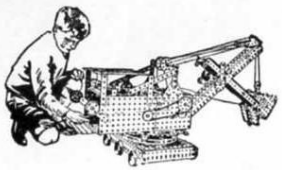
MECCANO

HORNBY'S ORIGINAL SYSTEM — FIRST PATENTED 1901

INSTRUCTIONS FOR OUTFIT Ca

13/636/.25 (Eng. X)



MECCANO

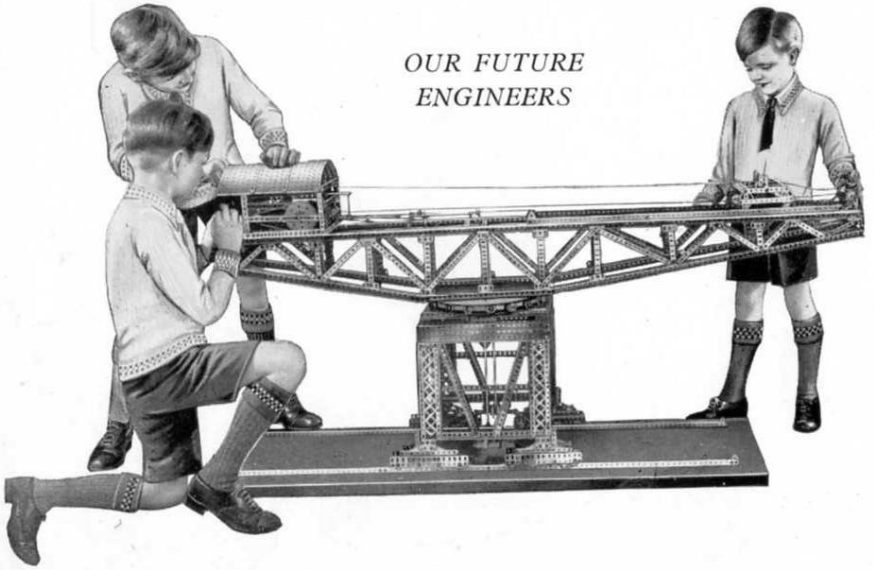
REAL ENGINEERING FOR BOYS

REAL ENGINEERING IN MINIATURE

The Meccano Accessory Outfit Ca converts your Outfit C into a D, 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.



OUR FUTURE ENGINEERS

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 Da which will convert your D into an E. In turn, an Accessory Outfit Ea will convert your E into an F, 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 a copy of the special Manual "Meccano Standard Mechanisms," which shows a large number of real engineering mechanisms, built of Meccano parts, that can be incorporated in various models. You can obtain a copy of this Manual from your dealer, or direct from Meccano Ltd., Binns Road, Liverpool 13.

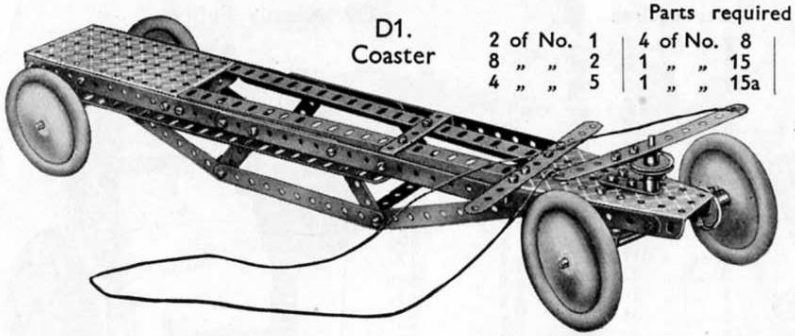
MECCANO SERVICE

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

D1. Coaster



Parts required

2 of No. 1	4 of No. 8	1 of No. 17
8 „ „ 2	1 „ „ 15	3 „ „ 22
4 „ „ 5	1 „ „ 15a	1 „ „ 23
		1 „ „ 24
		44 „ „ 37
		4 „ „ 38
		1 „ „ 48
		4 „ „ 48a
		1 „ „ 52
		1 „ „ 54a
		2 „ „ 62
		2 „ „ 126
		4 „ „ 187

The chassis is built up from two 12½" Angle Girders and two 12½" Strips, joined together as shown and spaced apart by a 5½"×2½" Flanged Plate, a Flanged Sector Plate and a 2½"×½" Double Angle Strip. The rear axle is carried in two Trunnions and the front axle Fig. D1a in a 2½"×½" Double Angle Strip that is secured by a Bush Wheel to a short Rod mounted in the boss of a Crank.

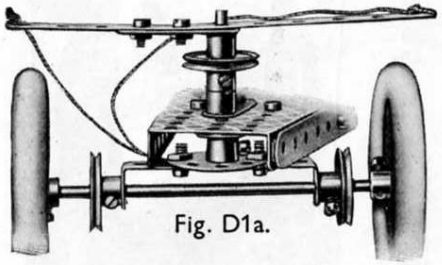
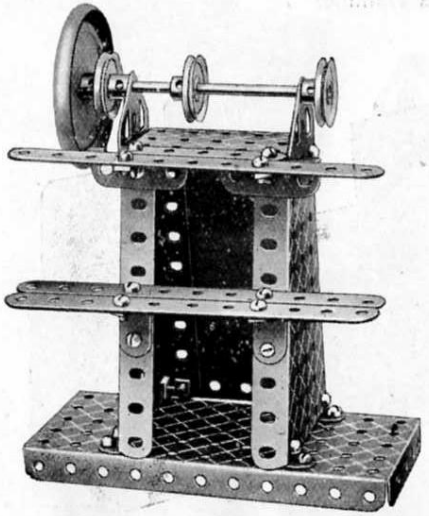


Fig. D1a.

D2. Polishing Spindle

Parts required

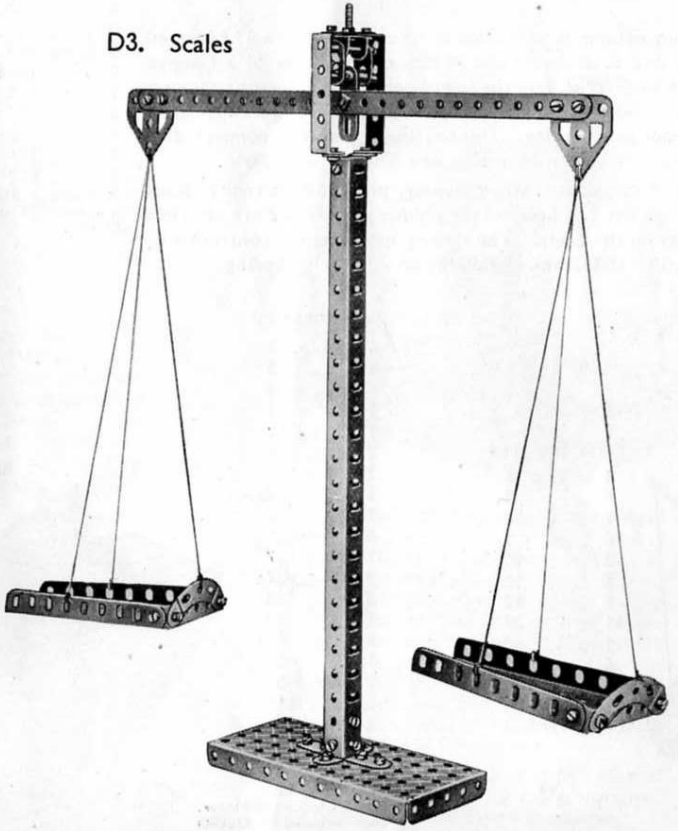
3 of No. 2	3 of No. 22	2 of No. 126
1 „ „ 5	30 „ „ 37	2 „ „ 126a
4 „ „ 12	1 „ „ 51	1 „ „ 187
2 „ „ 12a	1 „ „ 52	1 „ „ 191
1 „ „ 15b	2 „ „ 54a	



D3. Scales

Parts required

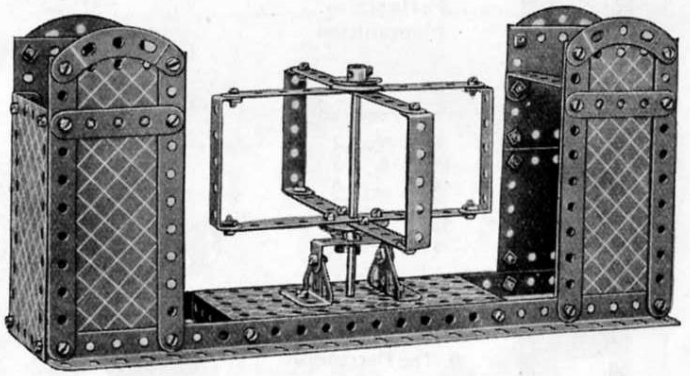
2 of No. 1	31 „ „ 37
1 „ „ 6a	4 „ „ 38
2 „ „ 8	1 „ „ 40
2 „ „ 10	1 „ „ 45
1 „ „ 11	4 „ „ 48a
2 „ „ 12	1 „ „ 52
2 „ „ 12a	2 „ „ 54a
2 „ „ 18a	2 „ „ 62
2 „ „ 35	2 „ „ 90a
	1 „ „ 115
	2 „ „ 126a



D4. Turnstile

Parts required

12 of No. 2	1 „ „ 22
4 „ „ 5	1 „ „ 24
2 „ „ 8	1 „ „ 35
4 „ „ 12	52 „ „ 37
1 „ „ 15a	1 „ „ 38
1 „ „ 22	1 „ „ 48
	8 „ „ 48a
	1 „ „ 52
	4 „ „ 90a
	2 „ „ 126
	4 „ „ 190
	2 „ „ 191
	2 „ „ 195

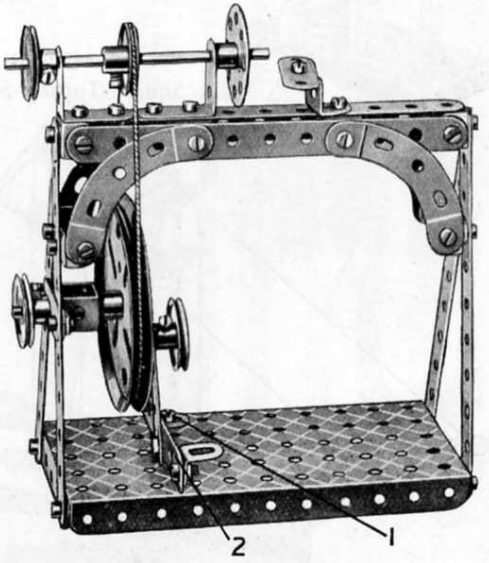


D5. Treadle Lathe

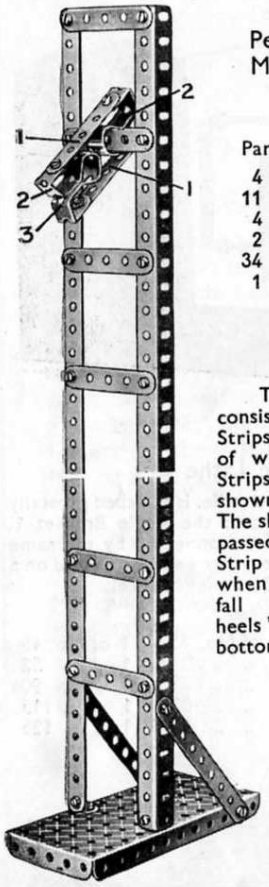
The 2½" Strip 2, forming the treadle, is attached pivotally by means of a bolt and two nuts to the Angle Bracket 1. One end of a further 2½" Strip is connected by the same means to the 2½" Strip 2, and the other end is mounted on a Threaded Pin secured to the 3" Pulley Wheel.

