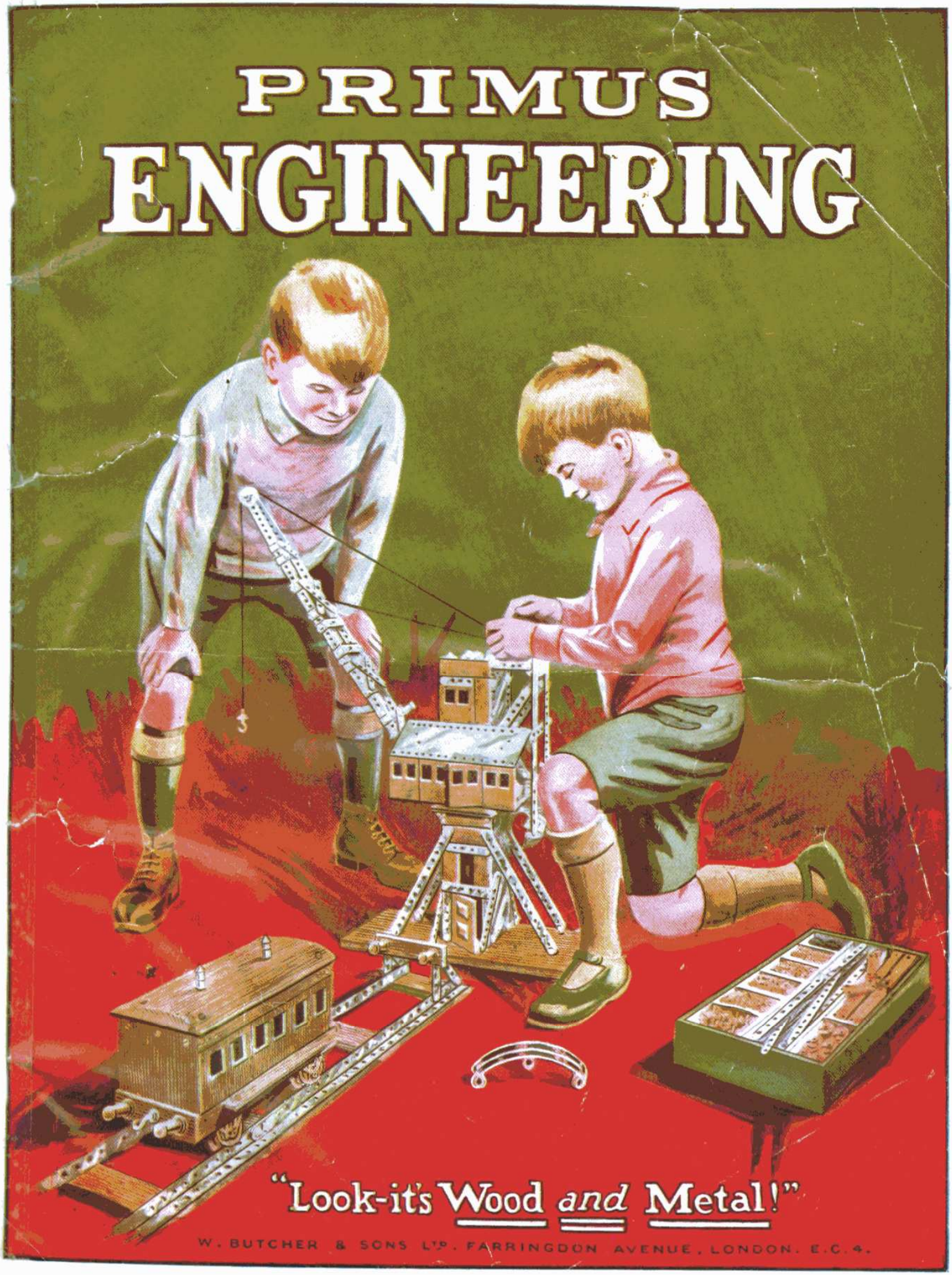
PRIMUS
ENGINEERING



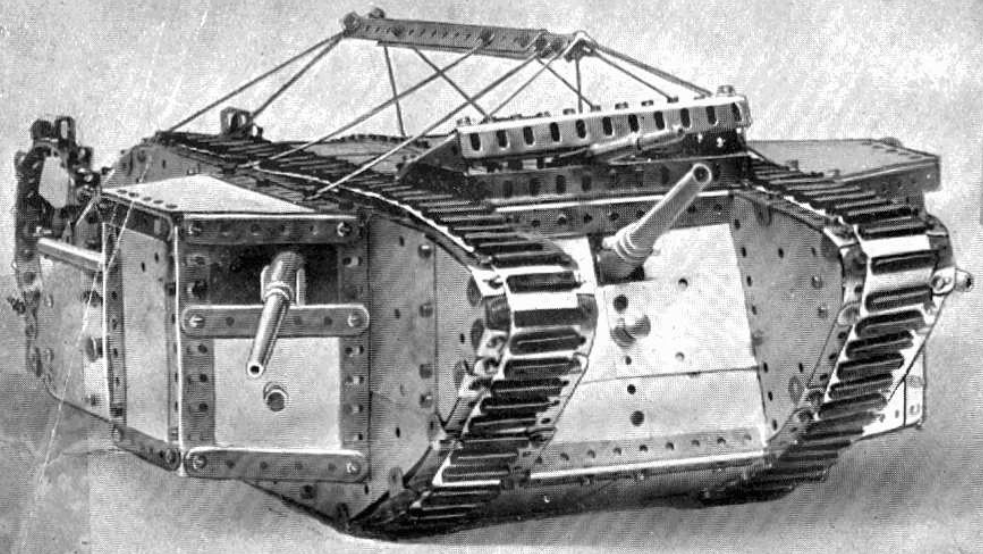
"Look-it's Wood *and* Metal!"

W. BUTCHER & SONS LTD. FARRINGDON AVENUE, LONDON, E.C.4.

"The PRIMUS" TANK

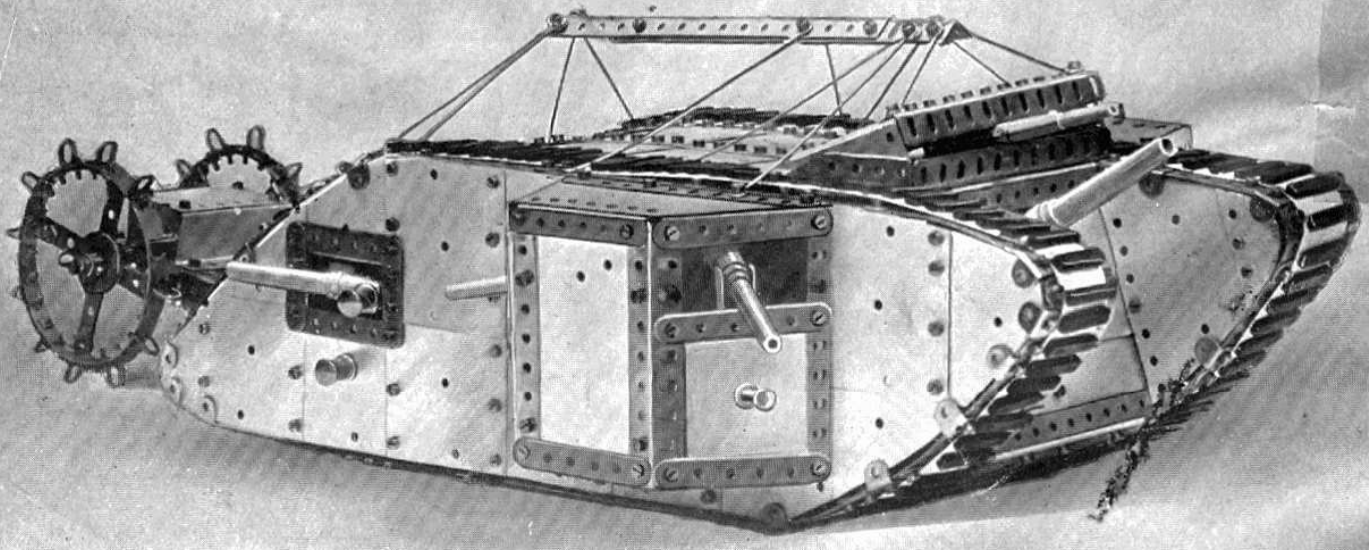
CONSTRUCTED WITH

PRIMUS ENGINEERING



CAN BE MADE WITH No. 5 OUTFIT AND EXTRA PARTS

PRIMUS TANK. FRONT VIEW.

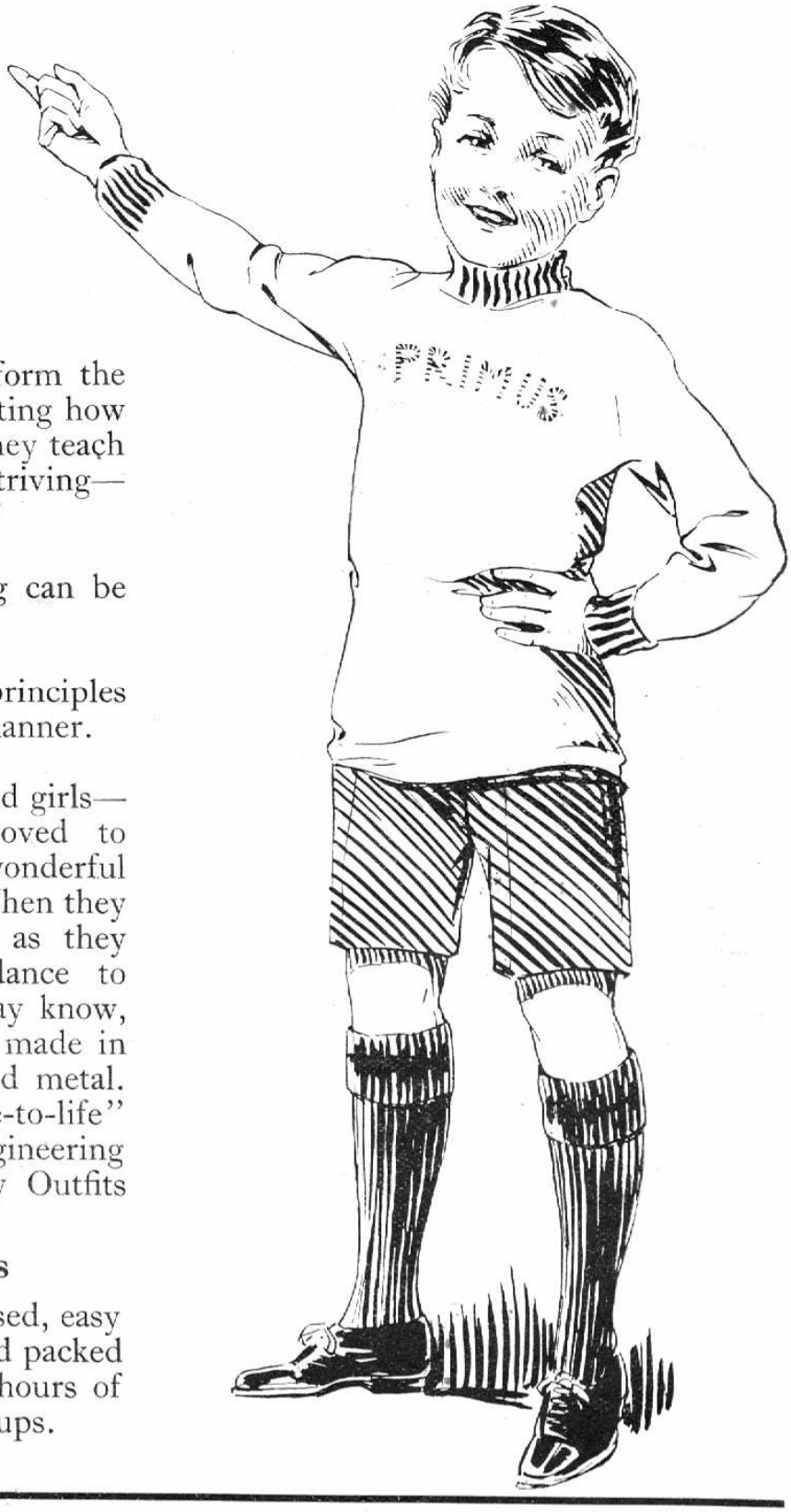


PRIMUS TANK. SIDE VIEW.

PRIMUS ENGINEERING
BRITISH MADE

THE ONLY

WOOD & METAL CONSTRUCTIONAL TOY



Primus Engineering Outfits form the most practical means of demonstrating how hundreds of things are made. They teach the young mind the art of contriving—that is—"how to make things do."

They show them how one thing can be made to suit many purposes.

They explain the fundamental principles of mechanics in an entertaining manner.

Thousands of enthusiastic boys and girls—all budding engineers—have proved to their entire satisfaction the wonderful features of Primus Engineering. When they build models, they build them as they should be built, and in accordance to modern construction. As you may know, practically all things that can be made in model form are made of wood and metal. Therefore, to make the finest "true-to-life" models you must use Primus Engineering Outfits, because they are the only Outfits consisting of

Wood and Metal Parts

All interchangeable and standardised, easy to fit up, simple to understand, and packed in strong boxes, they give many hours of pleasure to juveniles and grown-ups.

PRIMUS ENGINEERING
BRITISH MADE

THE BRITISH TOY FOR BRITISH BOYS

IN making up the models in this book many ideas will suggest themselves, even useful little things that you have around you may be brought into co-operation. In some cases cardboard may be usefully employed to add a finish to models, such as the covers for vans, carts, etc.; it must also be remembered that the metal plates and strips can be bent to various shapes, and can even be cut to make new parts. After some of the models shown have been mastered the inventive mind will feel an inclination to vary them, and this will suggest original models.

GENERAL INSTRUCTIONS.

ALWAYS COLLECT TOGETHER ALL THE PARTS REQUIRED FOR MAKING UP THE MODEL DECIDED UPON BEFORE BEGINNING.

No. 66
Brackets.

No. 84
Washers.

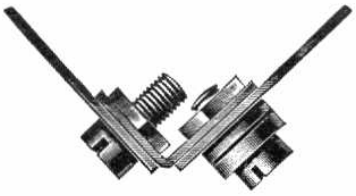


Fig. A.

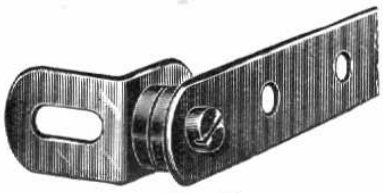


Fig. B.

BRACKETS and their uses.

It is important to understand why one side has a round hole and the other side a slot. This is to allow for the thickness of the wood or metal parts that are joined on, as in some cases more than one piece is joined together and the slot permits of the necessary play.

WASHERS.

These form a very important part in mechanics. They are put on axles between wheels and trunnions, or between the collars and any facing part, to avoid friction, and also used in many models to adjust the length of the screws; for example, when it is desired to fix a bracket exactly at right angles one of the screws must be shortened by means of washers, so that it will not jam on the other (Fig. A). They are likewise used to adjust the bracket to the width of some of the other fittings (Fig. B.)

WOOD BASES.

Some of the models are shown screwed down to wooden base boards. These are not included in the outfits, as they are most likely readily available and the size varies to suit the situation.

PRIMUS ENGINEERING
BRITISH MADE

STANDARD OUTFITS

Each outfit is complete, the fully illustrated instruction book supplied making it an easy matter to start building models at once. The models shown on the following pages cover a wide field, but there is no limitation to the number of original models that can be constructed, and, if desired, further original models can easily be made.

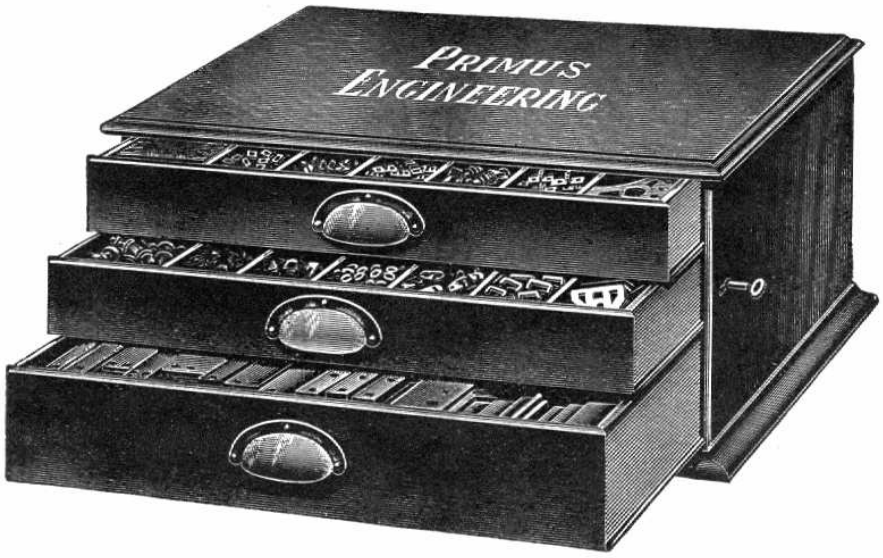
The specimen models shown on page 78, were devised by enthusiastic junior "Primus Engineers," and models of a similar nature can be invented by anyone.

No. 0	Outfit	contains	122	Wood	and	Metal	parts.
No. 1	,,	,,	140	,,	,,	,,	,,
No. 2	,,	,,	267	,,	,,	,,	,,
No. 3	,,	,,	473	,,	,,	,,	,,
No. 4	,,	,,	649	,,	,,	,,	,,
No. 5	,,	,,	1,131	,,	,,	,,	,,

For prices see slip attached.

PRIMUS ENGINEERING
BRITISH MADE

CABINET OUTFIT No. 6



This De Luxe outfit forms the most practical method of storing and handling Primus Engineering parts.

A presentation outfit containing 1210 parts.

For details of contents see pages 11 and 12.

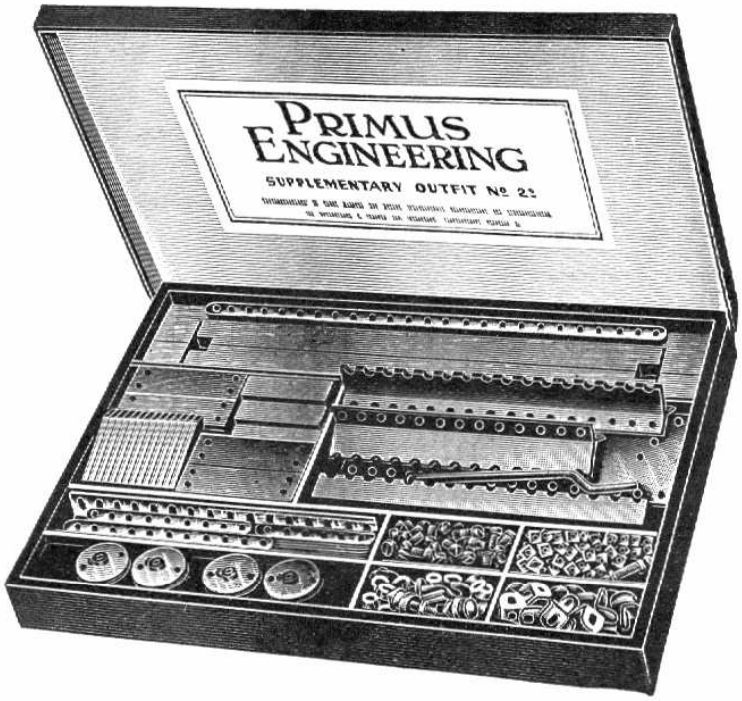
The whole outfit is contained in a very substantial and handsome polished oak cabinet, with three drawers, partitioned off in compartments for the various parts. Lock and key secure all the drawers when not in use.

The models shown on pages 21 to 78 can be made with this outfit and extra parts where stated.

For prices see page 3.

PRIMUS ENGINEERING
BRITISH MADE

SUPPLEMENTARY OUTFITS



These outfits are supplementary to all standard Primus outfits and should only be purchased as such.

The contents are not selected with the view to building complete models, but to supplement the parts of a standard set, so that it becomes equal in parts to that of the next higher price.

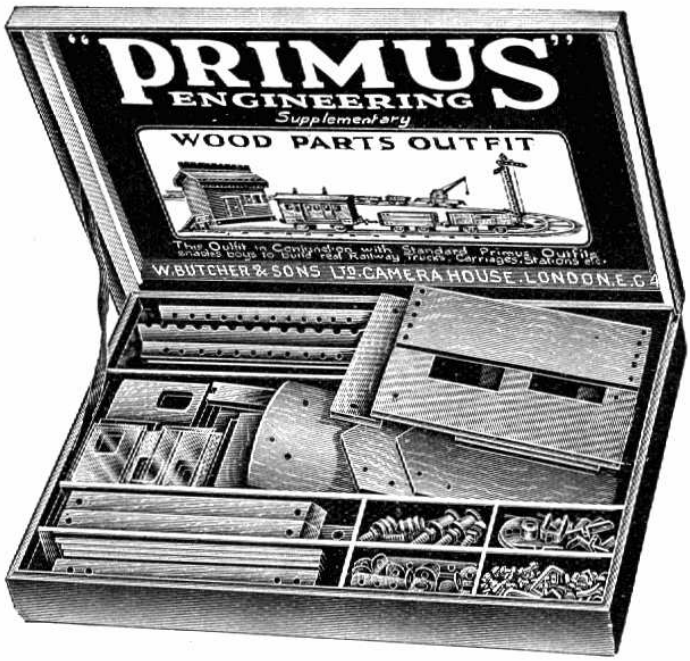
For details of contents see pages 11 and 12.

No. 1s	Converts a	No.	1	outfit	into a	No.	2	outfit.
No. 2s	,,	,,	2	,,	,,	,,	3	,,
No. 3s	,,	,,	3	,,	,,	,,	4	,,
No. 4s	,,	,,	4	,,	,,	,,	5	,,

For prices see page 3.

PRIMUS ENGINEERING
BRITISH MADE

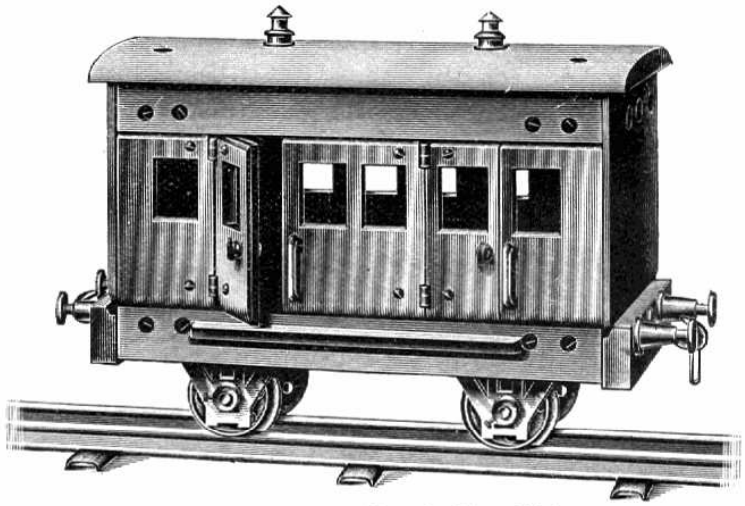
WOOD PARTS OUTFIT



Although a supplementary set the Wood Parts outfit, with the addition of standard Primus parts, will make many instructive models, from station houses to railway rolling stock.

CONTENTS OF OUTFIT.

		No.			No.
1	Grooved side rails	4	18	Truck ends ..	2
2	,, ,, ,,	2	26	Window Glass ..	2
3	Carriage ends ..	2	50	Screws	6
4	Buffer blocks ..	2	52	Angle bars, 6 in. ..	4
5	R.H. windows ..	2	58	Metal strips, 3 in.	4
6	L.H. ,, ..	2	62	,, ,, $6\frac{1}{2}$,,	2
7	Carriage doors ..	4	66	Brackets	8
8	Central windows ..	2	67	Metal plates, 8×3 in.	2
9	Floor	1	70	Ridge tiles, 8 in. ..	1
10	Roof	1	71	Eaves, 8 in. ..	2
12	House front rail ..	2	73	Bent hinges ..	8
13	,, side ,, ..	2	76	Grooved wheels ..	1
14	House sides ..	2	85	Buffers	2
15A	Window sills ..	4	87	Lamps	2
15D	,, sashes ..	2	88	Carriage door handles	4
15F	Front of house ..	1	89	Turnbuttons ..	4
15B	Back ,, ,, ..	1	90	Side rails	4
16	Doors of house ..	2	91	Door screws ..	16
16A	Lintels	2	92	Knob screws ..	2
17	Truck sides ..	2	93	Turnbuttons ..	2



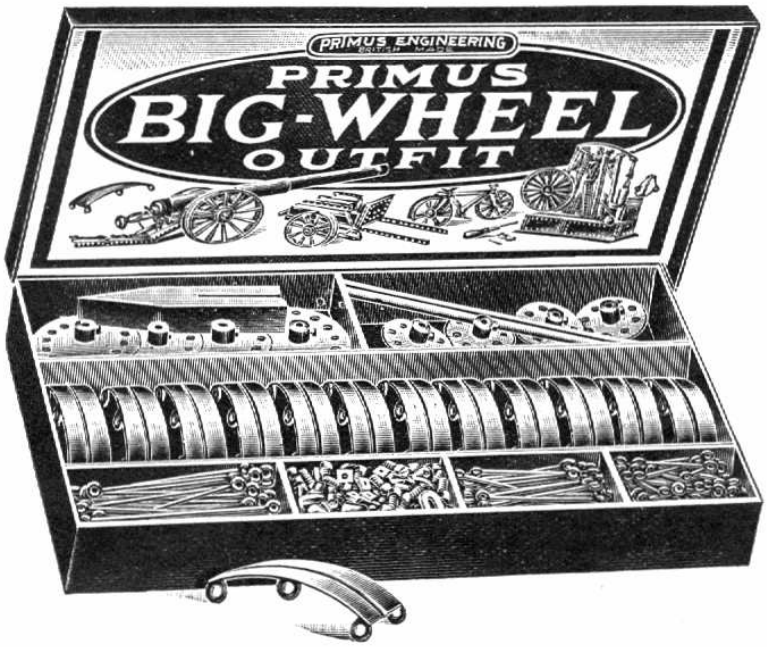
Passenger Coach No. 254.

The model illustrated can be made with this outfit and parts from a No. 2 Outfit. Details of other striking models will be found on page 79.

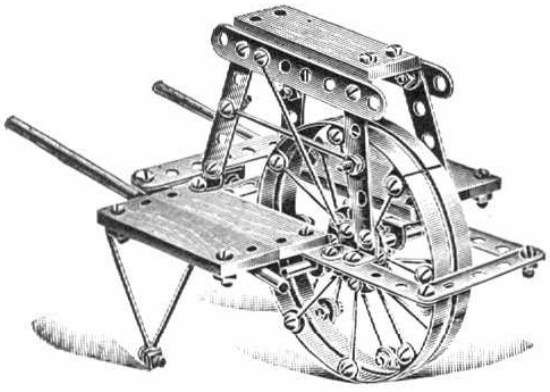
For price see page 3.

PRIMUS ENGINEERING
BRITISH MADE

BIG-WHEEL OUTFIT



Wheels of many descriptions are necessary for the perfecting of models. With this outfit you can make flywheels, pulley wheels, paddle wheels, also wheels for carts, carriages, locomotives, in fact, wheels for almost any purpose.



Chinese Luggage Barrow No. 1004.

This model can be built with this outfit and parts from a No. 1 Outfit. Details of other striking models will be found on pages 80 to 87.

The outfit forms a useful accessory set for use with standard Primus Engineering Outfits, and considerably enlarges their scope in variety and instruction.

CONTENTS OF OUTFIT.

24	Rim Sections	.. No.	150
4	8-hole Hubs	.. ,,	151
2	12- ,, ,,	.. ,,	152
2	16- ,, ,,	.. ,,	153
32	Wire Stays, 1⅝ in.	,,	154
48	,, ,, 2½ in.	,,	155
32	Wire Stays, 3¼-in.	No.	156
72	Nuts and Bolts ..	,,	50/51
2	6½-in. Axles ..	,,	165
12	Brackets	,,	66
1	Bending Bolster ..	,,	110

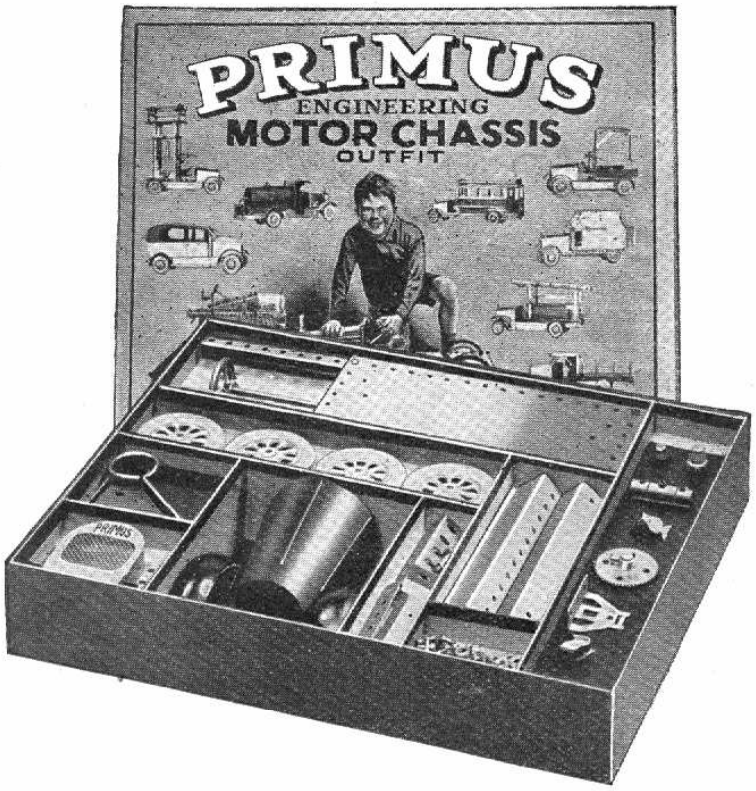
For price see page 3.

PRIMUS ENGINEERING
BRITISH MADE

MOTOR CHASSIS OUTFIT

CONTENTS OF OUTFIT.

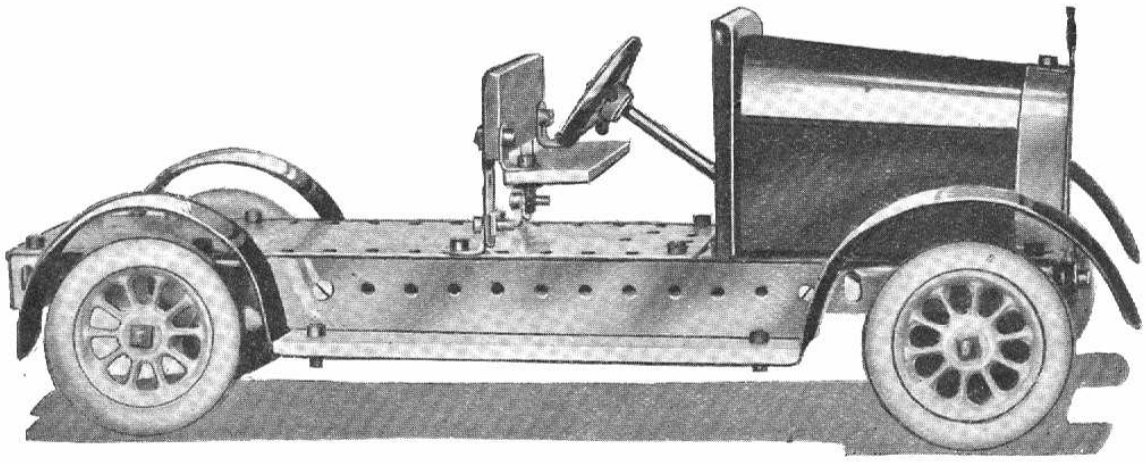
	No.
1 Steering column rod ..	218
1 Metal dashboard	219
1 Angle bar, 3 in...	220
1 Shouldered screw	221
2 Screws, 7 B.A...	222
2 Wood slips, 3 × 1	25
36 Nuts and bolts..50/	51
2 Angle bars, 12 in.	55
4 Metal strips, 2 in.	56
1 ,, ,, 3 ,,	58
8 Brackets ..	66
1 Metal plate, 8 × 3	67
2 Trunnions ..	74
1 Axle rod, 1½ in...	79
7 Collars	82
12 Washers ..	84
1 Screwdriver ..	101
1 Gear wheel, 1⅝ in.	160
3 Set screws, $\frac{3}{16} \times \frac{5}{32}$	172



CONTENTS (contd.)

	No.
4 Motor car wheels	201
4 Rubber tyres ..	202
1 Steering wheel	203
1 Pinion & bevel gear	204
1 Small bevel gear	205
1 Coupling ..	206
2 Front mudguards	207
1 Right back mudguard ..	208
1 Left back mudguard ..	209
1 Right running board ..	210
1 Left running board	211
1 Bonnet	212
1 Radiator ..	213
1 A.A. Badge ..	214
1 Steering bearing	215
1 Back axle, 4¾ in.	216
2 Front axles, 2 $\frac{3}{16}$ in.	217

A comprehensive outfit for building up into a complete chassis upon which can be fitted bodies of touring cars, lorries, tractors and char-a-bancs. A Primus Clockwork Motor is easily attached for motive power.



The illustration shows a completed chassis. Details of bodies for fixing upon this chassis will be found on pages 88 to 94.

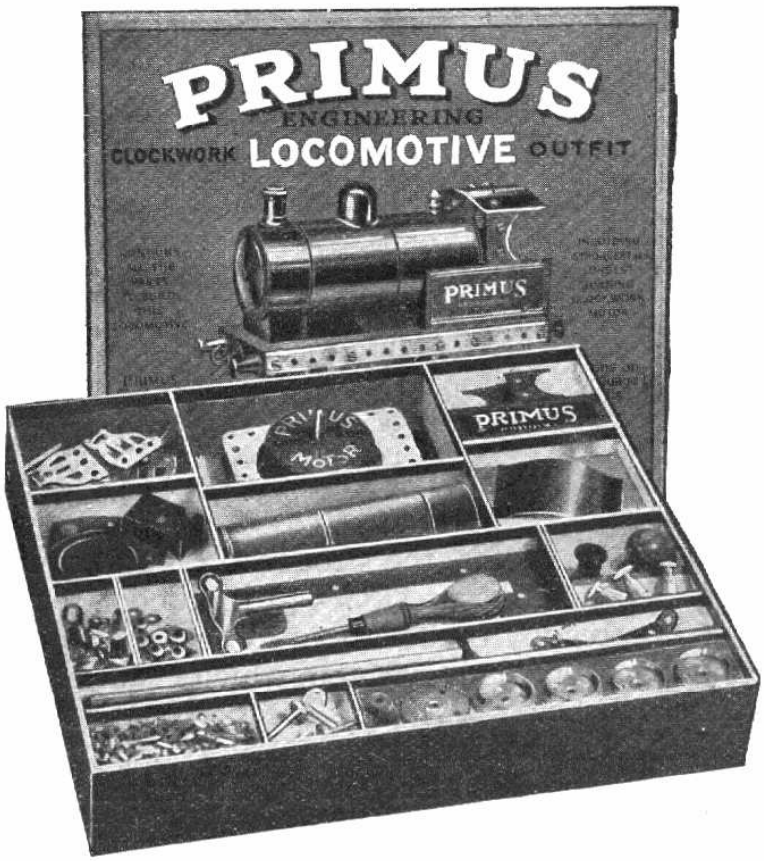
For price see page 3.

PRIMUS ENGINEERING
BRITISH MADE

CLOCKWORK LOCOMOTIVE OUTFIT

CONTENTS OF OUTFIT.

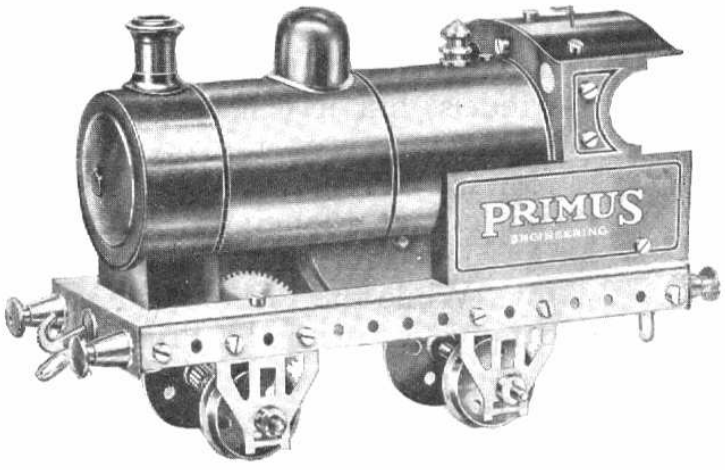
		No.
1	Primus Clockwork	—
1	Foot plate ..	251
1	Boiler shell ..	252
1	Smoke box door	253
1	Funnel	254
1	Steam dome ..	255
1	Spectacle plate..	256
1	Cab side (right)	257
1	Cab side (left) ..	258
1	Cab roof ..	259
1	Smoke box saddle	260
2	Long screws ..	261
40	Nuts and bolts..	50/51
2	8-in. Angle bars	54
22	Metal strips ..	56
1	2½-in. ,, ..	57



CONTENTS (contd.)

		No.
12	Brackets ..	66
2	,, (special)	66a
4	Trunnions (flat)	74
4	Wheels ..	75
2	3½-in. Axles ..	77
2	1½-in. Axles ..	79
5	Collars	82
7	Washers ..	84
4	Buffers	85
2	Coupling hooks	86
1	Safety valve ..	87
1	Reversing rod ..	96
1	Cog wheel ..	160
2	Pinion wheels ..	161
1	Screwdriver ..	100
1	Spanner ..	103

The 109 parts of this outfit make up into a really fine clockwork locomotive—modelled to scale and correctly coloured. The Primus Clockwork Motor (next page) supplied makes it into a model highly appreciated by all for long steady running and good hauling powers.



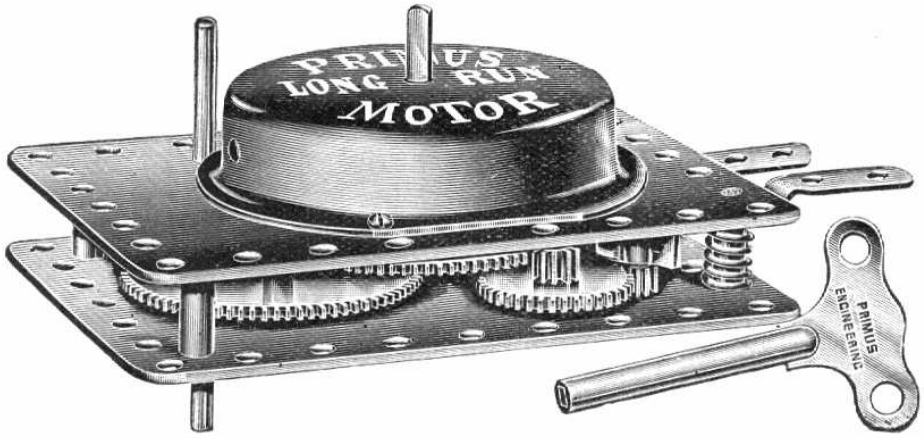
For " fitting-up " instructions see pages 95-96.

The Locomotive can be supplied completely erected and ready for the railway track as illustrated.

For price see page 3.

PRIMUS ENGINEERING
BRITISH MADE

CLOCKWORK MOTOR



The Primus Clockwork Motor, the strongest, longest running motor of its kind on the market. Measures $5\frac{1}{2} \times 3\frac{1}{2}$ in., and is designed in such a way that it can be readily built into any working Primus Model. An important feature is the reversing switch, which enables the Motor to be run both forward and backwards, thus greatly increasing its utility and adding tremendously to its fascination. The Primus Clockwork Motor is very sturdily built, and in consequence will stand an unusual amount of hard work without getting out of order. By means of Standard Primus Gear Wheels, Pinions, etc., the speed of the Motor can be varied considerably, in fact it can be geared down so that Models it operates will run as slowly as can possibly be required, yet on the other hand, by taking the Drive direct, a tremendous speed can be attained. The finish of the Primus Clockwork Motor is without equal, and with its bright red dome which contains the spring it really forms a handsome piece of mechanism. Not only can it be used with great success in working Primus Models, but it will also propel the Primus Motor Chassis in a most satisfactory way, the reversing switch enabling the motor to be run forward and in reverse just like a real car. No boy who owns Primus can fail to have a longing to obtain a Primus Clockwork Motor, because of the great added interest that it imparts to our famous wood and metal toy. While the Primus Clockwork Motor has been designed for use in conjunction with the Primus Engineering, it nevertheless can be used with equal success in conjunction with constructional toys of other make.

For price see page 3.

