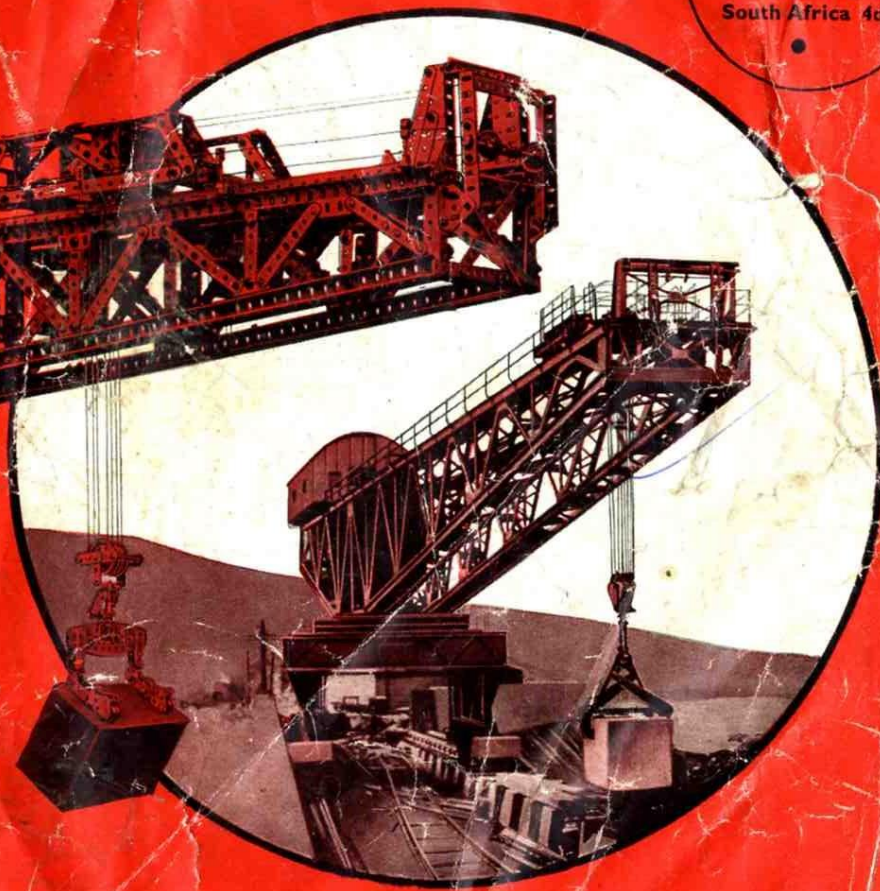
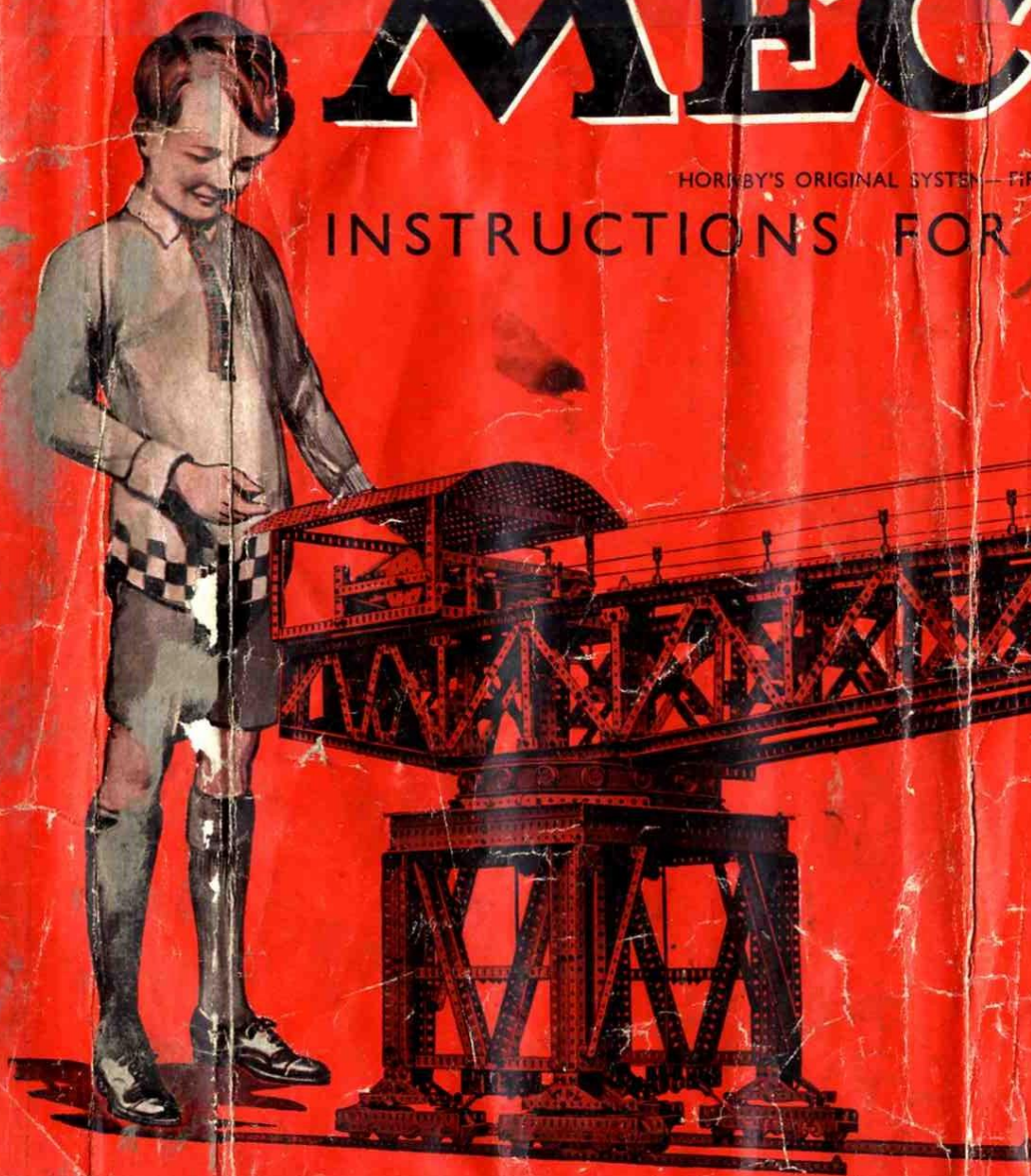


MECCANO

HORNBY'S ORIGINAL SYSTEM—FIRST PATENTED 1901

INSTRUCTIONS FOR OUTFITS O and A

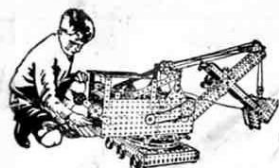
Price
U.K. 3d.
Canada \$.05
Australia 4d.
New Zealand 4d.
South Africa 4d.



370-A

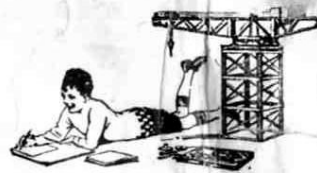
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15/137/15 (ENG-SP)



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.

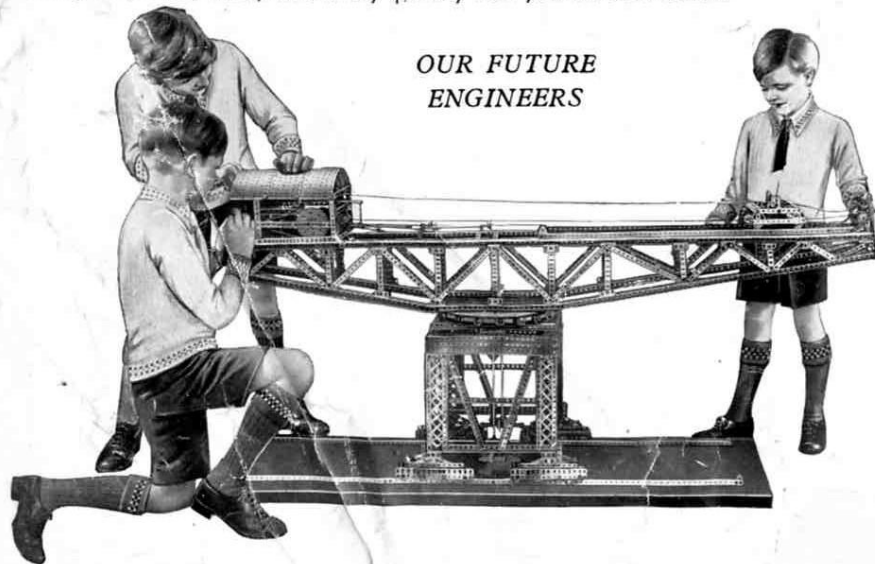
Make the simple models first—they will provide hours of fun—and then try to improve them. Every model can be made in a dozen different ways. It is important to screw up all the nuts and bolts tightly to ensure that your models will be strong and firm when they are completed.

Every keen and inventive Meccano model builder should obtain a copy of the special Manual "Meccano Standard Mechanisms." This Manual can be purchased from your dealer, or direct from Meccano Ltd., Binns Road, Liverpool 13.

HOW TO BUILD UP YOUR OUTFIT

Meccano is sold in eleven different Outfits, lettered O to L. All Meccano parts are of the same high quality and finish, but the larger Outfits contain a greater quantity and variety of parts, making possible the construction of more elaborate models. Each Outfit from O upwards can be converted into the one next higher by the purchase of an Accessory Outfit. Thus, Meccano Outfit O can be converted into an A by adding to it an Aa Accessory Outfit. An Aa would then convert it into a B Outfit, and so on. In this way, no matter with which Outfit you commence, you can build it up by degrees until you possess an L Outfit. It is important to remember that Meccano Parts can be bought separately at any time in any quantity from your Meccano dealer.

OUR FUTURE ENGINEERS



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 amp, two special brackets, and two pea lamps, operated from a 4-volt flashlamp 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 specially written for Meccano boys. It tells them of the latest Meccano models; what Meccano Clubs are doing; how to correspond with other Meccano boys; the Competitions that are running, etc. It contains splendid articles on such subjects as Railways, Famous Engineers and Inventors, Electricity, Chemistry, Bridges, Cranes, Wonderful Machinery, Aeronautics, Latest Patents, Radios, Stamps, Photography, Books and other topics of interest to boys, including suggestions from Meccano boys for new Meccano parts and correspondence columns in which the Editor replies to his readers' enquiries. The publishing date is the first of each month. If you are not already a reader of the *Meccano Magazine* 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 for boys, started at the request of boys, and as far as possible conducted by 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 the others to get the very best out of life. Write for full particulars and an application form to the Meccano Guild Secretary, Binns Road, Liverpool 13.

Meccano Clubs are founded and established under the guidance of the Guild Secretary at Headquarters, and at the present time there are active Clubs in nearly 250 towns and villages in the United Kingdom, and more than 100 in countries overseas. Each Club has its Leader, Secretary, Treasurer, and other officials, all of whom, with the exception of the Leader, are boys.

Special Merit Medallions are awarded to Club members for good work in connection with their Club, and Recruiting Medallions are awarded in connection with the Recruiting Campaign, full particulars of which will be sent on request.

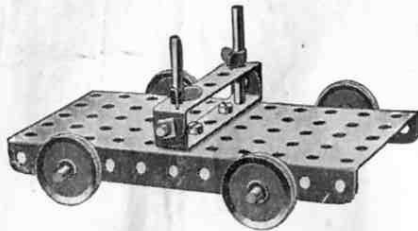
MECCANO SERVICE

The service of Meccano does not end with selling an Outfit and an Instruction Manual. When you want to know something more about engineering than is now shown in our books, or when you strike a tough problem of any kind, write to us. We receive hundreds of letters from boys every day all the year round. Although all kinds of queries are put to us on all manner of subjects, the main interest is, of course, engineering. No one has such a wonderful knowledge of engineering matters as that possessed by our staff of experts. This vast store of knowledge, gained only by many years of hard-earned experience, is at your service. We want the Meccano boy of to-day to be the famous engineer of to-morrow.

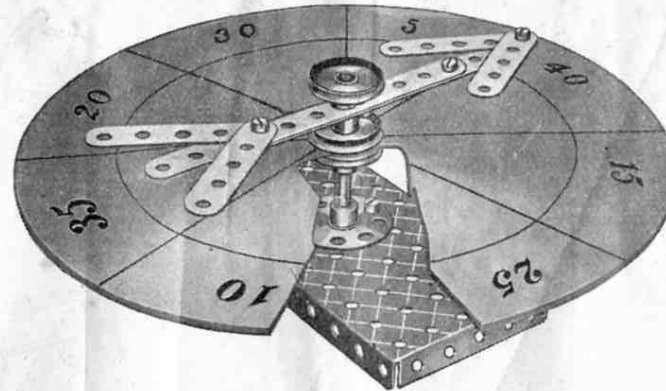
These Models can be built with MECCANO Outfit O

1

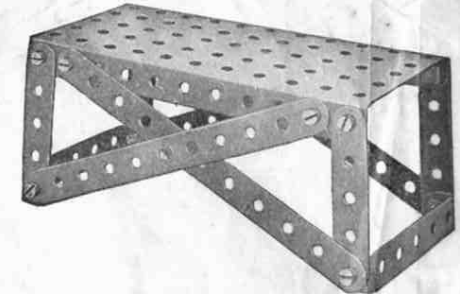
O1. Lumber Truck



O8. Roulette Wheel



O17. Planing Bench



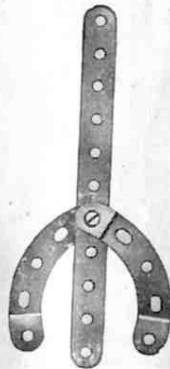
O2. Spade



O3. Flower Pot Stand



O4. Fork



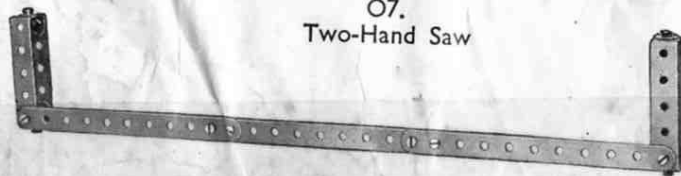
O5. Dividers



O6. Motor Boat

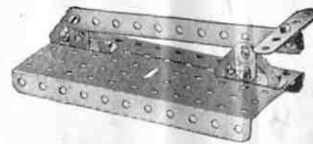


O7. Two-Hand Saw

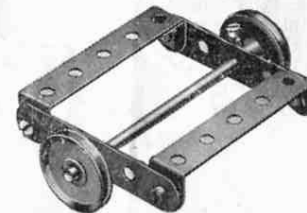


Cut out a circular piece of cardboard and mark as shown to form the scoring board, which is clamped between two 1" Pulleys. The pointer revolves freely on the upright spindle.

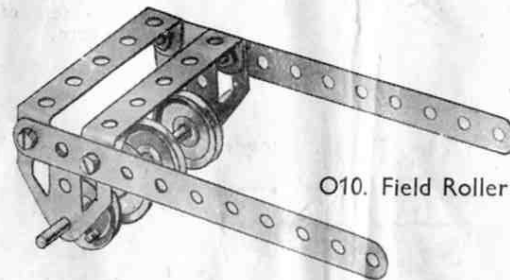
O9. Switch



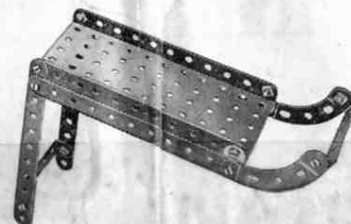
O13. Trolley



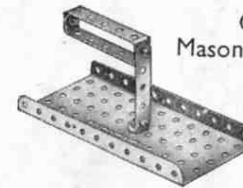
O10. Field Roller



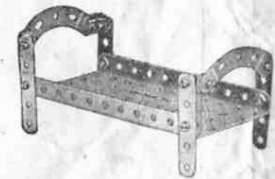
O11. Chute



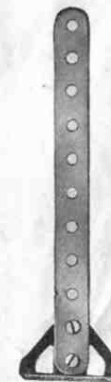
O12. Mason's Trowel



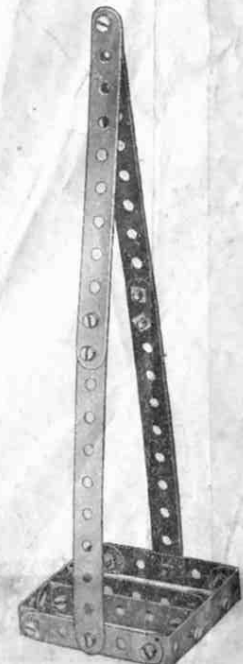
O18. Crib



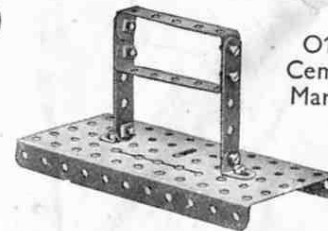
O14. Hoe



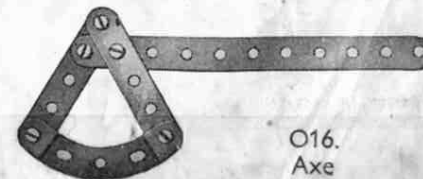
O19. Potato Chopper

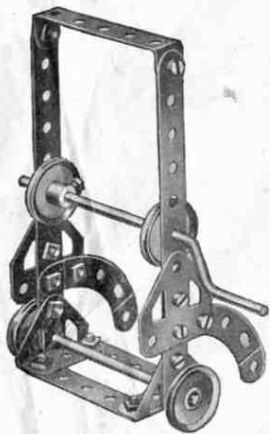


O15. Cement Marker



O16. Axe



O20.
Garden Hose Reel

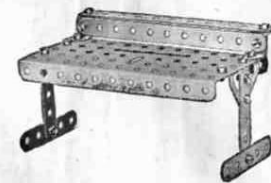
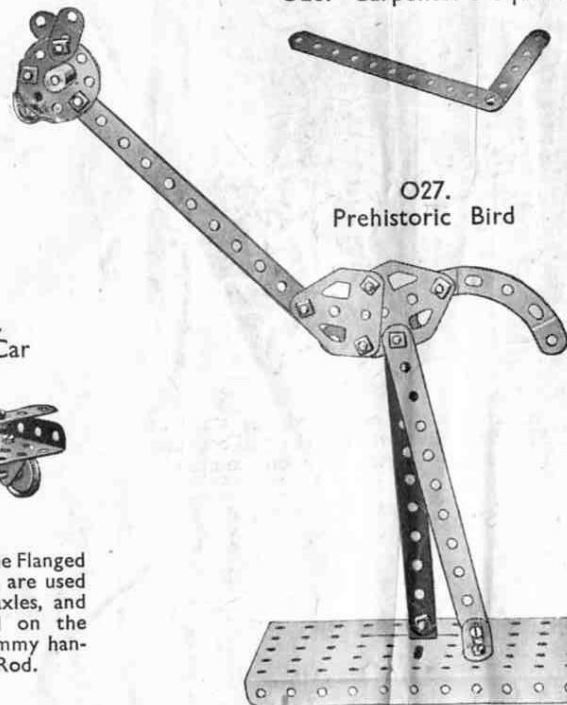
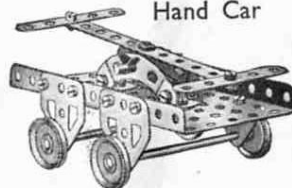
O23. Violin



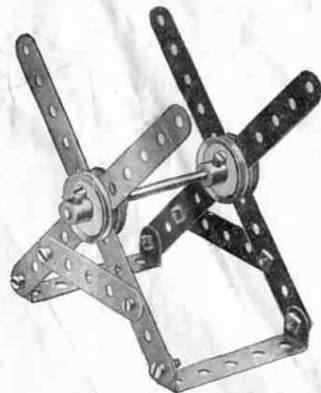
O26. Carpenter's Square

O29.
Hand Cart

O30. Desk

O27.
Prehistoric BirdO24.
Hand Car

O21. Sawing Horse

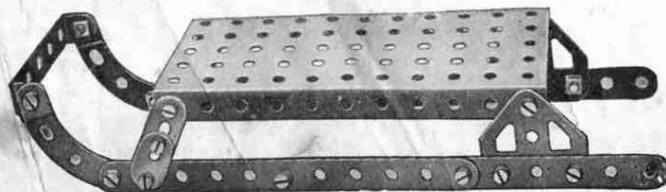
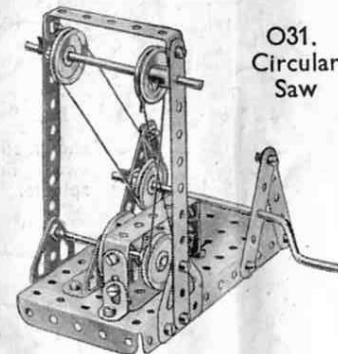


On one side of the Flanged Plate, Flat Trunnions are used for supporting the axles, and Trunnions are used on the other side. The dummy handles pivot on a 2" Rod.