Parts required

7 of No. 2	2 of No. 12a	1 of No. 35	1 of No. 45
1 „ „ 3	1 „ „ 16	34 „ „ 37	1 „ „ 52
1 „ „ 5	1 „ „ 17	2 „ „ 37a	4 „ „ 90a
2 „ „ 6a	3 „ „ 19b	4 „ „ 38	1 „ „ 115
4 „ „ 11	4 „ „ 22	1 „ „ 40	1 „ „ 125
6 „ „ 12	1 „ „ 24		



D6. Performing Meccanitian

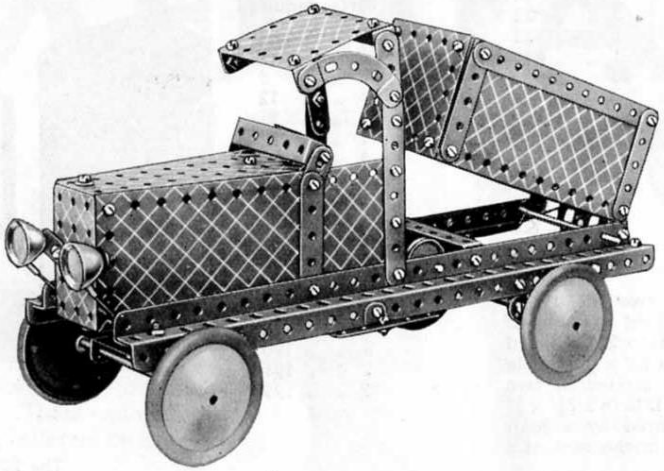


Parts required

4	of No.	2
11	„ „	5
4	„ „	8
2	„ „	12
34	„ „	37
1	„ „	52

The Meccanitian consists of two $2\frac{1}{2}$" Strips 1 to the ends of which two $5\frac{1}{2}$" Strips 2, bent as shown, are bolted. The slot 3 should be passed over the top Strip of the ladder, when the device will fall "head over heels" to the bottom.

D8. Tipping Motor Wagon



The steering column is journalled at its upper end in a $\frac{1}{2}$" Reversed Angle Bracket, and at its lower end in one of the holes of a Flanged Sector Plate. A Bush Wheel on the lower end of the steering column is attached by two short lengths of cord to a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip forming the front axle bearing. This bearing is pivotally connected to the underside of the wagon by means of a Double Bent Strip.

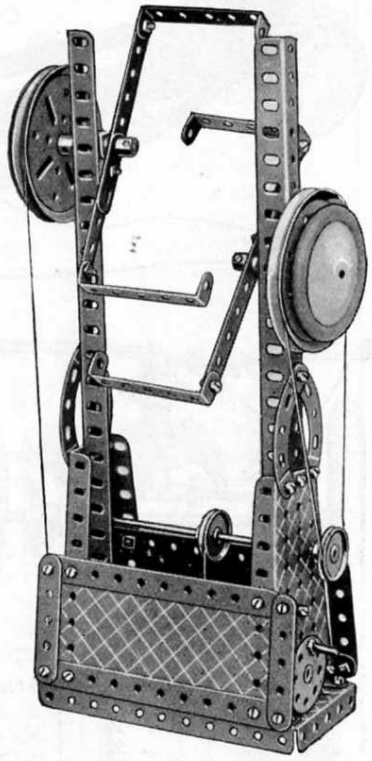
The body of the wagon, when tipping, pivots about two $\frac{3}{8}$" Bolts that pass through the end holes of the chassis girders and are attached to Flat Brackets on the body. The tipping movement is controlled by a cord attached to the Crank Handle by an Anchoring Spring.

Parts required

2	of No.	2
2	„ „	3
12	„ „	5
4	„ „	8
8	„ „	10
2	„ „	12
1	„ „	15
1	„ „	15a
1	„ „	15b
1	„ „	16
1	„ „	19s
3	„ „	22
1	„ „	24
5	„ „	35
65	„ „	37
6	„ „	37a
7	„ „	38
1	„ „	40
1	„ „	45
8	„ „	48a
1	„ „	51
1	„ „	52
2	„ „	54a
4	„ „	90a
2	„ „	111c
1	„ „	125
2	„ „	126a
1	„ „	176
4	„ „	187
4	„ „	190
2	„ „	191
2	„ „	192

(1 Lighting Set not included in Outfit)

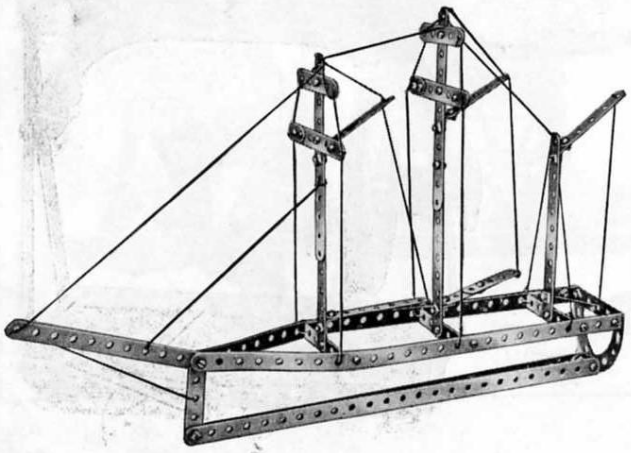
D9. Candy Puller



Parts required

6	of No.	2
4	„ „	5
2	„ „	8
4	„ „	12
2	„ „	15
2	„ „	17
2	„ „	19b
4	„ „	22
1	„ „	24
44	„ „	37
8	„ „	38
1	„ „	40
1	„ „	45
4	„ „	48a
1	„ „	52
2	„ „	54a
2	„ „	62
4	„ „	90a
1	„ „	115
2	„ „	125
1	„ „	176
1	„ „	186
2	„ „	187
2	„ „	191

D7. Square-Topsail Schooner



Parts required

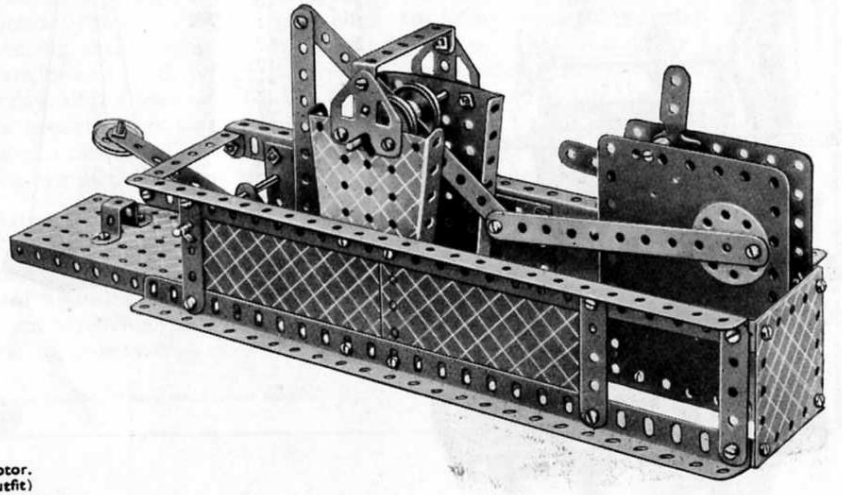
4	of No.	1
6	„ „	2
1	„ „	3
10	„ „	5
4	„ „	10
1	„ „	11
5	„ „	12
41	„ „	37
1	„ „	40
4	„ „	48a
2	„ „	90a

Parts required

4	of No.	2
5	„ „	5
4	„ „	8
1	„ „	11
1	„ „	12
2	„ „	16
2	„ „	22
1	„ „	22a
1	„ „	24
6	„ „	35
41	„ „	37
9	„ „	37a
8	„ „	38
1	„ „	45
4	„ „	48a
1	„ „	52
2	„ „	54a
6	„ „	111c
2	„ „	126a
2	„ „	190
2	„ „	191
2	„ „	195

No. 2 Clockwork Motor. (not included in Outfit)

D10. Mechanical Hammer



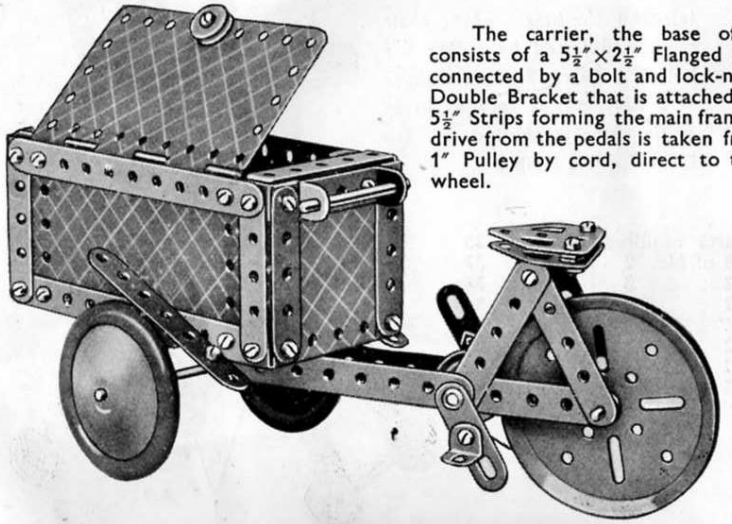
D11. Towel Horse

Parts required	
6	of No. 1
4	„ „ 2
2	„ „ 8
4	„ „ 10
4	„ „ 12
2	„ „ 22a
28	„ „ 37
2	„ „ 37a
8	„ „ 38
4	„ „ 90a
2	„ „ 111c

