# MECCANI MECOCANI

INSTRUCTIONS FOR OUTFITS A ... C

6d.



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## AFECCANO HORNBY'S ORIGINAL SYSTEM — FIRST PATENTED 1901



## 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 spanner, both of which are provided in the Outfit, are the only tools necessary.

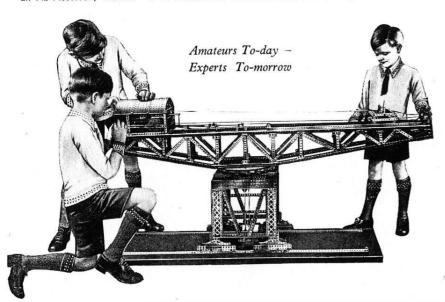
Make the simple models first—they will provide hours of fun—and then try to improve them. Every model can be made in a dozen different ways. It is important to screw up all the nuts and bolts tightly to ensure that your models will be strong and firm when they are completed.

Every keen and inventive Meccano model builder should obtain copies of the special Manuals "How to use Meccano Parts" and "Meccano Standard Mechanisms." These Manuals may be purchased from your dealer, or direct from Meccano Ltd., Binns Road,

Liverpool 13.

## HOW TO BUILD UP YOUR OUTFIT

Meccano is sold in ten different Outfits, lettered A 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 A upwards may be converted into the one next higher by the purchase of an Accessory Outfit. Thus, Meccano Outfit A may be converted into a B by adding to it an Aa Accessory Outfit. A Ba would then convert it into a C Outfit, and so on. In



this way, no matter with which Outfit you commence, you may build it up by degrees until you possess an L Outfit. It is important to remember that Meccano Parts may be bought separately at any time in any quantity from your Meccano dealer.

## ELECTRIC LIGHTING OF MECCANO MODELS

It is great fun to illuminate your Meccano models by electric light, and a special Meccano Lighting Set may be obtained from your dealer for this purpose. This consists of two spot lights with plain and coloured imitation glass discs, one stand lamp, two special brackets, and two pea lamps, operated from a 4-volt flashlamp battery (not included in the set). The stand lamp is used for decorative purposes, and the spot lights can be used as car 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, Pridges, Cranes, Wonderful Machinery, Aeronautics, Latest Patents, Radio, 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.

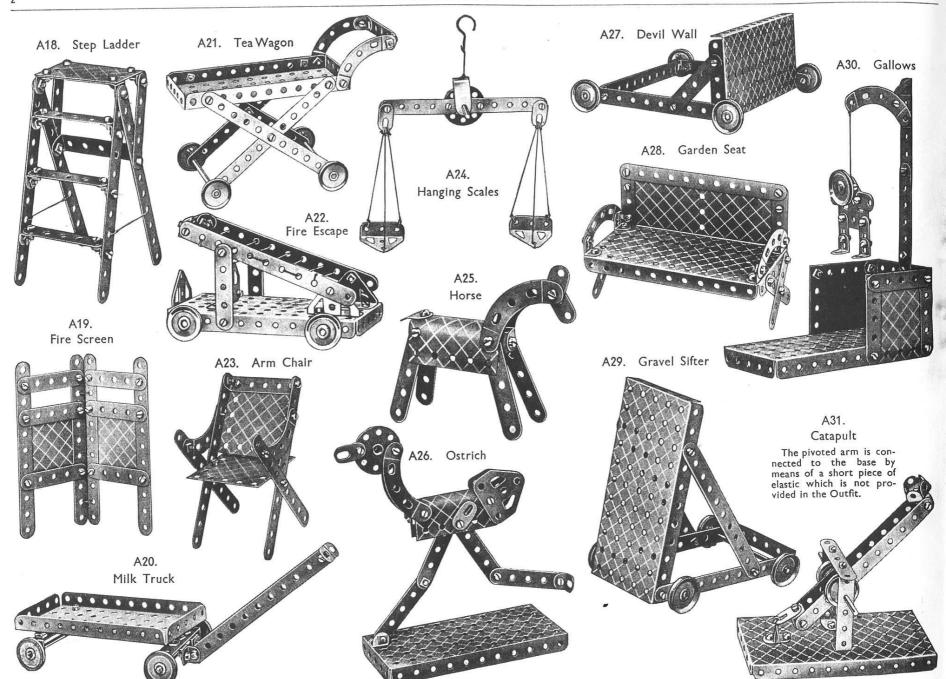
Meccano Clubs are founded and established under the guidance of the Guild Secretary at Headquarters, and at the present time there are active Clubs in nearly 250 towns and villages in the United Kingdom, and more than 100 in countries overseas. Each Club has its Leader, Secretary, Treasurer, and other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

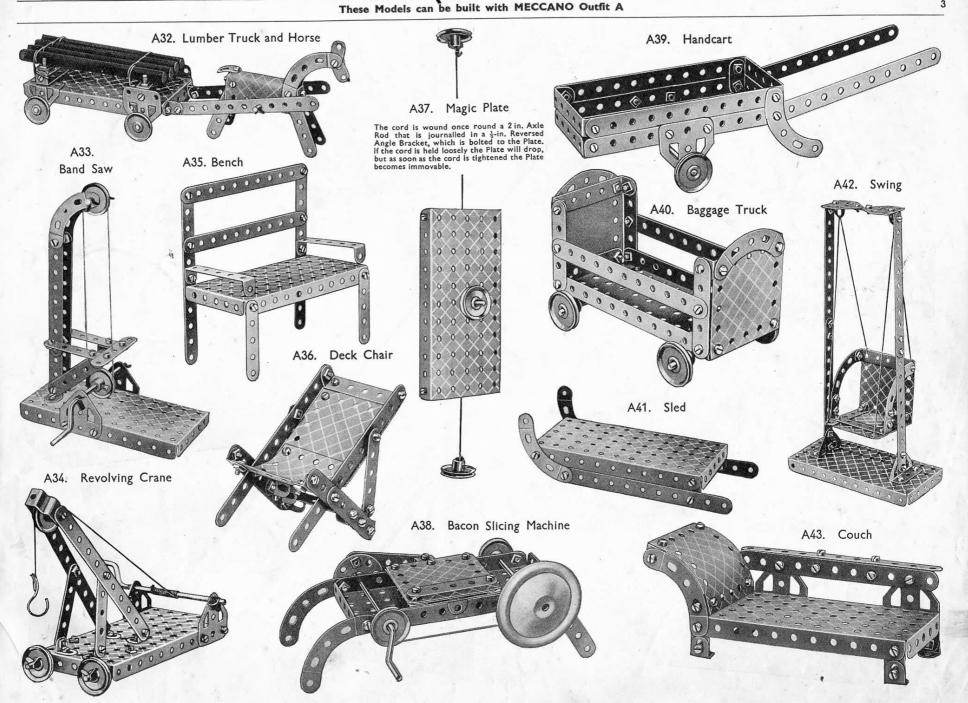
exception of the Leader, are boys.

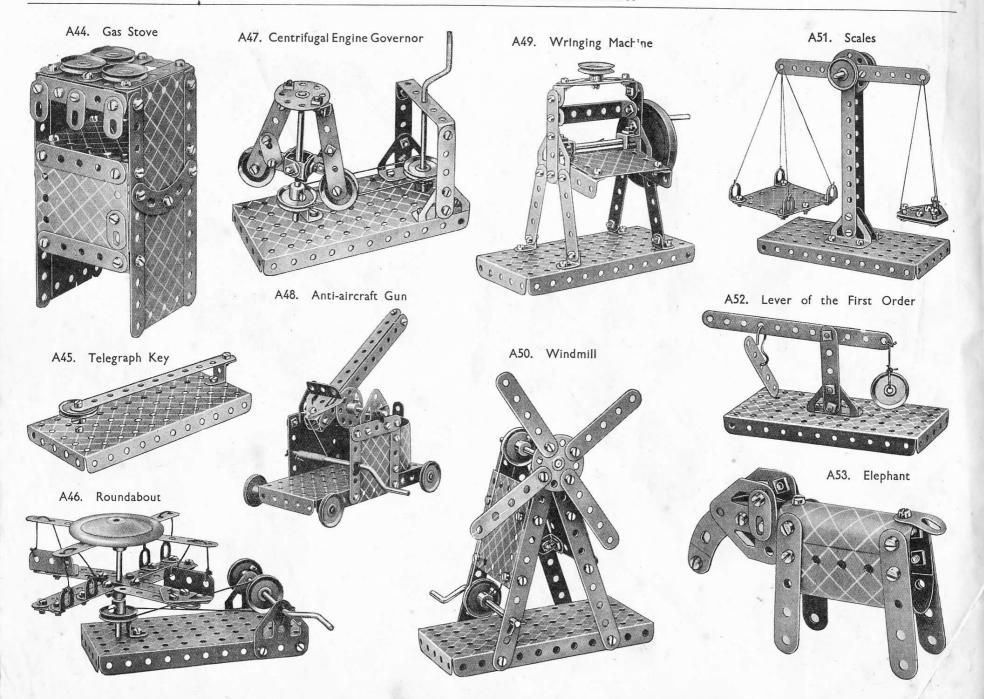
Special Merit Medallions are awarded to Club members for good work in connection with their Club, and recruiting medallions are awarded in connection with the Recruiting Campaign, full particulars of which will be sent on request.

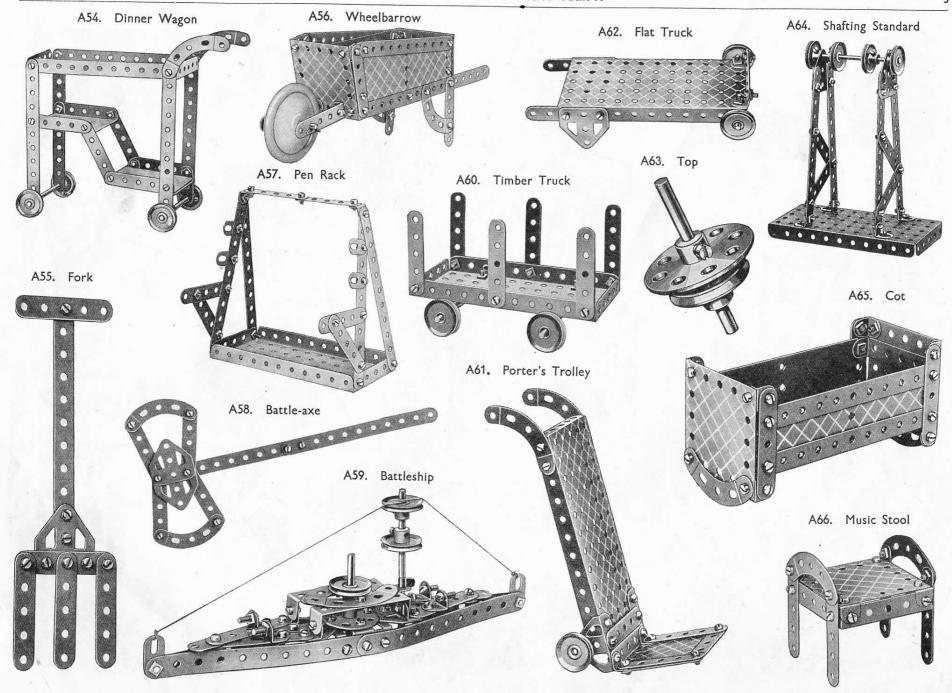
## MECCANO SERVICE

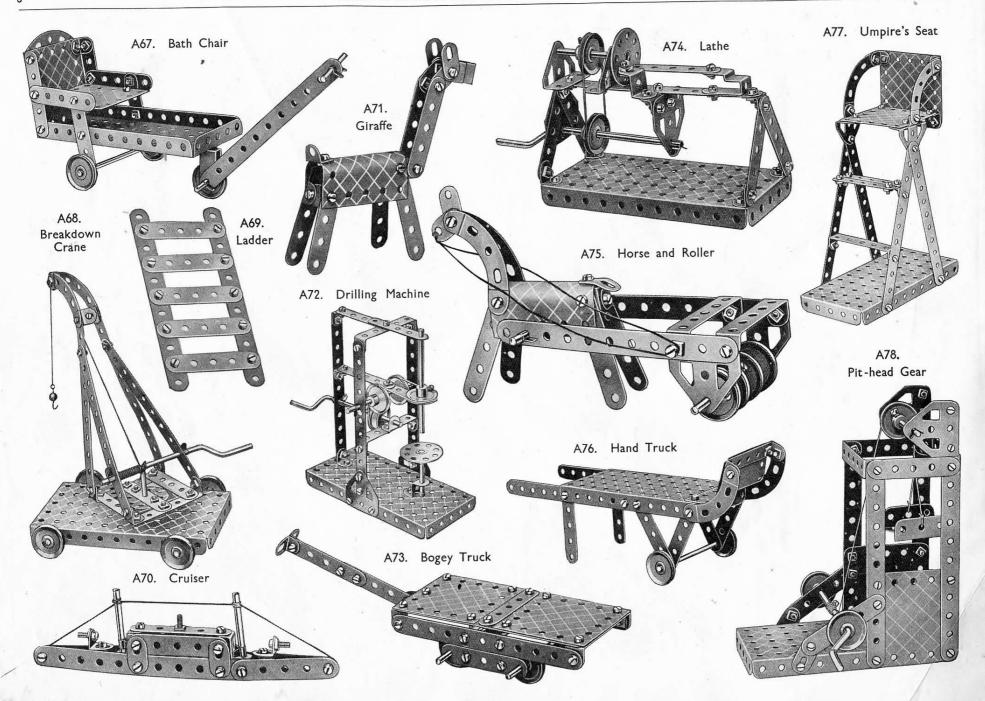
The service of Meccano does not end with selling an Outfit and an Instruction Manual. When you want to know something more about engineering than is now shown in our books, or when you strike a tough problem of any kind, write to us. We receive over 200 letters from boys every day all the year round. 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 by of to-day to be the famous engineer of to-morrow.