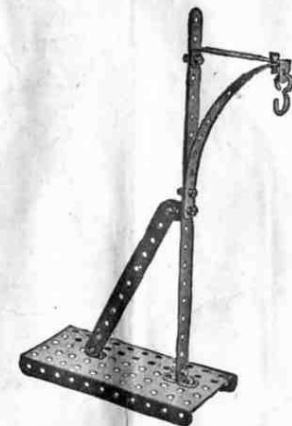
O25. Piano Stool



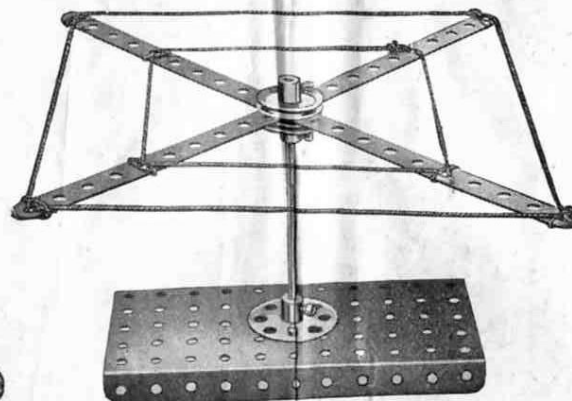
O22. Sledge

O31.
Circular Saw

A Bush Wheel represents the circular saw and is driven from the Crank Handle through two sets of Pulleys and belts of cord.

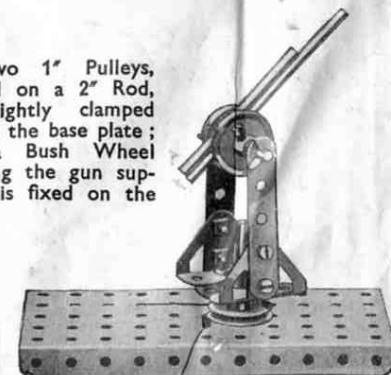
O32.
Mail Bag Hanger

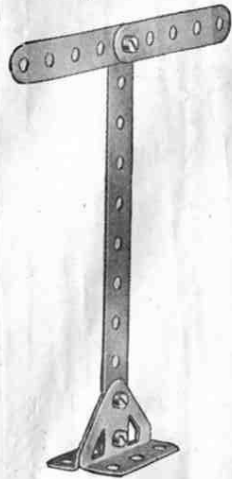
O28. Clothes Hanger



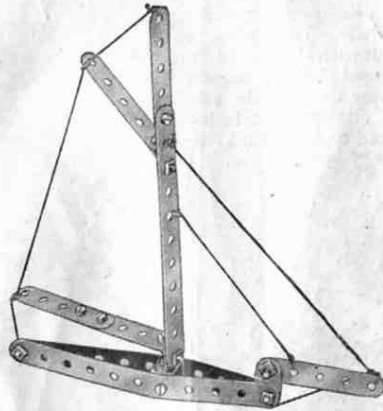
O33. Anti-Aircraft Gun

Two 1" Pulleys, carried on a 2" Rod, are lightly clamped against the base plate; and a Bush Wheel carrying the gun supports is fixed on the Rod.

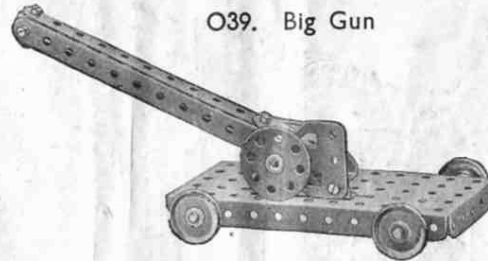


O34. 2-Way
Sign Post

O38. Yacht

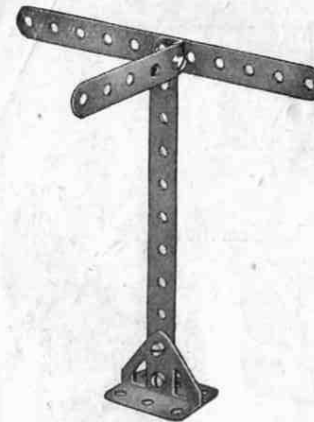


O39. Big Gun

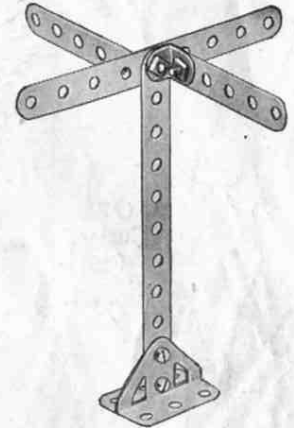


The gun barrel is made of 5½" Strips, and at its lower end is bolted to a Flat Trunnion that is fixed by Angle Brackets between two Trunnions bolted to the base. A Bush Wheel forms a dummy handwheel.

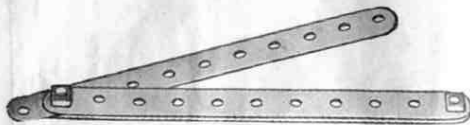
O44. 3-Way Sign Post



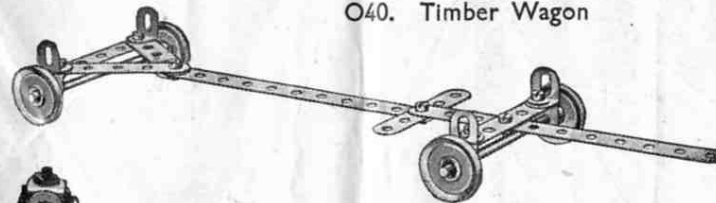
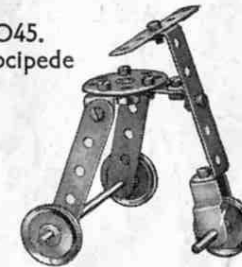
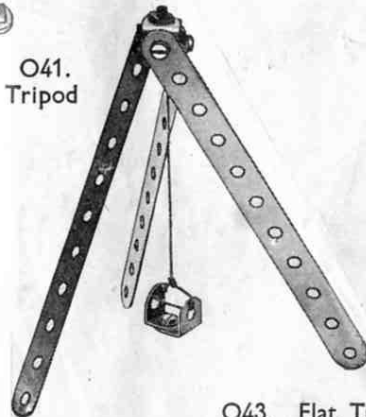
O47. 4-Way Sign Post



O35. Razor



O40. Timber Wagon

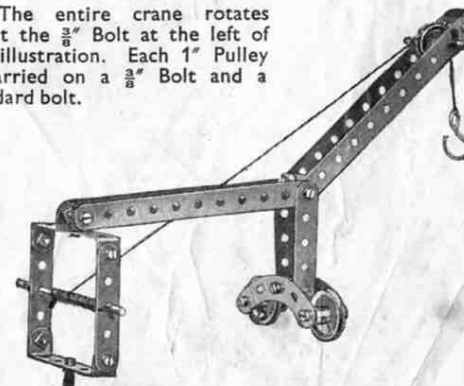
O45.
VelocipedeO48.
Rifle with
BayonetO36.
Road SignO37.
Road SignO41.
Tripod

O42. Cannon

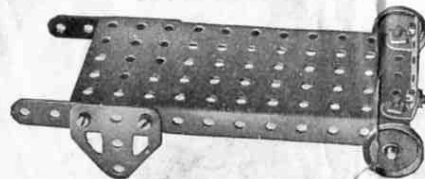


O46. Radial Travelling Crane

The entire crane rotates about the ⅜" Bolt at the left of the illustration. Each 1" Pulley is carried on a ⅜" Bolt and a standard bolt.



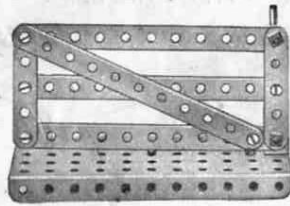
O43. Flat Truck



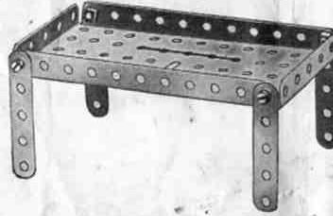
O49. Farm Sight



O52. Gate

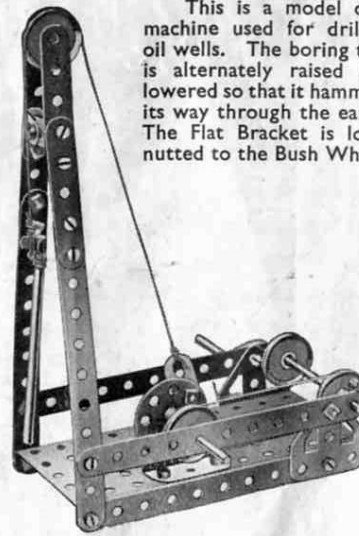


O55. Drinking Trough



O58. Well Driller

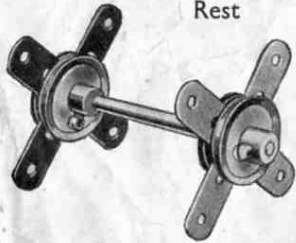
This is a model of a machine used for drilling oil wells. The boring tool is alternately raised and lowered so that it hammers its way through the earth. The Flat Bracket is lock-nutted to the Bush Wheel.



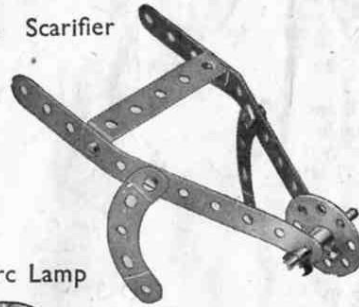
O63. Trowel



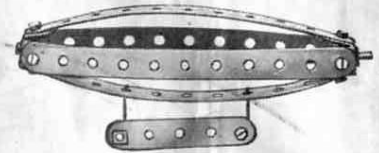
O50. Cutlers' Rest



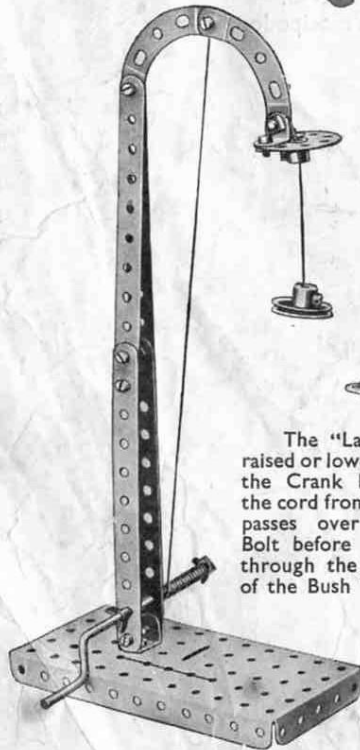
O53. Scarifier



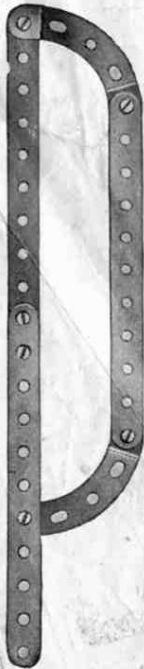
O64. Airship



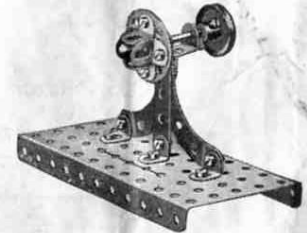
O54. Arc Lamp



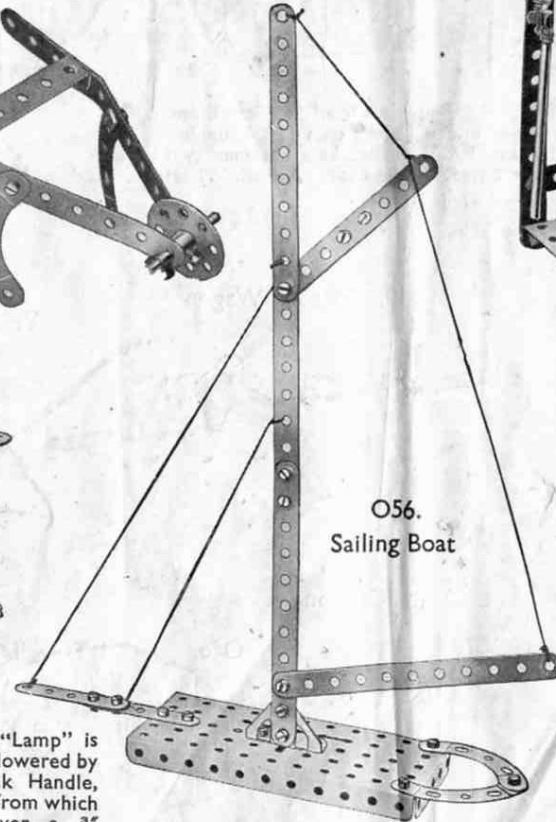
O51. Meat Saw



O65. Scrap Reel



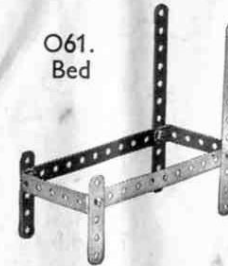
O56. Sailing Boat



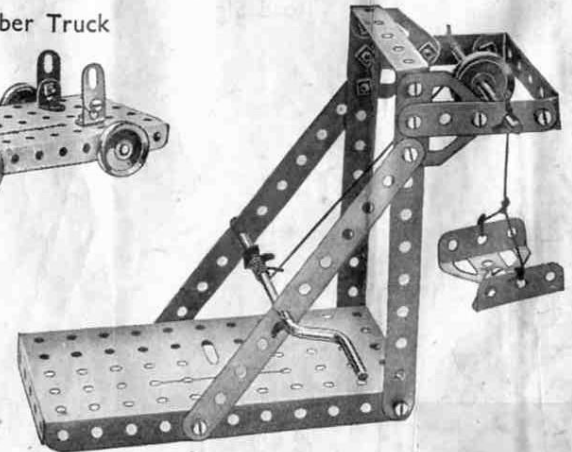
O59. Rake



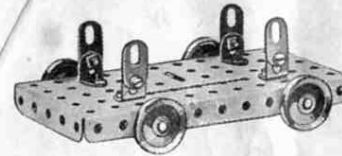
O61. Bed



O66. Pit-Head Gear



O62. Lumber Truck



O60. Book End



O57. Track Gauge

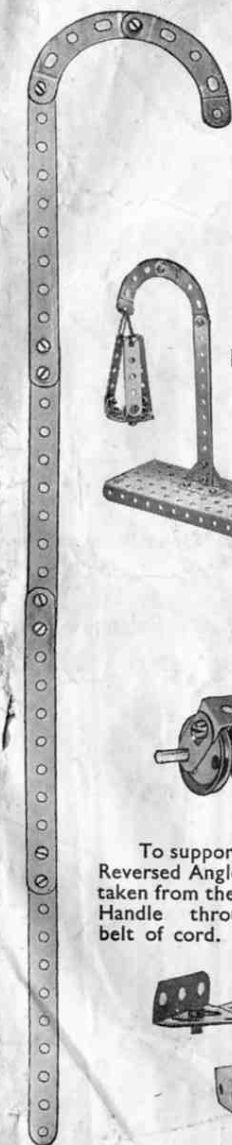


The "Lamp" is raised or lowered by the Crank Handle, the cord from which passes over a $\frac{3}{8}$ " Bolt before passing through the centre of the Bush Wheel.

O67. Tin Opener



O68. Walking Stick



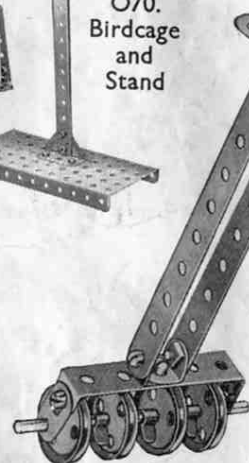
O69. Plasterer's Hawk



O70. Birdcage and Stand

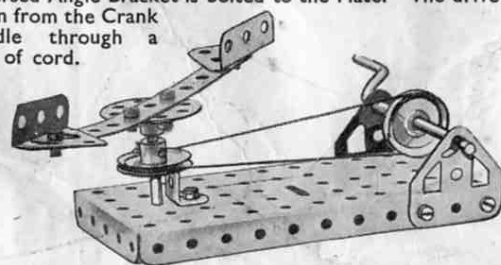


O71. Garden Roller

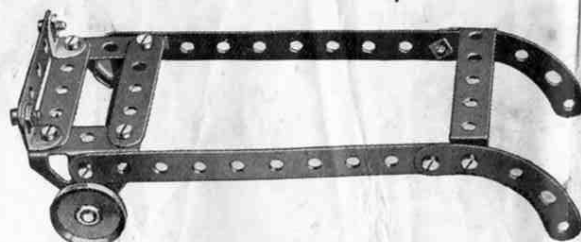


O72. Roundabout

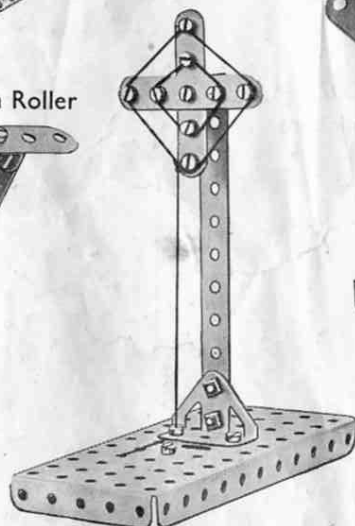
To support the vertical Rod carrying the roundabout a Reversed Angle Bracket is bolted to the Plate. The drive is taken from the Crank Handle through a belt of cord.



