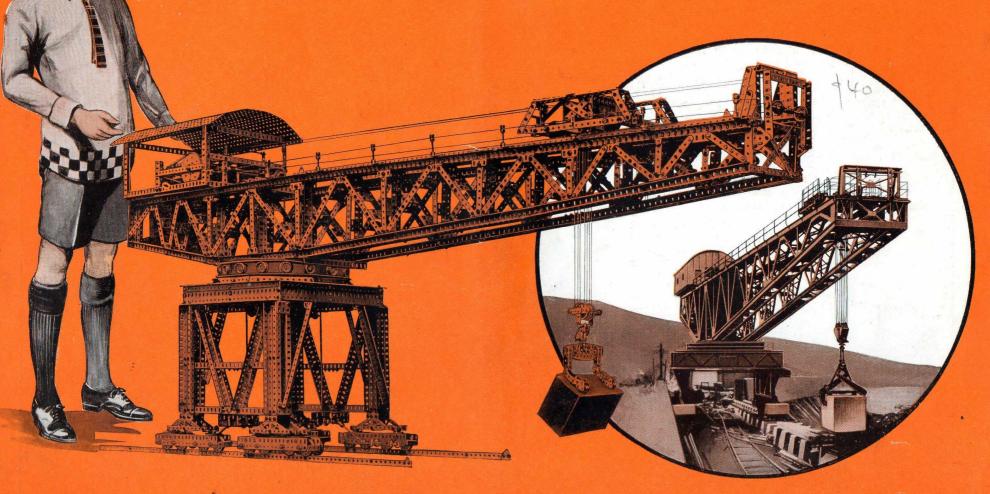
# MECCANO

INSTRUCTIONS FOR OUTFIT Ba





# MECCANO



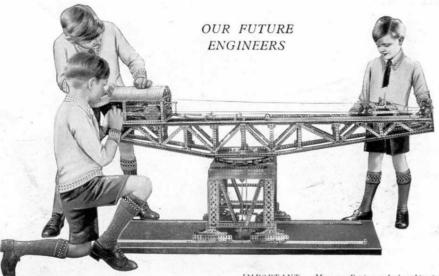
HORNBY'S ORIGINAL SYSTEM - FIRST PATENTED 1901

#### REAL ENGINEERING IN MINIATURE

The Meccano Accessory Outfit Ba converts your Outfit B into a C, and enables you to build the additional models illustrated in this Manual. As a Meccano enthusiast you will realise that our examples do not exhaust the scope of your Outfit. It is no exaggeration to say that the possibilities of Meccano are limitless—there is always something new that you can invent and build, and most models can be constructed in many alternative ways. In addition to the fascination and satisfaction obtained by building new models, you can enter them in the model-building competitions that are a regular feature of the "Meccano Magazine." These competitions are open to all Meccano boys and valuable prizes are offered in each class.

#### THE "MECCANO MAGAZINE"

The "Meccano Magazine" is essential to the full enjoyment of the Meccano hobby. A section of it is devoted to the Editor's replies to his readers' enquiries; the progress of Meccano Clubs throughout the world is



reported; and full details are given of the latest model-building achievements. In addition, a wealth of informative articles on all subjects of interest to boys is included in every issue. 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 newsagent.

#### HOW TO PROGRESS

When you desire to make further progress and to build bigger and better models, it is only necessary for you to purchase an Accessory Outfit Ca which will convert your C into a D. In turn, an Accessory Outfit Da will convert your D into a E, and so you go on, until finally your ambition is realised and you are the proud possessor of an L Outfit.

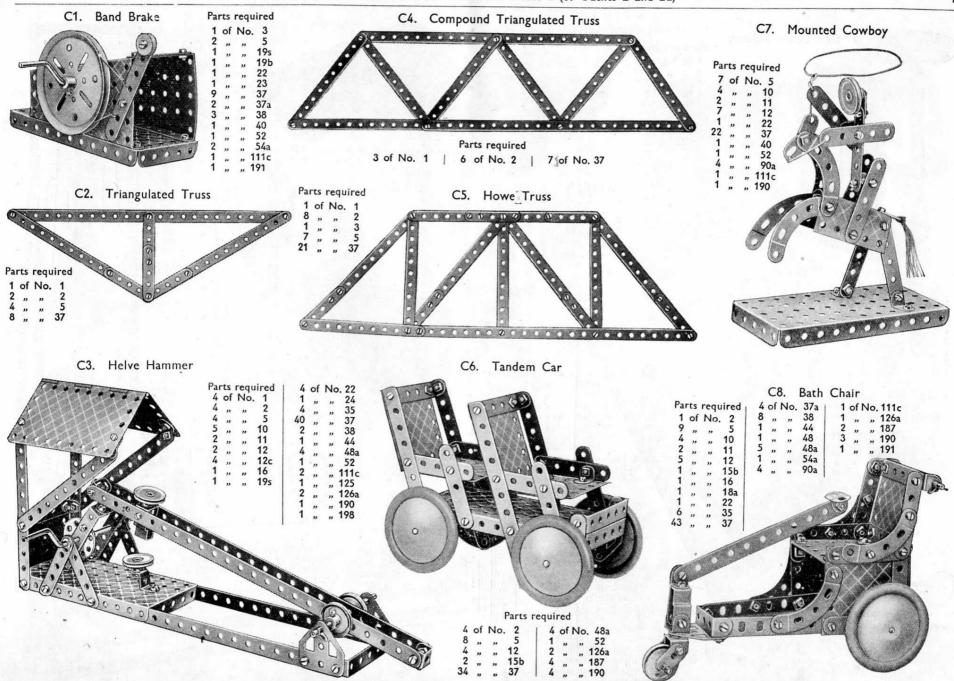
As a keen and inventive Meccano model-builder you should possess copies of the special Manuals "How to use Meccano Parts" and "Meccano Standard Mechanisms." In the former the principal uses of Meccano parts are outlined, while the latter shows a large number of real engineering mechanisms, built of Meccano parts, that can be incorporated in various models. You can obtain copies of these Manuals from your dealer, or direct from Meccano Ltd., Binns Road, Liverpool 13.