D12. Carrier Tricycle

Parts required

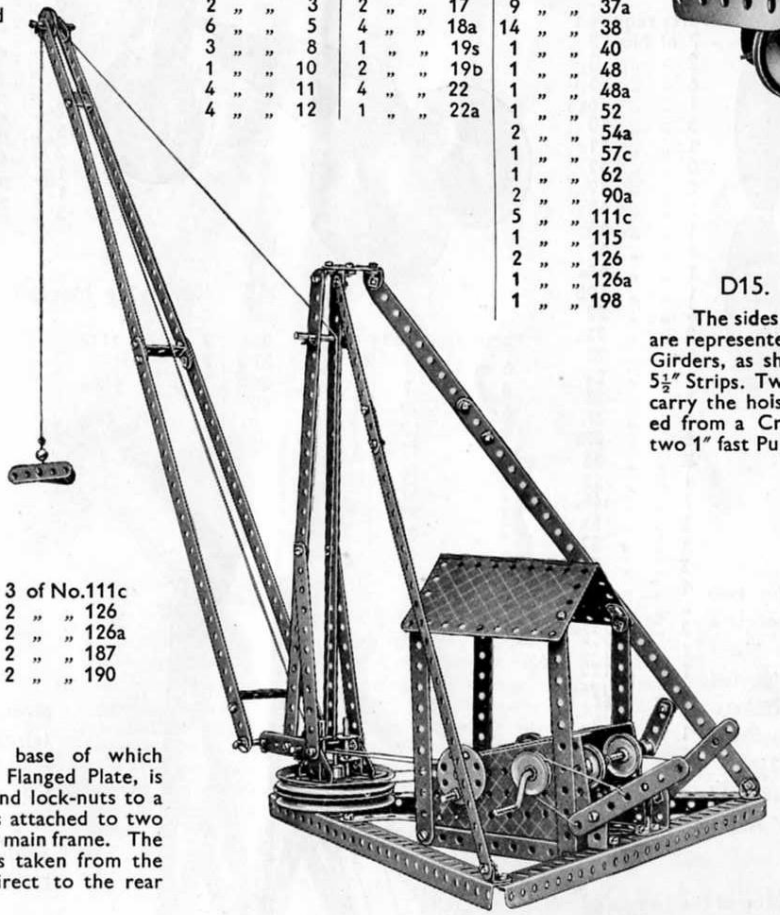
4	of No. 2	1	of No. 15b	1	of No. 23	1	of No. 40	3	of No.111c
2	„ „ 3	1	„ „ 17	4	„ „ 35	1	„ „ 48	2	„ „ 126
12	„ „ 5	2	„ „ 18a	40	„ „ 37	4	„ „ 48a	2	„ „ 126a
2	„ „ 11	1	„ „ 19b	10	„ „ 37a	1	„ „ 52	2	„ „ 187
6	„ „ 12	1	„ „ 22	9	„ „ 38	2	„ „ 62	2	„ „ 190
		1	of No. 191	1	of No. 198				



The carrier, the base of which consists of a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, is connected by a bolt and lock-nuts to a Double Bracket that is attached to two $5\frac{1}{2}''$ Strips forming the main frame. The drive from the pedals is taken from the 1″ Pulley by cord, direct to the rear wheel.

D13. Derrick

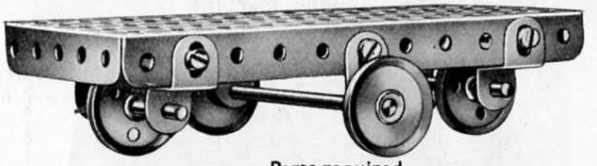
Parts required							
8	of No. 1	2	of No. 12a	1	of No. 24
8	„ „ 2	4	„ „ 12c	11	„ „ 35
2	„ „ 3	3	„ „ 16	56	„ „ 37
6	„ „ 5	2	„ „ 17	9	„ „ 37a
3	„ „ 8	4	„ „ 18a	14	„ „ 38
1	„ „ 10	1	„ „ 19s	1	„ „ 40
4	„ „ 11	2	„ „ 19b	1	„ „ 48
4	„ „ 12	4	„ „ 22	1	„ „ 48a
		1	„ „ 22a	1	„ „ 52
				2	„ „ 54a
				1	„ „ 57c
				1	„ „ 62
				2	„ „ 90a
				5	„ „ 111c
				1	„ „ 115
				2	„ „ 126
				1	„ „ 126a
				1	„ „ 198



The base of this model is built up of three $12\frac{1}{2}''$ Angle Girders fitted with a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate held in place at its unsupported end by means of two $2\frac{1}{2}''$ small radius Curved Strips. Two Flanged Sector Plates are secured to this Flanged Plate as shown and these carry the three hoisting, slewing and luffing barrels. Brakes for two of these consist of $3\frac{1}{2}''$ Strips and Cord, the Strips being pivotally attached to the base by means of $1'' \times 1''$ Angle Brackets.

The roof is represented by a Hinged Plate secured to $5\frac{1}{2}''$ Strips, as uprights, by means of Obtuse Angle Brackets.

D14. Revolving Truck



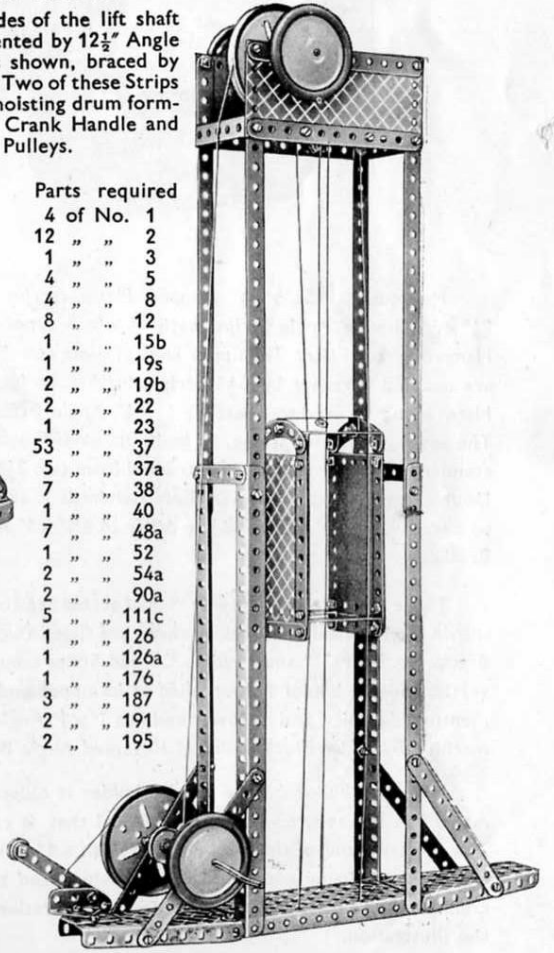
Parts required

2	of No. 10	2	of No. 22	6	of No. 37
1	„ „ 16	2	„ „ 22a	1	„ „ 52
2	„ „ 17	4	„ „ 35	4	„ „ 125

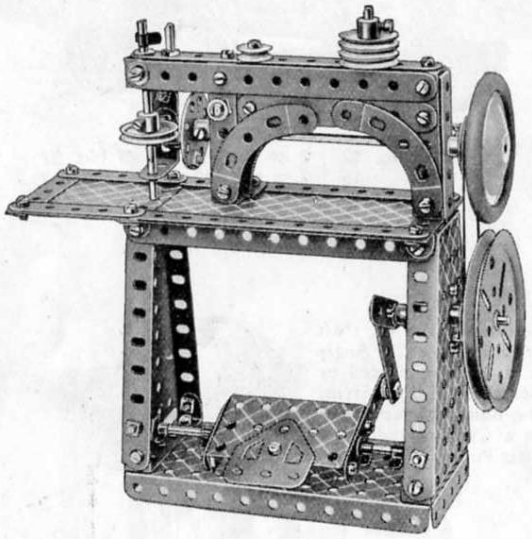
D15. Elevator

The sides of the lift shaft are represented by $12\frac{1}{2}''$ Angle Girders, as shown, braced by $5\frac{1}{2}''$ Strips. Two of these Strips carry the hoisting drum formed from a Crank Handle and two 1″ fast Pulleys.

Parts required	
4	of No. 1
12	„ „ 2
1	„ „ 3
4	„ „ 5
4	„ „ 8
8	„ „ 12
1	„ „ 15b
1	„ „ 19s
2	„ „ 19b
2	„ „ 22
1	„ „ 23
53	„ „ 37
5	„ „ 37a
7	„ „ 38
1	„ „ 40
7	„ „ 48a
1	„ „ 52
2	„ „ 54a
2	„ „ 90a
5	„ „ 111c
1	„ „ 126
1	„ „ 126a
1	„ „ 176
3	„ „ 187
2	„ „ 191
2	„ 195



D16. Sewing Machine



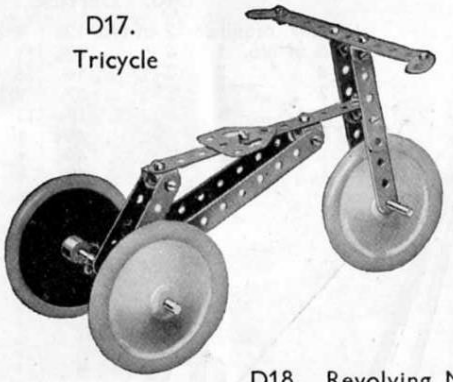
Parts required	
7	of No. 2
2	„ „ 3
6	„ „ 5
1	„ „ 6a
3	„ „ 10
1	„ „ 11
10	„ „ 12
2	„ „ 12a
2	„ „ 15
1	„ „ 16
1	„ „ 17
1	„ „ 18a
1	„ „ 19b
4	„ „ 22
2	„ „ 22a
1	„ „ 23
1	„ „ 24
5	„ „ 35
50	„ „ 37
8	„ „ 37a
8	„ „ 38
1	„ „ 45
7	„ „ 48a
1	„ „ 51
1	„ „ 52
2	„ „ 54a
1	„ „ 62
4	„ „ 90a
3	„ „ 111c
1	„ „ 115
1	„ „ 125
1	„ „ 126a
1	„ „ 176
1	„ „ 186
1	„ „ 187
1	„ „ 190
1	„ „ 195

The base, a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, carries two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips, each of which supports a Flanged Sector Plate. The upper ends of these two Plates are coupled together by $5\frac{1}{2}''$ Strips, further Strips and Plates being secured to these by $\frac{1}{2}'' \times \frac{1}{2}''$ Angle Brackets. The sewing machine frame is built up on two vertical standards, each of which is constructed from two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips. One of these standards is secured to a transverse $2\frac{1}{2}''$ Strip and the other to a $1'' \times 1''$ Angle Bracket.