O73. Porter's Trolley



O74. Frame Aerial



O75. Print Trimmer



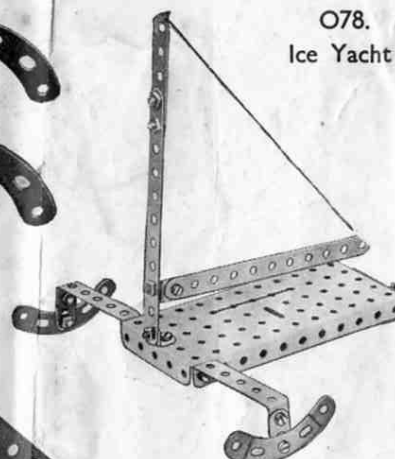
O76. Stool



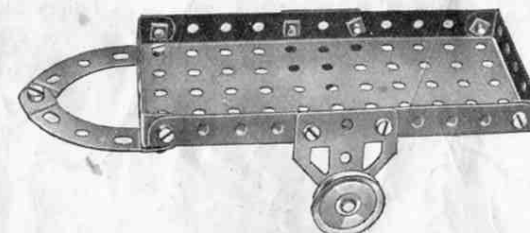
O77. Elevator Car



O78. Ice Yacht

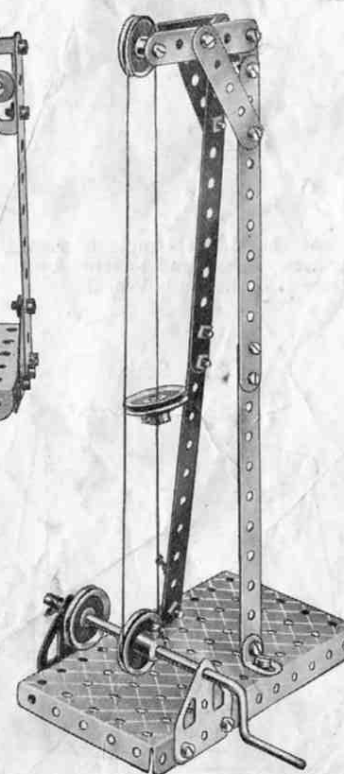


O81. Hand Truck

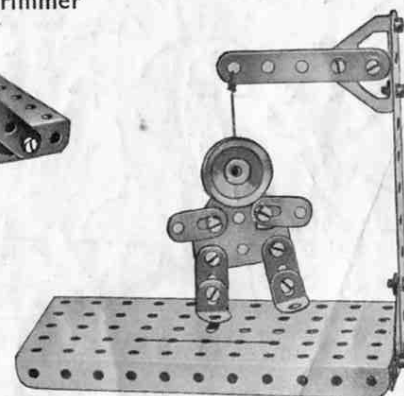


O82. Airship Mooring Mast

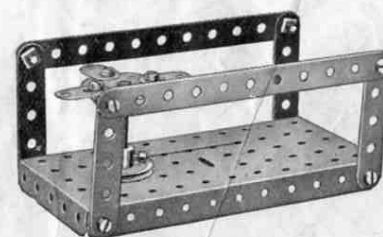
The 1" Pulley attached to the cord can be raised or lowered, and represents the lift for conveying passengers to and from the airship.

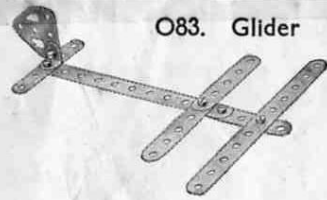


O79. Gallows



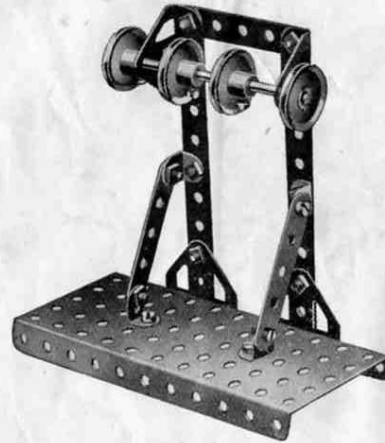
O80. Turnstile





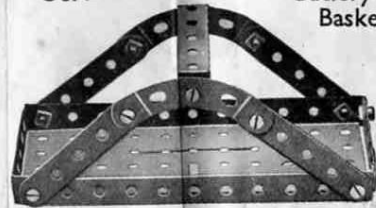
O83. Glider

O86. Pulley Shafting



O87.

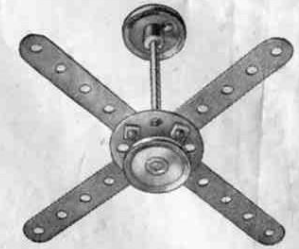
Cutlery Basket



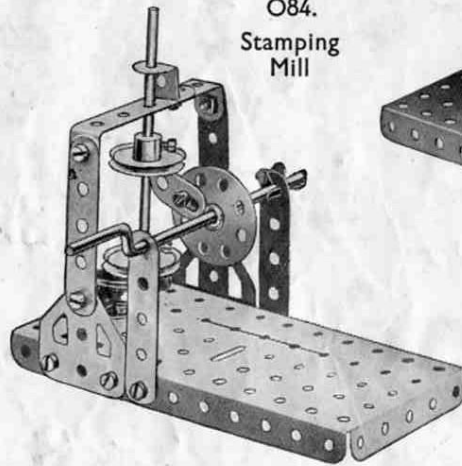
O91. Mail Bag Hanger



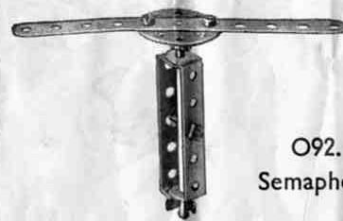
O94. Ceiling Fan



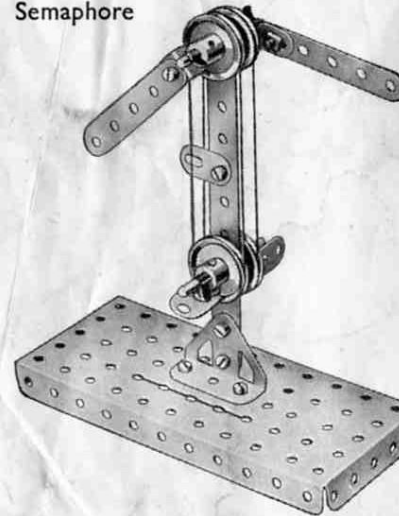
O84. Stamping Mill



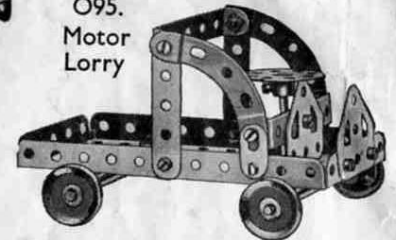
O88. Helicopter Toy



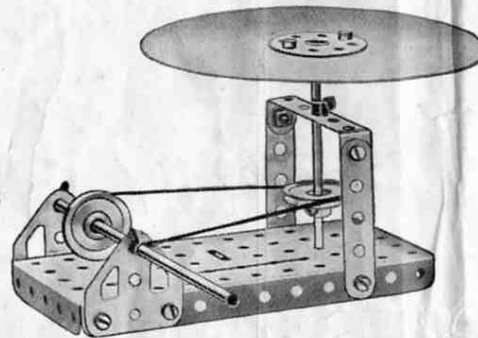
O92. Semaphore



O95. Motor Lorry



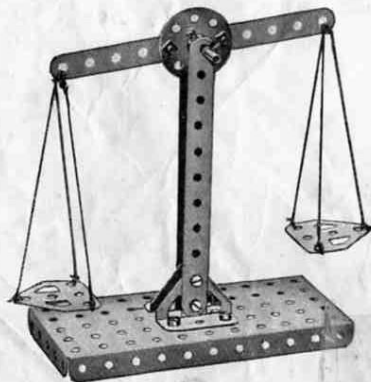
O89. Joy Wheel



The Axle Rods carrying the 1" Pulleys are mounted in Angle Brackets bolted beneath the Flanged Plate. A Bush Wheel is used for a dummy steering wheel.

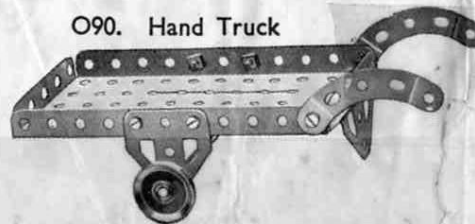
As the Crank Handle is turned the stamp is alternately raised and lowered by the Flat Bracket attached to the Bush Wheel.

O85. Scales

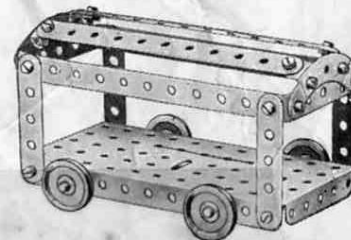


Stiff Cardboard is used for the disc and is bolted to a Bush Wheel. It is rotated by a belt of cord from the Crank Handle.

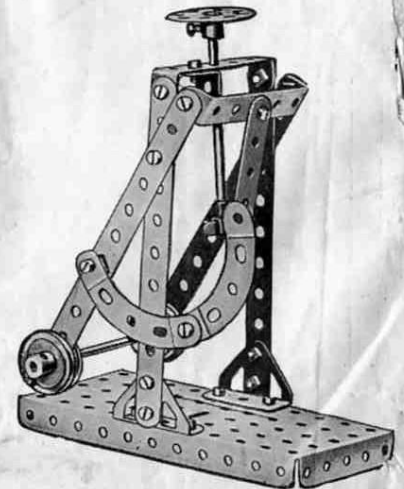
O90. Hand Truck



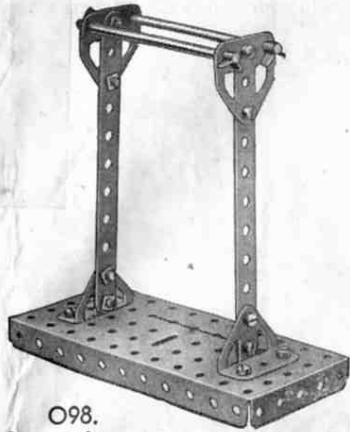
O93. Pullman Car



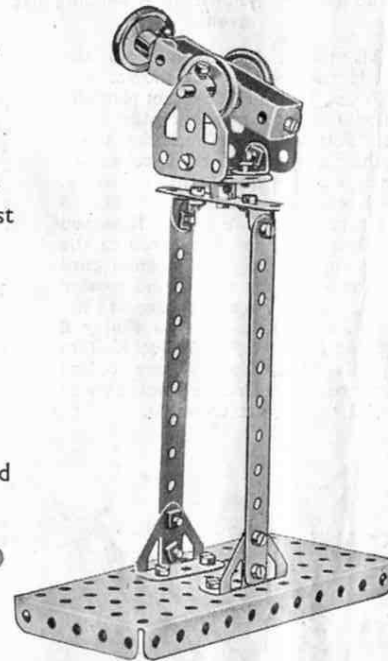
O96. Letter Balance



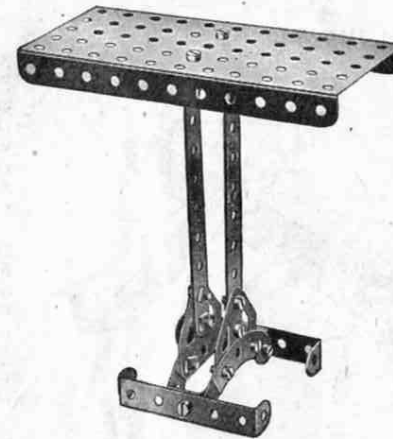
O97. Towel Horse



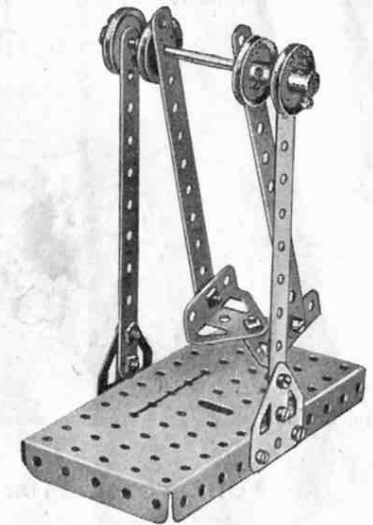
O102. Searchlight



O103. Table



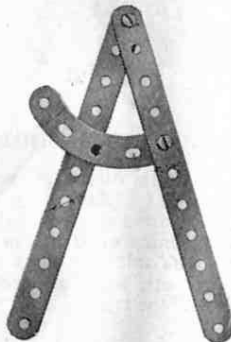
O106. Swing



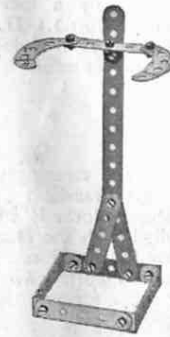
O98. Street Lamp



O99. Dividers



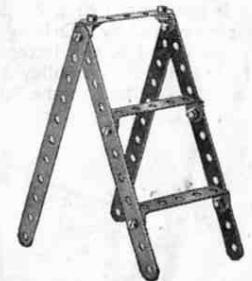
O101. Umbrella Stand



O104. Cheese Cutter



O107. Step Ladder

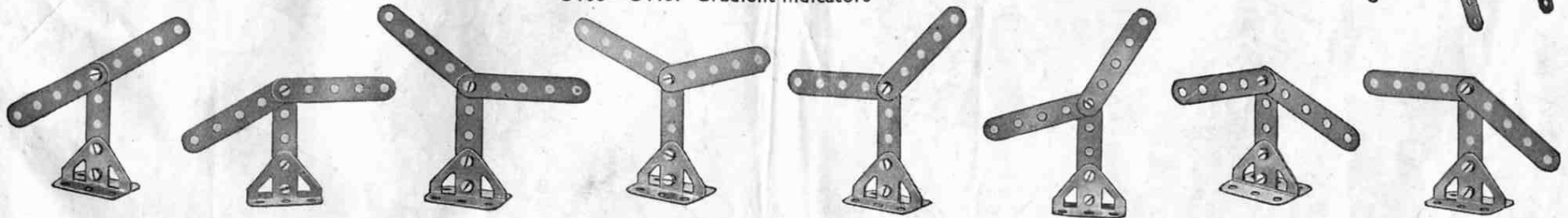


The searchlight can be rocked up or down on a 2" Rod carried in Flat Trunnions, and the upper framework swivels on the $\frac{3}{8}$ " Bolt fixing the Bush Wheel.

O105. Tweezers



O108—O115. Gradient Indicators



HOW TO CONTINUE

When you have built the O Outfit Models illustrated, and fitted a number of them with the Meccano *Magic Motor* (see next page), your next step is to purchase an Oa Accessory Outfit. This converts your O Outfit into an A and enables you to build bigger and better models.

This page features a selection of Meccano Outfit O working models of a type rather more advanced than the 115 examples shown in the following pages. In four instances the models

are fitted with the Meccano *Magic* Motor, which makes them work just like the real thing. Try your hand at building bigger and better models with the parts in your Outfit and become a real inventor.

O116. STEAM SHOVEL

This model is driven from the *Magic* Motor, mounted as shown. The Bush Wheel 1 has a Flat Bracket pivotally attached to it by means of the lock-nutted Bolt 2. Care must be taken with the fitting of the cords to ensure that the model will function correctly. A cord attached to the Flat Bracket 3 passes through a hole in the Reversed Angle Bracket 4, and is secured to the Double Angle Strip 5. A second cord 6 is fastened to the shovel and passing over the Pulley 7, is also secured to the Double Angle Strip 5. The Pulley 8 is supplied with the *Magic* Motor. Two $\frac{1}{2} \times \frac{1}{2}$ Angle Brackets 9 are bolted together to form a Double Bracket which is bolted to the flat trunnion.

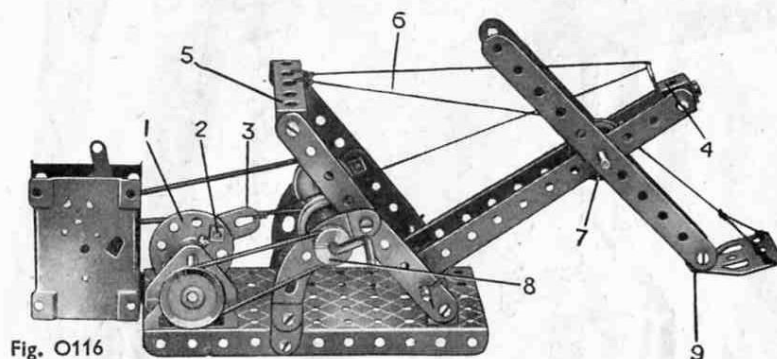


Fig. O116

O117. FORGING HAMMER

The hammer, two $2\frac{1}{2}$ " Strips overlapping two holes, is pivotally mounted on a 2" Axle Rod, by means of two $\frac{1}{2}$ " Angle Brackets bolted together forming a double bracket 1. It is actuated by a $2\frac{1}{2}$ " Strip 2 bolted to a Bush Wheel that is rotated by a Driving Band 3 (crossed), passing round Pulleys 4 and 5, the latter of which is provided with the *Magic* Motor. The Pulley 6 is rotated by a second Driving Band that is fitted to the Pulley on the motor driving shaft.

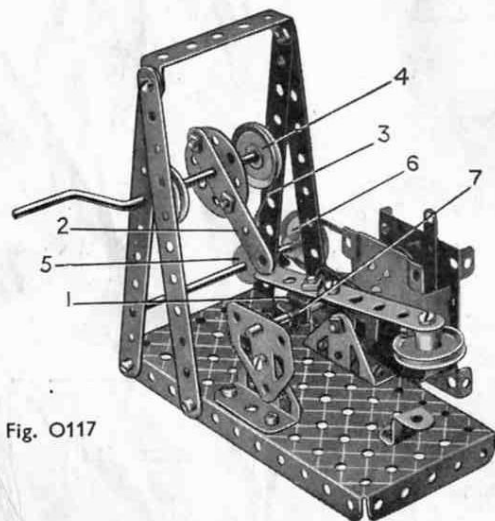


Fig. O117

O118. DERRICK CRANE (HAND OPERATED)

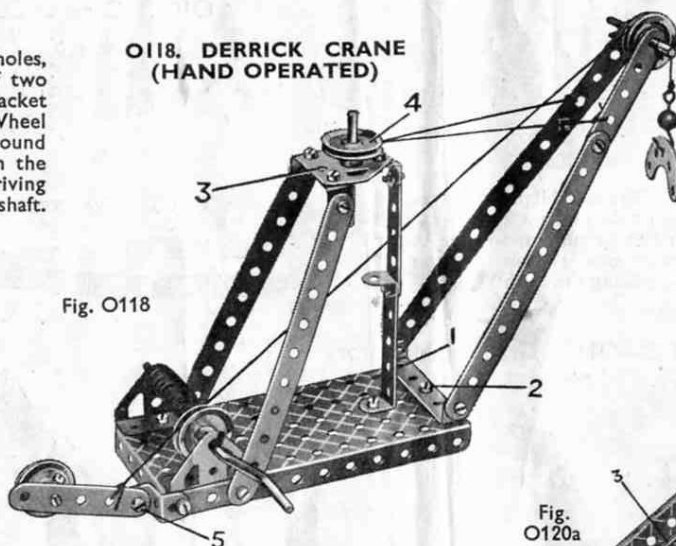


Fig. O118

The side members of the jib are bolted at their lower end to a $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip 1, which is pivotally secured to the base by a lock-nutted Bolt 2. The Flat Trunnion 3 carries in its centre hole a 2" Axle Rod to which is fitted a Pulley 4. The length of cord supporting the jib is passed round this Pulley and attached to the jib head, as shown. The band brake is lock-nutted at 5 to a Reversed Angle Bracket.