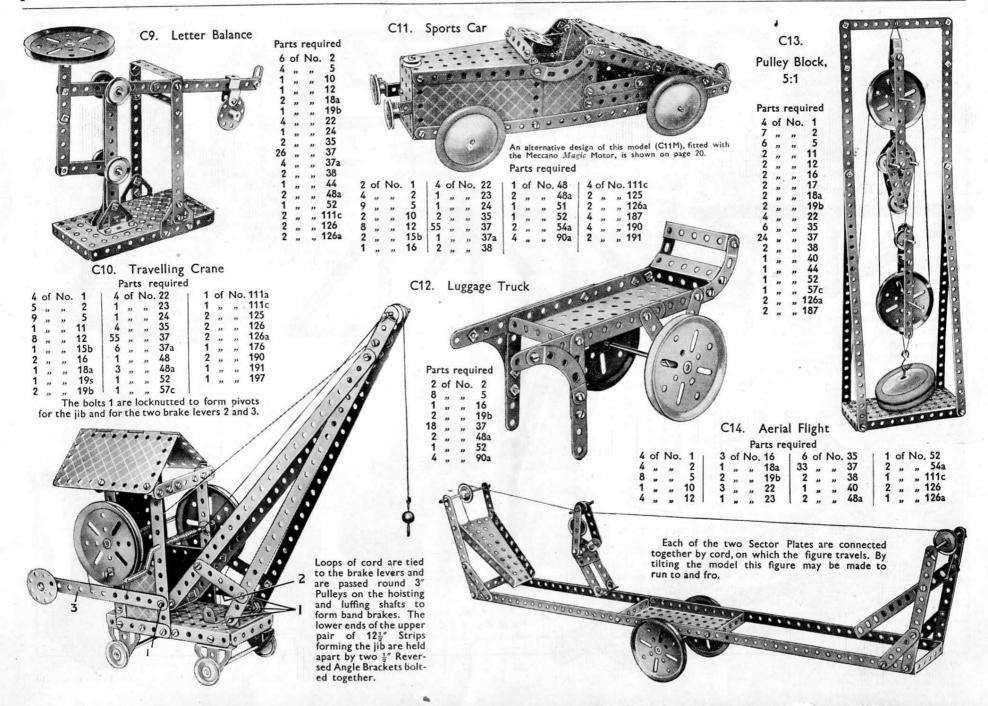
#### MECCANO SERVICE

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. Some write to us because they are in difficulty, others because they want advice on their work or pleasures, or about the choice of a career. Others, again, write to us just because they like to do so and we are glad to know that they regard us as their friends.

Although all kinds of queries are put to us on all manner of subjects, the main interest is, of course, engineering. The wonderful knowledge of engineering matters possessed by our staff of experts is unique. 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.

IMPORTANT: - Meccano Parts can be bought separately at any time in any quantity from your Meccano dealer

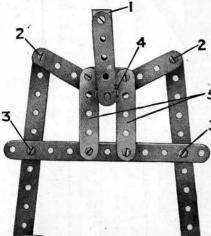




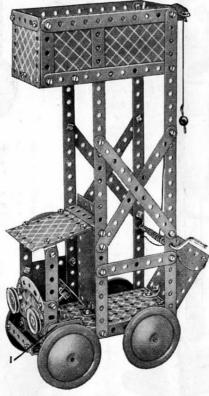
#### C15. Butter Churn



	Parts	requ	rec	1	
No.	2	1 1	of	No.	4
,,	5	1	,,	,,	5
	40	4		0.00	-



C16. Tower Wagon



The headlamps (1" Pulleys) are fixed in position by means of  $\frac{a^{\prime\prime}}{a^{\prime\prime}}$  Bolts secured by the Set Screws in the bosses of the Pulleys. The front axle is carried in Flat Trunnions 1 bolted by their centre holes to the Flanged Plate.

C18. Pneumatic Hammer

Parts required 3 of No.190 2 of No. 1 ., 176

A 3" Pulley Wheel is driven from a 1" Pulley on the Crank Handle and is fitted to a Rod journalled in a 21/2" Strip and Double Bent Strip 2 that are bolted to a  $2\frac{1}{2}'' \times 2\frac{1}{2}''$  Flexible Plate. A Bush Wheel is fitted on the other end of the Rod and a 21 Strip is pivoted on the bolt 1 fixed by two nuts locked against opposite sides of the Bush Wheel. Cord is tied to the  $2\frac{1}{2}$  Strip, passes over guide Pulleys, and is tied to an Anchoring Spring on the upper end of the hammer Rod.

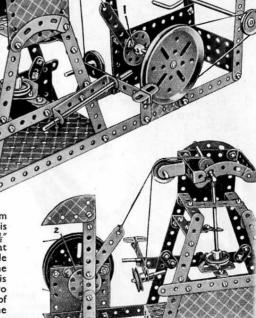


Fig. C18a

#### C17.

12c

111c 125

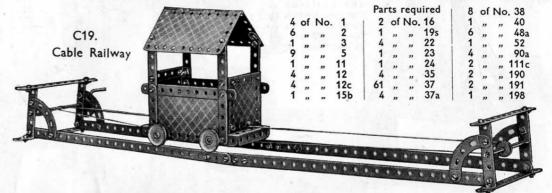
126

#### Friction Grip Tongs

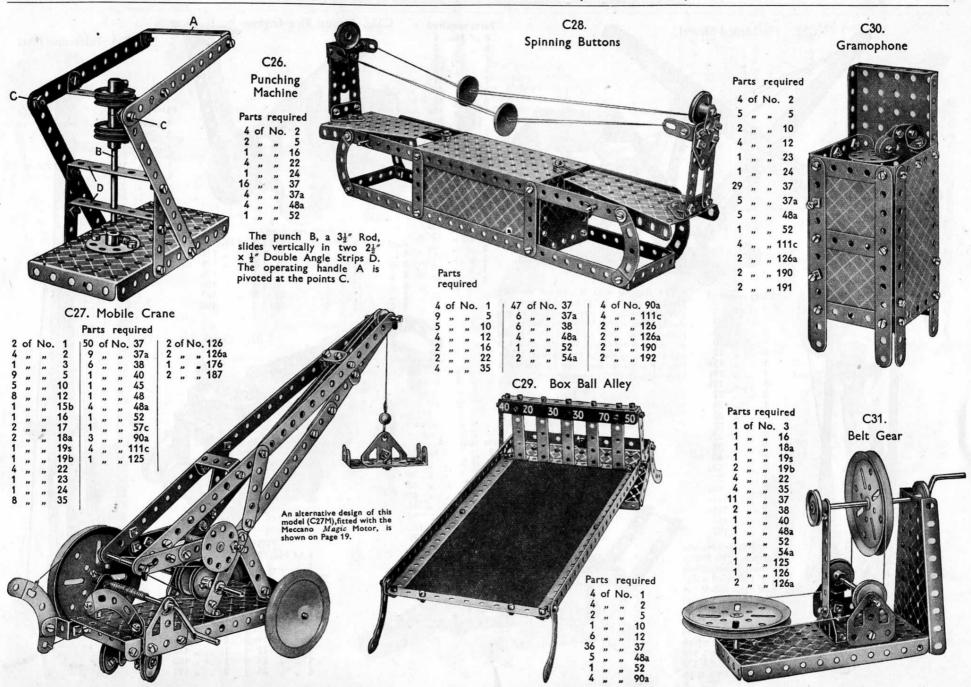
The hoisting cord is attached to the Double Bracket 1. The joints 2, 3 are locknutted, so that when the grip is raised the  $\frac{1}{2}$  loose Pulley Wheel 4 slides upward between the 21" Strips 5, and the grip closes upon the block of wood or other material placed between its jaws.

