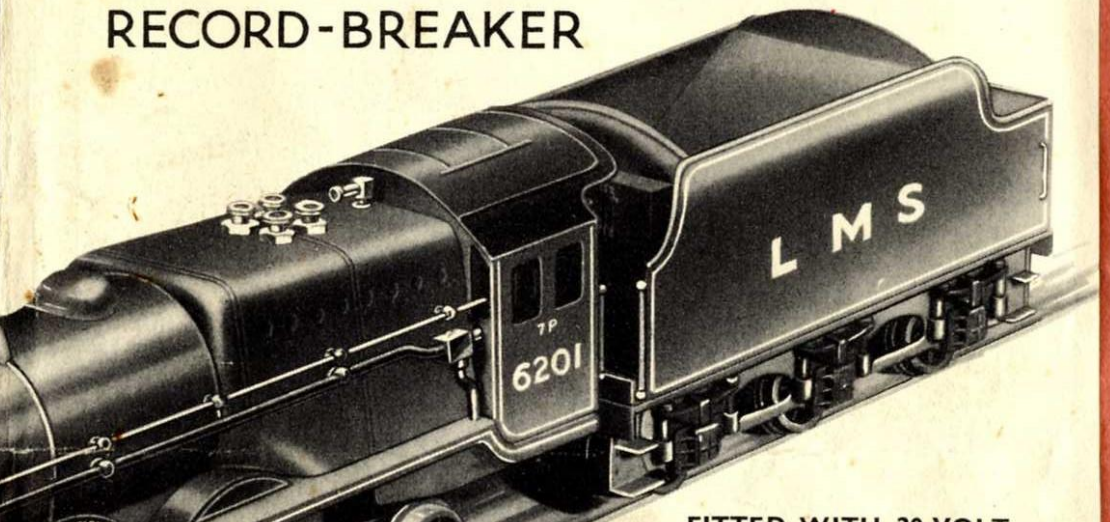

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