O119. POWER HACK SAW

The fitting of the *Magic* Motor and the Driving Bands is clearly shown in the illustration. The saw frame slides on a $3\frac{1}{2}$ " Axle Rod held in position by means of a Flat Bracket bent over. It is driven to and fro by means of the rotating Bush Wheel to which it is pivoted. The Axle Rod 3 is journaled in the bottom hole of a $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip, and one hole of a Reversed Angle Bracket 2. The saw is pivotally attached to the Bush Wheel by a lock-nutted Bolt 1. The Pulley 4 is provided with the Motor.

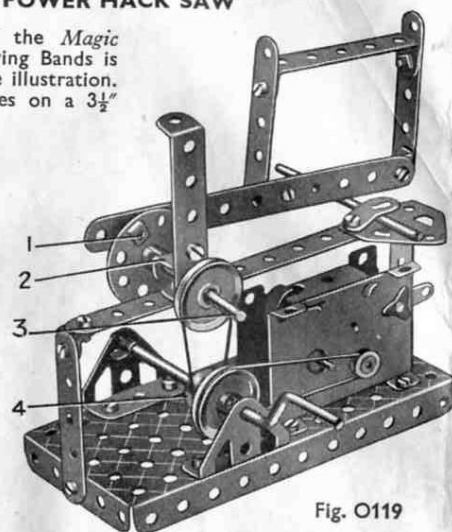


Fig. O119

O120. ELECTRIC TRUCK

The steering wheel, a Bush Wheel, is secured to the Reversed Angle Bracket 1 by means of a $\frac{3}{8}$ " Bolt. Fig. O120a shows how the *Magic* Motor is mounted to drive the front wheels. The Pulley supplied with the Motor is mounted on the front axle, and the rubber band is fitted as shown. The axle carrying the two front wheels is journaled in two Flat Brackets, which are secured to the $5\frac{1}{2}$ " Strips 2 and 3, forming the frame of the truck.

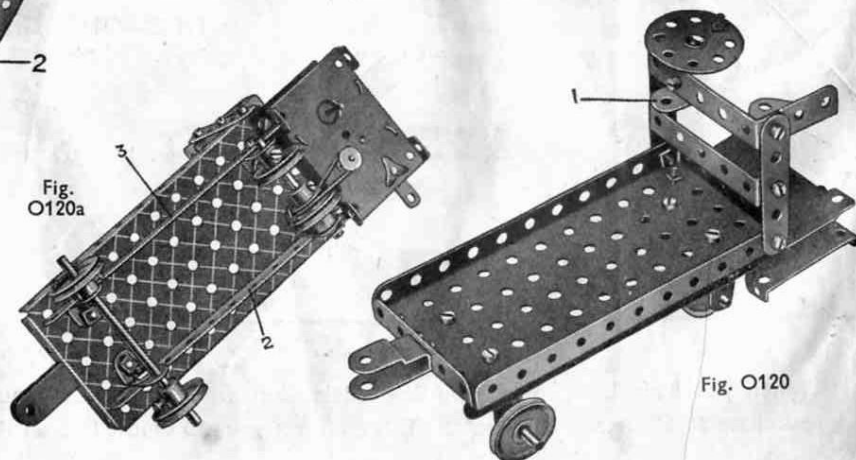
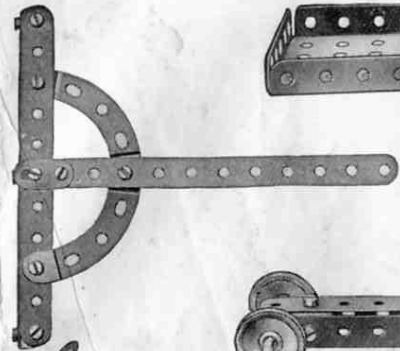


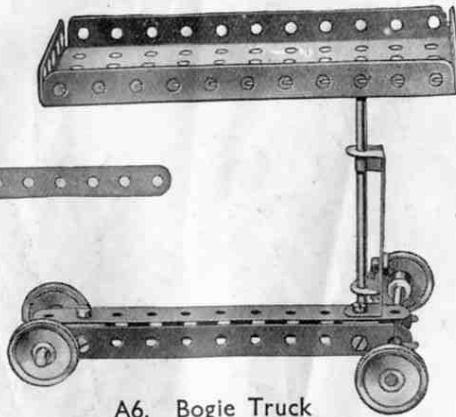
Fig. O120

Fig. O120a

A1. Rake



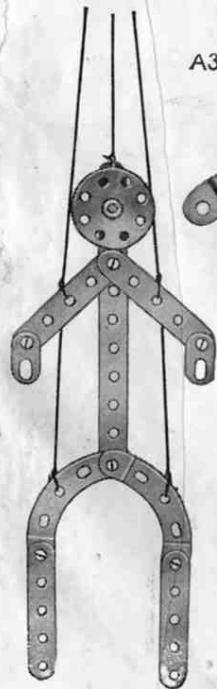
A5. Bed Table



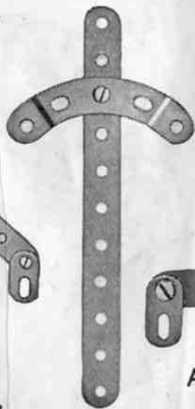
A6. Bogie Truck



A2. Jumping Jack



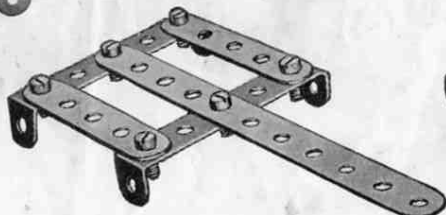
A3. Sword



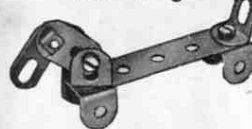
A7. Roman Balance



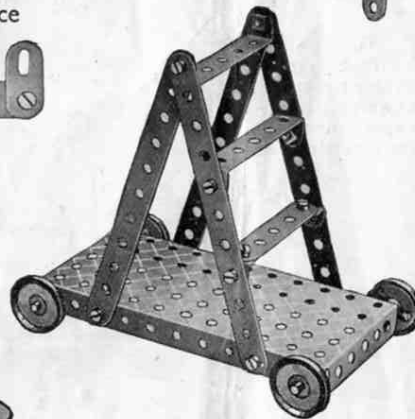
A4. Grill



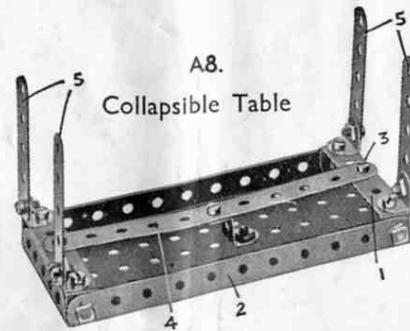
A9. Dog



A10. Ladder on Wheels



A8. Collapsible Table

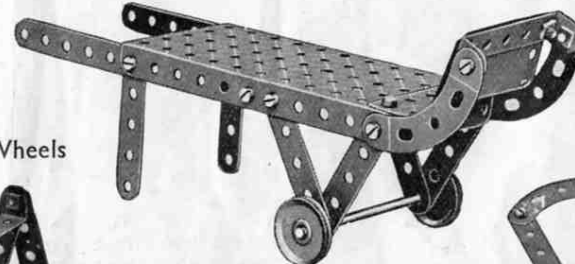


The $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 1 are attached to the $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 2 by lock-nutted Bolts as in Standard Mechanism No. 263. The Bolts 3 are secured to the $5\frac{1}{2}'' \times \frac{1}{2}''$ Strip 4 and their shanks engage with the centre holes in the $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 1, thus maintaining the legs 5 in an upright position. When it is desired to fold up the legs 5, it is only necessary to raise the ends of the Strip 4, thus freeing the Double Angle Strips 1. The table is shown in the folded position in Fig. A8a.

Fig. A8a



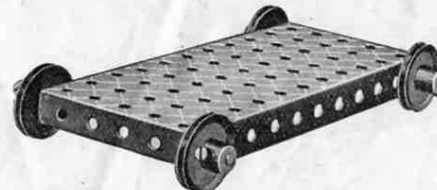
A13. Hand Truck



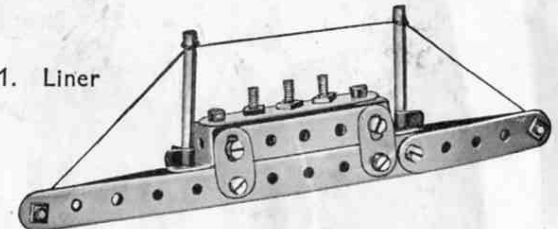
A14. Fire Axe



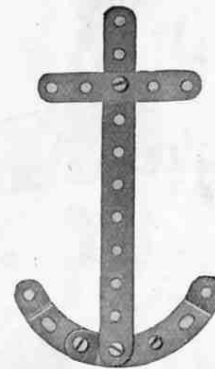
A15. Flat Truck



A11. Liner



A12. Anchor



A16. Go-chair



A17. Telegraph Pole

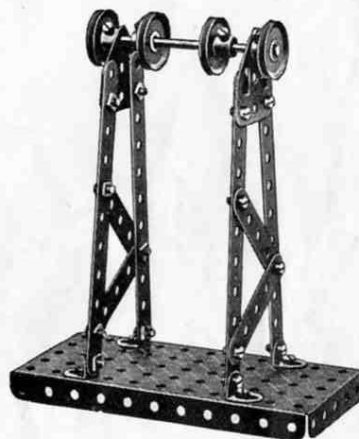


These Models can be built with **MECCANO** Outfit A (or Outfits O and Oa)

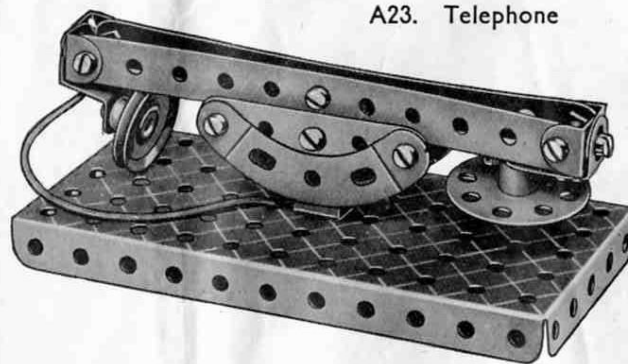
A18. Music Stool



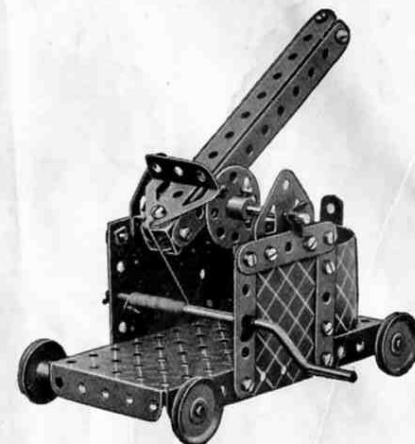
A21. Shafting Standard



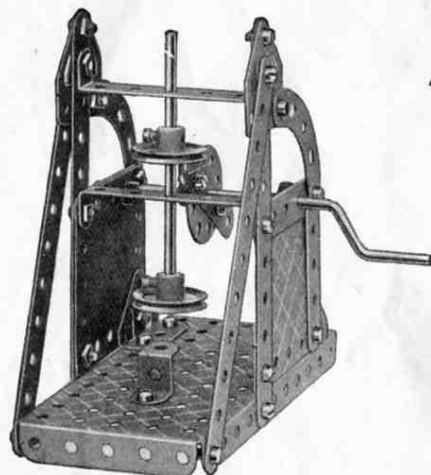
A23. Telephone



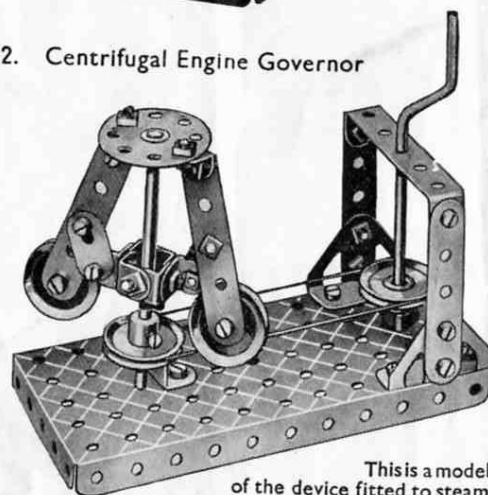
A26. Anti-aircraft Gun



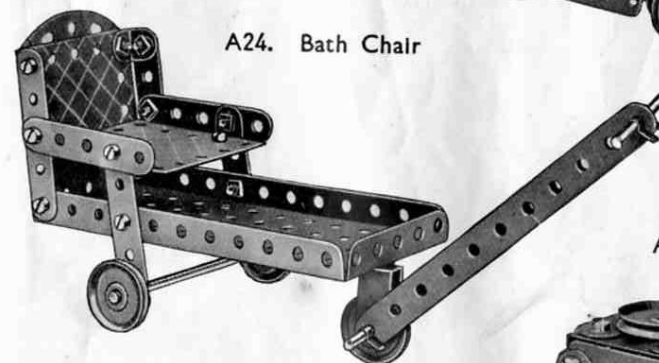
A19. Ore Crusher



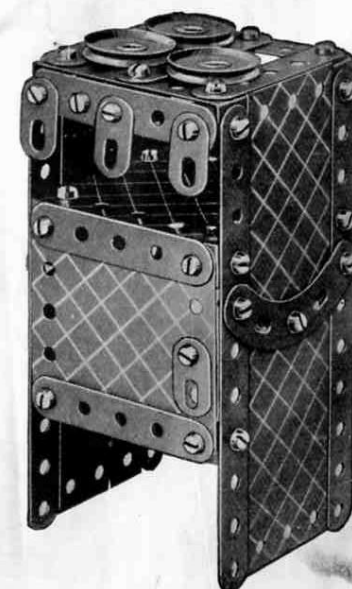
A22. Centrifugal Engine Governor



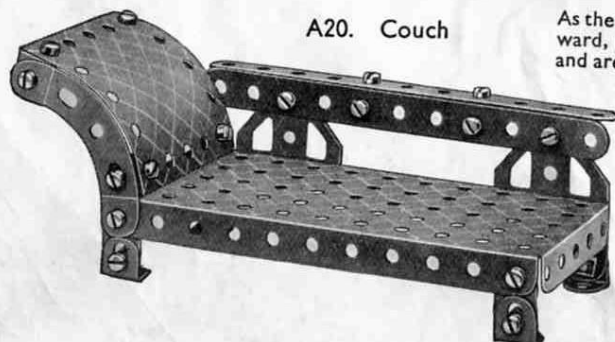
A24. Bath Chair



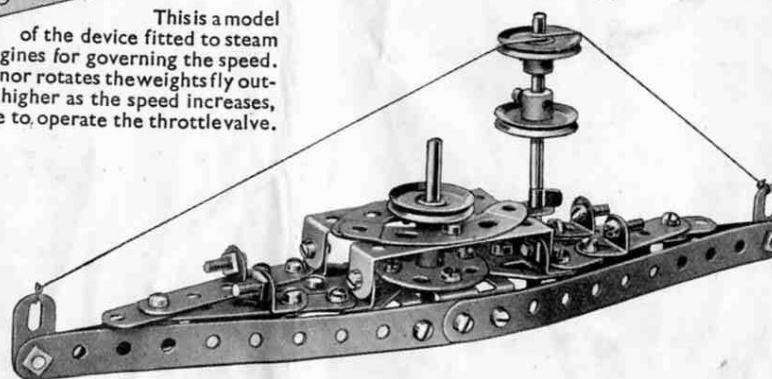
A27. Gas Stove



A20. Couch

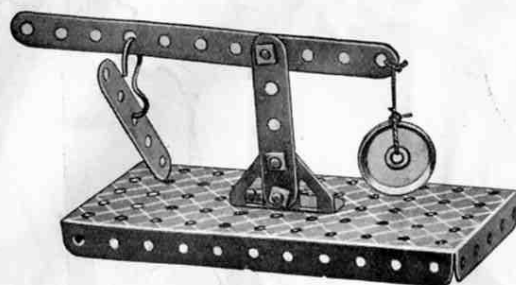


A25. Battleship

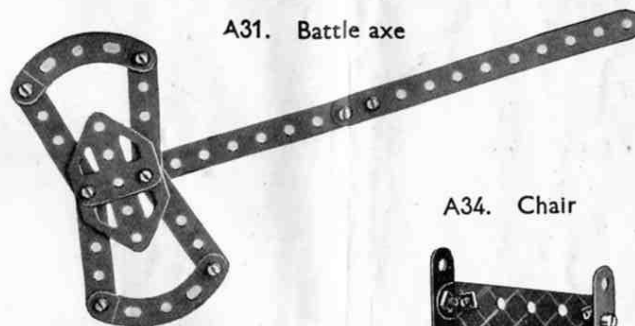


This is a model of the device fitted to steam engines for governing the speed. As the governor rotates the weights fly outward, rising higher as the speed increases, and are made to operate the throttle valve.