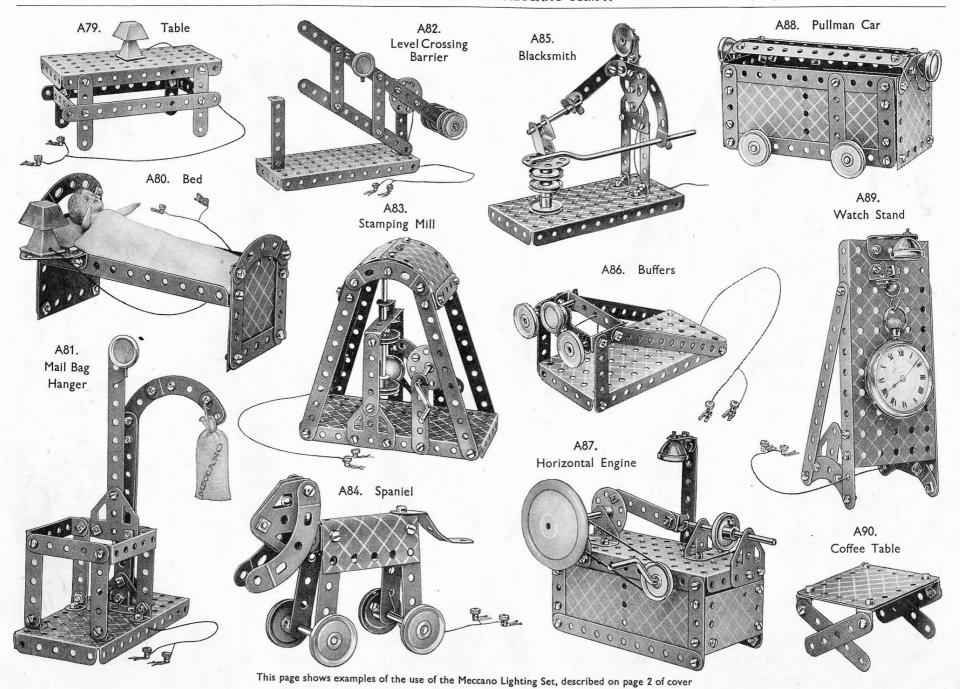


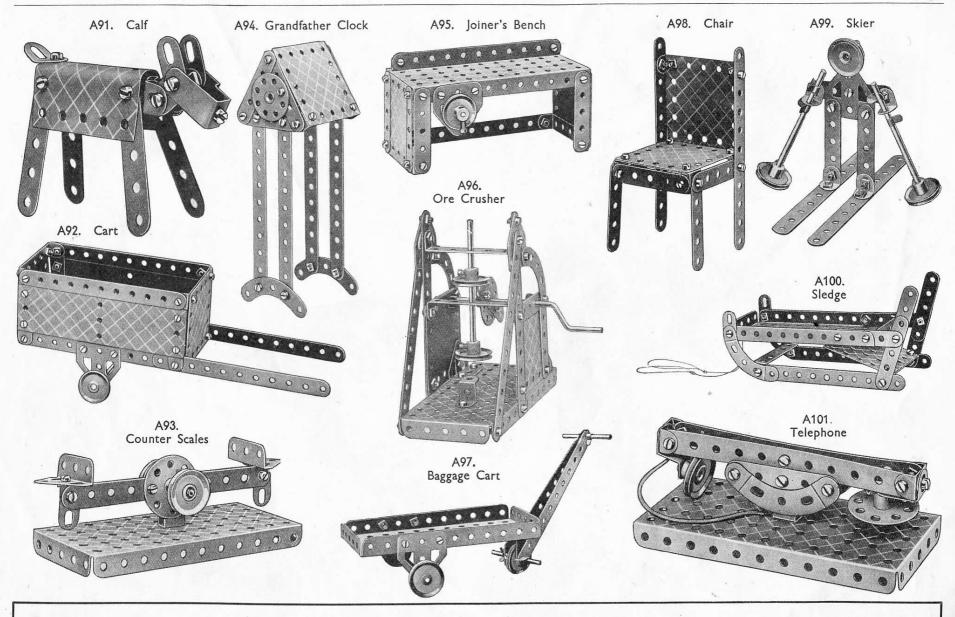






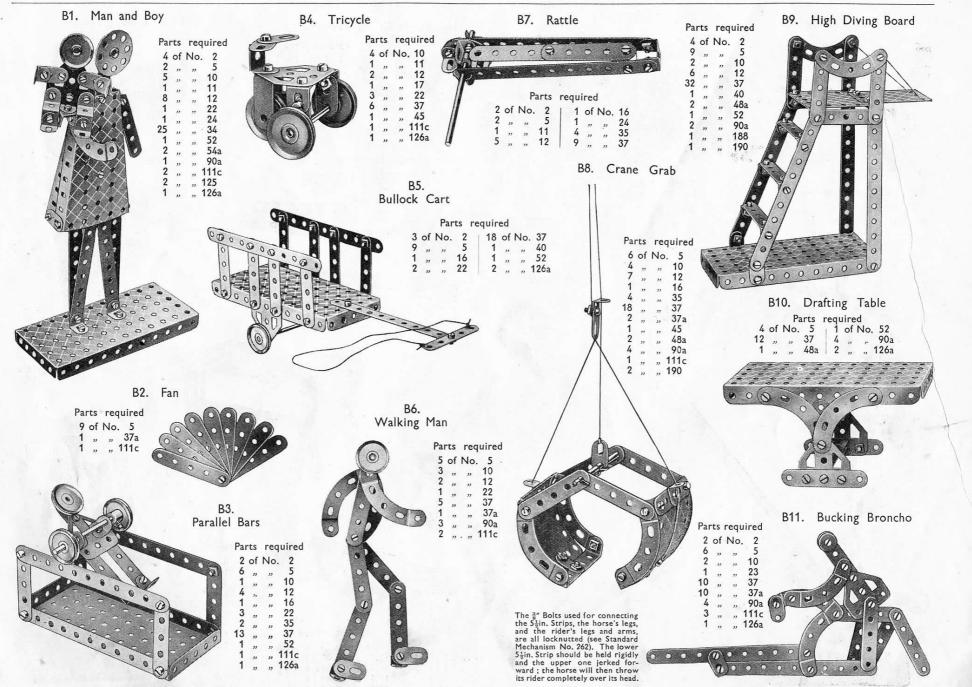


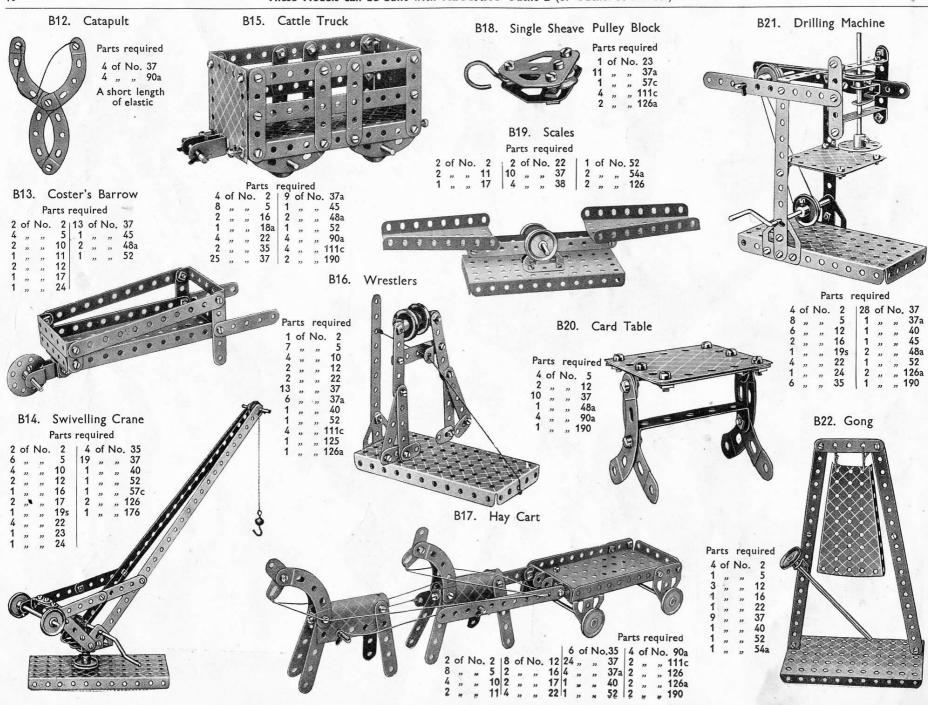


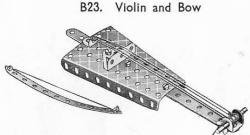


## HOW TO CONTINUE

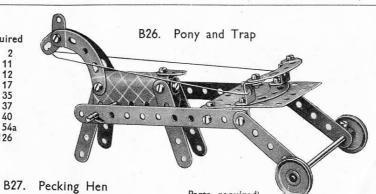
This completes our examples of models that may be made with MECCANO Outfit A. The next models are a little more advanced, requiring extra parts to construct them. The necessary parts are all contained in a No. Aa Accessory Outfit, the price of which may be ascertained from any Meccano dealer.







Parts required 4 of No. 2 12 37 ,, 126



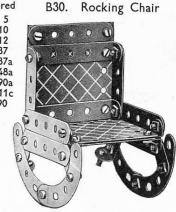
Parts required

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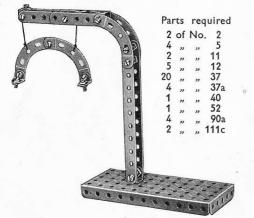
10

12

Parts required 9 of No. 5 12 37 37a 48a 90a " 111c " 190



B24. Loading Gauge



Parts required 1 of No. 12 5 of No. 37a , , 22 , , 23 2 of No. 2 2 ', " 111c 2 ', " 126a " 5 | 1 " " 23 " 10 | 11 " " 37

By alternately pushing and pulling the lower of the  $5\frac{1}{2}$  in. Strips, the hen can be made to peck vigorously at the "bowl," a 1in. Pulley. The Bolts used for securing the 5½in. Strips together should be locknutted, care being taken to ensure that no "side play" is permitted.