PRIMUS ENGINEERING
BRITISH MADE

CONTENTS OF STANDARD OUTFITS

PART NO.	DESCRIPTION.	OUTFIT NO.										
		0	1	1s	2	2s	3	3s	4	4s	5	6
1	Side Rail	—	—	4	4	—	4	—	4	2	6	6
2	Side Rail with foot-board	—	—	—	—	—	—	2	2	—	2	2
3	Carriage End	—	—	—	—	—	—	2	2	—	2	2
4	Buffer Block	—	2	—	2	—	2	—	2	2	4	4
5	Carriage Window, right-hand	—	—	—	—	—	—	2	2	—	2	2
6	Carriage Window, left-hand	—	—	—	—	—	—	2	2	—	2	2
7	Carriage Door	—	—	—	—	—	—	4	4	—	4	4
8	Central Window	—	—	—	—	—	—	2	2	—	2	2
9	Carriage Floor	—	—	1	1	—	1	—	1	1	2	2
10	Carriage Roof	—	—	—	—	—	—	1	1	—	1	1
11	Posts for railings	—	—	2	2	15	17	—	17	—	17	17
12	End Rail of House	—	—	—	—	—	—	—	—	2	2	2
13	Side Rail „ „	—	—	—	—	—	—	—	—	2	2	2
14	House Side	—	—	—	—	—	—	—	—	2	2	2
15A	Window Sill	—	—	—	—	—	—	—	—	4	4	4
15D	Window Sash	—	—	—	—	—	—	—	—	2	2	2
15B	House Front	—	—	—	—	—	—	—	—	2	2	2
16	Door of House	—	—	—	—	—	—	—	—	2	2	2
16A	Door Lintel	—	—	—	—	—	—	—	—	2	2	2
17	Truck Side	—	—	2	2	—	2	—	2	—	2	2
18	Truck End	—	—	2	2	—	2	—	2	—	2	2
19	Baseboard	—	—	—	—	—	—	—	—	1	1	1
21	Steps	—	—	—	—	1	1	—	1	—	1	1
22	Station Slope	—	—	—	—	1	1	—	1	—	1	1
23	Platform Plank Centre	—	—	—	—	2	2	—	2	—	2	2
24	Platform Plank Side	—	—	—	—	2	2	—	2	—	2	2
25	Wood Slip	6	8	8	16	9	25	—	25	—	25	25
26	Glass for windows	—	—	—	—	—	—	—	—	4	4	4
50 & 51	Screws and Nuts	30	36	30	66	54	120	24	144	168	312	312
52	Angle Bars, 6 in.	—	—	—	—	—	—	—	—	4	4	4
53	do. 6½ „	—	—	2	2	—	2	—	2	6	8	8
54	do. 8 „	2	2	—	2	2	4	—	4	4	8	8
55	do. 12 „	—	—	—	—	—	—	2	2	—	2	2
56	Metal Strip 2 in.	4	4	4	8	—	8	2	10	6	16	16
57	do. 2½ „	6	6	—	6	2	8	—	8	8	16	16
58	do. 3 „	—	—	—	—	4	4	4	8	—	8	8
59	do. 3½ „	—	2	6	8	—	8	6	14	—	14	14
60	do. 4 „	—	2	—	2	1	3	—	3	—	3	3
61	do. 5½ „	—	—	—	—	4	4	—	4	—	4	4
62	do. 6½ „	—	—	2	2	2	4	—	4	—	4	4
63	do. 8 „	2	2	—	2	4	6	—	6	6	12	12
64	do. 12½ „	—	—	—	—	3	3	—	3	—	3	3
65	Architrave	—	—	4	4	—	4	—	4	4	8	8
66	Bracket	10	12	4	16	22	38	2	40	38	78	78
67	Metal Plate, 8×3 in.	—	—	—	—	4	4	—	4	6	10	10
68	Metal Plate 3×3 „	3	3	—	3	—	3	11	14	—	14	14
69	Ridge Tile, 6½ in.	—	—	—	—	1	1	—	1	—	1	1
70	do. 8 „	—	—	—	—	1	1	—	1	1	2	2

PRIMUS ENGINEERING
BRITISH MADE

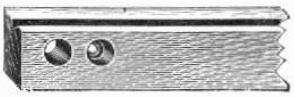
CONTENTS OF STANDARD OUTFITS—*continued*

PART NO.	DESCRIPTION.	OUTFIT NO.										
		0	1	1s	2	2s	3	3s	4	4s	5	6
71	Eaves Tiles, 8 ,,	—	—	—	—	4	4	—	4	6	10	10
72	Straight Hinge	—	—	4	4	—	4	—	4	2	6	6
73	Bent Hinge	—	—	—	—	—	—	8	8	—	8	8
74	Trunnion for Wheel	—	4	—	4	—	4	4	8	—	8	8
75	Flanged Wheel	—	4	—	4	—	4	4	8	—	8	8
76	Grooved Wheel	—	—	—	—	4	4	—	4	—	4	4
77	Axle Rod, $3\frac{1}{2}$ in.	2	2	—	2	—	2	2	4	—	4	4
78	do. $2\frac{3}{4}$,,	—	—	2	2	—	2	4	6	—	6	6
79	do. $1\frac{1}{2}$,,	1	—	—	—	1	1	—	1	—	1	1
82	Collar and Set Screw	—	4	—	4	4	8	5	13	—	13	13
83	Handle Axle	1	1	—	1	—	1	—	1	—	1	1
84	Washer	6	12	—	12	—	12	24	36	12	48	48
85	Buffer	—	4	—	4	—	4	—	4	4	8	8
86	Coupling Hook	—	2	—	2	1	3	—	3	1	4	4
87	Lamp	—	—	—	—	2	2	2	4	2	6	6
88	Carriage Door Handle	—	—	—	—	—	—	4	4	—	4	4
89	Turn-button	—	—	—	—	—	—	4	4	—	4	4
90	Side Rail	—	—	—	—	—	—	4	4	—	4	4
91	Door Screw	—	—	—	—	—	—	16	16	—	16	16
92	Knob Screw	—	—	—	—	1	1	3	4	—	4	4
93	Turn-button	—	—	—	—	—	—	2	2	—	2	2
95	Catch	—	—	4	4	—	4	—	4	—	4	4
96	Connecting Rod	—	—	2	2	—	2	—	2	2	4	4
97	Wood Screw	—	—	6	6	—	6	—	6	6	12	12
100	Screw-driver (wood handle)	—	—	—	1	—	1	—	1	—	1	1
101	do. (all metal)	1	1	—	—	—	—	—	—	—	—	—
102	Cord	—	1	—	1	—	1	—	1	—	1	1
103	Spanner	—	1	—	1	—	1	—	1	—	1	1
150	Rim Section, $\frac{3}{4}$-in. wide	—	—	—	—	—	—	—	—	—	—	12
151	Hub Wheel, 8 hole	1	—	—	—	—	—	—	—	—	—	1
152	do. 12 ,,	—	—	—	—	—	—	—	—	—	—	1
153	do. 16 ,,	—	—	—	—	—	—	—	—	—	—	1
154	Wire Stay, $1\frac{5}{8}$ in.	6	—	—	—	—	—	—	—	—	—	12
155	do. $2\frac{1}{2}$,,	6	—	—	—	—	—	—	—	—	—	12
156	do. $3\frac{1}{4}$,,	—	—	—	—	—	—	—	—	—	—	6
158	Pulley wheel with set screw	4	—	—	—	—	—	—	—	—	—	4
159	do. plain	1	—	—	—	—	—	—	—	—	—	6
160	Cog gear wheel	—	—	—	—	—	—	—	—	—	—	2
161	Pinion wheel	—	—	—	—	—	—	—	—	—	—	2
162	Bevel gear	—	—	—	—	—	—	—	—	—	—	2
163	Eccentric	—	—	—	—	—	—	—	—	—	—	1
164	Crank Arm	—	—	—	—	—	—	—	—	—	—	1
167	Double Tapped Rod. $3\frac{1}{2}$ in.	—	—	—	—	—	—	—	—	—	—	6
167A	do. do. $2\frac{1}{2}$,,	—	—	—	—	—	—	—	—	—	—	4
168	Collar, Double Tapped	—	—	—	—	—	—	—	—	—	—	4
171	Brass Worm Wheel	—	—	—	—	—	—	—	—	—	—	2

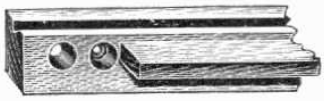
PRIMUS ENGINEERING
BRITISH MADE

WOOD SPARE PARTS

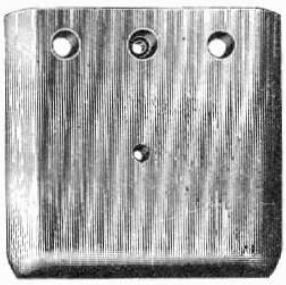
(For Prices see page 18)



No. 1. Grooved side rail for carriage and truck.

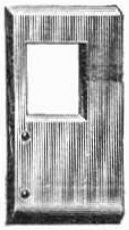


No. 2. Grooved side rail with footboard.

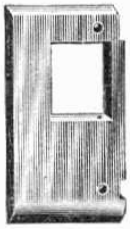


No. 3. Carriage end.

No. 4. Buffer Block.

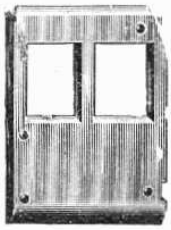


No. 5. Right-hand carriage window.

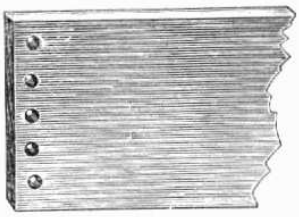


No. 6. Left-hand carriage window.

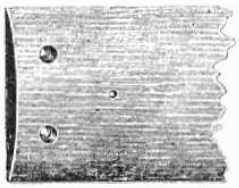
No. 7. Carriage door.



No. 8. Centre window.



No. 9. Carriage Floor.



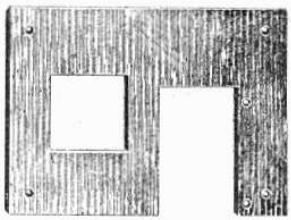
No. 10. Carriage roof.

No. 11. Posts for railing.

No. 12. End rail of house.
No. 13. Side rail of house.

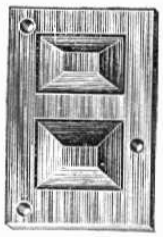
No. 14. House Side.

No. 15A. Window sill.



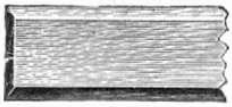
No. 15B. Front and Back of house.

No. 15D. Window sash.

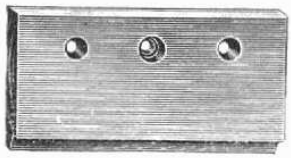


No. 16. Door of house.

No. 16A. Door lintel.



No. 17. Truck side.



No. 18. Truck End.

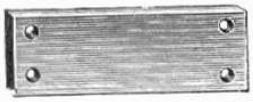
No. 19. House baseboard.

No. 21. Steps.

No. 22. Station Slope

No. 23. Platform centre.

No. 24. Platform side.



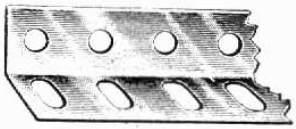
No. 25 Wood slip, 3 × 1 in.

PRIMUS ENGINEERING
BRITISH MADE

METAL SPARE PARTS

(For Prices see pages 18 and 19)

Nos. 50 and 51. Screw and nut.

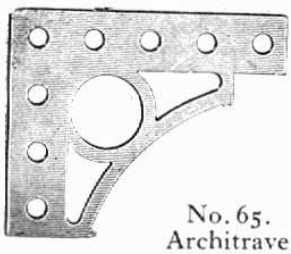


Angle Bars.

No.	52	6 ins.
,,	53	6½ ,,
,,	54	8 ,,
,,	55	12 ,,

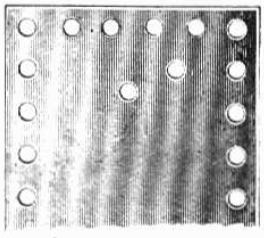
Metal Strip.

No.	56	2 ins.
,,	57	2½ ,,
,,	58	3 ,,
,,	59	3½ ,,
,,	60	4 ,,
,,	61	5½ ,,
,,	62	6½ ,,
,,	63	8 ,,
,,	64	12½ ,,



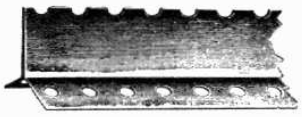
No. 65. Architrave.

No. 66. Bracket.



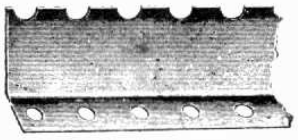
Metal Plate.

No.	67	8 × 3 ins.
,,	68	3 × 3 ins.



Ridge Tile.

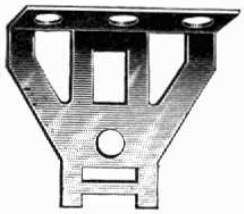
No.	69	6½ ins.
,,	70	8 ,,



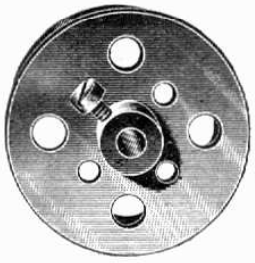
No. 71. Eaves, 8 ins.

No. 72. Straight hinge.

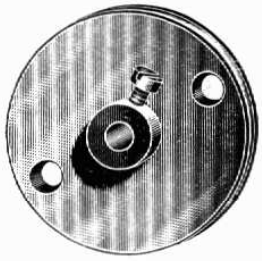
No. 73. Bent hinge.



No. 74. Trunnion.



No. 75. Flanged wheel.



No. 76. Pulley wheel, grooved.

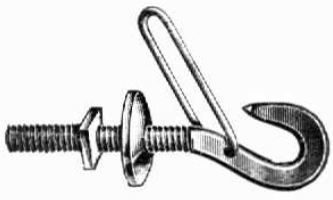
No.	77	Axle	3½ ins.
,,	78	,,	2¾ ,,
,,	79	,,	1½ ,,
,,	165	,,	6½ ,,
,,	166	,,	8 ,,
,,	169	,,	¾ ,,

No. 82. Collar and screw.

No. 83. Handle Axle.

No. 84. Washer.

No. 85. Buffer.



No. 86. Coupling Hook.

No. 87. Carriage lamp.

No. 88. Carriage door handle.

No. 89. Turnbutton.

No. 90. Carriage Rail.

No. 91. Carriage door screw.

No. 92. Knobscrew and nut.

No. 93. Turnbutton.

No. 95. Catch.

No. 97. Wood Screw.

No. 96. Signal Post rod.

No. 100. Wood handle screwdriver.

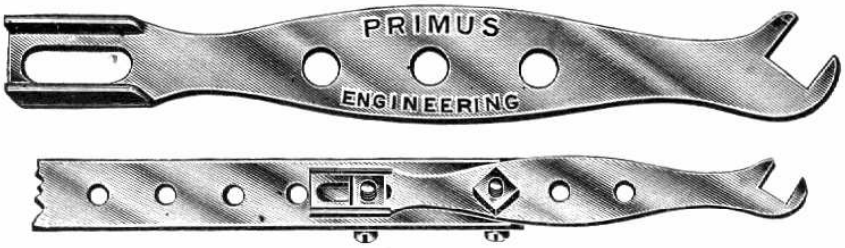
No. 101. All metal screwdriver.

No. 102. Cord, 5 yard skein.

PRIMUS ENGINEERING
BRITISH MADE

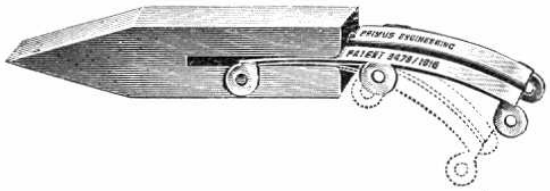
METAL SPARE PARTS

(For Prices see pages 18 and 19)

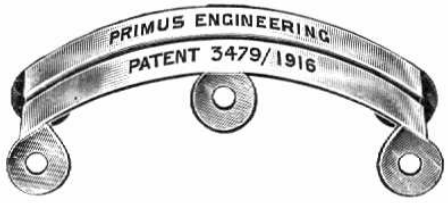


No. 103. PRIMUS SPANNER.

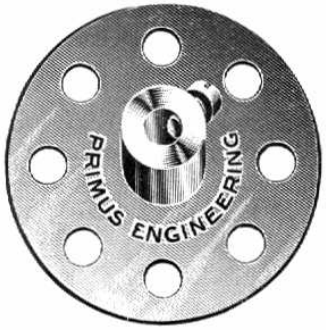
Included in all outfits and forms a very useful accessory. One end has a plain nut grip, the other is shaped to grip a nut securely when fastening up with a screwdriver. It can be lengthened by bolting to a metal strip of any length by means of the centre holes, as shown in lower illustration.



No. 110. Bolster Bending Block, machined in hard wood for altering curves in Rim Sections.

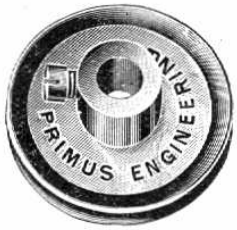


No. 150. Rim Section $\frac{3}{4}$ in. wide, curved for building wheels.

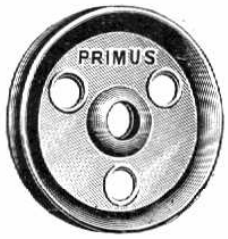


No. 151 Hub Wheel, 8 holes.
,, 152 ,, ,, 12 ,,
,, 153 ,, ,, 16 ,,

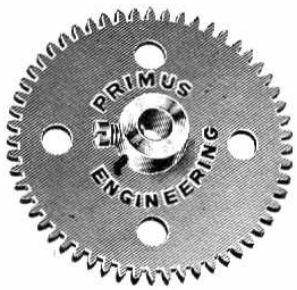
No. 154 Wire Stay, $1\frac{5}{8}$ ins.
,, 155 ,, ,, $2\frac{1}{2}$,,
,, 156 ,, ,, $3\frac{1}{4}$,,



No. 158. Pulley Wheel with set screw.



No. 159. Pulley Wheel, plain.



No. 160. Cog Gear Wheel. $1\frac{1}{8}$ in., 56 teeth.

No. 161. Pinion Wheel.

No. 162. Bevel Gear.

No. 163 Eccentric.

No. 164. Crank Arm.

No. 167. Double Tapped Rod. $3\frac{1}{2}$ ins.

No. 167a. do. $2\frac{3}{8}$ ins.

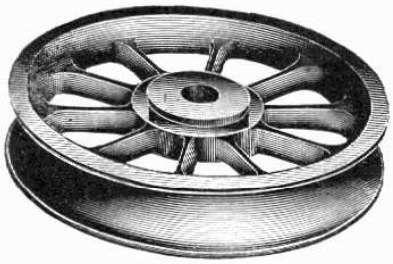
No. 168. Double Tapped Collar.

No. 171. Brass Worm Wheel, $\frac{9}{16}$ in. diameter, $\frac{7}{8}$ in. long, 12 threads per inch, fitted with Grub Screw.

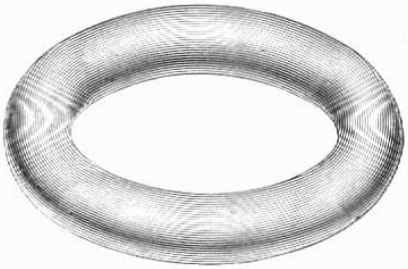
PRIMUS ENGINEERING
BRITISH MADE

MOTOR CHASSIS SPARE PARTS

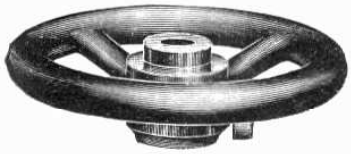
(For Prices see page 19)



No. 201 Motor Car Wheel.



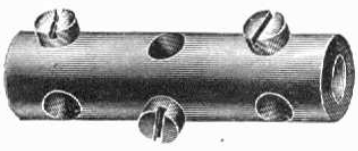
No. 202. Rubber Tyre.



No. 203. Steering Wheel.

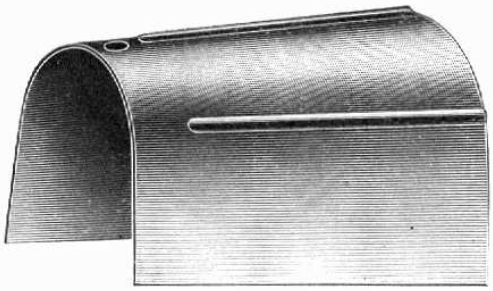
No. 204. Pinion and Bevel Gear.

No. 205. Small Bevel Gear.

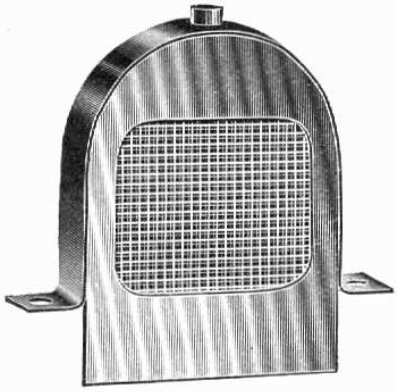


No. 206. Coupling.

No. 210. Right (offside) Running Board.
No. 211. Left (nearside) Running Board.

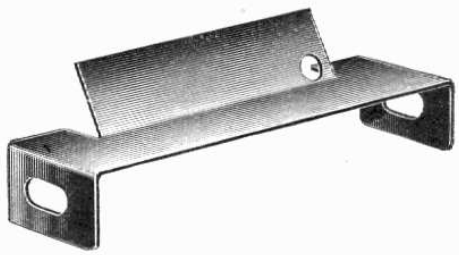


No. 212. Bonnet.



No. 213. Radiator.

No. 214. A.A. Badge.



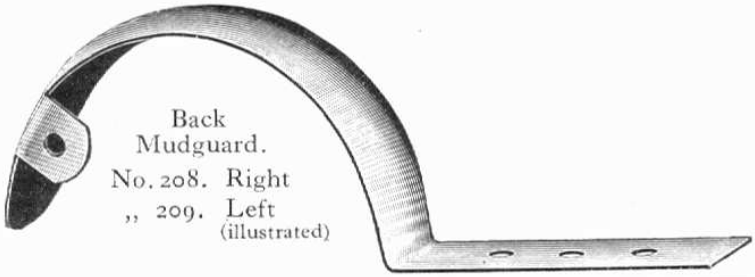
No. 215. Steering Bearing.

No. 219. Metal Dashboard.

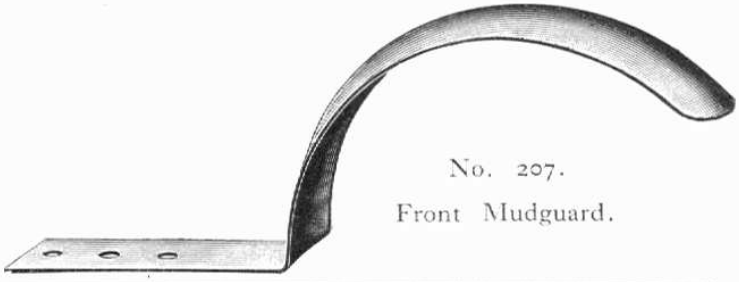
No. 221. Shouldered Screw.

No. 222. 7 B.A. Screw.

No. 172. $\frac{5}{32}$ Whit. Screw.



Back Mudguard.
No. 208. Right
,, 209. Left
(illustrated)

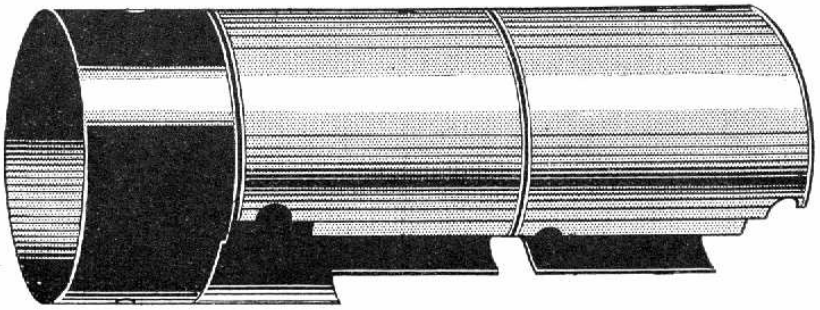


No. 207.
Front Mudguard.

PRIMUS ENGINEERING
BRITISH MADE

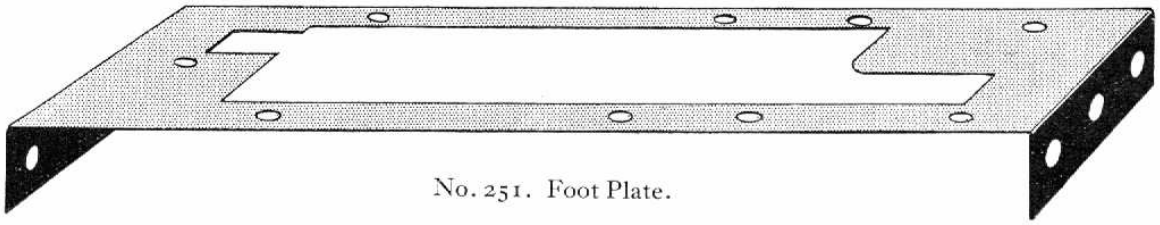
LOCOMOTIVE SPARE PARTS

(For Prices see page 19)

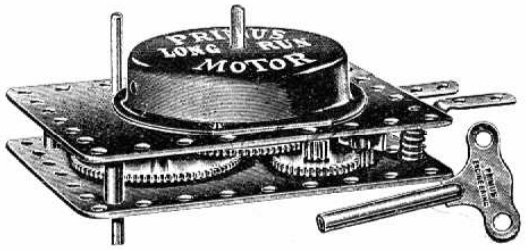


No. 252. Boiler Shell.

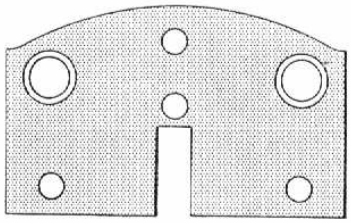
No. 253. Smoke Box Door.



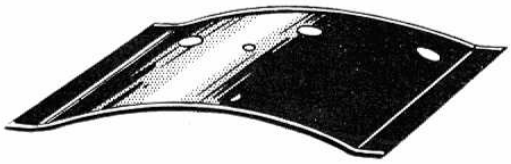
No. 251. Foot Plate.



Primus Clockwork Motor.

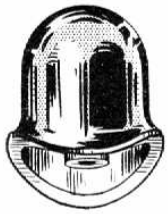


No. 256. Spectacle Plate.

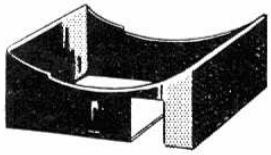


No. 259.
Cab Roof.

No. 254.
Funnel.

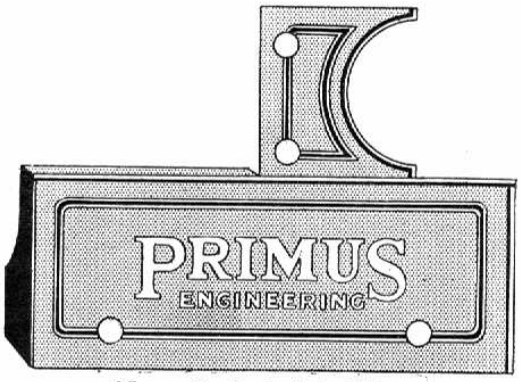


No. 255.
Steam Dome.

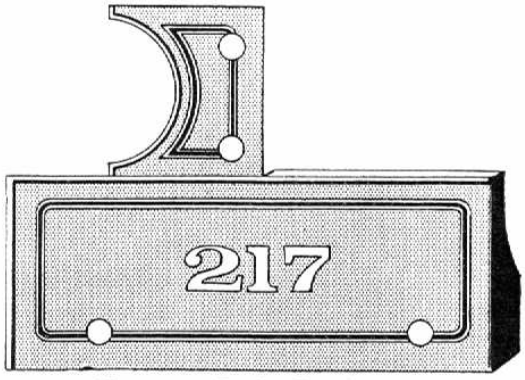


No. 260.
Smoke Box Saddle.

No. 261.
Long Screw
and Nut.



No. 258. Left Cab Side.



No. 257. Right Cab Side.

PRIMUS ENGINEERING
BRITISH MADE

PRICES OF SPARE PARTS

WOOD PARTS

No 1	Grooved Side Rail	3d. each
,, 2	,, ,, ,, with foot-board ..	4d. ,,
,, 3	Carriage End	6d. ,,
,, 4	Buffer Block	2d. ,,
,, 5	R.H. Carriage Window ..	3d. ,,
,, 6	L.H. ,, ,, ..	3d. ,,
,, 7	Carriage Door	3d. ,,
,, 8	Centre Window	6d. ,,
,, 9	Carriage Floor	6d. ,,
,, 10	,, Roof	8d. ,,
,, 11	Posts for Railing	1/- doz.
,, 12	End Rail of House	3d. each
,, 13	Side ,, ,, ,, ...	4d. ,,
,, 14	Sides of House	8d. ,,
No. 15A	Window Sill	1/6 doz.
,, 15B	Front and Back of House ..	1/- each
,, 15D	Window Sash	6d. doz.
,, 16	Door of House	8d. each
,, 16A	Door Lintel	1/3 doz.
,, 17	Truck Side	4d. each
,, 18	,, End	4d. ,,
,, 19	House Baseboard	1/6 ,,
,, 21	Steps	4d. ,,
,, 22	Station Slope	6d. ,,
,, 23	Platform Centre	6d. ,,
,, 24	,, Side	8d. ,,
,, 25	Wood Slip	1/3 doz.
,, 26	Glass for Windows	6d. ,,
,, 110	Bolster Bending Block ..	4d. each

METAL PARTS

Nos. 50 & 51	Screws and Nuts ..	6d. doz.
No. 52	Angle Bar 6 in.	1/-½doz.
,, 53	,, ,, 6½ ,, ...	1/1 ,,
,, 54	,, ,, 8 ,, ...	1/2 ,,
,, 55	,, ,, 12 ,, ...	1/9 ,,
,, 56	Metal Strip 2 ,, ...	3d. ,,
,, 57	,, ,, 2½ ,, ...	3d. ,,
,, 58	,, ,, 3 ,, ...	3d. ,,
,, 59	,, ,, 3½ ,, ...	4d. ,,
,, 60	,, ,, 4 ,, ...	5d. ,,
,, 61	,, ,, 5½ ,, ...	6d. ,,
,, 62	,, ,, 6½ ,, ...	8d. ,,
,, 63	,, ,, 8 ,, ...	8d. ,,
,, 64	,, ,, 12½ ,, ...	1/- ,,
,, 65	Architrave	9d. ,,
,, 66	Bracket	6d. doz.
,, 67	Metal Plate 8×3 ins. ..	2/-½doz.
,, 68	,, ,, 3×3 ,, ..	1/3 ,,
,, 69	Ridge Tile 6½ ins.	2/6 ,,
,, 70	,, ,, 8 ,, ...	3/- ,,
,, 71	Eaves, 8 ins.	2/- ,,
,, 72	Straight Hinge	9d. doz.
,, 73	Bent ,, ...	6d. ½doz.
,, 74	Trunnion	2d. each
,, 75	Flanged Wheel	4d. ,,
,, 76	Pulley Wheel	4d. ,,
No. 77	Axle, 3½ ins.	1/- doz.
,, 78	,, 2¾ ,, ...	1/- ,,
,, 79	,, 1½ ,, ...	1/- ,,
,, 165	,, 6½ ,, ...	2/- ,,
,, 166	,, 8 ,, ...	3/- ,,
,, 169	,, 8¾ ,, ...	1/- ,,
,, 82	Collar and Screw	2d. each
,, 83	Handle Axle	2d. ,,
,, 84	Washer	1d. doz
,, 85	Buffer	2d. each
,, 86	Coupling Hook	4d. ,,
,, 87	Carriage Lamp	3d. ,,
,, 88	,, Door Handle ..	2d. ,,
,, 89	Turnbutton for Door Handle	3d. ½doz.
,, 90	Carriage Rail	3d. ,,
,, 91	,, Door Screw ..	1/- doz.
,, 92	Knobscrew and Nut ..	1/3 ½doz.
,, 93	Turnbutton	3d. ,,
,, 95	Catch	2d. ,,
,, 96	Signal Post Rods	6d. ½doz.
,, 97	Wood Screws	2d. doz.
,, 100	Screwdriver (Wood handle)	6d. each
,, 101	,, (Metal ,,)	2d. ,,
,, 102	Cord, 5-yard skein	1½d. ,,
,, 103	Primus Spanner	2d. ,,
,, 150	Rim section, ¾ in. wide ..	3d. ,,

PRIMUS ENGINEERING
BRITISH MADE

PRICES OF SPARE PARTS—*continued*

METAL PARTS—*continued*

No.151	Hub Wheel 8 hole	2d. each
,, 152	,, ,, 12 ,, ...	3d. ,,
,, 153	,, ,, 16 ,, ...	4d. ,,
,, 154	Wire Stay 1⅝ ins.	3d. ½doz.
,, 155	,, ,, 2½ ,, ...	3d. ,,
,, 156	,, ,, 3¼ ,, ...	3d. ,,
,, 158	Pulley Wheel w/set screw ..	4d. each
,, 159	Pulley Wheel, plain	2d. ,,
,, 160	Cog Gear Wheel	9d. ,,
No.161	Pinion Wheel	6d. each
,, 162	Bevel Gear	1/6 pair
,, 163	Eccentric	9d. each
,, 164	Crank Arm	4d. ,,
,, 167	Double Tapped Rod, 3½ ins.	3d. ,,
,, 167A	,, ,, ,, 2⅜ ,,	3d. ,,
,, 168	Double Tapped Collars ..	3d. ,,
,, 171	Brass Worm Wheel	6d. ,,

PRIMUS MOTOR CHASSIS OUTFIT

No. 201	Motor Car Wheel	9d. each
,, 202	Rubber Tyre	3d. ,,
,, 203	Steering Wheel	9d. ,,
,, 204	Pinion and Bevel Gear ..	6d. ,,
,, 205	Small Bevel Gear	3d. ,,
,, 206	Coupling	6d. ,,
,, 207	Front Mudguard	6d. ,,
,, 208	Right Back Mudguard ..	6d. ,,
,, 209	Left ,, ,, ...	6d. ,,
,, 210	Right Running Board ..	6d. ,,
,, 211	Left ,, ,, ..	6d. ,,
,, 212	Bonnet	6d. ,,
No. 213	Radiator	6d. each
,, 214	A.A. Badge	3d. ,,
,, 215	Steering Bearing	6d. ,,
,, 216	Back Axle, 4¾ ins.	2d. ,,
,, 217	Front Axles, 2 3/16 ins... ..	2d. ,,
,, 218	Steering Column Rod ..	2d. ,,
,, 219	Metal Dashboard	9d. ,,
,, 220	Angle Bar, 3 ins.	1d. ,,
,, 221	Shouldered Screw	2d. ,,
,, 222	Screws, 7 B.A.	1d. ,,
,, 172	Set Screws, 3/16 × 5/32	1d. ,,

PRIMUS CLOCKWORK LOCOMOTIVE OUTFIT

No. 251	Foot Plate	1/6 each
,, 252	Boiler Shell	2/6 ,,
,, 253	Smoke Box Door	9d. ,,
,, 254	Funnel	1/6 ,,
,, 255	Steam Dome	2/– ,,
,, 256	Spectacle Plate	1/3 ,,
No. 257	Cab Side (right)	1/6 each
,, 258	Cab Side (left)	1/6 ,,
,, 259	Cab Roof	9d. ,,
,, 260	Smoke Box Saddle	9d. ,,
,, 261	Long Screws and Nuts ..	3d. ,,

PRICES OF BOYS' OWN READY-MADE MODELS

See illustrations on inside of back cover.

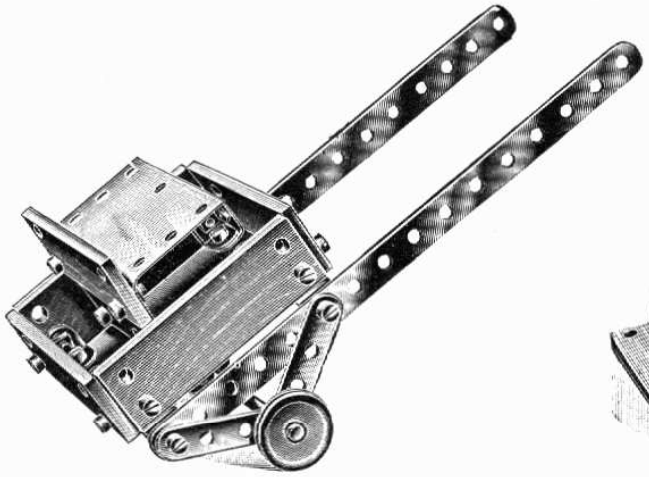
Goods Truck	6/6	**Passenger Coach**	10/6
Station House	7/6	**Railway Station**	10/6

These models are made with

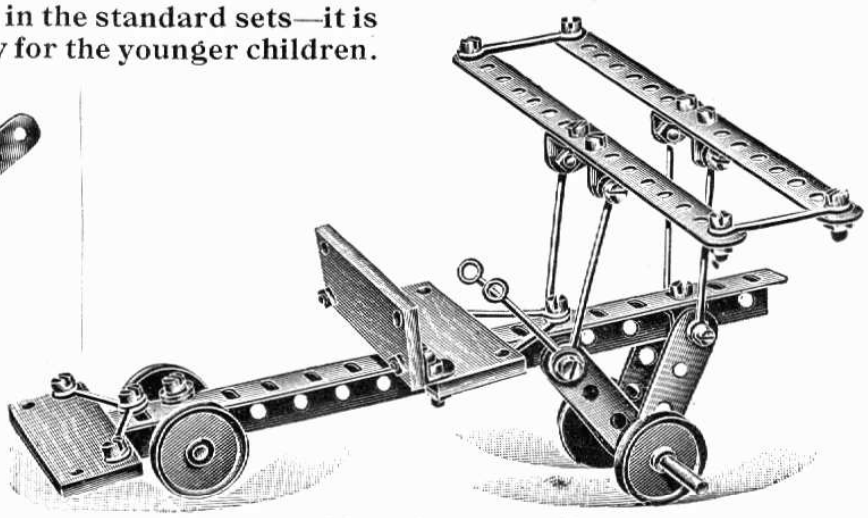
PRIMUS ENGINEERING

No. 0 OUTFIT

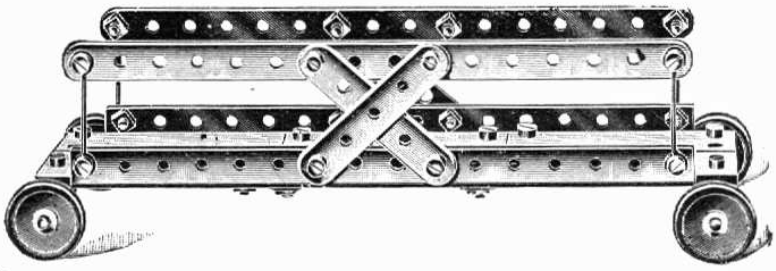
This outfit has several parts not included in the standard sets—it is intended to be a simple constructional toy for the younger children.



Dog Cart No. 125/0.

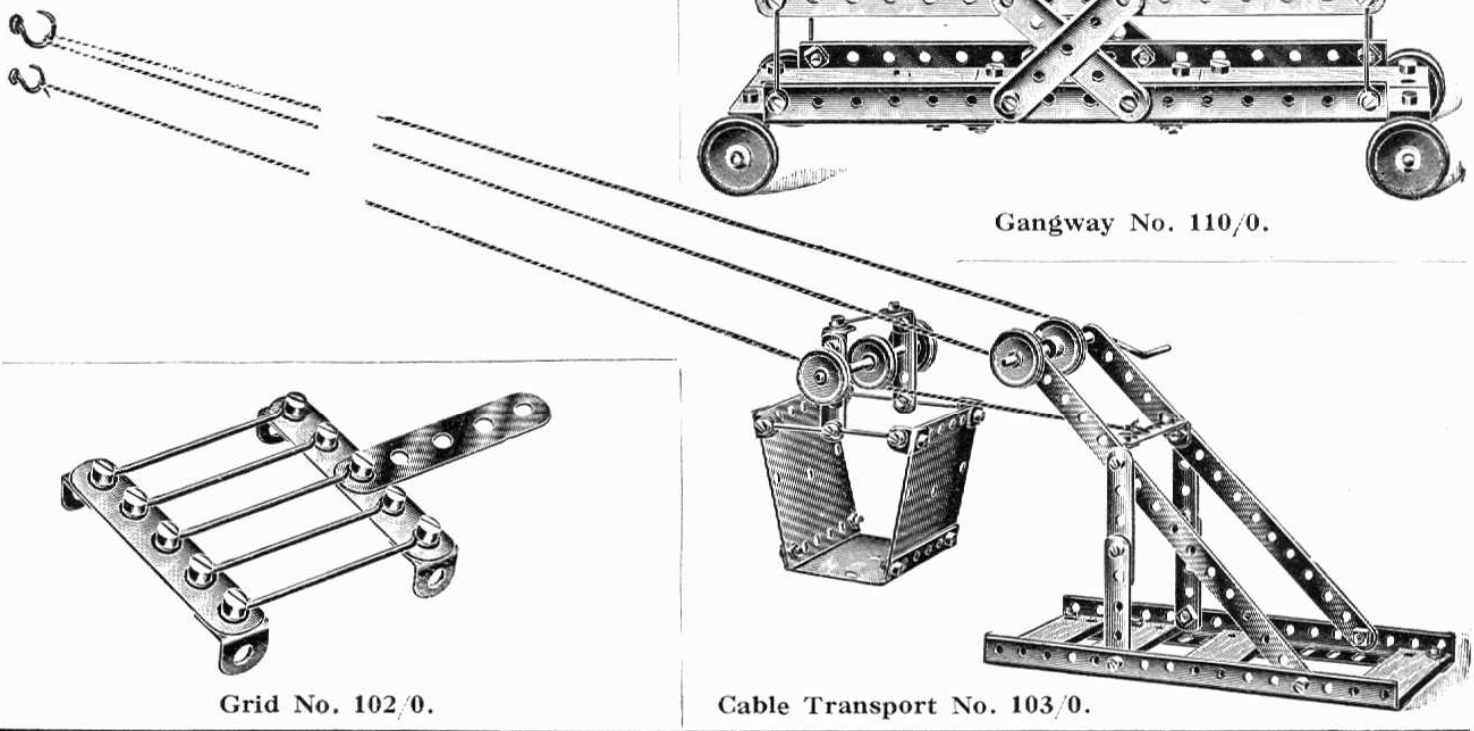


Monoplane No. 100/0.

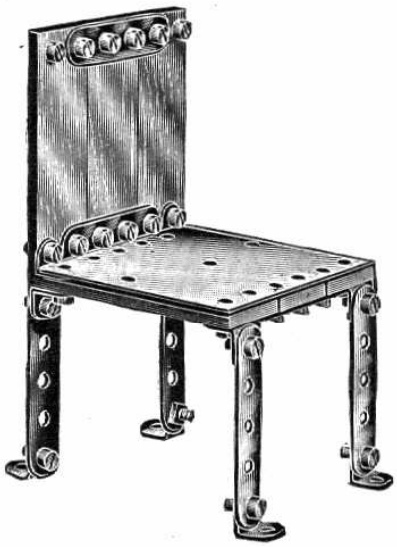


Gangway No. 110/0.

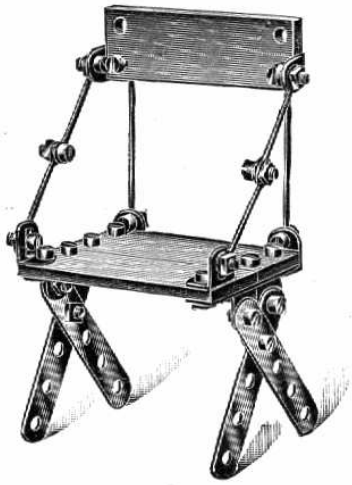
Grid No. 102/0.



Cable Transport No. 103/0.



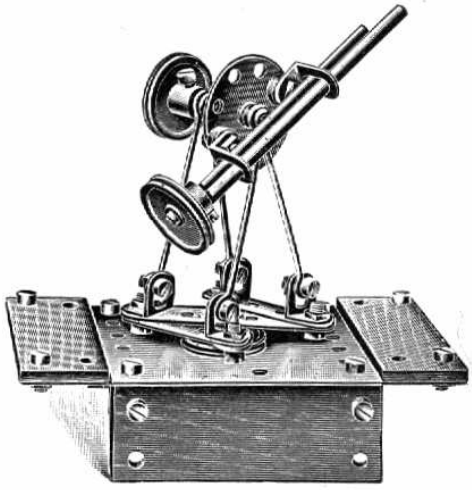
Chair No. 103/0.



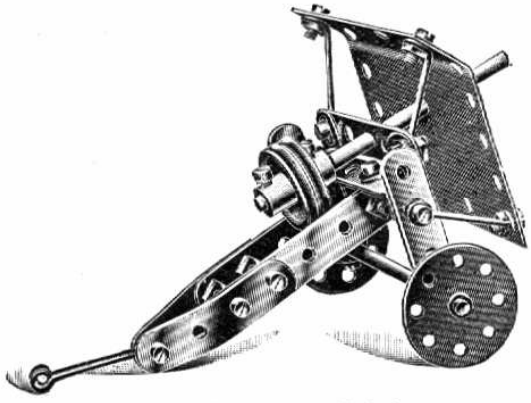
Garden Seat No. 104/0.

Garden Seat No. 105/0.

Push Cart No. 106/0.

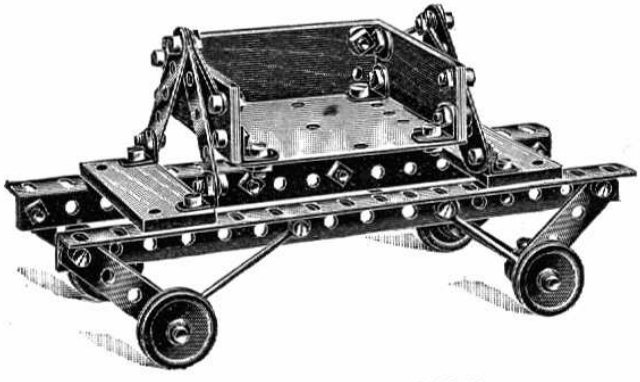


Anti-Aircraft Gun No. 107/0.

