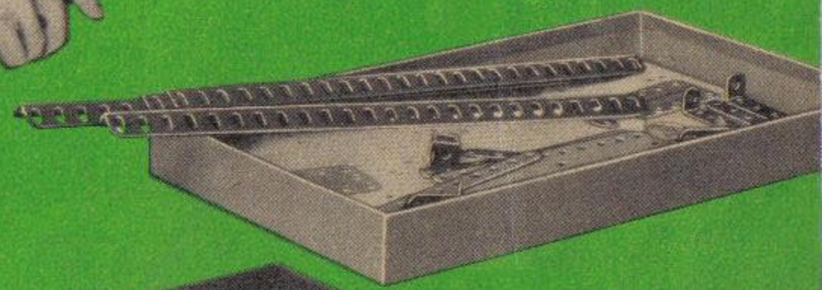
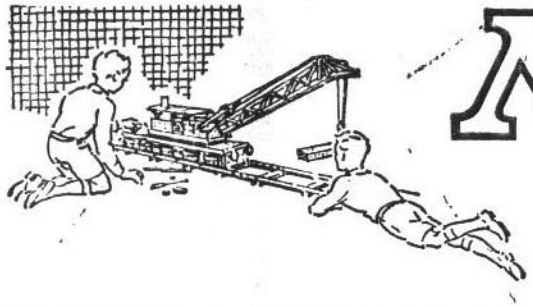
MECCANO

REGD. TRADE MARK

INSTRUCTIONS FOR ACCESSORY OUTFIT No. 1A

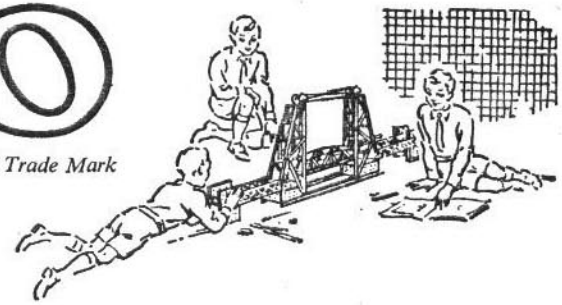




MECCANO

Registered Trade Mark

The World's Greatest Constructional Toy



MODEL-BUILDING WITH MECCANO

There is no limit to the number of models that can be built with Meccano — Cranes, Clocks, Motor Cars, Aeroplanes, Machine Tools, Locomotives — in fact everything that interests boys. A screwdriver and a spanner, both of which are provided in each complete Outfit, are the only tools necessary.

When you have built all the models illustrated in the Books of Instructions the fun is not over, it 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 enjoy the real thrill of the engineer and the inventor.

HOW TO BUILD UP YOUR OUTFIT

Meccano is sold in 12 different Outfits, ranging from No. OO to No. 10. Each Outfit can be converted into the next larger one by the purchase of an Accessory Outfit. Thus Meccano No. OO Outfit can be converted into No. O Outfit by adding to it a No. OOa Accessory Outfit. No. Oa Outfit would then convert it into a No. 1 and so on. In this way, no matter with which Outfit you begin, you can build it up by degrees until you have a complete 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.

THE 'MECCANO MAGAZINE'

The 'Meccano Magazine' is published specially for Meccano boys. Every month it describes and illustrates new Meccano models, 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, Bridges, Cranes and Aeroplanes, and special sections dealing with the latest Engineering, Aviation, Motoring and Shipping News. Other pages deal with Stamp Collecting, and a feature of outstanding popularity is the section devoted to short articles from readers.

Write to the Editor, the 'Meccano Magazine', Binns Road, Liverpool 13, for particulars and a specimen copy. You can order the Magazine 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. A leaflet containing full particulars of the Guild and an application form is included in this Book.

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. Each has 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.

MECCANO SERVICE

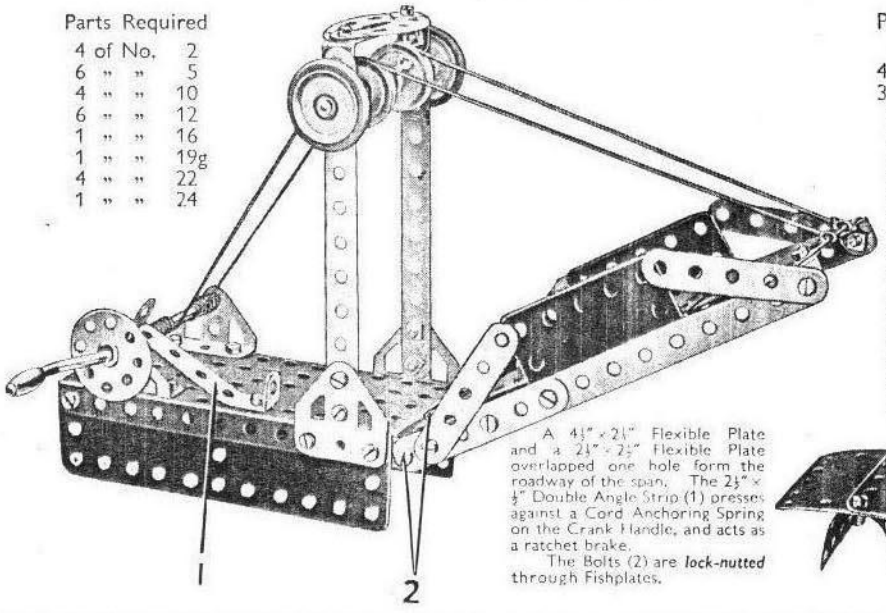
The service of Meccano does not end with selling an Outfit and a Book of Instructions. If ever you are in any difficulty with your models, or if you want advice on anything connected with this great hobby, write to us. We receive hundreds of interesting letters from boys in all parts of the world, and each of these is answered personally and promptly by one of our staff of experts.

Whatever your problem may be, write to us about it. We shall be delighted to help you in any way possible. Address your letters to *Information Service.*

2.1 CANAL BRIDGE

Parts Required

4 of No.	2
6 " "	5
4 " "	10
6 " "	12
1 " "	16
1 " "	19g
4 " "	22
1 " "	24

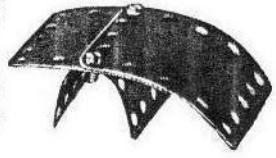


Parts Required (continued)

41 of No.	37a
39 " "	37b
2 " "	38
1 " "	40
2 " "	48a
1 " "	52
2 " "	90a
2 " "	126
2 " "	126a
2 " "	155
1 " "	176
2 " "	188
2 " "	189
2 " "	190
1 " "	191
1 " "	199
1 " "	200

A 4½" × 2½" Flexible Plate and a 2½" × 2½" Flexible Plate overlapped one hole form the roadway of the span. The 2½" × ½" Double Angle Strip (1) presses against a Cord Anchoring Spring on the Crank Handle, and acts as a ratchet brake.

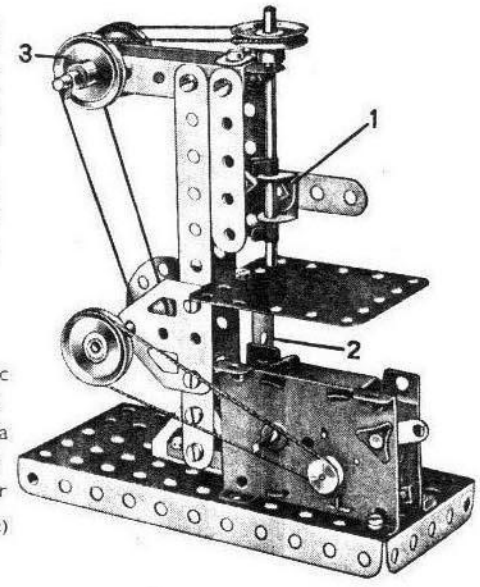
The Bolts (2) are ***lock-nutted*** through Fishplates.



2.2 DRILLING MACHINE

The horizontal 2½" Strips at the top of the drill are joined together, and also to the vertical 2½" Strips, by means of Angle Brackets. The lower bearings (1) are two Angle Brackets bolted to a 2½" Strip, and the Rod forming the drill is journalled in these, and in a Fishplate at its upper end. A 2½" × 2½" Flexible Plate is supported by a Double Angle Strip (2), and represents the table.

The drive is taken from the Motor to the 1" Pulley on the lower shaft. A second driving belt passes round the ½" fixed Pulley supplied with the Motor, which is also fixed on the lower shaft, round the two Pulleys at (3), and finally round the 1" Pulley fastened on the vertical drill shaft.



Parts Required

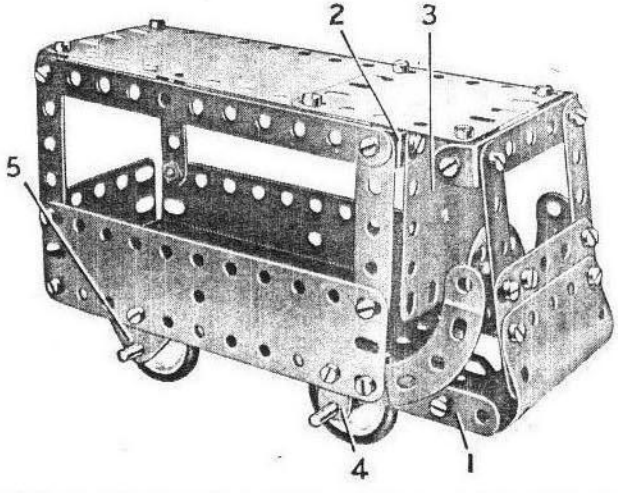
2 of No.	2	1 of No.	24	1 of No.	111c
5 " "	5	4 " "	35	2 " "	126
1 " "	10	24 " "	37a	2 " "	126a
5 " "	12	22 " "	37b	1 " "	190
1 " "	16	1 " "	40	1 *Magic* Motor (*not included in Outfit*)	
2 " "	17	1 " "	48a		
4 " "	22	1 " "	52		

2.3 MILK DELIVERY WAGON

Parts Required

4 of No.	2	4 of No.	22	4 of No.	38	1 of No.	111c
6 " "	5	1 " "	24	2 " "	48a	1 " "	126
2 " "	10	37 " "	37a	1 " "	52	2 " "	126a
6 " "	12	37 " "	37b	2 " "	90a	4 " "	155
2 " "	16						

2 of No.	188
2 " "	189
2 " "	190
1 " "	191
1 " "	199



The floor of the wagon is a 5½" × 2½" Flanged Plate placed with its flanges downward, and to each side a 5½" Strip (1) is bolted, the Strips extending three holes beyond the Plate. The curved front consists of a 'U'-section Curved Plate opened out slightly, and a 2½" × 1½" Flexible Plate. The Curved Plate is connected to Angle Brackets bolted to the Strips (1).

The roof is attached to the side frames of the body and to the windscreen pillars by Angle Brackets, and the side frames are connected together by a 2½" × ½" Double Angle Strip (2). A 2½" × 2½" Flexible Plate (3) is bolted to this Double Angle Strip.

The front wheels are fixed on a 3½" Rod supported in a Fishplate (4) on each side of the model. The rear axle also is a 3½" Rod and it is supported in the Flat Trunnions (5).

2.4 MECHANICAL HACKSAW

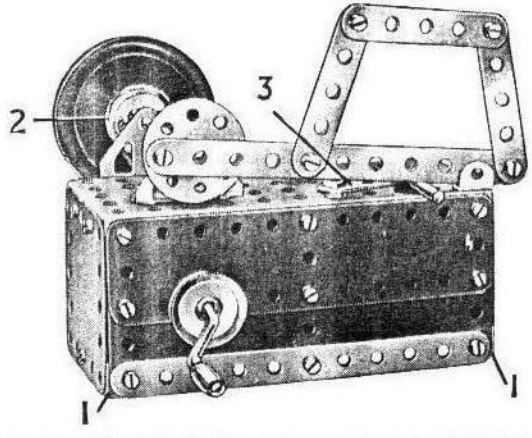
The base consists of Flexible Plates bolted to a Flanged Plate. One side is formed by a 4½" × 2½" and a 2½" × 1½" Flexible Plate, and the other by two 5½" × 1½" Plates. A 2½" × 2½" Flexible Plate is bolted to each end. The base is strengthened at each end by Double Angle Strips (1) and a 5½" Strip on each side.

The saw is actuated by a crank formed from a Bush Wheel fixed to a 3½" Rod. The Rod rotates in a Trunnion and a Flat Trunnion. The Trunnion is raised from the Flanged Plate by two Washers. The Rod carries a 1" Pulley (2) and a Road Wheel. The Pulley (2) is connected by a belt of Cord to a similar Pulley fixed on the Crank Handle.

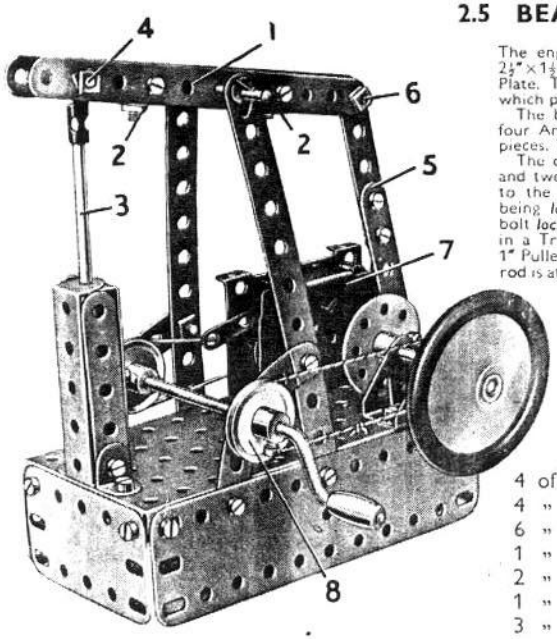
The material to be sawn is clamped to the base by means of two 2½" Strips, one of which is shown at (3).

Parts Required

3 of No.	2	2 of No.	48a
6 " "	5	1 " "	52
2 " "	12	4 " "	111c
2 " "	16	1 " "	126
1 " "	19g	1 " "	126a
3 " "	22	1 " "	187
1 " "	24	1 " "	188
38 " "	37a	2 " "	189
30 " "	37b	2 " "	190
4 " "	38	1 " "	191
1 " "	40		



2.5 BEAM ENGINE



The engine bed or base consists of two 5½" × 1½" and two 2½" × 1½" Flexible Plates bolted to the sides of a Flanged Plate. Two 5½" Strips form the supports for the beam (1), which pivots on a 2" Rod held in position by Spring Clips.

The beam is made from two 5½" Strips held together by four Angle Brackets bolted in pairs to form two 'U'-shaped pieces. The positions of the pieces are marked (2).

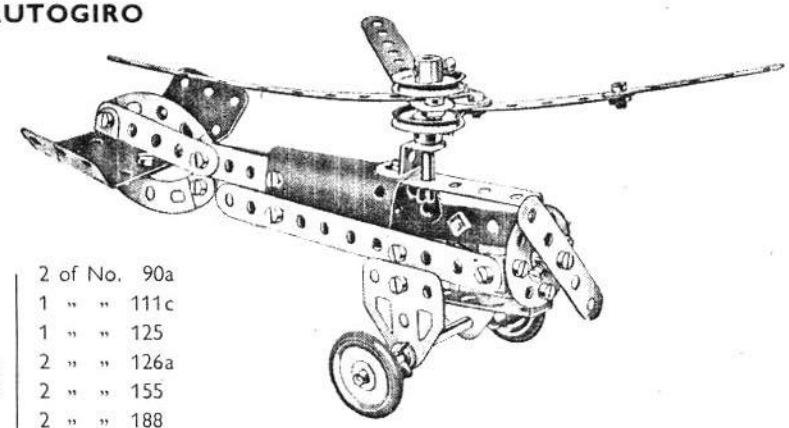
The cylinder consists of two 2½" × ½" Double Angle Strips and two 2½" Strips. The piston rod (3) is a 3½" Rod attached to the beam by a Rod and Strip Connector, the Bolt (4) being ***lock-nutted*** The connecting Rod (5) is pivoted on a bolt ***lock-nutted*** to a Bush Wheel held on a 2" Rod journalled in a Trunnion and a Flat Trunnion. This Rod also carries a 1" Pulley and a Road Wheel. At its upper end the connecting rod is attached to the beam by the ***lock-nutted*** Bolt (6).