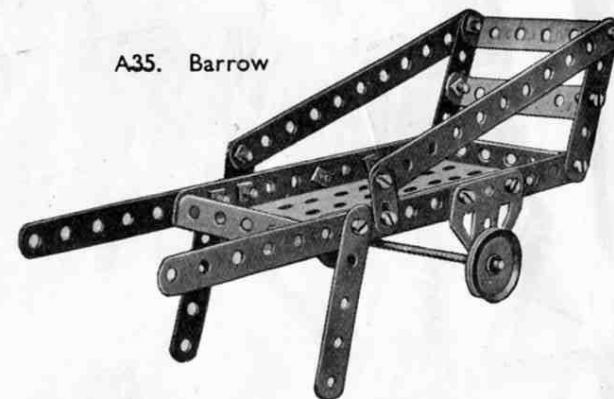
A28. Lever of the First Order



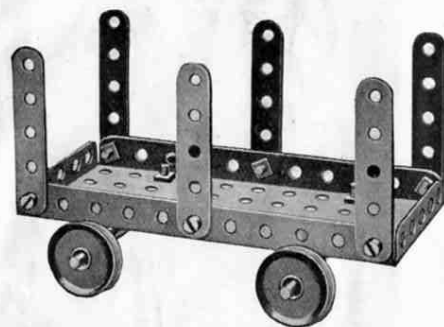
A31. Battle axe



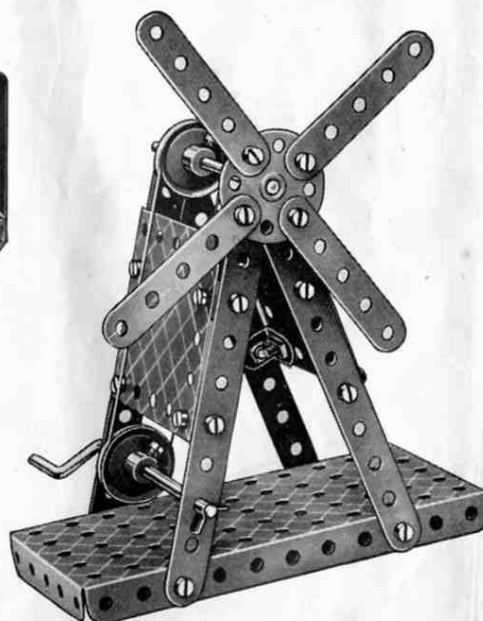
A35. Barrow



A29. Timber Truck



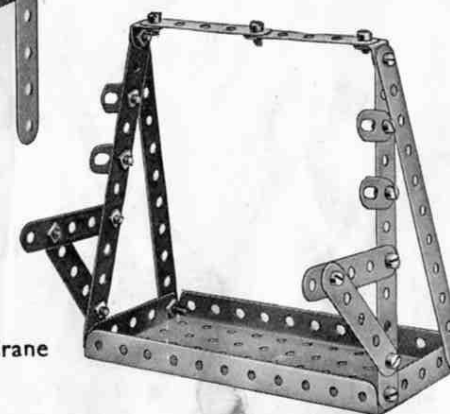
A32. Windmill



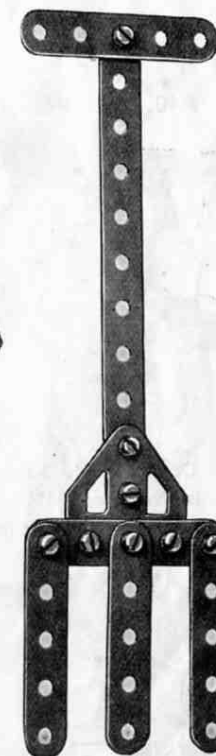
A34. Chair



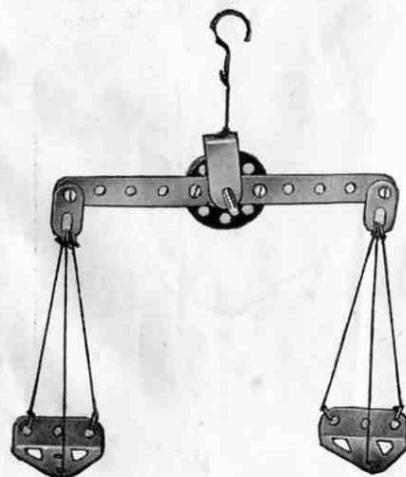
A36. Pen Rack



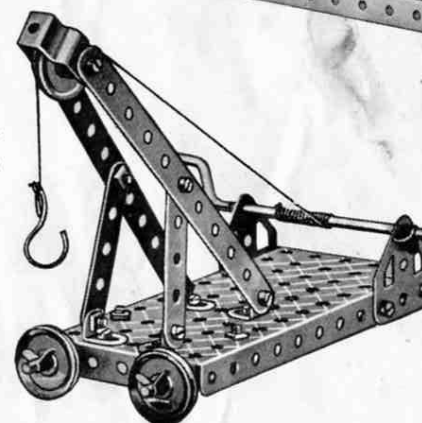
A38. Fork



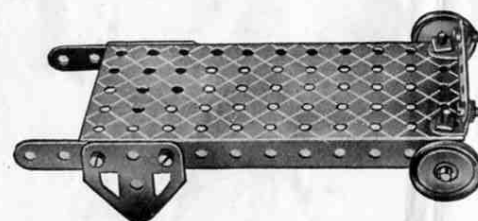
A30. Hanging Scales



A37. Revolving Crane

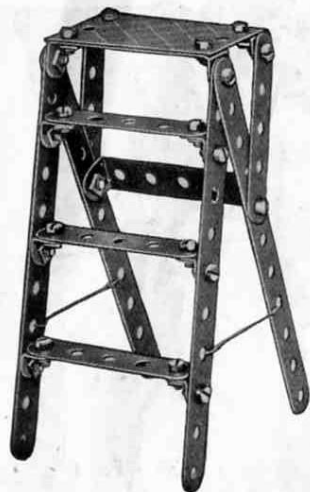


A33. Flat Truck

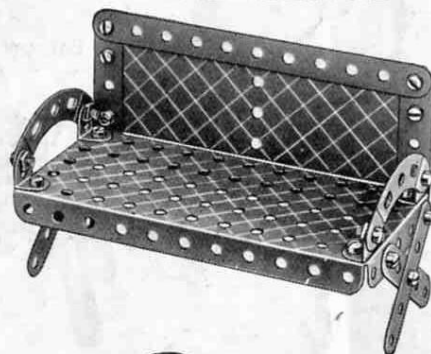


The back of the crane rests on a Flat Bracket bolted to the end flange. An Anchoring Spring is slipped on to the Crank Handle for securing the hoisting cord.

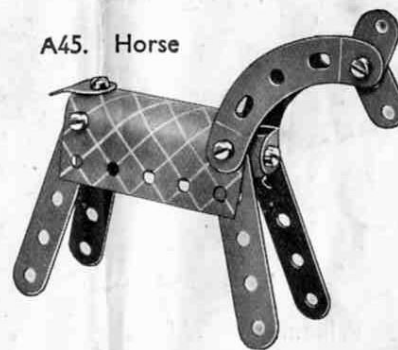
A39. Step Ladder



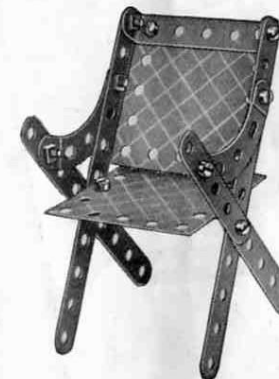
A42. Garden Seat



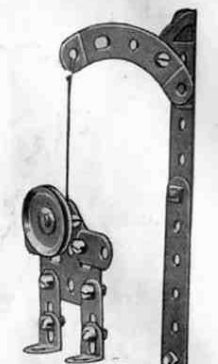
A45. Horse



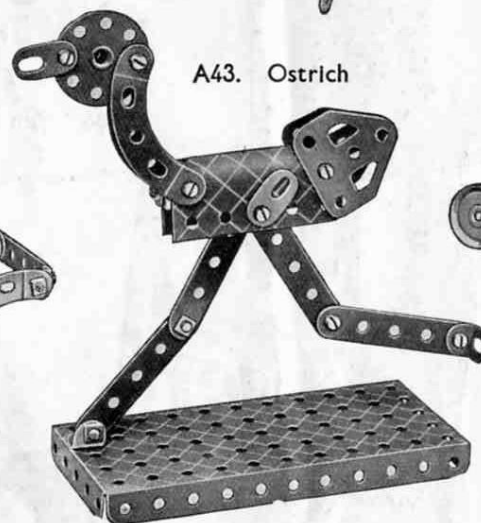
A48. Arm Chair



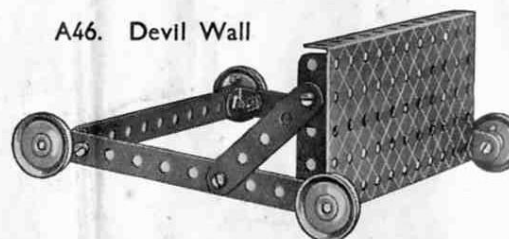
A49. Gallows



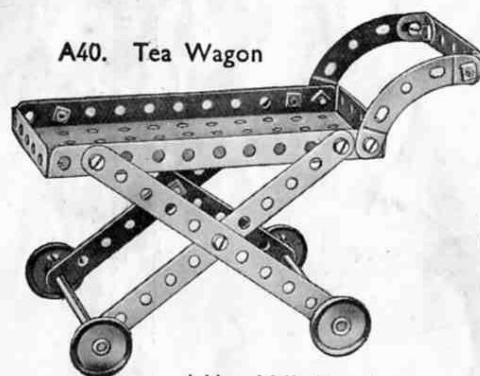
A43. Ostrich



A46. Devil Wall

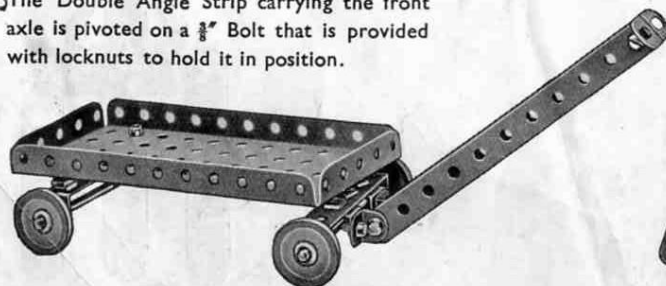


A40. Tea Wagon



A41. Milk Truck

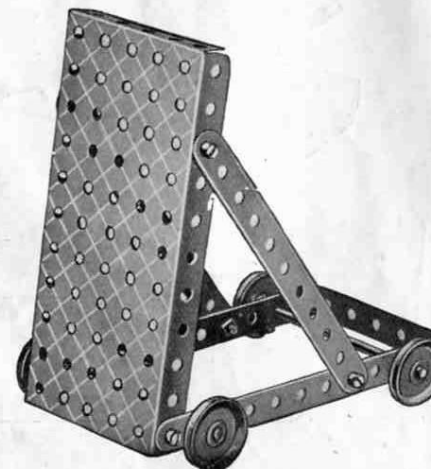
The Double Angle Strip carrying the front axle is pivoted on a $\frac{3}{8}$ " Bolt that is provided with locknuts to hold it in position.



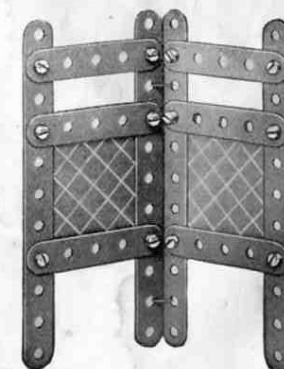
A44. Giraffe



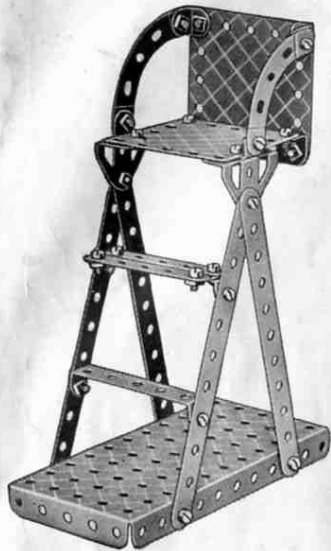
A47. Gravel Sifter



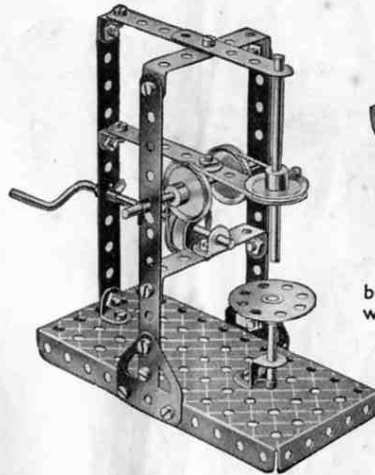
A50. Fire Screen



A51. Umpire's Seat

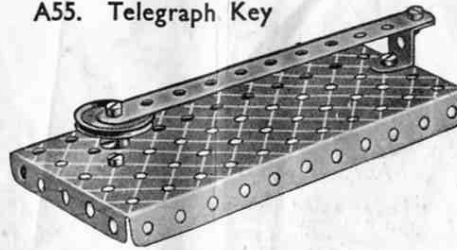


A52. Drilling Machine



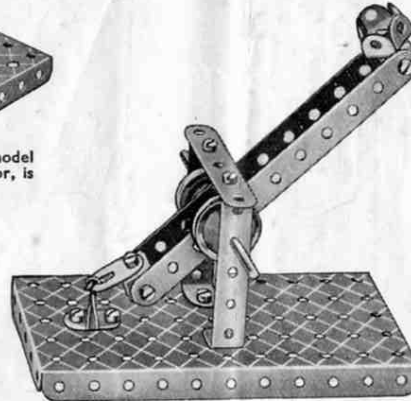
An alternative design of this model (A52M), fitted with the *Magic Motor*, is shown at the end of this section.

A55. Telegraph Key

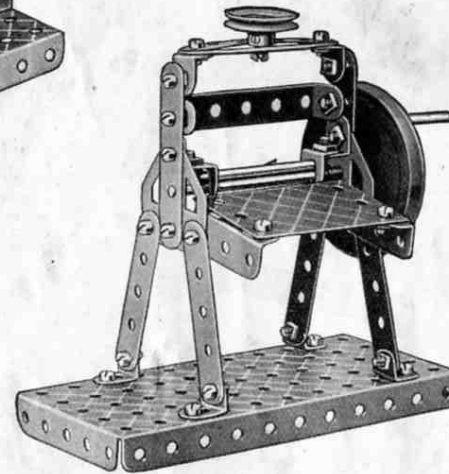


A56. Catapult

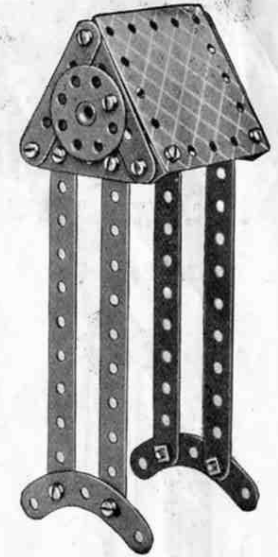
The pivoted arm is connected to the base by means of a short piece of elastic which is not provided in the Outfit.



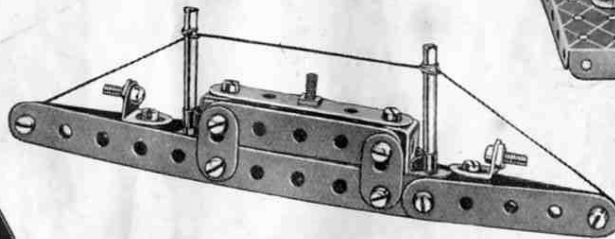
A58. Wringing Machine



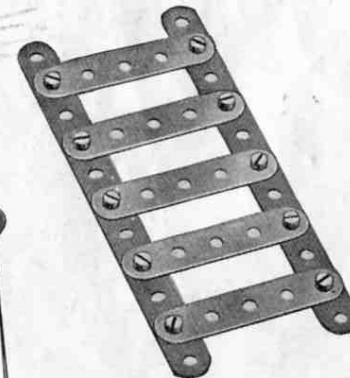
A60. Grandfather Clock



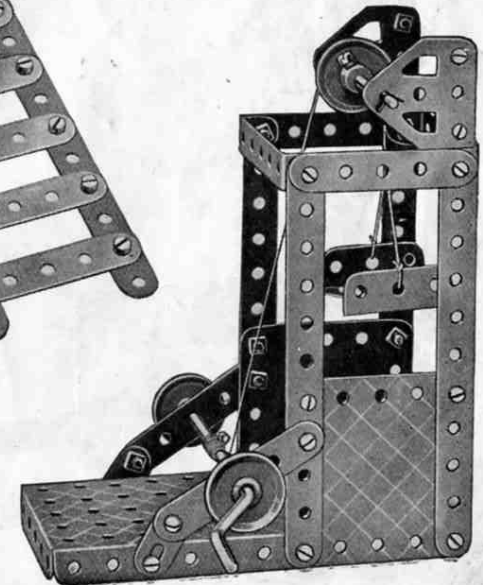
A53. Cruiser



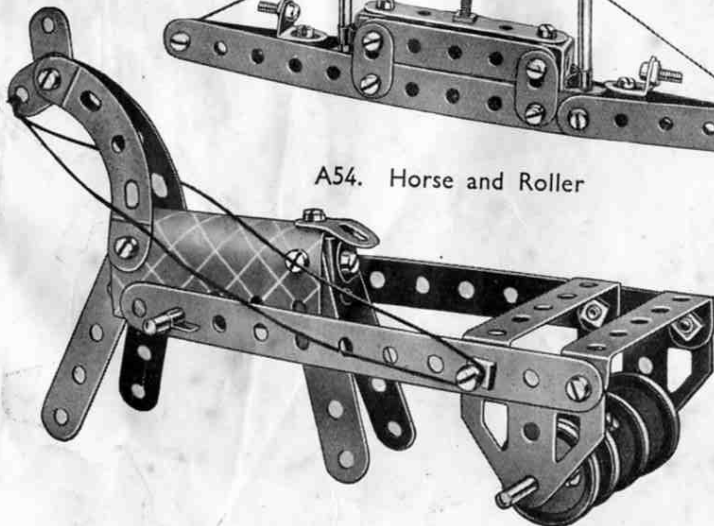
A59. Ladder



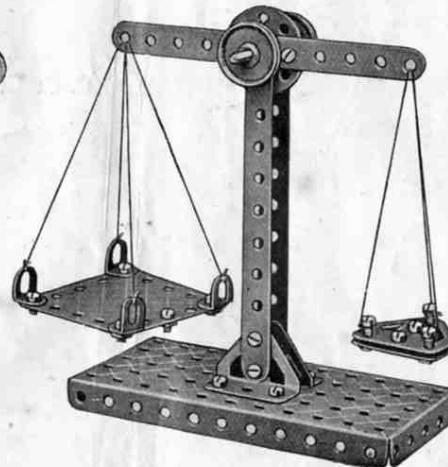
A61. Pit-head Gear



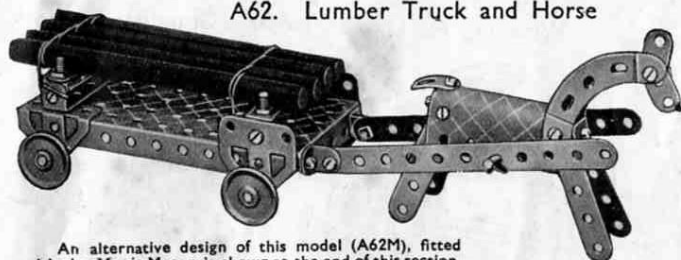
A54. Horse and Roller



A57. Scales

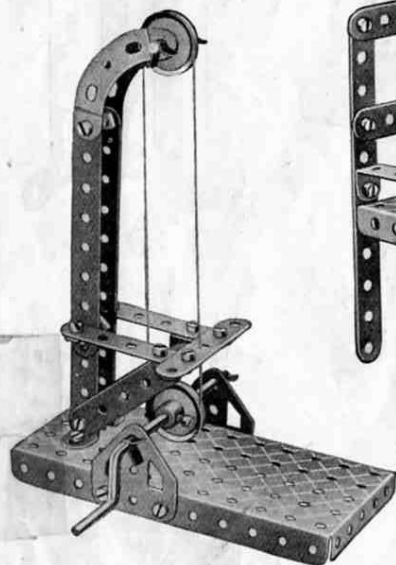


A62. Lumber Truck and Horse

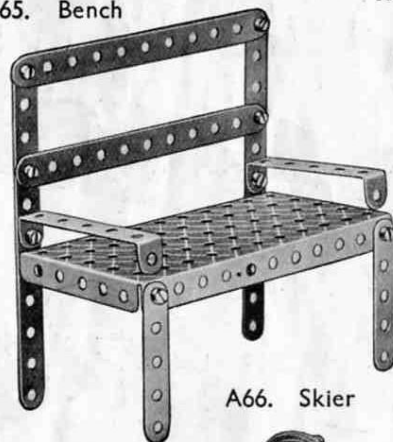


An alternative design of this model (A62M), fitted with the *Magic Motor*, is shown at the end of this section.