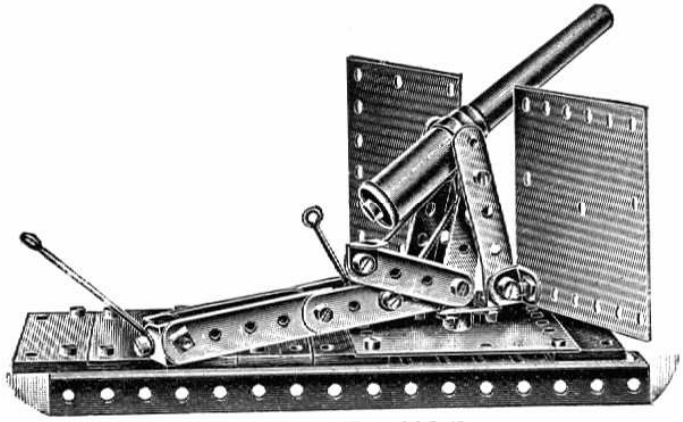


Field Gun No. 109/0.

Note.—One extra No. 151 required, or use two No. 158 Wheels.

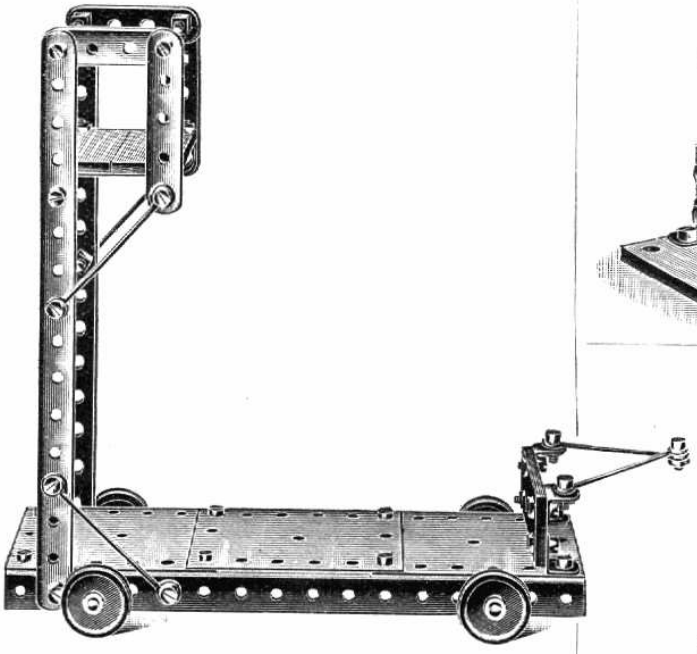


Tipping Truck No. 129/0.

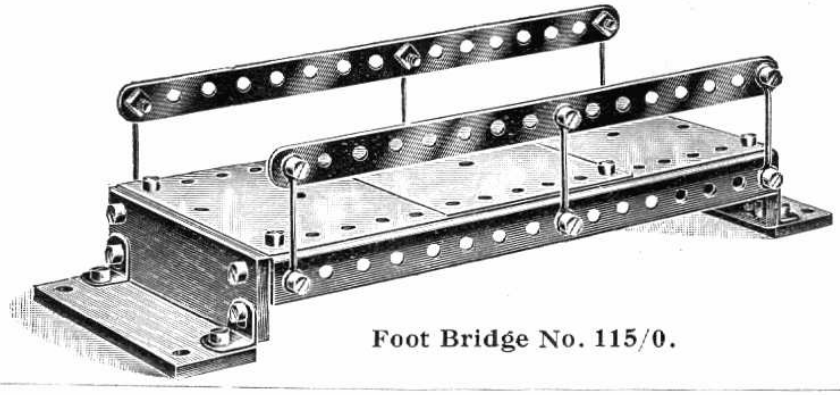


Naval Gun No. 108/0.

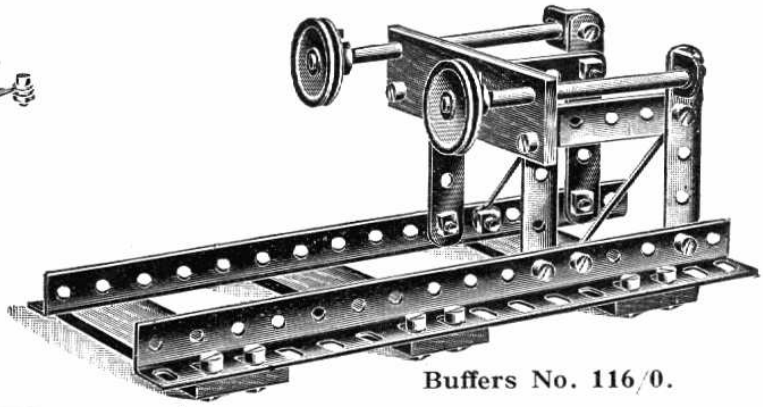
Note.—Use a Toy Cannon to complete this Model.



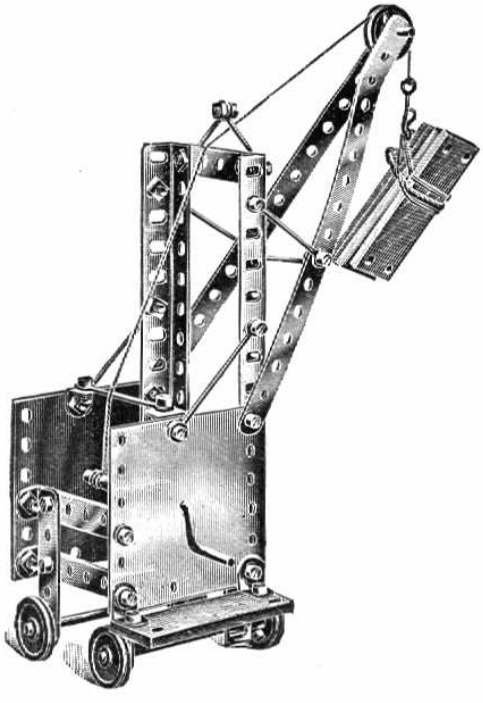
Tower Waggon No. 112/0.



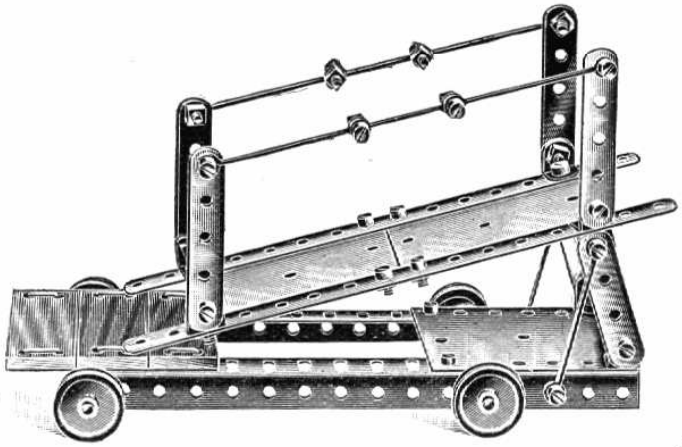
Foot Bridge No. 115/0.



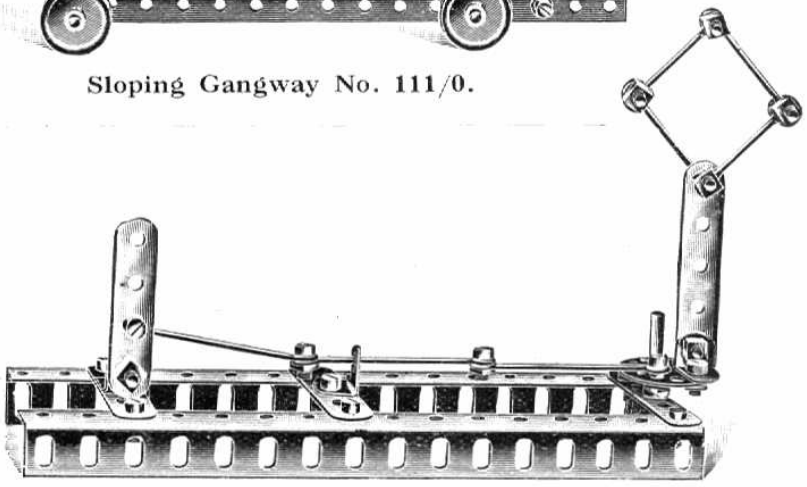
Buffers No. 116/0.



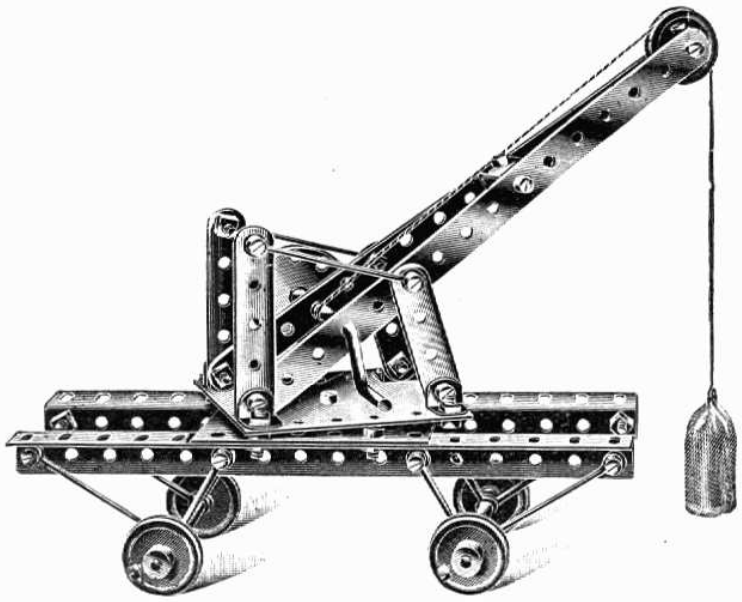
Travelling Derrick No. 117/0.



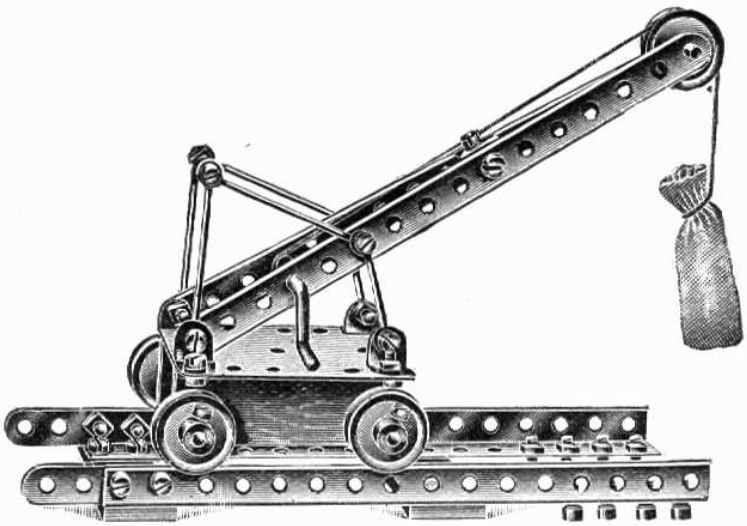
Sloping Gangway No. 111/0.



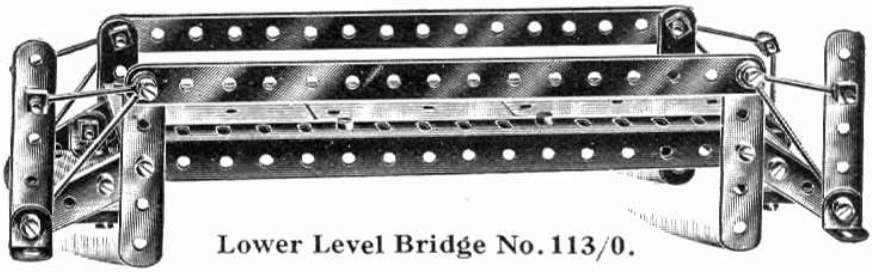
Working Railway Signal No. 114/0.



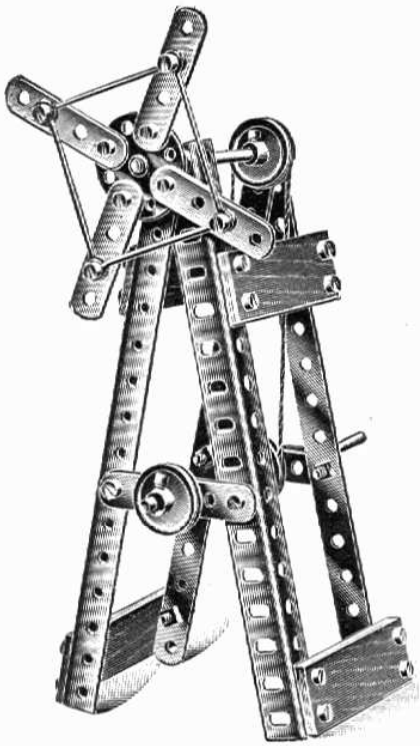
Travelling Crane No. 118/0.



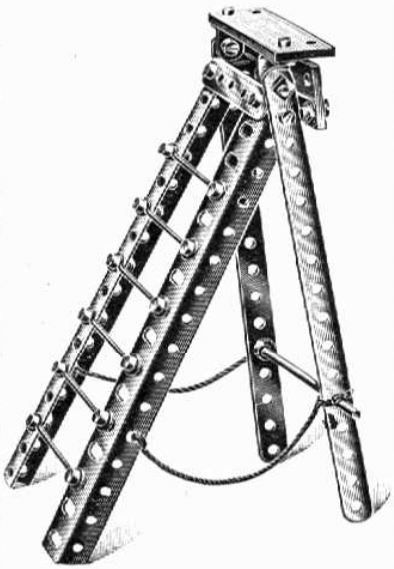
Crane on Rails No. 119/0.



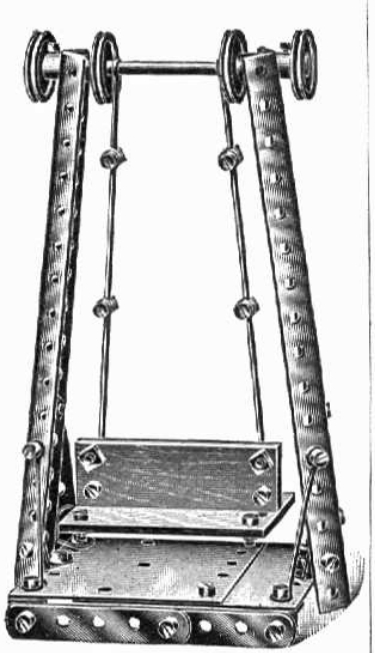
Lower Level Bridge No. 113/0.



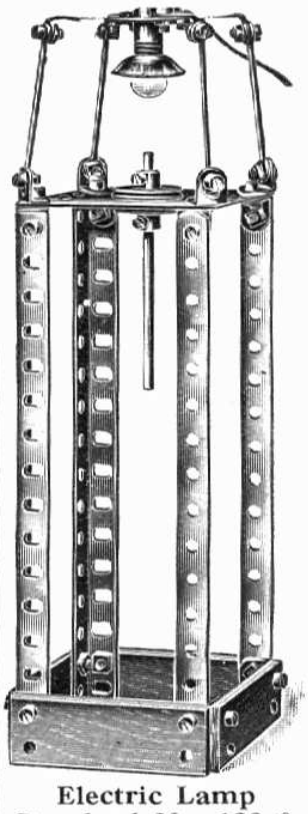
Windmill No. 120/0.



Step Ladder No. 121/0.

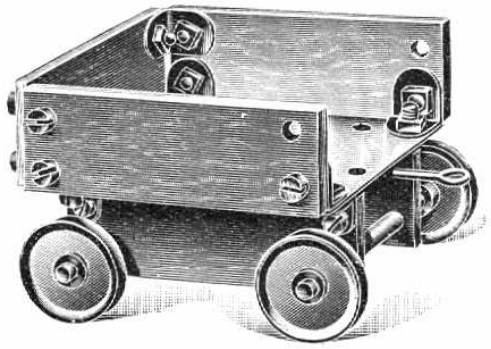


Swing No. 122/0.

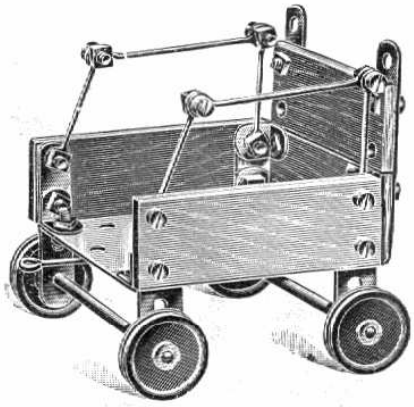


Electric Lamp Standard No. 123/0.

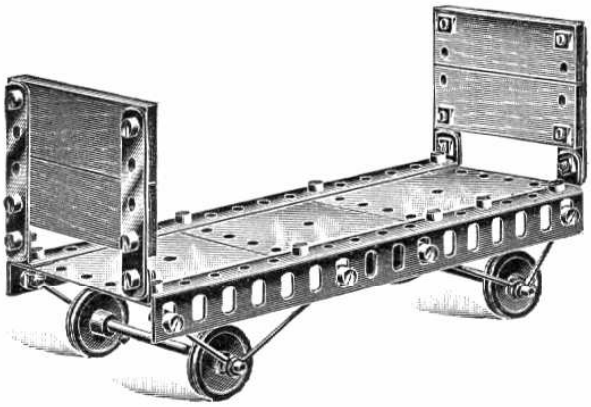
THESE MODELS ARE MADE WITH A No. 0 OUTFIT.



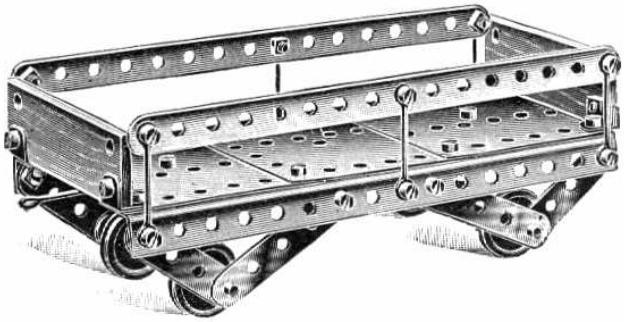
Locomotive Tender No. 127/0.



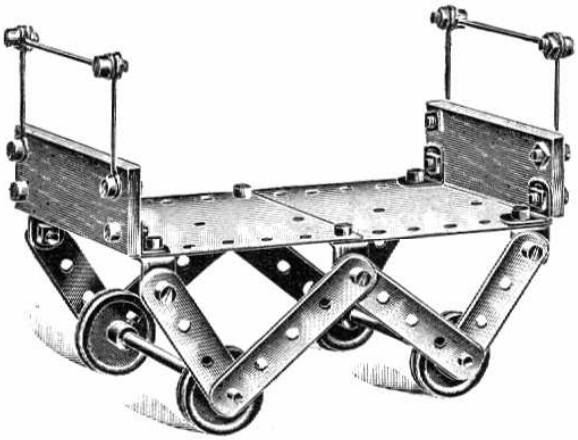
Truck No. 126/0.



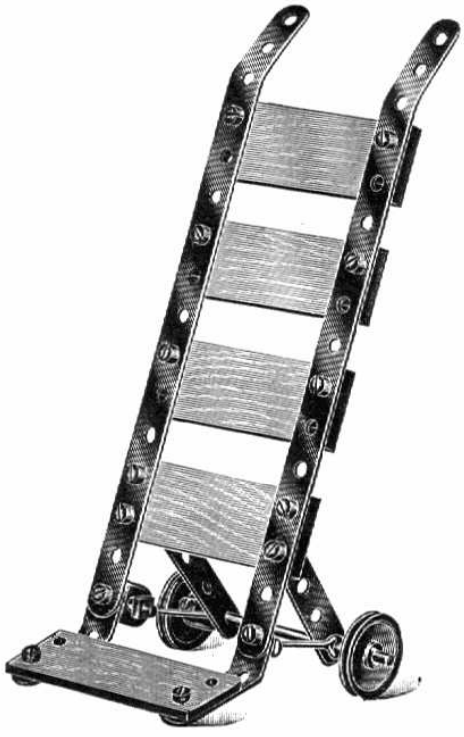
Truck No. 124/0.



Goods Truck No. 128/0.

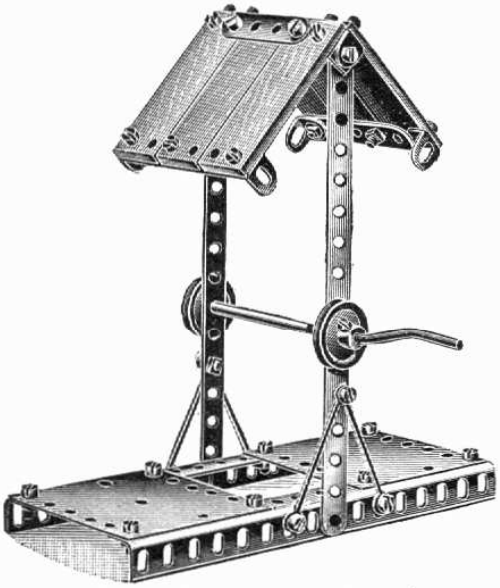


Hand Truck No. 130/0.

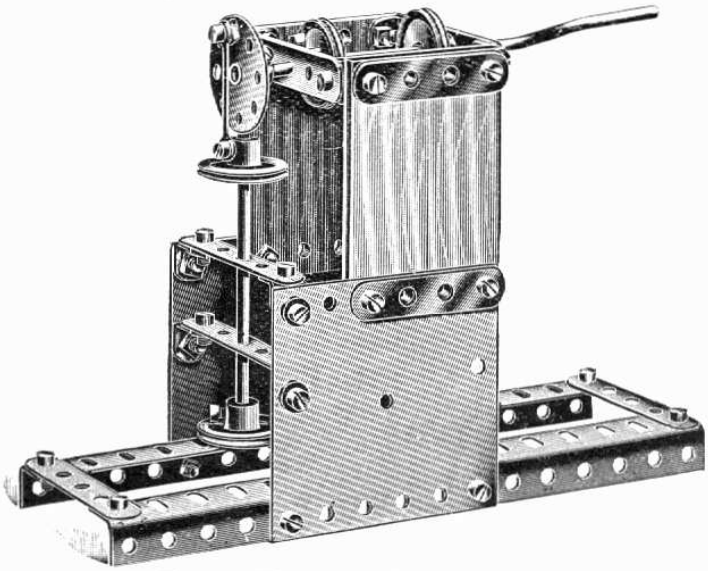


Sack Truck No. 131/0.

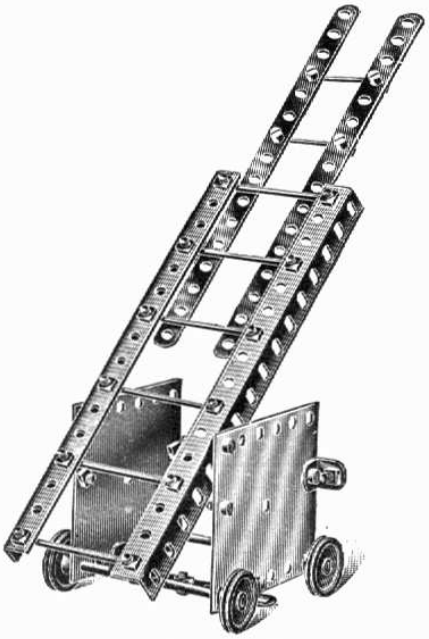
THESE MODELS ARE MADE WITH A No. 0 OUTFIT.



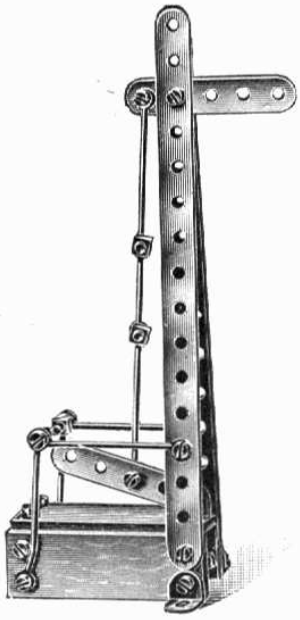
Well Winch No. 132/0.



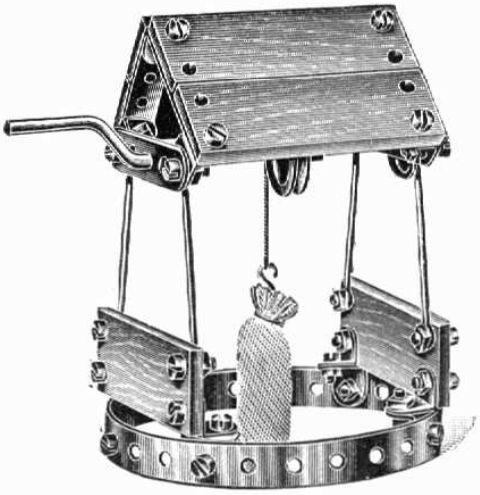
Power Hammer No. 137/0.



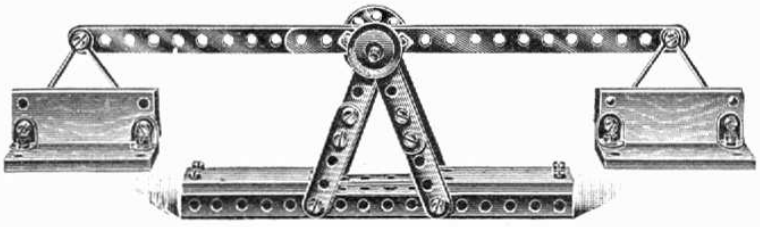
Extending Ladder No. 134/0.



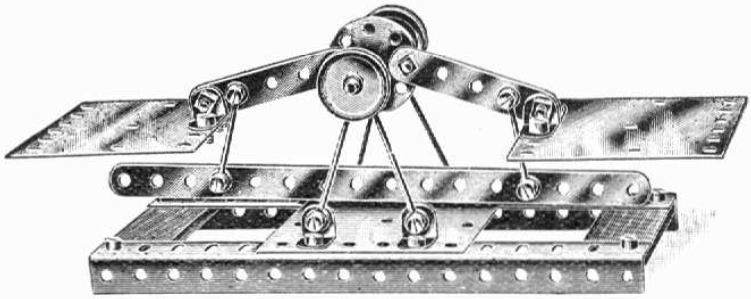
Signal No. 133/0.



Well No. 135/0.



See Saw No. 135/0A.

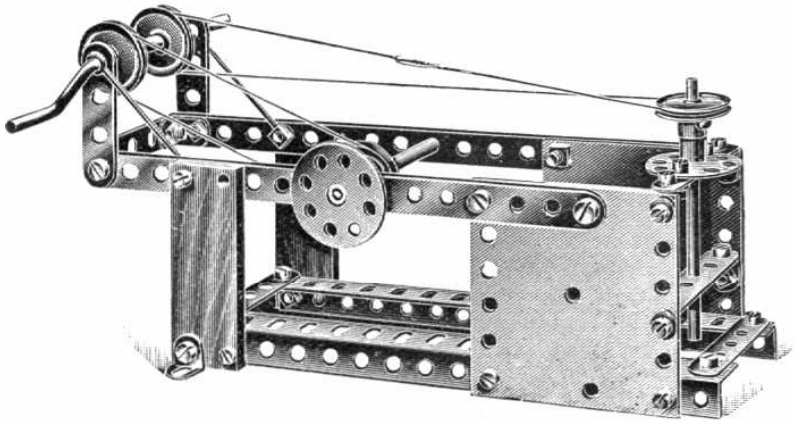


Balance No. 136/0.

THESE MODELS ARE MADE WITH A No. 0 OUTFIT.

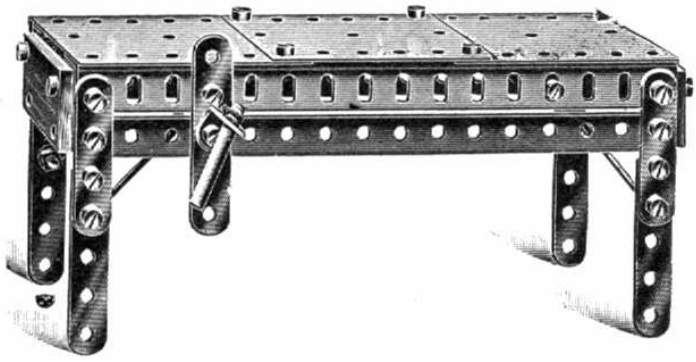
Acrobatic
Monkey
No. 138/0.

These Novel WORKING MODELS are easily made with a PRIMUS ENGINEERING No. 0 OUTFIT

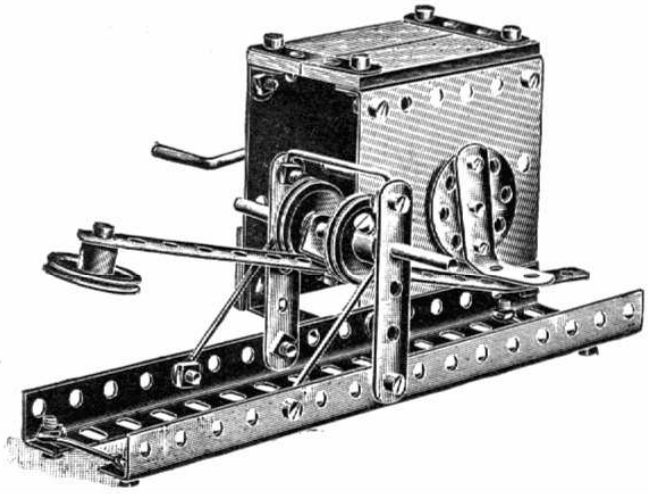


Drill and Buffing Wheel No. 140/0.

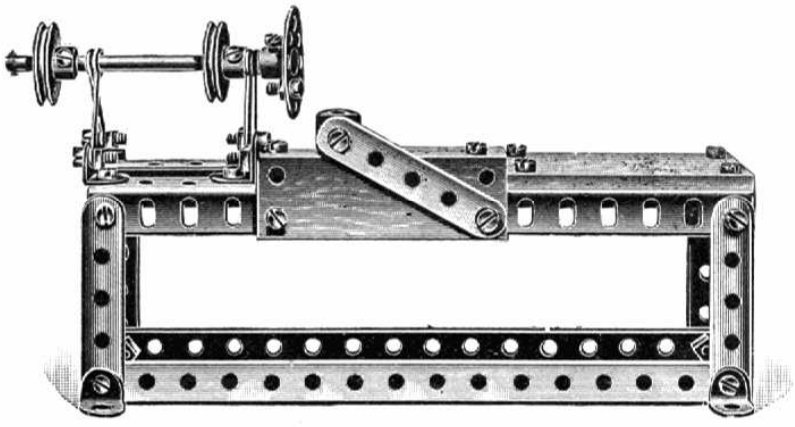
One extra No. 151 8-hole hub required, or use two No. 158 wheels.



Carpenter's Bench No. 141/0.



Automatic Hammer No. 142/0.

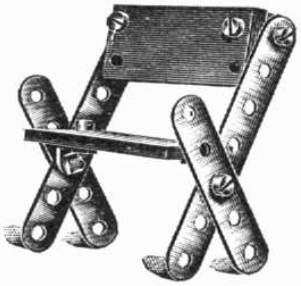


Lathe No. 139/0.

These models are made with

PRIMUS ENGINEERING

No. 1 OUTFIT



Seat No. 1.

2 Slips	.. .. ..	No. 25
8 Screws	.. .. ..	,, 50
2 Strips, 2½ in.	.. ..	,, 57
2 ,, 3½ ,,	.. ..	,, 59
4 Brackets	.. ..	,, 66

Brackets fixed with slot on wood.

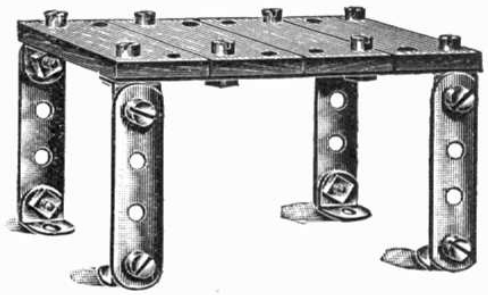
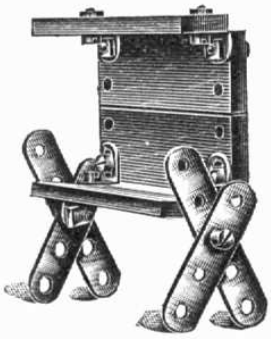


Table No. 2.

4 Slips	.. ..	No. 25
16 Screws	.. ..	,, 50
4 Strips, 2 in	.. .. ..	,, 56
2 ,, 4 ,,	.. .. ..	,, 60
8 Brackets	.. .. ..	,, 66

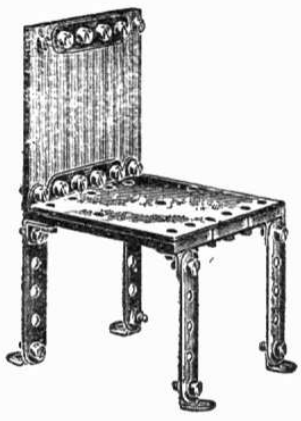
4-in. strips screwed below table to hold top.



Seat No. 3.

4 Slips	.. .. ..	No. 25
10 Screws	.. ..	,, 50
4 Strips, 2 in.	.. ..	,, 56
2 ,, 2½ ,,	.. ..	,, 57
6 Brackets	.. ..	,, 66

2-in strips screwed behind the wood back.



Chair No. 4.

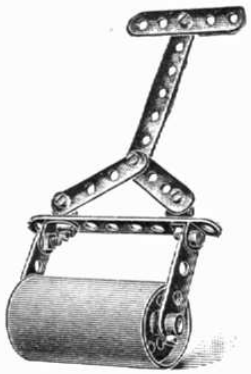
6 Slips	.. ..	No. 25
33 Screws	.. ..	,, 50
4 Strips, 2 in.	.. ..	,, 56
4 ,, 2½ ,,	.. ..	,, 57
10 Brackets	..	,, 66
1 Plate	.. ..	,, 68

Chair No. 5.

6 Slips	.. ..	No. 25
30 Screws	.. ..	,, 50
4 Strips, 2 in.	.. ..	,, 56
6 ,, 2½ ,,	.. ..	,, 57
2 ,, 3½ ,,	.. ..	,, 59
2 ,, 4 ,,	.. ..	,, 60
10 Brackets	.. ..	,, 66
4 Wheels	.. ..	,, 75
2 Axles	.. ..	,, 77

Music Stand No. 8.

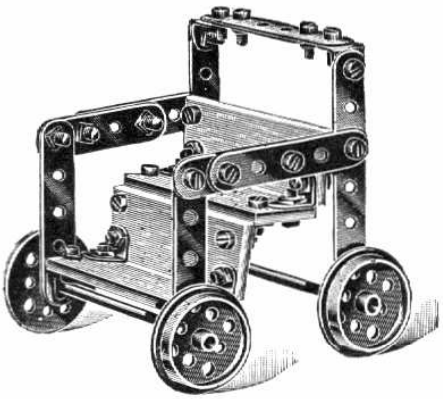
12 Screws	.. ..	No. 50
2 Strips, 2 in.	..	,, 56
6 ,, 2½ ,,	.. ..	,, 57
2 ,, 4 ,,	.. ..	,, 60
3 Brackets	..	,, 66



Roller No. 9.

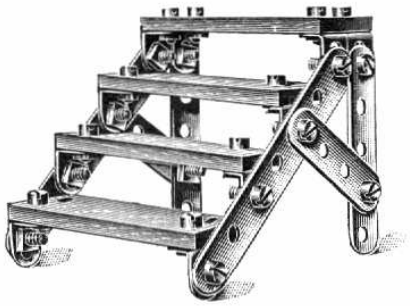
8 Screws	.. ..	No. 50
4 Strips, 2 in.	..	,, 56
1 ,, 2½ ,,	.. ..	,, 57
1 ,, 3½ ,,	.. ..	,, 59
1 ,, 4 ,,	.. ..	,, 60
4 Brackets	..	,, 66
2 Wheels	..	,, 75
1 Axle, 3½ in.	..	,, 77
2 Collars	.. ..	,, 82

Cover wheels with card for roller.



Chair No. 6.

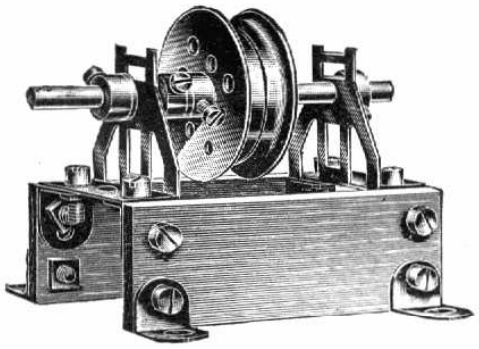
4	Slips	No. 25
30	Screws	,, 50
2	Strips, 2 in.	,, 56
6	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
12	Brackets	,, 66
4	Wheels	,, 75
2	Axles, 3½ in.	,, 77



Ladder No. 7.

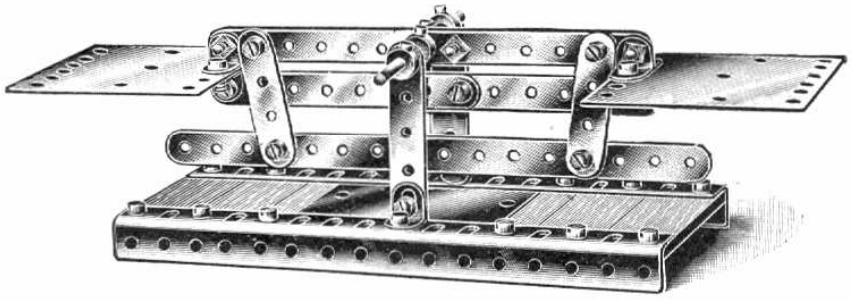
4	Slips	No. 25
22	Screws	,, 50
2	Strips, 2 in.	,, 56
2	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
10	Brackets	,, 66

Fix brackets to steps with slots at side.



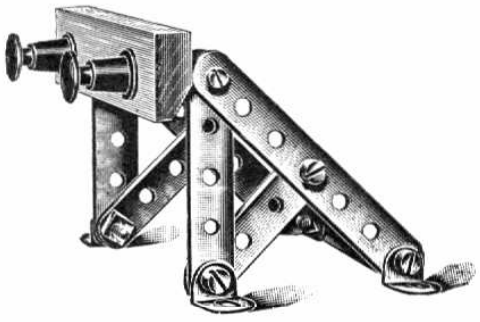
Counter Shaft No. 23.

2	Slips	No. 25
12	Screws	,, 50
8	Brackets	,, 66
2	Trunnions	,, 74
2	Wheels	,, 75
1	Axle 3½-in.	,, 77
3	Collars	,, 82
3	Washers	,, 84



French Balance No. 10.

6	Slips	No. 25
30	Screws	,, 50
2	Bars, 8 in.	,, 54
2	Strips, 2 ,,	,, 56
2	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
2	Strips, 4 in.	No. 60
1	,, 8 ,,	,, 63
10	Brackets	,, 66
3	Plates, 3 × 3 in.	,, 68
1	Axle, 3½ in.	,, 77
4	Collars	,, 82

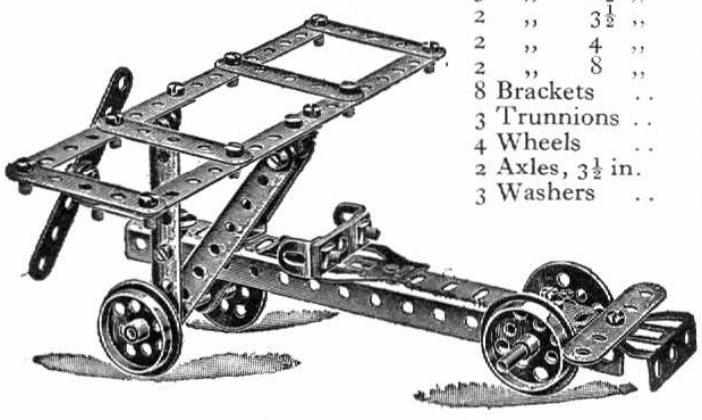


Buffer End No. 100.

1	Block	No. 4
10	Screws	,, 50
2	Strips, 2 in.	,, 56
3	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
8	Brackets	,, 66
2	Buffers	,, 85

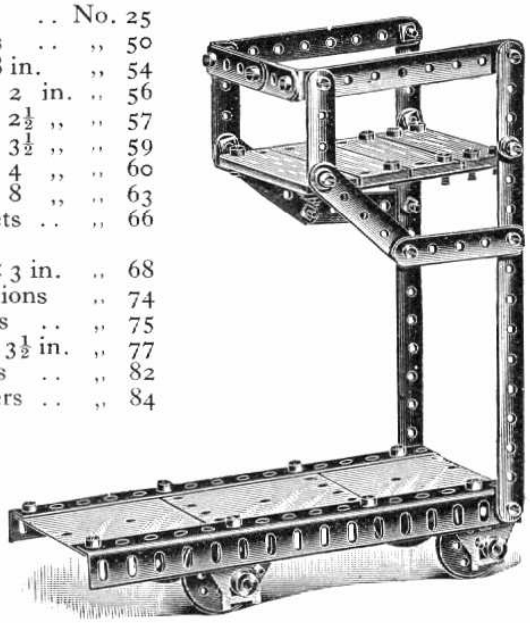
Monoplane No. 13.

26	Screws	No. 50
1	Bar, 8 in.	,, 54
1	Strips, 2 in.	,, 56
5	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
2	,, 4 ,,	,, 60
2	,, 8 ,,	,, 63
8	Brackets	,, 66
3	Trunnions	,, 74
4	Wheels	,, 75
2	Axles, 3½ in.	,, 77
3	Washers	,, 84



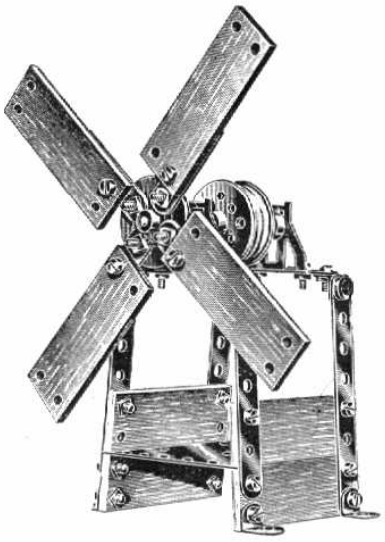
Tower Wagon No. 44.

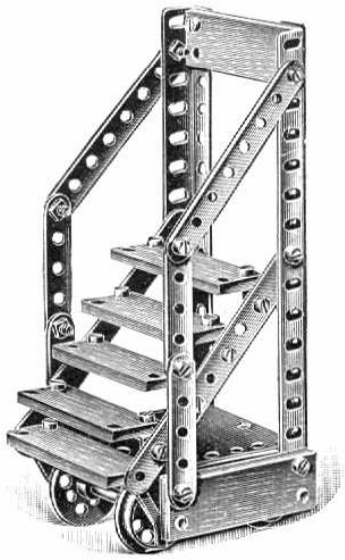
4	Slips	No. 25
35	Screws	,, 50
2	Bars, 8 in.	,, 54
4	Strips, 2 in.	,, 56
4	,, $2\frac{1}{2}$,,	,, 57
2	,, $3\frac{1}{2}$,,	,, 59
2	,, 4 ,,	,, 60
2	,, 8 ,,	,, 63
6	Brackets	,, 66
3	Plates, 3×3 in.	,, 68
4	Trunnions	,, 74
4	Wheels	,, 75
2	Axles, $3\frac{1}{2}$ in.	,, 77
4	Collars	,, 82
5	Washers	,, 84



Windmill No. 20.