The ***Magic*** Motor (7) is bolted to the base by its flanges, and its pulley is connected by a Driving Band to a 1" Pulley on the Crank Handle. A further 1" Pulley (8) on the Crank Handle is connected by a belt of Cord to the Pulley on the 2" Rod.

Parts Required

4	of No.	2	3	of No.	35	2	of No. 111c
4	" "	5	35	" "	37a	1	" " 126
6	" "	12	30	" "	37b	1	" " 126a
1	" "	16	3	" "	38	1	" " 187
2	" "	17	1	" "	40	2	" " 188
1	" "	19g	2	" "	48a	2	" " 189
3	" "	22	1	" "	52	1	" " 212
1	" "	24	2	" "	90a	1	***Magic*** Motor *(not included in Outfit)*

2.6 AUTOGIRO



Parts Required

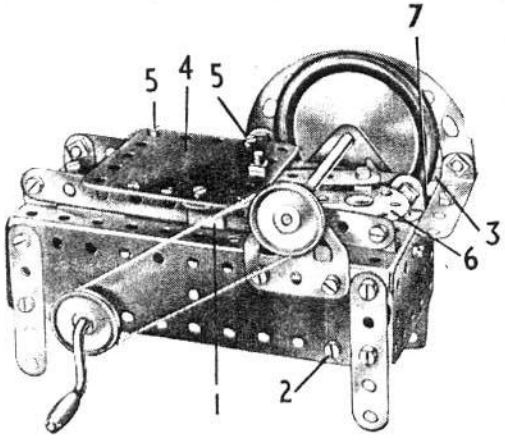
4	of No.	2	2	of No.	90a
6	" "	5	1	" "	111c
4	" "	10	1	" "	125
6	" "	12	2	" "	126a
1	" "	16	2	" "	155
1	" "	17	2	" "	188
4	" "	22	1	" "	199
1	" "	24			
3	" "	35			
25	" "	37a			
25	" "	37b			
2	" "	38			
2	" "	48a			

The rotor is made by passing a Rod through the next to end holes of two 5½" Strips. Fishplates are bolted to the short ends of the Strips and the third blade of the rotor is fixed to them as shown.

2.7 BACON SLICER

Parts Required

3	of No.	2	1	of No.	17	40	of No.	37a	2	of No.	48a	1	of No. 125	2	of No. 188
6	" "	5	1	" "	19g	36	" "	37b	1	" "	52	2	" " 126a	2	" " 189
1	" "	10	4	" "	22	3	" "	38	2	" "	90a	1	" " 187	2	" " 190
8	" "	12	1	" "	24	1	" "	40							
1	" "	16	2	" "	35										



The base of the model consists of a Flanged Plate fitted with four 2½" Strips for legs. Two 5½" × 1½" and two 2½" × 1½" Flexible Plates are bolted to the flanges of the Plate.

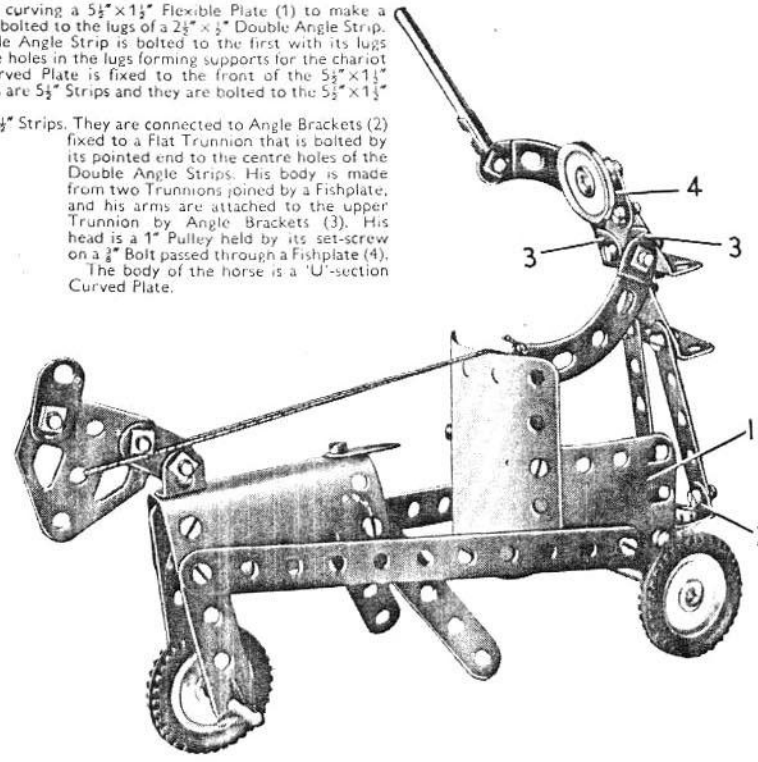
The guides for the sliding carriage (4) are formed by two 5½" Strips attached to the Flanged Plate by Angle Brackets. The carriage consists of a 2½" × 2½" Flexible Plate (4) and is guided along the strips by the Reversed Angle Bracket (1) and two Angle Brackets on the opposite side. The Angle Brackets are held in place by Bolts (5).

The cutting blade is represented by a Road Wheel fixed on a 3½" Rod journalled in two Flat Trunnions. A Pulley on this Rod is connected by a belt of Cord to a second Pulley on the Crank Handle.

The carriage is moved backwards and forwards by a crank consisting of a Bush Wheel (6) fixed on a 2" Rod. This Rod is journalled in the Flanged Plate and in the centre hole of a Double Angle Strip fixed across the interior of the base by the Bolt (2) and another in a similar position on the opposite side. A 1" Pulley on the 2" Rod is connected by a crossed belt of Cord to a further 1" Pulley secured to the Crank Handle between the 5½" × 1½" Flexible Plates.

A guard for the rotating blade is provided by two Curved Strips attached to a 5½" Strip (3). This Strip is fastened at one end to the Flanged Plate by a 2½" Strip and a Fishplate (7), and at its other end is attached to a 2½" × 2½" Flexible Plate bolted horizontally to the Flanged Plate.

2.8 CHARIOT AND DRIVER



The chariot is made by curving a 5½" × 1½" Flexible Plate (1) to make a semi-circle with its ends bolted to the lugs of a 2½" × ½" Double Angle Strip. A second 2½" × ½" Double Angle Strip is bolted to the first with its lugs pointing downwards, the holes in the lugs forming supports for the chariot axle. A 1 1/16" radius Curved Plate is fixed to the front of the 5½" × 1½" Flexible Plate. The shafts are 5½" Strips and they are bolted to the 5½" × 1½" Flexible Plate.

The driver's legs are 2½" Strips. They are connected to Angle Brackets (2) fixed to a Flat Trunnion that is bolted by its pointed end to the centre holes of the Double Angle Strips. His body is made from two Trunnions joined by a Fishplate, and his arms are attached to the upper Trunnion by Angle Brackets (3). His head is a 1" Pulley held by its set-screw on a ⅜" Bolt passed through a Fishplate (4).

The body of the horse is a 'U'-section Curved Plate.

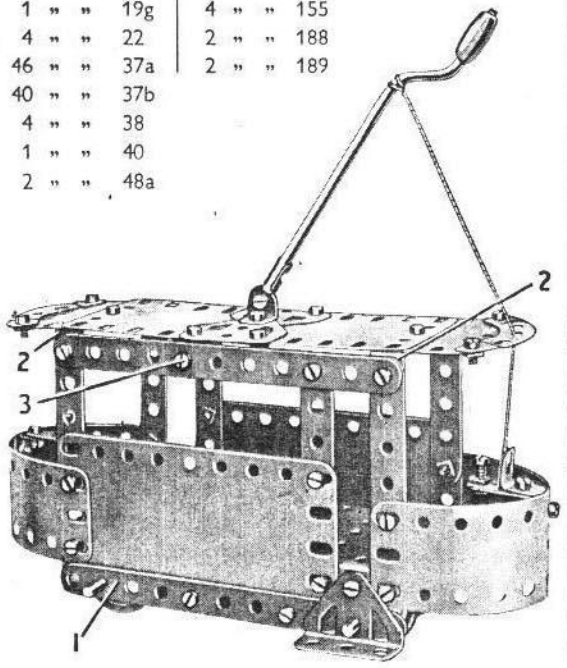
Parts Required

2	of No.	2
6	" "	5
4	" "	10
6	" "	12
1	" "	16
2	" "	17
4	" "	22
2	" "	35
31	" "	37a
31	" "	37b
1	" "	40
2	" "	48a
2	" "	90a
1	" "	111c
2	" "	126
2	" "	126a
3	" "	142c
1	" "	189
1	" "	199
1	" "	200

2.9 TRAMCAR

Parts Required

4 of No.	2	1 of No.	52	2 of No.	190
6 " "	5	2 " "	90a	1 " "	191
2 " "	10	4 " "	111c	2 " "	200
4 " "	12	2 " "	126	1 " "	212
2 " "	16	2 " "	126a		
1 " "	19g	4 " "	155		
4 " "	22	2 " "	188		
46 " "	37a	2 " "	189		
40 " "	37b				
4 " "	38				
1 " "	40				
2 " "	48a				

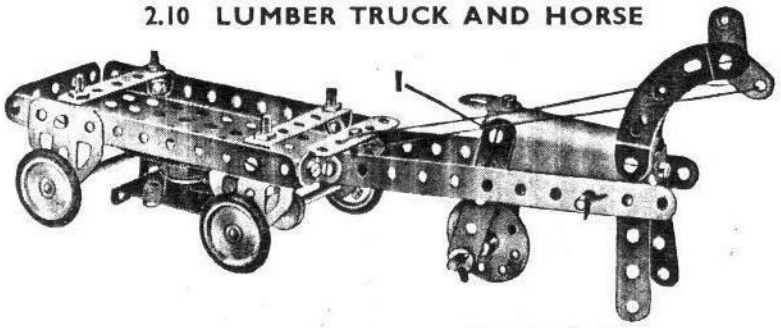


Two 5½" × 1½" Flexible Plates are curved and bolted across the ends of a Flanged Plate to form the driving compartments at each end, and a 4½" × 2½" Flexible Plate is used for one side of the model. This also is bolted to the Flanged Plate. The other side consists of two 1 11/16" radius Curved Plates, flattened and bolted in position. Both sides are strengthened by a 5½" Strip, one of which is seen at (1).

The roof is supported on each side by three 2½" Strips, connected at their upper ends by a 5½" Strip. The roof is in halves, each half consisting of a 2½" × 1½" and a 2½" × 2½" Flexible Plate. The halves are joined at the centre by two Flat Trunnions, and the roof is secured to the Double Angle Strips (2) and Angle Brackets held by a Bolt (3) on each side. A Crank Handle is used to represent the trolley pole and it is held in a Rod and Strip Connector bolted to an Angle Bracket fixed to the Flat Trunnions.

The wheels are 1" Pulleys fixed on 3½" Rods that run in holes in the sides of the model.

2.10 LUMBER TRUCK AND HORSE



A *Magic* Motor is mounted beneath the cart, and the Driving Band is taken from the pulley on the Motor to a ½" fixed Pulley (supplied with the Motor) fastened on the 3½" 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 the reins.

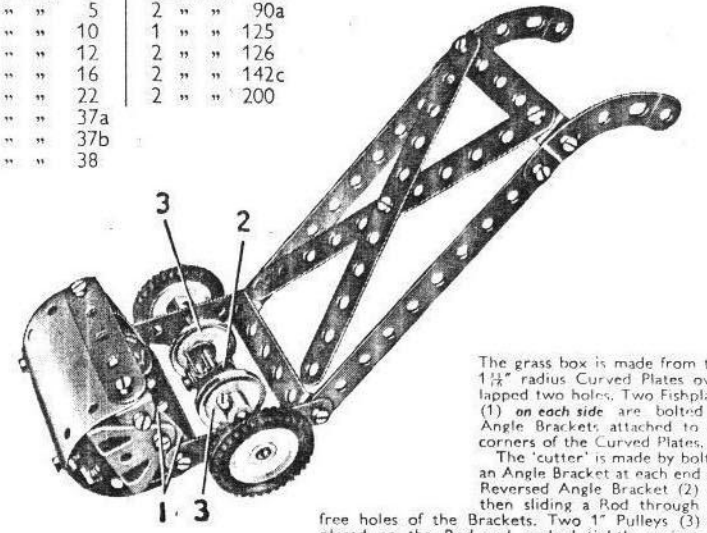
Parts Required

4 of No.	2	4 of No.	35	2 of No.	126
5 " "	5	27 " "	37a	2 " "	126a
3 " "	10	23 " "	37b	4 " "	155
6 " "	12	1 " "	40	1 " "	199
2 " "	16	2 " "	48a	1 *Magic* Motor	
2 " "	17	1 " "	52	*(not included in Outfit)*	
4 " "	22	2 " "	90a		
1 " "	24	4 " "	111c		

2.11 LAWN MOWER

Parts Required

4 of No.	2	2 of No.	48a
4 " "	5	2 " "	90a
4 " "	10	1 " "	125
5 " "	12	2 " "	126
1 " "	16	2 " "	142c
4 " "	22	2 " "	200
24 " "	37a		
24 " "	37b		
4 " "	38		



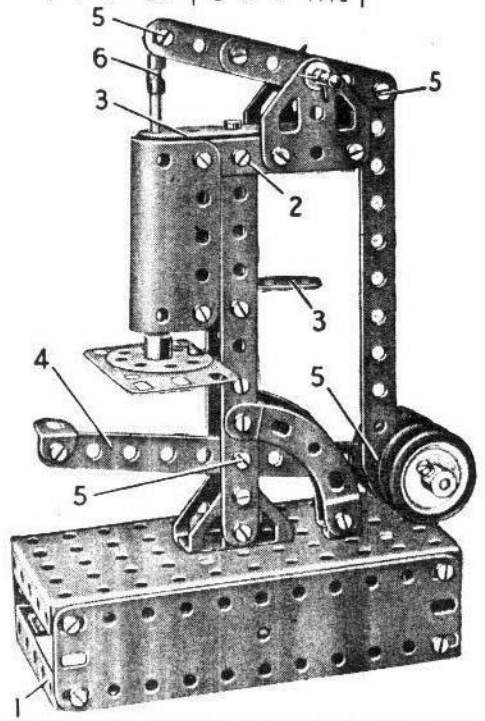
The grass box is made from two 1 11/16" radius Curved Plates overlapped two holes. Two Fishplates (1) *on each side* are bolted to Angle Brackets attached to the corners of the Curved Plates.

The 'cutter' is made by bolting an Angle Bracket at each end of a Reversed Angle Bracket (2) and then sliding a Rod through the free holes of the Brackets. Two 1" Pulleys (3) are placed on the Rod and pushed tightly against the cutter so as to grip it and make it rotate with the Rod as the wheels revolve.

2.12 PUNCHING MACHINE

Parts Required

4 of No.	2	2 of No.	35	2 of No.	126
6 " "	5	46 " "	37a	2 " "	126a
3 " "	10	39 " "	37b	4 " "	155
7 " "	12	2 " "	38	2 " "	188
1 " "	16	2 " "	48a	2 " "	189
2 " "	17	1 " "	52	1 " "	199
4 " "	22	2 " "	90a	1 " "	212
1 " "	24	3 " "	111c		



The base consists of a Flanged Plate, which is edged with two 5½" × 1½" and one 2½" × 1½" Flexible Plates. The 5½" × 1½" Plates are braced together by the Double Angle Strips (1) at each end.