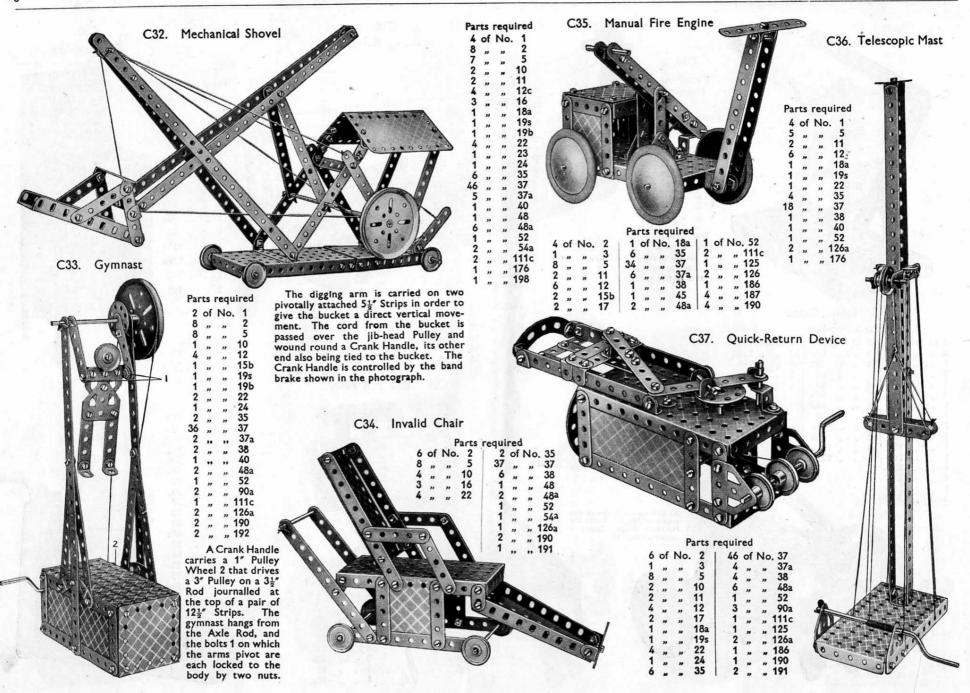
#### Parts required

3	of	No.	2	1 1	of	No.	23
			5	2			35
4		,,	10	12	,,	,,	37
1	,,	,,	11	4	,,	**	37
1	188		182	1		150	38



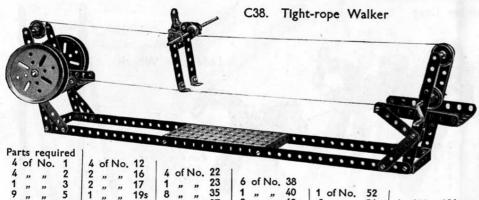
Electric Motor (not included in this Outfit).





1 of No. 126a C40. Cum Bak Parts required

1 of No. 18a



The endless is first passed ro four 1" fast Pul the two ends being attached one foot of figure that is ported by a 1/2" Pu running along upper section of cord.

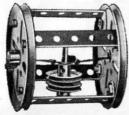
cord ound illeys then if to the sup- ulley the if the	7 1 9 5 7 6 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 1 1 1	f No.	1 2 3 5 10 11 12 12c 15b 16 17 18a 19s	4 of 1 " 8 " 66 " 5 " 1 " 5 " 1 "	No. """"""""""""""""""""""""""""""""""""	22 23 24 35 37 37a 38 40 48a 52	4 3 2 2 1 3 2 1	of """"""""""""""""""""""""""""""""""""	No. 90a " 111c " 125 " 126a " 176 " 179 " 192 " 198	
	2		196				7			The cord for racking the bucket carriage is passed twice round the Crank Handle. One end is then secured to the inner end of the carriage and the other is taken round a ½" Pulley, at the outer end of the rails, after which it is secured to the carriage.
(2)	00	00						~	C43.	Telephone required

Parts required C42. Extended Ash Tip

C39. Guillotine

Parts required 2 of No. 16 22

35

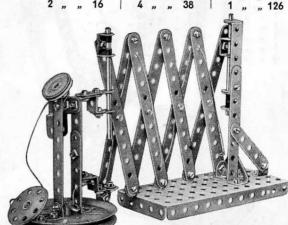


2 " "

A Driving Band is doubled and stretched between the centres of the 3" Pulley Wheels. A weight, consisting of two 1" fast Pulley Wheels and a 11 Rod, is suspended from it in the middle of the drum. When the Cum Bak is rolled along any smooth level surface, the elastic becomes twisted and stores up sufficient energy to return the drum to its starting point. If the mechanism is concealed by a thin cardboard covering, the model will cause much amusement by its mystifying behaviour