Three $5\frac{1}{2}''$ Strips are now arranged across the top of the two standards as shown, and immediately below these are fitted two $3\frac{1}{2}''$ Strips and two Flat Brackets. Four $2\frac{1}{2}''$ small radius Curved Strips complete the structure. The vertical needle holder is journalled at its upper end in one of the $5\frac{1}{2}''$ Strips mentioned earlier, and its lower end in a $1'' \times 1''$ Angle Bracket, attached to the machine by a Flat Bracket and $\frac{1}{2}''$ Reversed Angle Bracket.

A 1″ fast Pulley on the needle holder is caused to vibrate by a $\frac{1}{2}'' \times \frac{1}{2}''$ Angle Bracket secured to a Bush Wheel that is carried on a 5″ Axle Rod. The opposite end of this Rod is fitted with a 1″ fast Pulley and Road Wheel, the 1″ Pulley being connected by a Driving Band to a similar Pulley on the crank shaft. The treadle and its method of operation will be seen clearly from the illustration.

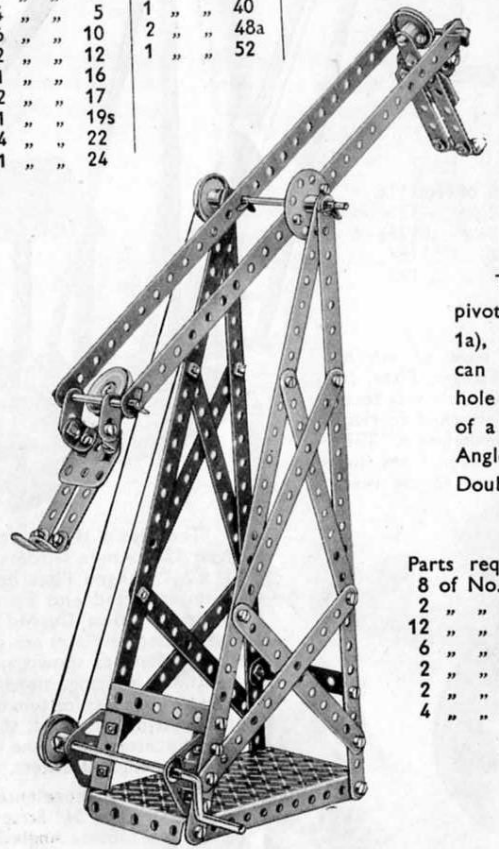
D17. Tricycle



Parts required	
4	of No. 2
6	„ „ 5
2	„ „ 10
3	„ „ 11
2	„ „ 12
1	„ „ 16
1	„ „ 18a
2	„ „ 35
15	„ „ 37
2	„ „ 37a
1	„ „ 111c
1	„ „ 126a
3	„ „ 187

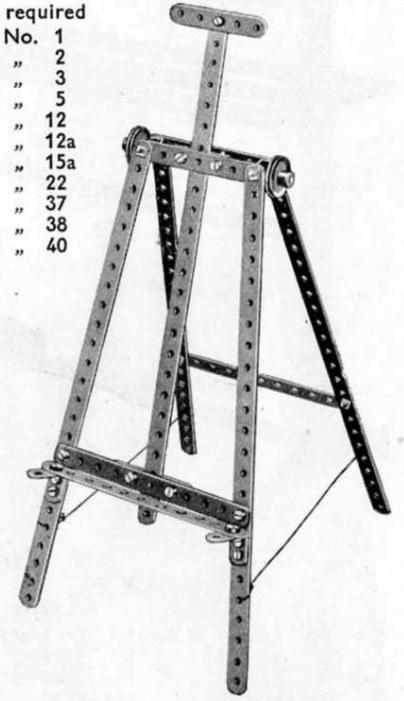
D18. Revolving Meccanitians

Parts required					
6	of No. 1	8	of No. 35	2	of No. 111c
8	„ „ 2	42	„ „ 37	2	„ „ 126
4	„ „ 5	1	„ „ 38	2	„ „ 126a
6	„ „ 10	1	„ „ 40		
12	„ „ 12	2	„ „ 48a		
1	„ „ 16	1	„ „ 52		
2	„ „ 17				
1	„ „ 19s				
4	„ „ 22				
1	„ „ 24				



D19. Easel

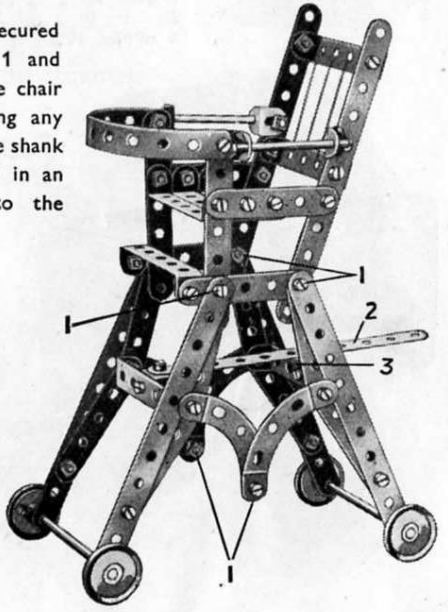
Parts required	
5	of No. 1
3	„ „ 2
2	„ „ 3
3	„ „ 5
4	„ „ 12
2	„ „ 12a
1	„ „ 15a
2	„ „ 22
19	„ „ 37
4	„ „ 38
1	„ „ 40



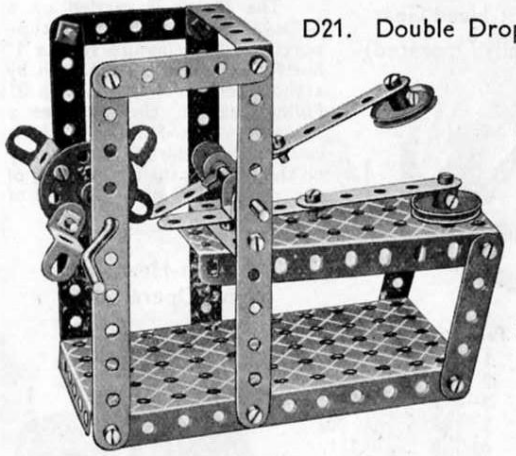
D20. Baby Chair

The Bolts 1 are all secured pivotally (see S.M. Nos. 1 and 1a), and the height of the chair can be adjusted by fitting any hole in the Strip 2 over the shank of a Bolt that is secured in an Angle Bracket bolted to the Double Angle Strip 3.

Parts required			
8	of No. 2	4	of No. 35
2	„ „ 3	35	„ „ 37
12	„ „ 5	2	„ „ 37a
6	„ „ 12	4	„ „ 38
2	„ „ 16	1	„ „ 40
2	„ „ 17	8	„ „ 48a
4	„ „ 22	4	„ „ 90a
		1	„ „ 111c



D21. Double Drop Hammer

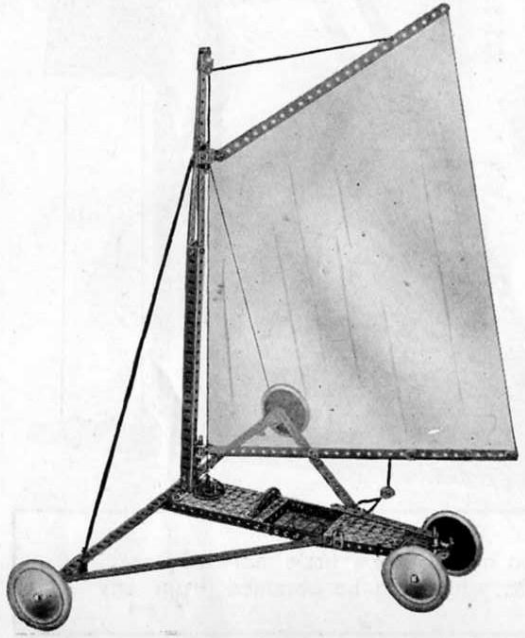


Parts required

4	of No.	2
8	„ „	5
2	„ „	11
1	„ „	16
1	„ „	19s
2	„ „	22
1	„ „	24
6	„ „	35
23	„ „	37
2	„ „	48a
1	„ „	52
1	„ „	54a
4	„ „	125

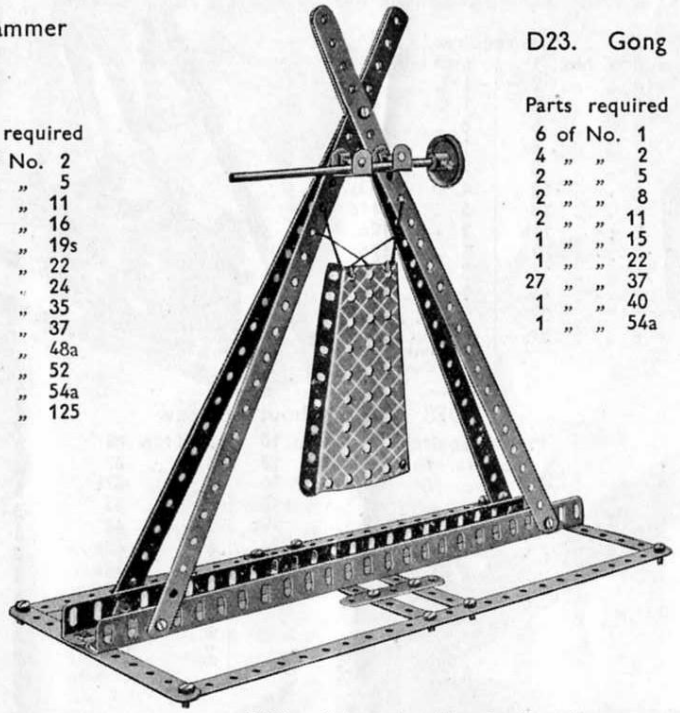
D22. Land Yacht

The chassis of the model is represented by a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate and a Flanged Sector Plate, the two parts being joined together as shown by Strips, and the intermediate space filled in by $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips. The rear axle bearing, a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip, is secured to its pivot by a Bush Wheel. A Crank and $5\frac{1}{2}''$ Strip form the tiller.