B28. Grass Cutter

2 of No. 22

35 37

37a

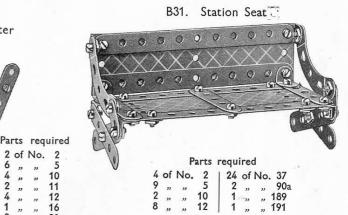
2 of No. 2

12 16

126

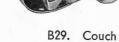
1 of No. 48a

2 " " 125 2 " " 190



B25.	Bread	Van

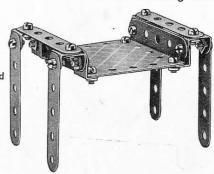
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2	,,	,,	10	34	,,	,,	37	2	,,	,,	126	
8	,,	,,	12	2	,,	,,	37a	2	,,	,,	126a	
1	,,	,,	17	2	"	"	48a	2	,,	,,	190	
2	,,	,,	16	1	,,	,,	52	2	,,	,,	191	





A TON TO
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37



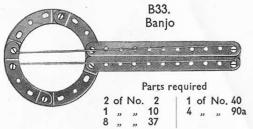
B32. Stool for Dressing Table

Parts required 2 of No. 2

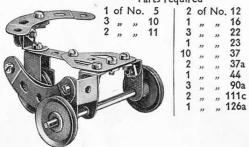
12 37 " " " " 48a 52 90a " 189 " 190

Parts required 9 of No. 5 " " 12 16 " " 37 2 " " 125 1 " " 190

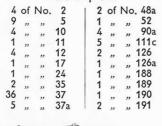
## These Models can be built with MECCANO Outfit B (or A and Aa)

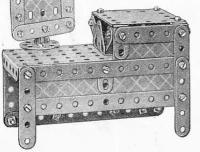


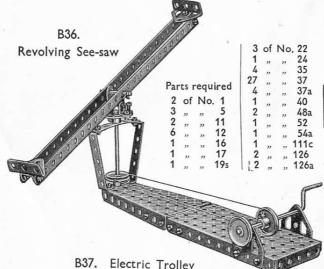
## B34. Motor Cycle and Side-Car Parts required



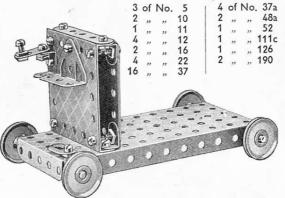
## B35. Modern Dressing Table Parts required of No. 2 | 2 of No. 48 2 | 3 of No. 48



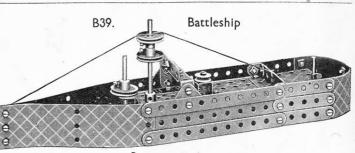




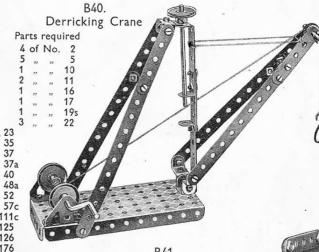
ctric	Trolley	
	Parts	required

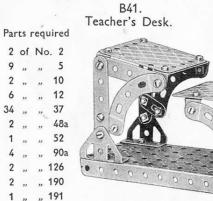


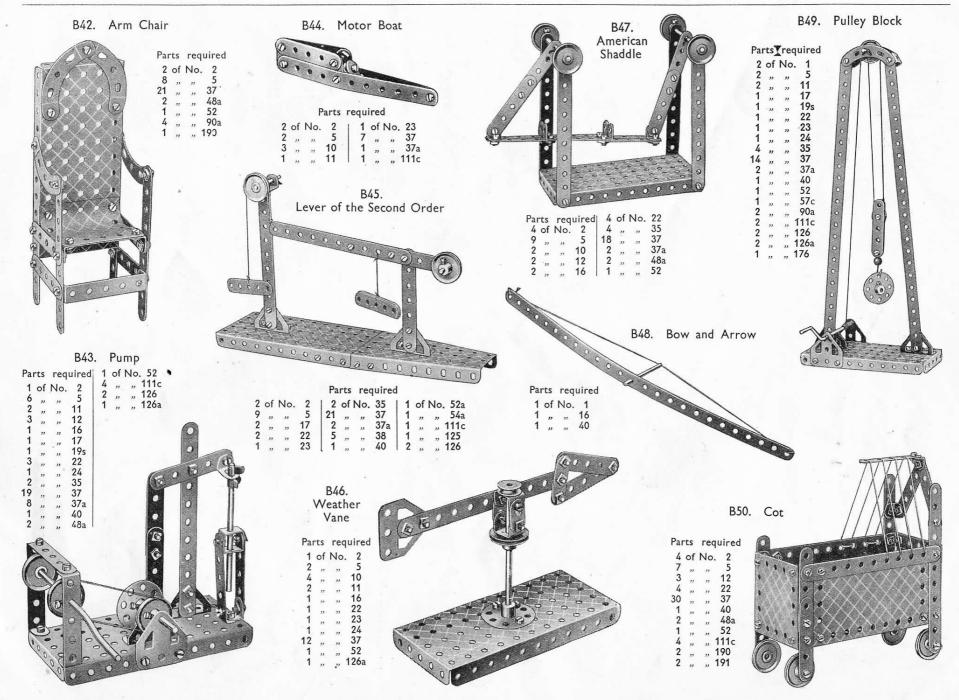
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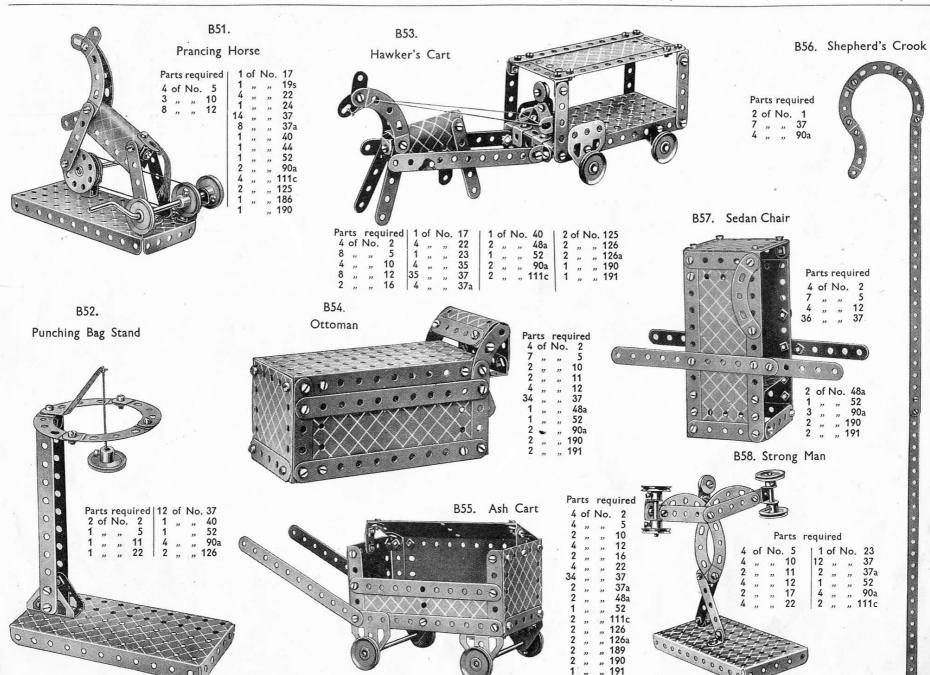


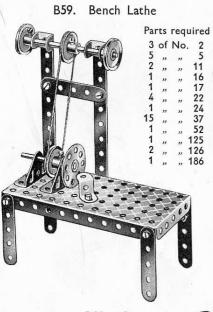
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4	,,	,,	10	1	,,	,,	23	2 " " 48a	2 189
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1	,,	,,	16	36	,,	22	37	2 " " 125	

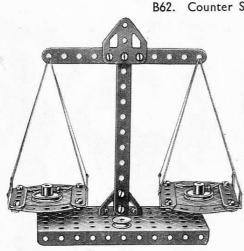






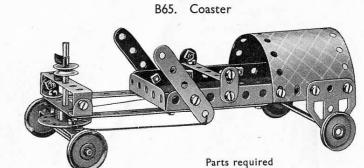






Parts 2 of 4 // 8 // 8 // 1 // 1 // 2 // 1 // 1 // 4 // 1 // 1 // 2 // 1 // 1 // 2 // 1 // 1		B62. C	Counter Scales
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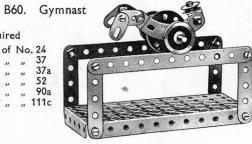


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4	,,	,,	12	2	,,	,,	35	2	"	,,	126a
2	,,	,,	16	24	,,	,,	37	1	"	,,	191
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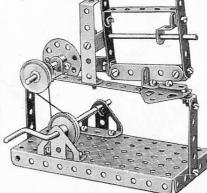


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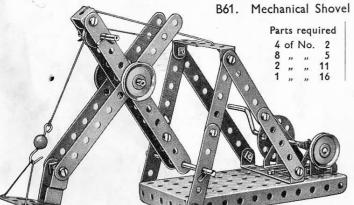
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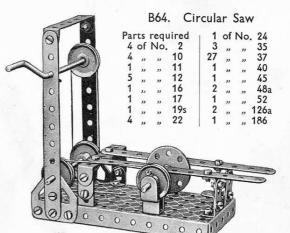
Power Hack Saw

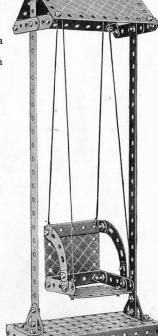
B66. Swing

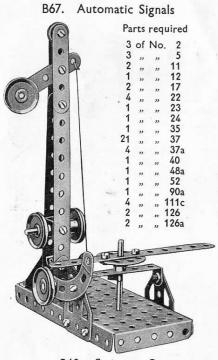
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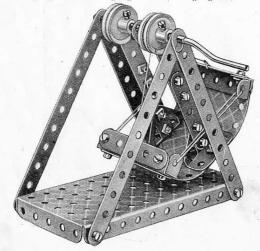
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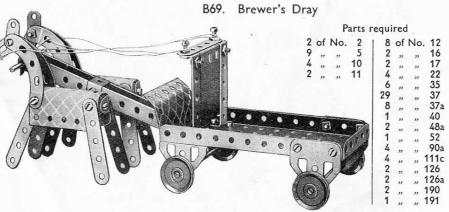


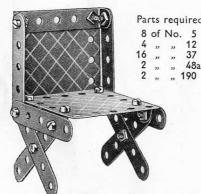




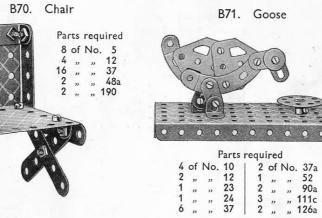
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4	,,	,,,	12	4	,,	,,	37a	1	,,	,,	191

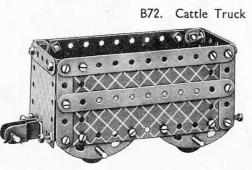


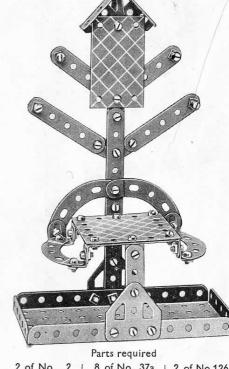




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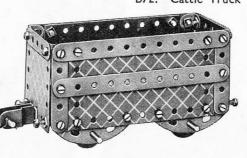


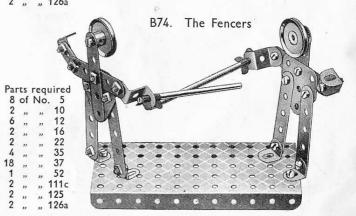


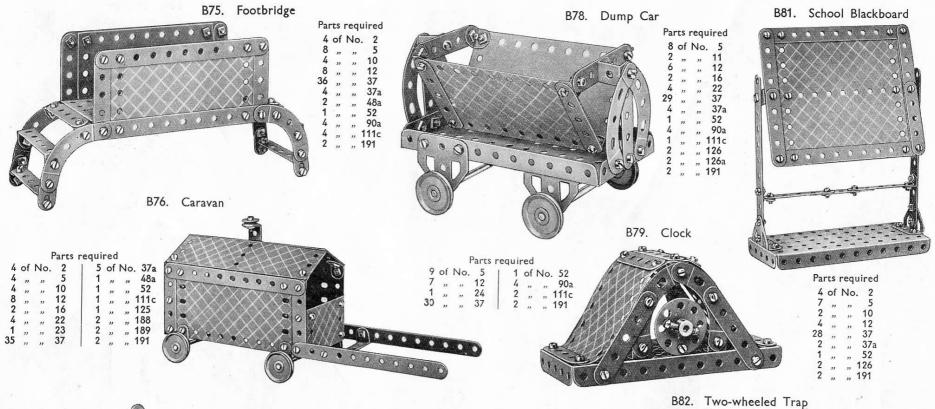


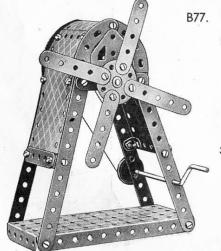
B73. Hat Rack

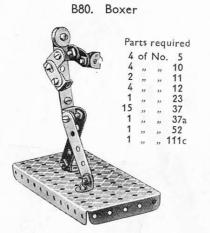
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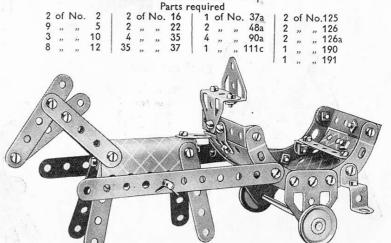