An upright column is formed from two 5½" Strips fastened to two Trunnions attached to the base. They are joined at their upper ends by two Angle Brackets fixed together to form a 'U'-shaped piece. A 'U'-section Curved Plate is attached to the column at the top by a 2½" Strip (2) and at its lower end by two Fishplates. The punch rod passes through holes in 2½" guide Strips (3). One of these is bolted to the 'U'-shaped piece at the top of the column, and the other is fixed to an Angle Bracket bolted to the column.

Strips (2), one at each side of the machine, provide supports for two Flat Trunnions that carry a pivoted strip. The strip is formed from two 2½" Strips overlapped three holes, and it is pivoted on a 2" Rod held in the Flat Trunnions. One end of this built-up strip is connected by a Rod and Strip Connector (6) to a 3½" Rod representing the punching tool, and its rear end is connected to the foot-operated lever (4) by a 5½" Strip. The lever is weighted by four 1" Pulleys fixed on a 2" Rod.

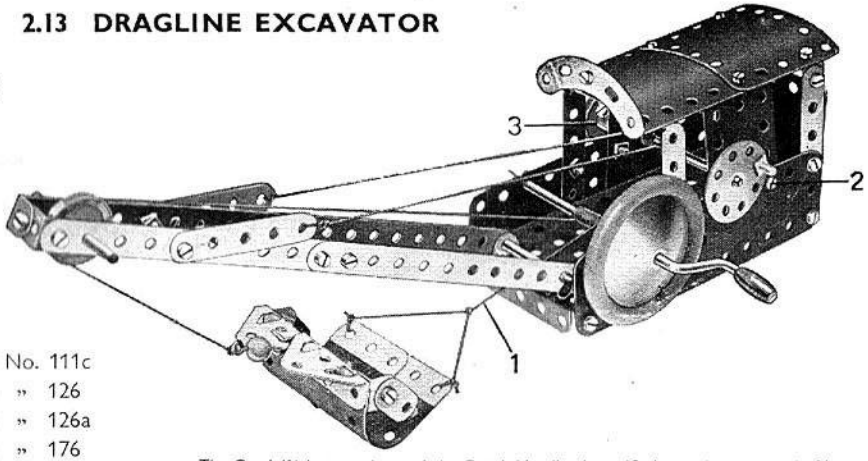
The Bolts (5) seen at different points of the model are each *lock-nutted*.

The punching table is a Bush Wheel bolted to a 2½" × 1½" Flexible Plate attached to the column by a Fishplate and Angle Bracket.

2.13 DRAGLINE EXCAVATOR

Parts Required

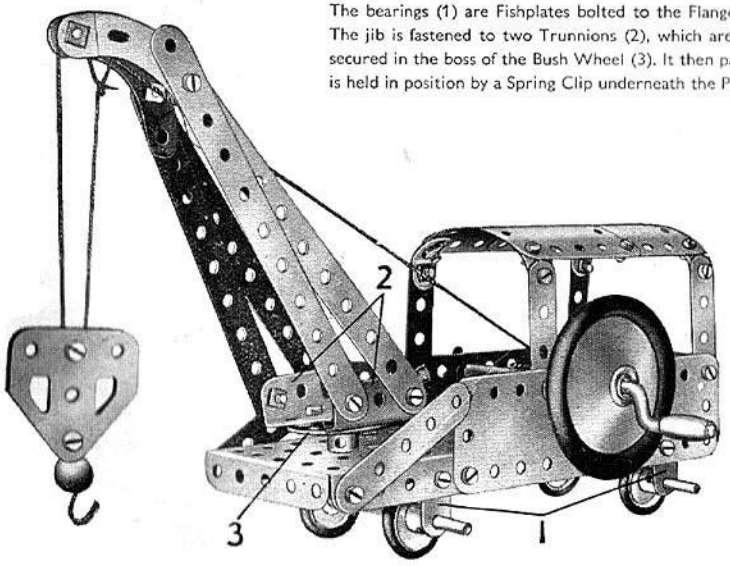
4 of No.	2	2 of No.	111c
6 " "	5	2 " "	126
2 " "	10	2 " "	126a
8 " "	12	1 " "	176
1 " "	16	1 " "	187
2 " "	17	2 " "	188
1 " "	19g	2 " "	189
3 " "	22	2 " "	190
1 " "	24	1 " "	199
4 " "	35	2 " "	200
44 " "	37a		
40 " "	37b		
1 " "	38		
1 " "	40		
1 " "	48a		
1 " "	52		
1 " "	57c		
2 " "	90a		



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 ⅜" 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 with a ⅜" Bolt to the other end of the Curved Strip 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. The luffing Cords are attached to two 2½" Strips ***lock-nutted*** to the jib.

2.14 RAILWAY SERVICE CRANE



The bearings (1) are Fishplates 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.

Parts Required

4 of No.	2	2 of No.	48a
6 " "	5	1 " "	52
4 " "	10	1 " "	57c
4 " "	12	2 " "	90a
2 " "	16	3 " "	111c
1 " "	17	2 " "	126
1 " "	19g	2 " "	126a
4 " "	22	4 " "	155
1 " "	24	1 " "	176
2 " "	35	1 " "	187
42 " "	37a	1 " "	188
39 " "	37b	2 " "	189
3 " "	38	1 " "	190
1 " "	40	2 " "	200

2.15 LETTER BALANCE

Each side of the model consists of a 5½" × 1½" Flexible Plate edged by 5½" Strips (1). The sides are connected at the top by two 2½" × ½" Double Angle Strips (2), and a 2½" Strip (3) is attached to one of them by Fishplates.

A 2½" × 1½" Flexible Plate and a 2½" × 2½" Flexible Plate bolted together are connected to the sides by Angle Brackets, to form the lower part of the front of the casing. A 2½" × 1½" Flexible Plate (4) is used to fill in the upper section of the front, and it is connected to one of the Double Angle Strips (2) by an Angle Bracket. The casing is attached to the Flanged Plate forming the base by two Angle Brackets and a Trunnion (5).

The pointer consists of a 2½" Strip bolted to a Flat Trunnion, and it is gripped between two 1" Pulleys fitted with Rubber Rings. These Pulleys are fixed on a 3½" Rod (6) supported in the 2½" Strips (7) and (8).

A Rod and Strip Connector is attached to a 2" Rod (9), which is passed through Strip (3) and ½" Reversed Angle Bracket. The Rod and Strip Connector is attached by a ***lock-nutted*** bolt to a connecting bar (10), made from two 2½" Strips overlapped two holes. The lower end of the connecting bar is ***lock-nutted*** to a Bush Wheel, which is loose on a 3½" Rod (11).

A length of Cord from the connecting bar is passed several times round the Rod (6) and is tied to a Driving Band (12). The Driving Band is looped round the Rod (11).

A piece of cardboard is marked to form an indicator dial, which is then bolted to the front of the model.

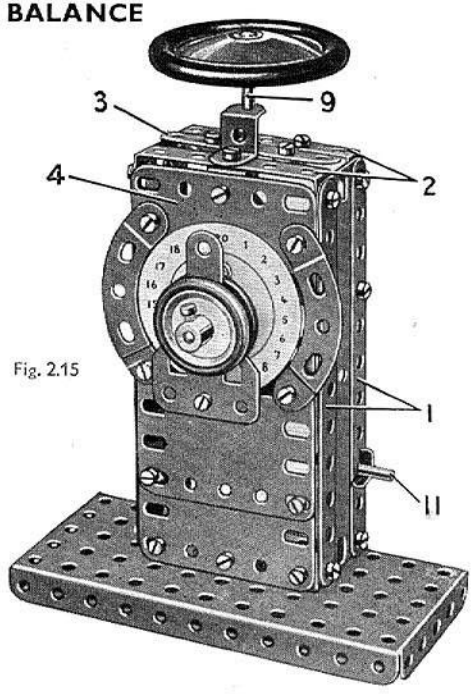
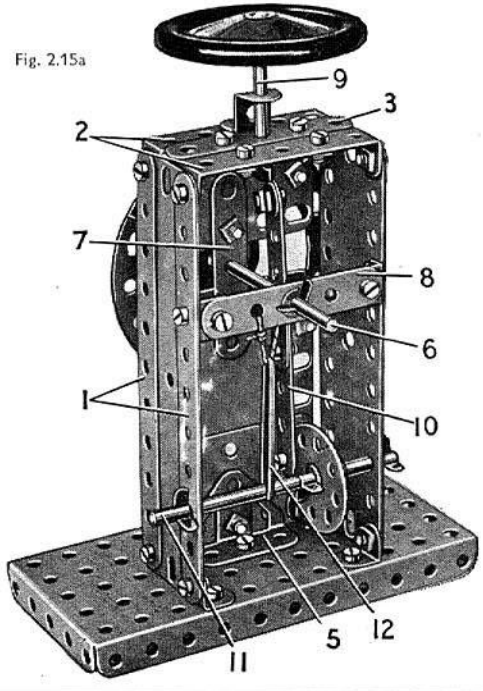


Fig. 2.15

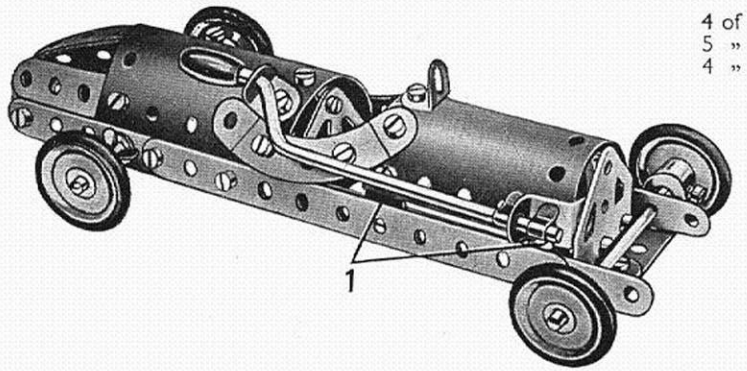
Fig. 2.15a



Parts Required

4 of No.	2	1 of No.	52
6 " "	5	2 " "	90a
2 " "	10	1 " "	111c
7 " "	12	1 " "	125
2 " "	16	1 " "	126
1 " "	17	1 " "	126a
2 " "	22	2 " "	155
1 " "	24	1 " "	186
4 " "	35	1 " "	187
36 " "	37a	1 " "	188
33 " "	37b	2 " "	189
2 " "	38	2 " "	190
1 " "	40	1 " "	212
2 " "	48a		

2.16 RACING CAR



Parts Required

4 of No.	2	8 of No.	12	1 of No.	48a
5 " "	5	2 " "	16	2 " "	90a
4 " "	10	1 " "	19g	1 " "	125
		4 " "	22	1 " "	126
		4 " "	35	1 " "	126a
		31 " "	37a	4 " "	155
		30 " "	37b	1 " "	199
		2 " "	38	1 " "	200

The Strips forming the side members of the chassis are fixed at the rear to a 'U'-shaped bracket made from two Angle Brackets bolted together. The tapered tail is formed by three 2½" Strips slightly curved.

The radiator and the bonnet are fastened to the chassis by Fishplates (1) at each side of the model.

2.17 HORSE AND TIPPING CART

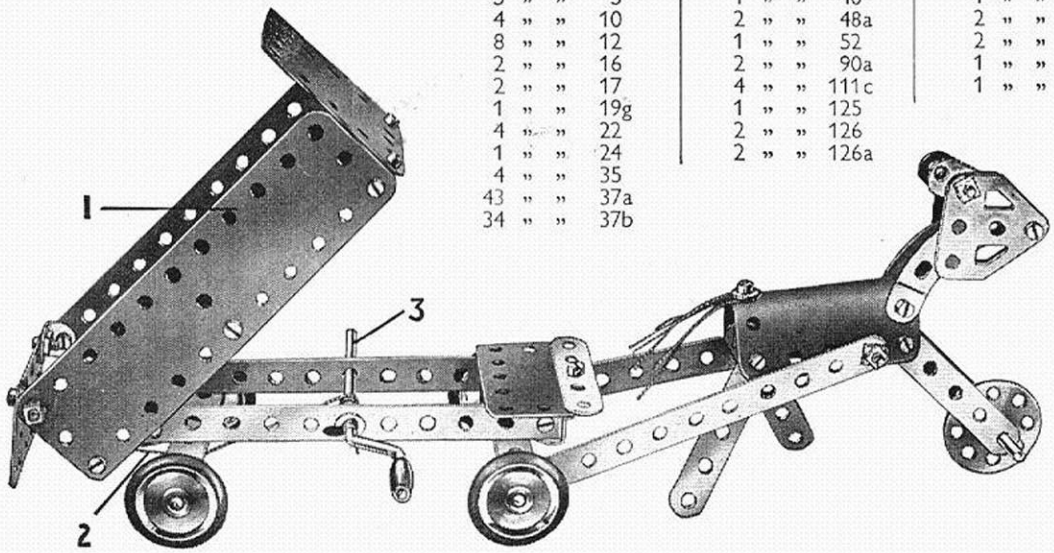
The chassis of the cart is made from two 5½" Strips attached at each end to a Trunnion by means of Angle Brackets. The rear axle revolves in a Double Angle Strip bolted to the rear Trunnion, and the front axle in a similar Double Angle Strip *lock-nutted* to the other Trunnion so that it is free to pivot.

The tipping body (1) is made by bolting 5½" × 1½" Flexible Plates to the sides of a Flanged Plate. The body pivots about a 2" Rod, which passes through two Angle Brackets secured to the Flanged Plate and also through two Fishplates bolted to the chassis. A length of Cord (2) tied to the rear of the Flanged Plate is fastened to a Cord Anchoring Spring on the Crank Handle (3).

The body of the horse is formed by a 'U'-section Curved Plate. Four 2½" Strips represent the legs, the front pair supporting a Bush Wheel on a 2" Rod.

Parts Required

4 of No.	2	4 of No.	38	4 of No.	155
5 " "	5	1 " "	40	1 " "	176
4 " "	10	2 " "	48a	2 " "	188
8 " "	12	1 " "	52	2 " "	189
2 " "	16	2 " "	90a	1 " "	190
2 " "	17	4 " "	111c	1 " "	199
1 " "	19g	1 " "	125		
4 " "	22	2 " "	126		
1 " "	24	2 " "	126a		
4 " "	35				
43 " "	37a				
34 " "	37b				



2.18 ELECTRIC DELIVERY VAN

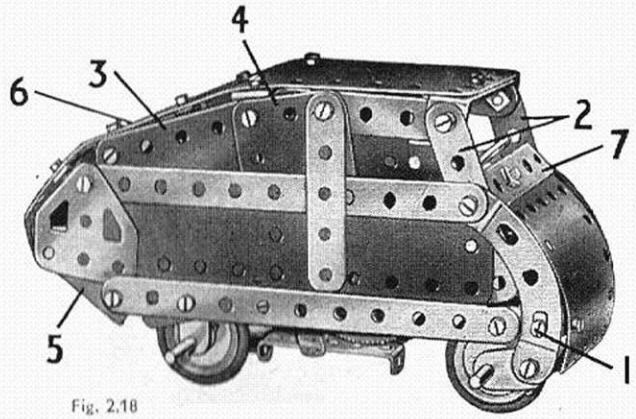


Fig. 2.18

The Curved Strips at the front are fixed by bolts (1) at each side to the Flanged Plate, and the 1½" radius Curved Plate is fixed by one bolt to the front end of the Flanged Plate. The upper ends of the Curved Strips support a 5½" Strip, a 5½" × 1½" Flexible Plate, and a 2½" Strip (2). The Strips (2) are connected by a Double Angle Strip, to which is bolted a 4½" × 2½" Flexible Plate forming part of the roof.