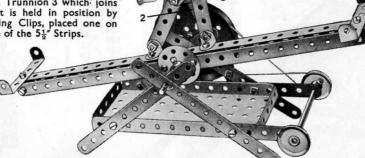
C41. Acrobat on See-saw

Parts required 3 of No. 1 52

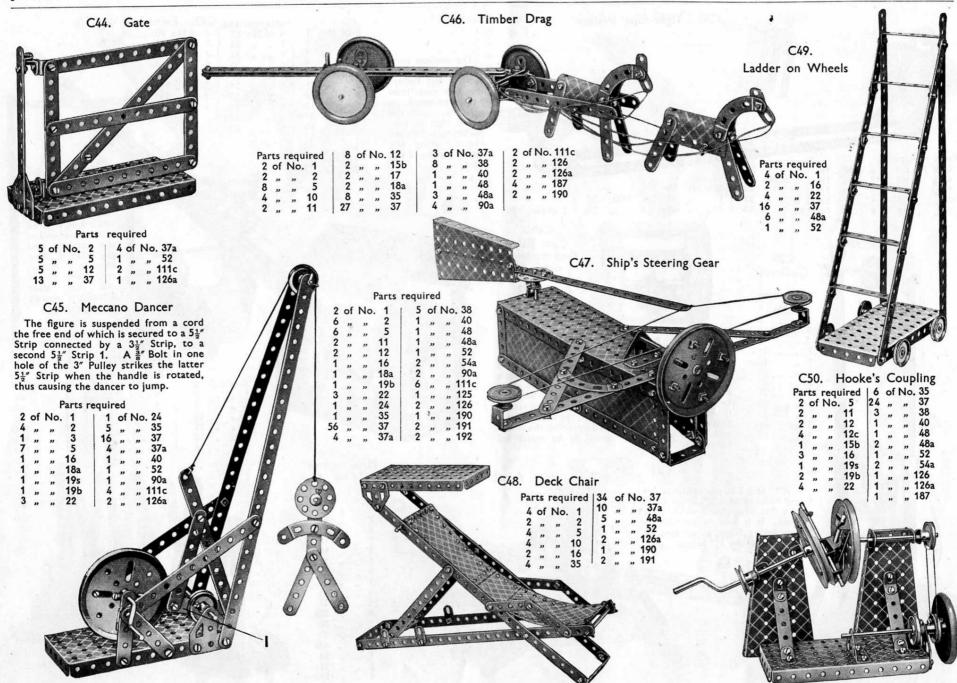


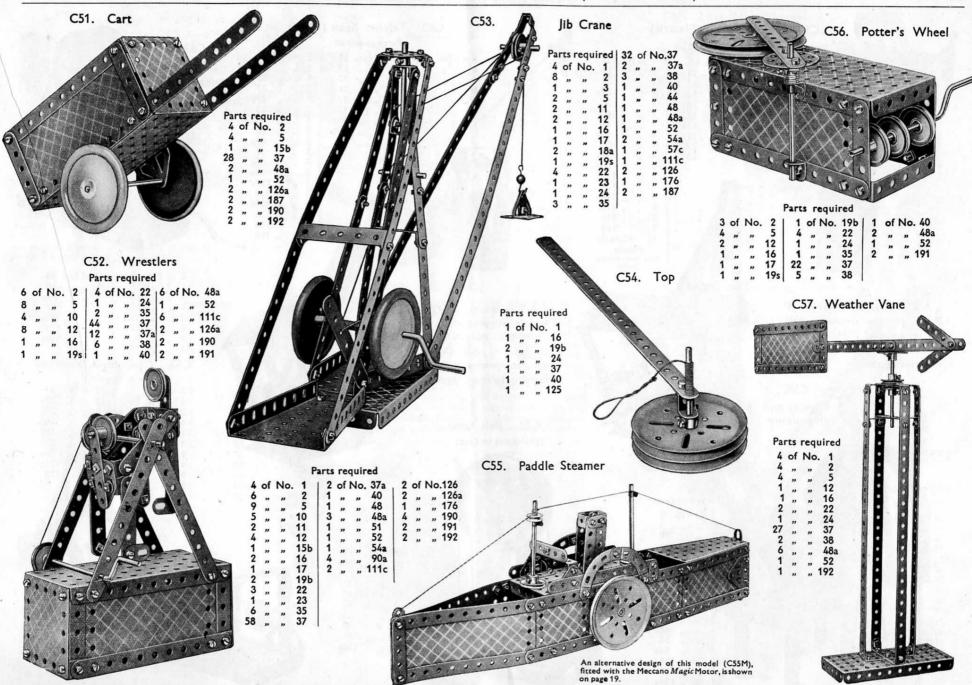
24 35 37

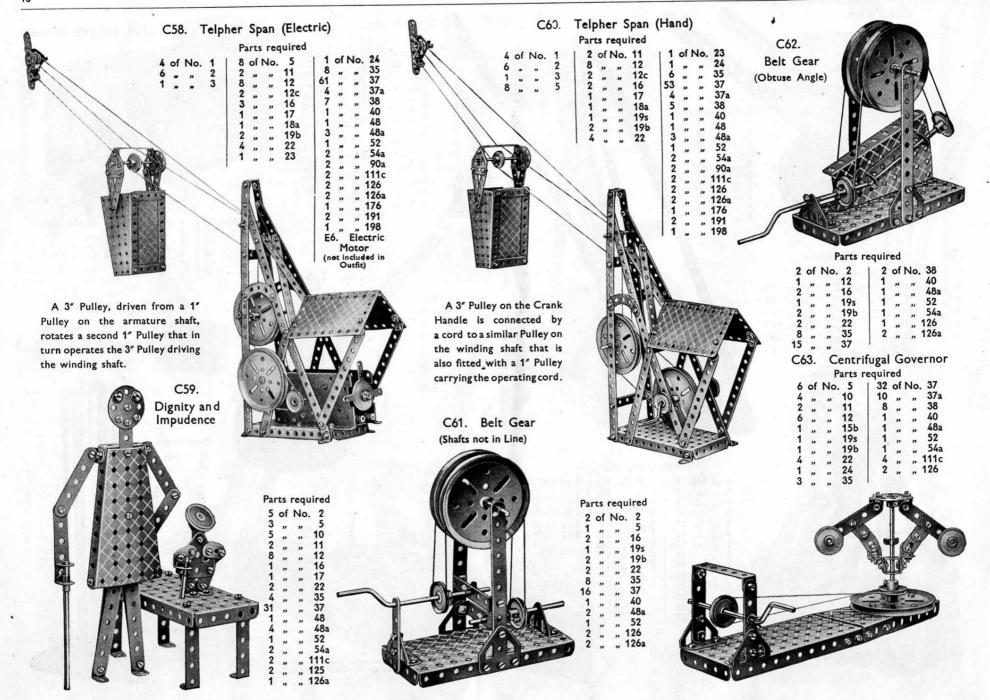
A 1" Rod 1 is journalled in the end holes of two 5½" Strips 2 and in a Flat Trunnion 3 which joins them. It is held in position by two Spring Clips, placed one on each side of the 51" Strips.

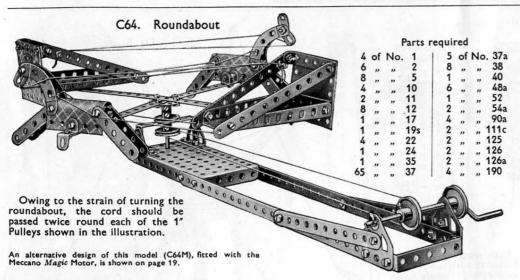










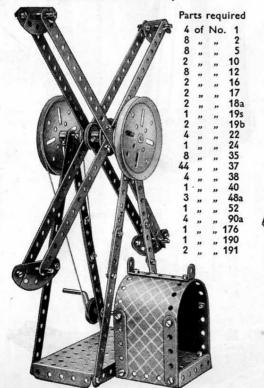




#### Parts required

6	of	No.	2	1 2	of	No.	16	2	of	No.	37a	1 4	of	No.	90a
1	,,	,,	3	2	,,	,,	22	8	,,	,,	38	2	,,	,, 1	11c
8	,,	,,	5	1	,,	,,	24	1	,,	,,	40	1	,,	" 1	86
1	,,	,,	11	1	,,	,,	35	1	,,	,,	48	2	,,	" 1	90
7	,,	,,	12	36	,,	,,	37	1	,,	,,	54a	2	,,	" 1	91

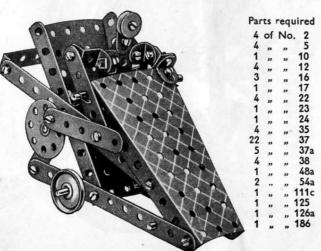
#### C65. Fly Boats

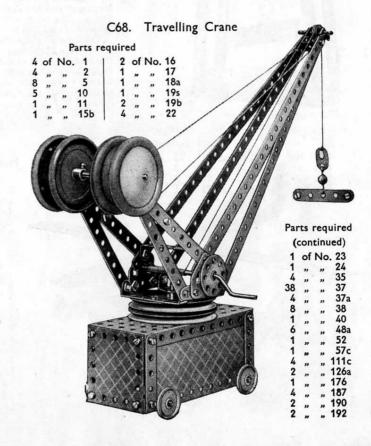


An alternative design of this model (C65M), fitted with the Meccano Magic Motor, is shown on page 20.

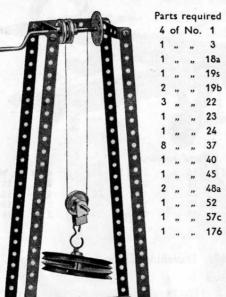
#### C66. The Invalid

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 1/2" 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 51 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 carries also a Bush Wheel. As will be seen, a 21 Strip is pivoted at one end to this BushWheel and at the other end to a second 21" Strip which, rocking about an axle journalled through its centre hole is again pivoted to the invalid's hands.