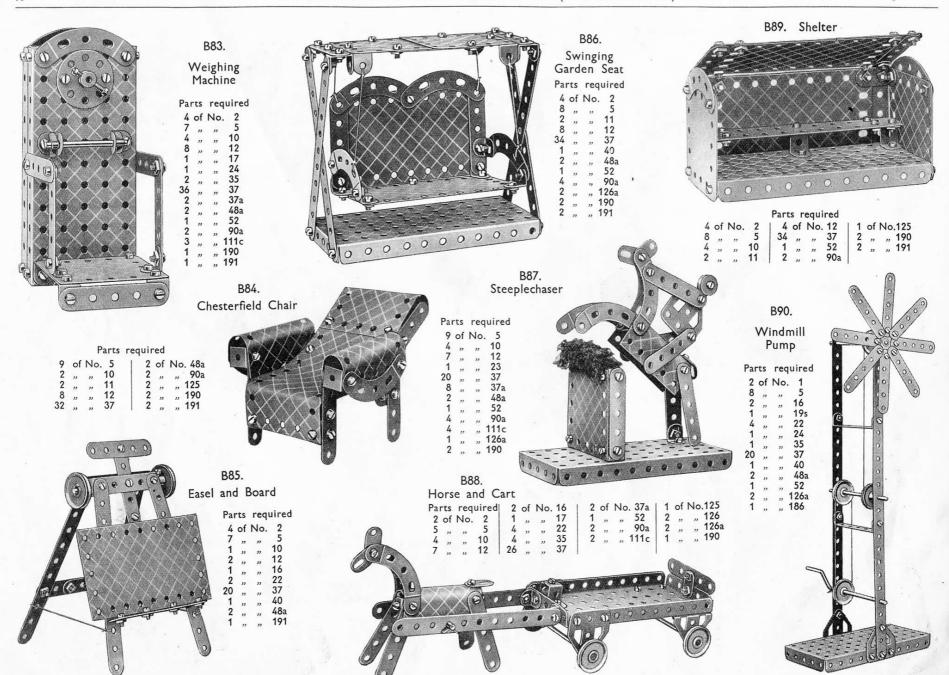




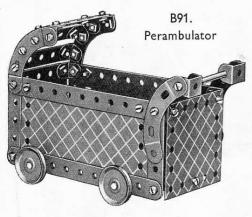








B97. Step Ladder on Wheels



B92. Watchman's Hut and Fire Parts required 2 of No. 35

34 " " 37

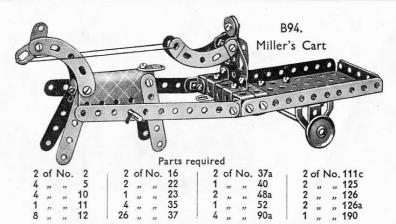
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2 of No. 2

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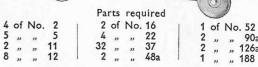
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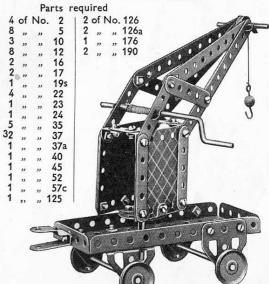


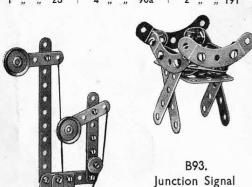
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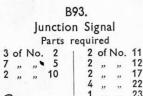
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	K	0 100	2	,,	,,	126a
			1	,,	,,	176
		THE RESERVE	2			101



## B98. Breakdown Crane







3 of No. 111c

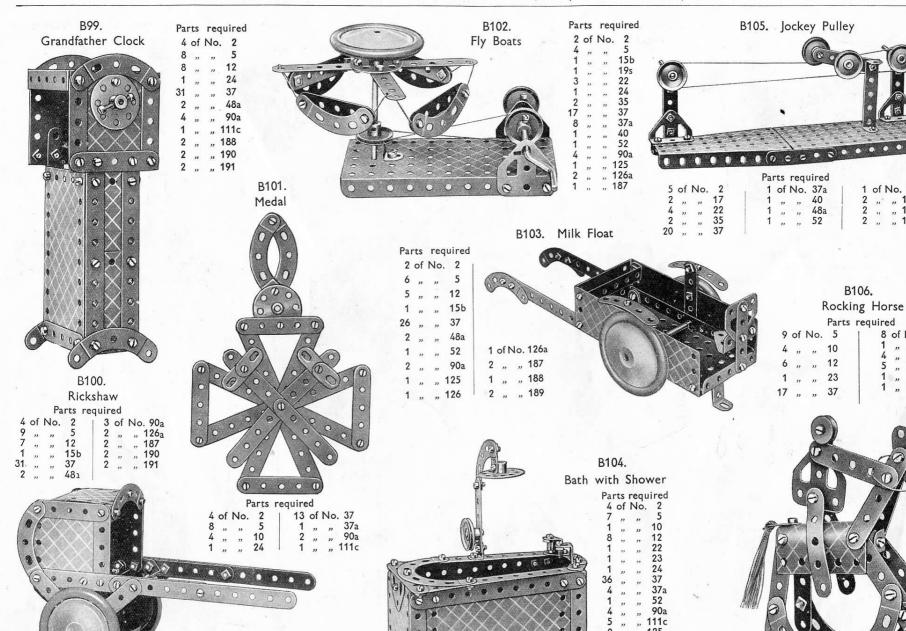
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1 of No. 54a 2 ,, 111c 2 ,, 125 2 ,, 126

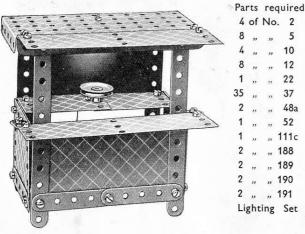
8 of No. 37a

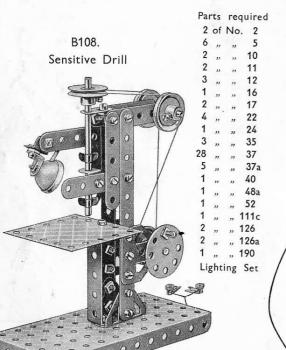
B106.

Parts required

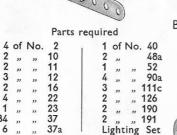


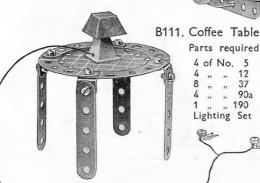


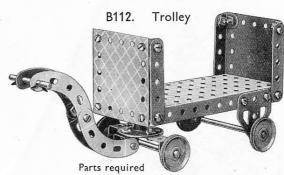












35

52

" " 111c " " 126a

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4,	,,,	12	3	,,	,,	35	2	,,	,,	125
2,	,,,	16	28	,,	"	37	2	,,	,,	126a
2,	,,,	17	1	"	,,	48a	2	,,	"	190



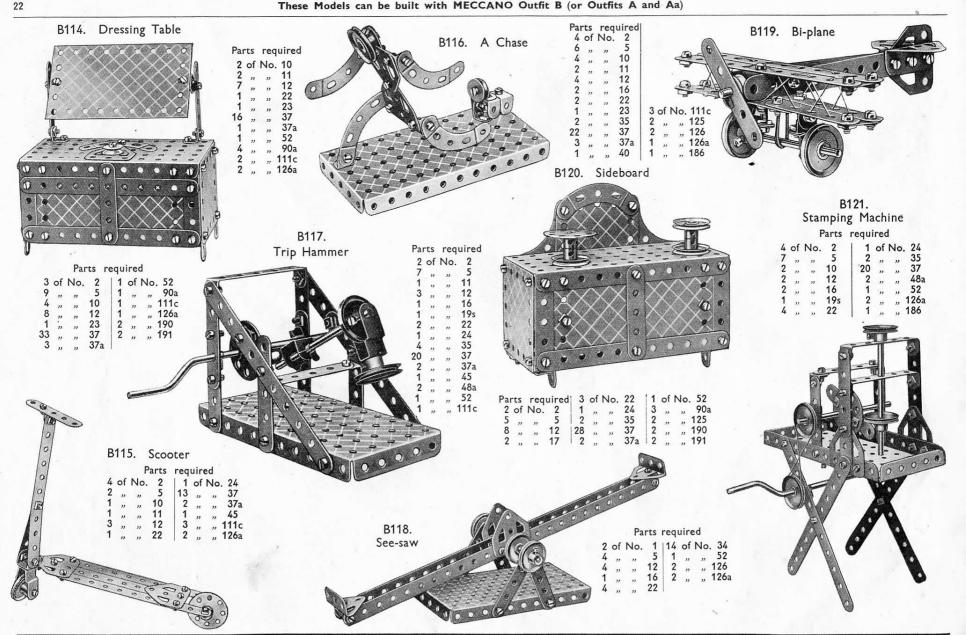
Arc Lamp Parts required 2 of No. 1

1 " " 52

" 126 Lighting Set

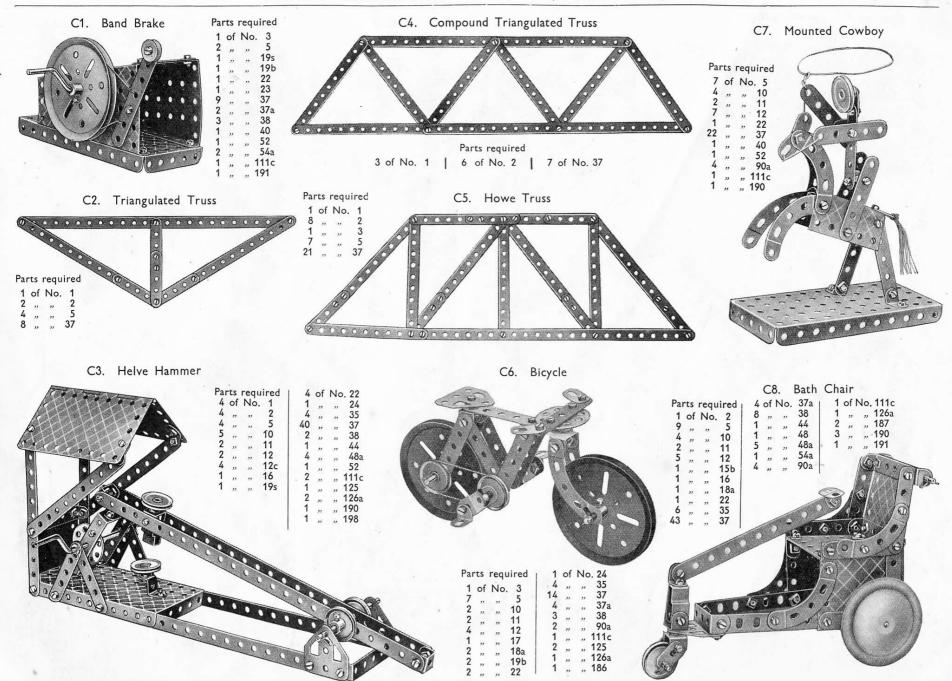
The appearance of many Meccano models, especially those built with Outfits A, B and C, is greatly improved by the addition of electric lights at suitable points. For this purpose a Meccano Lighting Set has been introduced. This consists of two pea-lamps, two spot lights, and a fancy lamp shade, the appearance and uses of which are shown on this page in models B107, B108, B109, B110, B111 and B113.