Part of each side of the model is filled in by a 2½" × 2½" Flexible Plate (3) and a 2½" × 1½" Flexible Plate (4). The tail is formed by a 'U'-section Curved Plate attached to Trunnions (5), and this is joined to the roof by a 1½" radius Curved Plate (6).

The rear axle is a 3½" Rod mounted in two Fishplates. A ½" Pulley on this Rod is connected by a Driving Band to a *Magic* Motor bolted underneath the Flanged Plate. The front axle is mounted in two Fishplates bolted to the Curved Strips.

The steering wheel is represented by a Bush Wheel, which is fastened to an Angle Bracket by a ½" Bolt, the Angle Bracket being secured to the Double Angle Strip (7).

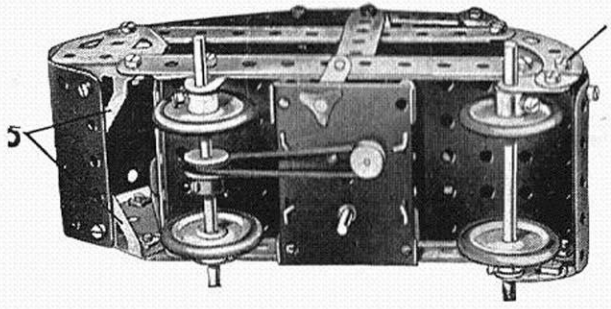


Fig. 2.18a

Parts Required

4 of No.	2
6 " "	5
4 " "	10
5 " "	12
2 " "	16
4 " "	22
1 " "	24
38 " "	37a
37 " "	37b
2 " "	38
2 " "	48a
1 " "	52
2 " "	90a
1 " "	111c
2 " "	126
2 " "	126a
4 " "	155
2 " "	188
2 " "	189
2 " "	190
1 " "	191
1 " "	199
2 " "	200
1 *Magic* Motor	

(not included in Outfit)

2.19 FORK LIFT TRUCK

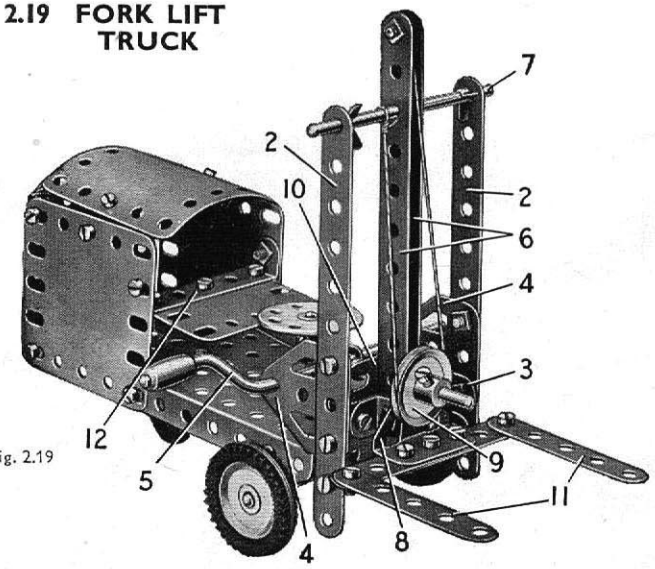


Fig. 2.19

Parts Required		
4	of No.	2
6	" "	5
3	" "	10
8	" "	12
2	" "	16
2	" "	17
1	" "	19g
4	" "	22
1	" "	24
4	" "	35
43	" "	37a
37	" "	37b
1	" "	38
1	" "	40
2	" "	48a
1	" "	52
1	" "	90a
4	" "	111c
1	" "	125
2	" "	126
2	" "	126a
3	" "	142c
1	" "	176
1	" "	186
1	" "	188
2	" "	190
2	" "	200

The base of the truck is a 5½" × 2½" Flanged Plate, and the front wheels are fixed on a 3½" Rod supported in Fishplates bolted to the sides of the base. The single rear wheel is held by its set-screw on a ⅜" Bolt passed through a Trunnion (1). The Trunnion is connected to the base by a ***lock-nutted*** ⅜" Bolt, so that it can be turned to steer the model.

Two 5½" Strips (2) are attached to Angle Brackets fixed to the front flange of the Flanged Plate, and they are connected together by a 2½" × ½" Double Angle Strip (3). The Bolts holding the Double Angle Strip serve also to fix the lower corner of a Flat Trunnion (4) to each of the Strips (2), and a Crank Handle (5) is supported in the Flat Trunnions.

Two 5½" Strips (6) are attached to Double Angle Strip (3) by Angle Brackets, and they are supported at their upper ends by a 3½" Rod (7) held by Spring Clips in the top holes of Strips (2).

Two 2½" Strips overlapped three holes are bolted to a Trunnion (8), and a 2" Rod fitted with a 1" Pulley (9) is passed through the Trunnion and between the Strips (6). The Rod is held in place in the Strips by a Fishplate (10) and a Spring Clip. The lifting forks are 2½" Strips (11) and they are bolted to the ends of the Strips fixed to Trunnion (8).

A length of Cord tied to the Crank Handle is passed over Rod (7) and round Pulley (9), and is tied finally to Rod (7).

The sides of the truck body consist of 2½" × 2½" Flexible Plates connected by a 2½" × ½" Double Angle Strip (12). The back is a straightened 1 1/16" radius Curved Plate and it is connected to the sides by Angle Brackets. The top also is a 1 1/16" radius Curved Plate and the Angle Brackets used to fix it to the sides are opened out slightly to allow for the bend in the Plate.

The steering wheel is a Bush Wheel fixed on a 2" Rod passed through the Flanged Plate and through a Reversed Angle Bracket held by a Bolt (13). A brake on the Crank Handle is provided by a 2½" Driving Band looped round the Crank Handle and the Reversed Angle Bracket.

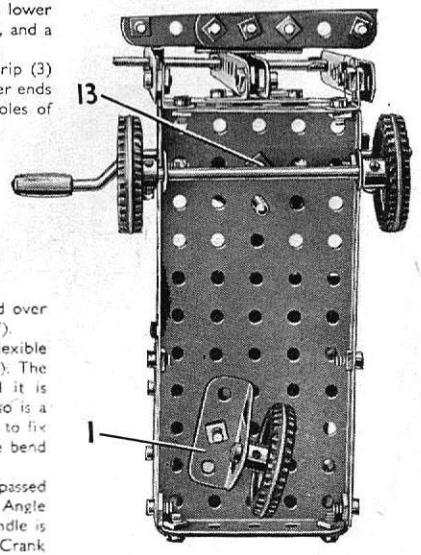


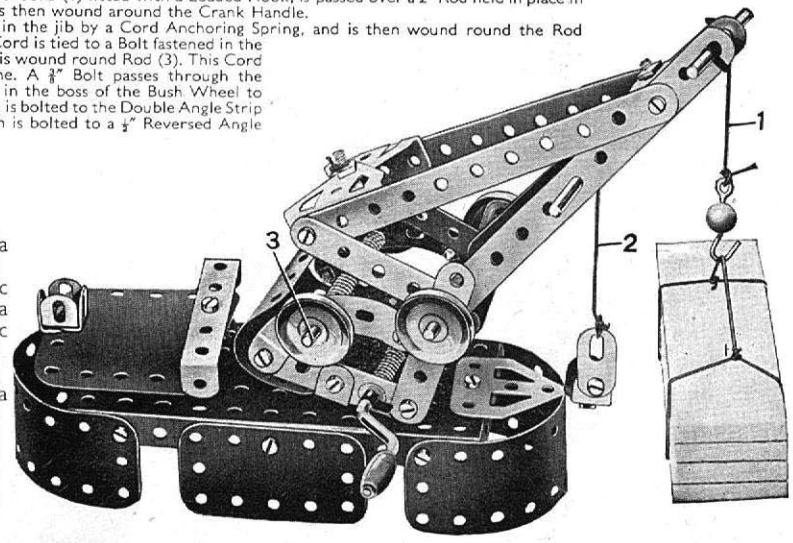
Fig. 2.19a

2.20 FLOATING CRANE

The jib consists of 5½" Strips and 2½" Strips. At its upper end these are joined by Angle Brackets, and at its lower end by Trunnions. Each side of the lower part of the crane consists of 2½" Strips and a 2½" stepped Curved Strip, the two sides being connected by a 2½" × ½" Double Angle Strip. The jib is pivoted to this structure by means of a 3½" 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 it is then wound around the Crank Handle.

The Cord (2) passes over a Rod held in the jib by a Cord 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 ⅜" 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 ½" Reversed Angle Bracket fixed to the Flanged Plate.

Parts Required					
4	of No.	2	2	of No.	48a
6	" "	5	1	" "	52
3	" "	10	1	" "	57c
8	" "	12	2	" "	90a
2	" "	16	4	" "	111c
2	" "	17	1	" "	125
1	" "	19g	2	" "	126
4	" "	22	1	" "	126a
1	" "	24	1	" "	176
4	" "	35	2	" "	188
33	" "	37a	2	" "	189
29	" "	37b	1	" "	199
4	" "	38	1	" "	200
1	" "	40			



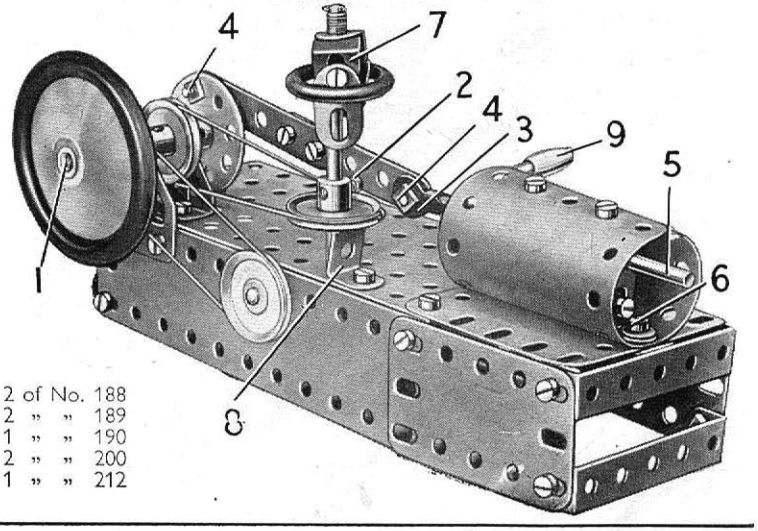
2.21 GAS ENGINE

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

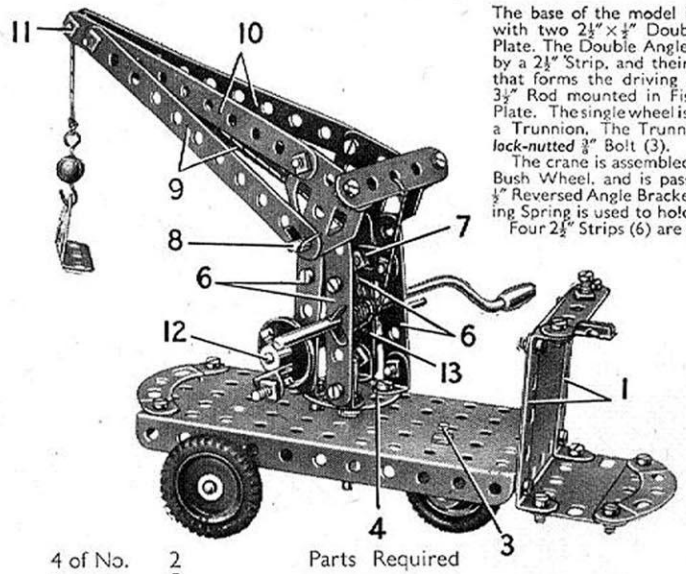
The connecting rod (2) is made from two 2½" Strips overlapped two holes, and it is fastened to the Bush Wheel and to a Rod and Strip Connector (3) by ***lock-nutted*** Bolts (4). The Rod (5) is held in the Rod and Strip Connector. An Angle Bracket (6), carrying a Fishplate, is bolted inside the cylinder, and a similar arrangement is fitted at the other end. These form supports for the Rod (5).

The model is operated by the Crank Handle (9), 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 (7), which is mounted on a 3½" Rod journalled in the 5½" × 2½" Flanged Plate and a Reversed Angle Bracket (8). The governor arms are each made from an Angle Bracket and a Fishplate. The arms are passed over the 3½" Rod and are clamped between a Spring Clip and a Cord Anchoring Spring.

Parts Required								
3	of No.	5	4	of No.	38	2	of No.	188
4	" "	10	1	" "	40	2	" "	189
7	" "	12	2	" "	48a	1	" "	190
2	" "	16	1	" "	52	2	" "	200
1	" "	17	1	" "	111c	1	" "	212
1	" "	19g	1	" "	125			
4	" "	22	1	" "	126			
1	" "	24	1	" "	126a			
2	" "	35	1	" "	155			
35	" "	37a	1	" "	176			
31	" "	37b	1	" "	187			



2.22 CRANE TRUCK



The base of the model is a 5½" × 2½" Flanged Plate, fitted at one end with two 2½" × ½" Double Angle Strips (1), and a 2½" × 2½" Flexible Plate. The Double Angle Strips are connected across their upper ends by a 2½" Strip, and their lower lugs support a 2½" × 1½" Flexible Plate that forms the driving platform. The double wheels are fixed on a 3½" Rod mounted in Fishplates bolted to the flanges of the Flanged Plate. The single wheel is held by its set-screw on a ⅜" Bolt passed through a Trunnion. The Trunnion is connected to the Flanged Plate by a *lock-nutted* ⅜" Bolt (3).

The crane is assembled on a Bush Wheel (4). A 2" Rod is fixed in the Bush Wheel, and is passed through the Flanged Plate and through a ½" Reversed Angle Bracket bolted underneath the Plate. A Cord Anchoring Spring is used to hold the Rod in place.

Four 2½" Strips (6) are attached to Angle Brackets bolted to the Bush Wheel, and the Strips on each side are connected together by a Fishplate (7). A Rod (8) is passed through the upper holes of one pair of 2½" Strips, and two Flat Trunnions and two 5½" Strips (9) are pivoted on the Rod. The Strips (9) are connected to the Flat Trunnions by further 5½" Strips (10), and Strips (10) are joined together at their outer ends by a *lock-nutted* ⅜" Bolt (11). The Flat Trunnions are connected together by a 2½" Strip fixed to Angle Brackets.

A length of Cord tied to the Crank Handle is passed over Rod (8) and the ⅜" Bolt (11), and is fitted with a small Loaded Hook.

The Rod (12) carries a 1" Pulley fitted with an Angle Bracket and a ⅜" Bolt that serves as the operating handle. A Bolt fitted with a nut is passed through the slotted hole of the Angle Bracket and is screwed into a hole in the boss of the Pulley. The nut is then tightened to fix the Angle Bracket firmly in place. A length of Cord tied to Rod (12) is passed under the Crank Handle and is fixed to the rear of the jib. A brake on Rod (12) is made by bolting an Angle Bracket (13) to one of the 2½" Strips (6). A Spring Clip on Rod (12) is positioned so that its lugs rest against the top face of the Angle Bracket.