Parts required

8	of No.	1
2	„ „	2
1	„ „	5
4	„ „	8
4	„ „	10
4	„ „	11
2	„ „	12
2	„ „	12a
3	„ „	16
1	„ „	17
2	„ „	18a
1	„ „	23
1	„ „	24
12	„ „	35
60	„ „	37
9	„ „	38
1	„ „	40
8	„ „	48a
1	„ „	52
1	„ „	54a
1	„ „	62
1	„ „	90a
1	„ „	115
4	„ „	125
1	„ „	126
2	„ „	126a
4	„ „	187



D23. Gong

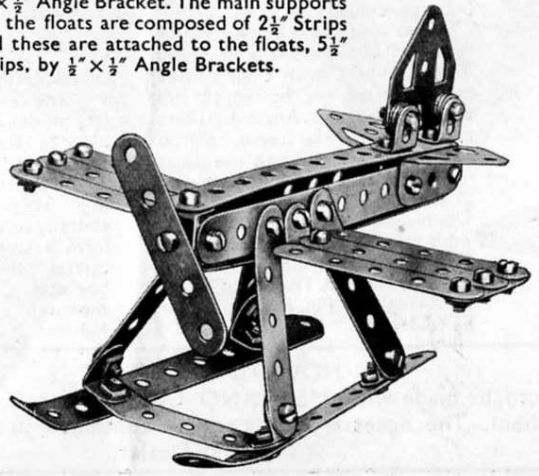
Parts required

6	of No.	1
4	„ „	2
2	„ „	5
2	„ „	8
2	„ „	11
1	„ „	15
1	„ „	22
27	„ „	37
1	„ „	40
1	„ „	54a

D24. Schneider Trophy Seaplane

Four $5\frac{1}{2}''$ Strips held together by means of Double Brackets form the fuselage, the rear end of which is fitted with two Trunnions representing tail planes. The fin is built up from a Flat Trunnion and two $\frac{1}{2}'' \times \frac{1}{2}''$ Angle Brackets.

Each of the wings consists of three $2\frac{1}{2}''$ Strips secured together by a $1\frac{1}{2}''$ Strip and attached to the fuselage by a $\frac{1}{2}'' \times \frac{1}{2}''$ Angle Bracket. The main supports for the floats are composed of $2\frac{1}{2}''$ Strips and these are attached to the floats, $5\frac{1}{2}''$ Strips, by $\frac{1}{2}'' \times \frac{1}{2}''$ Angle Brackets.



Parts required

6	of No.	2
12	„ „	5
2	„ „	6a
2	„ „	11
12	„ „	12
34	„ „	37
3	„ „	37a
6	„ „	38
2	„ „	111c
2	„ „	126
1	„ „	126a

D25. "Try-Your-Strength" Machine

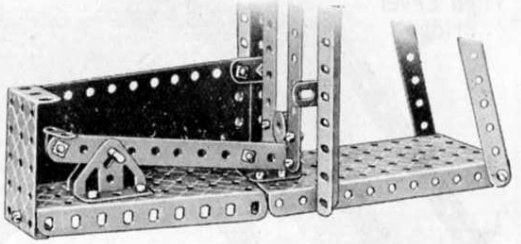


Fig. D25a

The striker (Fig. D25b), a Bush Wheel mounted on a 2" Rod, is allowed to rest at its lower end on one end of the lever forming the link between the striker and the weight (Fig. D25a). The weight is represented by a $\frac{1}{2}''$ loose Pulley, and slides vertically between two lengths of Strips.

Parts required

6	of No.	1
6	„ „	2
1	„ „	3

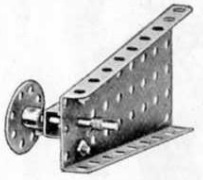
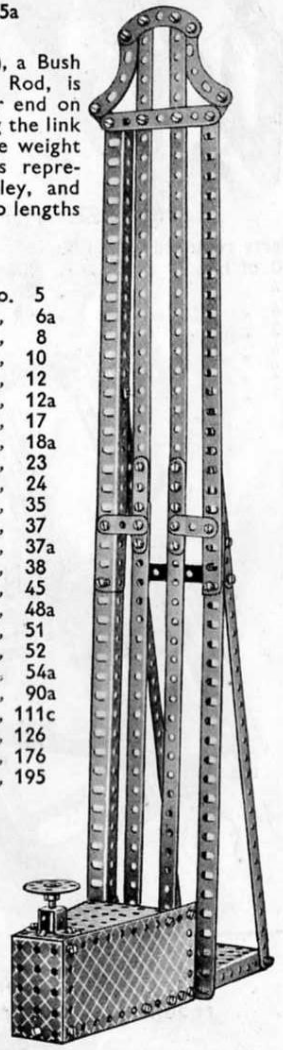
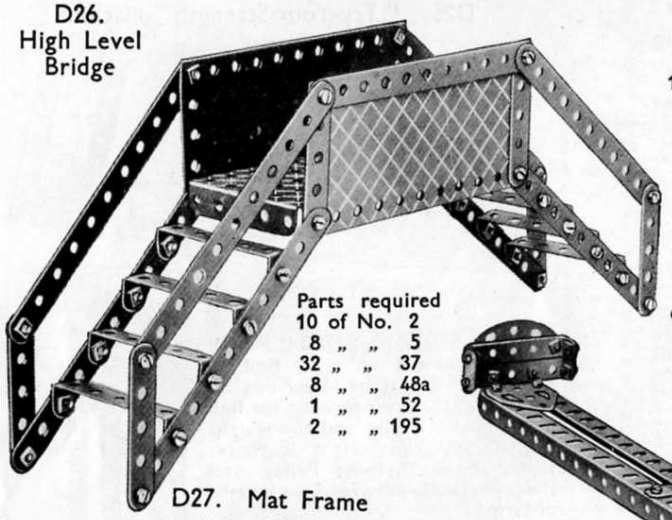


Fig. D25b

4	of No.	5
2	„ „	6a
4	„ „	8
4	„ „	10
3	„ „	12
2	„ „	12a
1	„ „	17
1	„ „	18a
1	„ „	23
1	„ „	24
2	„ „	35
66	„ „	37
5	„ „	37a
2	„ „	38
1	„ „	45
1	„ „	48a
1	„ „	51
1	„ „	52
2	„ „	54a
3	„ „	90a
5	„ „	111c
2	„ „	126
1	„ „	176
2	„ „	195



D26. High Level Bridge



Parts required

8	of No.	1
14	„ „	2
2	„ „	3
8	„ „	5
2	„ „	6a
4	„ „	8
6	„ „	12
4	„ „	16
2	„ „	19b
3	„ „	22
1	„ „	24
5	„ „	35
65	„ „	37
6	„ „	37a
6	of No.	38
1	„ „	40
1	„ „	44
8	„ „	48a
1	„ „	52
2	„ „	54a
4	„ „	90a
5	„ „	111c
2	„ „	126a
1	„ „	176
3	„ „	190
2	„ „	191

No. E6. Electric Motor (not included in Outfit).

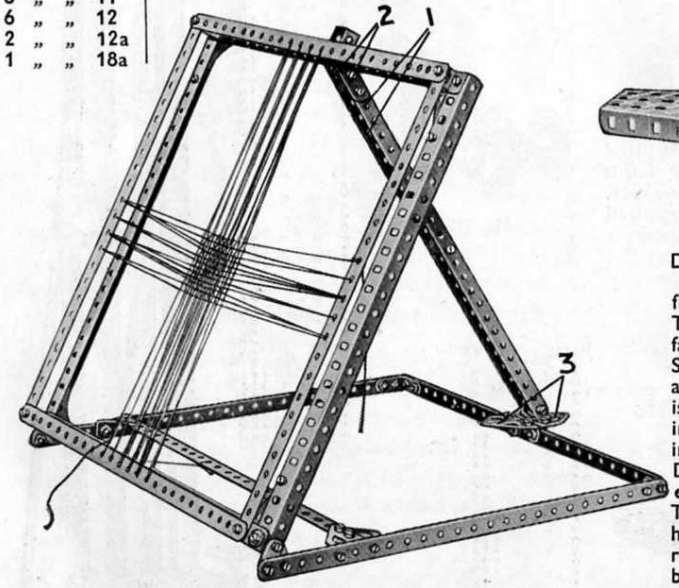
Parts required

10	of No.	2
8	„ „	5
32	„ „	37
8	„ „	48a
1	„ „	52
2	„ „	195

D27. Mat Frame

Parts required

10	of No.	1
4	„ „	8
4	„ „	10
3	„ „	11
6	„ „	12
2	„ „	12a
1	„ „	18a
54	of No.	37
2	„ „	37a
2	„ „	38
1	„ „	45
2	of No.	62
4	„ „	90a
2	„ „	111c
1	„ „	115
4	of No.	125
2	„ „	126
2	„ „	126a



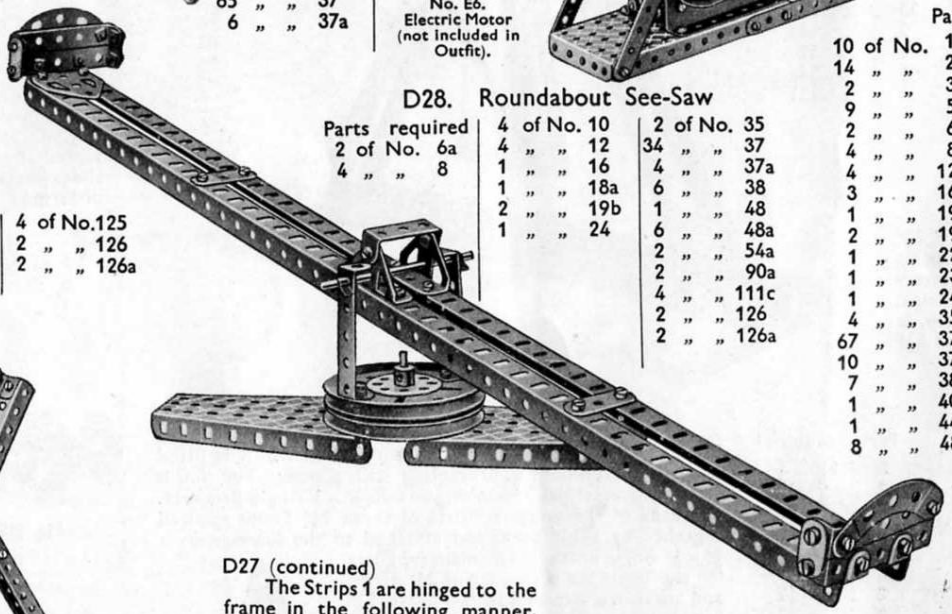
D27 (continued)

The Strips 1 are hinged to the frame in the following manner. Two Cranks 2 with their bosses facing inward are bolted to the Strips 1 and two Angle Brackets are secured to the frame. A Rod is then pushed through the holes in the Angle Brackets and secured in the bosses of the Cranks. A Double Bracket fastened to the ends of the Strips 1 carries a Threaded Pin, which fits in the holes in the Flat Trunnions 3. By removing this Pin, the frame can be folded flat.