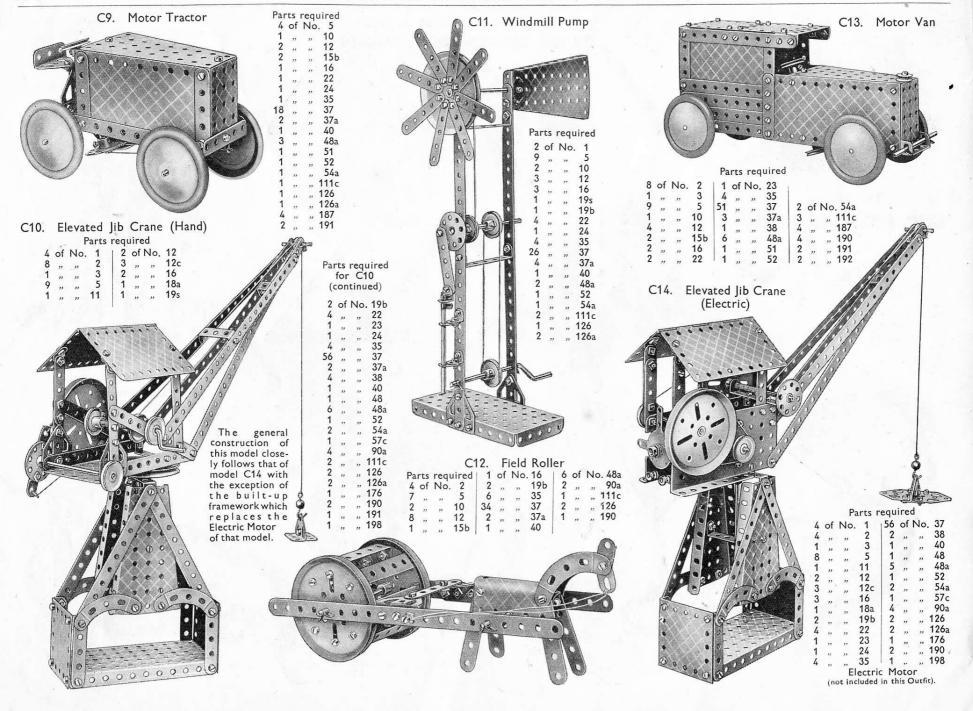


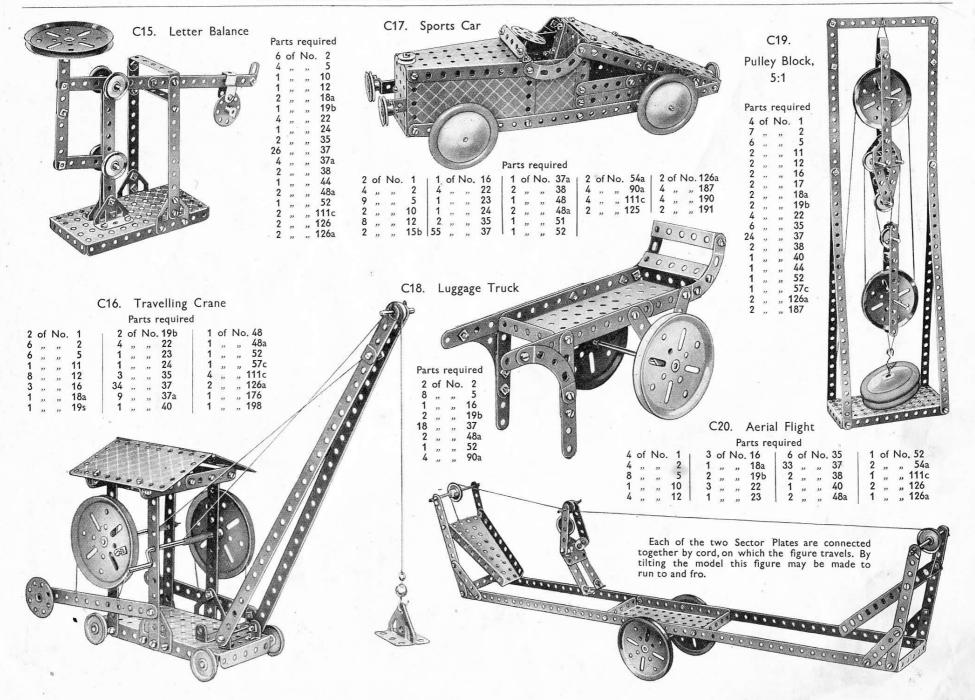


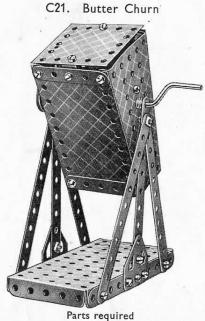
## HOW TO CONTINUE

This completes our examples of models that may be made with MECCANO Outfit B (or Outfits A and Aa). The next models are a little more advanced, requiring extra parts to construct them. The necessary parts are all contained in a Ba Accessory Outfit, the price of which may be obtained from any Meccano dealer.









8 of No. 2 of No. 48a

126a 190 191

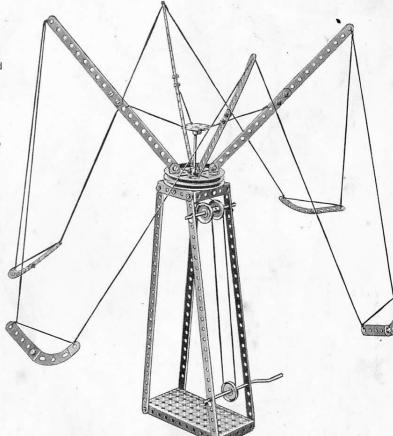


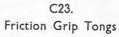
Parts required

C22. Tower Wagon



C24. Fly Boats

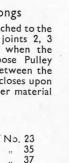


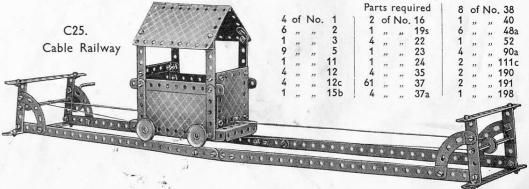


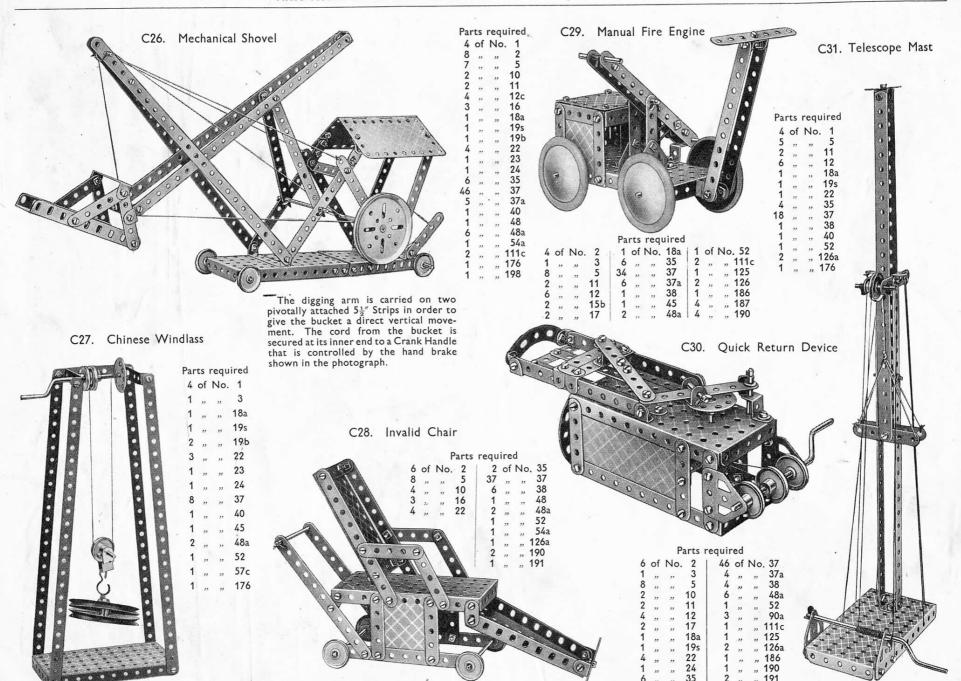
The hoisting cord is attached to the Double Bracket 1. The joints 2, 3 are lock-nutted, so that when the grip is raised the  $\frac{1}{2}$ " loose Pulley Wheel 4 slides upward between the  $2\frac{1}{2}$ " Strips 5, and the grip closes upon the block of wood or other material placed between its jaws.

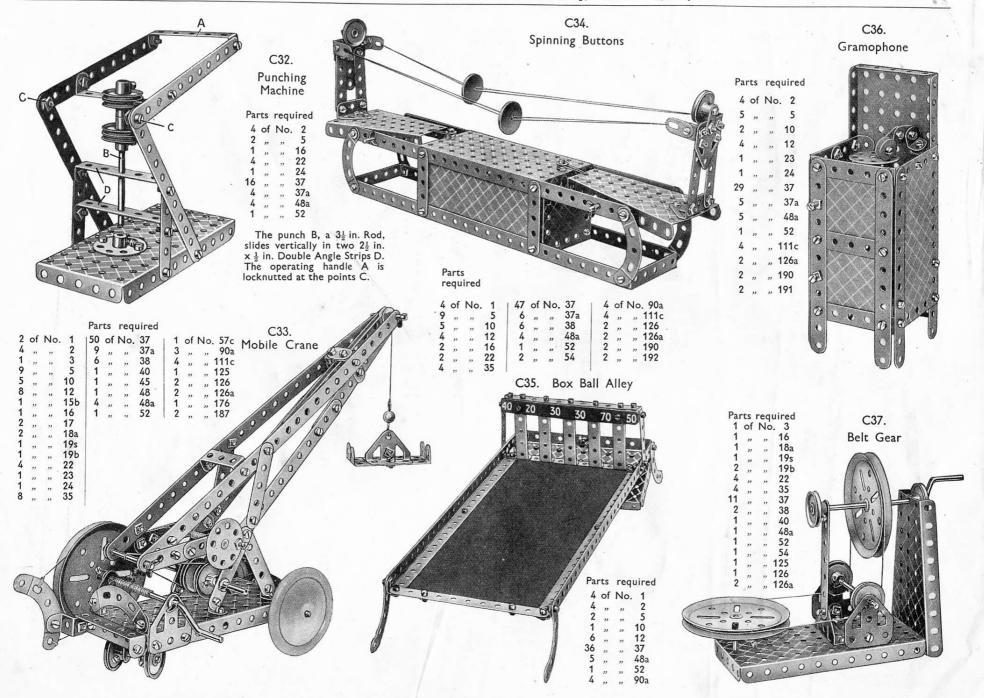
## Parts required

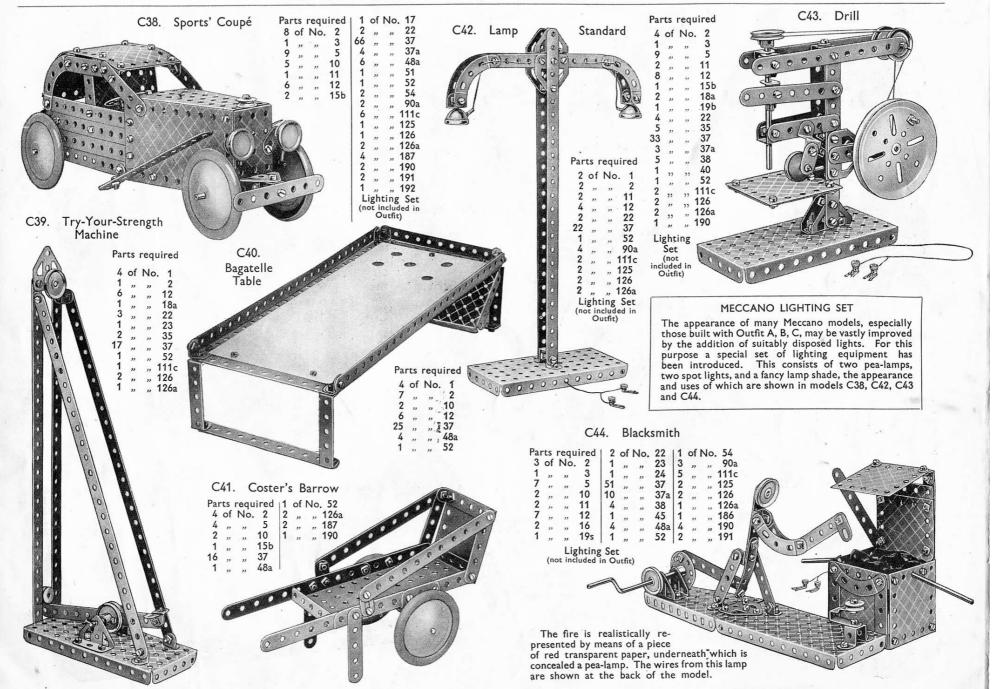
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1	.,	,,	18a	4			38