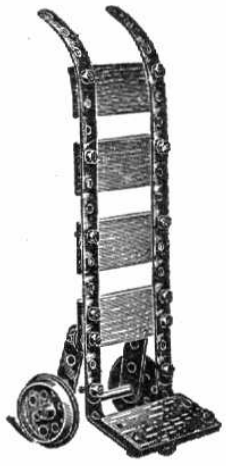
8	Slips	No. 25
32	Screws	,, 50
4	Strips, 2 in.	,, 56
2	,, $2\frac{1}{2}$,,	,, 57
2	,, $3\frac{1}{2}$,,	,, 59
2	,, 4 ,,	,, 60
8	Brackets	,, 66
1	Plate, 3×3 in.	,, 68
2	Trunnions	,, 74
3	Wheels	,, 75
1	Axle, $3\frac{1}{2}$ in.	,, 77
2	Collars	,, 82
10	Washers	,, 84





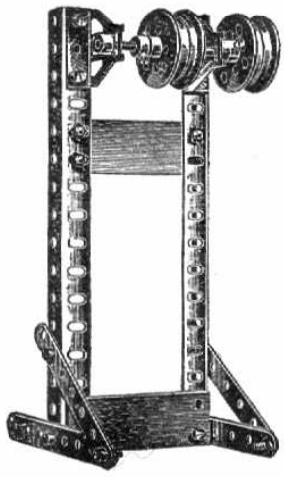
Library Ladder No. 42.

		No.			No.
8	Slips	25	1	Plate, 3×3 in.	68
36	Screws	50	2	Trunnions	74
2	Bars, 8 in.	54	4	Wheels	75
2	Strips, 2 in.	56	2	Axles, $3\frac{1}{2}$ in.	77
4	,, $2\frac{1}{2}$,,	57	2	Collars	82
2	,, $3\frac{1}{2}$,,	59	2	Washers	84
2	,, 4 ,,	60			
10	Brackets	66			



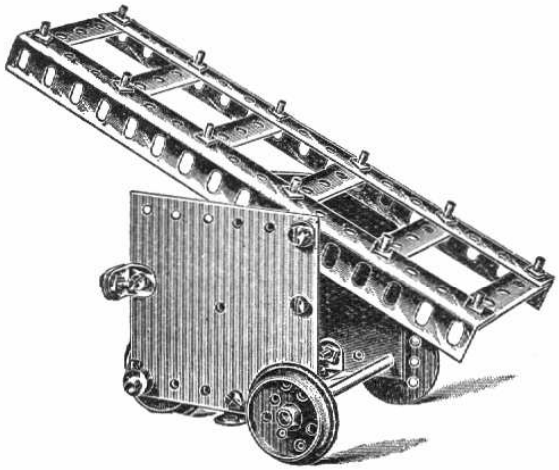
Truck No. 33.

5	Slips	No. 25
16	Screws	,, 50
4	Strips, 2 in.	,, 56
2	,, 8 ,,	,, 63
2	Brackets	,, 66
2	Wheels	,, 75
1	Axle, $3\frac{1}{2}$ in.	,, 77



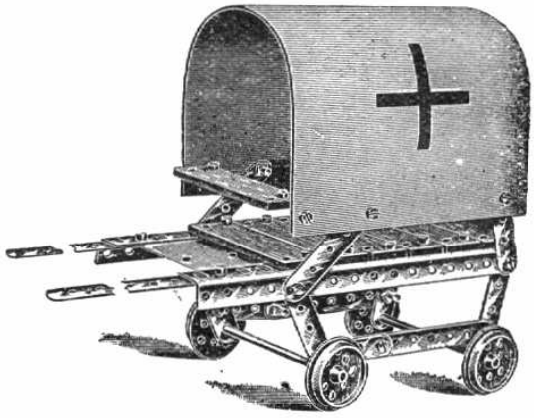
Shafting No. 35.

2	Slips	No. 25
16	Screws	,, 50
2	Bars, 8 in.	,, 54
2	Strips, $3\frac{1}{2}$-in.	,, 59
2	,, 4 ,,	,, 60
2	Trunnions	,, 74
4	Wheels	,, 75
1	Axle, $3\frac{1}{2}$-in.	,, 77
3	Collars	,, 82
3	Washers	,, 84



Fire Escape No. 30.

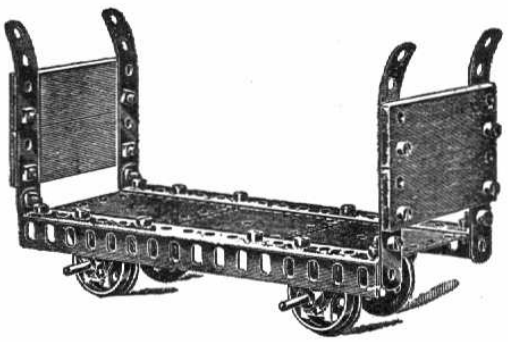
24 Screws ..	No. 50	2 Plates	No. 68
2 Bars, 8 in. ..	,, 54	4 Wheels ..	,, 75
6 Strips, 2½ in.	,, 57	2 Axles, 3½ in. ..	,, 77
1 ,, 3½ ,,	,, 59	2 Collars ..	,, 82
1 ,, 4 ,,	,, 60	2 Washers ..	,, 84
4 Brackets ..	,, 66		



Red Cross Wagon No. 24.

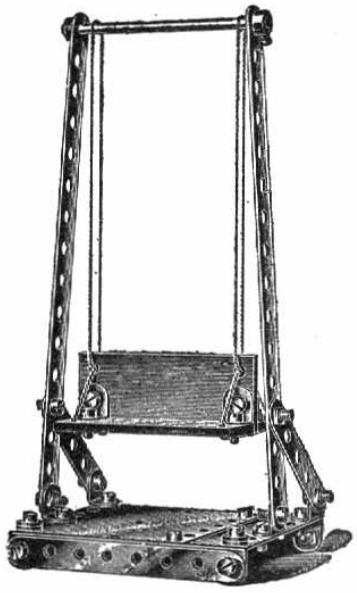
8 Slips	No. 25	2 Strips, 4 in. ..	No. 60
34 Screws ..	,, 50	2 ,, 8 ,, ..	,, 63
2 Bars, 8 in. ..	,, 54	4 Brackets ..	,, 66
4 Strips, 2 in.	,, 56	1 Plate	,, 68
6 ,, 2½ ,,	,, 57	4 Wheels ..	,, 75
2 ,, 3½ ,,	,, 59	2 Axles, 3½ in. ..	,, 77

Hood is made of stiff card.



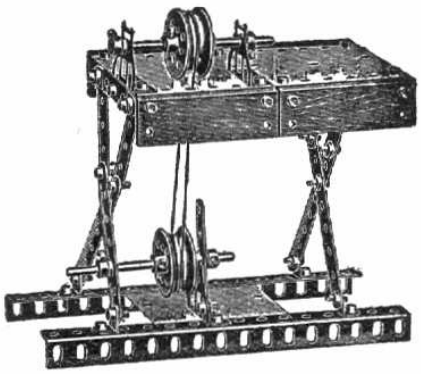
Churn Trolley No. 27.

4 Slips	No. 25
24 Screws	,, 50
2 Bars, 8 in.	,, 54
2 Strips, 3½ in.	,, 59
2 ,, 4 ,, ...	,, 60
4 Brackets	,, 66
3 Plates	,, 68
4 Trunnions	,, 74
4 Wheels	,, 75
2 Axles, 3½ in.	,, 77
4 Collars	,, 82



Swing No. 34.

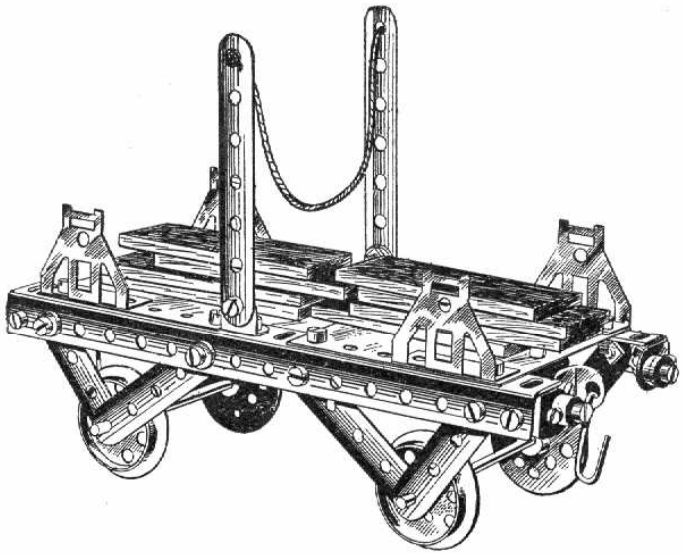
3 Slips	No. 25
24 Screws	,, 50
2 Strips, 2½ in. ..	,, 57
2 ,, 4 ,, ..	,, 60
2 ,, 8 ,, ..	,, 63
12 Brackets	,, 66
2 Plates	,, 68
1 Axle, 3½ in. ..	,, 77
2 Collars	,, 82
4 Washers	,, 84



Lathe No. 43.

4 Slips	No. 25
36 Screws	,, 50
2 Bars, 8 in.	,, 54
4 Strips, 2 in.	,, 56
5 ,, 2½ ,, ...	,, 57
5 ,, 3½ ,, ...	,, 59
2 ,, 4 ,, ...	,, 60
12 Brackets	,, 66
3 Plates	,, 68
4 Trunnions	,, 74
4 Wheels	,, 75
2 Axles, 3½ in.	,, 77
4 Collars	,, 82
9 Washers	,, 84

THESE MODELS ARE MADE WITH A No. 1 OUTFIT.

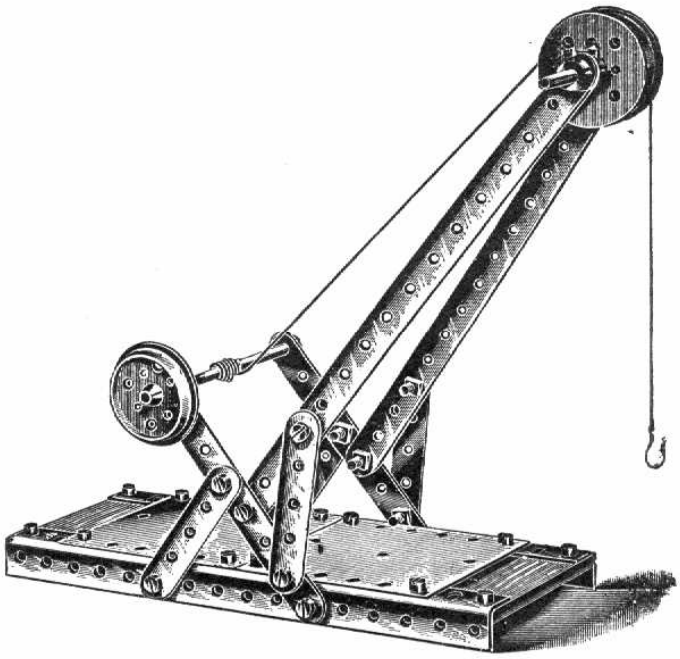


Timber Truck, No. 48

8 Slips	.. No. 25	2 Plates, 3 × 3 in.	No. 68
33 Screws	.. ,, 50	4 Trunnions	.. ,, 74
2 Bars	.. ,, 54	4 Wheels	.. ,, 75
4 Strips, 2 in.	.. ,, 56	2 Axles, 3½ in.	.. ,, 77
4 ,, 2½ ,,	.. ,, 57	4 Collars	.. ,, 82
2 ,, 3½ ,,	.. ,, 59	12 Washers	.. ,, 84
10 Brackets	.. ,, 66		

Wood slips are laid on to represent timber.

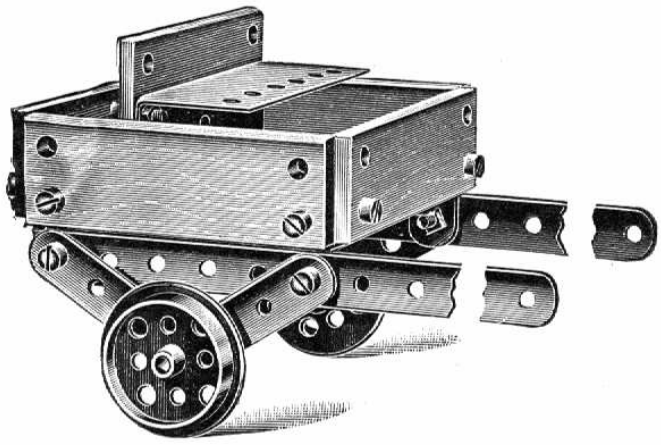
Hooks are made from two pieces of bent wire.



Crane No. 21.

2 Slips	.. No. 25	2 Strips, 8 in.	.. No. 63
24 Screws	.. ,, 50	2 Plates, 3 × 3 in.	,, 68
2 Bars, 8 in.	.. ,, 54	3 Wheels	.. ,, 75
4 Strips, 2½ in.	.. ,, 57	2 Axles, 3½ in.	.. ,, 77
2 ,, 4 ,,	.. ,, 60	3 Collars	.. .. ,, 82

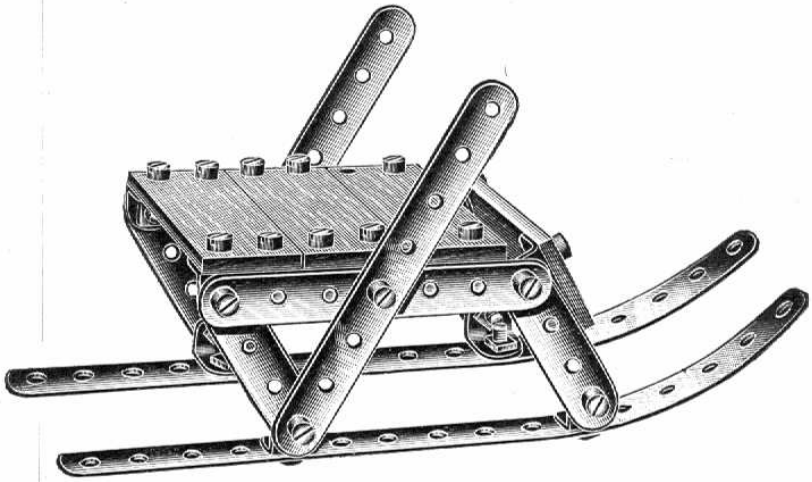
Bent wire forms the hook.



Dog Cart No. 26.

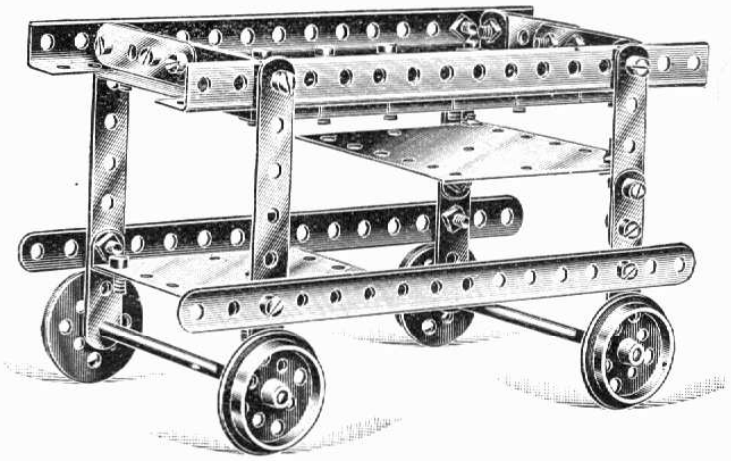
5 Slips	.. No. 25
20 Screws	.. ,, 50
4 Strips, 2 in.	.. ,, 56
2 ,, 8 ,,	.. ,, 63
12 Brackets	.. ,, 66
2 Plates, 3 × 3 in.	.. ,, 68
2 Wheels	.. ,, 75
1 Axle, 3½ in.	.. ,, 77

The 8 in. strips form the shafts.



Sledge No. 19.

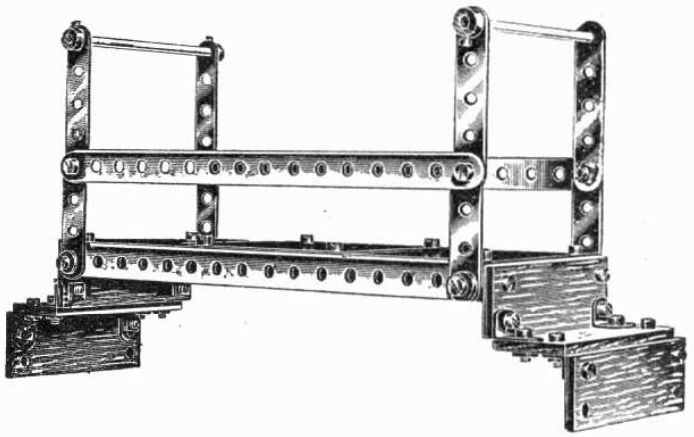
4 Slips	.. No. 25
26 Screws	.. ,, 50
4 Strips, 2 in.	.. ,, 56
2 ,, 2½ ,,	.. ,, 57
2 ,, 3½ ,,	.. ,, 59
2 ,, 4 ,,	.. ,, 60
2 ,, 8 ,,	.. ,, 63
10 Brackets	.. ,, 66



Dinner Wagon No. 14.

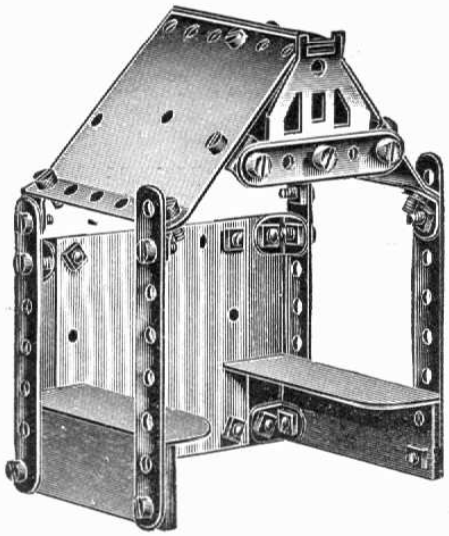
6	Slips 3 × 1 in.	No. 25	2	Strips, 8 in.	No. 63
36	Screws ..	,, 50	8	Brackets ..	,, 66
2	Bars, 8 in.	,, 54	2	Plates, 3 × 3 in.	,, 68
4	Strips, 2 in.	,, 56	4	Wheels ..	,, 75
4	,, 2½ ,,	,, 57	2	Axles, 3½ in.	,, 77
2	,, 4 ,,	,, 60			

The top table is No. 25 wood slips, screwed to 8 in. bars.



Bridge No. 16.

6	Slips 3 × 1 in.	No. 25	12	Brackets ..	No. 66
36	Screws ..	,, 50	3	Plates, 3 × 3 in.	,, 68
2	Bars, 8 in.	,, 54	2	Axles, 3½ in.	,, 77
4	Strips, 2 in.	,, 56	4	Collars ..	,, 82
4	,, 2½ ,,	,, 57	8	Washers ..	,, 84
2	,, 8 ,,	,, 63			



Summer House No. 12.

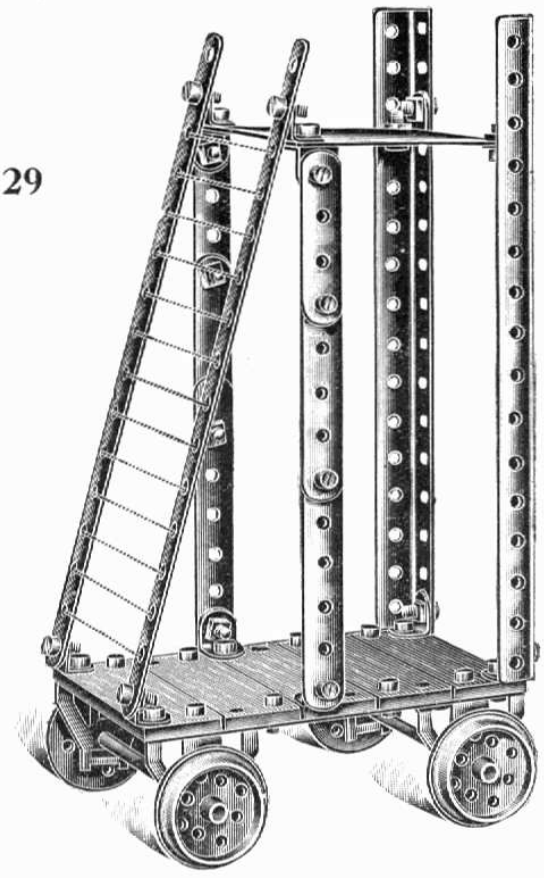
4	Slips 3 × 1 in.	No. 25
30	Screws	,, 50
1	Strip, 2½ in.	,, 57
2	Strips, 3½ ,, ...	,, 59
2	,, 4 ,, ...	,, 60
12	Brackets	,, 66
3	Plates, 3 × 3 in.	,, 68
1	Trunnion	,, 74

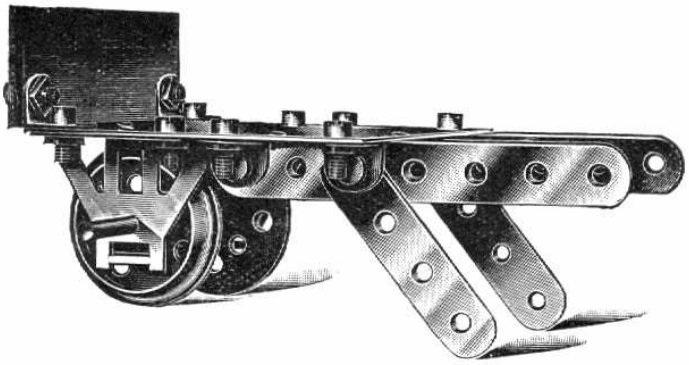
The seats are formed of cardboard.

Wheeled Ladder No. 29

5	Slips, 3 × 1 in.	No. 25
34	Screws ..	,, 50
2	Angle bars, 8 in.	,, 54
2	Strips, 2 in.	,, 56
2	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
2	,, 4 ,,	,, 60
2	,, 8 ,,	,, 63
12	Brackets ..	,, 66
1	Plate, 3 × 3 in.	,, 68
4	Trunnions	,, 74
4	Wheels ..	,, 75
2	Axles, 3½ in.	,, 77

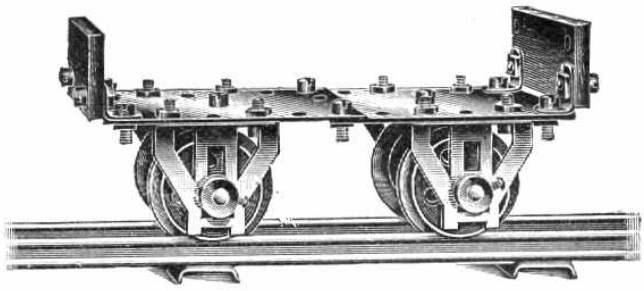
The rungs in the ladder are made by lacing cord through the 8-in. metal strips.





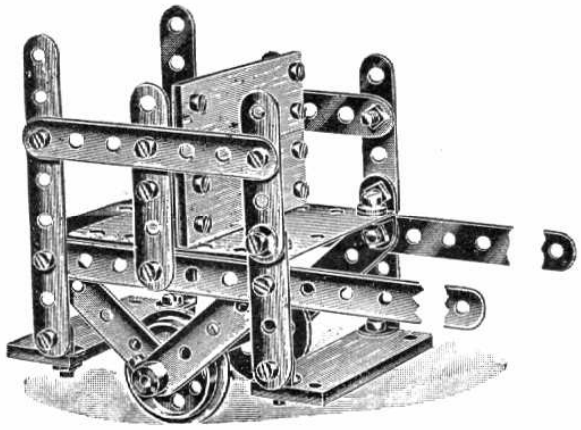
Luggage Barrow No. 15.

1	Slip 3×1 in.	No. 25	1	Plate, 3×3 in.	No. 68
10	Screws ..	,, 50	2	Trunnions ..	,, 74
2	Strips, 2 in.	,, 56	2	Wheels ..	,, 75
2	,, 3½ ,,	,, 59	1	Axle, 3½ in.	,, 77
6	Brackets ..	,, 66			



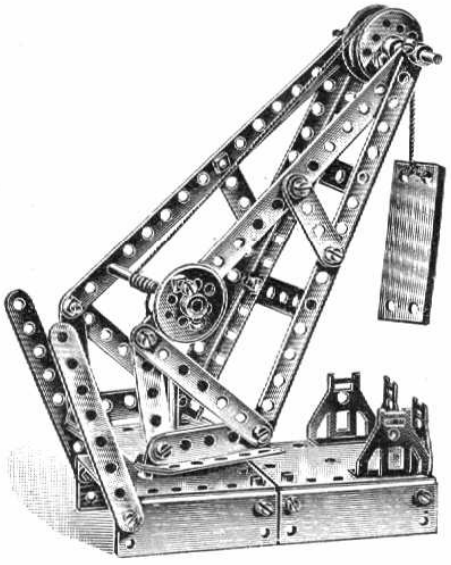
Trolley Truck No. 28.

2	Slips 3×1 in.	No. 25	4	Trunnions ..	No. 74
20	Screws ..	,, 50	4	Wheels ..	,, 75
4	Brackets ..	,, 66	4	Collars ..	,, 82
2	Plates, 3×3 ins.	,, 68	12	Washers ..	,, 84



Mail Cart No. 25.

4	Slips 3×1 in.	No. 25	2	Plates, 3×3 in.	,, 68
35	Screws ..	,, 50	2	Wheels ..	,, 75
4	Strips, 2 in.	,, 56	1	Axle, 3½ in.	,, 77
6	,, 2½ ,,	,, 57	2	Collars ..	,, 82
2	,, 3½ ,,	,, 59	12	Washers ..	,, 84
2	,, 4 ,,	,, 60			
2	,, 8 ,,	,, 63			
12	Brackets	,, 66			



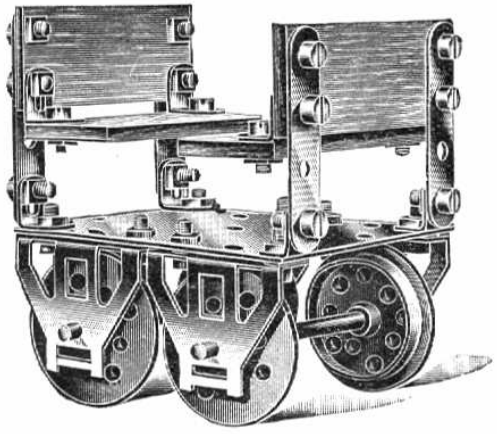
Crane No. 46.

5	Slips, 3×1 in.	No. 25	2	Axles, 3½ in.	,, 77
36	Screws	,, 50	4	Collars	,, 82
2	Bars, 8 in.	,, 54	6	Washers	,, 84
4	Strips, 2 ,, ...	,, 56			
6	,, 2½ ,, ...	,, 57			
2	,, 3½ ,, ...	,, 59			
2	,, 4 ,, ...	,, 60			
2	,, 8 ,, ...	,, 63			
12	Brackets	,, 66			
3	Plates, 3×3 in.	,, 68			
4	Trunnions	,, 74			
4	Wheels	,, 75			

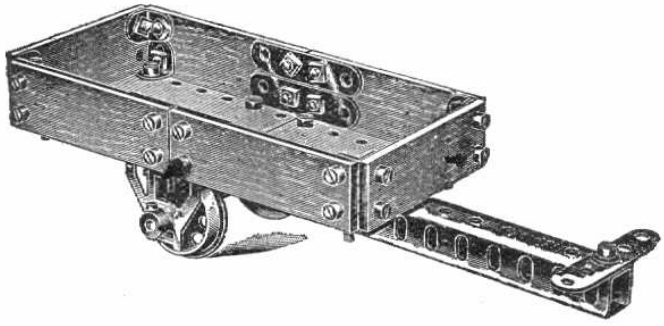
A long nail is used for centre pin.

Trailer No. 37.

4	Slips 3×1 in.	No. 25
24	Screws ..	,, 50
4	Strips, 2 in. ..	,, 56
8	Brackets ..	,, 66
1	Plate, 3×3 in.	,, 68
4	Trunnions ..	,, 74
4	Wheels ..	,, 75
2	Axles, 3½ in. ..	,, 77
12	Washers ..	,, 84

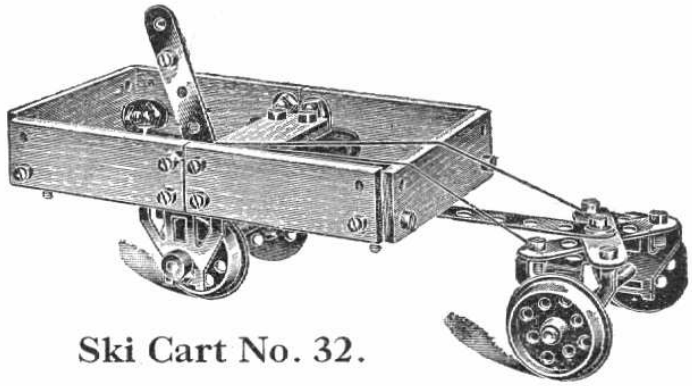


THESE MODELS ARE MADE WITH A No. 1 OUTFIT.



Baggage Truck No. 31.

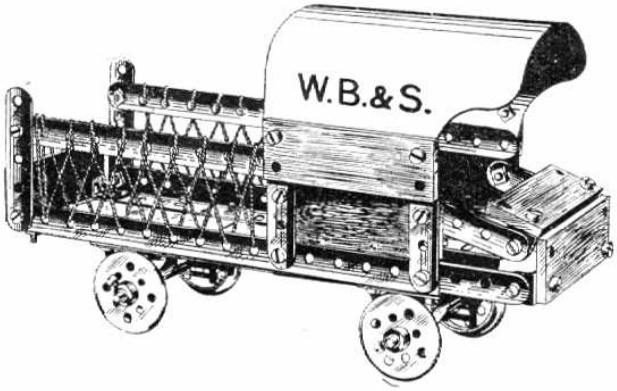
6	Slips 3 × 1 in.	No. 25	2	Plates, 3 × 3 in.	No. 68
33	Screws ..	,, 50	2	Trunnions ..	,, 74
2	Bars, 8 in. ..	,, 54	2	Wheels ..	,, 75
4	Strips, 2 in.	,, 56	1	Axle, 3½ in. ..	,, 77
1	,, 2½ ,,	,, 57	2	Collars ..	,, 82
12	Brackets ..	,, 66	5	Washers ..	,, 84



Ski Cart No. 32.

7	Slips 3 × 1 in.	No. 25	2	Plates, 3 × 3 in.	No. 68
36	Screws ..	,, 50	4	Trunnions ..	,, 74
2	Strips, 2 in.	,, 56	4	Wheels ..	,, 75
3	,, 2½ ,, ..	,, 57	2	Axles, 3½ in. ..	,, 77
1	,, 8 ,,	,, 63	2	Collars ..	,, 82
12	Brackets ..	,, 66	3	Washers ..	,, 84

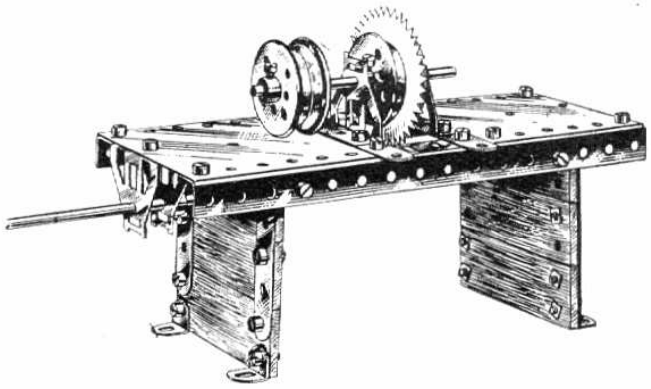
Cord used for steering.



Motor Lorry No. 55.

7	Slips 3 × 1 in.	No. 25	2	Strips, 8 in. ..	No. 63
36	Screws ..	,, 50	6	Brackets ..	,, 66
2	Bars, 8 in. ..	,, 54	4	Trunnions ..	,, 74
4	Strips, 2 in.	,, 56	4	Wheels ..	,, 75
6	,, 2½ ,, ..	,, 57	2	Axles, 3½ in. ..	,, 77

Piece of card cut to make hood.



Circular Saw No. 56.

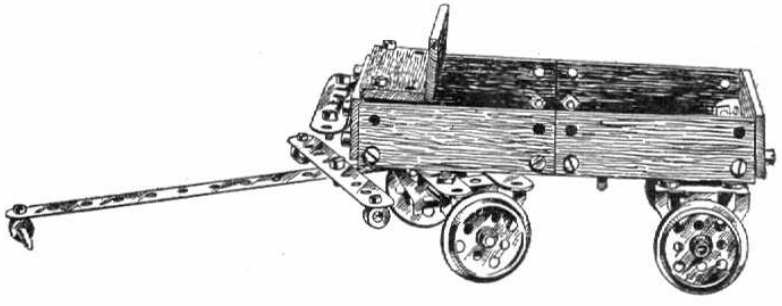
6	Slips 3 × 1 in.	No. 25	2	Plates	No. 68
35	Screws ..	,, 50	4	Trunnions ..	,, 74
2	Bars	,, 54	2	Axles	,, 77
4	Strips, 2½ in.	,, 57	1	Collar	,, 82
2	,, 4 ,, ..	,, 60	1	Washer ..	,, 84
8	Brackets ..	,, 66			

The saw can be cut out of a piece of cardboard.

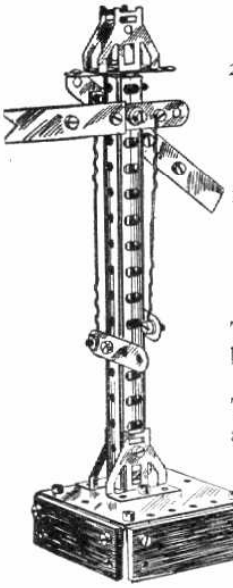
A.S.C. Wagon No. 57.

8	Slips 3 × 1 in.	No. 25	12	Brackets	No. 66
34	Screws ..	,, 50	2	Plates ..	,, 68
4	Strips, 2 in.	,, 56	4	Trunnions	,, 74
4	,, 2½ ,,	,, 57	4	Wheels ..	,, 75
1	,, 3½ ,,	,, 59	2	Axles ..	,, 77
1	,, 4 ,,	,, 60	4	Collars	,, 82
1	,, 8 ,,	,, 63	8	Washers	,, 84

Use a short nail to form pivot of front wheels.



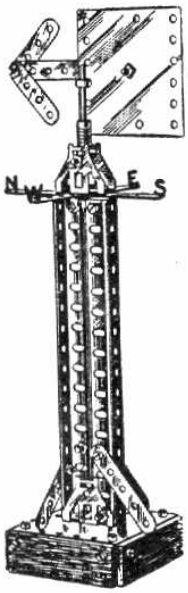
Signal No. 50.



	No.
4 Slips ..	25
29 Screws ..	50
2 Bars, 8 in.	54
2 Strips, 2 in.	56
1 ,, 2½ ,,	57
2 ,, 3½ ,,	59
10 Brackets ..	66
1 Plate ..	68
4 Trunnions	74
4 Washers ..	84

Two Strips of cardboard cut for signal arms.
Two hairpins are also used for signal rods.

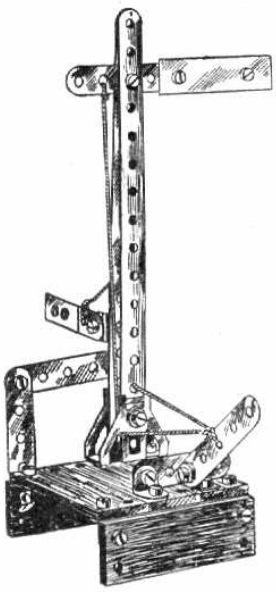
Vane No. 51.



	No.
4 Slips ..	25
26 Screws ..	50
2 Bars ..	54
4 Strips, 2 in.	56
6 ,, 2½ ,,	57
1 ,, 4 ,,	60
11 Brackets ..	66
2 Plates ..	68
2 Trunnions	74
1 Axle, 3½ in.	77
3 Collars ..	82
6 Washers ..	84

The letters N.S.E.W. can be cut out of a book and fixed on to strips.

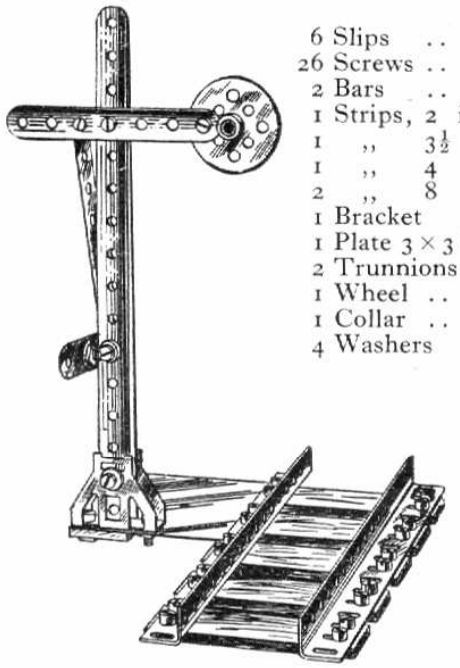
Signal No. 52.



	No.
5 Slips ..	25
21 Screws ..	50
2 Strips, 2 in.	56
5 ,, 2½ ,,	57
1 ,, 4 ,,	60
2 ,, 8 ,,	63
7 Brackets ..	66
2 Trunnions	74
1 Collar ..	82

A piece of card is used for shape of signal.

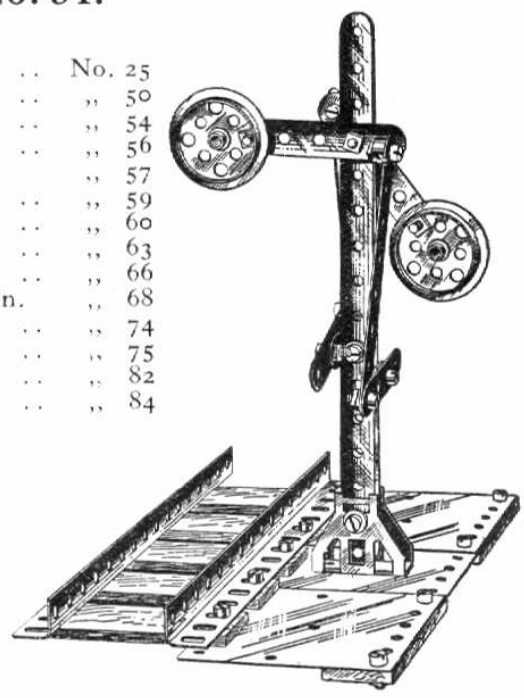
Signal No. 53.



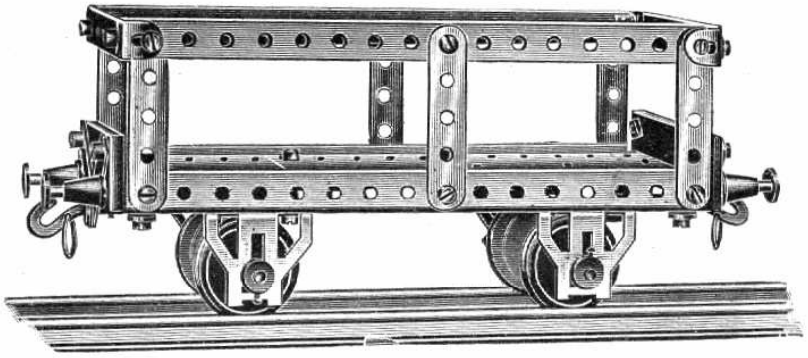
	No.
6 Slips	25
26 Screws	,, 50
2 Bars	,, 54
1 Strips, 2 in. ..	,, 56
1 ,, 3½ ,, ..	,, 59
1 ,, 4 ,, ..	,, 60
2 ,, 8 ,, ..	,, 63
1 Bracket ..	,, 66
1 Plate 3 × 3 in. ..	,, 68
2 Trunnions ..	,, 74
1 Wheel	,, 75
1 Collar	,, 82
4 Washers ..	,, 84

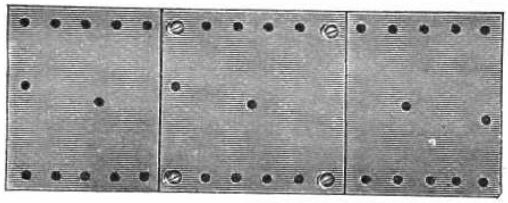
Signal No. 54.

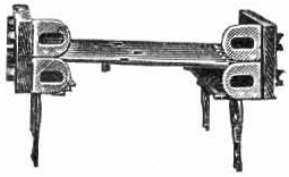
	No.
7 Slips	25
28 Screws	,, 50
2 Bars	,, 54
2 Strips, 2 in. ..	,, 56
2 ,, 2½ ,, ..	,, 57
1 ,, 3½ ,, ..	,, 59
1 ,, 4 ,, ..	,, 60
2 ,, 8 ,, ..	,, 63
2 Brackets ..	,, 66
3 Plates, 3 × 3 in.	,, 68
2 Trunnions ..	,, 74
2 Wheels ..	,, 75
2 Collars	,, 82
4 Washers ..	,, 84



THESE MODELS ARE MADE WITH A No. 1 OUTFIT.







Timber Truck No. 38.

2 Slips	No. 25	3 Plates	No. 68
36 Screws	,, 50	4 Trunnions	,, 74
2 Bars, 8 in.	,, 54	4 Wheels	,, 75
6 Strips 2½ in.	,, 57	2 Axles, 3½ in.	,, 77
2 ,, 3½ ,,	,, 59	4 Collars	,, 82
2 ,, 8 ,,	,, 63	12 Washers	,, 84
12 Brackets	,, 66	4 Buffers	,, 85
		2 Coupling Hooks	,, 86

Make this truck before you attempt the others.

(1) Fit Brackets inside Angle bars to slotted sides, with two washers to each screw.

(2) The trunnions should be fitted on first.

(3) The axles and wheels must be put in last and a washer placed between **each** collar and the **face** of trunnion to allow the axles to run easily.

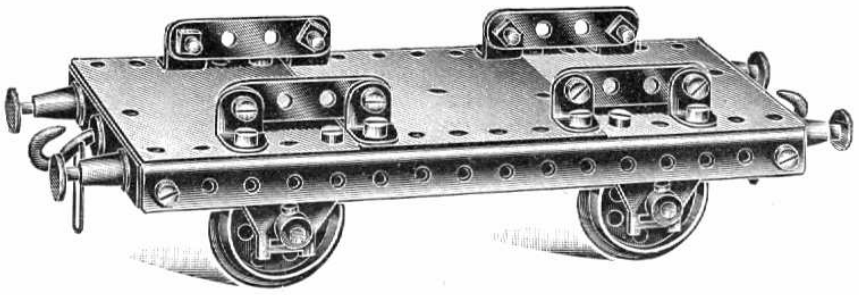
The base is composed of three No. 68 plates, which can be laid in loose, and caught between the sides when they are pressed in and the end screws tightened up, or they can be bolted together as shown in diagram. **Note.**—In trucks with a short base reduce the length by bolting in other holes.