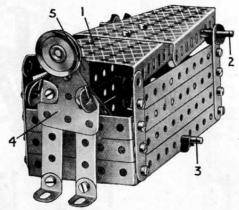




#### C69. Chinese Windlass



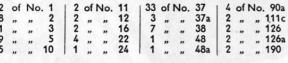
C71. Disappearing Meccanitian

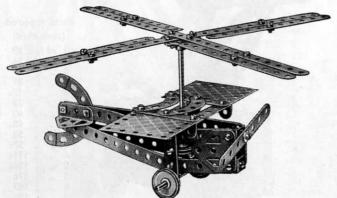


Parts required 6 of No. 2 22 35 37 126a Four short lengths of elastic

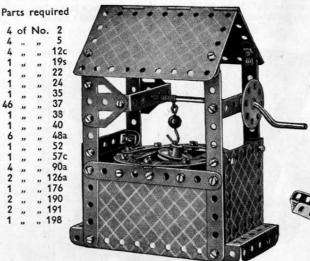
The bottom of the box-like portion of the model consists of a  $5\frac{1}{2}'' \times 2\frac{1}{2}''$  Flanged Plate ; three  $5\frac{1}{2}''$  Strips bolted to upright  $2\frac{1}{2}''$  Strips form each side and each end consists of two  $2\frac{1}{2}'' \times \frac{1}{2}''$  Double Angle Strips. The 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

#### C70. Autogiro Parts required





#### C72. Well Windlass



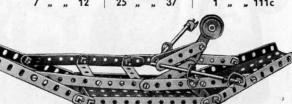


Parts required

4 of No.

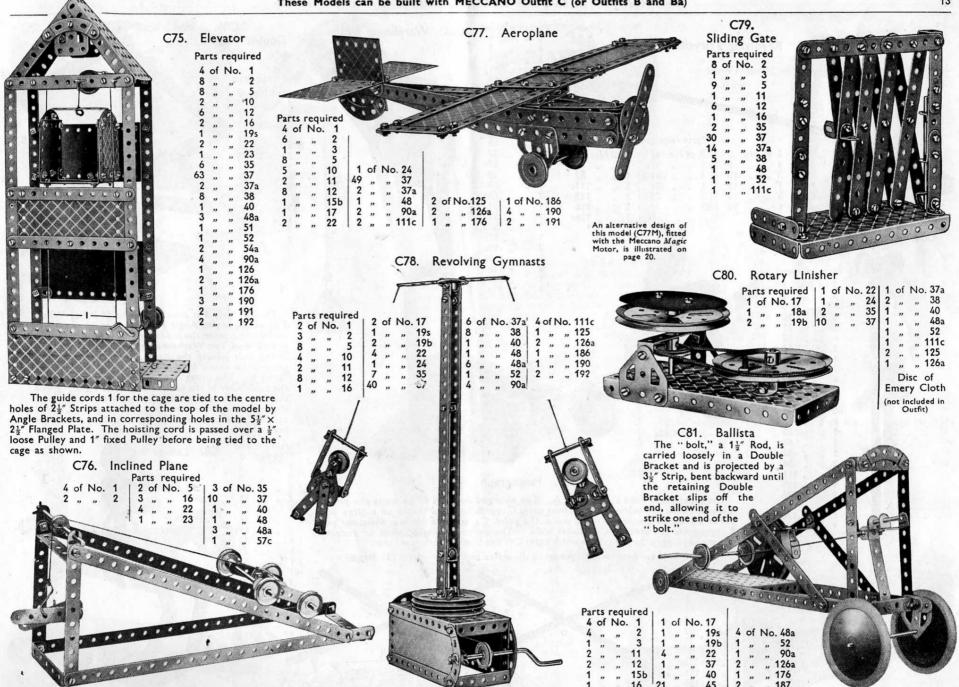
C73. Fly Boats

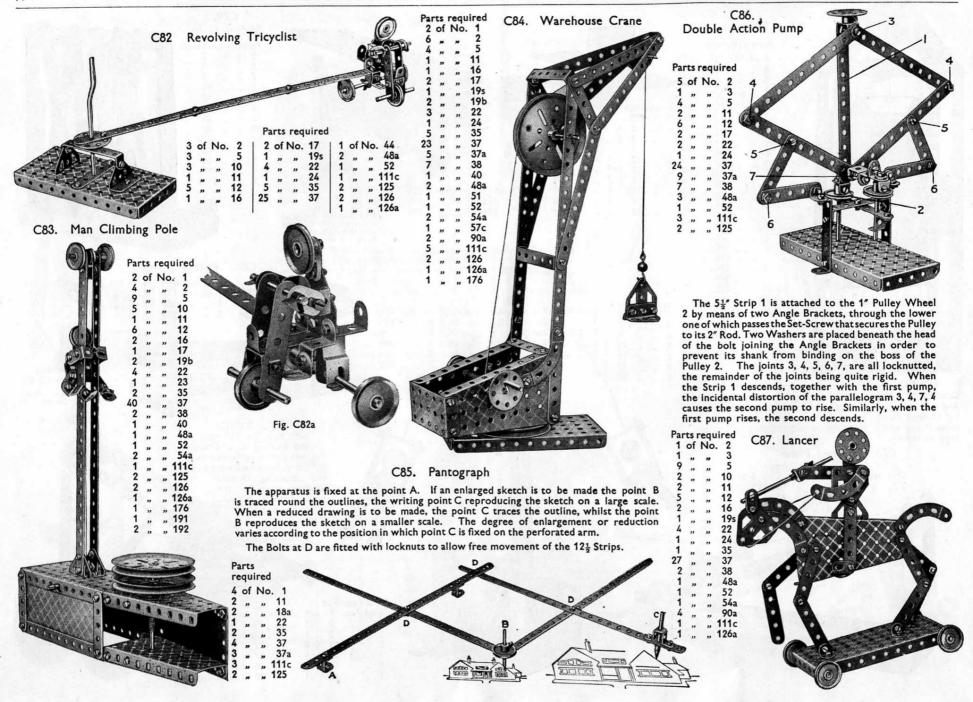
				Pa	rts	rec	uired				
4	of	No.	2	1 2	of	No.	16	3	of	No.	48a
4	,,		5	1	,,	,,	22	1	,,	*	52
4	,,	,,	10	6	,,	,,	35	2		,,	54a
7	,,	,,	12	25	,,	,,	37	1	,,		111c
								1			