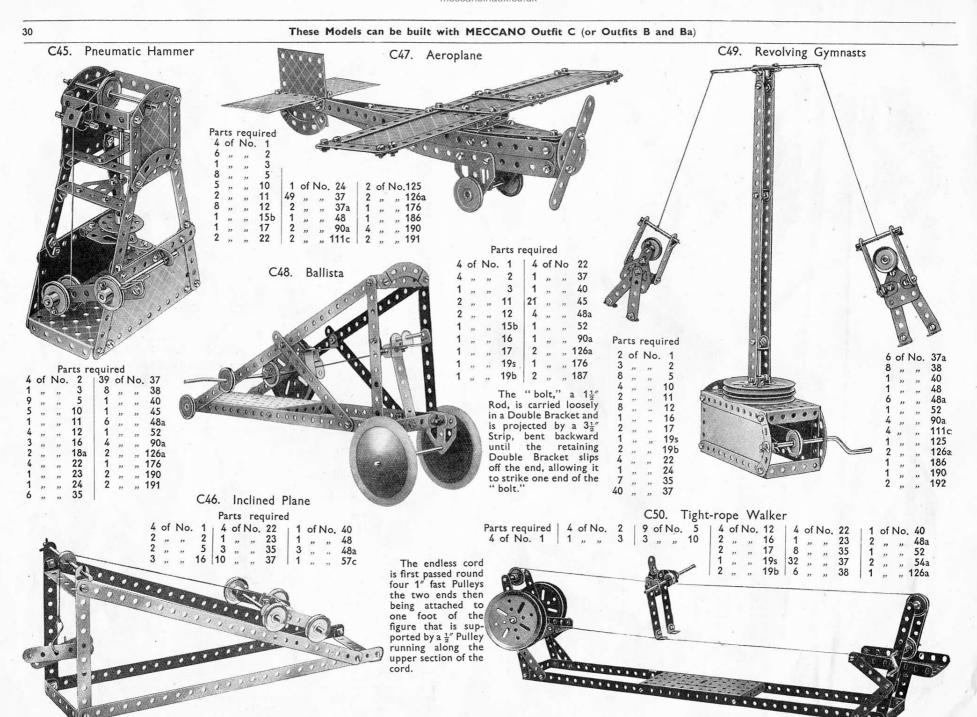


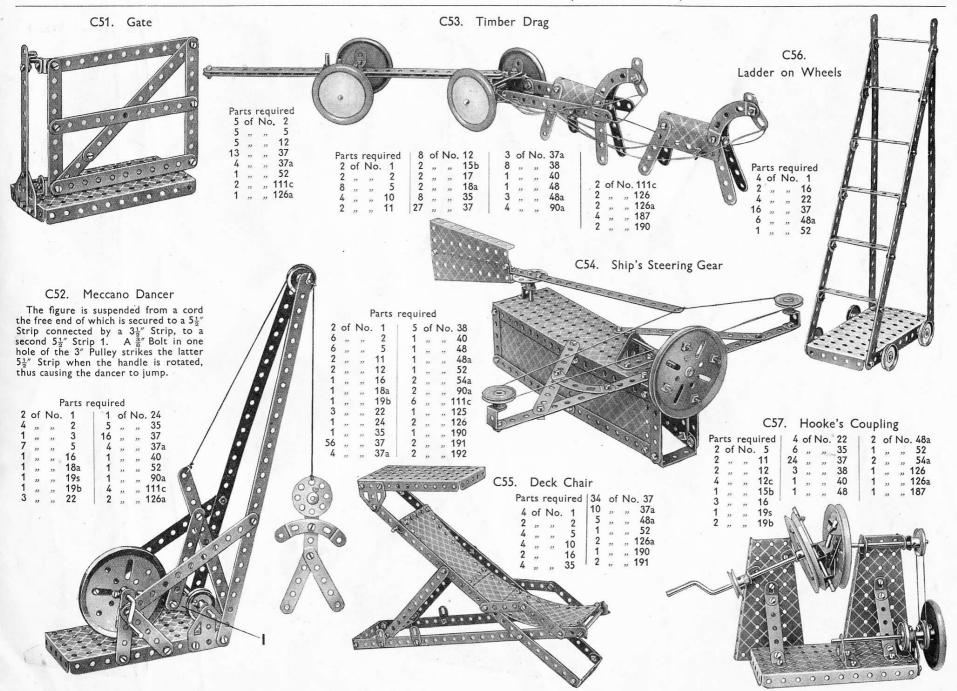


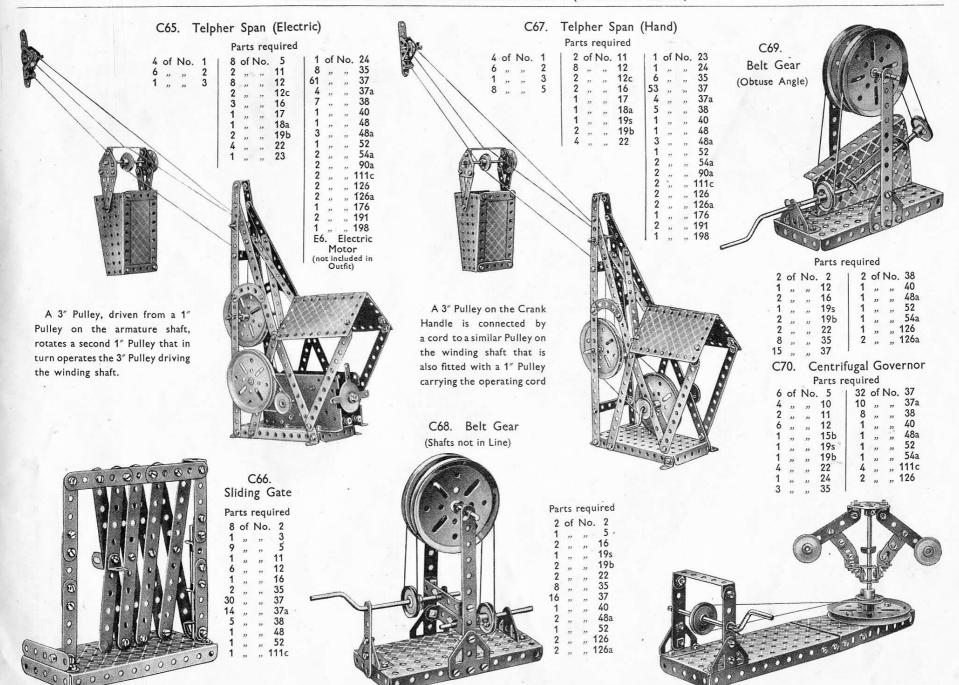


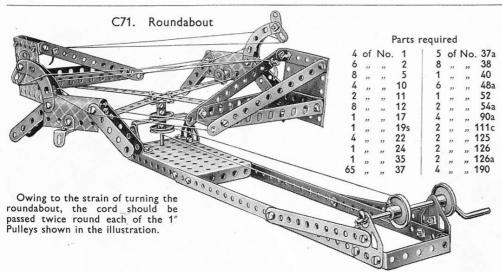


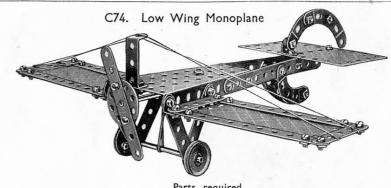






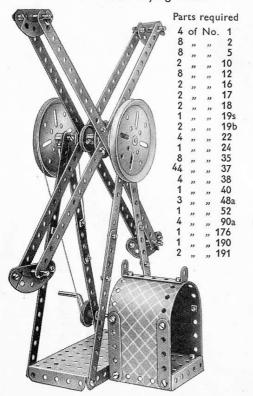






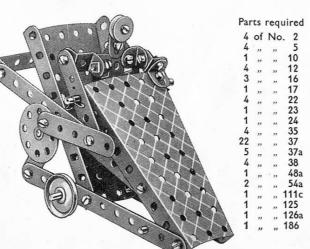
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of	No.	2	2	of	No.	16	1 2	of	No.	37a	4	of	No	. 90a
,,	,,	3	2	,,	,,	22	8	,,	. ,,	38	2	,,	,,	111c
,,	,,	5	1	,,	,,,	24	1	,,	,,	40	1	,,	,,	186
,,	,,	11	1	,,	,,	35	1	,,	,,	48	2	21	,,	190
,,	,,	12	36	,,	,,	37	1	,,	,,	54a	2	,,	,,	191
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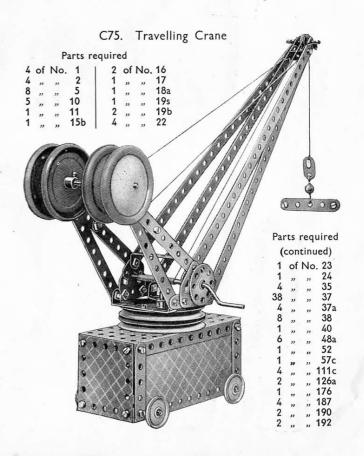
## C72. Flying Boats

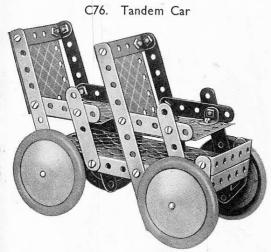


## C73. The Invalid

When wheeled along the table the "invalid" appears to push himself energetically along. His neck is a Flat Bracket: his right (or propelling) arm consists of one Angle Bracket and one  $\frac{1}{2}^{\prime\prime}$  Reversed Angle Bracket, and his left arm—the hand of which is bolted loosely to the chair—is formed by three Angle Brackets. The chair is composed principally of two Sector Plates and four  $5\frac{1}{2}^{\prime\prime}$  Strips, and it runs on three 1" Pulley Wheels—one in front and two at the back. One of these, not shown, is connected by means of a Driving Band to a third 1" Pulley Wheel, the shaft of which also carries a BushWheel 1. As will be seen, a  $2\frac{1}{2}^{\prime\prime}$  Strip is pivoted at one end to this BushWheel and at the other end to a second  $2\frac{1}{2}^{\prime\prime}$  Strip 2, which, rocking about an axle journalled through its centre hole is again pivoted to the invalid's hands.







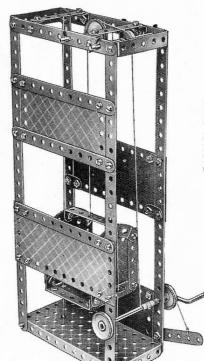
### Parts required

C77. Dignity and Impudence

4	of	No.	2	4	of	No.	48
8	,,	,,	5	1	,,	,,	52
4	,,	,,	12	2	,,	,,	126
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34	- 55	55%	37	4			190



Pai	rts	requ	ired
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8	"	"	5
4	,,	"	10
6	,,	,,	12
2-	,,	"	16
1	,,	"	19s
3	,,	,,	22
1	,,	"	23
6	,,	"	35
61	,,	,,	37
2	,,	,,	37a
7	,,	,,	38
1	,,	"	40
5	,,	"	48a
1	,,	"	52
2	,,	,,	90a
1	"		111c
1	,,		176
3	"	**	190
2	,,		191
2	,,	,, 1	192



# C80. Disappearing Meccanitian

			Parts	requ	ire	d		
5	of	No	. 2	123	of	No	. 37	
5	,,	,,	5	1	,,	,,	45	
1	"	,,	10	6	,,	,,,	48a	
4	'n	,,	12	1	,,	,,	52	
2	,,	,,	16	2	,,	,,	54a	
1	,,	,,	22	1	,,	,,	111c	
5	,,	,,	35	1	,,	,,	126a	4
F		r sh	ort le	engtl	ns c	of e	lastic	3

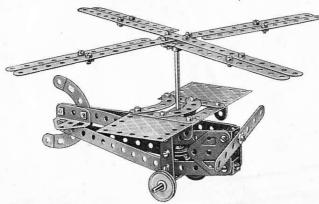
The bottom of the box-like portion of the model consists of a  $5\frac{1}{2}'' \times 2\frac{1}{2}''$  Flanged Plate; three  $5\frac{1}{2}''$  Strips bolted to upright  $2\frac{1}{2}''$  Strips form each side and each end consists of three  $2\frac{1}{2}'' \times \frac{1}{2}''$  Double Angle Strips. The lid 1, which is mounted pivotally on an Axle Rod 2, consists of two Sector Plates bolted together. Elastic bands are tied to the sides of these Plates and connected to Rod 3 passed through the bottom of the box. The "Meccanitian" 4 also is connected to this Rod by pieces of elastic. On pressing the end of the rear Sector Plate the lid opens sufficiently to allow the figure to be drawn inside and then snaps back into place. A Cranked Bent Strip 5 is bolted at the back of the figure and rests against the edge of the Sector Plate.