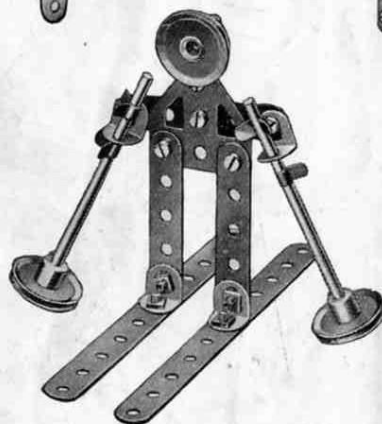
A63. Band Saw



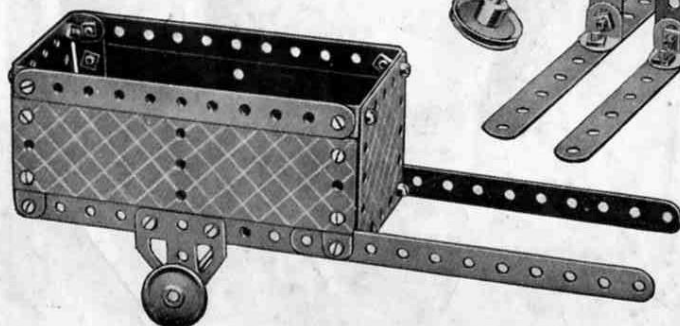
A65. Bench



A66. Skier



A64. Cart

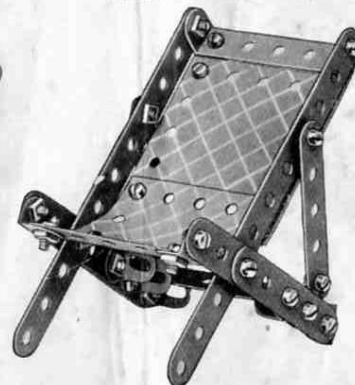


A67. Magic Plate

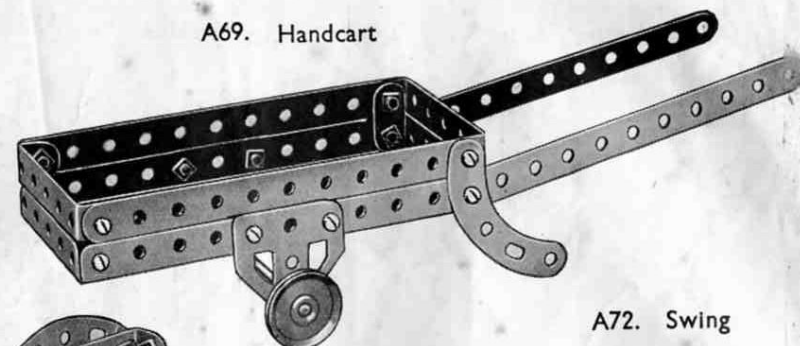
The cord is wound once round a 2" Axle Rod that is journalled in a $\frac{3}{4}$ " Reversed Angle Bracket, which is bolted to the Plate. If the cord is held loosely the Plate will drop, but as soon as the cord is tightened the Plate becomes immovable.



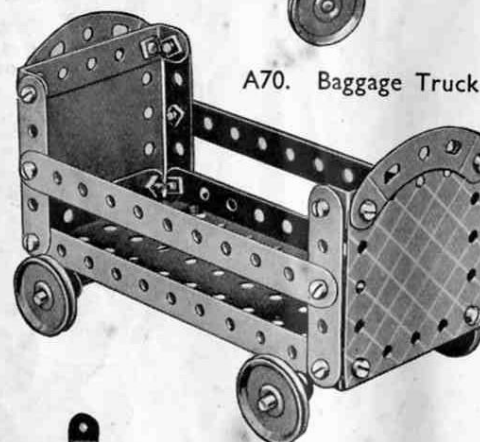
A68. Deck Chair



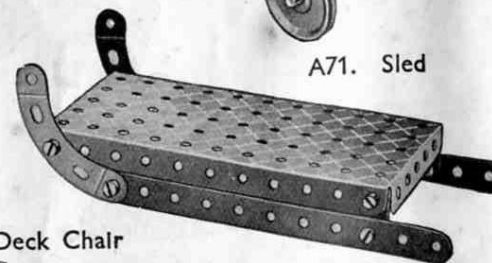
A69. Handcart



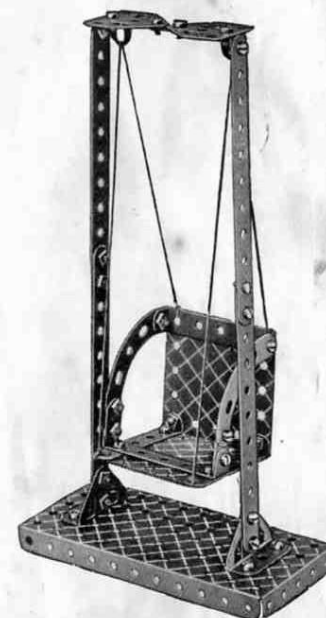
A70. Baggage Truck



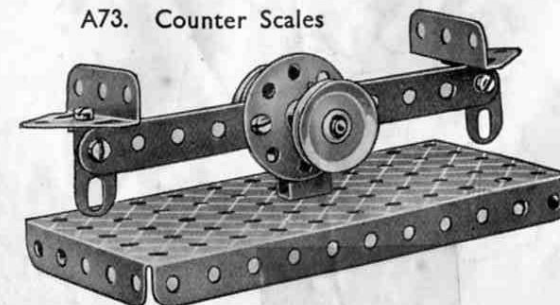
A71. Sled



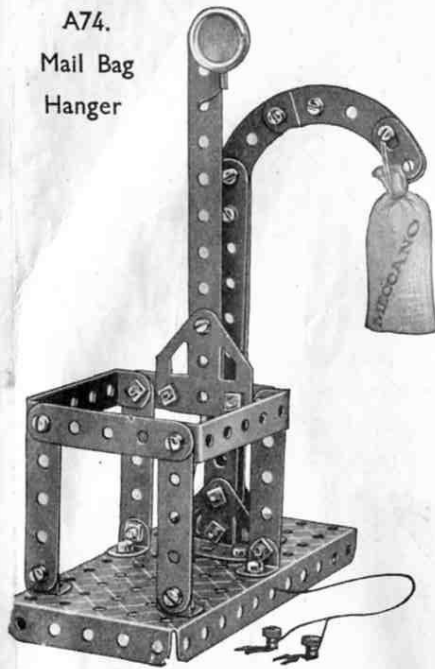
A72. Swing



A73. Counter Scales



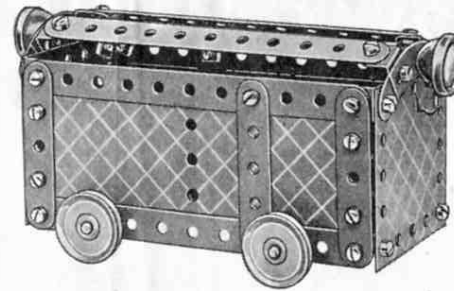
A74.
Mail Bag
Hanger



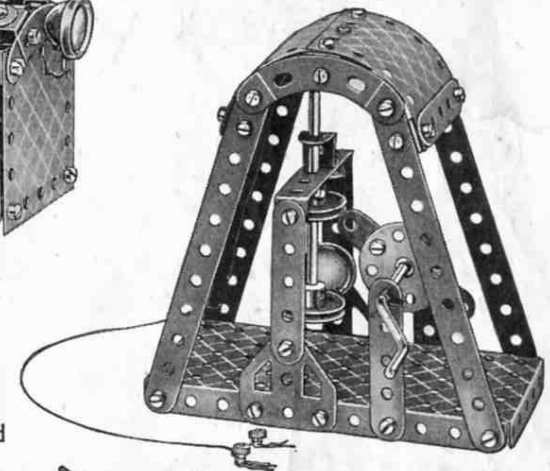
A76.
Level Crossing
Barrier



A79. Pullman Car

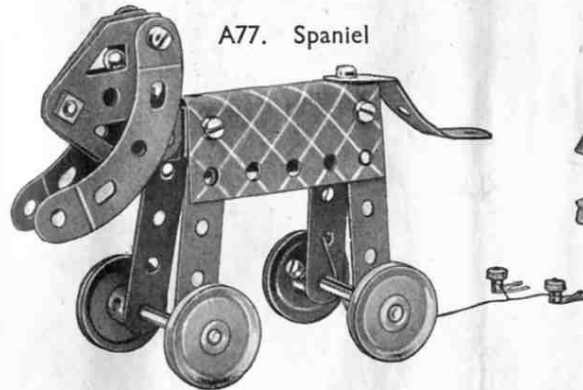


A82.
Stamping Mill

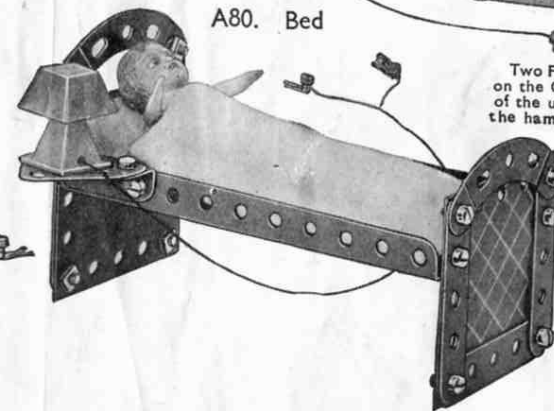


Two Flat Brackets are bolted to the Bush Wheel on the Crank Handle. They strike the underside of the upper Pulley on the vertical Rod, to raise the hammer.

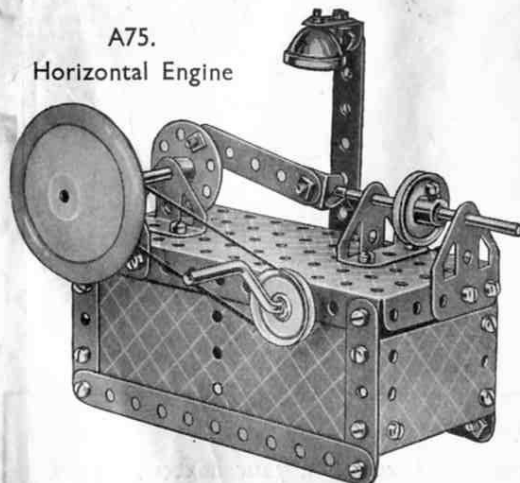
A77. Spaniel



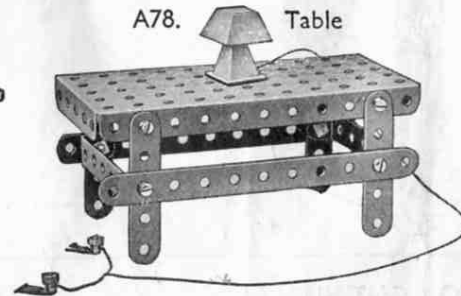
A80. Bed



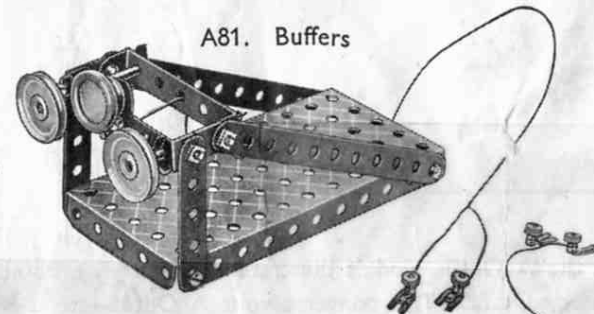
A75.
Horizontal Engine



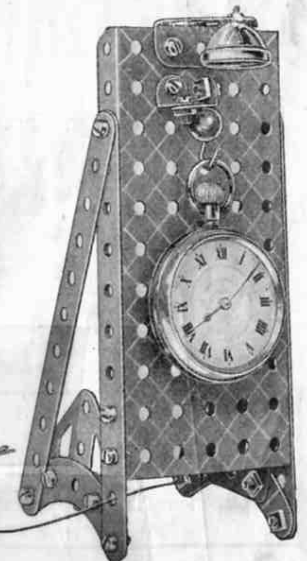
A78. Table



A81. Buffers



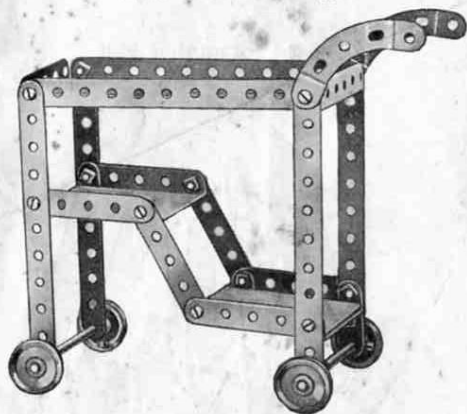
A83.
Watch Stand



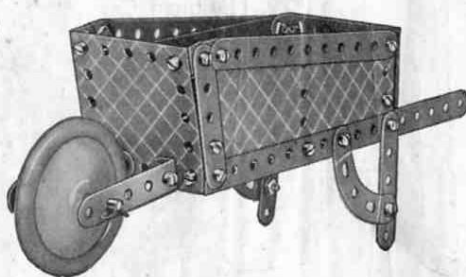
An alternative design of this model (A75M), fitted with the Magic Motor, is shown at the end of this section.

This page shows examples of the use of the Meccano Lighting Set, described on page 2 of cover

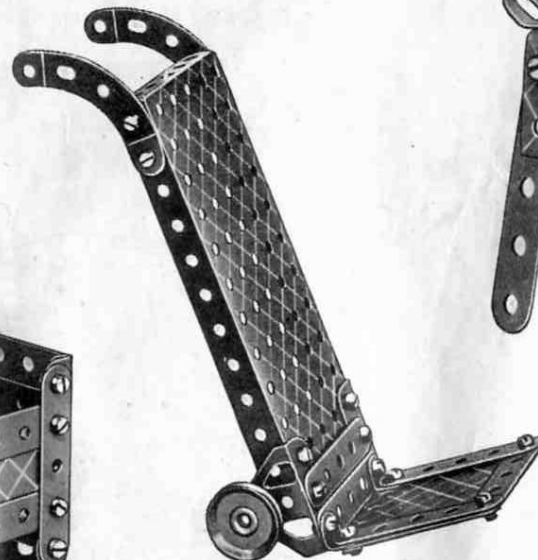
A84. Dinner Wagon



A87. Wheelbarrow



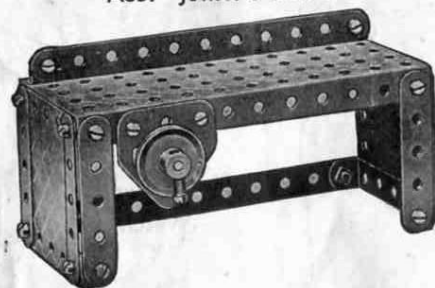
A90. Porter's Trolley



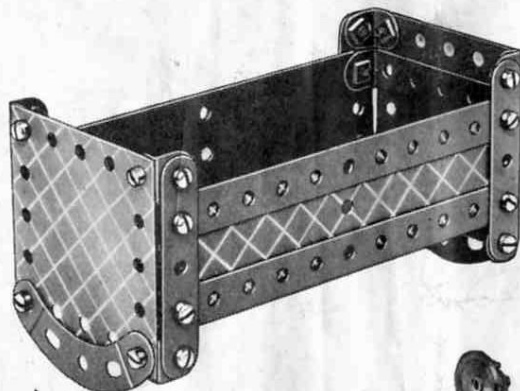
A92. Calf



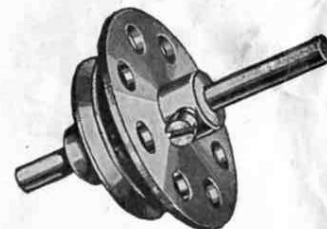
A85. Joiner's Bench



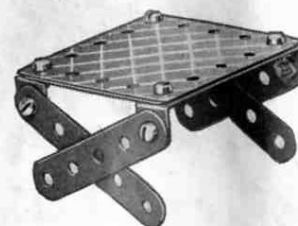
A88. Cot



A93. Top

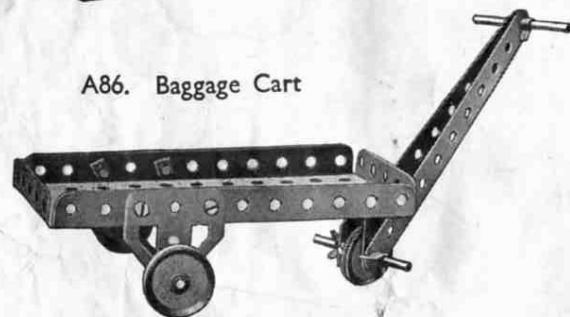


A91. Coffee Table

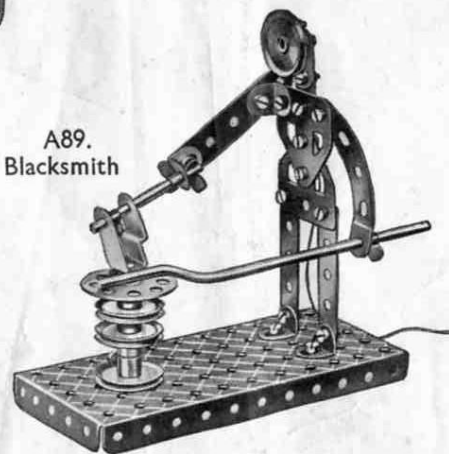


A handle for spinning the Top can be made from a $5\frac{1}{2}$ " strip with a Reversed Angle Bracket at the end. Cord is wound round the Rod and the handle is fitted on before pulling the cord to spin the Top.

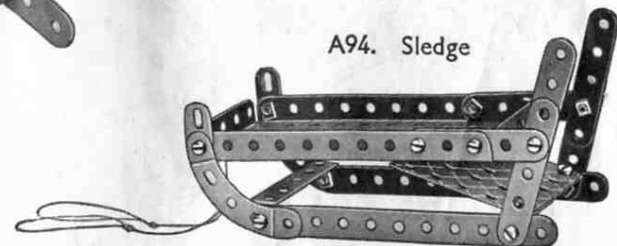
A86. Baggage Cart



A89. Blacksmith



A94. Sledge



HOW TO CONTINUE

When you have built the A Outfit Models illustrated, and fitted a number of them with the Meccano *Magic Motor* (see next page), your next step is to purchase an Aa Accessory Outfit. This converts your A Outfit into a B and enables you to build bigger and better models.

The greatest thrill in Meccano model-building is experienced when a model is set to work by means of a Meccano Motor. The illustrations below show how the Meccano *Magic Motor* can be fitted without any difficulty to Outfit A Models of various types. Fit the model you have just built with one of these wonderful Motors, and enjoy the fun of watching it work just like the real thing. Models A52M, A62M and A75M are more elaborate variations of Manual models A52, A62 and A75. Try your hand at re-designing other models in a similar manner and become a real inventor.