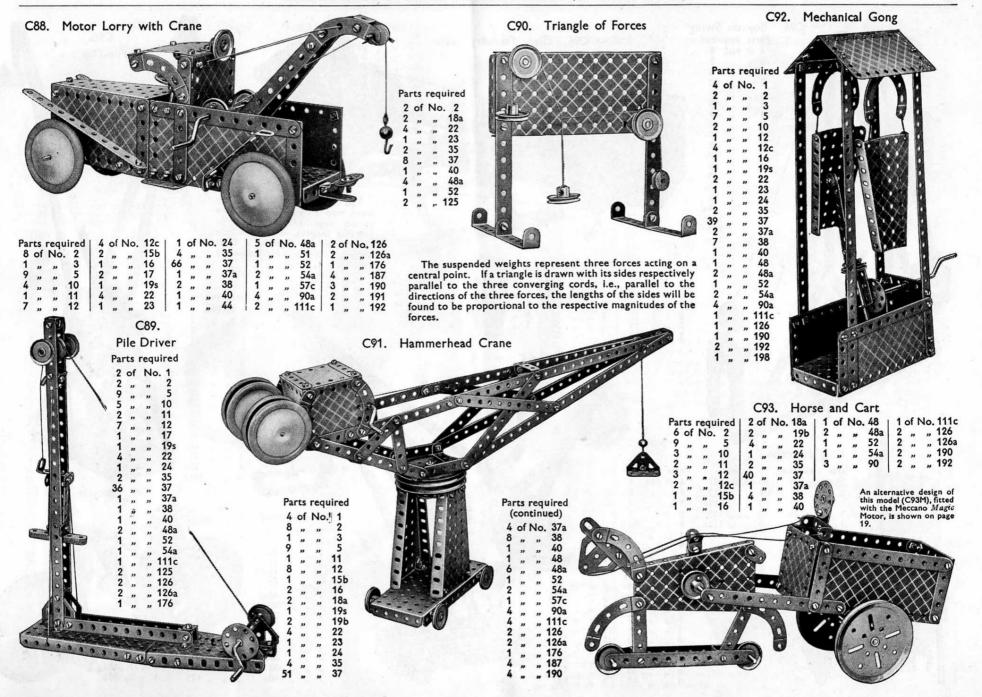


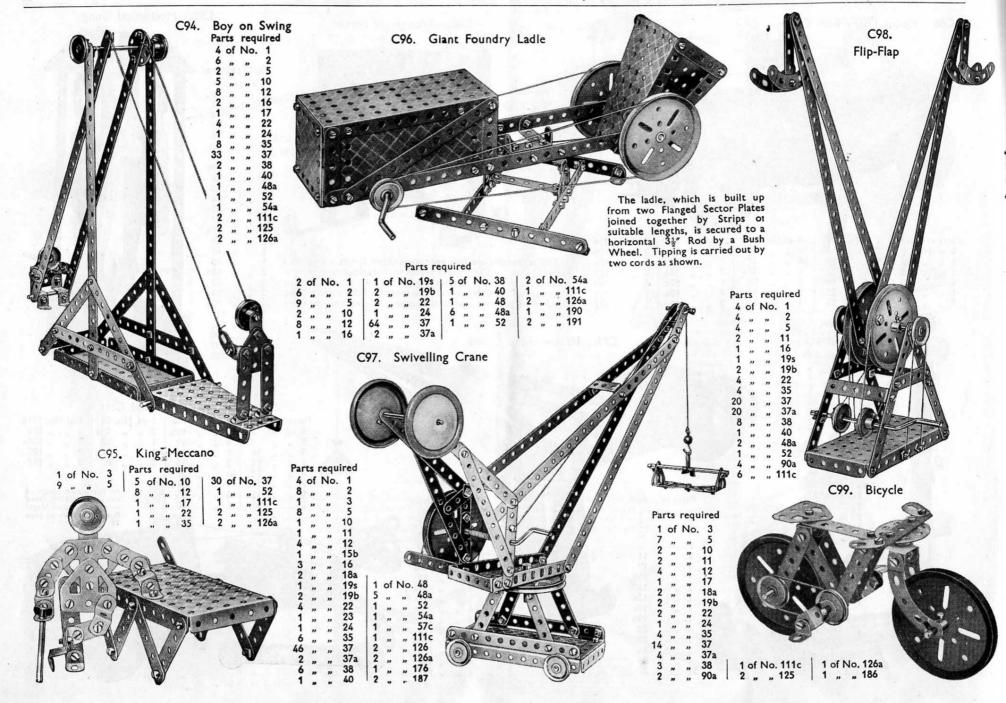


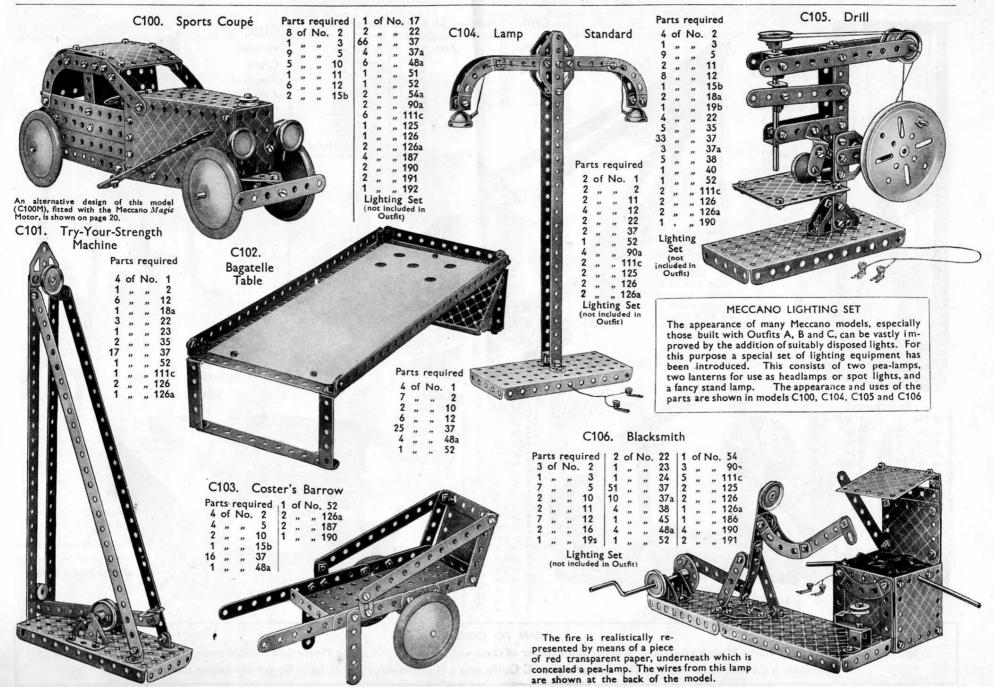


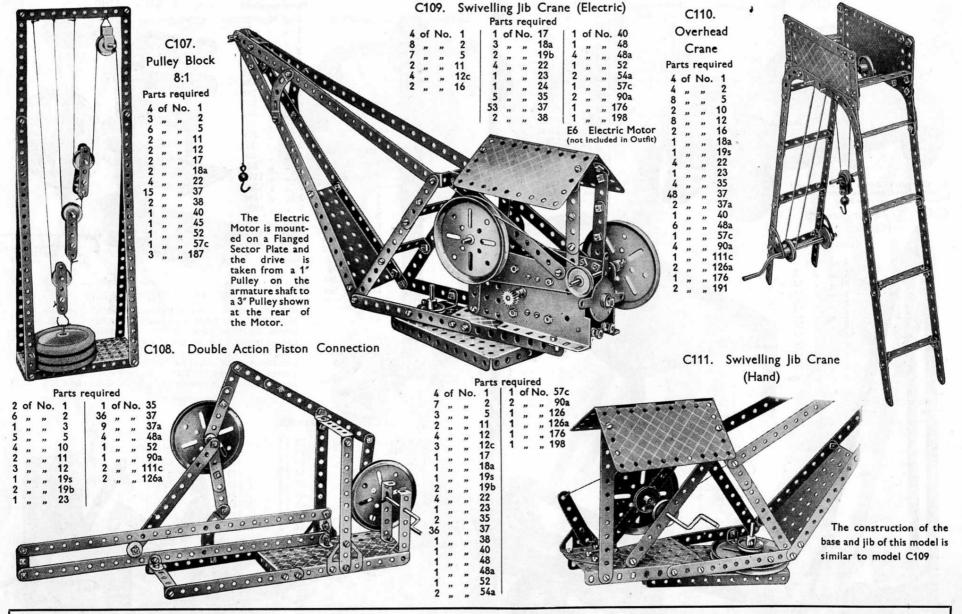








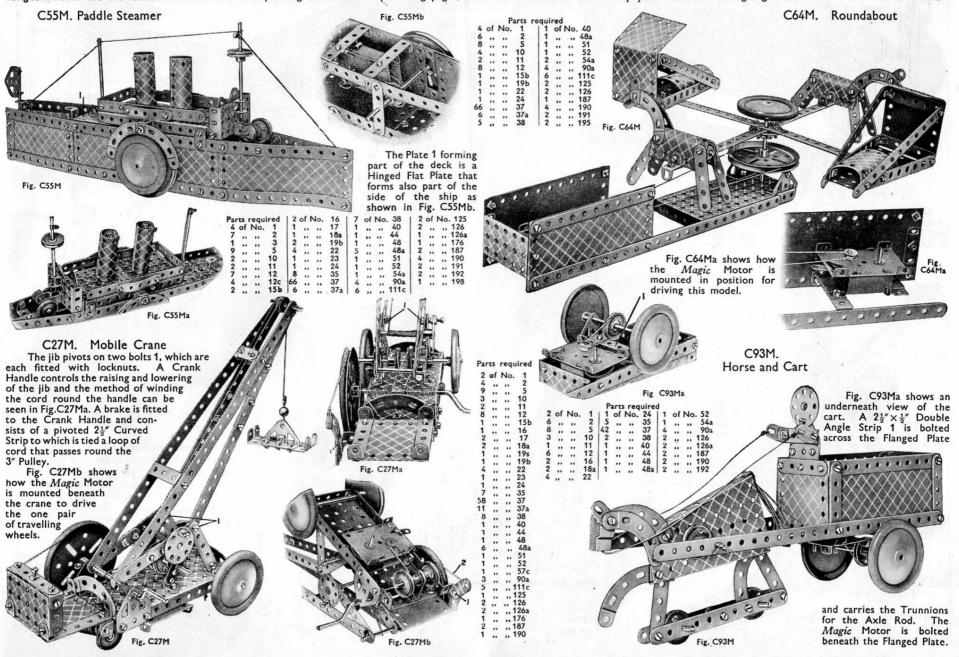


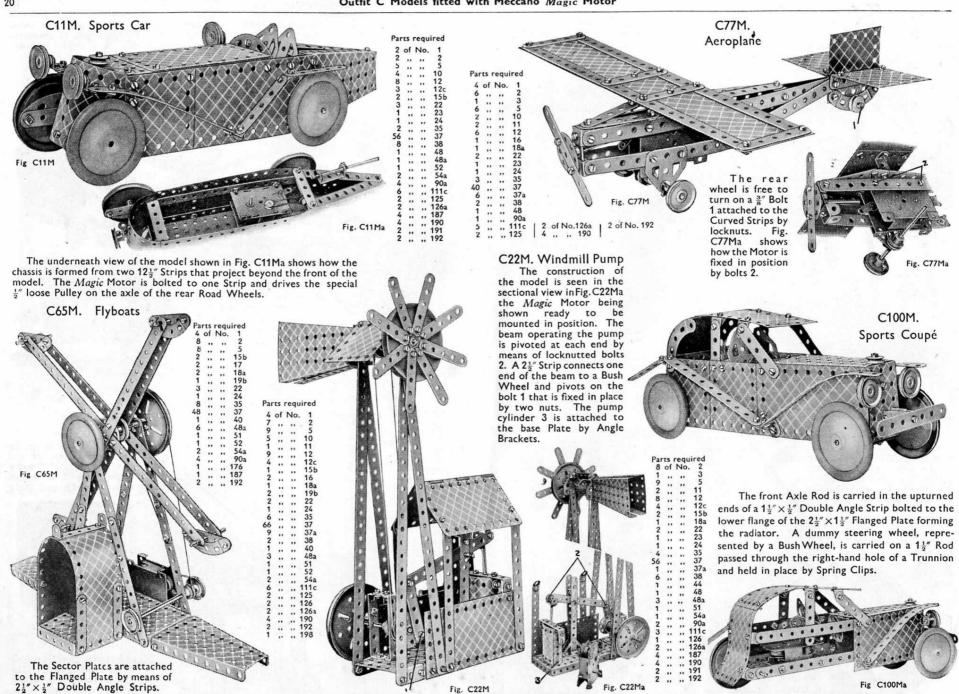


#### HOW TO CONTINUE

When you have built the C Outfit Models illustrated, and fitted a number of them with the Meccano Magic Motor (see two following pages), your next step is to purchase a Ca Accessory Outfit. This converts your C Outfit into a D 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 models featured on this and the opposite page are more elaborate variations of a selection of Outfit B Models, showing how the new Meccano Magic Motor can be fitted to give more realism and to increase the fun. The numbers of these redesigned models are the same as those of the corresponding models in the preceding pages, with the letter M added. Try your hand at re-designing other models in a similar manner.