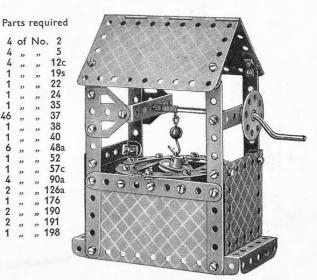
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5	,,	"	10
2	,,,	,,	11
8	"	,,	12
1	,,	,,	16
1	,,	,"	17
2	,,	,,	22
4	"	"	35
31	,,	,,	37
1	,,	"	48
4	,,,	,,	48a
1	,,	,,	52
2	,,	"	54a
2	,,		11c
2	,,	"	25
1	,,	,, 1	26a

# C79. Autogiro Parts required

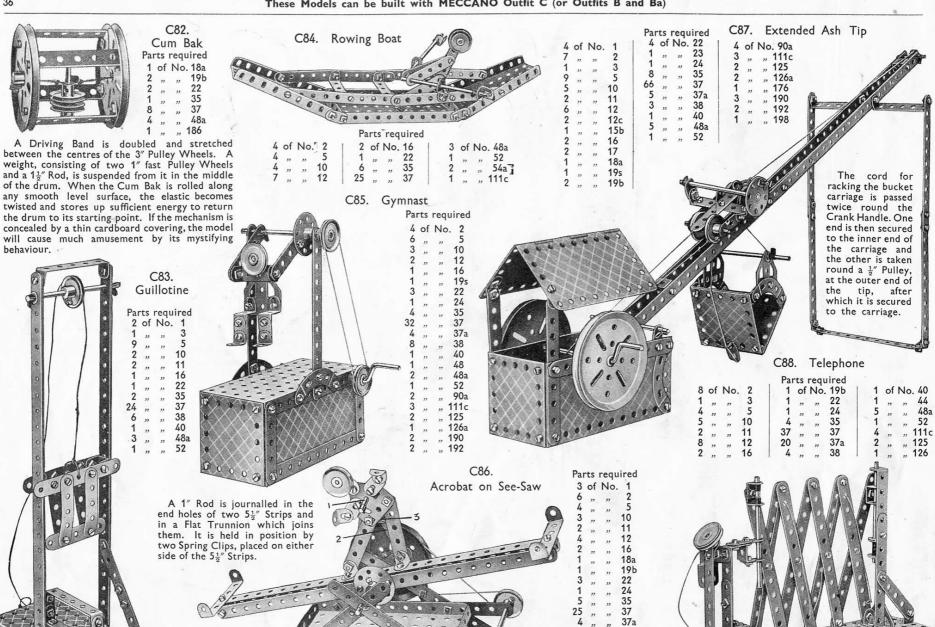
2	of	No	. 1	1	2	of	No.	11	33	of	No.	37 37a 38 48 48a	4	of	No	. 90a
8	,,	"	2		2	,,	,,	12	3	,,	,,	37a	2	,,	,,	111c
1	,,	,,	3		2	,,	"	16	7	,,	,,	38	2	,,	,,	126
9	,,	,,	5		4	,,	22	22	1	,,	,,	48	2	,,	,,	126a
5	,,	,,	10		1	,,	,,	24	1	,,	,,	48a	2	,,	,,	190



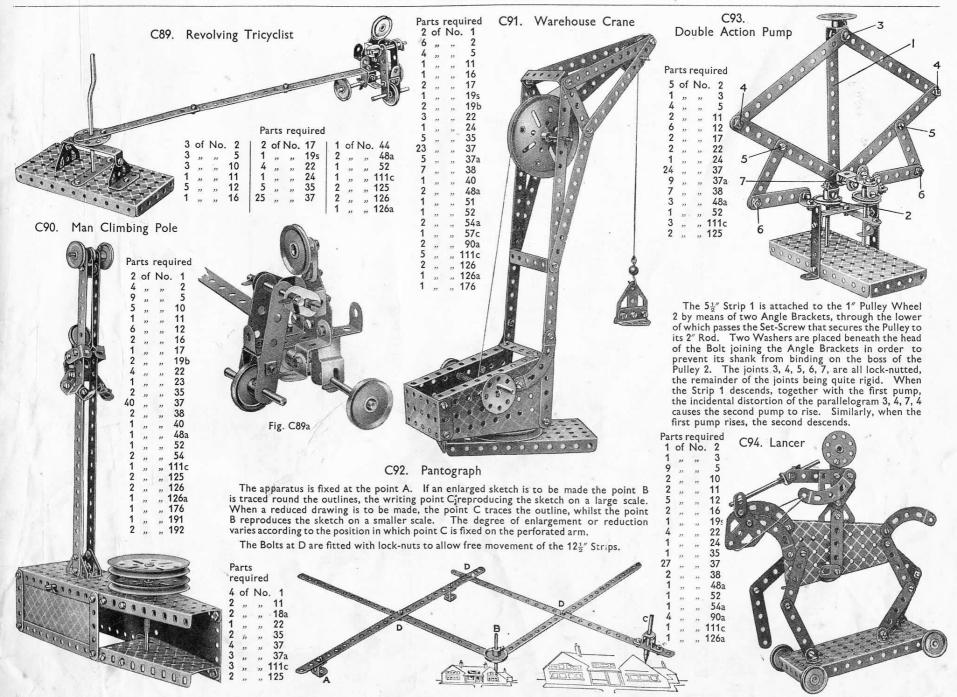
# C81. Well Windlass



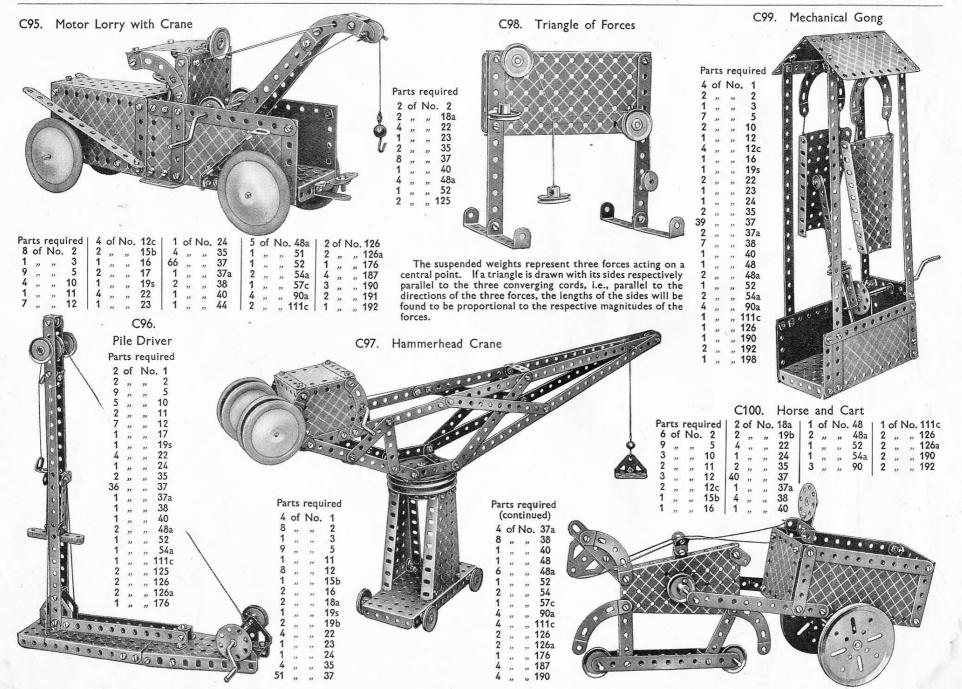
# These Models can be built with MECCANO Outfit C (or Outfits B and Ba)

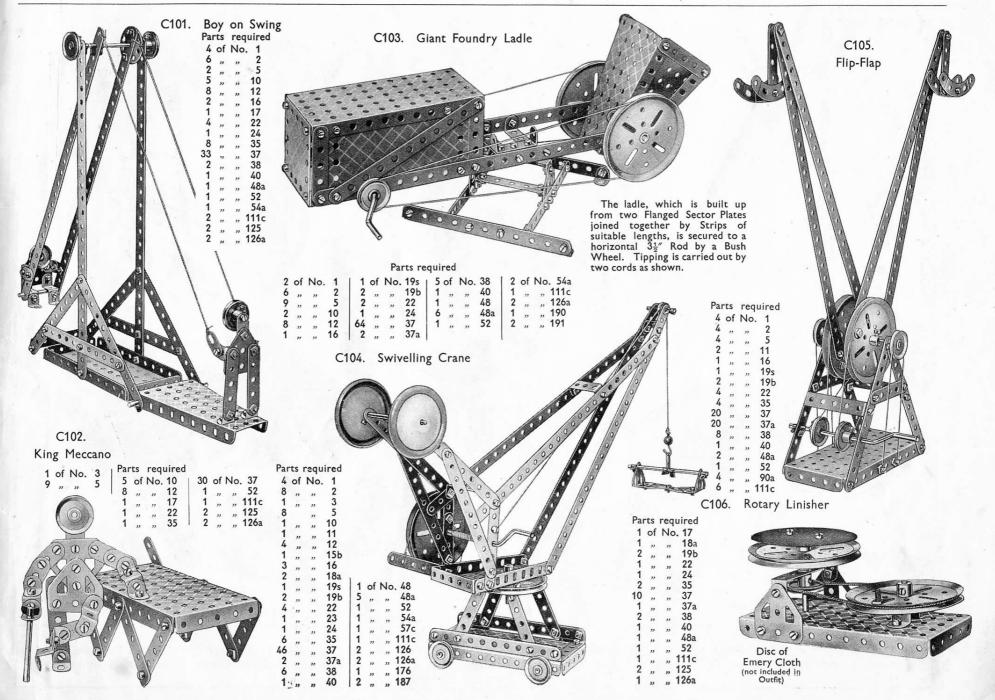


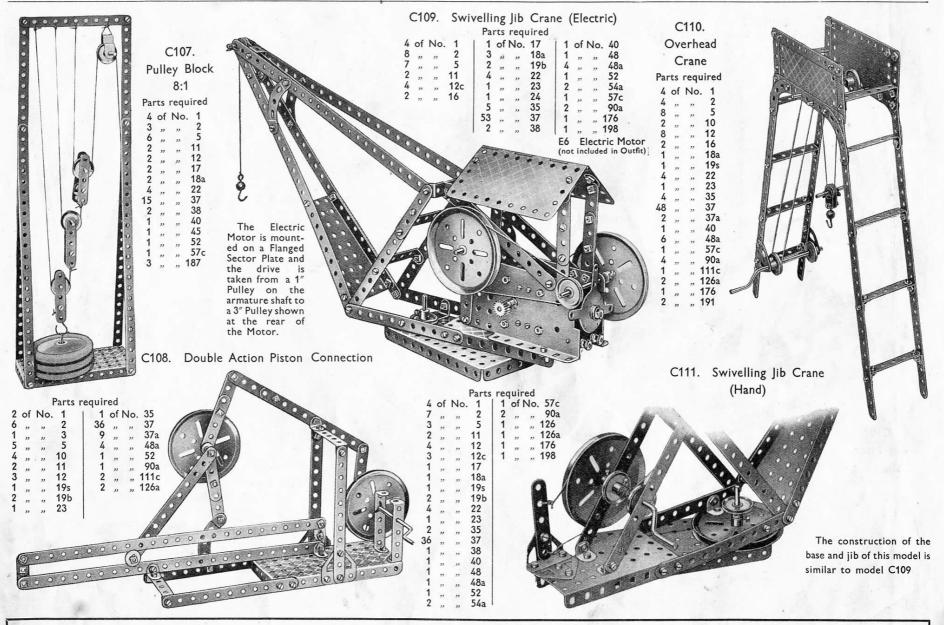
40 52 " 111c



# These Models can be built with MECCANO Outfit C (or Outfits B and Ba)







# HOW TO CONTINUE

This completes our examples of models that may be made with MECCANO Outfit C (or Outfits B and Ba). The next models are a little more advanced, requiring a number of extra parts to construct them. The necessary parts are all contained in a Ca Accessory Outfit, the price of which may be obtained from any Meccano Dealer.

X Clockwork Motor



No. 1 Clockwork Motor



No. 2 Clockwork Motor



Resistance Controller



6-volt 20-amp. hr. Accumulator

# MECCANO

POWER UNITS FOR OPERATING MECCANO MODELS

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

The side plates and bases of each motor are pierced with the standard Meccano equidistant holes, which enables the motor to be built into any Meccano model in the exact position required.

### Meccano Clockwork Motors

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

X SERIES CLOCKWORK MOTOR. A fine Motor specially designed to drive with ease any of the X Series models. It is non-reversing.

No. I CLOCKWORK MOTOR. An efficient and long-running Motor fitted with a brake lever. It is non-reversing.