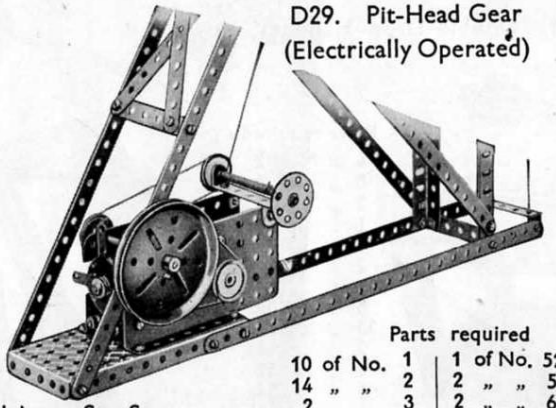
D28. Roundabout See-Saw

Parts required

2	of No.	6a
4	„ „	8
4	of No.	10
4	„ „	12
1	„ „	16
1	„ „	18a
2	„ „	19b
1	„ „	24
2	of No.	35
34	„ „	37
4	„ „	37a
6	„ „	38
1	„ „	48
6	„ „	48a
2	„ „	54a
2	„ „	90a
4	„ „	111c
2	„ „	126
2	„ „	126a



D29. Pit-Head Gear (Electrically Operated)

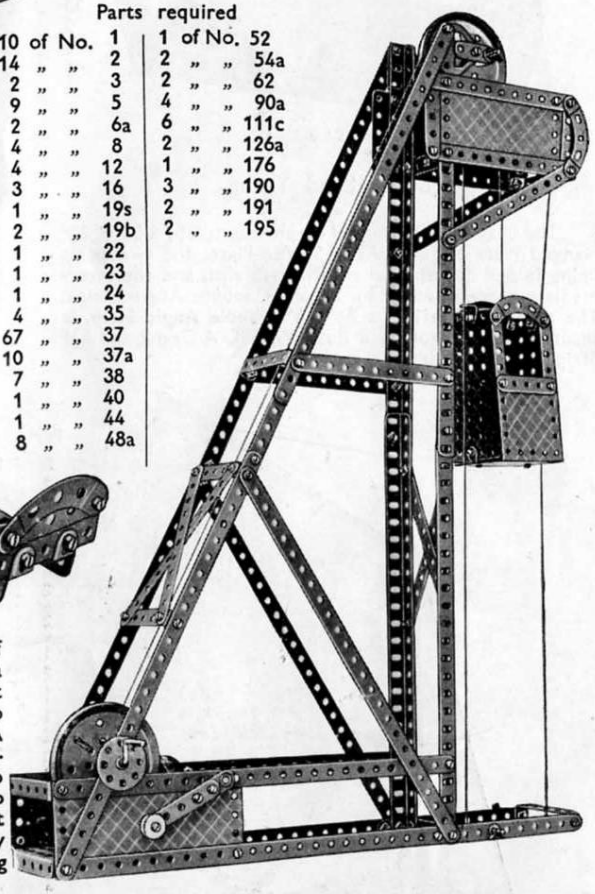


The Motor is carried on a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, and supports on its armature shaft a 1" fast Pulley. This is connected by a short length of cord to a 3" Pulley that in turn rotates a second 1" fast Pulley. This is coupled to a third similar Pulley on the hoisting shaft. The head of the model is similar to that of model D30.

D30. Pit-Head Gear (Hand Operated)

Parts required

10	of No.	1
14	„ „	2
2	„ „	3
9	„ „	5
2	„ „	6a
4	„ „	8
4	„ „	12
3	„ „	16
1	„ „	19s
2	„ „	19b
1	„ „	22
1	„ „	23
1	„ „	24
4	„ „	35
67	„ „	37
10	„ „	37a
7	„ „	38
1	„ „	40
1	„ „	44
8	„ „	48a
1	of No.	52
2	„ „	54a
2	„ „	62
4	„ „	90a
6	„ „	111c
2	„ „	126a
1	„ „	176
3	„ „	190
2	„ „	191
2	„ „	195



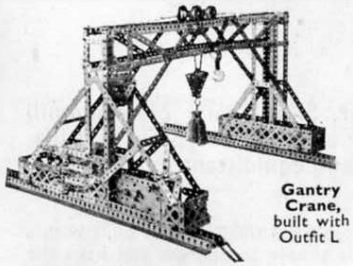
D30 (continued)

The rear of the base of this model is fitted with a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate that carries at its sides two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Strip Plates. A $12\frac{1}{2}''$ Strip secured horizontally to each of these to form a strengthener, also carries the brake that operates on a 3" Pulley mounted on the winding handle.

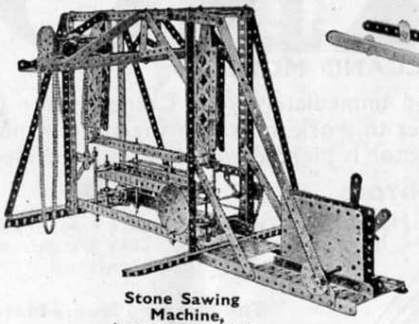
HOW TO CONTINUE

This completes our examples of models that can be made with MECCANO Outfit D (or C and Ca). 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 Da Accessory Outfit, which can be obtained from any Meccano Dealer.

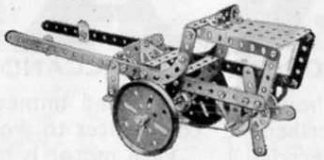
Build Bigger and Better Models



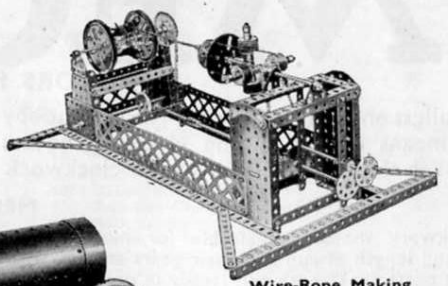
Gantry Crane, built with Outfit L



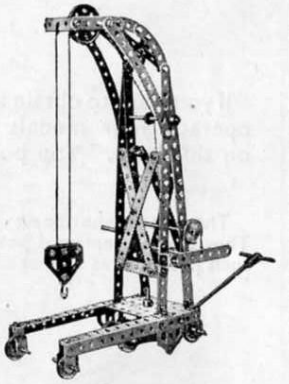
Stone Sawing Machine, built with Outfit K



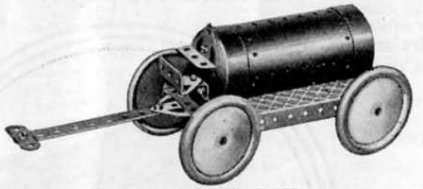
Hay Tedder, built with Outfit E



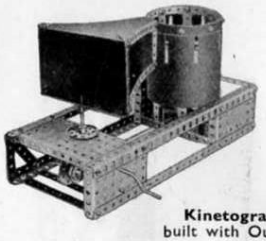
Wire-Rope Making Machine, built with Outfit G



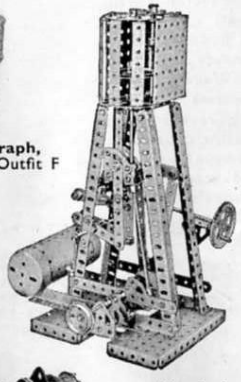
Portable Crane, built with Outfit K



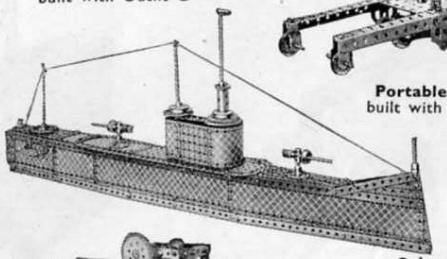
Tank Wagon, built with Outfit F



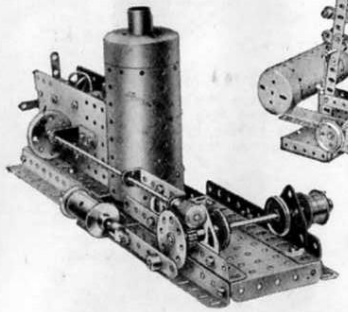
Kinetograph, built with Outfit F



Vertical Marine Engine, built with Outfit H



Submarine, built with Outfit G



Steam Winch, built with Outfit G

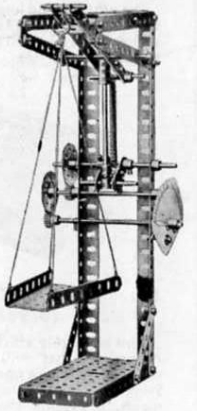
Keep Adding to your Outfit

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.

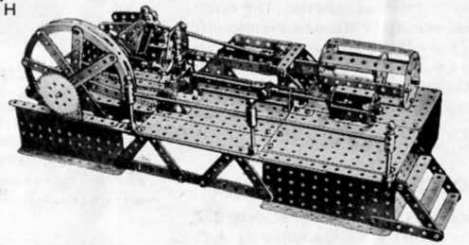
The model-building possibilities of the Meccano System are limitless. All the fine models illustrated on this page are examples of the types you will be able to build as your Outfit develops.

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.