Parts Required

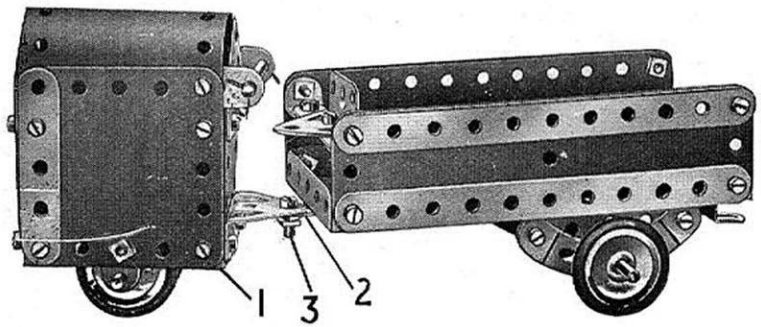
4 of No.	2	40 of No.	37a	1 of No.	125
6 " "	5	34 " "	37b	2 " "	126
4 " "	10	1 " "	40	2 " "	126a
8 " "	12	2 " "	48a	3 " "	142c
2 " "	16	1 " "	52	1 " "	176
2 " "	17	1 " "	57c	1 " "	188
1 " "	19g	2 " "	90a	1 " "	190
4 " "	22	4 " "	111c	1 " "	212
1 " "	24				
4 " "	35				

2.23 PETROL-ENGINED STATION TRACTOR

Each side of the tractor unit consists of a 2½" × 2½" Flexible Plate bolted to a Double Angle Strip (1). A 4½" × 2½" Flexible Plate is curved and attached to each side to form the top. The front and rear of the unit are each filled by a 2½" × 1½" Flexible Plate and a Flat Trunnion. The front axle is mounted in two Fishplates.

The load carrier is made by bolting 5½" × 1½" Flexible Plates to the sides of a Flanged Plate. The rear axle is carried in two Curved Strips, which are attached to 2½" Strips and secured to the Flanged Plate by Angle Brackets.

The tractor unit and the load carrier are connected by a Trunnion bolted to the tractor and a 2½" Strip (2) secured to the base of the load carrier. The ⅜" Bolt (3) is passed through holes in these parts and is fitted with *lock-nuts*.



Parts Required

4 of No.	2	1 of No.	111c
6 " "	5	1 " "	125
4 " "	10	2 " "	126
8 " "	12	2 " "	126a
1 " "	16	4 " "	155
2 " "	17	2 " "	188
4 " "	22	2 " "	189
2 " "	35	2 " "	190
44 " "	37a	1 " "	191
40 " "	37b		
4 " "	38		
2 " "	48a		
1 " "	52		
2 " "	90a		
3 " "	111c		
1 " "	125		
2 " "	126		
2 " "	126a		
4 " "	155		
2 " "	188		
2 " "	189		
2 " "	190		
1 " "	191		

2.24 MOBILE CONCRETE MIXER

Parts Required

2 of No.	2	1 of No.	125
5 " "	5	2 " "	126
4 " "	10	2 " "	126a
7 " "	12	4 " "	155
2 " "	16	1 " "	187
1 " "	17	2 " "	188
4 " "	22	2 " "	189
1 " "	24	1 " "	190
1 " "	35	1 " "	199
46 " "	37a	1 " "	200
40 " "	37b	1 *Magic* Motor	
3 " "	38	*(not included in Outfit)*	
2 " "	48a		
1 " "	52		
2 " "	90a		
4 " "	111c		

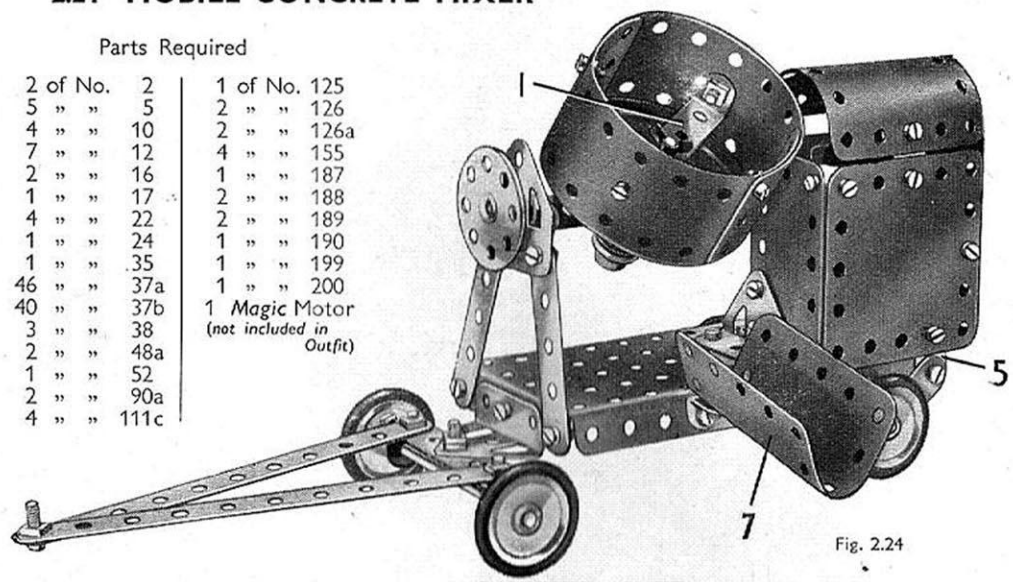


Fig. 2.24

The model is built up on a Flanged Plate. The front axle is mounted in a Double Angle Strip *lock-nutted* to a Trunnion bolted to the Plate. The rear axle runs in two Curved Strips.

The rotating drum is made by bending two 5½" × 1½" Flexible Plates around a Road Wheel and a Double Angle Strip (1). The Road Wheel is fixed on a 2" Rod mounted in the centre hole of a built-up strip and a Reversed Angle Bracket (6). The built-up strip consists of two 2½" Strips overlapped three holes, and an Angle Bracket is bolted to each end. One Angle Bracket is *lock-nutted* to the top hole of a 2½" Strip (2) and a 2½" × 1½" Flexible Plate forming part of the engine housing. The Strip (2) is attached to the base by a Trunnion.

The front support for the drum is provided by a Flat Trunnion attached to two 2½" Strips. A ⅜" Bolt is fixed to an Angle Bracket (3), and passes through the Trunnion. A Bush Wheel is fixed to the shank of the Bolt and is used for tipping the contents of the drum into the discharge chute (7).

The *Magic* Motor is fastened to the base by a Fishplate and two Angle Brackets. A 2½" × 1½" Flexible Plate (4) is bolted to the flanges of the Motor, and a 2½" × 2½" Plate is secured to the base by a Fishplate (5). The top of the engine housing is formed by a Curved Plate.

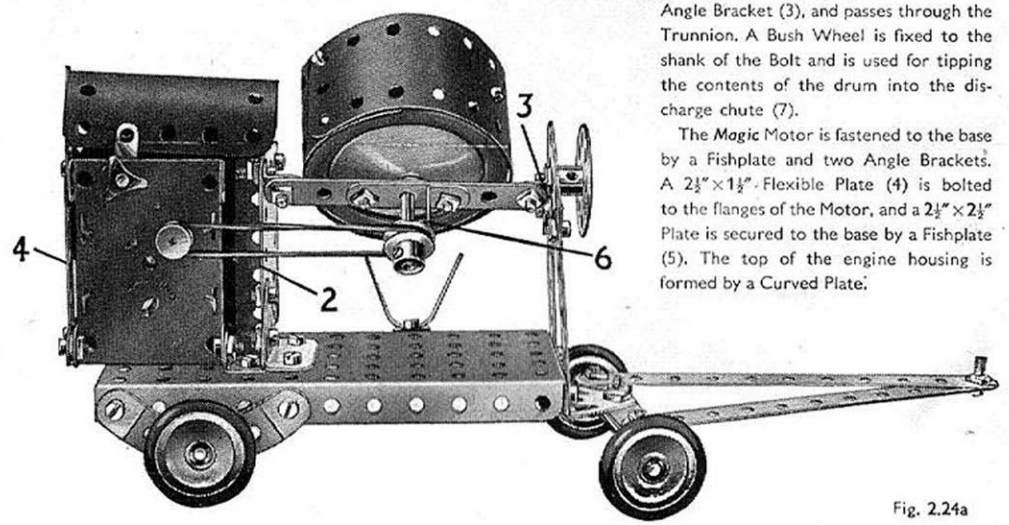


Fig. 2.24a

2.25 STEAM WAGON

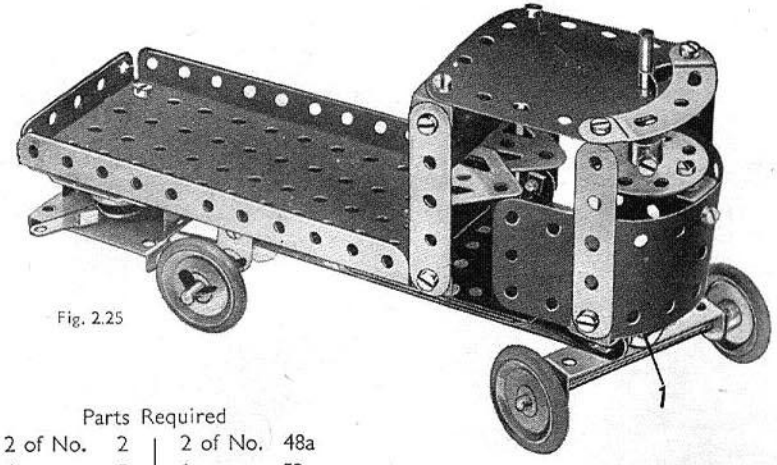


Fig. 2.25

Parts Required

2 of No.	2	2 of No.	48a
6 " "	5	1 " "	52
2 " "	10	1 " "	90a
8 " "	12	1 " "	125
2 " "	16	2 " "	126
1 " "	17	4 " "	155
4 " "	22	1 " "	188
1 " "	24	1 " "	189
4 " "	35	1 " "	190
32 " "	37a	1 " "	200
31 " "	37b	1 *Magic* Motor	
4 " "	38	*(not included in Outfit)*	

The front axle is carried in a 2½" × ½" Double Angle Strip that is pivoted to a Reversed Angle Bracket fastened to a 2½" Strip below the cab by the *lock-nutted* Bolt (1). The Bolt is fastened sufficiently to hold the two front wheels in position when running along. The rear axle is a 3½" Rod and it carries a ½" fixed Pulley supplied with the *Magic* Motor.

The rear right-hand 1" Pulley is loose on the Rod, and is retained in place on the axle by Spring Clips.

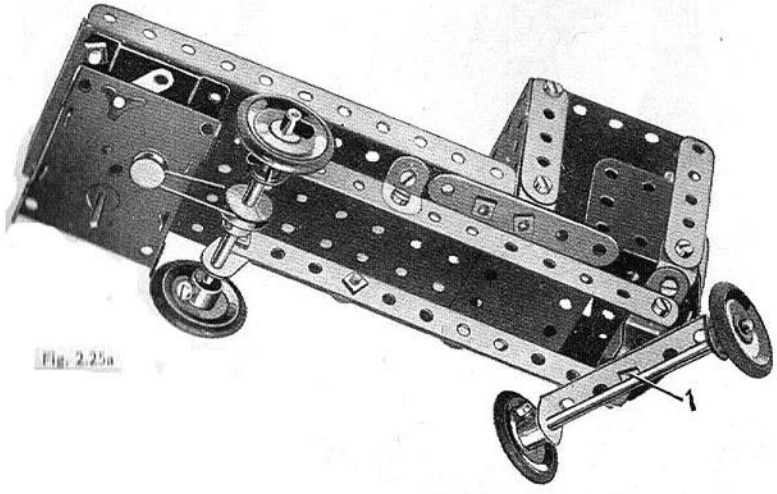


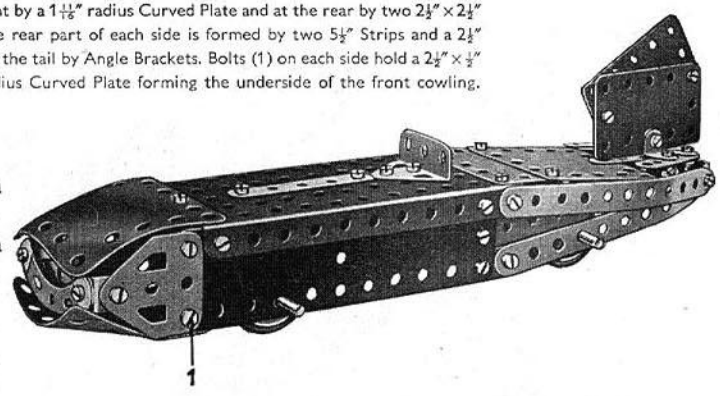
Fig. 2.25a

2.26 SPEED CAR

A 5½" × 2½" Flanged Plate, extended at the front by a 1 11/16" radius Curved Plate and at the rear by two 2½" × 2½" Flexible Plates, forms the top of the car. The rear part of each side is formed by two 5½" Strips and a 2½" Strip, the former being connected together at the tail by Angle Brackets. Bolts (1) on each side hold a 2½" × ½" Double Angle Strip that carries the 1 11/16" radius Curved Plate forming the underside of the front cowling.

Parts Required

4 of No.	2	1 of No.	52
6 " "	5	2 " "	90a
2 " "	10	1 " "	126
4 " "	12	2 " "	126a
2 " "	16	4 " "	155
4 " "	22	2 " "	188
39 " "	37a	2 " "	189
38 " "	37b	2 " "	190
4 " "	38	2 " "	200
2 " "	48a		



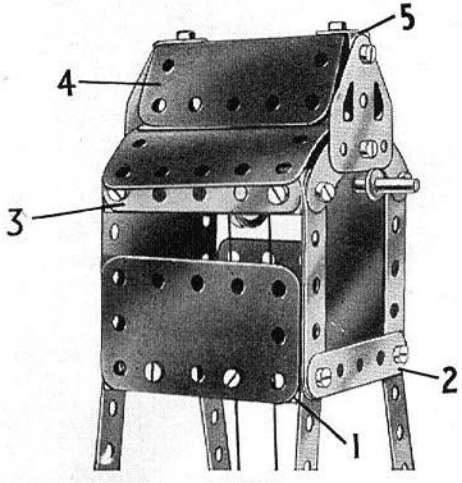


Fig. 2.27a

2.27 WINDMILL

Parts Required

4 of No.	2	2 of No.	190
6 " "	5	1 " "	199
8 " "	12	2 " "	200
1 " "	16		
1 " "	19g		
4 " "	22		
1 " "	24		
2 " "	35		
32 " "	37a		
32 " "	37b		
3 " "	38		
1 " "	40		
2 " "	48a		
1 " "	52		
2 " "	90a		
2 " "	126		
2 " "	126a		
2 " "	155		
2 " "	188		
2 " "	189		

Four 5½" Strips bolted to the Flanged Plate forming the base are connected at their upper ends by Double Angle Strips (1) and 2½" Strips (2). A 2½" × 1½" Flexible Plate is bolted at each side, and the front and rear walls consist of 2½" × 2½" Flexible Plates. These Plates are connected together by 2½" Strips (3) attached by Angle Brackets.

The mill roof is formed by two 1 11/16" radius Curved Plates, and is attached by two Angle Brackets to a Curved Strip bolted to each 2½" × 2½" Flexible Plate. The 'U'-section Curved Plate (4) is secured by Angle Brackets (5) to two Flat Trunnions bolted to the Curved Strips.

The sails are 5½" × 1½" Flexible Plates clamped between a 1" Pulley, fitted with a Rubber Ring, and a Bush Wheel. These parts are pushed tightly up against the Plates so as to grip them securely. The Pulley and Bush Wheel are fixed on a 3½" Rod journalled in the 2½" × 2½" Flexible Plates. A 1" Pulley on this Rod is connected by a belt of Cord to a similar Pulley on the Crank Handle.