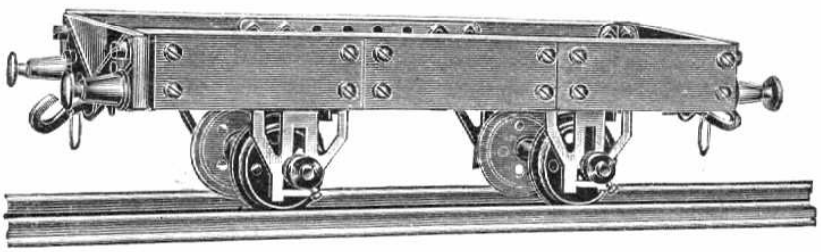
Position of Brackets to secure the ends.—The Brackets are fitted on with the slots at the **ends** as shown ; this allows a little play to introduce the base plates, and afterwards the sides can be pressed in and the screws tightened.

Transport Truck No. 39.

24 Screws	No. 50
2 Bars, 8 in.	,, 54
4 Strips, 2 in.	,, 56
2 ,, 2½ ,,	,, 57
12 Brackets	,, 66
3 Plates, 3 × 3 in.	,, 68
4 Trunnions	,, 74
4 Wheels	,, 75
2 Axles, 3½ in.	,, 77
4 Collars	,, 82
12 Washers	,, 84
4 Buffers	,, 85
2 Coupling Hooks	,, 86

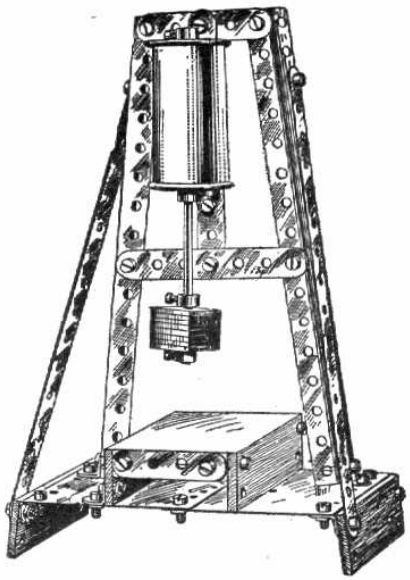
Two washers are placed between each Bracket and the Bars where they are bolted on, to adjust the 2½ in. strips.





Ballast Truck No. 40.

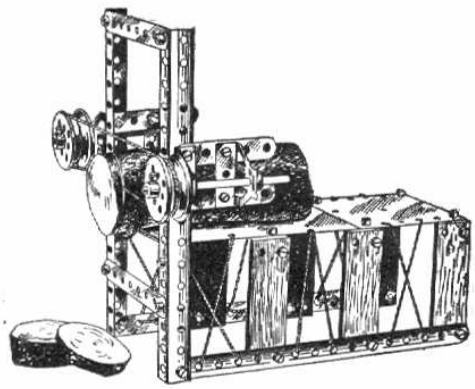
8 Slips	No. 25
36 Screws	,, 50
2 Bars, 8 in.	,, 54
4 Strips, 2 in.	,, 56
2 ,, 4 ,,	,, 60
8 Brackets	,, 66
3 Plates, 3 × 3 in.	,, 68
4 Trunnions	,, 74
4 Wheels	,, 75
2 Axles, 3½ in.	,, 77
4 Collars	,, 82
8 Washers	,, 84
4 Buffers	,, 85
2 Coupling Hooks	,, 86



Steam Hammer No. 60.

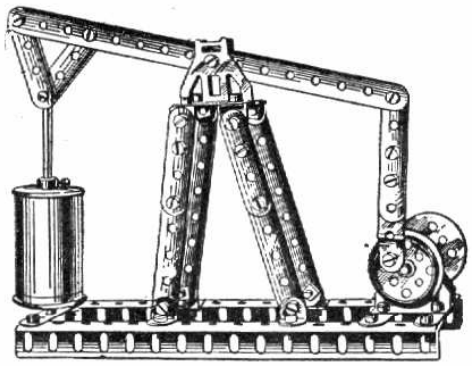
		No.			No.
4	Slips 3 × 1 in.	25	2	Strips, 8in.	63
33	Screws ..	50	12	Brackets	66
2	Bars ..	54	2	Plates ..	68
1	Strip, 2 in.	56	2	Wheels	75
2	,, 2½ ,,	57	1	Axle ..	77
1	,, 3½ ,,	59	2	Collars ..	82

Small squares of cardboard fixed on to axle for hammer. Flat piece of cardboard for bed and an inverted mantle case is used for cylinder.



Band Saw No.-64.

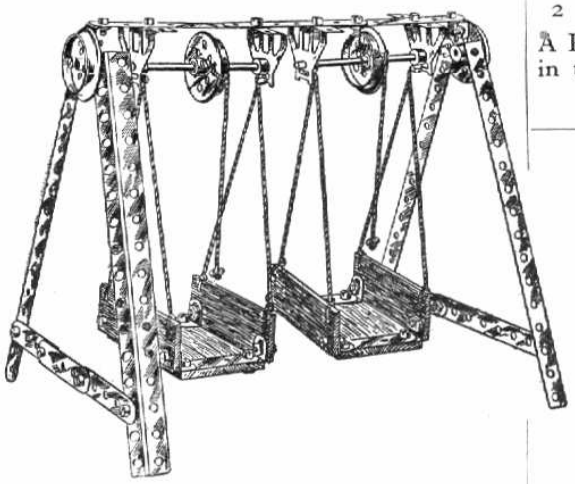
				No.
6	Slips, 3 × 1 in.	.. ..	No.	25
36	Screws ..	.. ..	,,	50
2	Bars, 8 in...	.. ..	,,	54
4	Strips, 2½ in.	.. ..	,,	57
2	,, 4 ,,	.. ..	,,	60
2	,, 8 ,,	.. ..	,,	63
8	Brackets ..	.. ..	,,	66
3	Plates ..	.. ..	,,	68
4	Trunnions	.. ..	,,	74
4	Wheels ..	.. ..	,,	75
2	Axles, 3½ in.	.. ..	,,	77
2	Collars ..	.. ..	,,	82
10	Washers ..	.. ..	,,	84



Beam Engine No. 62.

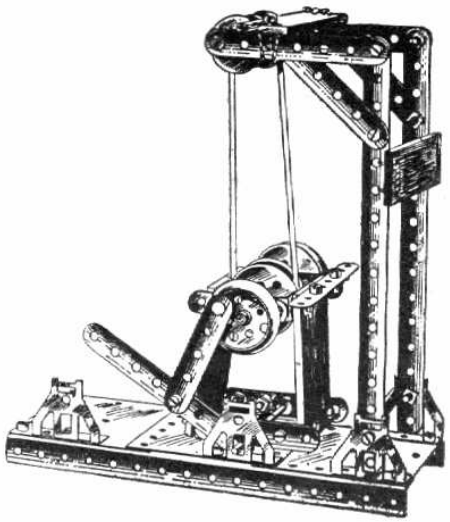
		No.			No.
35	Screws ..	50	2	Strips, 8 in.	63
2	Bars ..	54	8	Brackets	66
4	Strips, 2 in.	56	4	Trunnions	74
6	,, 2½ ,,	57	4	Wheels ..	75
2	,, 3½ ,,	59	2	Axles	77
2	,, 4 ,,	60	3	Collars ..	82

An incandescent mantle case is used for cylinder.



Swing No. 65.

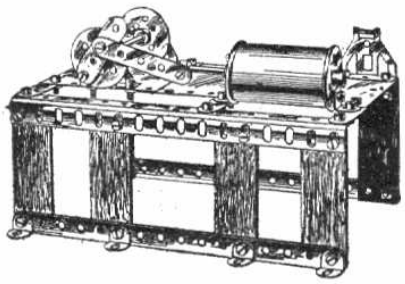
				No.
8	Slips, 3 × 1 in.	.. ..	No.	25
36	Screws ..	.. ..	,,	50
2	Angle Bars	.. ..	,,	54
4	Strips, 2 in.	.. ..	,,	56
4	,, 2½ ,,	.. ..	,,	57
2	,, 3½ ,,	.. ..	,,	59
2	,, 4 ,,	.. ..	,,	60
2	,, 8 ,,	.. ..	,,	63
12	Brackets ..	.. ..	,,	66
4	Trunnions ..	.. ..	,,	74
4	Wheels ..	.. ..	,,	75
2	Axles ..	.. ..	,,	77
4	Collars ..	.. ..	,,	82
2	Washers ..	.. ..	,,	84



Emery Wheel No. 63.

		No.			No.
6	Slips, 3 × 1 in.	25	8	Brackets	66
30	Screws ..	50	3	Plates ..	68
2	Bars, 8 in.	54	4	Trunnions	74
2	Strips, 2 in.	56	3	Wheels	75
5	Strips 2½ ,,	57	2	Axles, 3½ in.	77
2	,, 3½ ,,	59	2	Collars ..	82
2	,, 4 ,,	60	4	Washers	84
2	,, 8 ,,	63			

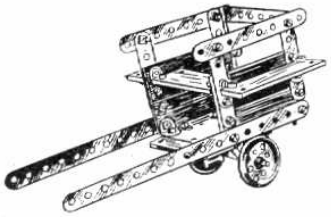
A French nail and cotton reel are used in this model; also a pill-box lid for emery wheel.



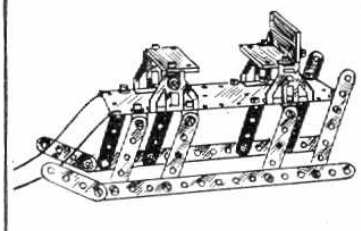
Mill Engine No. 61.

				No.
6	Slips, 3 × 1 in.	.. ..	No.	25
34	Screws ..	.. ..	,,	50
2	Bars ..	.. ..	,,	54
1	Strip, 2 in.	.. ..	,,	56
4	,, 2½ ,,	.. ..	,,	57
2	,, 8 ,,	.. ..	,,	63
8	Brackets ..	.. ..	,,	66
3	Plates ..	.. ..	,,	68
4	Trunnions	.. ..	,,	74
4	Wheels ..	.. ..	,,	75
2	Axles ..	.. ..	,,	77
2	Collars ..	.. ..	,,	82

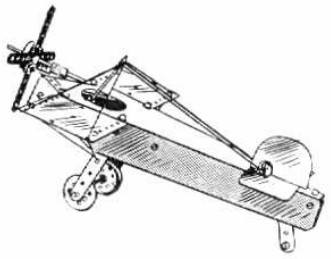
Use incandescent mantle case for cylinder.
Worked with hand or power.



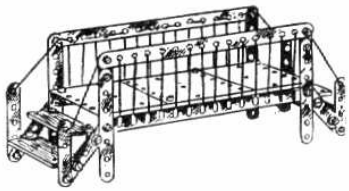
GOVERNESS CART



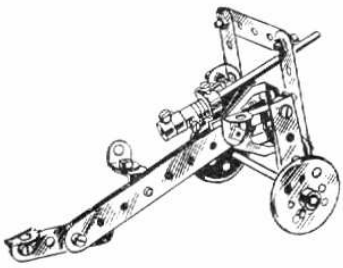
SLEIGH



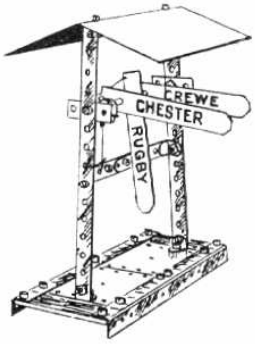
MONOPLANE



BRIDGE

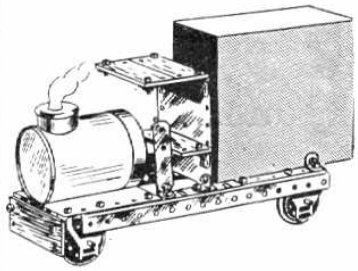


FIELD GUN



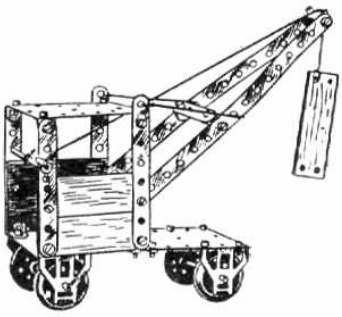
TRAIN INDICATOR

MARKET CART



STEAM LORRY

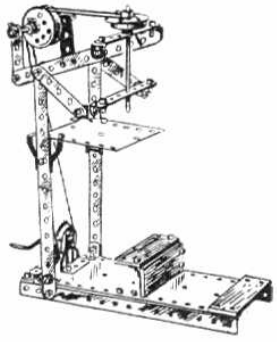
MUSIC STOOL



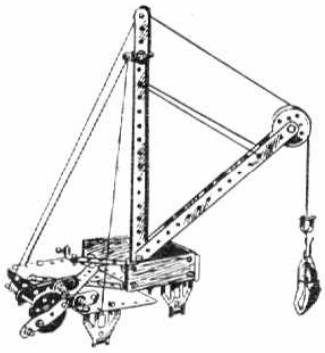
TRAVELLING CRANE

FLIP-FLAP

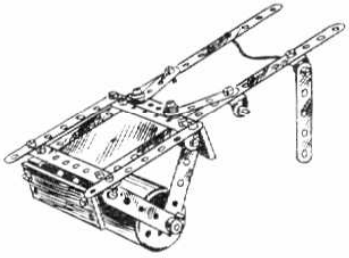
ROCKING CHAIR



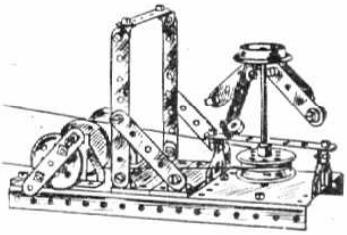
DRILL



DERRICK



ROLLER



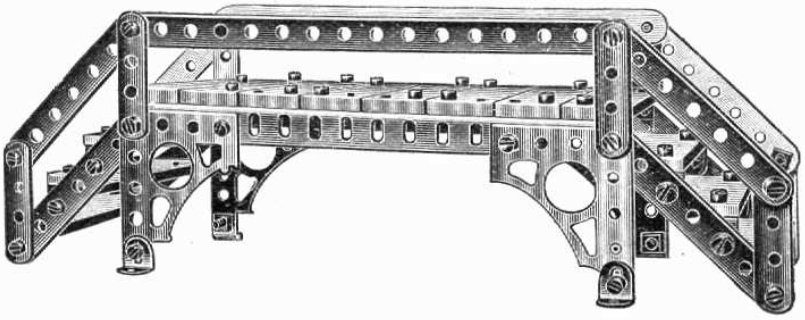
GOVERNERS

These models are made with

PRIMUS ENGINEERING

No. 2 OUTFIT

Models shown on pages from No. 27 can also be made with this outfit.



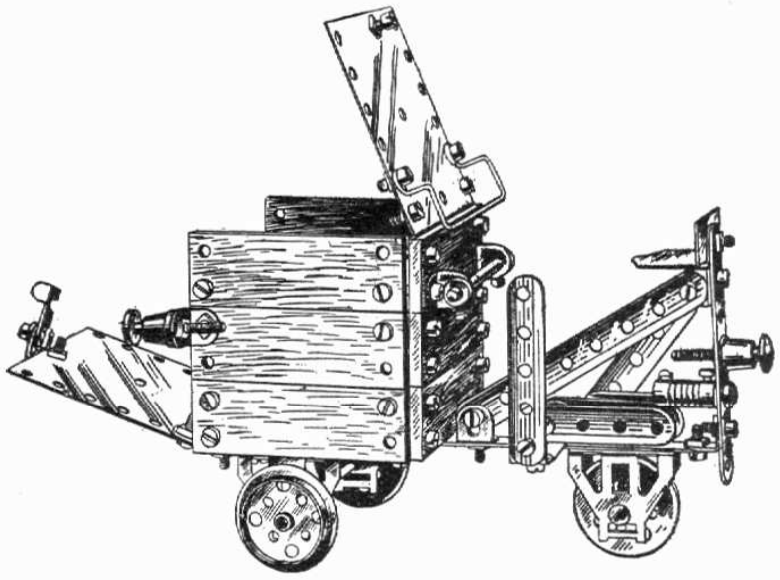
Foot Bridge No. 107.

14	Slips, 3 × 1 in.	No. 25
60	Screws	,, 50
2	Bars, 8 in.	,, 54
8	Strips, 2 ,,	,, 56
8	,, 3½ ,,	,, 59
2	,, 8 ,,	,, 63
16	Brackets	,, 66
4	Architraves	,, 85

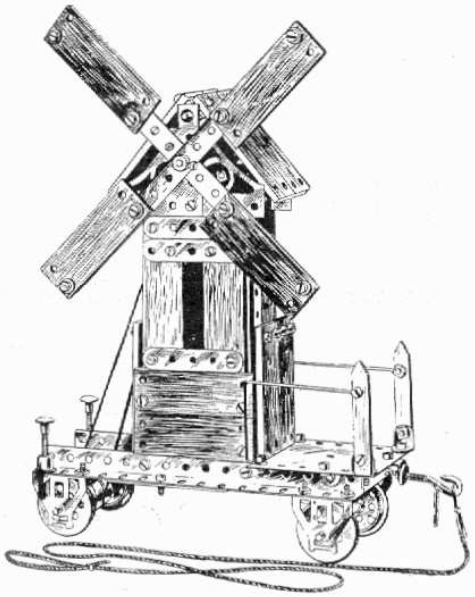
Carrier Tricycle No. 131.

9	Slips, 3 × 1 in.	No. 25
60	Screws	,, 50
8	Strips, 2 in.	,, 56
3	,, 2½ ,,	,, 57
1	,, 3½ ,,	,, 59
1	,, 4 ,,	,, 60
1	,, 6½ ,,	,, 62
13	Brackets	,, 66
3	Plates, 3 × 3 in.	,, 68
4	Hinges	,, 72
4	Trunnions	,, 74
3	Wheels	,, 75
1	Axle, 3½ in.	,, 77
1	,, 2¾ ,,	,, 78
4	Collars	,, 82
6	Washers	,, 84
3	Buffers	,, 85
1	Catch	,, 95
1	Rod	,, 96

Driver's seat made of cardboard.

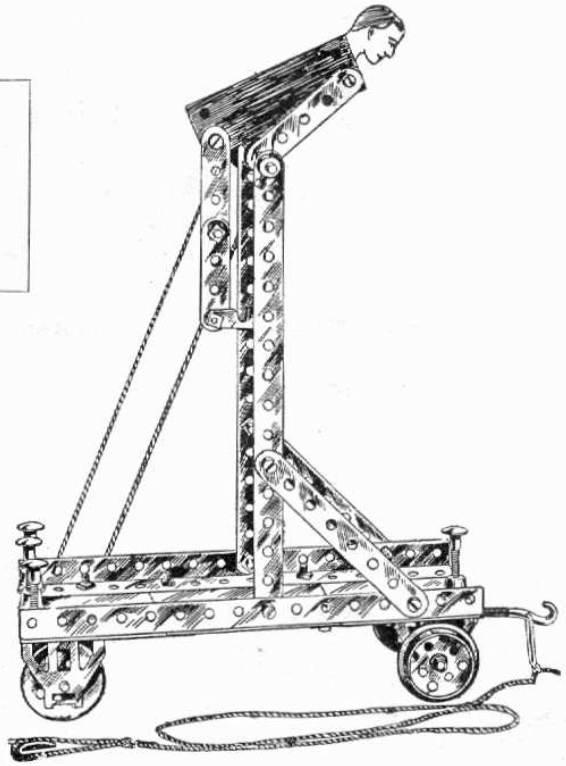


WORKING MODELS.



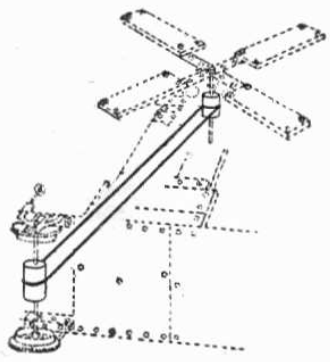
Working Windmill No. 138.

1	Floor	No. 9	9	Brackets	No. 66
2	Posts	,, 11	3	Plates, 3 × 3	,, 68
16	Slips	,, 25	4	Trunnions	,, 74
95	Screws	,, 50	4	Wheels	,, 75
2	Angle Bars, 6½ in.	,, 53	2	Axles, 3½ in.	,, 77
2	,, ,, 8 ,,	,, 54	2	,, 2¾ ,,	,, 78
4	Strips, 2 in.	,, 56	3	Collars	,, 82
3	,, 2½ ,,	,, 57	2	Washers	,, 84
2	,, 6½ ,,	,, 62	2	Buffers	,, 85
2	,, 8 ,,	,, 63	1	Coupling	,, 86
4	Architraves	,, 65	2	Rods	,, 96

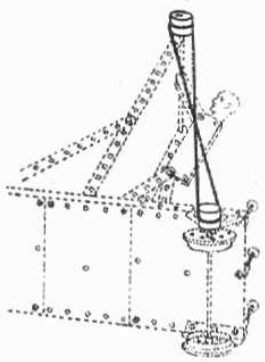


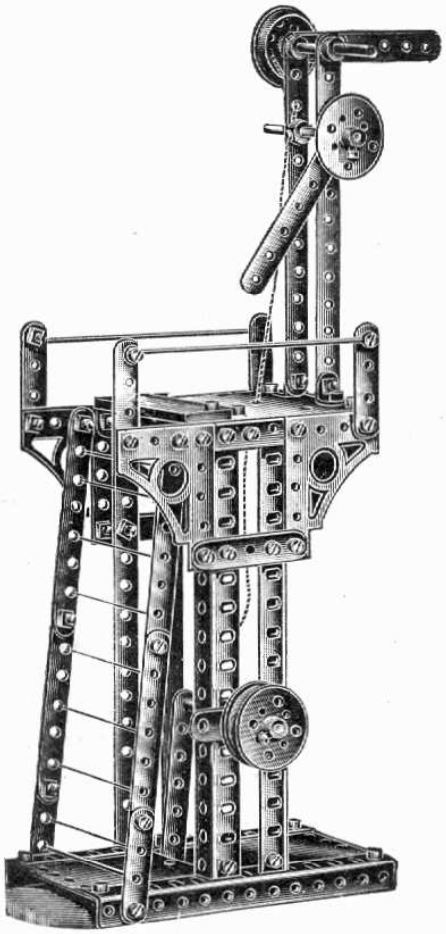
Horizontal Bar Performer No. 139.

1	Slip	No. 25	4	Trunnions	No. 74
19	Screws	,, 50	4	Wheels	,, 75
2	Angle Bars, 8 in.	,, 54	2	Axles, 3½ in.	,, 77
4	Strips, 2 in.	,, 56	1	Axle, 2¾ ,,	,, 78
2	,, 2½ ,,	,, 57	2	Collars	,, 82
2	,, 4 ,,	,, 60	4	Buffers	,, 85
2	,, 8 ,,	,, 63	1	Coupling	,, 86
1	Bracket	,, 66	2	Catches	,, 95
3	Plates, 3 × 3	,, 68			



Note.—These models are mounted on trolleys, and when pulled along the figures perform. This is effected by a simple belt system, using cotton reels, fully explained by the small drawings. The head of the man is cut from card and inserted in a slit cut in the No. 25 wood slip.





Signal Gantry No. 118.

1	Slip	No. 25
55	Screws	,, 50
2	Bars, $6\frac{1}{2}$ in.	,, 53
2	,, 8 ,,	,, 54
8	Strips, 2 in.	,, 56
5	,, $2\frac{1}{2}$,,	,, 57
5	,, $3\frac{1}{2}$,,	,, 59
2	,, 4 ,,	,, 60
2	,, $6\frac{1}{2}$,,	,, 62
2	,, 8 ,,	,, 63
4	Architraves	,, 65
11	Brackets	,, 66
3	Plates	,, 68
4	Wheels	,, 75
1	Rod, $3\frac{1}{2}$ in.	,, 77
2	Rods, $2\frac{3}{4}$ in.	,, 78
4	Collars	,, 82
2	Rods	,, 96

Use cord for ladder rungs.

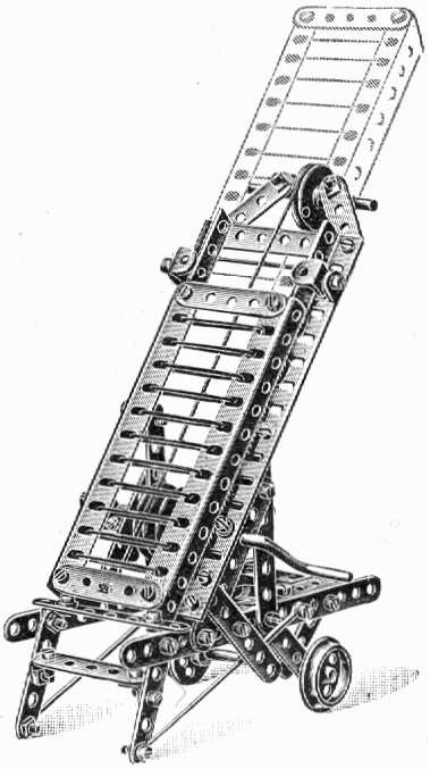
Extending Ladder No. 130.

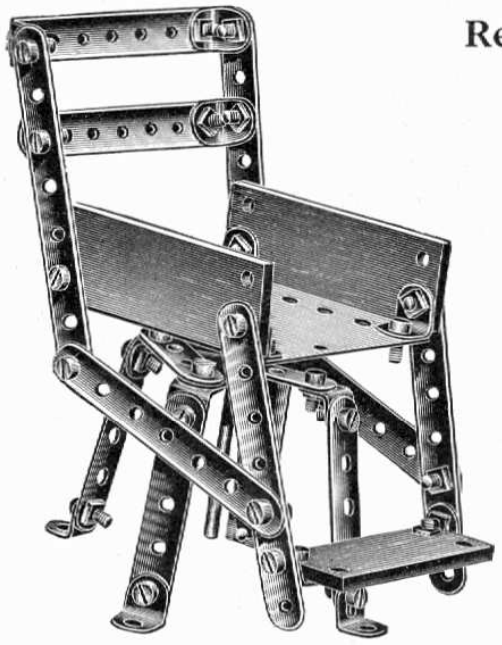
2	Slips	No. 25
53	Screws	,, 50
2	Bars, $6\frac{1}{2}$ in.	,, 53
2	,, 8 ,,	,, 54
4	Strips, 2 in.	,, 56
6	,, $2\frac{1}{2}$,,	,, 57
5	,, $3\frac{1}{2}$,,	,, 59
2	,, 4 ,,	,, 60
2	,, 8 ,,	,, 63
2	Architraves	,, 65
16	Brackets	,, 66
1	Hinge	,, 72
4	Wheels	,, 75
1	Axle, $3\frac{1}{2}$ in.	,, 77
1	,, $2\frac{3}{4}$,,	,, 78
3	Collars	,, 82
12	Washers	,, 84
1	Catch	,, 95
2	Rods	,, 96

Extra parts required.

1	Wheel	,, 76
1	Handle	,, 83

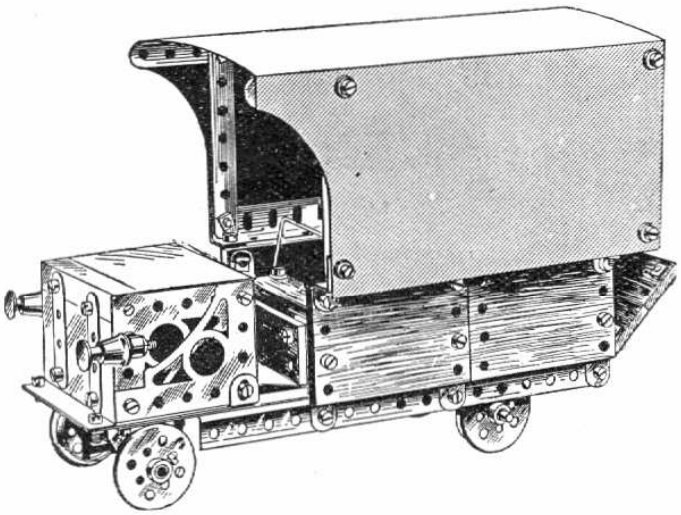
Use cord for ladder rungs.





Revolving Chair No. 216.

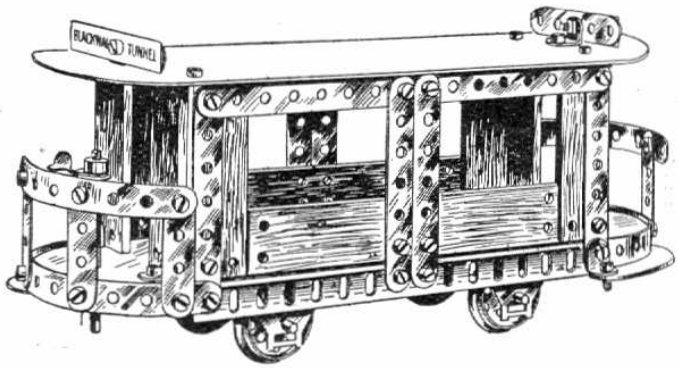
3	Wood Slips	No. 25
36	Screws	,, 50
1	Strips, 2 in.	,, 56
6	,, $2\frac{1}{2}$,,	,, 57
6	,, $3\frac{1}{2}$,,	,, 59
2	,, 4 ,,	,, 60
16	Brackets	,, 66
1	Plate, 3×3 in.	,, 68
1	Wheel	,, 75
1	Axle, $2\frac{3}{4}$ in.	,, 78
2	Collars	,, 82



Motor Van No. 132.

13	Slips	No. 25	3	Plates, 3 × 3 in.	No. 68
58	Screws	,, 50	2	Hinges	,, 72
2	Angle Bars, 6½ in.	,, 53	4	Trunnions	,, 74
2	,, ,, 8 ,,	,, 54	4	Wheels	,, 75
6	Strips, 2 in.	,, 56	2	Axles, 3½ in.	,, 77
6	,, 2½ ,,	,, 57	2	,, 2¾ ,,	,, 78
4	,, 3½ ,,	,, 59	3	Collars	,, 82
2	,, 8 ,,	,, 63	8	Washers	,, 84
4	Architraves	,, 65	3	Buffers	,, 85
10	Brackets	,, 66	1	Rod	,, 96

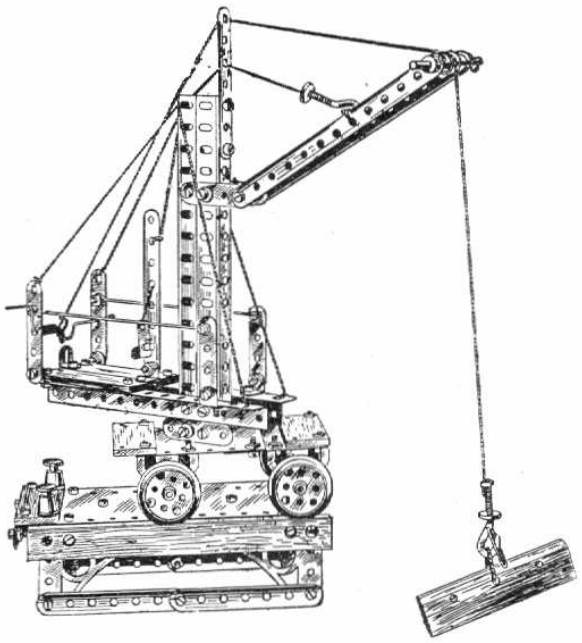
Cardboard is used for cover of wagon and engine bonnet.



Tramcar No. 133.

12	Slips	No. 25	14	Brackets	No. 66
66	Screws	,, 50	3	Plates, 3 × 3 in.	,, 68
2	Angle Bars, 8 in.	,, 54	4	Trunnions	,, 74
6	Strips, 2 in.	,, 56	4	Wheels	,, 75
2	,, 2½ ,,	,, 57	2	Axles, 3½ in.	,, 77
8	,, 3½ ,,	,, 59	2	,, 2¾ ,,	,, 78
2	,, 4 ,,	,, 60	4	Collars	,, 82
2	,, 6½ ,,	,, 62	8	Washers	,, 84
2	,, 8 ,,	,, 63			

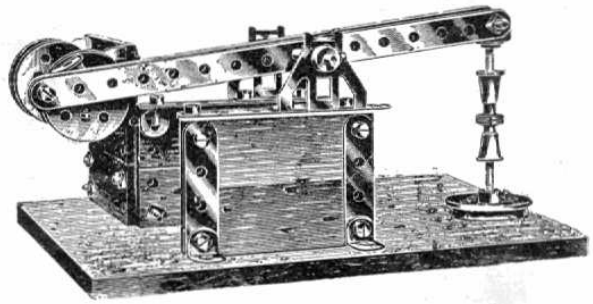
Cardboard is used for roof, platforms, and steps.



Travelling Crane No. 134.

2	Rails	No. 1	4	Strips, 2½ in.	No. 57
1	Buffer	4	6	,, 3½ ,,	59
6	Slips	25	2	,, 4 ,,	60
65	Screws	50	2	,, 6½ ,,	62
2	Angle Bars, 6½ in.	53	4	Architraves	65
2	,, 8 ,,	54	16	Brackets	66
4	Strips, 2 in.	56	3	Plates, 3 × 3 in.	68
			4	Wheels	75
			2	Axles, 3½ in.	77
			1	,, 2¾ ,,	78
			3	Collars	82
			1	Washer	84
			4	Buffers	85
			2	Couplings	86
			1	Catch	95
			1	Rod	96

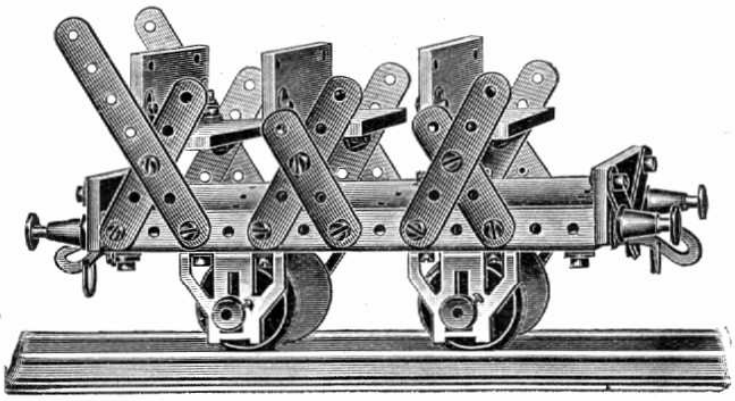
A piece of wire bent for crank handle.



Mechanical Hammer No. 108.

7	Slips, 3 × 1 in.	No. 25	4	Trunnions	No. 74
26	Screws	,, 50	4	Wheels	,, 75
4	Strips, 2 in.	,, 56	2	Axles, 3½ in.	,, 77
4	,, 2½ ,,	,, 57	4	Collars	,, 82
2	,, 3½ ,,	,, 59	8	Washers	,, 84
2	,, 8 ,,	,, 63	2	Buffers	,, 85
12	Brackets	,, 66	6	Screws	,, 97

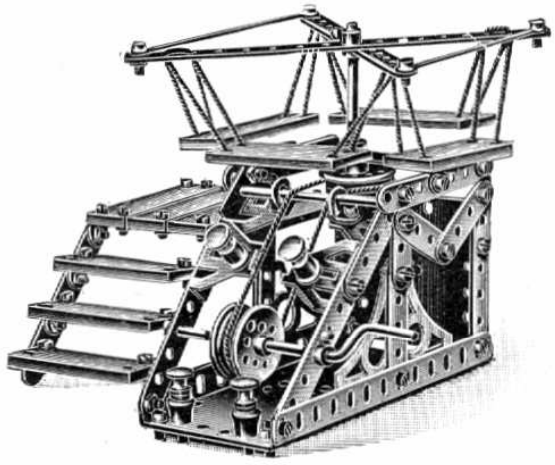
This model can be worked by a motor.



Switchback Car No. 115.

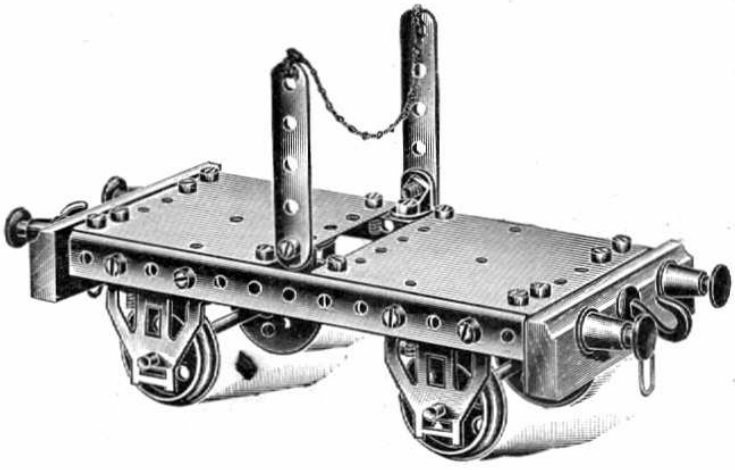
8	Slips	No. 25	4	Trunnions	No. 74
50	Screws	,, 50	4	Wheels	,, 75
2	Bars, 6½ in.	,, 53	2	Axles, 3½ in.	,, 77
8	Strips, 2 in.	,, 56	4	Collars	,, 82
6	,, 2½ ,,	,, 57	12	Washers	,, 84
2	,, 3½ ,,	,, 59	4	Buffers	,, 85
12	Brackets	,, 66	2	Couplings	,, 86
3	Plates, 3 × 3 in.	,, 68			

Note.—Two Washers are placed over screws that secure brackets to bars.



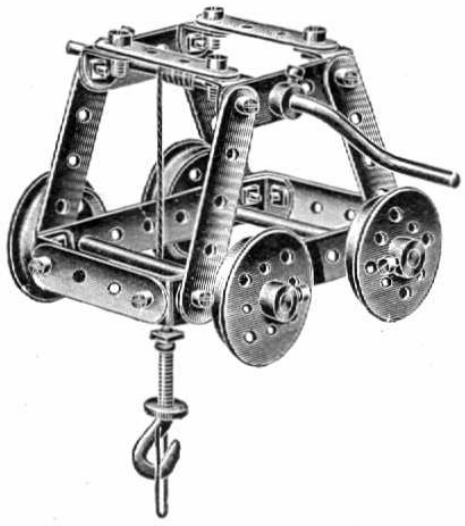
Roundabout No. 129.

11	Slips	No. 25	16	Brackets	No. 66
61	Screws	,, 50	3	Plates, 3 × 3 in.	,, 68
2	Bars, 6½ in.	,, 53	4	Trunnions	,, 74
5	Strips, 2 in.	,, 56	4	Wheels	,, 75
5	,, 2½ ,,	,, 57	2	Axles, 3½ in.	,, 77
8	,, 3½ ,,	,, 59	4	Collars	,, 82
2	,, 4 ,,	,, 60	10	Washers	,, 84
2	,, 8 ,,	,, 63	4	Buffers	,, 85
4	Architraves	,, 65	2	Rods	,, 96



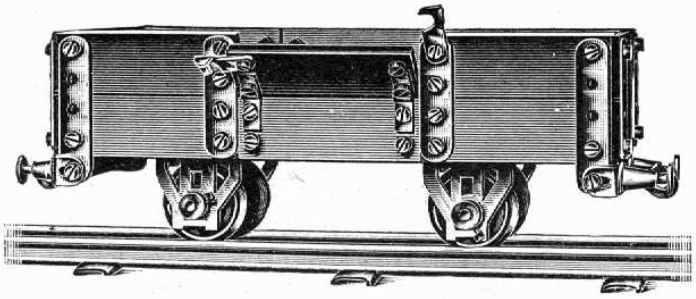
Timber Truck No. 123.

2	Blocks	No. 4	2	Plates, 3 × 3 in.	No. 68
32	Screws	,, 50	4	Trunnions	,, 74
2	Bars, 6½ in.	,, 53	4	Wheels	,, 75
2	Strips, 2 in.	,, 56	2	Axles, 3½ in.	,, 77
2	,, 2½ ,,	,, 57	4	Buffers	,, 85
12	Brackets	,, 66	2	Couplings	,, 86



Overhead Travelling Crane No. 140.

16	Screws	No. 50	2	Axles, 3½ in.	No. 77
6	Strips, 2 in.	,, 56	2	Collars	,, 82
4	,, 2½ ,,	,, 57	1	Handle Axle	,, 83
4	Wheels	,, 75	1	Coupling Hook	,, 86



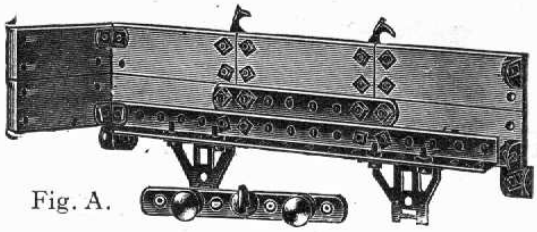


Fig. A.

Diagrams showing
(a) How the sides are fitted up.
(b) How the end is formed.

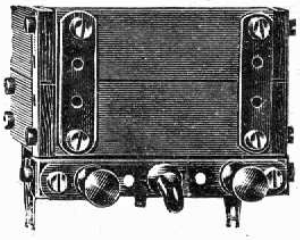


Fig. B.

Coal Truck No. 113.

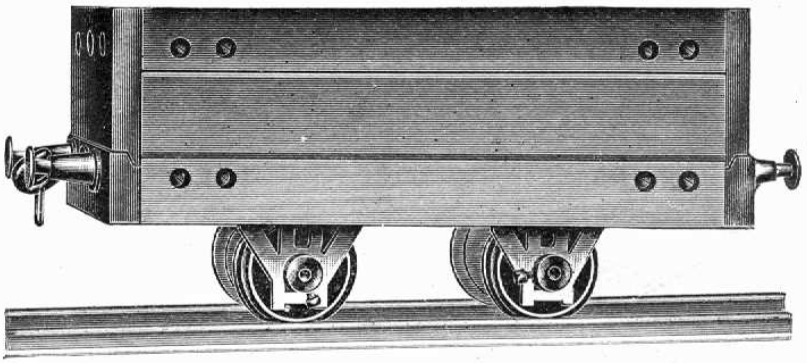
16	Slips	No. 25
64	Screws	,, 50
2	Bars, 8 in.	,, 54
8	Strips, 2 in.	,, 56
4	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
2	,, 4 ,,	,, 60
12	Brackets	,, 66
3	Plates	,, 68
4	Hinges	,, 72
4	Trunnions	,, 74
4	Wheels	,, 75
2	Axles, 3½ in.	,, 77
4	Collars	,, 82
4	Washers	,, 84
4	Buffers	,, 85
2	Couplings	,, 86
4	Catches	,, 95

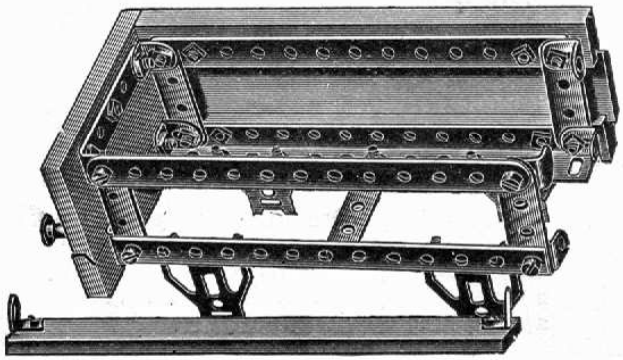
Heavy Goods Truck No. 116.