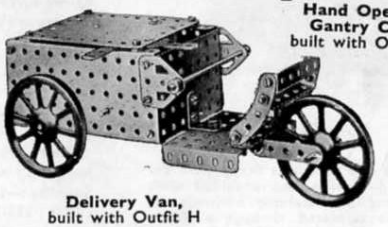
Hand Operated Gantry Crane, built with Outfit H



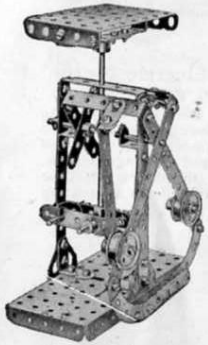
Spring Scales, built with Outfit H



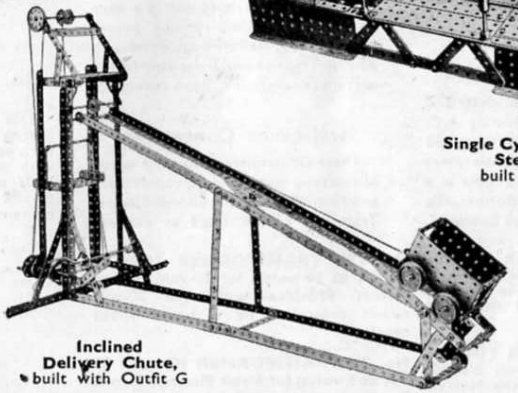
Single Cylinder Horizontal Steam Engine, built with Outfit K



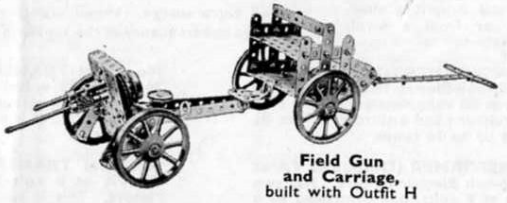
Delivery Van, built with Outfit H



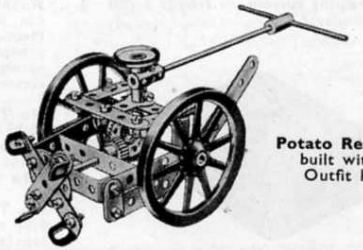
Letter Balance, built with Outfit E



Inclined Delivery Chute, built with Outfit G



Field Gun and Carriage, built with Outfit H



Potato Reaper, built with Outfit H

MECCANO

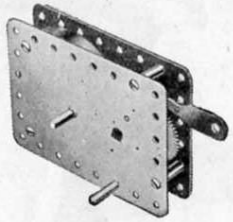
MOTORS FOR OPERATING MECCANO MODELS

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

MECCANO CLOCKWORK MOTORS

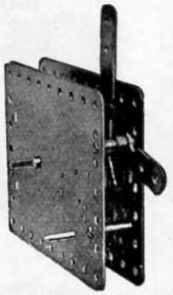
These are the finest Clockwork motors obtainable for model driving. They have exceptional power and length of run and their gears are cut with such precision as to make them perfectly smooth and steady in operation.

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



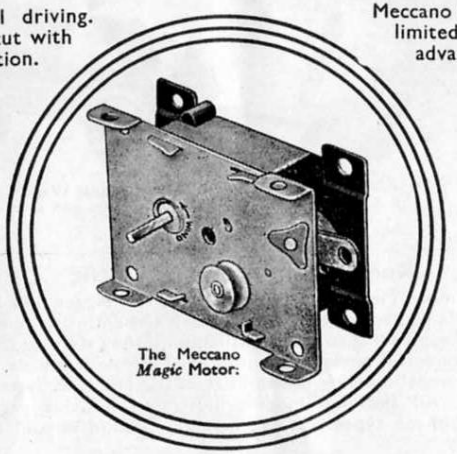
No. 1 Clockwork Motor

An efficient and long-running Motor fitted with a brake lever by means of which it may be started and stopped. It is non-reversing.



No. 1a Clockwork Motor

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



The Meccano *Magic* Motor

The Meccano *Magic* Motor

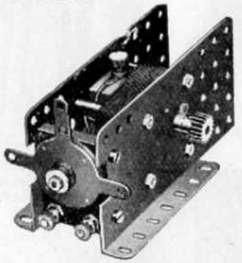
The Meccano *Magic* Motor is well designed and strongly constructed, and is fitted with a powerful spring giving a long and steady run. It is non-reversing. Each *Magic* Motor is supplied with a separate ½" Pulley Wheel and three pairs of driving bands of different lengths, it is capable of driving all the Meccano O, A and B Outfit models, and many of the lighter models illustrated in the Manuals of the C, D and E Outfits

No. 2 Clockwork Motor

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

No. E1 Electric Motor (6 volt)

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

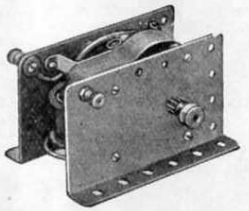


No. E6 Electric Motor (6 volt)

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

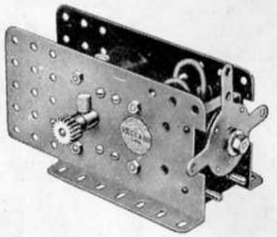
MECCANO ELECTRIC MOTORS

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



No. E120 Electric Motor (20 volt)

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



No. E20b Electric Motor (20 volt)

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

MECCANO TRANSFORMERS

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

Resistance Controllers

These Controllers enable the speed of Meccano 6-volt and 20-volt Motors and Hornby 6-volt and 20-volt Electric Trains to be regulated as desired.

No. T20a Transformer

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

No. T6A TRANSFORMER (Output 40 VA at 9/3½ volts) for 6-volt Electric Motors. Has two separate circuits at 9 volts, one controlled by a 5-stud speed regulator, and a third circuit at 3½ volts for lighting up to 18 lamps.

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

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

No. T20 TRANSFORMER (Output 20 VA at 20 volts) for 20-volt Electric Motors. Provided with one 20-volt circuit controlled by a 5-stud speed regulator.

No. T6 TRANSFORMER (Output 25 VA at 9 volts) for 6-volt Electric Motors. Provided with one 9-volt circuit controlled by a 5-stud speed regulator.

No. T20 Transformer

Ask your dealer for a complete price list.

LIST OF MECCANO PARTS

No.	Description.
1	Perforated Strips, 12½"
1a	" " 9½"
1b	" " 7½"
2	" " 5½"
2a	" " 4½"
3	" " 3½"
4	" " 3"
5	" " 2½"
6	" " 2"
6a	" " 1½"
7	Angle Girders, 24½"
7a	" " 18½"
8	" " 12½"
8a	" " 9½"
8b	" " 7½"
9	" " 5½"
9a	" " 4½"
9b	" " 3½"
9c	" " 3"
9d	" " 2½"
9e	" " 2"
9f	" " 1½"
10	Flat Brackets
11	Double Brackets
12	Angle Brackets, ½"×½"
12a	" " 1"×1"
12b	" " 1"×½"
12c	Obtuse Angle Brackets, ½"×½"
13	Axle Rods, 11½"
13a	" " 8"
14	" " 6½"
15	" " 5"
15a	" " 4½"
15b	" " 4"
16	" " 3½"
16a	" " 2½"
16b	" " 3"
17	" " 2"
18a	" " 1½"
18b	" " 1"
19	Crank Handles, large, 5"
19s	" " small, 3½"
19a	Wheels, 3" diam., with set-screws
20	Flanged Wheels, 1¼" diam.
20b	" " ¾" "
	Pulley Wheels
19b	3" dia., with centre boss & set-screw
19c	6" " " " " "
20a	2" " " " " "
21	1½" " " " " "
22	1" " " " " "
23a	½" " " " & grub-screw
22a	1" " without " "
23	½" " " "
24	Bush Wheels
25	Pinion Wheels, ⅝" diam., ⅛" face
25a	" " ½" " ⅛" "
25b	" " ½" " 3/16" "
26	" " ½" " ¼" "
26a	" " ½" " ⅜" "
26b	" " ½" " ½" "
	Gear Wheels
27	50 teeth to gear with ¾" pinion
27a	57 " " " ½" "
27b	133 " " " ½" "(3½" diam.)
27c	95 " " " ½" "(2½" diam.)
28	Contrate Wheels, 1½" diam.
29	" " ¾" "

No.	Description.
30	Bevel Gears, ⅞", 26 teeth
30a	" " ½", 16 " (Can only be
30c	" " 1½", 48 " used together)
31	Gear Wheels, 1", 38 teeth
32	Worms
34	Spanners
34b	Box Spanners
35	Spring Clips
36	Screwdrivers
36a	" Extra Long
36b	" Special
37	Nuts and Bolts, 7/32"
37a	Nuts
37b	Bolts, 7/32"
38	Washers
40	Hanks of Cord
41	Propeller Blades
43	Springs
44	Cranked Bent Strips
45	Double " "
46	Double Angle Strips, 2½"×1"
47	" " " 2½"×1½"
47a	" " " 3"×1½"
48	" " " 1½"×½"
48a	" " " 2½"×½"
48b	" " " 3½"×½"
48c	" " " 4½"×½"
48d	" " " 5½"×½"
50a	Eye Pieces, with boss
51	Flanged Plates, 2½"×1½"
52	" " 5½"×2½"
52a	Flat Plates, 5½"×3½"
53	Perforated Flanged Plates, 3½"×2½"
53a	Flat Plates, 4½"×2½"
54a	Flanged Sector Plates, 4½" long
55	Perforated Strips, slotted, 5½" long
55a	" " " 2" "
57	Hooks
57a	" Scientific
57b	" Loaded, large
57c	" " small
58	Spring Cord
58a	Coupling Screws for Spring Cord
58b	Hooks for Spring Cord
59	Collars with Grub Screws
61	Windmill Sails
62	Cranks
62a	Threaded Cranks
62b	Double Arm Cranks
63	Couplings
63a	Octagonal Couplings
63b	Strip Couplings
63c	Threaded Couplings
64	" Bosses
65	Centre Forks
66	Weights, 50 grammes
67	" 25 "
68	Woodscrews, ½"
69	Set Screws
69a	Grub Screws, 5/32"
69b	" " 7/32"
70	Flat Plates, 5½"×2½"
72	" " 2½"×2½"
73	" " 3"×1½"
76	Triangular Plates, 2½"
77	" " 1"
78	Screwed Rods, 11½"