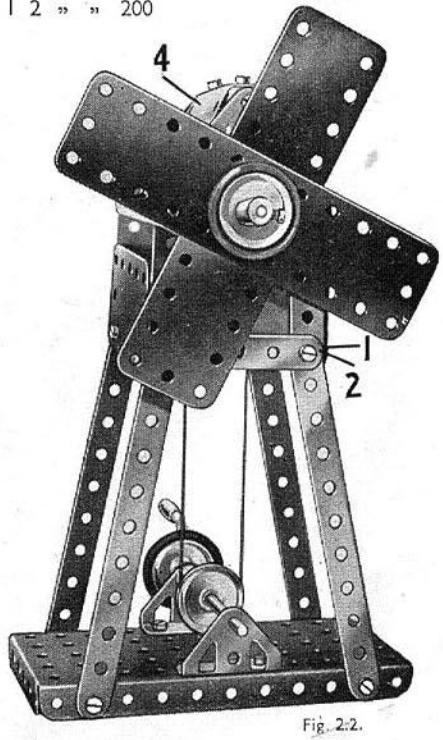


Fig. 2.2.

2.28 TRAVELLING BREAKDOWN CRANE

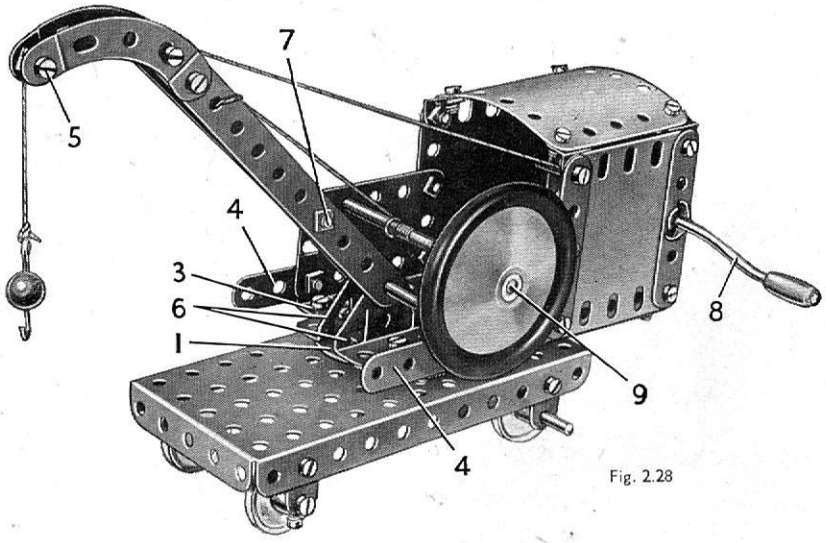


Fig. 2.28

Parts Required

4	of No.	2
6	» »	5
4	» »	10
8	» »	12
2	» »	16
2	» »	17
1	» »	19g
4	» »	22
1	» »	24
4	» »	35
41	» »	37a
37	» »	37b
4	» »	38
1	» »	40
2	» »	48a
1	» »	52
1	» »	57c
2	» »	90a
4	» »	111c
1	» »	125
2	» »	126
1	» »	176
1	» »	187
2	» »	188
2	» »	190
1	» »	191
2	» »	200

The truck on which the crane is mounted is a 5½" × 2½" Flanged Plate, and two of the wheels are fixed on a 3½" Rod supported in Fishplates bolted to the flanges. The other wheels are held by their set-screws on ⅜" Bolts passed through Fishplates also bolted to the flanges of the Flanged Plate.

The cab pivots on a Bush Wheel (1), which has a Rod in its boss. The Rod is passed through the Flanged Plate and through a ½" Reversed Angle Bracket (2) bolted underneath the Plate. A Spring Clip is used to hold the Rod in position.

A 2½" × ½" Double Angle Strip (3) and a 4½" × 2½" Flexible Plate are bolted to the face of Bush Wheel (1). The Flexible Plate forms the base of the cab, and each of the cab sides is assembled on a 5½" Strip (4) fixed to one of the lugs of the Double Angle Strip. The sides are built from 2½" × 1½" and 2½" × 2½" Flexible Plates, and a second Double Angle Strip is bolted between the rear ends of Strips (4). The 2½" × 2½" Flexible Plates are strengthened by 2½" Strips, and the roof, a 1 11/16" radius Curved Plate, is attached to Angle Brackets. The Angle Brackets are opened out slightly to allow for the bend of the Curved Plate.

The jib is made from two 5½" Strips, each extended by a 2½" stepped Curved Strip. The Curved Strips are connected by a ***lock-nutted*** ⅜" Bolt (5). The jib pivots on a 2" Rod supported in Trunnions (6). These Trunnions are held in place by the same bolts that fix the Double Angle Strip (3) to the Bush Wheel. The 5½" Strips of the jib are joined together at the centre by a bolt (7).

A length of Cord tied to the Crank Handle (8) is passed over Bolt (5) and is tied to a small Loaded Hook. A second Cord is fastened to a Cord Anchoring Spring on a 3½" Rod (9), and is tied to the jib as shown. The Crank Handle and Rod (9) are held in place by Spring Clips.

The back of the cab is a 1 11/16" radius Curved Plate flattened out, and it is attached to the Double Angle Strip fixed between the ends of Strips (4).

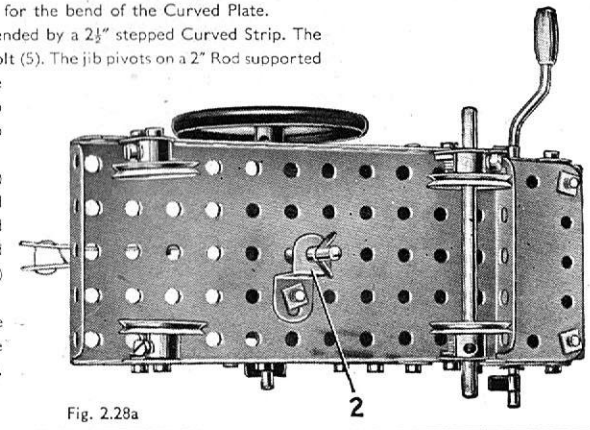


Fig. 2.28a

2.29 AEROPLANE

Parts Required

4	of No.	2
6	» »	5
4	» »	10
8	» »	12
1	» »	16
1	» »	17
2	» »	22
1	» »	24
2	» »	35
35	» »	37a
35	» »	37b
2	» »	48a
2	» »	90a
1	» »	125
2	of No.	126
2	» »	126a
2	» »	155
2	» »	188
2	of No.	189
1	» »	191
1	» »	199
2	» »	200
1	» »	212

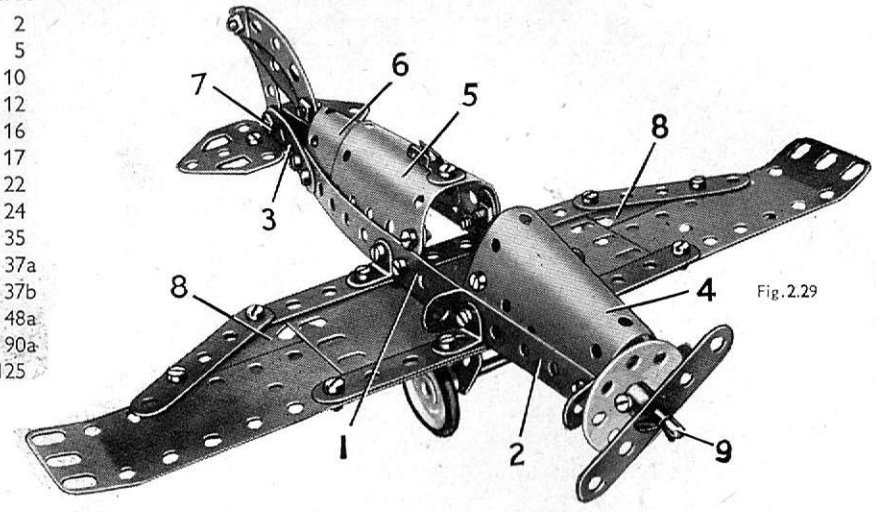


Fig. 2.29

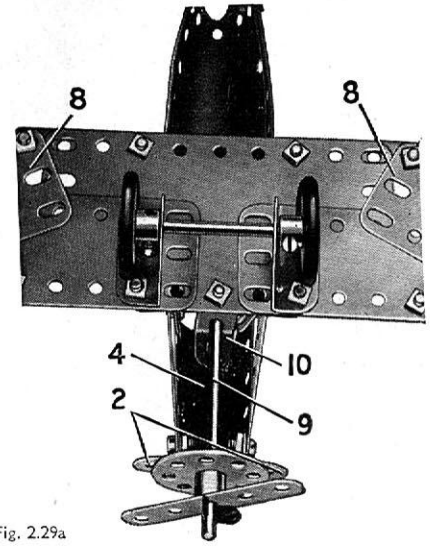


Fig. 2.29a

Each side of the fuselage is assembled on a 5½" Strip (1), extended towards the nose by a 2½" × ½" Double Angle Strip (2), and at the tail by a 2½" Strip (3). Strip (3) overlaps Strip (1) by two holes. The Double Angle Strips (2) are each fitted with an Angle Bracket, and a 1 1/16" radius Curved Plate (4) is held by the same bolts. The rear end of the Curved Plate is connected to the Double Angle Strips (2) by Fishplates. A 1 1/16" radius Curved Plate (5) is attached to Fishplates bolted to the Strips (1), and a 'U'-section Curved Plate (6) is fixed direct to these Strips.

The Strips (3) are joined together at the tail by a ⅜" Bolt (7), which holds also a Curved Strip and an Angle Bracket on each side. The Angle Brackets support Flat Trunnions, and a Curved Strip and a 2½" Strip are bolted to the Curved Strip to complete the tailplane.

The centre section of the wings is a 4½" × 2½" Flexible Plate edged by 5½" Strips, and extended outward on each side by a 5½" × 1½" Flexible Plate and a 2½" × 1½" Flexible Plate (8). The wings are bolted to Angle Brackets fixed to each side of the fuselage.

A 3½" Rod (9) is passed through the Angle Brackets bolted to the Double Angle Strips (2), and through a ½" Reversed Angle Bracket (10). A Bush Wheel is fixed on the Rod, and a 2½" Strip is freely mounted between the Bush Wheel and a Spring Clip. The wheels are fixed on a 2" Rod supported in Trunnions bolted underneath the wings

2.30 VERTICAL STEAM ENGINE

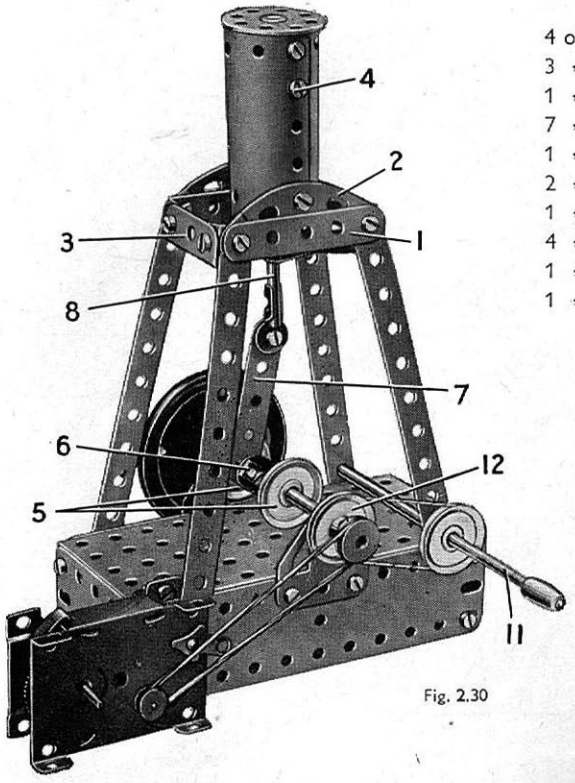


Fig. 2.30

Parts Required

4 of No.	2	43 of No.	37a	2 of No.	126a
3 " "	5	38 " "	37b	1 " "	186
1 " "	10	4 " "	38	1 " "	187
7 " "	12	1 " "	40	2 " "	188
1 " "	16	2 " "	48a	2 " "	189
2 " "	17	1 " "	52	2 " "	200
1 " "	19g	2 " "	90a	1 " "	212
4 " "	22	4 " "	111c	1 *Magic* Motor	
1 " "	24	1 " "	125	*(not included in Outfit)*	
1 " "	35	2 " "	126		

The engine bed or base is a 5½"×2½" Flanged Plate, edged by two 5½"×1½" and two 2½"×1½" Flexible Plates. The lower corners of the Plates are connected to 2½"×½" Double Angle Strips.

The columns supporting the cylinder consist of four 5½" Strips bolted to the base. The upper ends of the Strips on each side are connected by a 2½" Strip (1) and a Curved Strip (2), and two Trunnions (3) are attached to them by Angle Brackets.

The cylinder consists of two 1 11/16" radius Curved Plates, and is bolted to the Curved Strips (2). It is capped by a Bush Wheel, which is connected by a Bolt, screwed into its boss, to a ½" Reversed Angle Bracket. The Reversed Angle Bracket is attached to the cylinder by a Bolt (4).

The crankshaft is assembled from two 2" Rods, each fitted at its inner end with a 1" Pulley (5). An Angle Bracket is fixed to the boss of each Pulley by a Bolt fitted with a nut. The Bolt is passed through the slotted hole of the Angle Bracket and is screwed into one of the threaded holes in the boss of the Pulley. The nut is then tightened to fix the Angle Bracket in place.

Each 2" Rod is supported in a Flat Trunnion, and the Angle Brackets on the Pulleys are connected by a ⅜" Bolt (6). The Bolt is passed through one Angle Bracket and is held firmly by a nut. A 2½" Strip (7) is slipped over the Bolt, which is then gripped tightly in the second Angle Bracket by two nuts, leaving Strip (7) freely pivoted.

The upper end of Strip (7) is ***lock-nutted*** to a Rod and Strip Connector on a 3½" Rod (8). Rod (8) is passed through a Fishplate (9), and through a built-up reversed angle bracket (10) made from two Angle Brackets bolted together.

A 1" Pulley on the Crank Handle (11) drives a 1" Pulley (12) on the crankshaft through a Cord Belt.

The model can be fitted with a ***Magic*** Motor bolted direct to one of the lower corners of the base, and attached to the Flanged Plate by an Angle Bracket. The Motor pulley is connected to a ½" Pulley on the crankshaft by a Driving Band. ***This ½" Pulley is supplied with the Magic Motor.***

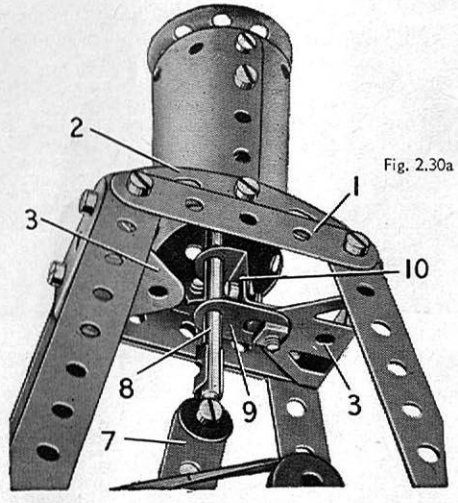


Fig. 2.30a

2.31 TRACTOR

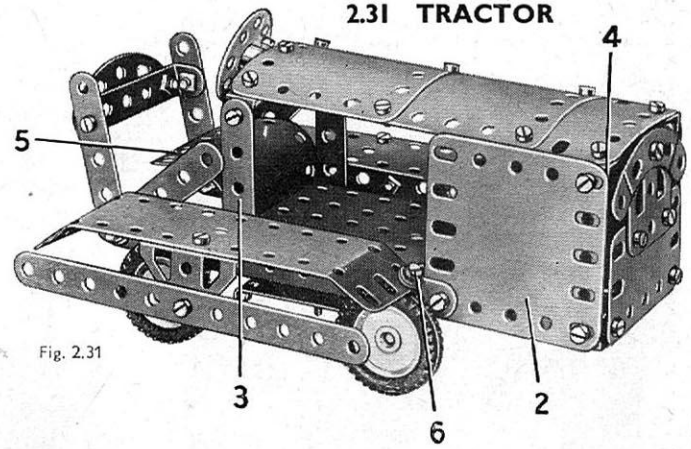


Fig. 2.31

Parts Required

4 of No.	2
6 " "	5
4 " "	10
8 " "	12
2 " "	16
4 " "	22
1 " "	24
41 " "	37a
39 " "	37b
4 " "	38
2 " "	48a
1 " "	52
2 " "	90a
3 " "	111c
1 " "	125
2 " "	126
1 " "	126a
4 " "	142c
1 " "	188
2 " "	189
2 " "	190
1 " "	199
2 " "	200
1 *Magic* Motor	
(not included in Outfit)	

The chassis of the model is made by bolting a 5½" Strip (1) to each side of a 5½"×2½" Flanged Plate. The Strips overhang the Flanged Plate towards the rear by four holes. The wheels are fixed on 3½" Rods supported in Fishplates as shown in Fig. 2.31a, and the rear axle is fitted with a ½" Pulley that is connected by a Driving Band to the pulley of a ***Magic*** Motor. The Motor is bolted between the flanges of the Flanged Plate.