A95. BREAKDOWN CRANE

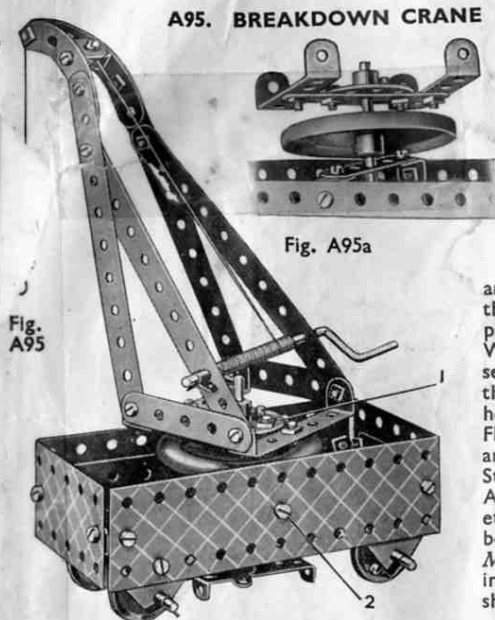


Fig. A95

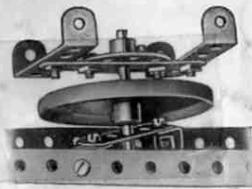


Fig. A95a

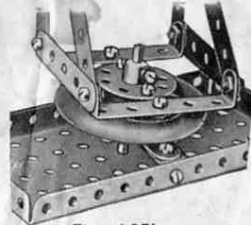


Fig. A95b

The crane swivels on an Axle Rod secured in the Bush Wheel 1 and passed through a Road Wheel before being inserted in a $2\frac{1}{2}$ " Strip and through the centre hole of a $5\frac{1}{2}$ " x $2\frac{1}{2}$ " Flanged Plate. The arrangement of the $2\frac{1}{2}$ " Strip can be seen in Fig. A95b, the Angle Brackets being fixed by the bolts 2 (Fig. A95). The *Magic Motor* is mounted in the same manner as shown in Fig. A62Ma.

A96. TRIP HAMMER

The hammer is pivoted at 1 on two Angle Brackets that are bolted through the slots to the centre hole of the $5\frac{1}{2}$ " Strip. A 2" Axle Rod passes through the Angle Brackets and is supported in Trunnions bolted to the Plate.

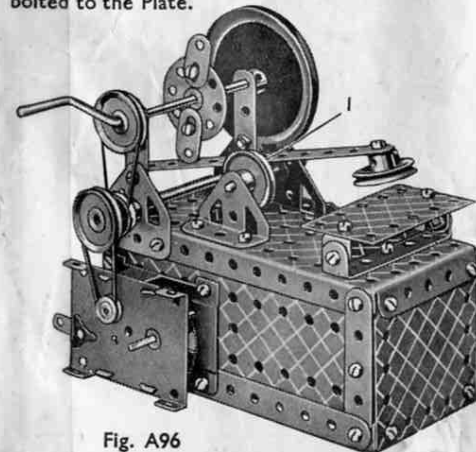


Fig. A96

A52M. DRILLING MACHINE

The drill Rod is journalled at the top in a Flat Bracket bolted to two Angle Brackets, and at its lower end in two Angle Brackets 1 that are bolted to a Strip attached to the vertical member of the drill. The drill table is supported by a $2\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip 2. A Spring Clip retains the free Pulley 3 in place.

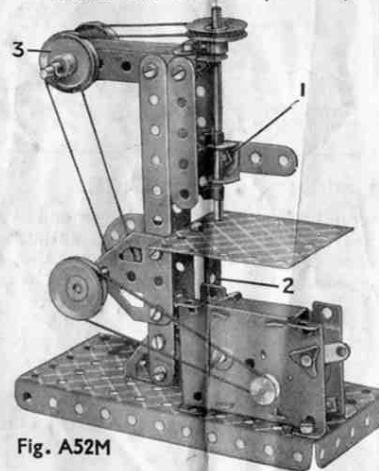


Fig. A52M

A75M. HORIZONTAL ENGINE

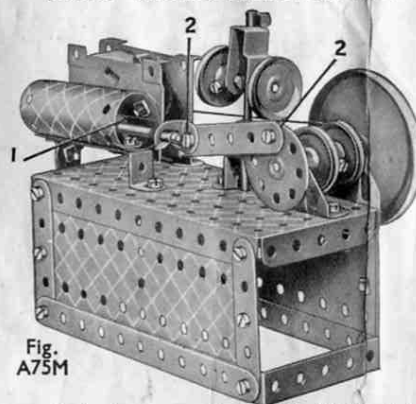


Fig. A75M

The cylinder is composed of a $2\frac{1}{2}$ " x $2\frac{1}{2}$ " Flexible Plate and a $2\frac{1}{2}$ " x $1\frac{1}{2}$ " Flexible Plate, and two Angle Brackets are bolted inside the cylinder to serve as guides for the piston rod. One of the Brackets is seen at 1. The bolts 2 are locknuttred to form pivots.

A62M. LUMBER TRUCK AND HORSE

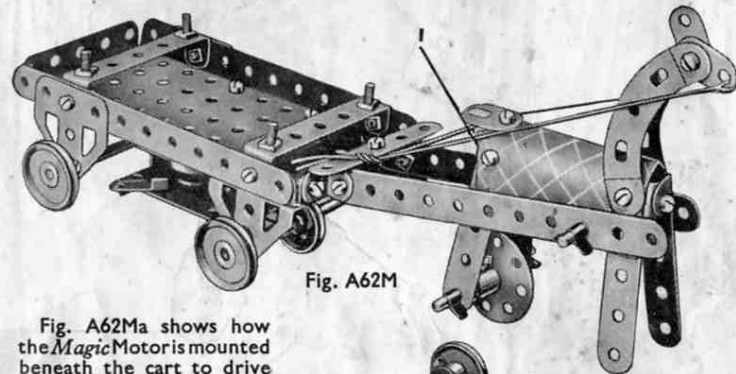


Fig. A62M

Fig. A62Ma shows how the *Magic Motor* is mounted beneath the cart to drive the front Wheels. The Pulley supplied with the Motor is mounted on the front Axle, and the rubber band should be fitted as shown. Two Angle Brackets secure the front legs of the horse, and this construction is duplicated at 1 for the hind legs. The forelegs are kept off the ground by means of the reins.

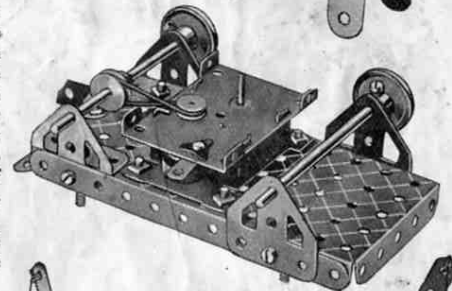


Fig. A62Ma

A97. ROUNDABOUT

Fig. A97a shows how the bearing for the vertical Rod is formed. The Rod is driven from the *Magic Motor* by means of a rubber band passed round the 1" Pulley and round the Motor Pulley as can be seen in Fig. A97.

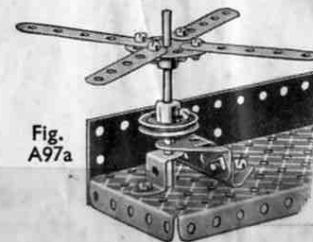


Fig. A97a

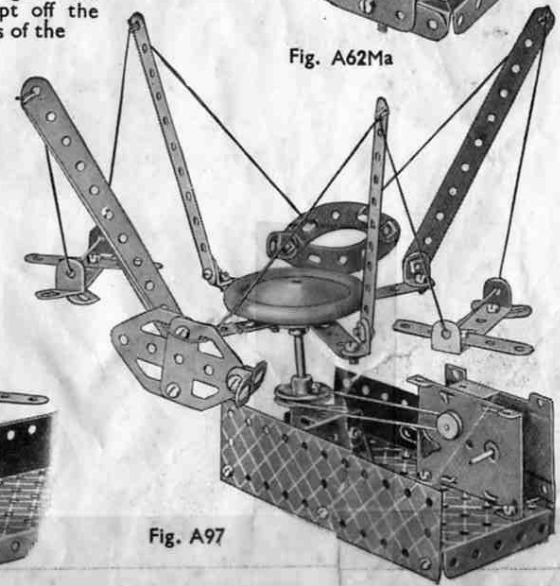
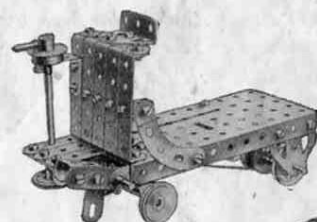


Fig. A97

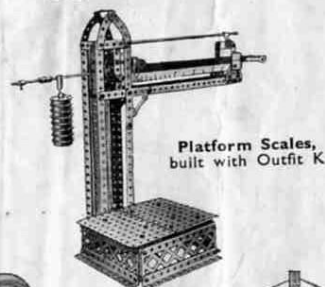
Build Bigger and Better Models



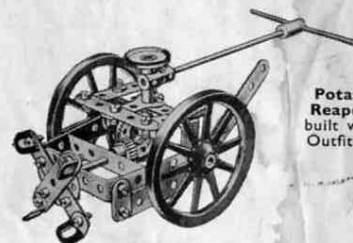
Gantry Crane,
built with Outfit H



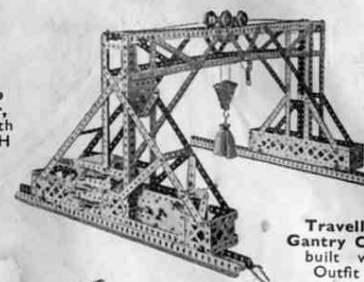
Electric Truck,
built with Outfit E



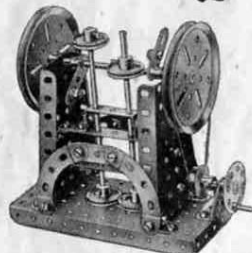
Platform Scales,
built with Outfit K



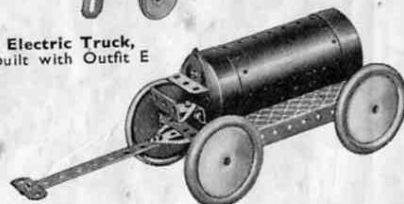
**Potato
Reaper,**
built with
Outfit H



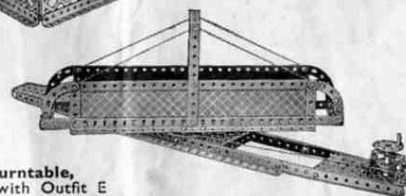
**Travelling
Gantry Crane,**
built with
Outfit L



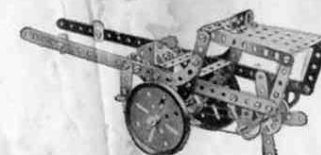
Stamping Mill,
built with Outfit E



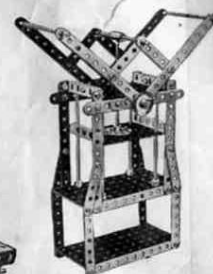
Tank Wagon,
built with Outfit F



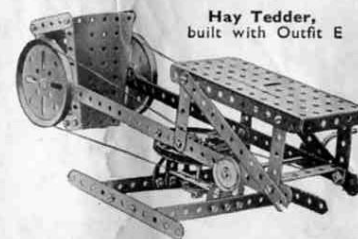
Turntable,
built with Outfit E



Hay Tedder,
built with Outfit E



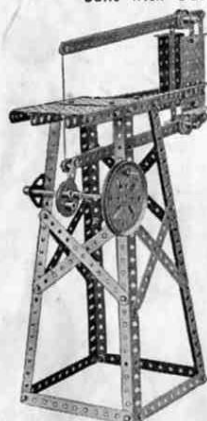
Bale Press,
built with Outfit G



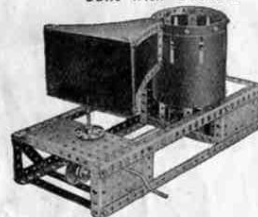
**Giant Foundry
Ladle,**
built with
Outfit C



Letter Balance,
built with Outfit E



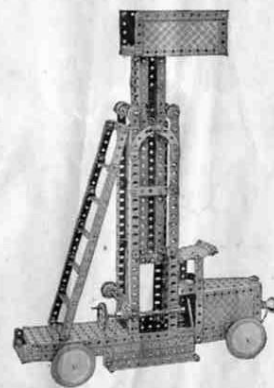
Mechanical Fret Saw,
built with Outfit H



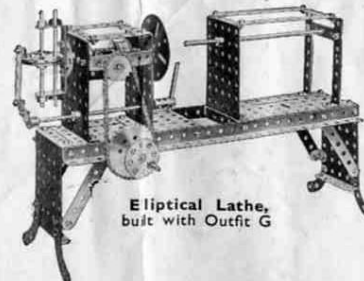
Kinetograph,
built with Outfit F



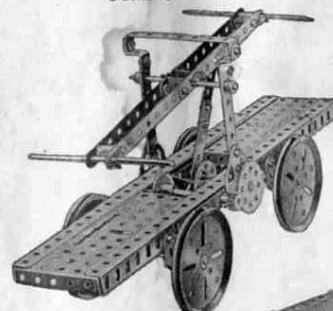
Racing Seaplan,
built with Outfit L



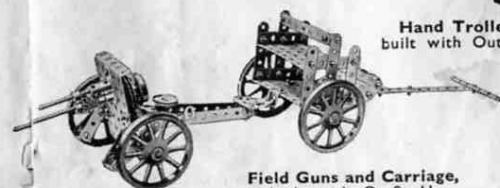
Tower Wagon,
built with Outfit F



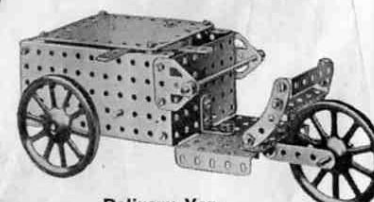
Elliptical Lathe,
built with Outfit G



Hand Trolley,
built with Outfit F



Field Guns and Carriage,
built with Outfit H



Delivery Van,
built with Outfit H

Keep adding to your Outfit

The more Meccano parts you have, the bigger and better the models you are able to build. Keen and enthusiastic model-builders keep adding to their Outfits, until they are able to build all the wonderful models shown in the Meccano Manuals.

The model-building possibilities of the Meccano System are limitless. All the fine models illustrated on this page are examples of the types you will be able to build as your Outfit develops.

You can purchase separate Meccano parts as you require them, or, if you prefer, you can purchase Accessory Outfits that connect all the main Outfits.

CONTENTS OF MECCANO OUTFIT A

No.	Description.	Quantity.	No.	Description.	Quantity.	No.	Description.	Quantity.
2	Perforated Strips, $5\frac{1}{2}"$...	4	36	Screwdrivers ...	1	126	Trunnions ...	2
5	" " $2\frac{1}{2}"$...	6	37	Nuts and Bolts, $\frac{7}{32}"$...	36	126a	Flat Trunnions ...	2
10	Flat Brackets ...	4	37a	Nuts ...	4	176	Anchoring Springs for Cord ...	1
12	Angle Brackets, $\frac{1}{2}" \times \frac{1}{2}"$...	8	40	Hanks of Cord ...	1	186	Driving Bands ...	1
16	Axle Rods, $3\frac{1}{2}"$...	2	44	Cranked Bent Strips ...	1	187	Road Wheels ...	1
17	" " $2"$...	2	48a	Double Angle Strips, $2\frac{1}{2}" \times \frac{1}{2}"$...	2	188	Flexible Plates, $2\frac{1}{2}" \times 1\frac{1}{2}"$...	2
19s	Crank Handles ($3\frac{1}{2}"$ shaft) ...	1	52	Perforated Flanged Plates, $5\frac{1}{2}" \times 2\frac{1}{2}"$...	1	189	" " $5\frac{1}{2}" \times 1\frac{1}{2}"$...	2
22	Pulley Wheels, $1"$ (fast) ...	4	57c	Loaded Hooks, small ...	1	190	" " $2\frac{1}{2}" \times 2\frac{1}{2}"$...	2
24	Bush Wheels ...	1	90a	Curved Strips, $2\frac{1}{2}"$, $1\frac{3}{8}"$ radius ...	2	199	Curved Plates U Section ...	1
34	Spanners ...	2	111c	Bolts, $\frac{3}{8}"$...	4	200	" " $1\frac{1}{8}"$ radius ...	2
35	Spring Clips ...	4	125	Reversed Angle Brackets, $\frac{1}{2}"$...	1			

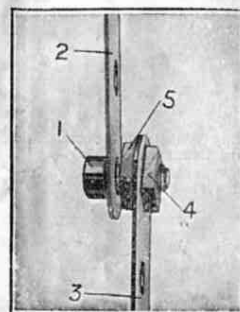


Fig. A

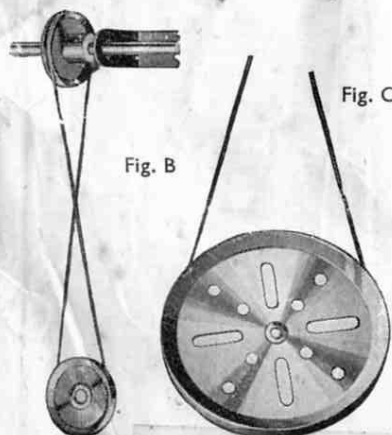


Fig. B

Fig. C

MECCANO MECHANISMS

When a boy has built all the models illustrated in these Manuals he will wish, not only to increase the size of his Outfit so that he can build bigger models, but also to start constructing models of his own design. It is now that the real inventive spirit of the Meccano boy asserts itself, and if he builds thoughtfully there is no reason why he should not in time become familiar with almost every form of engineering structure and mechanical movement.

In order to assist youthful inventors, we have collected and classified a number of Meccano movements that have, to a certain extent, become standardised. That is to say, these movements may be applied to more than one model—in most cases without any alteration to the standard movements, but in a few instances with some slight modifications. These movements are published in a Manual entitled "Meccano Standard Mechanisms" which may be obtained from any Meccano dealer.

The following examples have been selected from these two Manuals because of their general utility.

LOCKNUTS

One of the most useful of all Meccano connections is the locknotted joint, which prevents a pivot, formed from a nut and bolt, from working loose. As will be seen from Fig. A, the bolt 1 passes through the Strip 2 and is securely held to Strip 3 by means of two nuts 4 and 5, which are screwed tightly against opposite sides of the Strip. Sufficient space is left between the nut 5 and the bolt head to allow free movement of the Strip 2.

CORD TRANSMISSION

In small models where it is necessary to alter the speed or power of a drive, Pulleys of varying diameters connected together by cord may be used. Fig. C shows how a 6:1 ratio can be obtained by using a 3in. and $\frac{1}{2}$ in. Pulley. In Fig. B a 1:1 ratio transmission drive is shown for driving between two shafts placed at right angles.

BAND BRAKE

A simple method of slowing down or stopping a shaft is shown in Fig. D. A Strip 1, which may be weighted if desired, is secured by a locknotted bolt (see Fig. A) to the frame of the model. A short length of cord attached to this Strip passes round a $1"$ fast Pulley 3 secured on the shaft 4.

STEERING MECHANISM

Greater interest may be given to a small model car or lorry by arranging the front wheels to steer. One simple way of accomplishing this is shown in Fig. E. The Crank is secured to the lower end of the steering column and the $4\frac{1}{2}"$ Strip is secured by locknuts at each end. If necessary the Crank and Strip may be replaced by a length of cord, passed round the steering column and secured to the extremities of the Double Angle Strip.