No.	Description.
79	Screwed Rods, 8"
79a	" " 6"
80	" " 5"
80a	" " 3½"
80b	" " 4½"
81	" " 2"
82	" " 1"
89	5½" Curved Strips, 10" radius
89a	3" " " cranked, 1¼" radius, 4 to circle
89b	4" Curved Strips, cranked, 4½" radius, 8 to circle
90	2½" Curved Strips, 2⅜" radius
90a	2½" " " cranked, 1⅜" radius, 4 to circle
94	Sprocket Chain, 40" lengths
95	" Wheels, 36 teeth, 2" diam.
95a	" " 28 " 1½" "
95b	" " 56 " 3" "
96	" " 18 " 1" "
96a	" " 14 " ¾" "
97	Braced Girders, 3½" long
97a	" " 3" "
98	" " 2½" "
99	" " 12½" "
99a	" " 9½" "
99b	" " 7½" "
100	" " 5½" "
100a	" " 4½" "
101	Healds, for looms
102	Single Bent Strips
103	Flat Girders, 5½" long
103a	" " 9½" "
103b	" " 12½" "
103c	" " 4½" "
103d	" " 3½" "
103e	" " 3" "
103f	" " 2½" "
103g	" " 2" "
103h	" " 1½" "
103k	" " 7½" "
104	Shuttles, for looms
105	Reed Hooks, for looms
106	Wood Rollers
106a	Sand Rollers
107	Tables for designing machines
108	Architraves
109	Face Plates, 2½" diam.
110	Rack Strips, 3½"
110a	" " 6½"
111	Bolts, ¼"
111a	" ⅜"
111c	" ⅝"
113	Girder Frames
114	Hinges
115	Threaded Pins
116	Fork Pieces, large
116a	" " small
117	Steel Balls, ⅜" diam.
118	Hub Discs, 5½"
120	Buffers
120a	Spring Buffers
120b	Compression Springs
121	Train Couplings
122	Miniature Loaded Sacks
123	Cone Pulley

No.	Description.
124	Reversed Angle Brackets, 1"
125	" " ½"
126	Trunnions
126a	Flat Trunnions
127	Simple Bell Cranks
128	Boss Bell Cranks
129	Rack Segments, 3" diam.
130	Eccentrics, Triple Throw
131	Dredger Buckets
132	Flywheels, 2½" diam.
133	Corner Brackets, 1½"
133a	" " 1"
134	Crank Shanks, 1" stroke
135	Theodolite Protractors
136	Handrail Supports
136a	" Coup'lings
137	Wheel Flanges
138	Ships' Funnels
*138a-z	" " Raked
139	Flanged Brackets (right)
139a	" " (left)
140	Universal Couplings
141	Wire Lines (for suspending clock weights)
142	Rubber Rings, 3" rim
142a	Motor Tyres (to fit 2" diam. rims)
142b	" " " 3" " "
142c	" " " 1" " "
142d	" " " 1½" " "
143	Circular Girders, 5½" diam.
144	Dog Clutches
145	Circular Strips, 7½" diam overall
146	" Plates, 6" " "
146a	" " 4" " "
147	Pawls, with Pivot Bolt and nuts
147a	Pawls
147b	Pivot Bolts with 2 nuts
147c	Pawls without boss
148	Ratchet Wheels
149	Collecting Shoes for Electric Locos
150	Crane Grabs
151	Pulley Blocks, Single Sheave
152	" " Two "
153	" " Three "
154a	Corner Angle Brackets, ½" (right hand)
154b	Corner Angle Brackets, ½"(left hand)
155	Rubber Rings (for 1" Pulleys)
156	Pointers (with boss), 2½" overall
157	Fans, 2" diam.
158a	Signal Arms, Home
158b	" " Distant
160	Channel Bearings, 1½"×1"×½"
161	Girder Brackets, 2"×1"×½"
162	Boilers, complete with ends
162a	" ends
162b	" without ends
163	Sleeve Pieces
164	Chimney Adaptors
165	Swivel Bearings
166	End "
167	Geared Roller Bearings
167a	Roller Races, geared, 192 teeth
167b	Ring Frames for Rollers
167c	Pinions for Roller Bearings, 16 teeth
168	Ball Bearings, 4" diam.

No.	Description.
168a	Ball Races, flanged disc
168b	" " toothed "
168c	" Casing, complete with balls
169	Digger Buckets
170	Eccentrics, ¼" throw
171	Socket Couplings
172	Pendulum Connections
173	Rail Adaptors
174	Grease Cups
175	Flexible Coupling Units
176	Anchoring Springs for Cord
177	Shafting Standards, large
178	" " small
179	Rod Sockets
180	Toothed Gear Rings, 3½" diam. (133 external teeth ; 95 internal teeth)
181	Bobbins
182	Insulating Bushes, 6BA
182a	Insulating Washers, 6BA
183	Lamp Holders
184a	Lamps, 2½ volt
184b	" 3½ "
184c	" 6 "
184d	" 10 "
184e	" 20 "
185	Steering Wheels, 1¼" diam
186	Driving Bands
187	Road Wheels
188	Flexible Plates, 2½"×1½"
189	" " 5½"×1½"
190	" " 2½"×2½"
191	" " 4½"×2½"
192	" " 5½"×2½"
193	Strip Plates, 2½"×2½"
194	" " 3½"×2½"
195	" " 5½"×2½"
196	" " 9½"×2½"
197	" " 12½"×2½"
198	Hinged Flat Plates, 4½"×2½"
199	Curved Plates, U Section 9,33" radius
200	" " 1 11/16" radius
201	Lamps with Flex, 3½-volt
202	Angle Brackets (for Headlamps)
203	Headlamps
203a	Headlamp Rims
203b	Headlamp Bodies
204	Headlamp Nuts
205	" Glasses (Green, Plain or Red)
206	Lampshades
207	Lamp Bases
207a	Lamps with Standard and Flex
208	Battery Tags and Studs
208a	Washers for Battery Studs
210	Nuts " "
211a	Helical Gears ½" (Can only be
211b	" " 1½" used together)

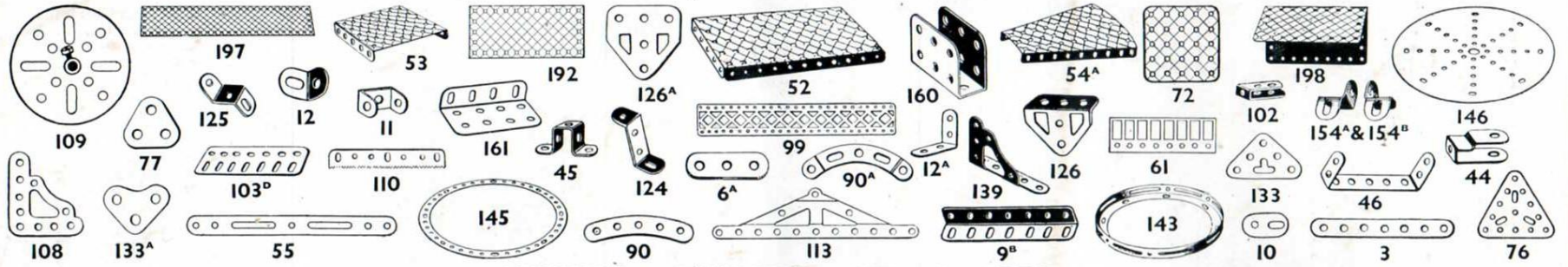
* * *

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

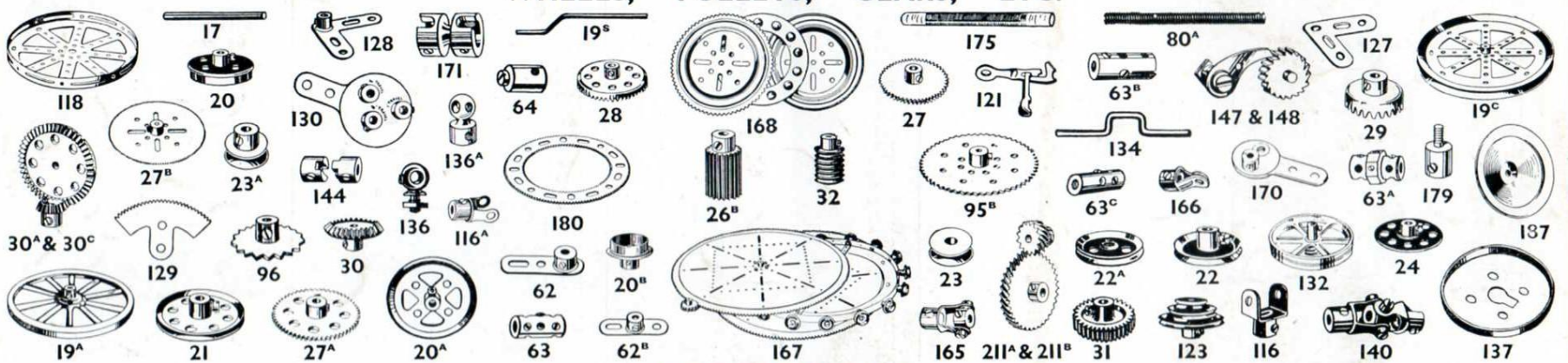
Your Dealer will be pleased to provide you with a complete Price List.

MECCANO PARTS & ACCESSORIES

PLATES, STRIPS, GIRDERS & BRACKETS



WHEELS, PULLEYS, GEARS, ETC.



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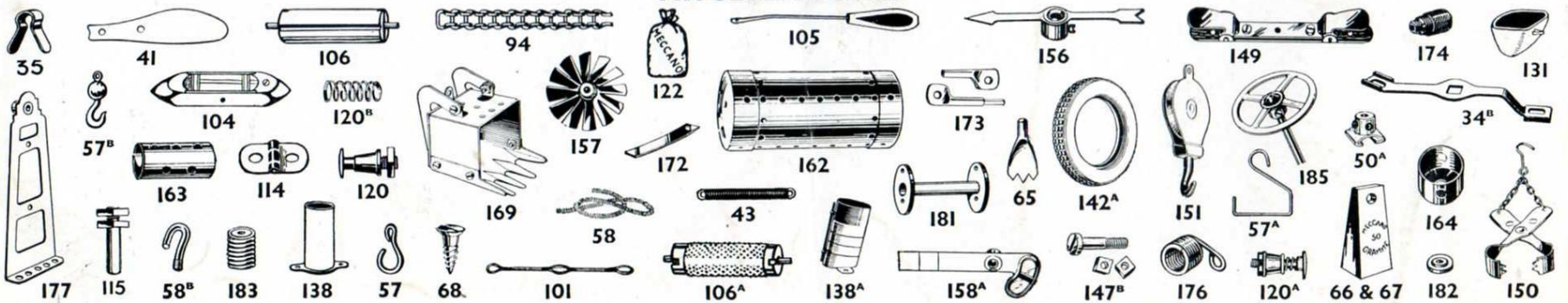

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