The bonnet on each side consists of a 2½"×2½" Flexible Plate (2) and a 2½" Strip (3). The top of the bonnet is made from two 1 11/16" radius Curved Plates and a 2½"×1½" Flexible Plate bolted together. It is attached to the Strips (3) and one of the Flexible Plates (2) by Angle Brackets, and it is connected to the upper lug of a 2½"×½" Double Angle Strip (4) bolted inside the front edge of the other Flexible Plate (2).

The steering wheel is a Bush Wheel and it is fixed on a ⅜" Bolt passed through an Angle Bracket fixed to the top of the bonnet. The radiator is assembled as shown and is bolted to the front flange of the Flanged Plate.

The driver's seat is a 'U'-section Curved Plate (5) opened out slightly. It is fixed to the rear flange of the Flanged Plate. The back of the seat is made by bolting a 2½" Strip to the end hole of each of the Strips (1). The 2½" Strips are connected together by a 2½"×½" Double Angle Strip fitted with a Curved Strip.

The track cover on each side is made from a 5½"×1½" Flexible Plate bent as shown and attached to the chassis by Angle Brackets. Two Washers are fitted on the Bolts (6) so that their shanks do not rub against the front wheels of the tractor. The track guards consist of 5½" Strips fixed to Trunnions bolted to the 5½"×1½" Flexible Plates.

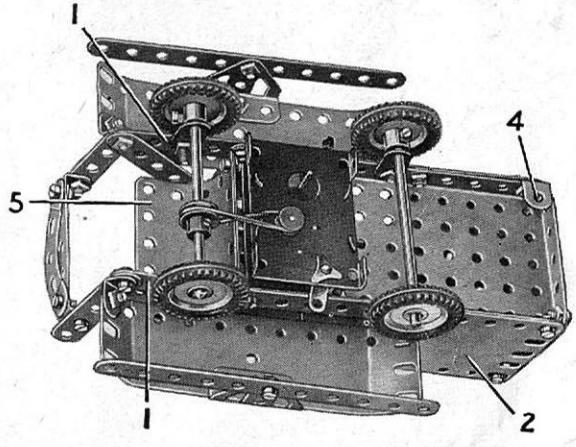
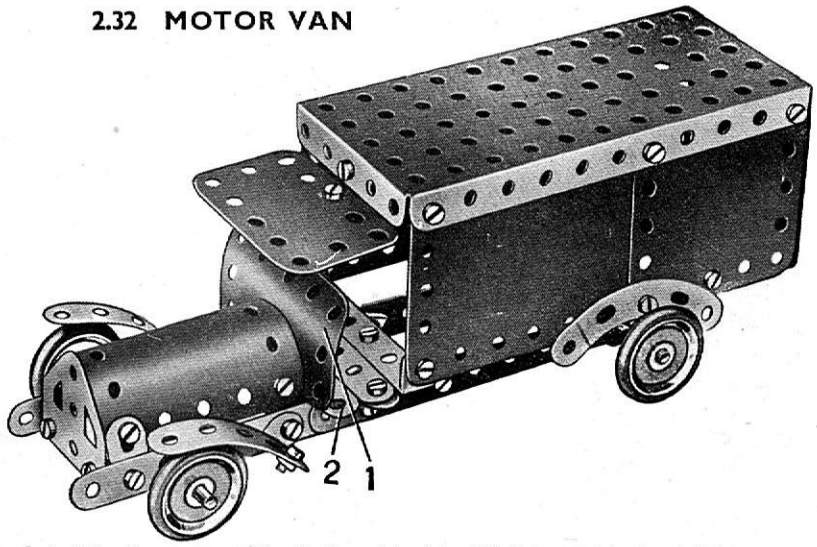


Fig. 2.31a

2.32 MOTOR VAN



Parts Required

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

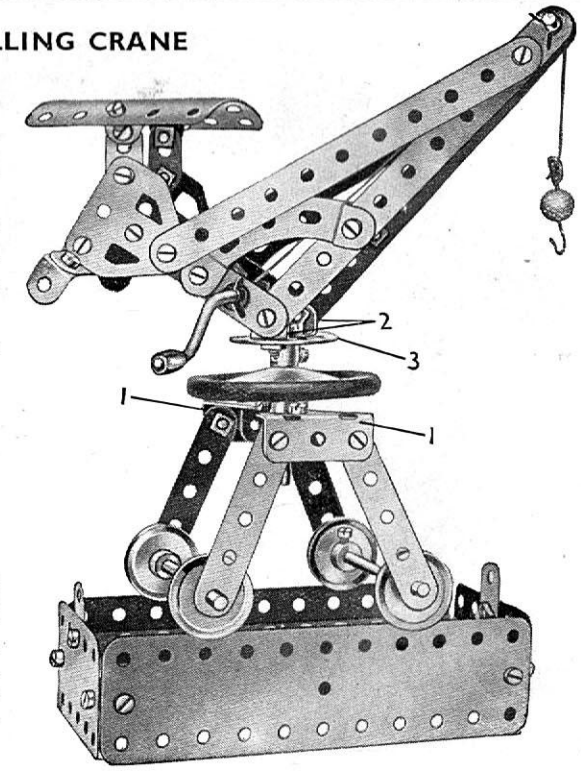
Each of the side members of the chassis consists of two 5½" Strips overlapped, and they are joined across at the centre by two 2½" Strips, one of which is shown at (2), and a 2½" × ½" Double Angle Strip. The 2½" Strip (2) and the Double Angle Strip are bolted to a Flat Trunnion, and between them is a second 2½" Strip, which is fastened at each end to the chassis by Angle Brackets.

The Plate (1) is fastened to an Angle Bracket that is bolted to Strip (2). The side of the van seen in the illustration is made from a 4½" × 2½" Flexible Plate and a 2½" × 2½" Flexible Plate overlapped three holes. The other side consists of two 5½" × 1½" Flexible Plates bolted together along their longer edges. The body is fixed to the chassis by a Double Angle Strip and an Angle Bracket.

2.33 TRAVELLING CRANE

Parts Required

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



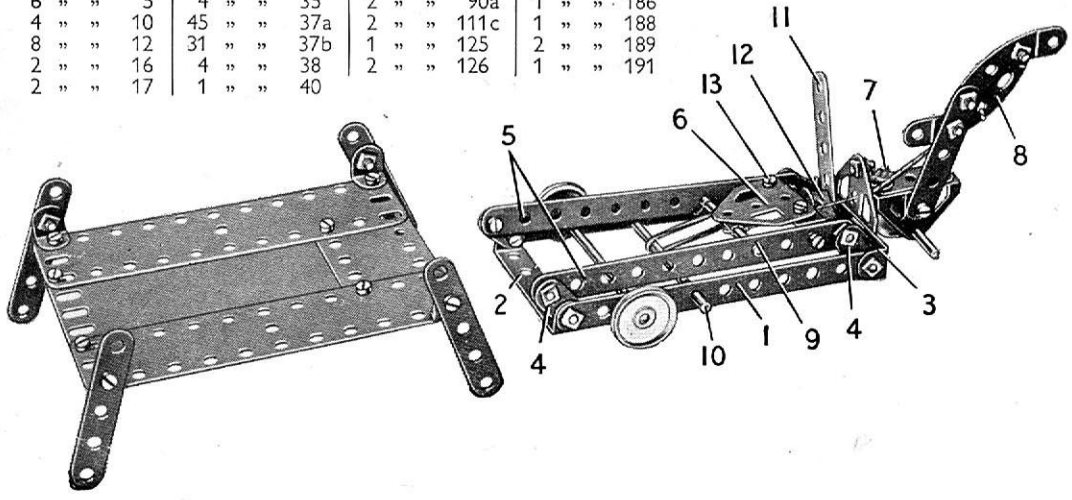
A 2" Rod is secured in the boss of the Bush Wheel (3). It then passes through the Road Wheel and through the centre of a 2½" × ½" Double Angle Strip bolted between the two Trunnions (1). A Washer and a Cord Anchoring Spring are pushed on to the Rod to hold it in position. The crane jib is attached to the Bush Wheel by the Angle Brackets (2).

Parts Required

4	of No.	2	3	of No.	22	2	of No.	48a
6	» »	5	4	» »	35	2	» »	90a
4	» »	10	45	» »	37a	2	» »	111c
8	» »	12	31	» »	37b	1	» »	125
2	» »	16	4	» »	38	2	» »	126
2	» »	17	1	» »	40			

2	of No.	126a	
1	» »	186	
1	» »	188	
2	» »	189	
1	» »	191	

2.34 LIFTING TRUCK



The truck chassis is made by attaching a 5½" Strip (1) on each side to the lugs of 2½" × ½" Double Angle Strips (2) and (3). A Fishplate (4) is freely pivoted on each of the Bolts fixing the Strips (1) in place. The Bolt is passed through the round hole of the Fishplate and is fitted with a nut, ***but the nut is not tightened against the Fishplate.*** The Bolt is then passed through the Double Angle Strip and the Strip (1) and ***a second nut is screwed tightly against the Strip.*** A 5½" Strip (5) is ***lock-nutted*** to the Fishplates on each side, and a Flat Trunnion (6) is attached to Angle Brackets bolted to these Strips.

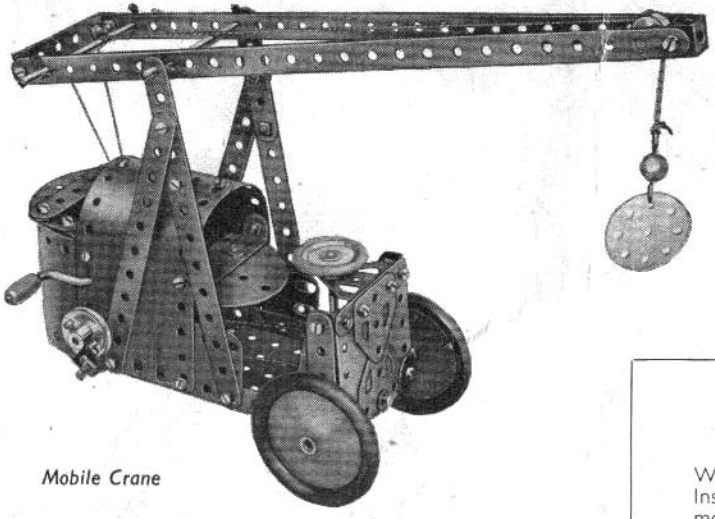
The single wheel at the front is fixed on a 2" Rod supported in two Trunnions bolted together. The Trunnions are pivoted by a ***lock-nutted*** ⅜" Bolt (7) to an Angle Bracket bolted to a Flat Trunnion. The Flat Trunnion is fixed to Double Angle Strip (3).

The lifting mechanism is operated by pushing down a handle (8), made from a 2½" Strip and two 2½" Stepped Curved Strips arranged as shown, and it is ***lock-nutted*** to one of the Trunnions. A length of Cord tied to the handle is passed through the Flat Trunnion fixed to Double Angle Strip (3) and is tied to a 2" Rod (9). Rod (9) is held in Strips (5) by Spring Clips, and a 2½" Driving Band is looped between this Rod and a 3½" Rod (10).

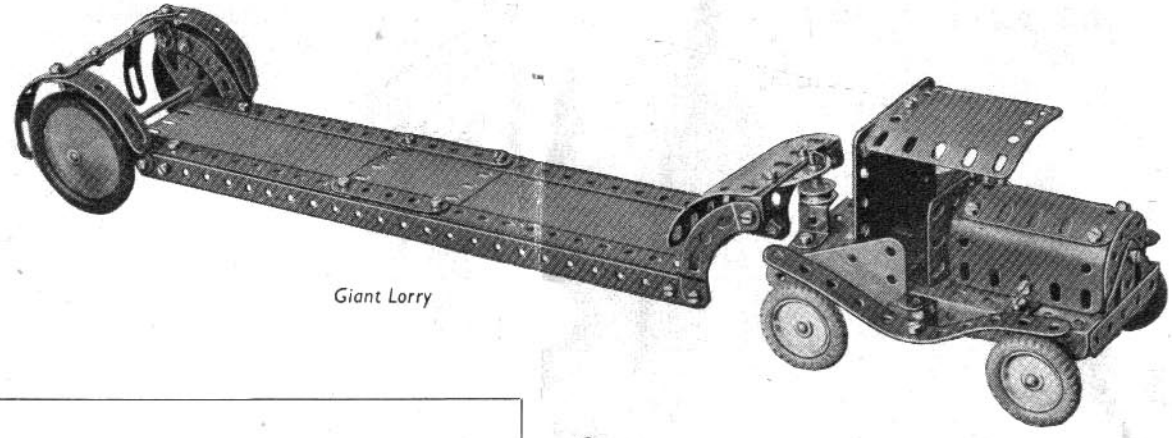
The release lever for the lifting mechanism is a 2½" Strip (11). A ½" Reversed Angle Bracket (12) is bolted tightly to the Strip by a nut on a ⅜" Bolt, which is then passed through Double Angle Strip (3) and is fitted with ***lock-nuts***. When the Strips (5) are in the raised position the Reversed Angle Bracket engages behind an Angle Bracket fixed to the Flat Trunnion (6) by the Bolt (13).

The load platform is assembled from Flexible Plates as shown, and the angles of the legs are adjusted so that the truck can pass freely under the platform when the Strips (5) are in the lowered position.

The model is operated as follows. The truck is pushed under the load platform with the handle (8) in the raised position. The handle is then pushed down to raise the Strips (5), so that the platform is lifted clear of the ground. The lever (11) is then moved until the Reversed Angle Bracket (12) engages behind the Angle Bracket held by Bolt (13), and locks Strips (5) in the raised position. The truck and platform can then be hauled away as a unit. To lower the platform, the lever (11) is operated to release the Reversed Angle Bracket from the Angle Bracket, and the tension of the Driving Band then pulls Strips (5) to the lowered position.