No. Ia. CLOCKWORK MOTOR. This Motor is more powerful than the No. 1 Motor and is fitted with reversing motion. It has start, stop and reverse levers.

No. 2 CLOCKWORK MOTOR. This is a Motor of super quality. Brake and reverse levers enable the Motor to be started stopped or reversed, as required.

### Meccano Electric Motors

The five Meccano Electric Motors detailed below provide smooth-running power units for the operation of Meccano models. The 6-volt Motors may be operated either from a 6-volt Accumulator, or through a Transformer direct from the mains providing that the supply is alternating current. They cannot be run satisfactorily from dry cells. The 20-volt Motors are most conveniently operated through a 20-volt Transformer from alternating current supply mains.

No. E1 Electric Motor (6-volt). Non-reversing.

No. E6 Electric Motor (6-volt). Reversing. No. E120 Electric Motor (20-volt). Non-reversing.

No. E20A Electric Motor (25-volt). Non-reversing.

No. E20B Electric Motor (20-volt). Reversing.

### Meccano Transformers

A Meccano Transformer provides a convenient and safe means of driving a Meccano Electric Motor from the mains supply where this is alternating current.

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

No. T6 Transformer (Output 25 VA at 9 volts) for 6-volt Electric Motors. Fitted with speed regulator.

No. T6M Transformer (Output 25 VA at 9 volts) for 6-volt Electric Motors. This is similar to No. T6, but is not fitted with a speed regulator.

No. T6A Transformer (Output 40 VA at  $9/3\frac{1}{2}$  volts) for 6-volt Electric Motors. Fitted with speed regulator and separate circuit for supplying current for eighteen  $3\frac{1}{2}$ -volt lamps.

No. T20 Transformer (Output 20 VA at 20 volts) for 20-volt Electric Motors. Fitted with 5-stud speed regulator.

No. T20M Transformer (Output 20 VA at 20 volts) for 20-volt Electric Motors. This is similar to No. T20, but is not fitted with speed regulator.

No. T20A Transformer (Output 35 VA at  $20/3\frac{1}{2}$  volts) for 20-volt Electric Motors. Fitted with speed regulator and output sockets for lighting lamps.

### Accumulators

The 6-volt 20-amp. hr. Accumulator is specially suitable or running Meccano 6-volt Motors and Hornby 6-volt Electric Trains.

The 2-volt 20-amp. hr. Meccano Accumulator is supplied for converting 4-volt Accumulators to 6-volt.

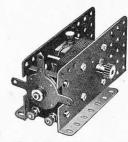
### Resistance Controller

This Controller enables the speed of Meccano 6-volt and 20-volt Motors and Hornby 6-volt and 20-volt Electric Trains to be regulated as desired.

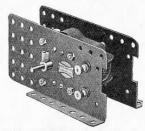
Ask your dealer for a complete price list



No. E1 Electric Motor (6-volt)



No. E6 Electric Motor (6-volt)



No. E20a Electric Motor (20-volt)

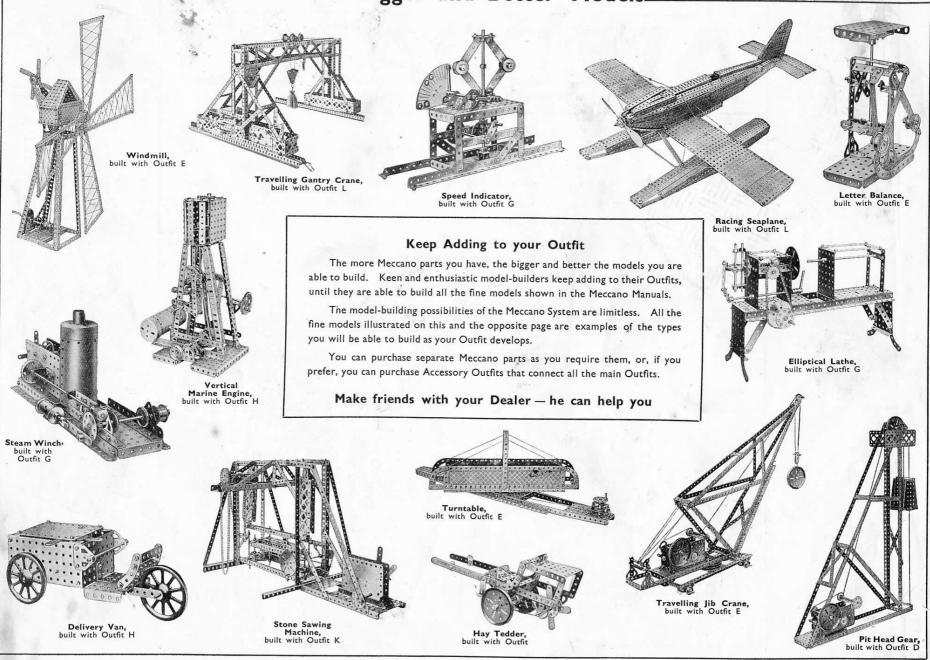


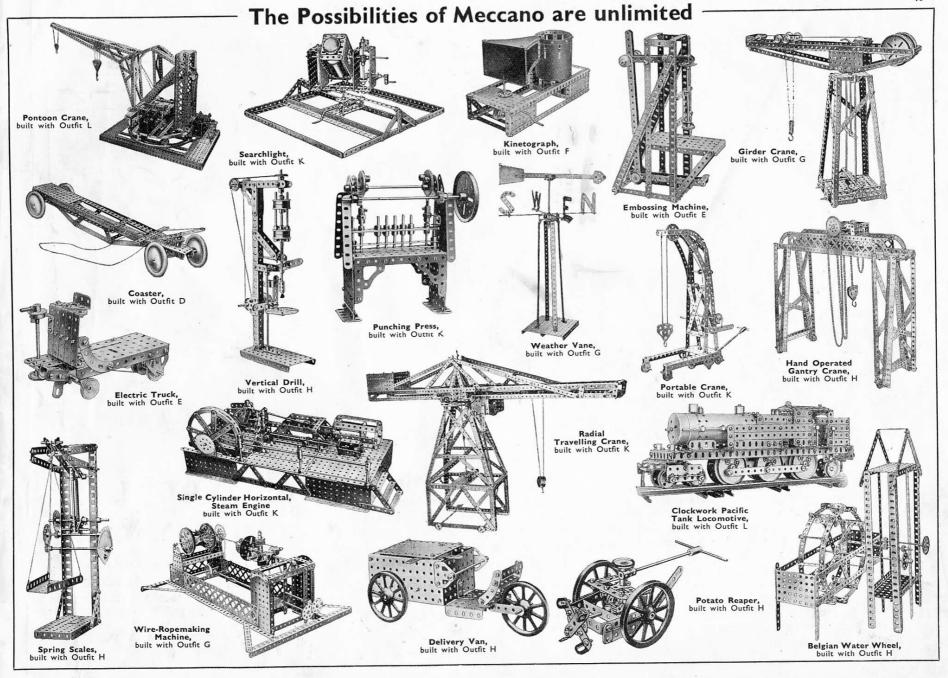
No. E1/20 Electric Motor (20-volt)



No. T20 Transformer

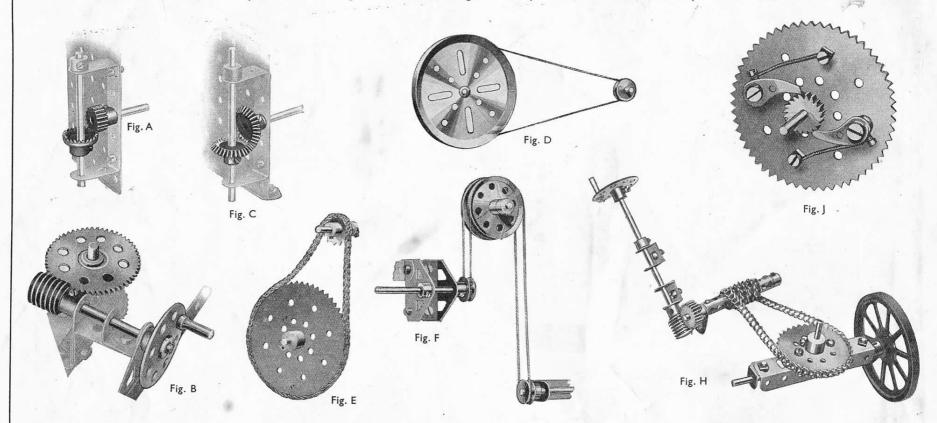
# Build Bigger and Better Models\_





# A Selection of Meccano Standard Mechanisms-

Here are a few simple and interesting movements showing how easily real mechanisms can be reproduced with Meccano.



# Gears

The Meccano system includes a wide range of Gear Wheels, Bevel Gears, Pinion Wheels, Contrate Wheels and Worm Wheels in various sizes. All manner of interesting movements can be obtained by the use of these gears.

Fig. A shows how a drive can be transmitted from a vertical to a horizontal shaft or vice versa. Fig. B shows a Worm engaged with a Gear Wheel, giving a very great reduction in shaft speed. Fig. C illustrates another right angle drive, obtained by using Meccano Bevel Gears.

# Belt and Chain Drives

In Figs. D, E and F we show examples of belt and chain drives. The movements illustrated require no explanation excepting, perhaps, Fig. F, which shows a simple method for transmitting the drive from one shaft to another when they are out of line.

Cords usually take the place of belts in Meccano models but miniature belting can be made from strips of canvas, indiarubber, etc., in which case Flanged Wheels should be used instead of grooved Pulleys.

# Steering Gears

The various types of steering mechanism commonly in use on vehicles of all descriptions can readily be reproduced with Meccano.

Fig. H. In this case the road wheels are controlled by an endless belt of Sprocket Chain operated by a worm and pinion mechanism.

# Pawl & Ratchet Movement

By means of this type of gear it is possible to construct certain types of automatic brakes and free wheels.

Fig. J. This model illustrates the method-of-building up a free-wheel unit.

# A Selection of Meccano Standard Mechanisms

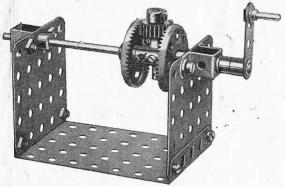
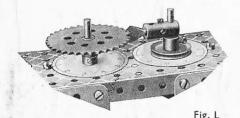


Fig. K

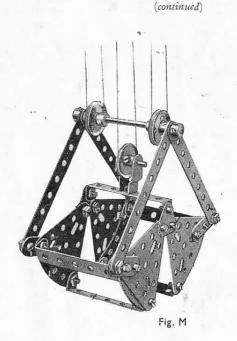


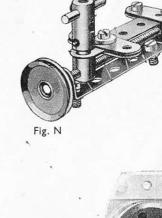
Epicyclic Transmission Gear

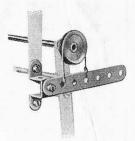
This device, Fig. K is designed to provide a gear ratio between two shafts mounted in direct line with one another. Its chief merit lies in the compactness of its construction and lack of external bearings.

# Intermittent Rotary Motion

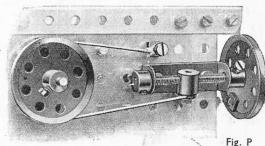
Fig. L shows one device by means of which intermittent rotary motion can be obtained. Such an arrangement is useful in revolution counters, measuring machines, etc. In addition to mechanisms that give true intermittent motion, different types of cams, converting a regular rotary motion into a constant or intermittent reciprocating motion, are described in the S.M. Manual.











# Grabs

A typical example of the many kinds of grab that can be constructed from Meccano is shown in Fig. M. If the grab is fitted to a model crane or ship-coaler, all the movements can be controlled from an operating box built into the frame of the model. The outer sides of the jaws may be filled in with cardboard and the grab can then be used to pick up loads of sand, grain, marbles, etc.

# Screw Traverse

Fig. N shows how a Threaded Rod can be applied to a model in order to give a slow, powerful traversing movement. The model illustrated is the slide-rest of a model lathe. The rotary movement of the 1" fast Pulley is transmitted to the tool holder via a short Threaded Rod and a Threaded Boss.

# Strap and Lever Brake

This device, Fig. O, will be found very useful as a quick emergency hand-brake. Although it is the most simple of such devices, it is also one of the most valuable.

# Strap and Screw Brake

The type of brake shown in Fig. P is used to apply a constant retarding effect to a rotating shaft. It can thus be utilised in a crane to prevent the load from falling back when the winding spindle is released. An advantage of the brake is that the speed of the shaft to which it is applied can be varied as required; the action of the brake cannot vary when once set unless the hand wheel is turned.

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