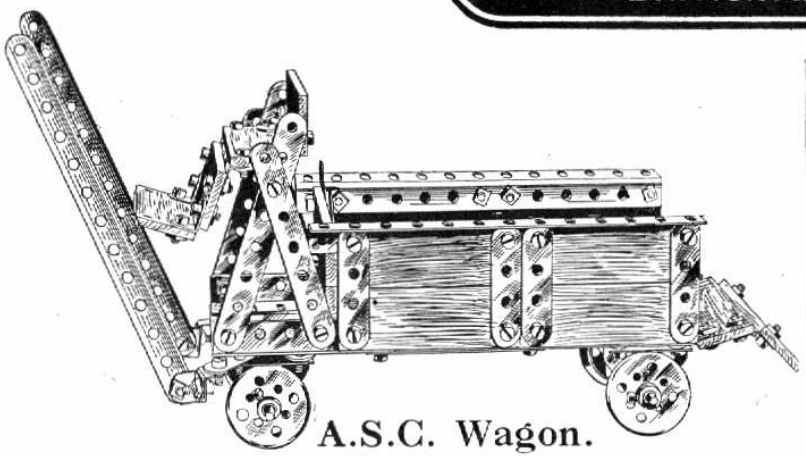
ALL WOOD SIDES, ENDS AND BUFFER BLOCKS.

4	Rails	No. 1
2	Blocks	,, 4
1	Floor	,, 9
2	Sides	,, 17
2	Ends	,, 18
36	Screws	,, 50
2	Bars, 6½ in.	,, 53
4	Strips, 2 in.	,, 56
3	,, 2½ ,,	,, 57
2	,, 6½ ,,	,, 62
10	Brackets	,, 66
4	Trunnions	,, 74
4	Wheels	,, 75
2	Axles, 2¾ in.	,, 78
4	Collars	,, 82
4	Washers	,, 84
4	Buffers	,, 85
2	Coupling Hooks	,, 86

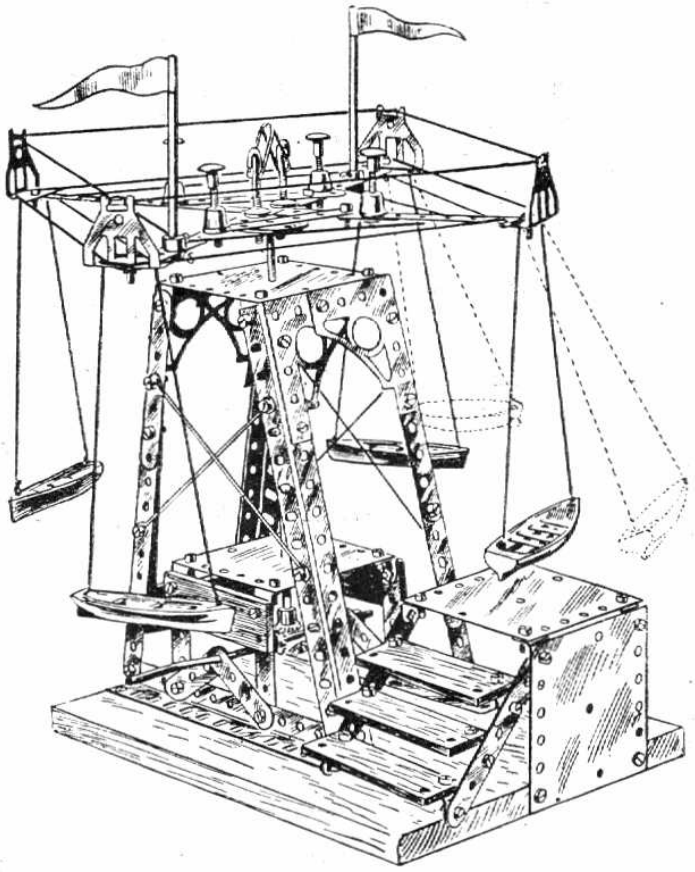
Diagram showing how the frame is made up. The floor has two brackets as shown and is then placed inside brackets down, and secured by means of the coupling hooks.



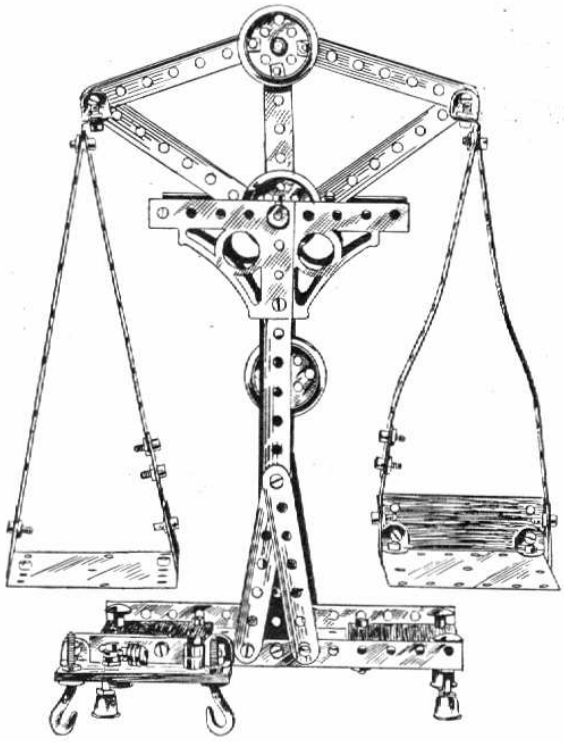




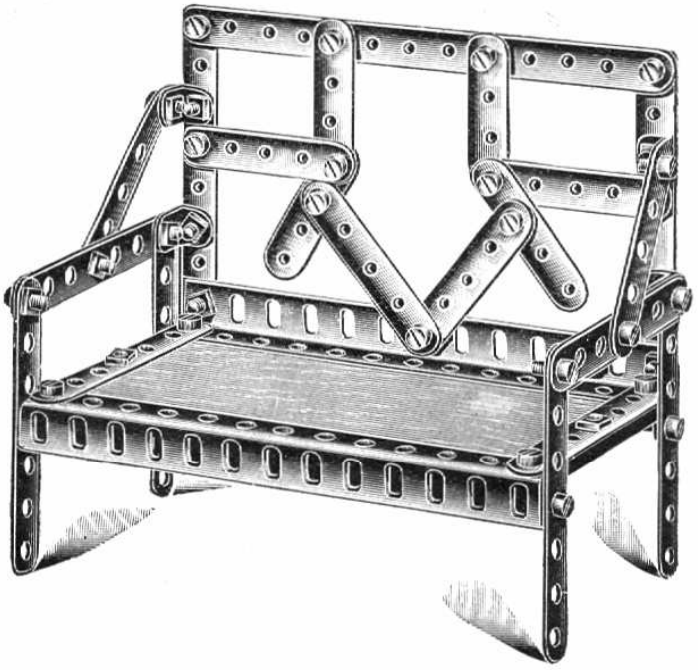
A.S.C. Wagon.



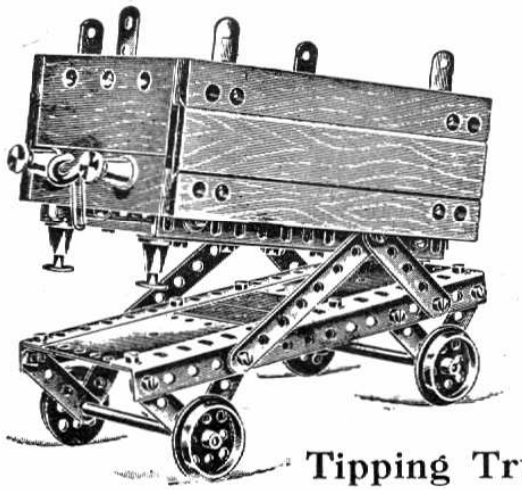
H. Maxim's Flying Machine.



Jockey Scales.



Garden Seat.



Tipping Truck.

These models are made with

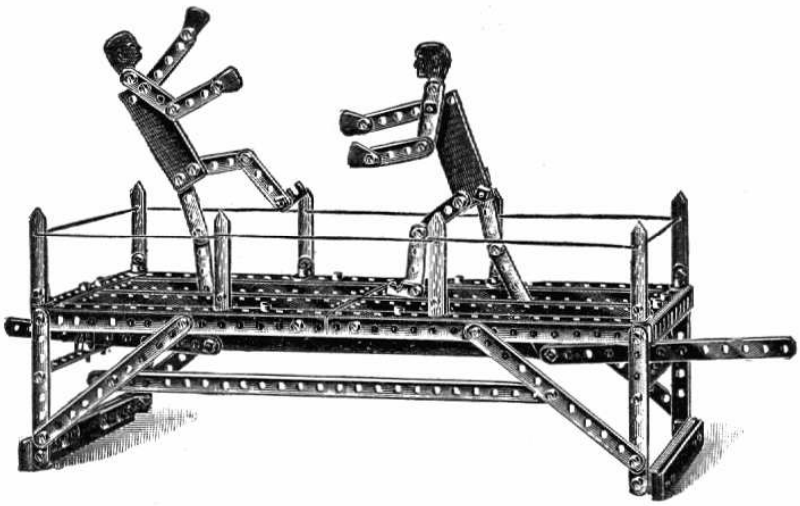
PRIMUS ENGINEERING

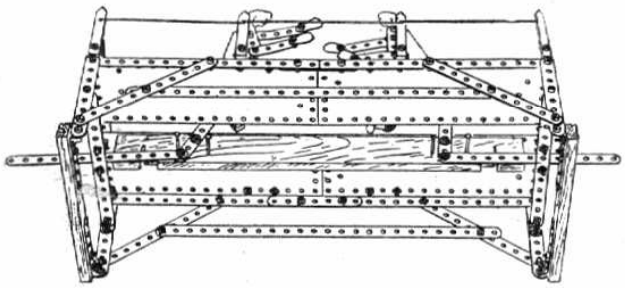
No. 3 OUTFIT

Models shown on pages from No. 27 can also be made with this outfit.

Boxers in Ring No. 204.

A clever working model of two pugilists who actually box.

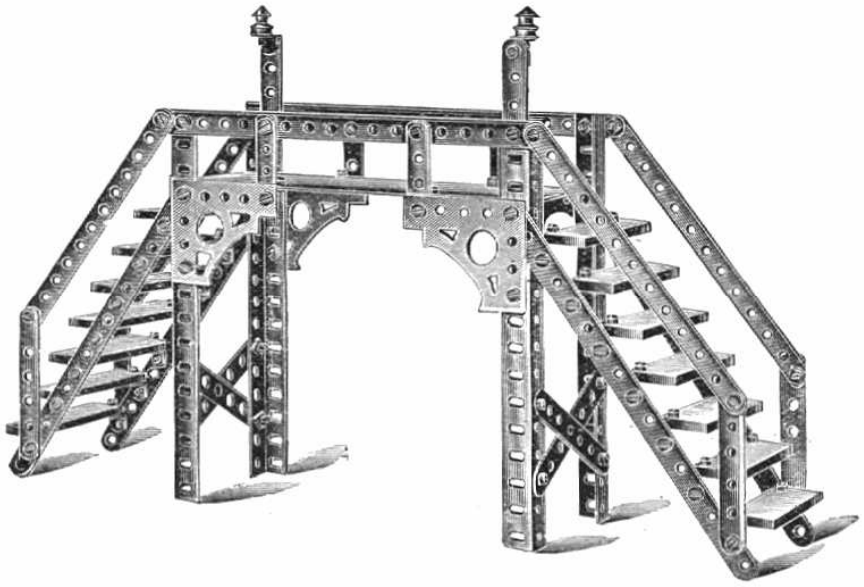




2	Grooved side rails ..	No. 1
8	Posts for railings	,, 11
1	Plain platform plank ..	,, 23
2	Wood slips	,, 25
85	Screws	,, 50
2	Angle bars, 6½ in. ..	,, 53
4	,, ,, 8 ,, ..	,, 54
10	Strips, 2 in.	,, 56
6	,, 2½ ,, ...	,, 57
4	,, 3½ ,, ...	,, 59
4	,, 4 ,, ...	,, 60
4	,, 5½ ,, ...	,, 61
4	,, 6½ ,, ...	,, 62
2	,, 12½ ,, ...	,, 64
16	Brackets	,, 66
4	Plates, 8×3	,, 67
2	Trunnions	,, 74
6	Washers	,, 84
4	Catches	,, 95
2	Wood screws	,, 97

Heads and boxing gloves can be cut out of cardboard.

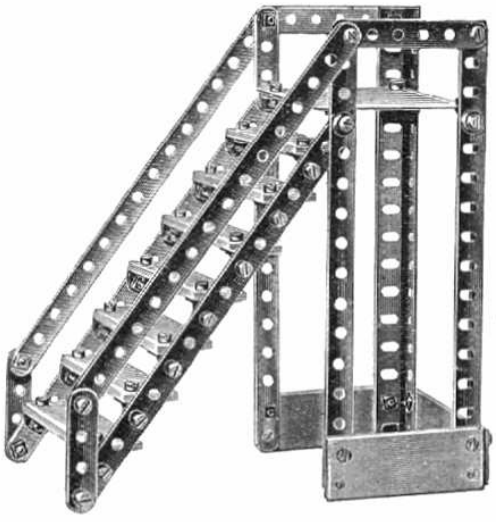
The system of operating the boxers is clearly shown in the diagram. Note that it is advisable to use small nails to act as stops to prevent the figures assuming unnatural positions.



High Level Bridge No. 185.

14	Slips, 3 × 1 in.	No. 25
98	Screws	,, 50
4	Angle bars, 8 in.	,, 54
6	Strips, 2 in.	,, 56
4	,, 3 ,,	,, 58
4	,, 3½ ,,	,, 59
4	,, 5½ ,,	,, 61
4	,, 6½ ,,	,, 62
4	,, 8 ,,	,, 63
4	Architraves	,, 65
38	Brackets	,, 66
1	Plate, 8 × 3 in.	,, 67
2	Lamps	,, 87

The side rails of bridge are composed of two 5½-in. strips, bolted together.

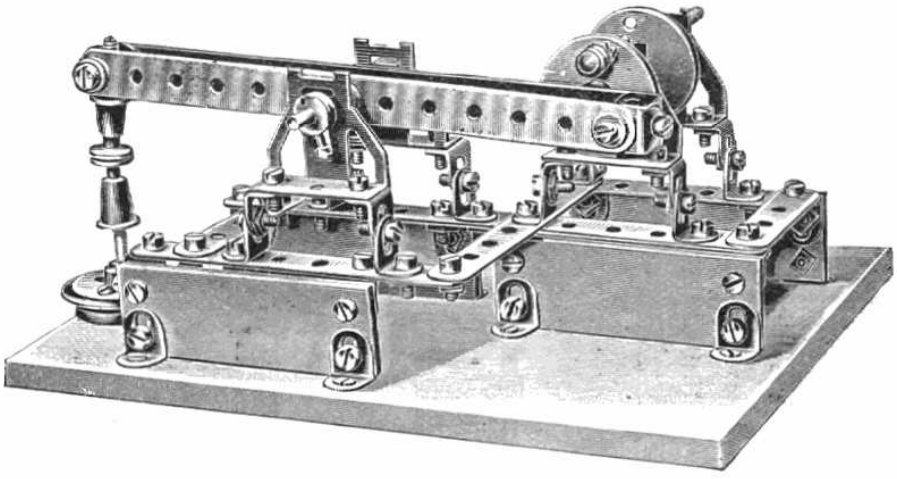


Staircase with Landing No. 186.

10	Slips, 3 × 1 in.	No. 25
50	Screws	,, 50
2	Angle bars, 8 in.	,, 54
2	Strips, 2 in.	,, 56
2	,, 3 ,,	,, 58
6	,, 8 ,,	,, 63
18	Brackets	,, 66
1	Plate, 3 × 3 in.	,, 68

The brackets fit to the front holes of the No. 25 slips.

Washers are put over the four screws that bolt the metal plate in to keep it square.

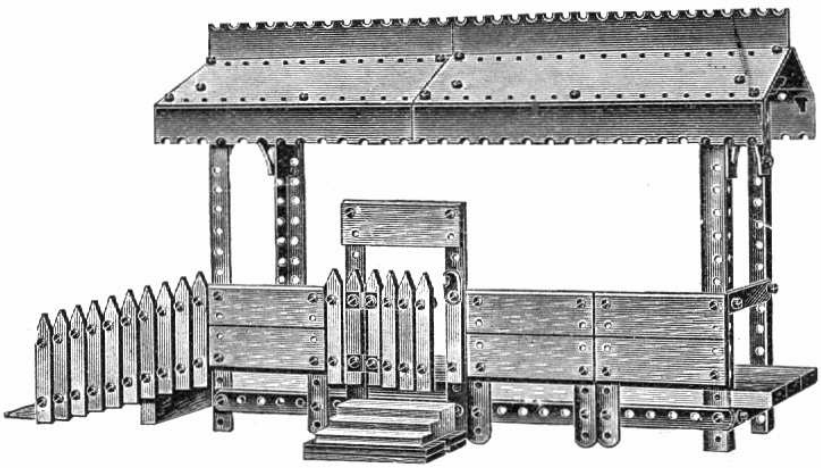


Hammer worked by Cam Action No. 192.

4	Slips, 3 × 1 in.	No. 25
54	Screws	,, 50
1	Strip, 2 in.	,, 56
1	,, 2½ ,,	,, 57
1	,, 3 ,,	,, 58
2	Strips, 4 in.	,, 60
3	,, 6½ ,,	,, 62
28	Brackets	,, 66
4	Trunnions	,, 74
1	Wheel	,, 75
2	Wheels	,, 76
1	Axle, 2¾ in.	No. 78
6	Collars	,, 82
1	Handle	,, 83
10	Washers	,, 84
2	Buffers	,, 85
1	Knob screw	,, 92
6	Wood screws	,, 97

The knob screw for the eccentric action should be double nutted into the wheel.

Side Station No. 180.

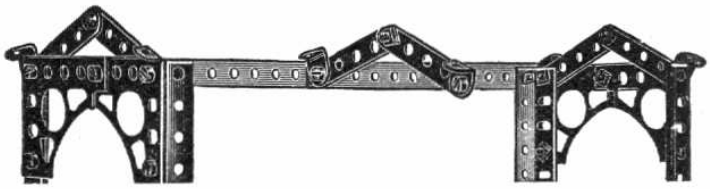


16	Posts	No. 11
1	Step	,, 21
1	Slope	,, 22
1	Platform	,, 23
2	Platforms	,, 24
7	Slips, 3 × 1 in.	,, 25
88	Screws	,, 50
4	Angle bars, 8 in.	,, 54
4	Strips, 2 in.	,, 56
6	,, 2½ ,,	,, 57
4	,, 3½ ,,	,, 59
3	,, 4 ,,	,, 60
4	,, 5½ ,,	,, 61
3	,, 12½ ,,	,, 64
7	Brackets	,, 66
4	Plates, 8 × 3 in.	,, 67
1	Tile, 6½ in.	,, 69
1	,, 8 ,,	,, 70
4	Eaves, 8 in.	,, 71
2	Hinges	,, 72
1	Catch	,, 95

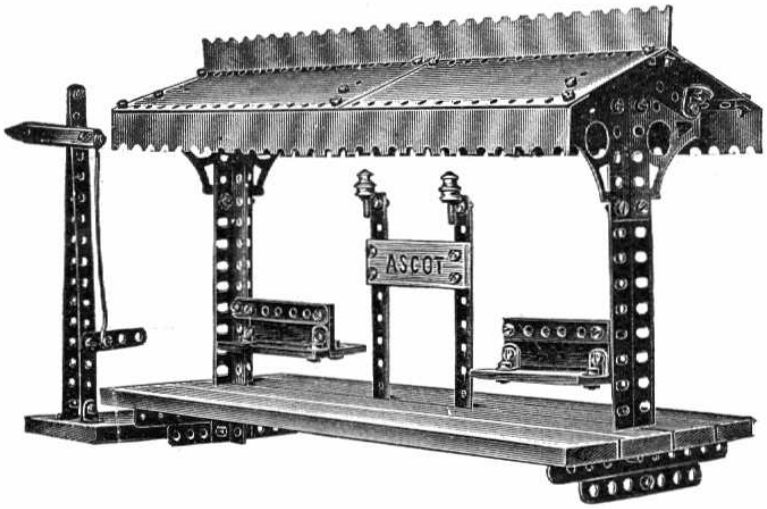
COMPOSITION OF ROOF FRAME.

1. Study this diagram carefully and note how the brackets are put on—this is important.

2. The whole roof, with ridge tiles and eaves, should be bolted up before it is fitted on the framework.



Island Station No. 183.



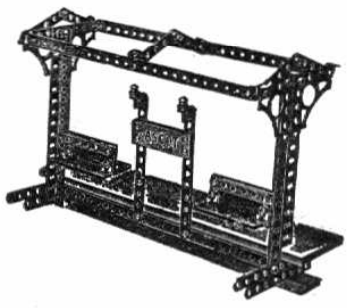
1	Post	No. 11
2	Platforms	,, 23
2	,,	,, 24
7	Slips, 3 × 1 in.	,, 25
72	Screws	,, 50
4	Angle bars, 8 in.	,, 54
6	Strips, 2½ in.	,, 57
4	,, 4 ,,	,, 60
4	,, 5½ ,,	,, 61
3	,, 12½ ,,	,, 64
4	Architraves	,, 65
22	Brackets	,, 66
4	Plates, 8 × 3 in.	,, 67
1	Tile, 6½ in.	,, 69
1	,, 8 ,,	,, 70
4	Eaves, 8 in.	,, 71
2	Lamps	,, 87

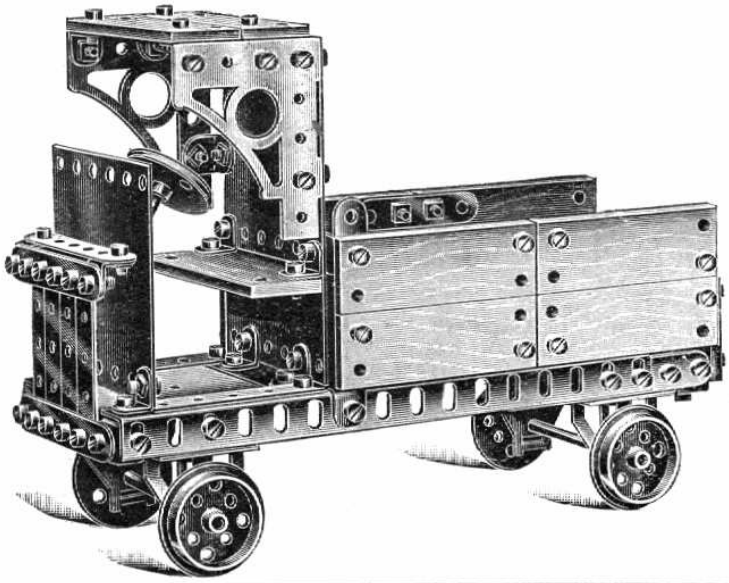
HOW TO FIT ON THE ROOF.

The 12½ inch strip below the platform must be fitted between the angle bars.

Note position of brackets for securing roof to frame.

The name of station can be painted on a wood slip to suit locality.





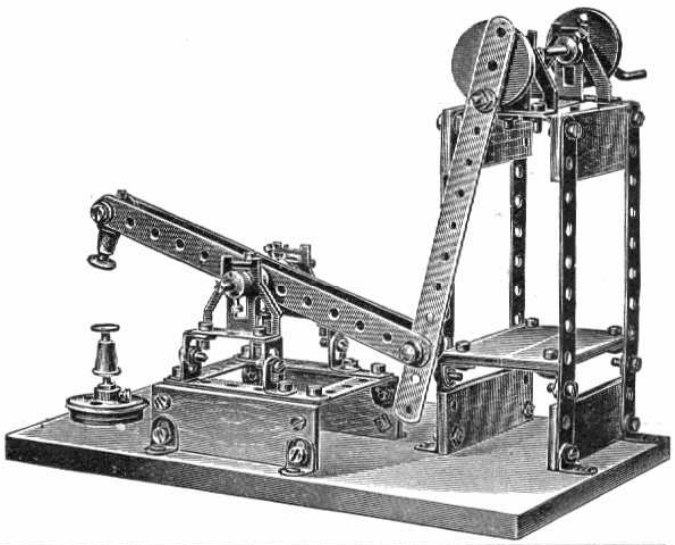
Motor Transport Wagon No. 202.

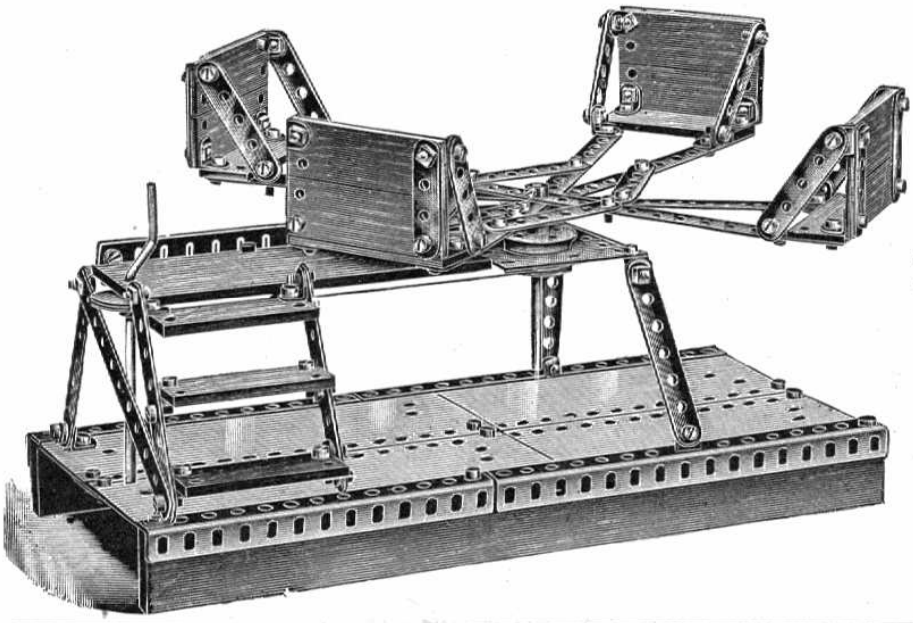
14 Slips, 3 × 1 in.	No. 25	1 Plate, 8 × 2 in.	No. 67
72 Screws	,, 50	3 Plates, 3 × 3 in.	,, 68
2 Angle bars, 8 in.	,, 54	2 Hinges	,, 72
8 Strips, 2 in.	,, 56	4 Trunnions	,, 74
4 ,, 2½ ,,	,, 57	4 Wheels	,, 75
4 ,, 3 ,,	,, 58	1 Wheel	,, 76
2 ,, 3½ ,,	,, 59	2 Axles, 3½ in.	,, 77
2 Architraves	,, 65	1 ,, 2¾ ,,	,, 78
24 Brackets	,, 66	2 Collars	,, 82

Stamp Hammer No. 193.

8 Slips, 3 × 1 in.	No. 25	1 Wheel	No. 75
54 Screws	,, 50	2 Wheels	,, 76
2 Strips, 2 in.	,, 56	1 Axle, 2¾ in.	,, 78
2 ,, 2½ ,,	,, 57	6 Collars	,, 82
2 ,, 3 ,,	,, 58	1 Handle	,, 83
4 ,, 5½ ,,	,, 61	10 Washers	,, 84
3 ,, 6½ ,,	,, 62	2 Buffers	,, 85
30 Brackets	,, 66	2 Knob screws	,, 92
4 Trunnions	,, 74	8 Wood screws	,, 97

Fitting Crank Arm.—A knob screw should be bolted through the pulley wheel, then a washer put on, then the crank arm and another washer, and lastly double nutted. It should be fitted to the beam in a similar manner. The table below shafting is supported on 2-in. strips, which cannot be seen in the illustration.





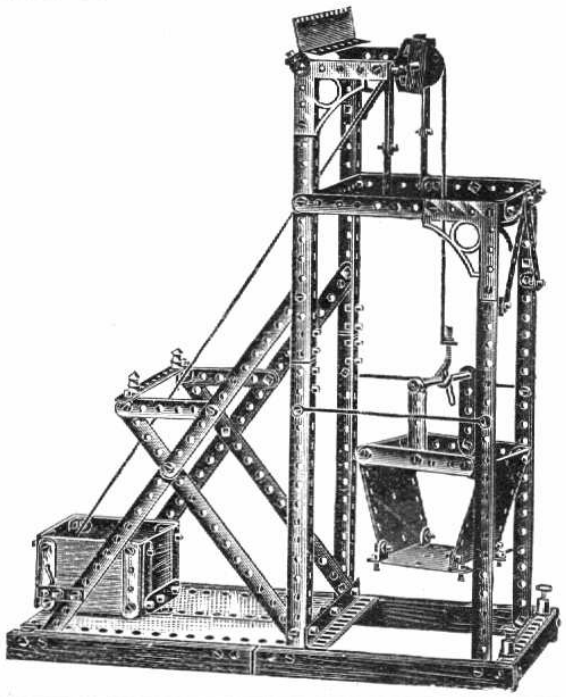
Roundabout No. 198.

	No.		No.
1 Floor	9	1 Strip, 8 in.	63
2 Platforms	23	3 Strips, 12 in.	64
15 Slips	25	38 Brackets	66
95 Screws	50	4 Plates, 8 × 3 in.	67
2 Angle bars 6½ in.	53	1 Plate, 3 × 3 in.	68
3 ,, ,, 8 ,,	54	1 Wheel	75
8 Strips, 2 in.	56	3 Wheels	76
8 ,, 2½ ,,	57	1 Axle, 3½ in.	77
4 ,, 3 ,,	58	1 Collar	82
4 ,, 3½ ,,	59	1 Handle	83
2 ,, 4 ,,	60	2 Washers	84
3 ,, 5½ ,,	61	6 Wood screws	97

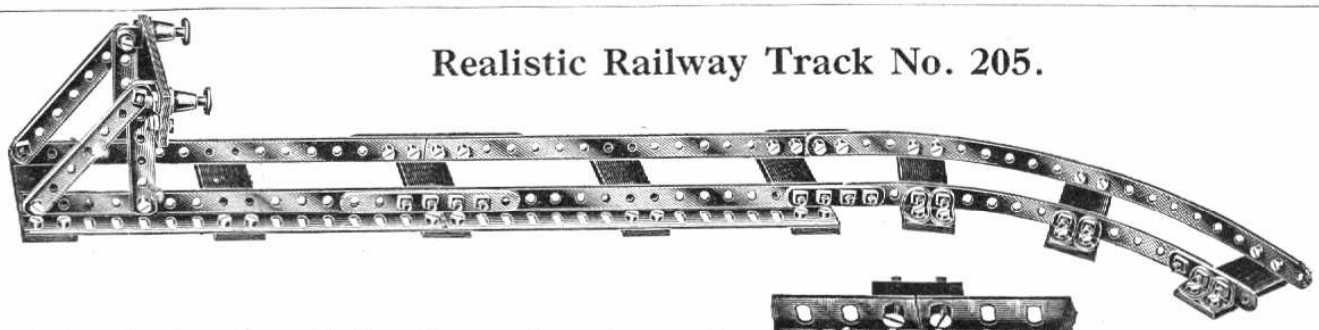
THESE MODELS ARE MADE WITH A No. 3 OUTFIT.

Pit-Head Gear No. 203.

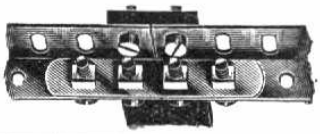
4	Side rails	No. 1	
6	Slips 3×1 in.	,, 25	
114	Screws	,, 50	
2	Angle bars, 6½ in.	,, 53	
4	,, ,, 8 ,,	,, 54	
8	Strips, 2 in.	,, 56	
8	,, 2½ ,,	,, 57	
3	,, 3 ,,	,, 58	
5	,, 3½ ,,	,, 59	
2	,, 4 ,,	,, 60	
4	,, 5½ ,,	,, 61	
4	,, 6½ ,,	,, 62	
5	,, 8 ,,	,, 63	
3	,, 12½ ,,	,, 64	
4	Architraves	,, 65	
32	Brackets	,, 66	
2	Plates, 8×3 in.	No. 67	
3	,, 3×3 ,,	,, 68	
1	Tile, 6½ in.	,, 69	
1	Hinge	,, 72	
2	Trunnions	,, 74	
1	Wheel	,, 76	
2	Axles, 3½ in.	,, 77	
4	Collars	,, 82	
1	Handle	,, 83	
10	Washers	,, 84	
2	Buffers	,, 85	
1	Coupling	,, 86	
2	Lamps	,, 87	
1	Catch	,, 95	
2	Rods	,, 96	
2	Wood screws	,, 97	



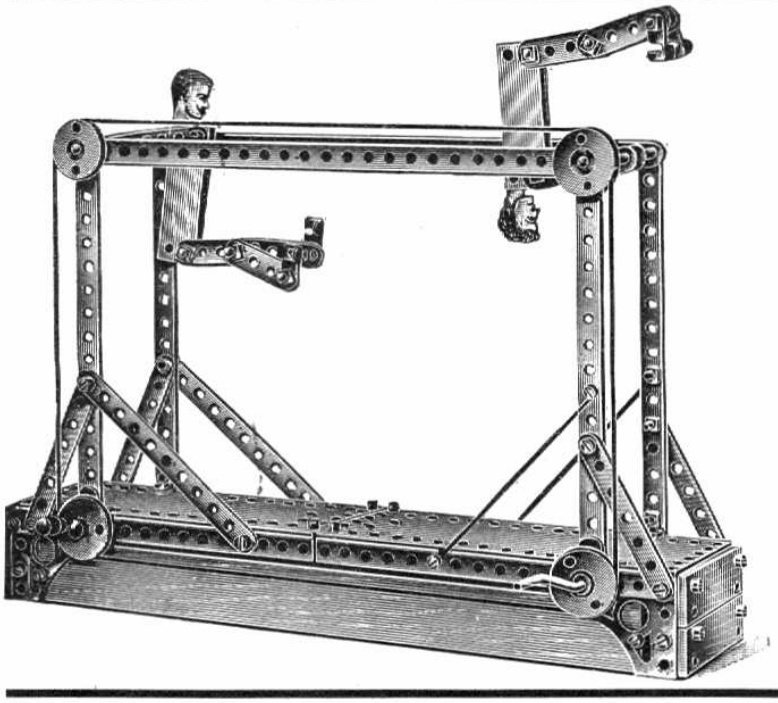
Realistic Railway Track No. 205.



Use angle bars for the rails and bolt to No. 25 slips. Use metal strips to form the curves, bolting to the No. 25 slips by brackets.



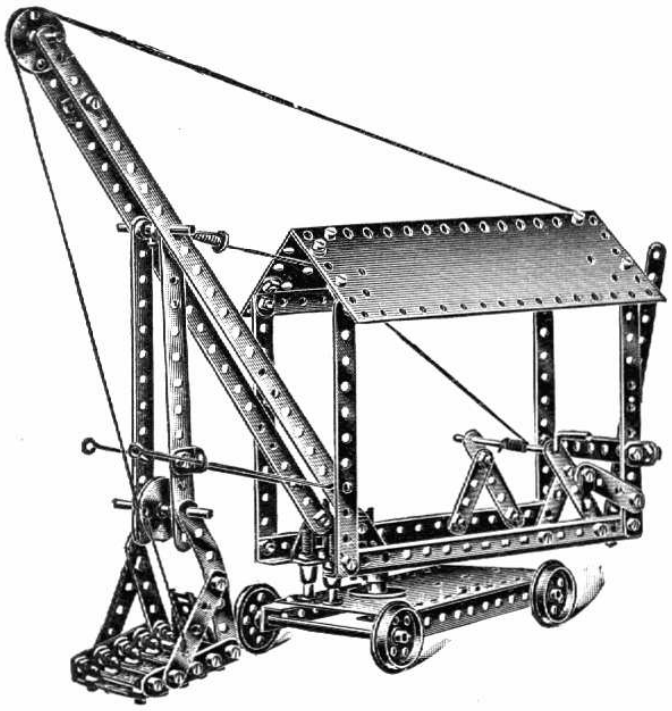
Shows how the rails are joined together.



Double Bar Performers No. 206.

2	Platforms	No. 23	
6	Slips	25	
53	Screws	50	
4	Angle bars, 8 in.	54	
8	Strips, 2 in.	56	
8	,, 2½ ,,	57	
2	,, 3½ ,,	59	
2	,, 4 ,,	60	
2	,, 5½ ,,	61	
4	,, 8 ,,	63	
2	,, 12½ ,,	64	
4	Architraves	65	
12	Brackets	66	
2	Plates, 8×3 in.	67	
4	Wheels	76	
2	Axles, 3½ in.	77	
5	Collars	82	
1	Handle	83	
8	Washers	84	
1	Lamp	87	
1	Knob	92	
4	Catches	95	
2	Posts	96	
4	Wood screws	97	

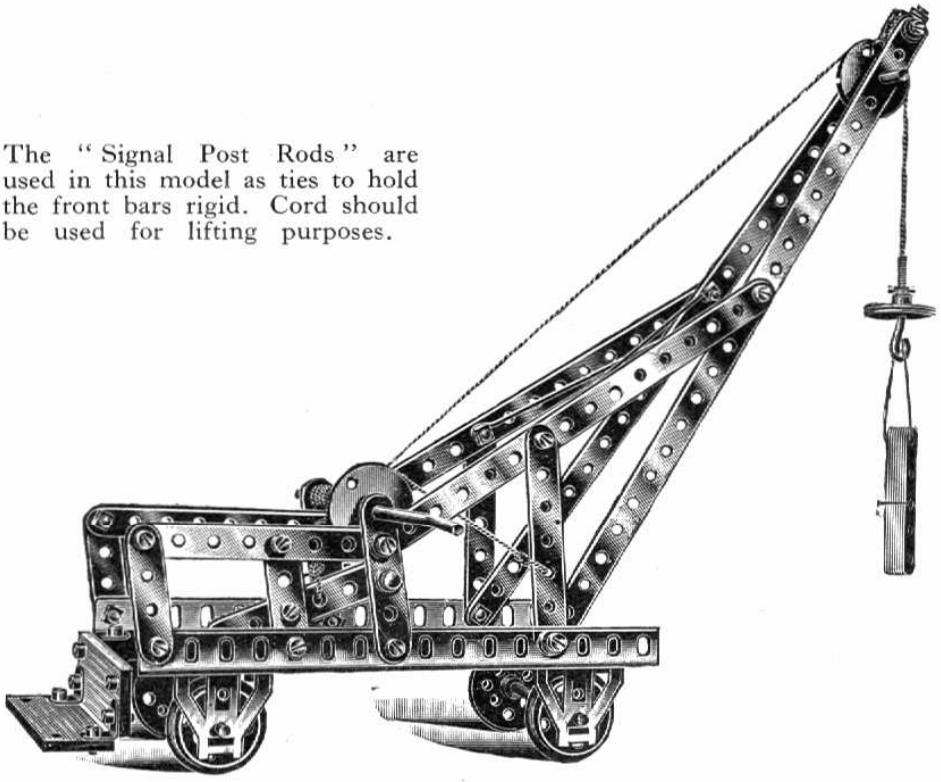
Heads of men cut from cardboard. A slit in wood should be made to wedge heads in.



Steam Navvy No. 208.

78	Screws	No. 50
2	Angle Bars, 6½ in.	,, 53
2	,, ,, 8 ,, ...	,, 54
2	,, ,, 12 ,, ...	,, 55
3	Strips, 2 in.	,, 56
9	,, 2½ ,, ...	,, 57
2	,, 3½ ,, ...	,, 59
1	,, 4 ,, ...	,, 60
4	,, 5½ ,, ...	,, 61
3	,, 6½ ,, ...	,, 62
2	,, 12½ ,, ...	,, 64
18	Brackets	,, 66
3	Plates, 8 × 3 in.	,, 67
2	,, 3 × 3 ,, ...	,, 68
4	Trunnions	,, 74
4	Wheels	,, 75
4	,, ...	,, 76
2	Axles, 3½ in.	,, 77
1	,, 2¾ ,, ...	,, 78
1	,, 1½ ,, ...	,, 79
5	Collars	,, 82
1	Handle	,, 83
9	Washers	,, 84
3	Buffers	,, 85
1	Coupling	,, 86
1	Catch	,, 95
2	Rods	,, 96

The "Signal Post Rods" are used in this model as ties to hold the front bars rigid. Cord should be used for lifting purposes.



Crane on Wheels No. 190.

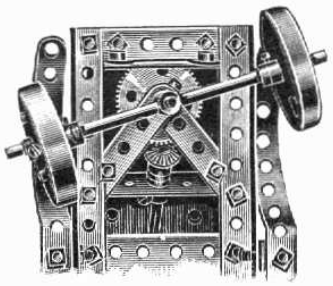
2	Slips, 3 × 1 in. ..	No. 25
36	Screws	,, 50
2	Angle bars, 8 in. ..	,, 54
3	Strips, 2 in. ..	,, 56
2	,, 2½ ,, ..	,, 57
1	,, 3 ,, ..	,, 58
2	,, 3½ ,, ..	,, 59
2	,, 4 ,, ..	,, 60
2	,, 8 ,, ..	,, 63
2	,, 12½ ,, ..	,, 64
7	Brackets	,, 66
1	Plate, 8 × 3 in. ..	,, 67
4	Trunnions ..	,, 74
4	Wheels	,, 75
3	,, ...	,, 76
2	Axles, 3½ in. ..	,, 77
1	,, 1½ ,, ..	,, 78
1	Collar	,, 82
1	Handle	,, 83
11	Washers	,, 84
1	Coupling	,, 85
1	Knob screw ..	,, 92
2	Rods	,, 96

MOTOR CAR BUILDING WITH PRIMUS ENGINEERING.

A motor-car is perhaps the most interesting and instructive model that can be built, and this can easily be done by anyone who has become acquainted with the possibilities of Primus Engineering.

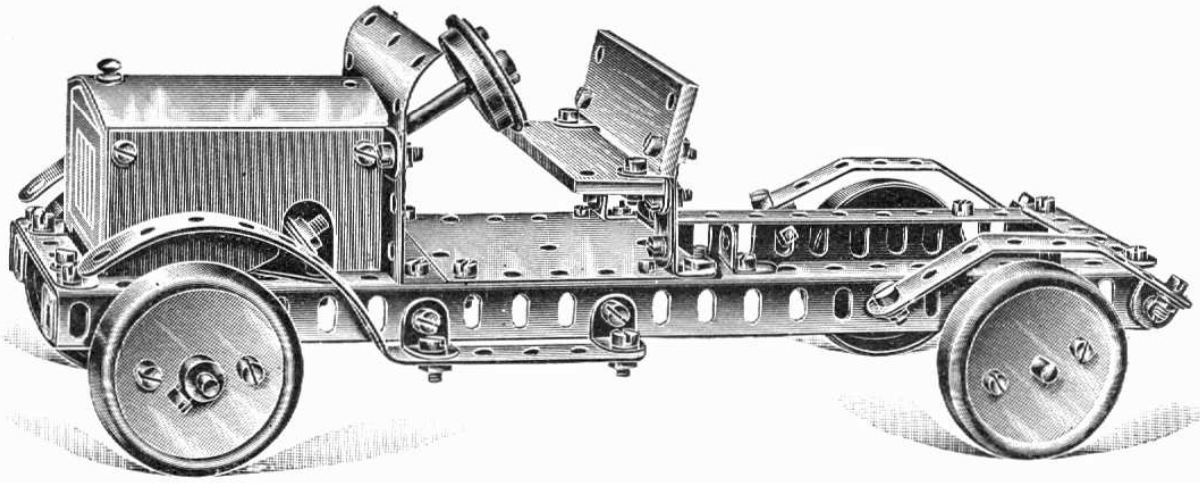
The models illustrated were constructed by a lad of thirteen years, following the method adopted in building real cars—first, the chassis (to which any body can be attached); then, as standard types, the W.D. Lorry and a smart coupé. These will give any young engineer the idea; and, having constructed the chassis, he will find it quite a simple matter to erect thereon bodies of any description.