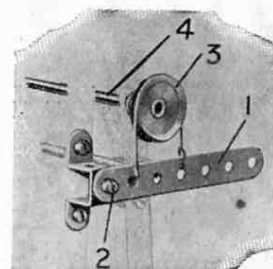


Fig. D

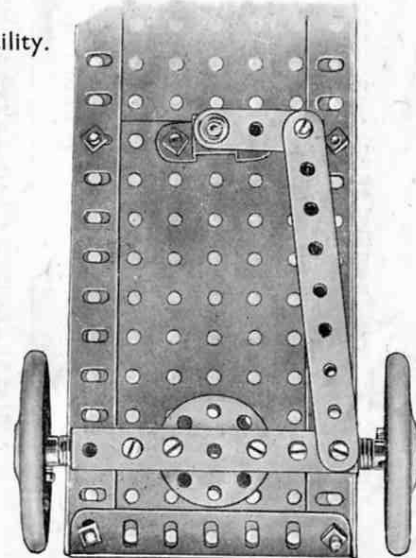


Fig. E

LIST OF MECCANO PARTS

No.	Description.	No.	Description.	No.	Description.	No.	Description.	No.	Description.
1	Perforated Strips, 12"	30	Bevel Gears, 26 teeth	79	Screwed Rods, 8"	124	Reversed Angle Brackets, 1"	168a	Ball Races, flanged disc
1a	" " 7"	30a	" " 16, (Can only be used together)	79a	" " 6"	125	" " 1/2"	168b	" " toothed
1b	" " 5"	30c	" " 1 1/2, 48, (used together)	80	" " 5"	126	Trunnions	168c	" " Casing, complete with balls
2	" " 4"	31	Gear Wheels, 1", 38 teeth	80a	" " 3"	126a	Flat Trunnions	169	Digger Buckets
2a	" " 3"	32	Worms	80b	" " 4"	127	Simple Bell Cranks	170	Eccentrics, 1/2" throw
3	" " 3"	34	Spanners	81	" " 2"	128	Boss Bell Cranks	171	Socket Couplings
4	" " 3"	34b	Box Spanners	82	" " 1"	129	Rack Segments, 3" diam.	172	Pendulum Connections
5	" " 2"	35	Spring Clips	89	5 1/2" Curved Strips, 10" radius	130	Eccentrics, Triple Throw	173	Rail Adaptors
6	" " 2"	36	Screwdrivers	89a	3 1/2" Curved Strips, 10" radius, cranked, 1 1/2"	131	Dredger Buckets	174	Grease Cups
6a	" " 1 1/2"	36a	" " Extra Long	89b	4" Curved Strips, cranked, 4 1/2"	132	Flywheels, 2 1/2" diam.	175	Flexible Coupling Units
7	Angle Girders, 24"	36b	" " Special	90	2 1/2" Curved Strips, 2 1/2" radius	133	Corner Brackets, 1 1/2"	176	Anchoring Springs for Cord
7a	" " 18"	37	Nuts and Bolts, 7/32"	90a	2 1/2" Curved Strips, 2 1/2" radius, cranked, 1 1/2"	133a	" " 1"	177	Shafting Standards, large
8	" " 12"	37a	Nuts	94	Sprocket Chain, 40" length	134	Crank, Shanks, 1" stroke	178	" " small
8a	" " 9"	37b	Bolts, 7/32"	95	" " Wheels, 36 teeth, 2" diam.	135	Theodolite Protractors	179	Rod Sockets
8b	" " 7"	38	Washers	95a	" " 28	136	Handrail Supports	180	Toothed Gear Rings, 3 1/2" diam.
9	" " 5"	40	Hanks of Cord	95b	" " 56	136a	" " Couplings		(133 external teeth; 95 internal teeth)
9a	" " 4"	41	Propeller Blades	96	" " 18	137	Wheel Flanges	181	Bobbins
9b	" " 3"	43	Springs	96a	" " 14	138	Ships' Funnels	182	Insulating Bushes, 6BA
9c	" " 3"	44	Cranked Bent Strips	97	Braced Girders, 3 1/2" long	*138a-z	" " Raked	183	Insulating Washers, 6BA
9d	" " 2"	45	Double	97a	" " 3"	139	Flanged Brackets (right)	184	Lamp Holders
9e	" " 2"	46	Double Angle Strips, 2 1/2" x 1"	98	" " 2 1/2"	139a	" " (left)	184a	Lamps, 2 1/2" volt
9f	" " 1 1/2"	47	" " 2 1/2" x 1"	99	" " 12 1/2"	140	Universal Couplings	184b	" " 3 1/2"
10	Flat Brackets	47a	" " 3 1/2" x 1"	99a	" " 9"	141	Wire Lines (for suspending clock weights)	184c	" " 6"
11	Double Brackets	48	" " 1 1/2" x 1"	99b	" " 7"	142	Rubber Rings, 3" rim	184d	" " 10"
12	Angle Brackets, 1" x 1"	48a	" " 2 1/2" x 1"	100	" " 5 1/2"	142a	Motor Tyres (to fit 2" diam. rims)	184e	" " 20"
12a	" " 1" x 1"	48b	" " 3 1/2" x 1"	100a	" " 4"	142b	" " 3"	185	Steering Wheels, 1 1/2" diam.
12b	" " 1" x 1"	48c	" " 4 1/2" x 1"	101	Heads, for looms	142c	" " 1"	186	Driving Bands
12c	Obtuse Angle Brackets, 1 1/2" x 1"	48d	" " 5 1/2" x 1"	102	Single Bent Strips	142d	" " 1 1/2"	187	Road Wheels
13	Axle Rods, 11"	50a	Eye Pieces, with boss	103	Flat Girders, 5" long	143	Circular Girders, 5 1/2" diam.	188	Flexible Plates, 2" x 1 1/2"
13a	" " 8"	51	Flanged Plates, 2 1/2" x 1 1/2"	103a	" " 9"	144	Dog Clutches	189	" " 5" x 1 1/2"
14	" " 6"	52	" " 5" x 2 1/2"	103b	" " 12"	145	Circular Strips, 7 1/2" diam. overall	190	" " 2" x 2 1/2"
15	" " 5"	52a	Flat Plates, 5 1/2" x 3 1/2"	103c	" " 4"	146	" " Plates, 6"	191	" " 5" x 2 1/2"
15a	" " 4"	53	Perforated Flanged Plates, 3 1/2" x 2 1/2"	103d	" " 3"	146a	" " 4"	192	" " 5" x 2 1/2"
15b	" " 4"	53a	Flat Plates, 4 1/2" x 2 1/2"	103e	" " 3"	147	Pawls, with Pivot Bolt and nuts	193	Strip Plates, 2 1/2" x 2 1/2"
16	" " 3 1/2"	54	Flanged Sector Plates, 4 1/2" long	103f	" " 2 1/2"	147a	Pawls	194	" " 3 1/2" x 2 1/2"
16a	" " 2 1/2"	55	Perforated Strips, slotted, 2 1/2" long	103g	" " 2"	147b	Pivot Bolts with 2 nuts	195	" " 5 1/2" x 2 1/2"
16b	" " 3"	55a	" " 2"	103h	" " 1"	147c	Pawls without boss	196	" " 9 1/2" x 2 1/2"
17	" " 2"	57	Hooks	103i	" " 7"	148	Ratchet Wheels	197	" " 12 1/2" x 2 1/2"
18	" " 1 1/2"	57a	" " Scientific	104	Shuttles, for looms	149	Collecting Shoes for Electric Locomotives	198	Hinged Flat Plates, 4 1/2" x 2 1/2"
18a	" " 1"	57b	" " Loaded, large	105	Reed Hooks, for looms	150	Crane Grabs	199	Curved Plates, U Section, 9/32" radius
18b	" " 1"	57c	" " small	106	Wood Rollers	151	Pulley Blocks, Single Sheave	200	" " 1 1/2" radius
19	Crank Handles, large, 5"	58	Spring Cord	106a	Sand Rollers	152	" " Two	201	Lamps with Flex
19a	" " small, 3 1/2"	58a	Coupling Screws for Spring Cord	107	Tables for designing machines	153	" " Three	202	Angle Brackets (for Headlamps)
19b	Wheels, 3" diam., with set-screws	58b	Hooks for Spring Cord	108	Architraves	154a	Corner Angle Brackets, 1/2" (right hand)	203	Headlamps
20	Flanged Wheels, 1 1/2" diam.	59	Collars with Grub Screws	109	Face Plates, 2 1/2" diam.	154b	Corner Angle Brackets, 1/2" (left hand)	203a	Headlamp Rims
20a	" " 1 1/2"	61	Windmill Sails	110	Rack Strips, 6 1/2"	155	Rubber Rings (for 1" Pulleys)	203b	Headlamp Bodies
20b	" " 1 1/2"	62	Cranks	110a	" " 6 1/2"	156	Pointers (with boss), 2 1/2" overall	204	Headlamp Nuts
19b 3" dia., with centre boss & set-screw		62a	Threaded Cranks	111	Bolts	157	Fans, 2" diam.	205	" " Glasses (Green, Plain or Red)
19c 6" " " " " " "		62b	Double Arm Cranks	111a	" " "	158a	Signal Arms, Home	206	Lampshades
20a 2" " " " " " "		63	Couplings	111b	" " "	158b	" " Distant	207	Lamp Bases
21 1 1/2" " " " " " "		63a	Octagonal Couplings	111c	" " "	160	Channel Bearings, 1 1/2" x 1" x 1"	207a	Lamps with Standard and Flex
22 1" " " " " " "		63b	Strip Couplings			161	Girder Brackets, 2" x 1" x 1"	208	Battery Tags and Studs
22a 1" " " " " " "		63c	Threaded Couplings			162	Boilers, complete with ends	208a	Washers for Battery Studs
23 " " " " " " "		64	Bosses			162a	" " ends	210	Nuts
24 Bush Wheels		65	Centre Forks			162b	" " without ends	211a	Helical Gears, " (Can only be used together)
25 Pinion Wheels, " diam., " face		66	Weights, 50 grammes			163	Sleeve Pieces	211b	" " 1" (used together)
25a " " " " " "		67	" " 25			164	Chimney Adaptors		
25b " " " " " "		68	Wood screws, 1"			165	Swivel Bearings		
26 " " " " " "		69	Set Screws			166	End		
26a " " " " " "		69a	Grub Screws, 5/32"			167	Geared Roller Bearings		
26b " " " " " "		69b	" " 7/32"			167a	Roller Races, geared, 192 teeth		
27 50 teeth to gear with pinion		70	Flat Plates, 5 1/2" x 2 1/2"			167b	Roller Races for Rollers		
27a 57 " " " " " "		72	" " 2 1/2" x 2 1/2"			167c	Pinions for Roller Bearings, 16 teeth		
27b 133 " " " " " "		73	" " 3 1/2" x 1 1/2"			168	Ball Bearings, 4" diam.		
27c 95 " " " " " "		76	Triangular Plates, 2 1/2"						
28 Contrate Wheels, 1 1/2" diam.		77	" " 1"						
29 " " " " " "		78	Screwed Rods, 11 1/2"						

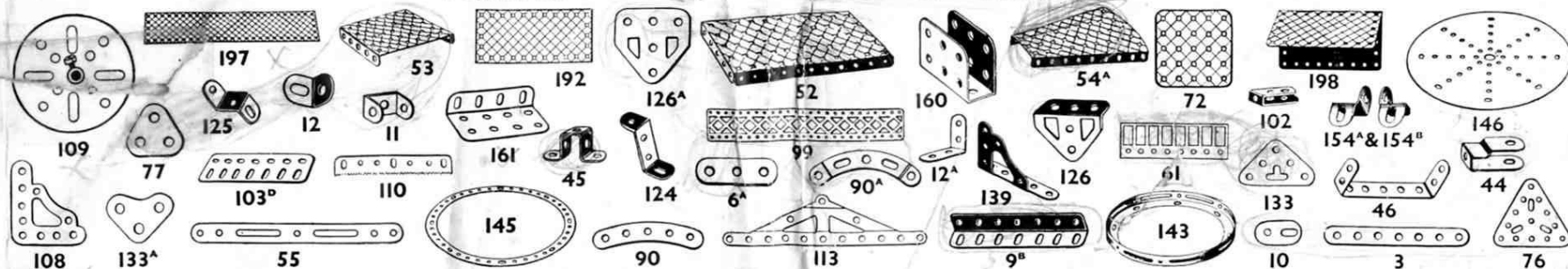
For illustrations of Meccano Parts, refer to the opposite page

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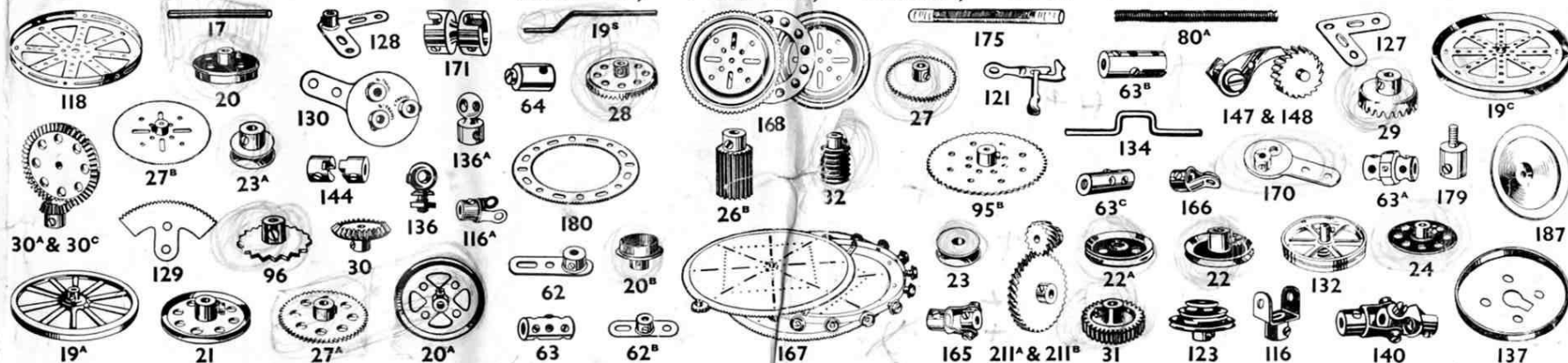
* The series includes 26 Funnels in the correct designs and colours of leading shipping companies.

MECCANO PARTS & ACCESSORIES

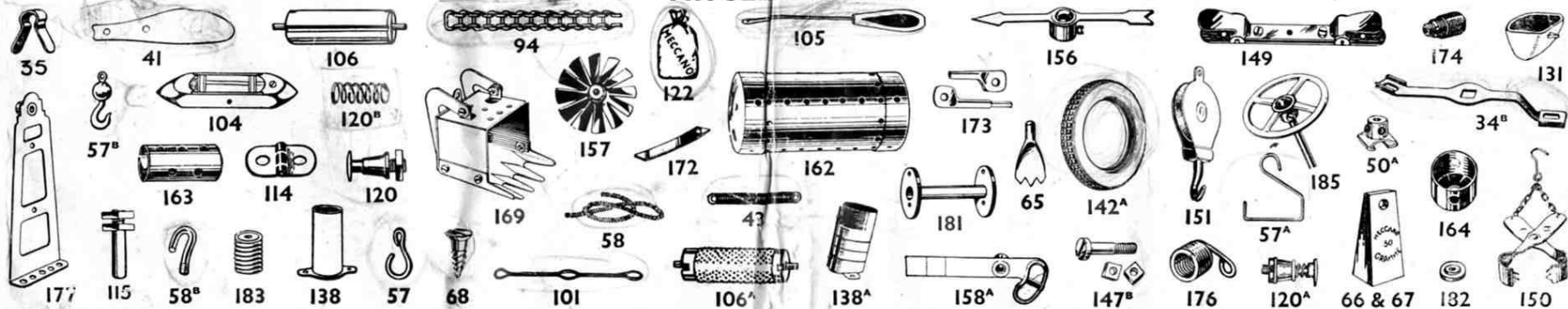
PLATES, STRIPS, GIRDERS & BRACKETS



WHEELS, PULLEYS, GEARS, ETC.

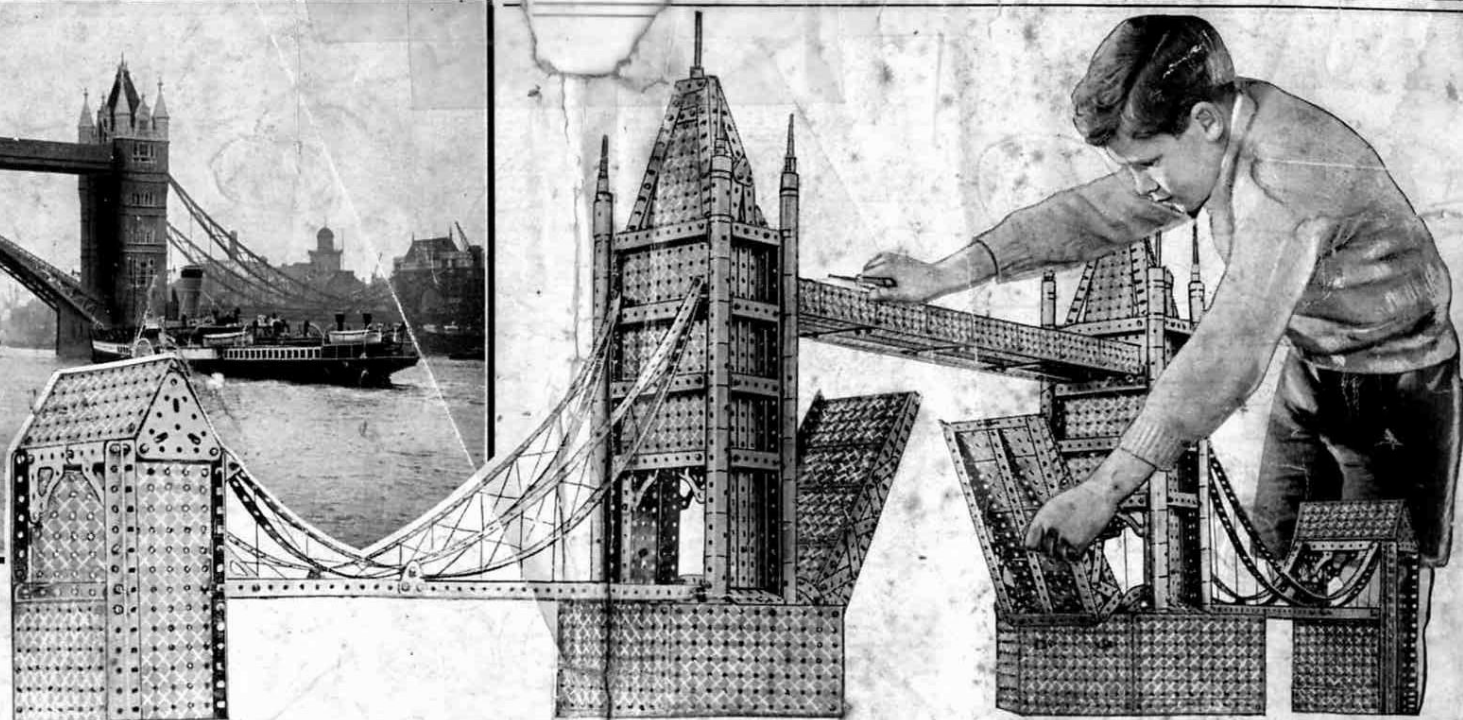


MISCELLANEOUS





The famous Tower Bridge London, a strikingly realistic Meccano Model of which is shown on the right.



***Meccano
is the
finest
hobby
in the
world
for boys***

Meccano is more than a toy

It is important to remember that when a boy is playing with Meccano he is using engineering parts in miniature, and that these parts act in precisely the same way as the corresponding engineering elements would do in actual practice. No other system of model construction could, therefore, be correct. Other toys that attempt the same object by other methods must avail themselves of other constructive elements which are not correct engineering elements. Consequently, though a boy may succeed in building playthings with them, they are merely toys and nothing else, and his mind, as regards proper mechanical construction and methods, is distorted instead of instructed. He learns wrong principles, and when his ambition tempts him to invent or construct more elaborate models he will be stopped by the deficiencies of his non-mechanical system.

MECCANO