Mobile Crane



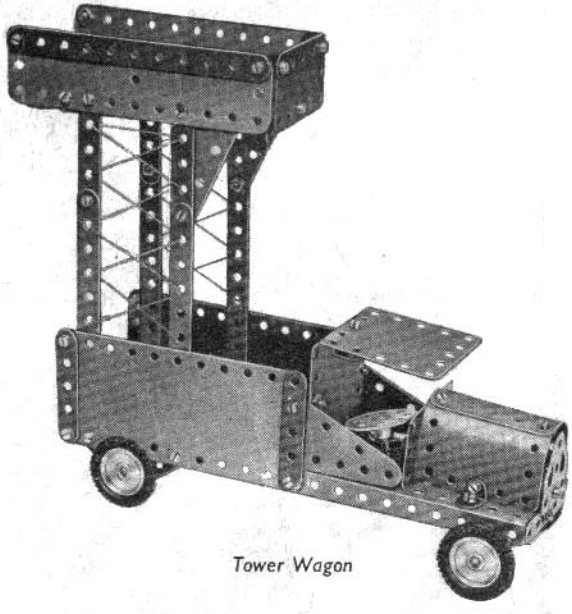
Giant Lorry

HOW TO CONTINUE

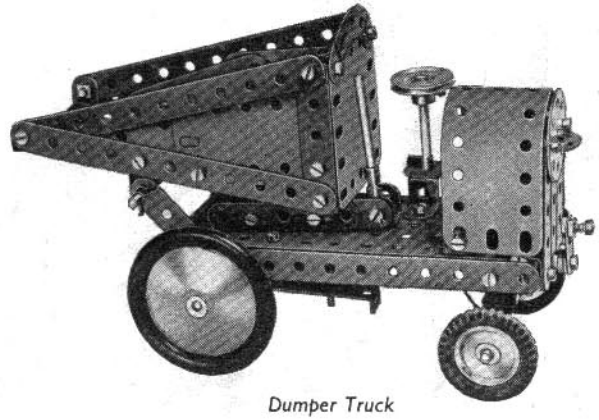
When you have built all the models shown in this Book of Instructions, you will be keen to build others bigger and more elaborate. Your next step is to purchase a Meccano No. 2a Accessory Outfit containing all the parts required to convert your No. 2 into a No. 3 Outfit. You will then be able to build 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 variety of models you can make with Meccano is almost unlimited, and the more Meccano parts you have the bigger and better your models will be.

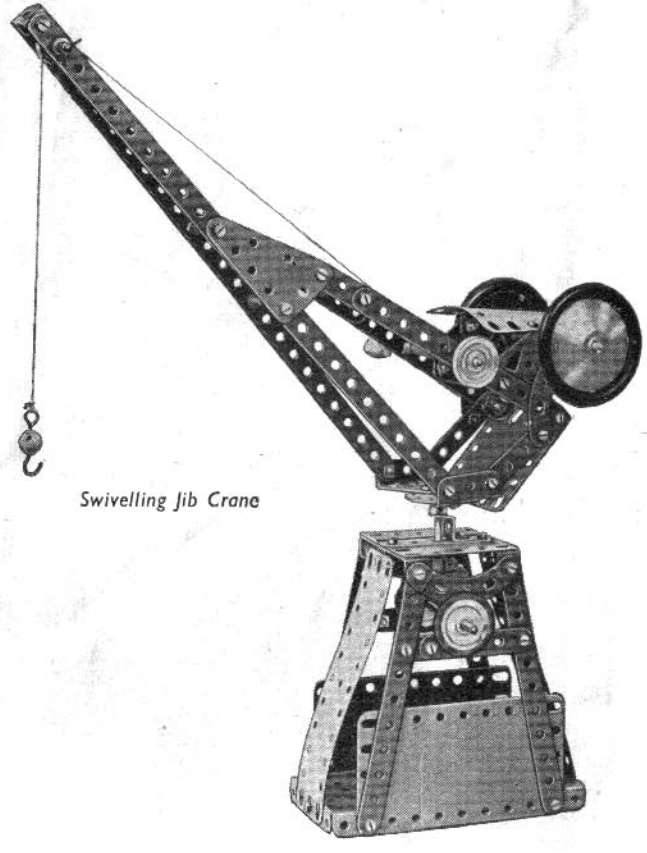
BUILD BIGGER AND BETTER MODELS



Tower Wagon

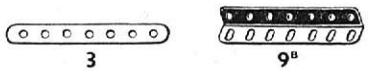


Dumper Truck



Swivelling Jib Crane

MECCANO PARTS



PERFORATED STRIPS

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

ANGLE GIRDERS

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

10. Fishplate | 11. Double Bracket

ANGLE BRACKETS

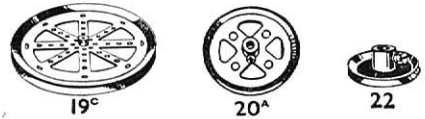
12. ½″×½″
12a. 1″×1″
12b. 1″×½″
12c. Obtuse, ½″×½″

AXLE RODS

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

19g. Crank Handle, 3½″ shaft, with grip
19h. Crank Handle, 5″ shaft, with grip
19s. Crank Handle, 3½″ shaft, without grip

19a. Spoked Wheel, 3″ diam.
20. Flanged Wheel, 1½″ diam.
20b. Flanged Wheel, ¾″ diam.



PULLEYS

19b. 3″ diam., with boss and screw
19c. 6″ diam., with boss and screw
20a. 2″ diam., with boss and screw
21. 1½″ diam., with boss and screw
22. 1″ diam., with boss and screw

PULLEYS

22a. 1″ diam., without boss
23. ½″ diam., without boss
23a. ½″ diam., with boss and screw

No.
24. Bush Wheel, 1⅜″ diam., eight holes
24a. Wheel Disc, 1⅜″ diam., without boss, eight holes
24b. Bush Wheel, 1⅜″ diam., six holes
24c. Wheel Disc, 1⅛″ diam., without boss, six holes

PINIONS

25. ¾″ diam., ¼″ face, 25 teeth
25a. ¾″ diam., ½″ face, 25 teeth
25b. ¾″ diam., ¾″ face, 25 teeth
26. ½″ diam., ½″ face, 19 teeth
26a. ½″ diam., ¼″ face, 19 teeth
26b. ½″ diam., ¾″ face, 19 teeth
26c. 7/16″ diam., ¼″ face, 15 teeth

GEAR WHEELS

27. 1¼″ diam., 50 teeth
27a. 1″ diam., 57 teeth
27b. 3½″ diam., 133 teeth
27c. 2½″ diam., 95 teeth
27d. 1⅜″ diam., 60 teeth

CONTRATE WHEELS

28. 1½″ diam., 50 teeth
29. ¾″ diam., 25 teeth

30. Bevel Gear, ⅞″ diam., 26 teeth (for use in pairs)
30a. Bevel Gear, ½″ diam., 16 teeth } Can only be used together
30c. Bevel Gear, 1½″ diam., 48 teeth }
31. Gear Wheel, 1″ diam., ¼″ face, 38 teeth
32. Worm, ½″ diam.
34. Spanner

34b. Box Spanner
35. Spring Clip
36. Screwdriver
36a. Screwdriver (longer)
36c. Drift (for levering bolt holes into line)
37. Nut and Bolt, 7/32″
37a. Nut
37b. Bolt, 7/32″
38. Washer
38d. Washer, ¾″
40. Hank of Cord

41. Propeller Blade | 43. Tension Spring, 2″ long

No.
44. Bent Strip, stepped
45. Double Bent Strip

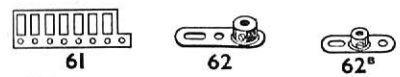
DOUBLE ANGLE STRIPS

46.	2½″×1″	48.	1⅛″×⅛″	48c.	4½″×½″
47.	2½″×1½″	48a.	2⅛″×⅛″	48d.	5½″×½″
47a.	3″ ×1½″	48b.	3½″×½″		

50. Slide Piece
51. Flanged Plate, 2½″×1½″
52. Flanged Plate, 5½″×2½″
52a. Flat Plate, 5½″×3½″
53. Flanged Plate, 3½″×2½″
53a. Flat Plate, 4½″×2½″

54. Flanged Sector Plate, 4½″ long
55. Perforated Strip, slotted, 5½″ long
55a. Perforated Strip, slotted, 2″ long

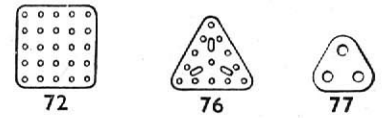
57b. Hook, Loaded, large
57c. Hook, Loaded, small
58. Spring Cord, 40″ length
58a. Coupling Screw for Spring Cord
58b. Hook for Spring Cord
59. Collar, with screw



61. Windmill Sail | 62a. Threaded Crank
62. Crank | 62b. Double Arm Crank

63. Coupling | 63c. Threaded Coupling
63b. Strip Coupling | 63d. Short Coupling

64. Threaded Boss
65. Centre Fork
69. Set Screw, ⅛″
69a. Grub Screw, ⅛″
69b. Grub Screw, ¼″
69c. Grub Screw, 7/64″



No.
70. Flat Plate, 5½″×2½″
72. Flat Plate, 2½″×2½″
73. Flat Plate, 3″ ×1½″
76. Triangular Plate, 2½″
77. Triangular Plate, 1″

SCREWED RODS

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

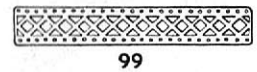
CURVED STRIPS

89. 5½″ (10″ radius)
89a. Stepped, 3″ (1⅜″ radius)
89b. Stepped, 4″ (4½″ radius)
90. 2½″ (2⅜″ radius)
90a. Stepped, 2½″ (1⅜″ radius)

94. Sprocket Chain, 40″ length

SPROCKET WHEELS

95.	2″ diam., 36 teeth	96.	1″ diam., 18 teeth
95a.	1½″ diam., 28 teeth	96a.	¾″ diam., 14 teeth
95b.	3″ diam., 56 teeth		



BRACED GIRDERS

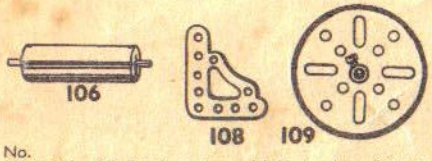
97.	3½″ long	99.	12½″ long	100.	5½″ long
97a.	3″ long	99a.	9½″ long	100a.	4½″ long
98.	2½″ long	99b.	7½″ long		

101. Heald for Loom | 102. Single Bent Strip

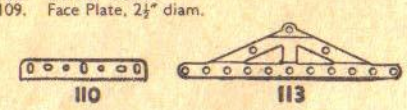
FLAT GIRDERS

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

MECCANO PARTS



No.
106. Wood Roller (complete with Rod and two Collars)
108. Corner Gusset
109. Face Plate, 2½" diam.

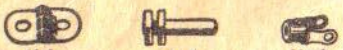


110. Rack Strip, 3½" long | 110a. Rack Strip, 6½" long

BOLTS

111. ¾" | 111c. ¾"
111a. ½" | 111d. 1⅛"

113. Girder Frame

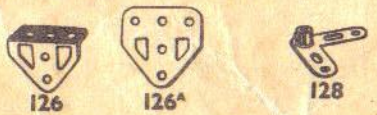


114. Hinge | 116. Fork Piece, large
115. Threaded Pin | 116a. Fork Piece, small

118. Hub Disc, 5½" diam.

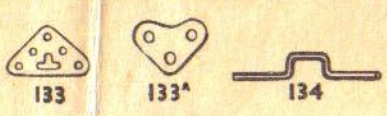
120b. Compression Spring, ⅝" long
122. Loaded Sack

123. Cone Pulley, 1¼", 1" and ¾" diam.
124. Reversed Angle Bracket, 1"
125. Reversed Angle Bracket, ½"



126. Trunnion
126a. Flat Trunnion
128. Bell Crank, with Boss

No.
130. Eccentric, Triple Throw, ¼", ⅜" and ½"
130a. Eccentric, Single Throw, ¼"

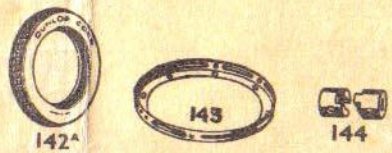


133. Corner Bracket, 1½"
133a. Corner Bracket, 1"
134. Crank Shaft, 1" stroke

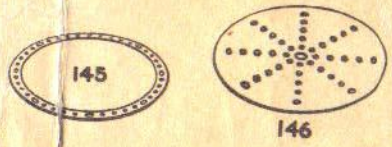
136. Handrail Support | 136a. Handrail Coupling

137. Wheel Flange | 138. Ship's Funnel, Raked

139. Flanged Bracket (right)
139a. Flanged Bracket (left)
140. Universal Coupling



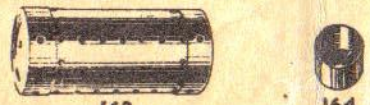
142a. Motor Tyre (to fit 2" diam. rim)
142b. Motor Tyre (to fit 3" diam. rim)
142c. Motor Tyre (to fit 1" diam. rim)
142d. Motor Tyre (to fit 1½" diam. rim)
143. Circular Girder, 5½" diam.
144. Dog Clutch



145. Circular Strip, 7½" diam. overall
146. Circular Plate, 6" diam. overall
146a. Circular Plate, 4" diam. overall

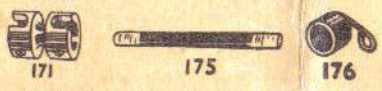
No.
147. Pawl, with Pivot Bolt and Nuts
147a. Pawl
147b. Pivot Bolt, with two Nuts
147c. Pawl, without boss
148. Ratchet Wheel
151. Single Pulley Block
153. Triple Pulley Block
154a. Corner Angle Bracket, ½" (right-hand)
154b. Corner Angle Bracket, ½" (left-hand)
155. Rubber Ring (for 1" Pulley)

157. Fan, 2" diam.
160. Channel Bearing, 1½" × 1" × ½"
161. Girder Bracket, 2" × 1" × ½"



162. Boiler, complete, 5" long × 2 1/16" diam.
162a. Boiler Ends, 2 1/16" diam. × ⅜"
163. Sleeve Piece, 1½" long × 1 1/16" diam.
164. Chimney Adaptor, ⅜" diam. × ½" high

165. Swivel Bearing
166. End Bearing
167b. Flanged Ring, 9½" diam.
168. Ball Thrust Bearing, 4" diam.
168a. Ball Thrust Race, flanged disc, 3½" diam.
168b. Ball Thrust Race, toothed disc, 4" diam.
168c. Ball Cage, 3⅜" diam., complete with balls
168d. Ball, ⅜" diam.



171. Socket Coupling
173a. Adaptor for Screwed Rod
175. Flexible Coupling Unit
176. Anchoring Spring for Cord

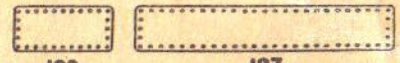
179. Rod Socket
180. Gear Ring, 3½" diam. (133 ext. teeth, 95 int.)

No.
185. Steering Wheel, 1¾" diam.

DRIVING BANDS

186. 2½" (light) | 186c. 10" (heavy)
186a. 6" (light) | 186d. 15" (heavy)
186b. 10" (light) | 186e. 20" (heavy)

187. Road Wheel, 2½" diam.
187a. Conical Disc, 1⅝" diam.



FLEXIBLE PLATES

188. 2½" × 1½" | 190. 2½" × 2½" | 191. 4½" × 2½"
189. 5½" × 1½" | 190a. 3½" × 2½" | 192. 5½" × 2½"

STRIP PLATES

196. 9½" × 2½" | 197. 12½" × 2½"

198. Hinged Flat Plate, 4½" × 2½"
199. Curved Plate, 'U'-section, 2½" × 2½" × ⅝" radius
200. Curved Plate, 2½" × 2½" × 1 11/16" radius

211a. Helical Gear, ½" } Can only be used
211b. Helical Gear, 1½" } together
212. Rod and Strip Connector
212a. Rod and Strip Connector, right-angle
213. Rod Connector
213a. Three-way Rod Coupling
213b. Three-way Rod Coupling with Pummel

214. Semi-circular Plate, 2½"
215. Formed Slotted Strip, 3"
216. Cylinder, 2½" long, 1¼" diam.

TRIANGULAR FLEXIBLE PLATES

221. 2½" × 1½" | 223. 2½" × 2½" | 225. 3½" × 2"
222. 2½" × 2" | 224. 3½" × 1½" | 226. 3½" × 2½"

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