## LIST OF MECCANO PARTS

No.	Description.	No. Description.	lo.	Description.	No.	Description.	No.	Description.
1a	Perforated Strips, 12½"	28 Contrate Wheels, 1½" diam 29 30 Bevel Gears, ½", 26 teeth	76 Triang	ates, 3"×1½"	120a	Buffers	164 165	Chimney Adaptors Swivel Bearings
1b	" " 7½"	30 Bevel Gears, 7/8, 26 teeth	77 ,	, .1″	1206	Compression Springs	166	End
2a	" " 5½" 4½"	30c 11 68 (used together)	78 Screwe	ed Rods, 11½"	121	Train Couplings Miniature Loaded Sacks	167	Geared Roller Bearings
3	$3\frac{1}{2}$	31 Gear Wheels, 1", 38 teeth	79a		123	Cone Pulley	167h	Roller Races, geared, 192 teeth Ring Frames for Rollers
4	., ., 3"		80	,, 5"	124	Reversed Angle Brackets, 1	167c	Pinions for Roller Bearings, 16 teeth
6	$\frac{2}{2}$	34 Spanners	80a	,, 3½"	125	Trunions	168	Ball Bearing, 4" diam
6a	11 11 11 11 11 11	34b Box Spanners	B0b		126	Trunnions	168a	Races, flanged disc
7 A	Angle Girders, 245	36 Screwdrivers	82	4.0	120a	Flat Trunnions Simple Bell Cranks	1686	,, toothed ,, ,, Casing, complete with balls
7a	,, 18½"	36a " Extra Long	89 5½" Cu	rved Strips, 10" radius ,, ,, cranked, 13"	128	Boss Bell Cranks	169	Digger Buckets
8 8a	. , 12½″	36b ,, Special	89a 3"	,, cranked, 1¾"	129	Rack Segments, 3" diam	170	Eccentrics, 4" throw
8b	, , , , , , , , , , , , , , , , , , ,	37 Nuts and Bolts, 7/32"	89b 4" C	us, 4 to circle Curved Strips, cranked, 4½"	130	Eccentrics, Triple Throw Dredger Buckets	171 172	Socket Couplings
9	,, ,, 5½"	37a Nuts	radio	us, 8 to circle			173	Pendulum Connections Rail Adaptors
9a 9b	" " $\frac{4\frac{1}{2}}{3\frac{1}{2}}$ "	30 yyasners	90 2½" Cu	rved Strips, 2]" radius	133	Corner Brackets, 1½"	174	Grease Cups
9c	" " 3½"	40 Hanks of Cord	90a 2½"	., ,, cranked, 1 }" us, 4 to circle	133a	Crank Shanks, 1" stroke	175	Flexible Coupling Units
9d	, , , , , , , , , , , , , , , , , , , ,	43 Springs	94 Sprock	tet Chain, 40" length	134	Theodolite Protractors	176	Anchoring Springs for Cord
9e	., ,, 2"	44 Cranked Bent Strips	95 ,,	Wheels, 36 teeth, 2" diam	136	Handrail Supports	178	Shafting Standards, large
9f 10 F	. ,, _ ,, 1≨*	45 Double	95a ,,	., 28 ., 1½".,	136a	., Couplings	179	
		47 21" \ 11"	95b	40 40	137	Wheel Flanges	180	loothed Gear Rings, 31" diam.
12 A	angle Brackets, ½" × ½"	4/a ,, ,, 3" ×11"	76a	18 1 14 3"	*138a	Ships' Funnels		(133 external teeth; 95 internal
12a	Double Brackets	40 ,, ,, 1½ X½		Girders, 3½" long	139	Flanged Brackets (right)	181	Bobbins
126 O	Obtuse Angle Brackets, ½"×½"	48a ,, ,, ,, 2½"×½" 48b ,, ,, ,, 3½"×½"		., 3"	139a	Universal Couplings	182	Insulating Bushes, 6BA
13 A	xle Rods, 11½"	48b ,, ,, ,, 3½"×½" 48c ,, ,, ,, 4½"×½"	78	12½"	140	Wire Lines (for suspending clock	183	Lamp Holders
	., ,, 8"	484 51" 41"	99a	91"		weights)	184b	Lamps, 2½ volt
	,, ,, 6½	50a Eye Pieces, with boss	99ь .,		142	Rubber Rings, 3" rim	184c	., 6 ,,
45	" " 4±"	51 Flanged Plates, 2½ ×1½ 52	00		142a	Motor Tyres (to fit 2" diam. rims)	184d	,, 10 ,,
4 20 4	" " 4"	50a Eye Pieces, with boss		, for looms	142t	" " " " " " " " " " " " " " " " " " "	184e	20
	,, ,, 31"	33 Perforated Flanged Plates, 3½" × 2½"	2 Single	Bent Strips	142d	" " i+" " "	186	Driving Bands
16a 16b	3"	53a Flat Plates, $4\frac{1}{2}'' \times 2\frac{1}{2}''$ 54a Flanged Sector Plates, $4\frac{1}{2}''$ long	3 Flat Gi	irders, 5½" long			187	Road Wheels
4.75	., ., 2"	55 Perforated Strips, slotted, 5½" long	03a ,, 03b	1212   1	144	Dog Clutches	188 I	
18a	., ., 1½"	55a ,, 2"	)3c ,,	41	146	Plates. 6"	190	, , , 5½" × 1½" , , , , , , , , , , , , , , , ,
18b	., 1"	57 Hooks	03d	., 3½" ,,	146a	,, Plates, 6" ,, ,,	191	
19s	rank Handles, large, 5" small, 3½"	57e ,, Scientific 57b ,, Loaded, large	03e	3 <sup>1/2</sup>	147	rawis, with Pivot Bolt and nuts	192	
19a W	Vheels, 3" diam., with set screws	57c small	17.6	22	147b	Pawls	193	Strip Plates, $2\frac{1}{2}$ $\times 2\frac{1}{2}$ $\times 2\frac{1}{2}$
	langed Wheels, 11 diam	58 Spring Cord		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	14/c	Pawl without boss	195	., 5½"×2½"
20Ь	Pulley Wheels	58a Coupling Screws for Spring Cord 58b Hooks for Spring Cord	)3k	" 7½"	148	Ratchet Wheels	196	$9^{1}_{2} \times 2^{1}_{2} \dots \dots$
	" dia., with centre boss & set screw	59 Collars with Grub Screws	5 Reed F	es, for looms Hooks, for looms	149	Collecting Shoes for Electric Locos Crane Grabs	197	$12\frac{1}{2}'' \times 2\frac{1}{2}'$ Hinged Flat Plates, $4\frac{1}{2}'' \times 2\frac{1}{2}''$
19c 6'		61 Windmill Sails	06 Wood	Rollers	151	Pulley Blocks, Single Sheave	201	Lamps with Flex
20a 2' 21 1	2" 11 11 11 11 11	62 Cranks	06a Sand R	ollers	152	Two	202	Angle Brackets (for Headlamps)
22 1		62a Threaded Cranks 62b Double Arm Cranks		for designing machines	153	,, Three	203	Headlamps
23a ½	", & grub screw	63 Couplings	9 Face Pl	raves	154a	Corner Angle Brackets, ½" (right	204	Headlamp Nuts
22a 1″ 23 ±		63a Octagonal Couplings		trips, 3½"	154b*	hand) Corner Angle Brackets, ½"(left hand)		Red)
	ush Wheels " "	63b Strip Couplings 63c Threaded Couplings	0a	61"		Rubber Rings, a (for 1" Pulleys)	206	Lampshades
	inion Wheels, 3" diam., 1" face	64 ,, Bosses	1 Bolts,	3"		Pointers, (with boss) 21 overall	208	Lamp Bases
	11 11 3" 11 2" 11	65 Centre Forks	1a ,,	1/2"	157	Fans, 2" diam	ZUBa	VVashers for Battery Stude
25b 26	" " 4" " 4" " ··· ··· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·	66 Weights, 50 grammes 67 25		ľ	158a	Signal Arms, Home	210	Nuts Helical Gear, 1" (Can only be 11" (used together)
26a	" " ½" " ¼ " " " " " " " " " " " " " " "	67 ,, 25 ,,		Frames	158b	,, ,, Distant	211a	Helical Gear, 12 (Can only be)
26b	11 11 2 11 4 11	69 Set Screws		led Pins		Channel Bearings, $1\frac{1}{2}$ " $\times 1$ " $\times \frac{1}{2}$ " Girder Brackets, $2$ " $\times 1$ " $\times \frac{1}{2}$ "	21.0	
27 50	Gear Wheels  teeth to gear with 3" pinion	69a Grub Screws, 5/32"		ieces, large		Boiler, complete; with ends		
27a 57	1	69b ,, ., 7/32"		,, small		,, ends	* The	series includes 26 Funnels in the
27b 13	35 ,, ,, ½ ,,(5½ diam)	70 Flat Plates, 5½" × 2½"	7 Steel B	lalls, §" diam	162b	" without ends		ct designs and colours of leading
27c 95	, , , , ½" ,,(2½" diam.)	72 ,, ,, $2\frac{1}{2}$ × $2\frac{1}{2}$	8 Hub D	iscs, 5½"	163	Sleeve Pieces		ng companies.
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