The Steering Gear.



This must be built on to the frame before the bonnet is fitted.

1. Lay two $2\frac{1}{2}$-in. metal strips at angles as shown, and secure.
2. Place a $2\frac{1}{2}$-in. metal strip across the base of the triangle, and secure to brackets.
3. Fix No. 160 gear wheel to $1\frac{1}{2}$-in. axle, and pass through the ends of the $2\frac{1}{2}$-in. strips. Place washers on and secure with a double-tapped collar.
4. A $3\frac{1}{2}$-in. axle is then used for the steering pillar, which is passed through the centre hole of the dash plate and the $2\frac{1}{2}$-in. metal strip.
5. Secure with a collar, and use washers to adjust the bevel gear so that it engages in the large cog.
6. Fix the wheels to $2\frac{3}{8}$ in. tapped axles and screw into the doubled-tapped collar.



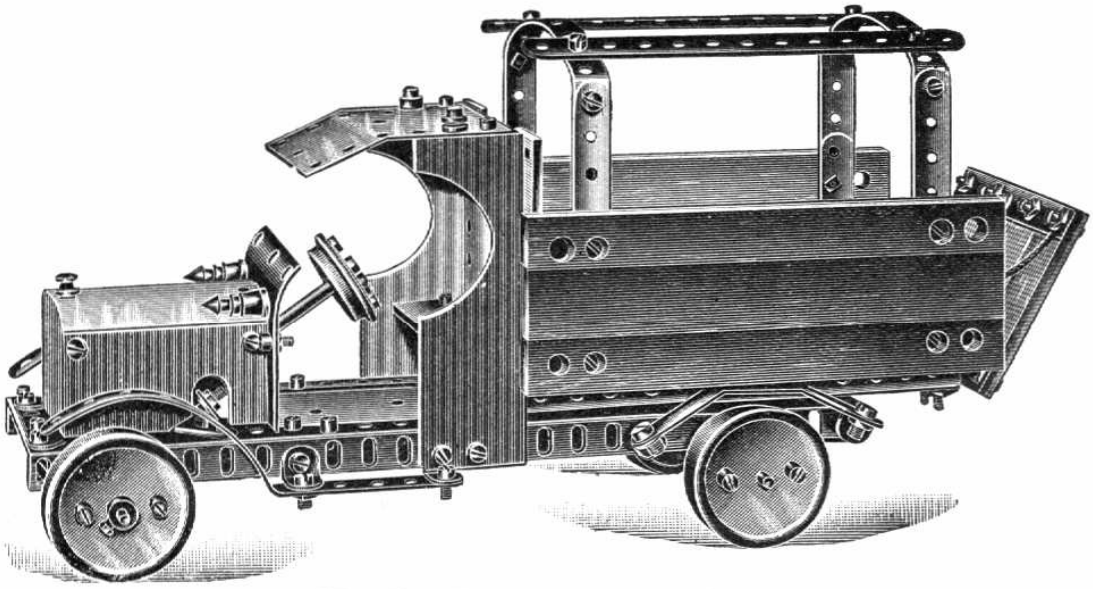
Motor-Car Chassis No. 209.

2	Slips	No.	25
71	Screws	,,	50
2	Strips, 2 in.	,,	56
4	,, $2\frac{1}{2}$,,	,,	57
1	Strip, 3 ,,	,,	58
2	Strips, 4 ,,	,,	60
2	,, $6\frac{1}{2}$,,	,,	62
2	,, 8 ,,	,,	63
22	Brackets	,,	66
3	Plates, 3×3	,,	68
2	Trunnions	No.	74
1	Wheel	,,	75
4	Wheels	,,	76
1	Axle Rod, $3\frac{1}{2}$ in.	,,	77
1	,, ,, $1\frac{1}{2}$,,	,,	79
8	Collars	,,	82
12	Washers	,,	84
4	Buffers	,,	85
1	Knob Screw	,,	92

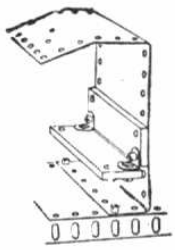
Extra Parts Required.

2	Angle Bars, 12 in.	No.	55
1	Collar	,,	82
1	$1\frac{5}{8}$-in. Cog	,,	160
1	Bevel Gear	,,	162
1	Axle, 6 in.	,,	165
2	Axles, $2\frac{3}{8}$ in.	,,	167
1	Collar	,,	168

The wheels are constructed with No. 76 pulleys, to which are bolted small tin box lids (powder boxes about 2 in. diameter). The bonnet is made by bending a No. 68 3×3 plate for the top and using cardboard for the front and sides. The dash is also made by bending a No. 68 3×3 plate.



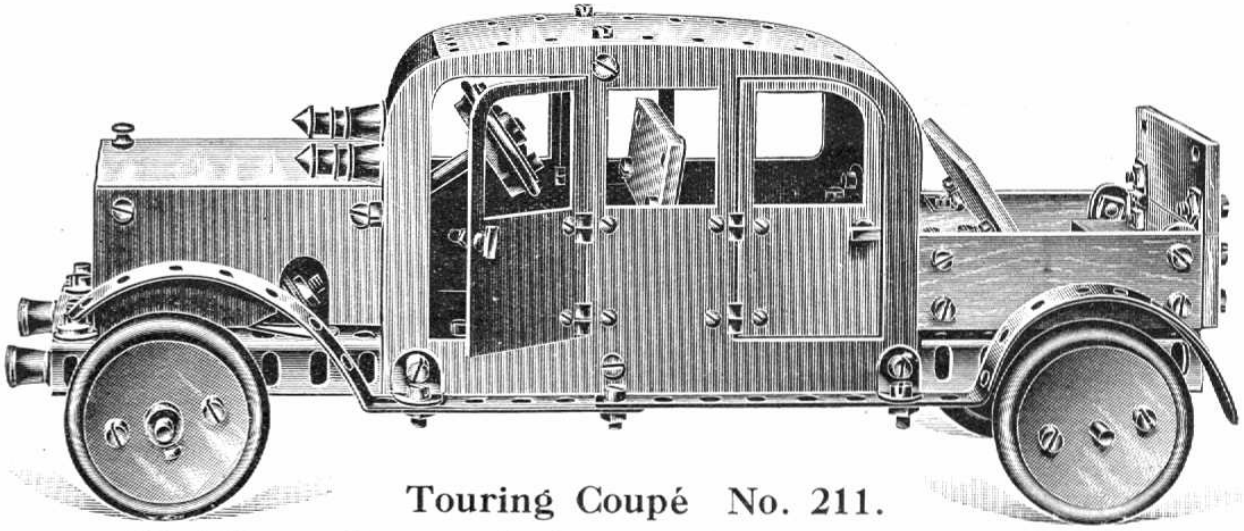
W. D. Wagon No. 210.



	No.		No.		No.		No.
4 Grooved Rails	1	2 Angle bars, 6½ in.	53	1 Strip, 4 in. ..	60	4 Brackets ..	66
2 Truck Sides ..	17	4 Strips, 2 in.	56	2 Strips, 5½ in.	61	1 Plate, 8 × 3 ..	67
6 Wood Slips ..	25	2 ,, 2½ ,, ..	57	2 ,, 6½ ,, ..	62	2 Hinges ..	72
49 Screws ..	50	4 ,, 3½ ,, ..	59	2 ,, 8 ,, ..	63	2 Lamps ..	87

Extra parts required : 2 Angle bars, 6½ in. No. 53 1 Strip, 2 in. No. 57

The driver's seat is made by bending an 8 × 3 plate as shown in illustration. Cut the sides out of cardboard. The body overlaps the wheels and is fitted by using two 6½ in. angle bars on each side.



Touring Coupé No. 211.

8 Wood Slips ..	No. 25	12 Brackets ..	No. 66	4 Hinges ..	No. 72
34 Screws ..	,, 50	2 Plates, 8 × 3 ..	,, 67	2 Lamps ..	,, 87

Extra parts required :

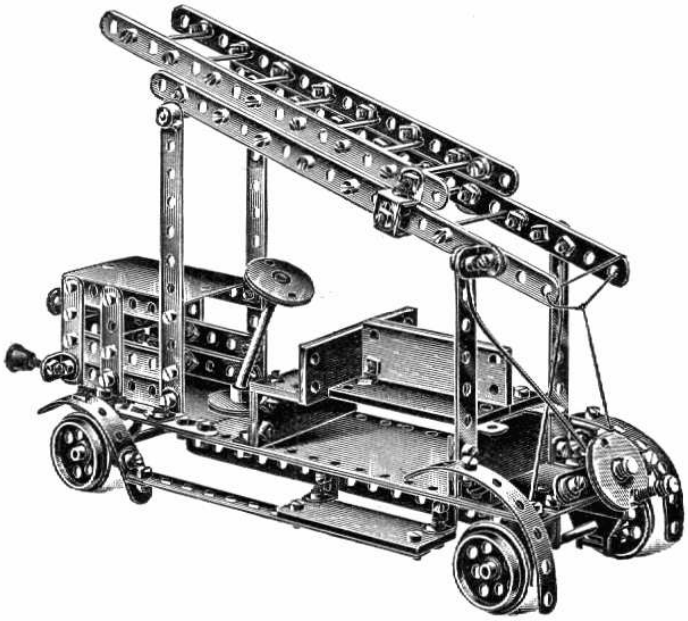
8 Hinges ..	No. 68	2 Turnbuttons	No. 89
2 Door Handles	,, 88	16 Screws ..	,, 91

Remove from chassis back mudguards and 3 × 3 plates in the floor, fix 8 × 3 plate to form whole floor, replace seat. The sides and doors of coupé are cut from cardboard, the opposite side being without doors. The top and back is formed out of one 8 × 3 plate ; the boot is fixed to the frame by means of brackets.

The back seat in the closed body is fitted to the 8 × 3 plate forming the top and back by two brackets. This should be done before the sides are fitted on.

The back seat in the boot is fitted to the wood slips forming the sides by brackets, the wood slip at back being secured to the base.

THESE MODELS ARE MADE WITH A No. 3 OUTFIT AND EXTRA PARTS.

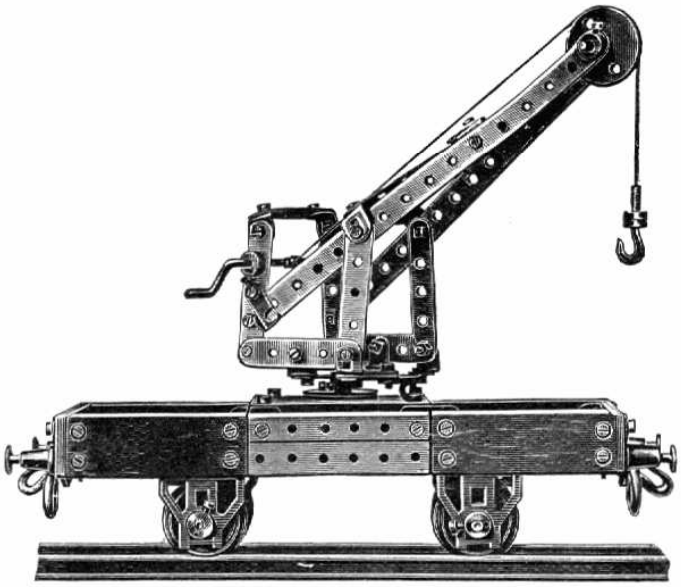


Fire Escape No. 207.

8	Slips 3×1 in.	No.	25
118	Screws ..	,,	50
2	Angle bars, 8 in.	,,	54
10	Strips, 2 in.	,,	56
3	,, 2½ ,,	,,	57
6	,, 3 ,,	,,	58
2	,, 3½ ,,	,,	59
4	,, 4 ,,	,,	60
2	,, 5½ ,,	,,	61
2	,, 6½ ,,	,,	62
4	,, 8 ,,	,,	63
35	Brackets ..	,,	66
1	Plate, 8×3 in.	,,	67
2	Plates, 3×3 in.	No.	68
4	Trunnions ..	,,	74
4	Wheels ..	,,	75
3	,, ...	,,	76
2	Axle Rods, 3½ in.	,,	77
5	Collars ..	,,	82
8	Washers ..	,,	84
4	Buffers ..	,,	85
2	Rods	,,	96

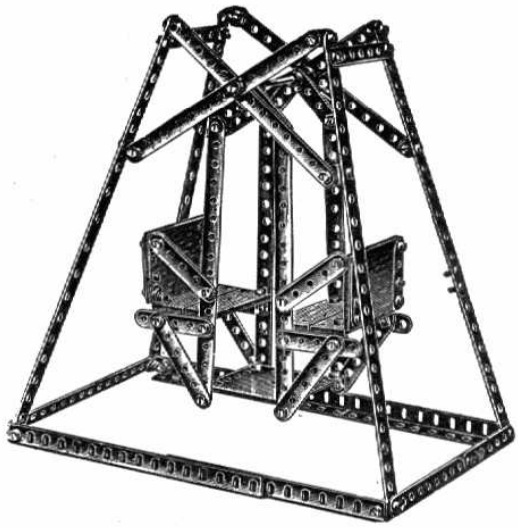
Extra Parts.

14	Tie Rods ..	No.	155
2	Strips, 3 in. ..	,,	58
1	Strip, 4 ,, ..	,,	60



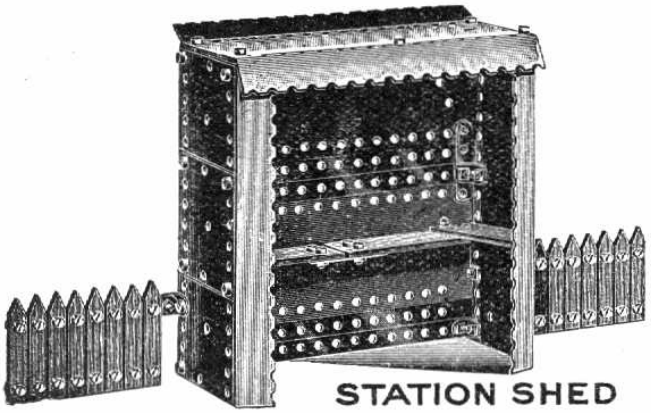
Crane Truck No. 189.

6	Slips 3×1 in.	No.	25
63	Screws ..	,,	50
2	Angle bars, 8 in.	,,	54
5	Strips, 2 in.	,,	56
8	,, 2½ ,,	,,	57
2	,, 4 ,,	,,	60
2	,, 8 ,,	,,	63
19	Brackets ..	,,	66
3	Plates, 3×3 in.	,,	68
4	Trunnions ..	,,	74
4	Wheels ..	No.	75
2	,, ..	,,	76
2	Axles, 3½ in. ..	,,	77
1	Axle, 1½ in. ..	,,	79
8	Collars ..	,,	82
1	Handle ..	,,	83
12	Washers ..	,,	84
4	Buffers ..	,,	85
2	Couplings ..	,,	86
1	Knob screw ..	,,	92
1	Catch ..	,,	95

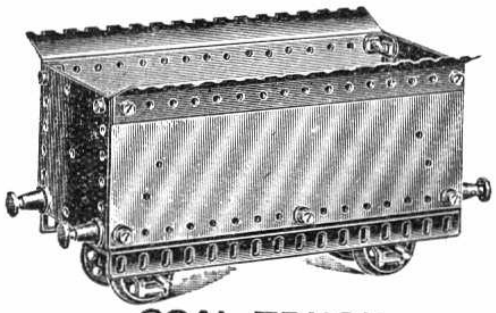


Swing No. 199.

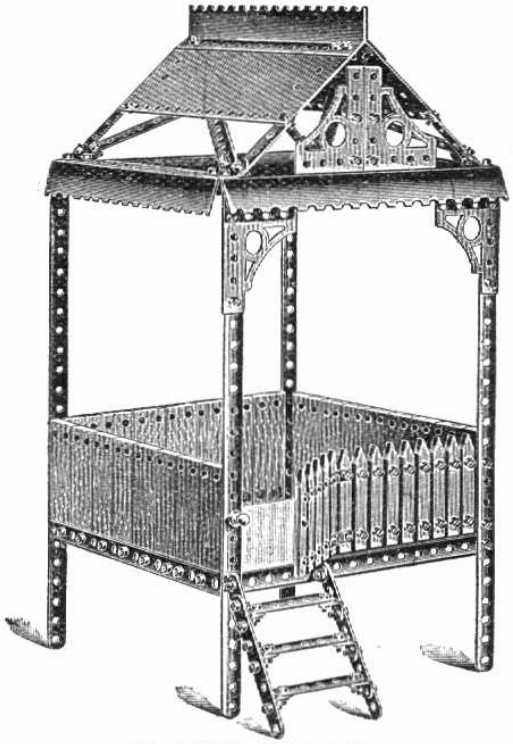
8	Slips 3×1 in.	No.	25
85	Screws ..	,,	50
2	Angle bars, 6½in.	,,	53
2	,, ,, 8 ,,	,,	54
8	Strips, 2 in.	,,	56
6	,, 2½ ,, ..	,,	57
4	,, 3 ,, ..	,,	58
3	,, 3½ ,,	,,	59
2	Strips, 5½ in.	No.	61
4	,, 6½ ,,	,,	62
6	,, 8 ,,	,,	63
3	,, 12½ ,,	,,	64
34	Brackets ..	,,	66
1	Plate, 3×3 in.	,,	68
1	Axle, 3½ in. ..	,,	77
6	Collars ..	,,	82



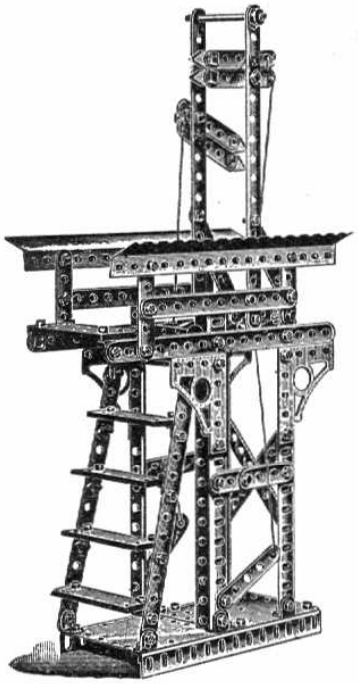
STATION SHED



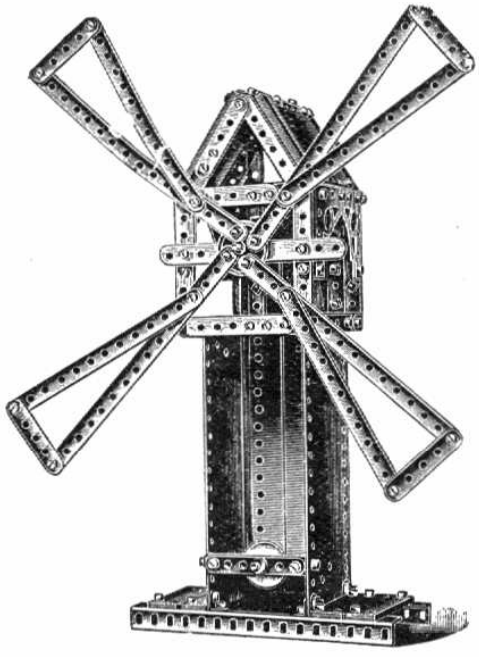
COAL TRUCK



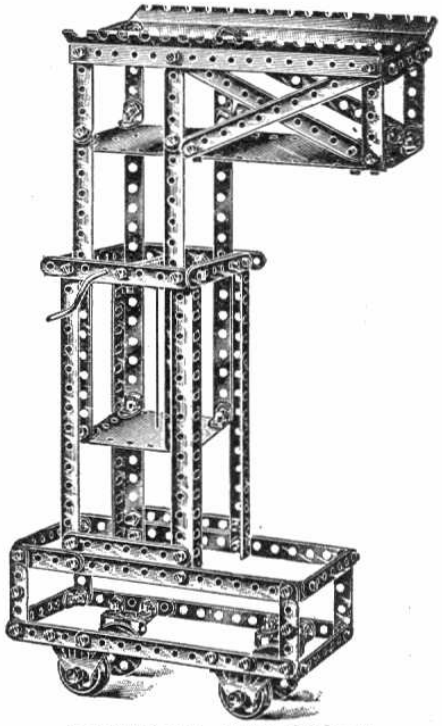
BANDSTAND



SIGNAL GANTRY



WINDMILL



TOWER WAGON

THESE MODELS ARE MADE WITH A No. 3 OUTFIT.

These models are made with

PRIMUS ENGINEERING

No. 4 OUTFIT

Models shown on pages from No. 27 can also be made with this outfit.

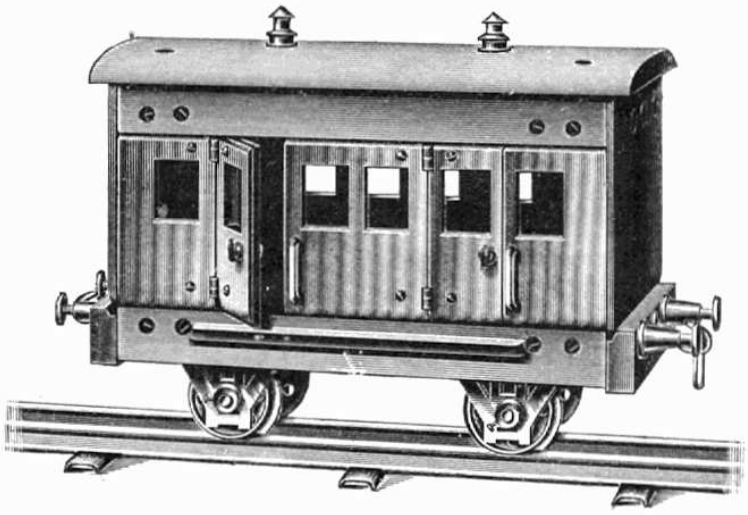
Passenger Coach No. 254.

1. Make up the whole metal frame and be careful in fixing brackets.

2. Fit on side rails, one buffer block and one end.

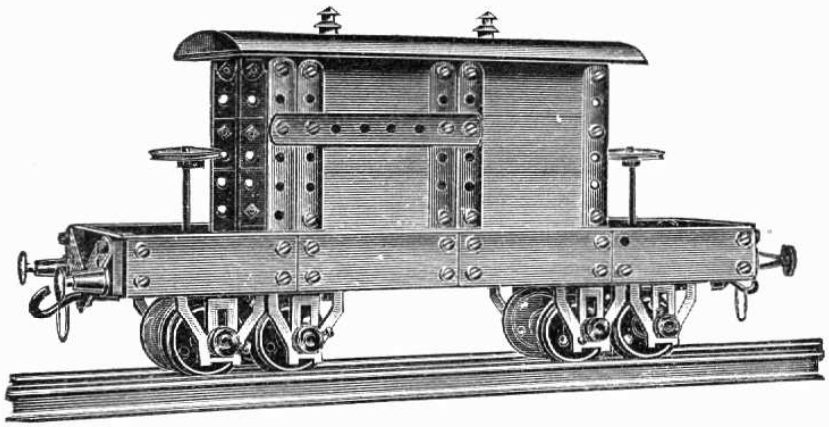
3. Slide windows and doors in the grooves—put in floor.

4. Fix on second buffer block and then the second end. The screw for fastening this should be put in, and the nut carefully adjusted inside by opening the two doors and sliding the windows along to give space. The floor is fitted in same as in Heavy Goods Truck, No. 116, page 44.



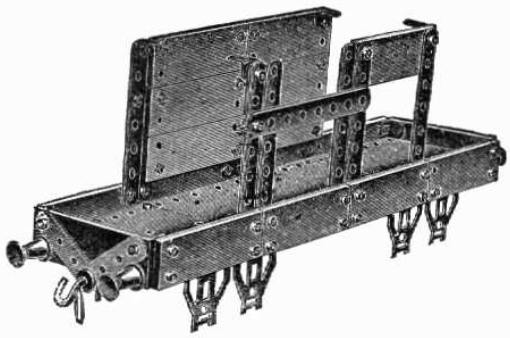
2	Side rails	No.	1
2	,, ,,	,,	2
2	Carriage ends	,,	3
2	Blocks	,,	4
2	Windows	,,	5
2	,,	,,	6
4	Doors	,,	7
2	Central Windows	,,	8
1	Floor	,,	9
1	Roof	,,	10
40	Screws	,,	50
2	Angle bars, 6½ in.	,,	53
3	Strips, 2½ in.	,,	57
4	,, 3½ ,,	,,	59
2	,, 6½ ,,	,,	62

14	Brackets	No.	66
8	Hinges	,,	73
4	Trunnions	,,	74
4	Wheels	,,	75
2	Axles, 3½ in.	,,	77
4	Collars	,,	82
4	Washers	,,	84
4	Buffers	,,	85
2	Couplings	,,	86
2	Lamps	,,	87
4	Handles	,,	88
4	Turnbuttons	,,	89
4	Side rails	,,	90
16	Screws and nuts	,,	91



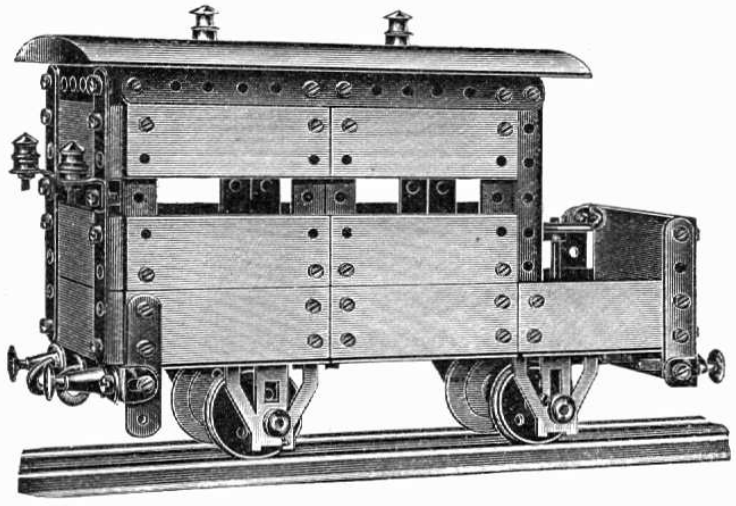
Double Brake Van
No. 256.

1	Roof	No. 10
22	Wood slips, 3 × 1 in.	,, 25
84	Screws	,, 50
2	Angle bars, 12 in.	,, 55
4	Strips, 2 in.	,, 56
10	,, 3½ ,,	,, 59
2	,, 4 ,,	,, 60
12	Brackets	,, 66
1	Metal plate, 8 × 3 in.	,, 67
2	,, plates, 3 × 3 ,,	,, 68
8	Trunnions	,, 74
8	Flanged wheels	,, 75
2	Grooved wheels	,, 76
4	Axle rods, 3½ in.	,, 77
2	,, ,, 2¾ ,,	,, 78
12	Collars	,, 82
12	Washers	,, 84
4	Buffers	,, 85
2	Coupling hooks	,, 86
2	Lamps	,, 87



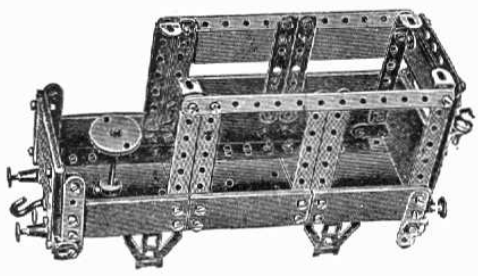
Fit the No. 25 slips inside the frame ; this is important, as the roof screw-holes are 2-in. centres, and by fixing the brackets inside the wood body at back this width will be found exact. Washers are used between the brackets and 3½-in. strips in the front to adjust the width.

The base is composed of one 8-in. plate and two 3-in. plates bolted together.



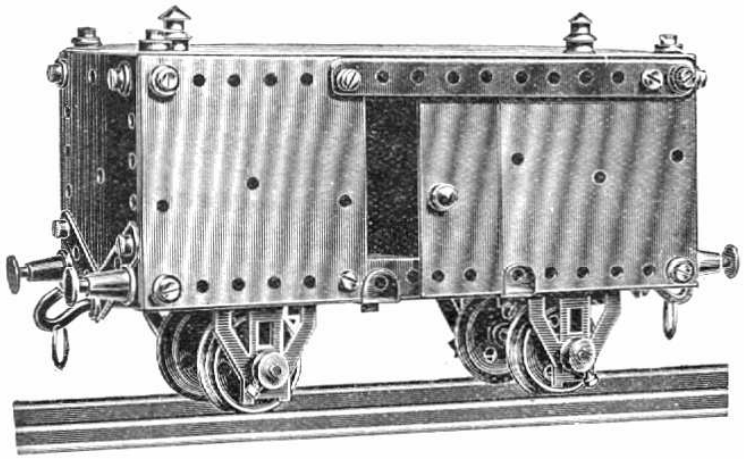
Single Brake Van
No. 257.

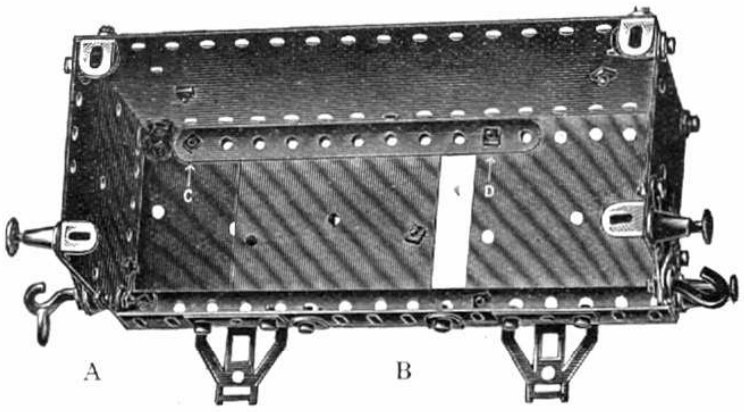
1	Roof	No. 10
19	Wood slips, 3 × 1 in.	,, 25
72	Screws	,, 50
2	Angle bars, 8 in.	,, 54
4	Strips, 2 in.	,, 56
2	,, 2½ ,,	,, 57
2	,, 3 ,,	,, 58
12	,, 3½ ,,	,, 59
3	,, 4 ,,	,, 60
2	,, 6½ ,,	,, 62
16	Brackets	,, 66
3	Metal plates, 3 × 3 in.	,, 68
4	Trunnions	,, 74
4	Flanged wheels	,, 75
1	Grooved wheel	,, 76
2	Axles, 3½ in.	,, 77
1	Axle, 2¾ in.	,, 78
6	Collars	,, 82
18	Washers	,, 84
4	Buffers	,, 85
2	Coupling hooks	,, 86
4	Lamps	,, 87



Build the chassis like Truck No. 113 on page 44. The No. 25 slips are fitted **outside** the frame, and washers are used to adjust the brackets to fit roof.

The base plates are bolted on to the angle bars **below** and secured by the screws that fix the trunnions.





Armoured Truck No. 261.

WITH SLIDING DOOR.

38 Screws ..	No. 50	2 Axles, 3½ in. ..	No. 7
2 Angle bars, 8in.	,, 54	4 Collars ..	,, 8
4 Strips, 2 in.	,, 56	34 Washers ..	,, 8
4 ,, 5½ ,,	,, 61	4 Buffers ..	,, 8
16 Brackets ..	,, 66	2 Couplings ..	,, 8
2 Plates ..	,, 67	2 Lamps ..	,, 8
8 ,, ...	,, 68	2 Knobscrews ..	,, 9
4 Wheels ..	,, 75		

1. Fix Trunnions on angle bars.

2. Fix up the two ends, fix buffers and a washer beneat each ; see that the brackets are right way ; put two washe beneath each screw in the corners ; then fit 2 in. strips an coupling hooks.

3. Fit on the plates for one side, and note when fixing th 5½-in. strips one goes inside and one out, and washers mus be put between the inside strip, at C and D, and the 3 × in. plates, so as to allow for the door to slide in, also washe must be put between plates and angle bars at A and B.

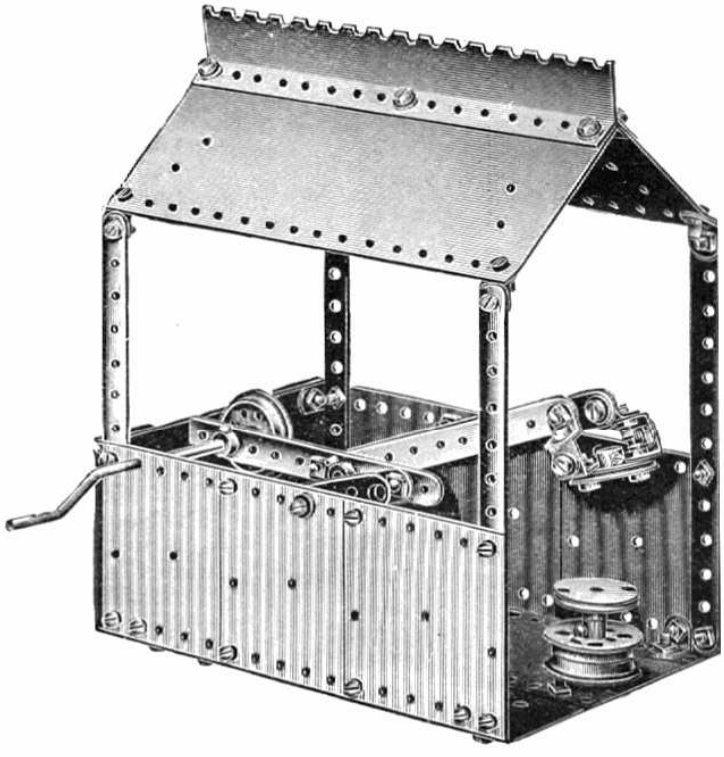
4. Fix on roof with lamps, and lay floor loose inside.

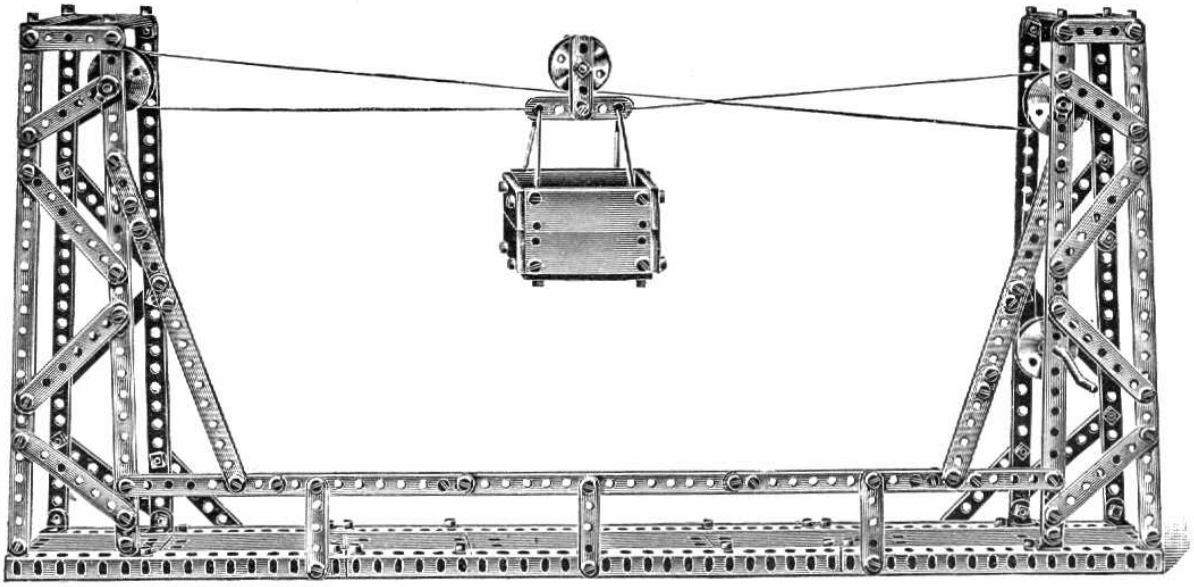
5. Fit on second angle bar and remainder of 2-in. side The second door can then be slipped in the groove an secured by the two angle brackets. Knob screws fo handles can be fixed last, and the floor will rest on the screw of buffers. Wheels are fitted as in other models.

Automatic Hammer in Shed No. 265.

2	Slips	No. 25
70	Screws	,, 50
5	Strips, 2 in.	,, 56
3	,, 2½ ,, ...	,, 57
1	Strip, 3 ,, ...	,, 58
1	,, 3½ ,, ...	,, 59
2	Strips, 5½ ,, ...	,, 61
4	,, 6½ ,, ...	,, 62
24	Brackets	,, 66
4	Plates, 8 × 3 in.	,, 67
7	,, 3 × 3 ,, ...	,, 68
1	Ridge, 8 in.	,, 70
3	Wheels	,, 75
2	,, ...	,, 76
1	Axle, 3½ in.	,, 77
1	,, 2 ,, ...	,, 79
7	Collars	,, 82
1	Axle	,, 83
19	Washers	,, 84

The hammer works on a similar principle to that illustrated on page 42.

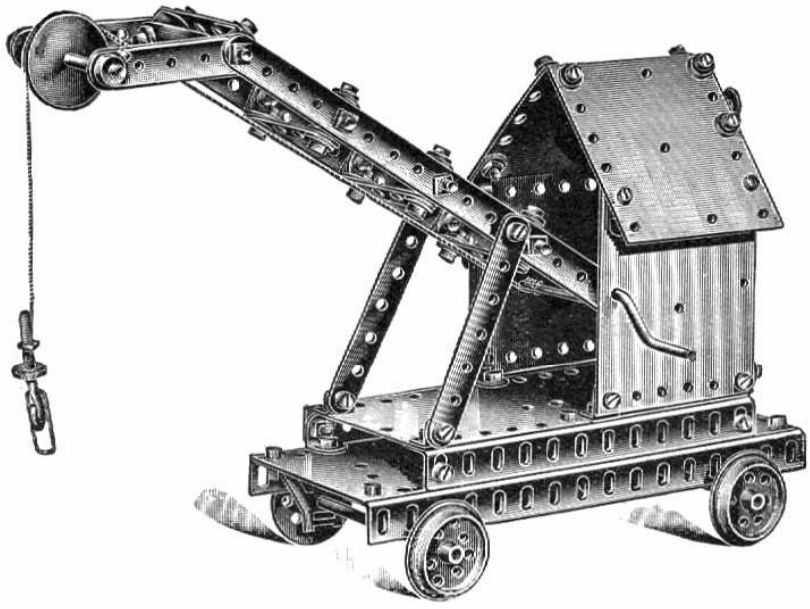




Transporter Bridge No. 262.

11	Slips, 3 × 1 in.	No. 25	3	Strips, 4 in.	No. 60	4	Wheels	No. 75
144	Screws	,, 50	3	,, 5½ ,, ...	,, 61	2	,, ...	,, 76
4	Angle bars, 8 in. ..	,, 54	3	,, 6½ ,, ...	,, 62	2	Axles, 3½ in.	,, 77
2	,, ,, 12 ,, ..	,, 55	6	,, 8 ,, ...	,, 63	8	Collars	,, 82
12	Strips, 2 in.	,, 56	3	,, 12 ,, ...	,, 64	1	Handle	,, 83
8	,, 2½ ,, ...	,, 57	28	Brackets	,, 66	20	Washers	,, 84
7	,, 3 ,, ...	,, 58	3	Plates, 8 × 3 in.	,, 67	2	Knob screws	,, 92
14	,, 3½ ,, ...	,, 59	2	,, 3 × 3 ,, ...	,, 68	2	Signal rods	,, 96

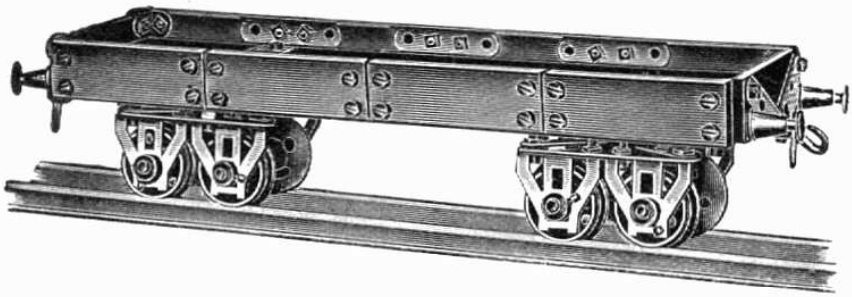
Use cord for working this model.

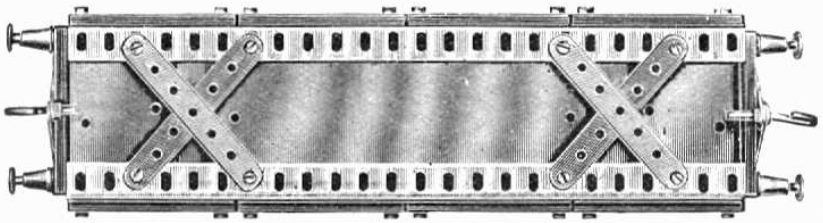


Crane Truck No. 315.

72	Screws	No. 50	4	Wheels	,, 75
2	Angle bars, 6½ in. ..	,, 53	1	Wheel	,, 76
2	,, ,, 8 ,, ...	,, 54	2	Axles, 3½ ,, ...	,, 77
8	Strips, 2 in.	,, 56	1	,, 2¾ ,, ...	,, 78
5	,, 2½ ,, ...	,, 57	3	Collars	,, 82
2	,, 3½ ,, ...	,, 59	32	Washers	,, 84
2	,, 8 ,, ...	,, 63	1	Coupling	,, 86
39	Brackets	,, 66			
1	Plate, 8 × 3 in.	,, 67			
7	Plates, 3 × 3 in.	,, 68			

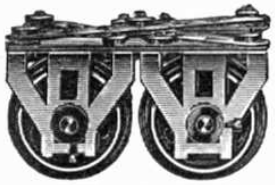
Use cord for working.





Express Truck on Bogies No. 258.

10	Slips, 3 × 1 in.	No. 25
64	Screws	,, 50
2	Angle bars, 12 in.	,, 55
10	Strips, 2 in.	,, 56
4	,, 3 ,,	,, 58
8	,, 3½ ,,	,, 59
8	Brackets	,, 66
1	Plate, 8 × 3 in.	,, 67
2	Plates, 3 × 3	,, 68
8	Trunnions	,, 74
8	Wheels	,, 75
4	Axles, 2¾ in.	,, 78
8	Collars	,, 82
22	Washers	,, 84
1	Buffer	,, 85
2	Couplings	,, 86
2	Knobs	,, 92



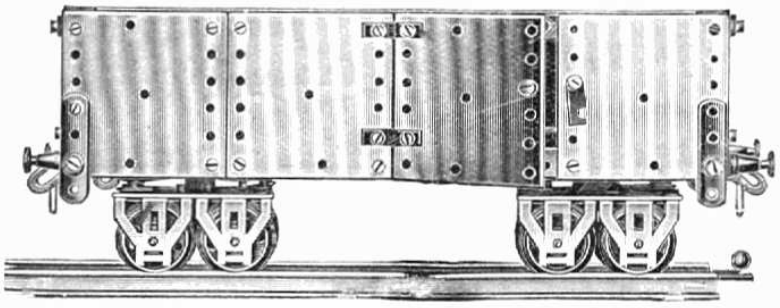
ELEVATION OF BOGIE.

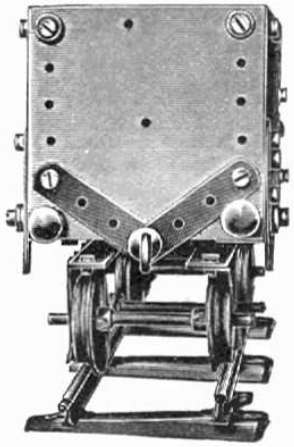
BOGIE FRAME.

The Bogie frame is made up with two 3-in. strips for sides and two 3½-in. strips for cross-pieces ; washers are set on the screws at opposite corners to level up the cross-strips.

It is secured to the truck through the central holes of end base plates by means of knob screws double nutted, and washers are used on the screws to provide clearance for the truck to swing on the bogies.

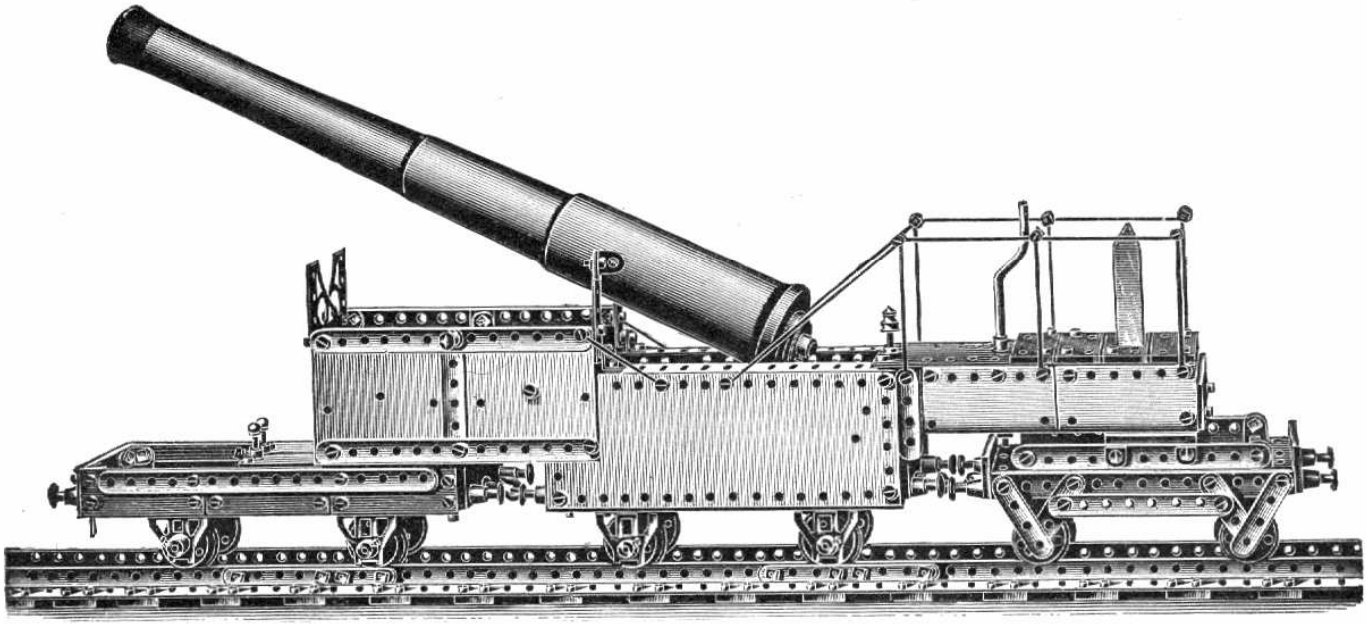
Express Coal Truck on Bogies No. 259 (All Metal).





The ends should be fitted to the angle bars first and the sides fitted on afterwards.
The base and frames are made up as on the Express bogie truck.
Washers are again important, and two each are used on the corner screws at ends and lower screws at sides, beneath the buffers and on the knob screws and bogie frames.

66	Screws	No. 50
2	Angle bars, 12 in.	,, 55
10	Metal strips 2 in.	,, 56
4	,, ,, 3 ,,	,, 58
8	,, ,, 3½ ,,	,, 59
8	Brackets	,, 66
14	Metal plates, 3 × 3 in.	No. 68
4	Straight hinges	,, 72
8	Trunnions	,, 74
8	Flanged wheels	,, 75
3	Axles, 2¾ in.	,, 78
8	Collars	,, 82
28	Washers	No. 84
4	Buffers	,, 85
2	Coupling hooks	,, 86
2	Knob screws	,, 92
2	Catches	,, 95



Long Range Naval Gun on Railway Trucks No. 270.

19	Wood slips, 3 × 1 in.	No. 25
139	Screws	,, 50
2	Angle bars, 6 in.	,, 53
4	,, ,, 8 ,,	,, 54
2	,, ,, 12 ,,	,, 55
10	Metal strips 2 in.	,, 56
4	,, ,, 2½ ,,	,, 57
8	,, ,, 3 ,,	,, 58
2	,, ,, 3½ ,,	,, 59
2	,, ,, 5½ ,,	,, 61
4	,, ,, 6½ ,,	,, 62
2	,, ,, 8 ,,	,, 63
2	Architraves	,, 65
40	Brackets	,, 66
4	Metal plates, 8 × 3 in.	,, 67
11	,, ,, 3 × 3 ,,	,, 68
8	Trunnions	,, 74
8	Flanged wheels	,, 75
4	Pulley wheels	,, 76
4	Axles, 3½ in.	No. 77
13	Collars	,, 82
1	Handle	,, 83
14	Washers	,, 84
4	Buffers	,, 85
3	Couplings	,, 86
1	Lamp	,, 87
3	Knob screws	,, 92
2	Signal rods	,, 96
2	Wood screws	,, 97

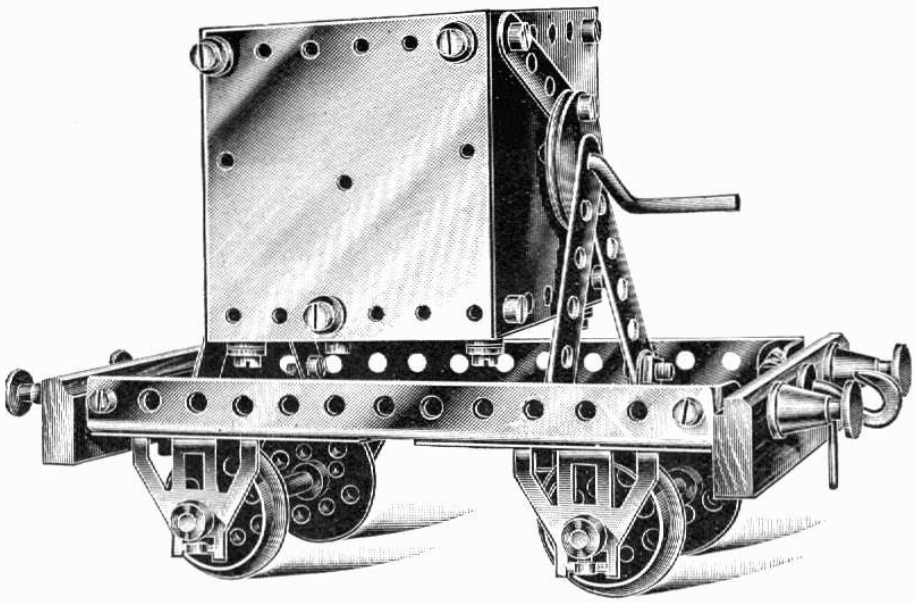
Extra parts required.

2	Axles, 3½ in.	,, 77
3	Collars	,, 82
8	Buffers	,, 85
2	Wire stays	,, 154
10	,, ,,	,, 155
1	Pulley wheel	,, 158

1. Make each truck separately and then couple up.
2. The fitting platform is made by bending the No. 68 plates.
3. The gun can be made of paper or a piece of wood can be turned to shape ; fix with wood screws.
4. By means of a cord attached to the gun, passing through a bracket in the base of large truck, and thence to the winding handle the gun can be elevated to any desired angle.

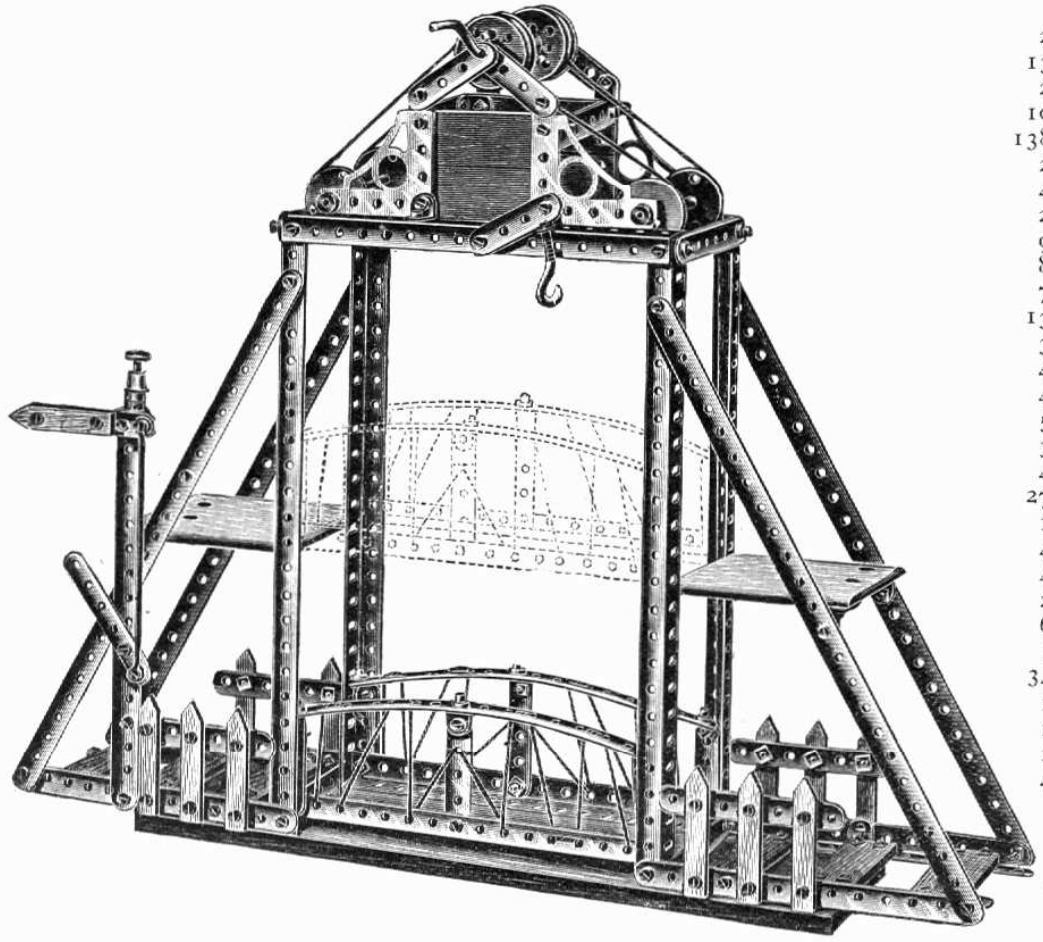
Parts for Building Railway Track.

17	Wood slips, 3 × 1 in.	No. 25
84	Screws	,, 50
2	Angle bars, 8 in.	,, 54
4	Angle bars, 12 in.	No. 55
4	Metal strips, 4 in.	,, 60



Tipping Truck No. 255.

2	Blocks	No. 4
39	Screws	,, 50
2	Angle bars, 6½ in.	,, 53
1	Strip, 2 in.	,, 56
4	Strips, 3 in.	,, 58
18	Brackets	,, 66
7	Plates	,, 68
4	Trunnions	,, 74
4	Wheels	,, 75
1	Wheel	,, 76
2	Axle rods, 3½ in.	,, 77
5	Collars	,, 82
1	Handle	,, 83
28	Washers	,, 84
4	Buffers	,, 85
2	Couplings	,, 86



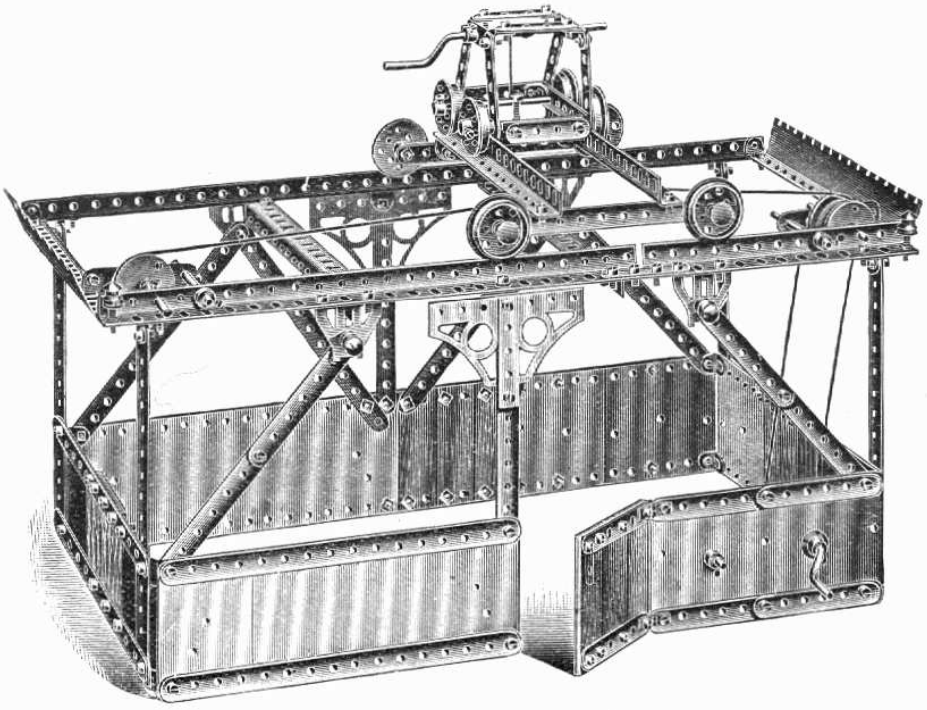
Viaduct Bridge No. 268.

2	Ends	No. 3
13	Posts	,, 11
2	Platforms	,, 23
10	Slips, 3×1 in.	,, 25
138	Screws	,, 50
2	Angle bars, 6½ in.	,, 53
4	,, ,, 8 ,,	,, 54
2	,, ,, 12 ,,	,, 55
9	Strips, 2 in.	,, 56
8	,, 2½ ,,	,, 57
7	,, 3 ,,	,, 58
13	,, 3½ ,,	,, 59
3	,, 4 ,,	,, 60
4	,, 5½ ,,	,, 61
4	,, 6½ ,,	,, 62
5	,, 8 ,,	,, 63
3	,, 12½ ,,	,, 64
4	Architraves	,, 65
27	Brackets	,, 66
1	Plate	,, 67
4	Wheels	,, 75
4	,,	,, 76
2	Axles, 3½ in.	,, 77
6	Collars	,, 82
1	Handle	,, 83
34	Washers	,, 84
1	Buffer	,, 85
1	Coupling	,, 86
1	Rod	,, 96
4	Wood screws	,, 97

Extra parts required :

2	12½ in. Metal Strips	,, 64

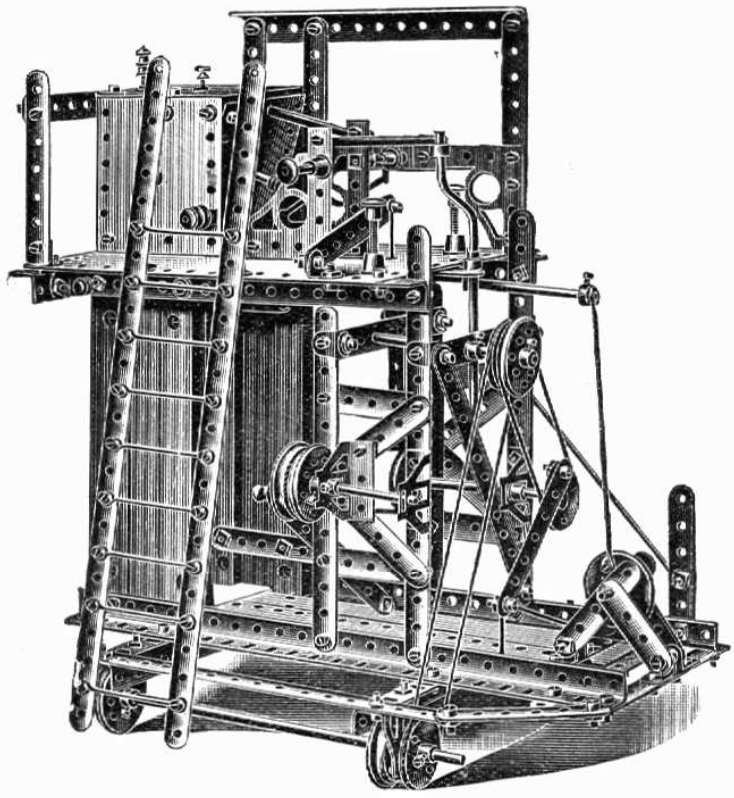
The cord is gripped between the two sets of flanged wheels at the top. The handle axle must always be turned to the right to raise the bridge.



Overhead Travelling Crane No. 267.

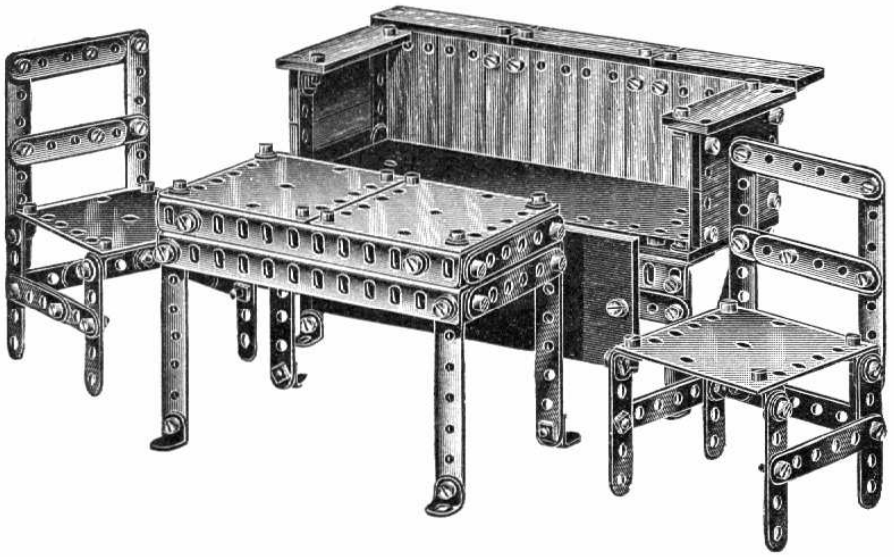
	No.		No.
12 Slips, 3 × 1 in.	25	8 Plates ..	68
44 Screws ..	50	2 Eaves, 8 in.	71
2 Angle bars :		2 Hinges ..	72
6½ in...	53	4 Trunnions	74
4 ,, 8 ,, ..	54	8 Wheels ..	75
2 ,, 12 ,, ..	55	4 ,, ..	76
10 Strips, 2 in.	56	2 Axles 3½ in.	77
8 ,, 2½ ,,	57	5 ,, 2¾ ,,	78
8 ,, 3 ,,	58	11 Collars ..	82
14 ,, 3½ ,,	59	1 Handle ..	83
3 ,, 4 ,,	60	36 Washers ..	84
4 ,, 5½ ,,	61	4 Buffers ..	85
4 ,, 6½ ,,	62	1 Coupling ..	86
6 ,, 8 ,,	63	4 Lamps ..	87
3 ,, 12½ ,,	64	1 Catch ..	95
4 Architraves	65	**Extra part :**	
31 Brackets ..	66	1 Handle ..	83
2 Plates ..	67		

Collars of buffers are used on lower winch gear.
Screws of buffers are used on travelling trolley.



Gas Regenerator No. 269.

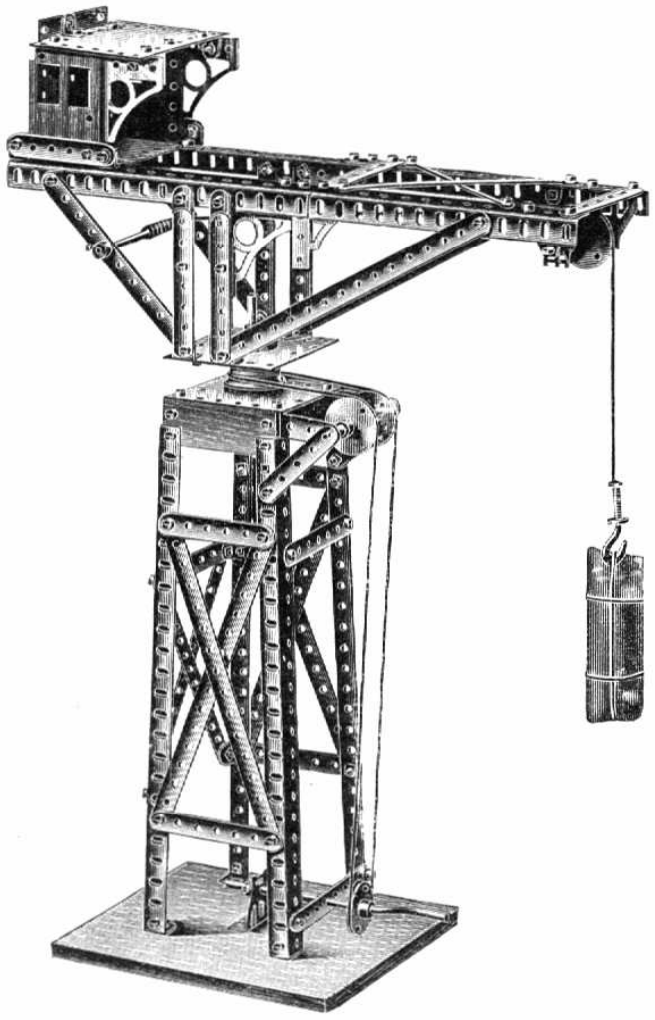
	No.		No.
4 Side rails.. ..	1	4 Plates, 3 × 3 ..	68
2 Truck sides ..	17	8 Trunnions ..	74
144 Screws	50	8 Wheels	75
2 Angle bars, 6½ in.	53	4 ,, ...	76
4 ,, ,, 8 ,,	54	4 Axles, 3½ in. ..	77
2 ,, ,, 12 ,,	55	3 ,, 2¾ ,, ..	78
9 Strips, 2 in. ..	56	1 ,, 1½ ,, ..	79
6 ,, 2½ ,, ..	57	16 Collars	82
6 ,, 3 ,, ..	58	1 Handle	83
7 ,, 3½ ,, ..	59	13 Washers	84
3 ,, 4 ,, ..	60	4 Buffers	85
4 ,, 5½ ,, ..	61	3 Lamps	87
3 ,, 6½ ,, ..	62	3 Knob screws ..	92
3 ,, 8 ,, ..	63	2 Rods	96
2 ,, 12½ ,, ..	64	6 Wood screws ..	97
4 Architraves ..	65	**Extra Parts :**	
31 Brackets	66	4 Collars	82
4 Plates, 8 × 3 ..	67	2 Axles, 8 in. ..	166



Smoking Lounge No. 309.

LOUNGE, TABLE AND TWO CHAIRS.

1	Floor	No. 9
17	Slips, 3 × 1 in.	,, 25
124	Screws	,, 50
4	Angle bars	,, 52
2	,, ,,	,, 54
16	Strips, 2 in.	,, 56
15	,, 2½ ,,	,, 57
8	,, 3 ,,	,, 58
5	,, 3½ ,,	,, 59
3	,, 4 ,,	,, 60
48	Brackets	,, 66
1	Plate	,, 67
4	Plates	,, 68
24	Washers	,, 84



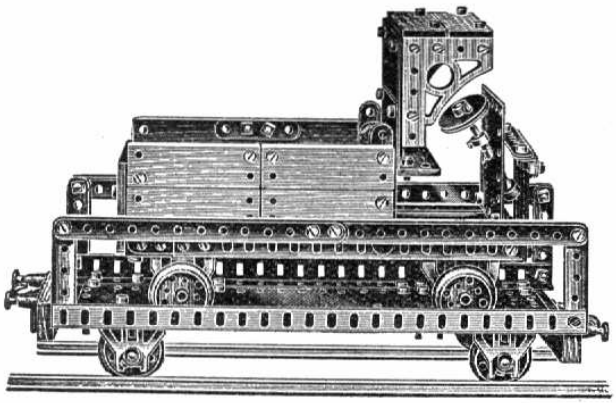
Girder Crane No. 266.

2	Windows	No. 8
2	Slips	,, 25
86	Screws	,, 50
2	Angle bars, 6½ in.	,, 53
2	,, ,, 8 ,,	,, 54
2	,, ,, 12 ,,	,, 55
6	Strips, 2 in.	,, 56
2	,, 2½ ,,	,, 57
4	,, 3 ,,	,, 58
8	,, 3½ ,,	,, 59
3	,, 4 ,,	,, 60
2	,, 5½ ,,	,, 61
2	,, 6½ ,,	,, 62
6	,, 8 ,,	,, 63
2	,, 12½ ,,	,, 64
4	Architraves	,, 65
26	Brackets	,, 66
7	Plates	,, 68
3	Trunnions	,, 74
4	Wheels	,, 75
3	,,	,, 76
3	Axles, 3½ in.	,, 77
11	Collars	,, 82
1	Handle	,, 83
20	Washers	,, 84
1	Coupling Hook	,, 86
4	Screws and nuts	,, 91
2	Rods	,, 96
6	Wood screws	,, 97

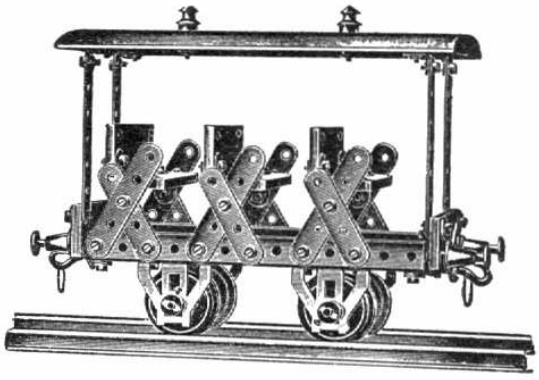
Extra part required.

1	Handle	,, 83

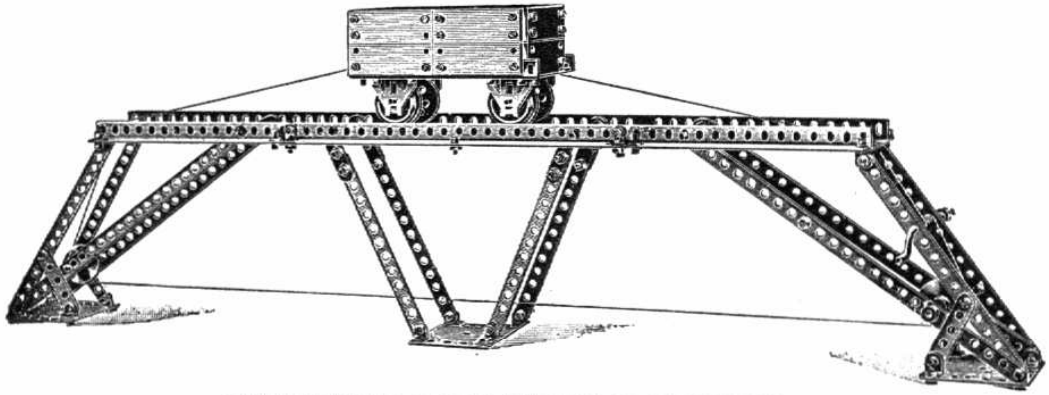
This model should be fixed to a wood base by means of No. 97 wood screws.



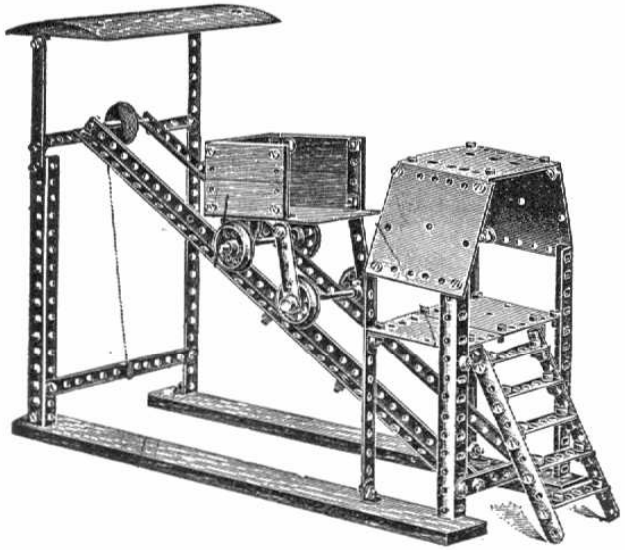
MOTOR TRANSPORT TRUCK



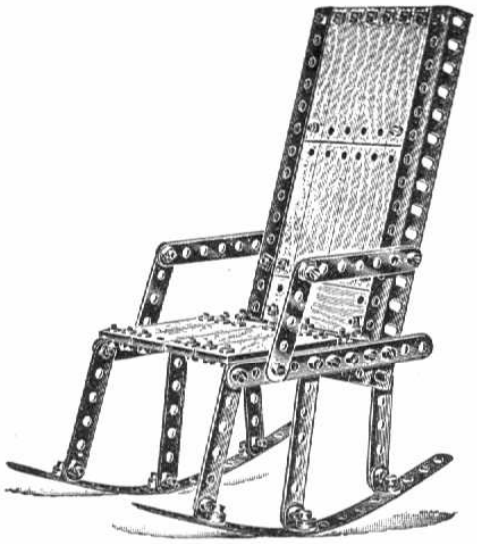
TOURIST CAR



OVERHEAD TRAVELLING TRUCK



MOUNTAIN RAILWAY



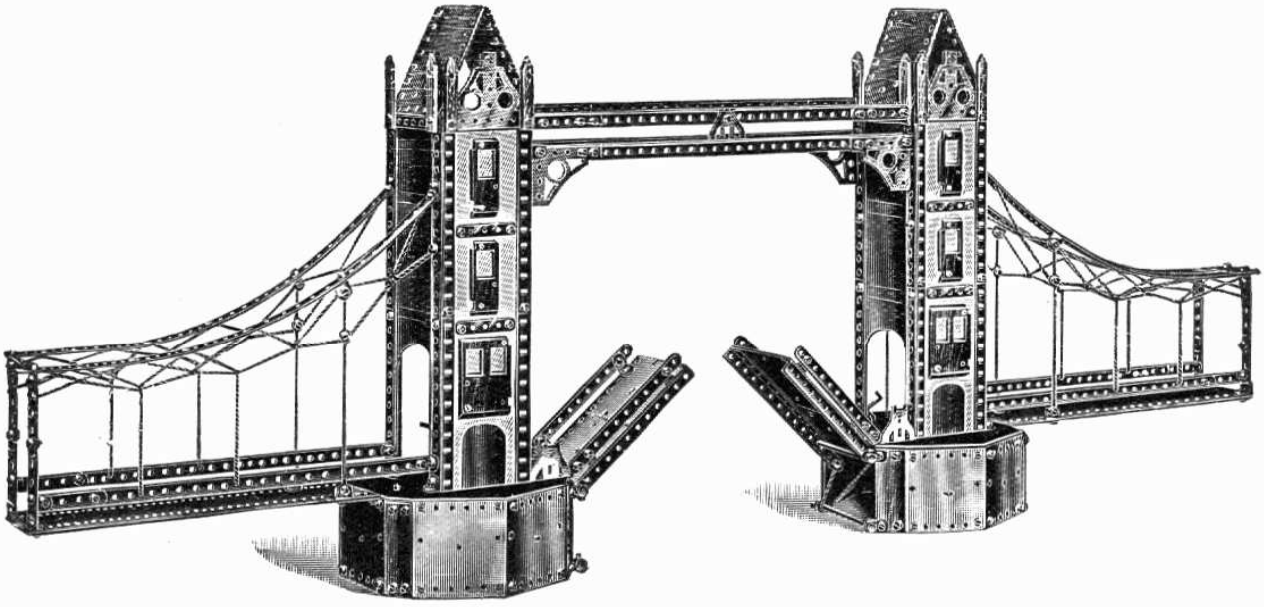
ROCKING CHAIR

These models are made with

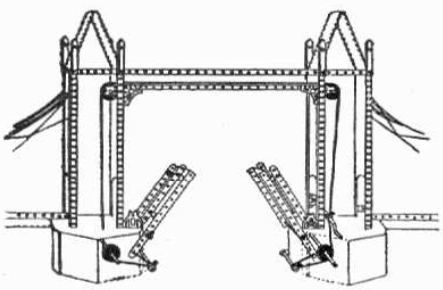
PRIMUS ENGINEERING

No. 5 OUTFIT

Models shown on pages from No. 27 can also be made with this outfit.



Tower Bridge No. 365.

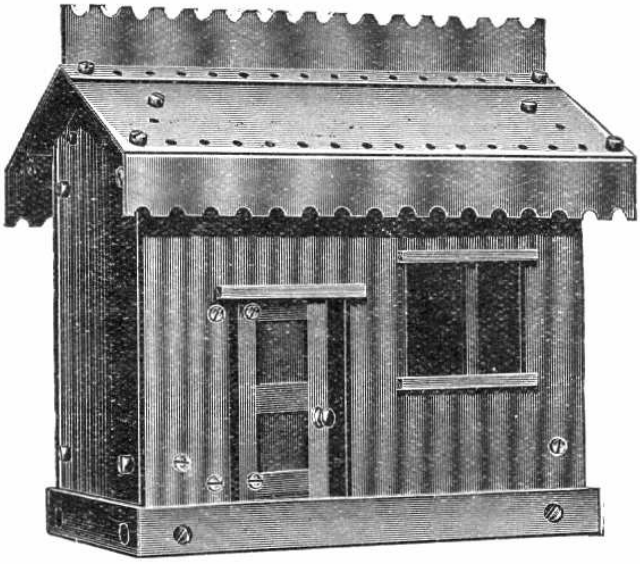


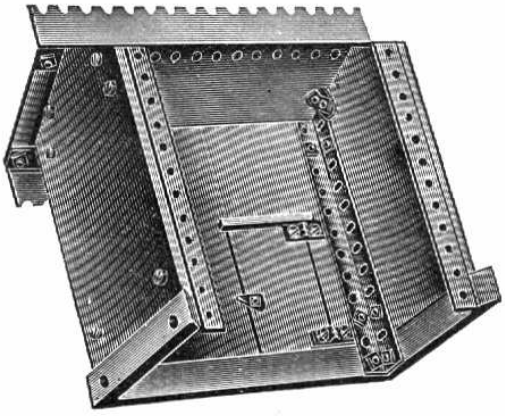
	No.
4 Carriage doors	7
2 Central windows	8
16 Railings ..	11
8 Wood slips ..	25
310 Screws	50
4 Angle bars, 6 in.	52
8 ,, ,, 8 ,,	54
2 ,, ,, 12 ,,	55
12 Strips, 2½ in.	57
6 ,, 3 ,,	58
14 ,, 3½ ,,	59
4 Strips, 5½ in. ..	61
4 ,, 6½ ,, ..	62
10 ,, 8 ,, ..	63
3 ,, 12½ ,, ..	64
8 Architraves ..	65
76 Brackets ..	66
7 Plates, 8 × 3 in.	67
14 ,, 3 × 3 ,,	68
8 Trunnions ..	74
4 Grooved wheels	76
4 Axles, 3½ in. ..	77
12 Collars	82
1 Handle	83
24 Washers ..	84
12 Door screws ..	91
4 Rods	96
4 Wood screws ..	97

Extra Parts.

2 Trunnions ..	74
4 Wire stays ..	154
2 Axles, 8 in. ..	166

Buttresses should be built first ; pulley wheels for raising should be fitted in towers before cardboard fronts are fixed. The windows on the side of the towers are screwed on to the card sides. Card can be cut for top of buttresses.





Wood Station House with Metal Roof No. 302.

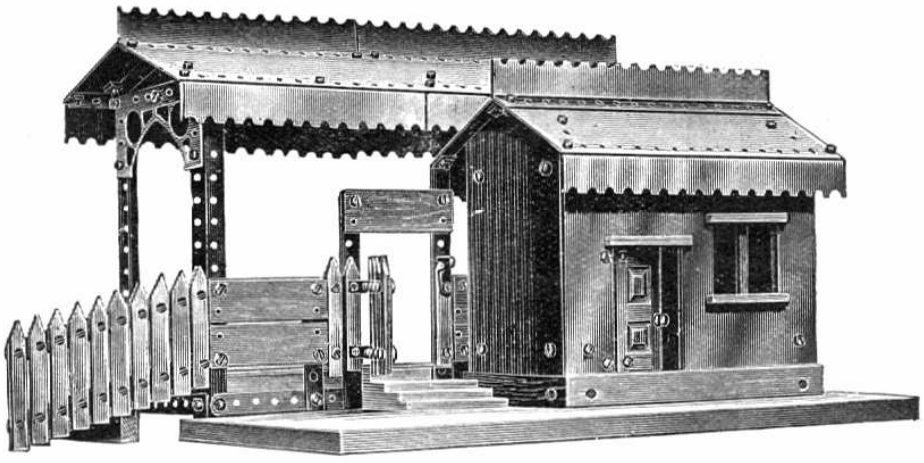
2	End rails of House	No. 12
2	Side rails ,, ,,	,, 13
2	House sides	,, 14
4	Window sills	,, 15A
1	House, back	,, 15B
1	,, front	,, 15F
2	Sash bars	,, 15D
2	Doors	,, 16
2	Lintels	,, 16A
2	Window glass	,, 26
48	Screws	,, 50
4	Angle bars, 6 in.	,, 52
4	Brackets	,, 66
2	Plates, 8 × 3 in.	,, 67
1	Ridge, 8 in...	,, 70
2	Eaves, 8 in.	,, 71
4	Hinges	,, 72
2	Knob screws	,, 92
2	Turn buttons	,, 93

The drawing clearly shows the way the house is fitted up.

The glass for windows is pushed in the grooves before the front and back are screwed to the angle bars.

Fit up the base frame and ends first.

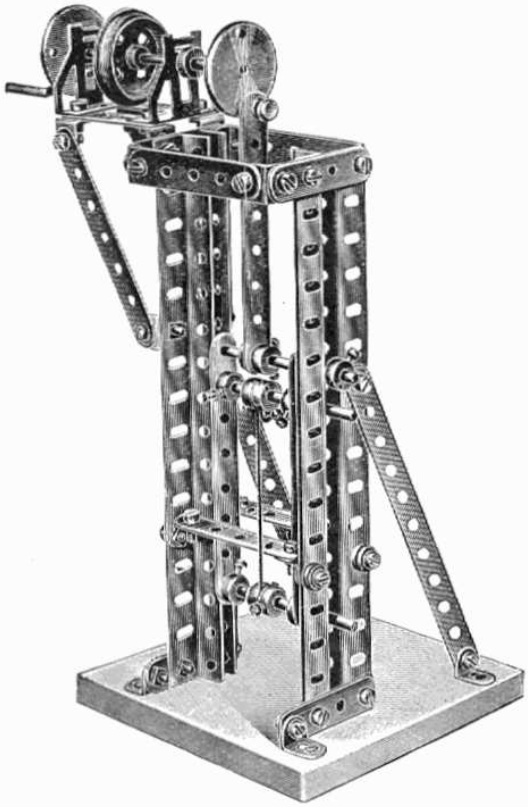
Station and Station House No. 306.



The parts for the Side Station model are given on page 48, and the Station House parts are shown above; large wood base board is added to the model to make it a complete station.

Signal Posts, lamps and high level bridge can be added as desired.

With the No. 5 outfit, the passenger coach (page 56), goods truck (page 44), side station (page 48), station house (above), and high level bridge with covered gallery (page 68), can be made up complete at the same time, as well as many other smaller models.



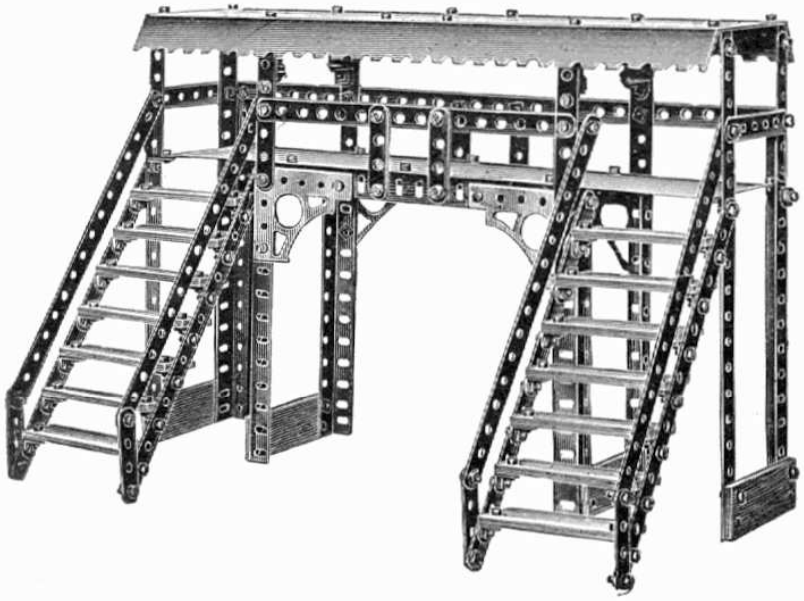
Vertical Saw No. 304.

37	Screws	No. 50
4	Angle bars, 8 in.	,, 54
6	Strips, 2 in.	,, 56
4	,, 2½ ,,	,, 57
2	,, 3½ ,,	,, 59
3	,, 4 ,,	,, 60
2	,, 5½ ,,	,, 61
18	Brackets	,, 66
2	Trunnions	,, 74
1	Wheel	,, 75
2	Wheels	,, 76
3	Axles, 3½ in.	,, 77
13	Collars	,, 82
1	Handle	,, 83
1	Washer	,, 84
4	Wood screws	,, 97

The crank arm is fitted to the grooved wheel by means of knob screw with washers and double nutted.

The frame to carry saw is composed of two 4-in. strips with three 3½ in. axle rods and held together by collars. Two of the collars are placed **outside** the angle bars on the upper rod, to make it slide easily in the grooves.

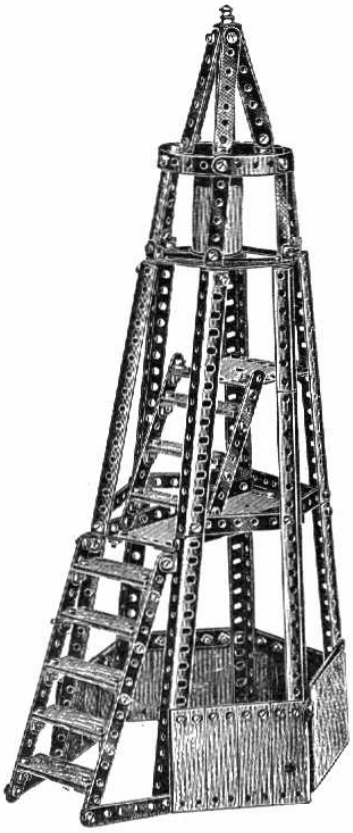
A fretsaw can be placed between the collars to complete the model.



Covered Bridge No. 305.

18	Slips	No. 25
144	Screws	,, 50
4	Angle bars, 8 in.	,, 54
4	,, ,, 6½ in.	,, 53
8	Strips, 2 in.	,, 56
4	,, 3 ,,	,, 58
4	,, 3½ ,,	,, 59
11	,, 8 ,,	,, 63
4	Architraves	,, 65
46	Brackets	,, 66
4	Plates, 8 × 3 in.	,, 67
4	Eaves, 8 in.	,, 71
6	Washers	,, 84
4	Lamps	,, 87

This model can be raised on piers to suit height of platforms, and can be made wider for double rails by the use of 12-in. angle bars and other parts to correspond.

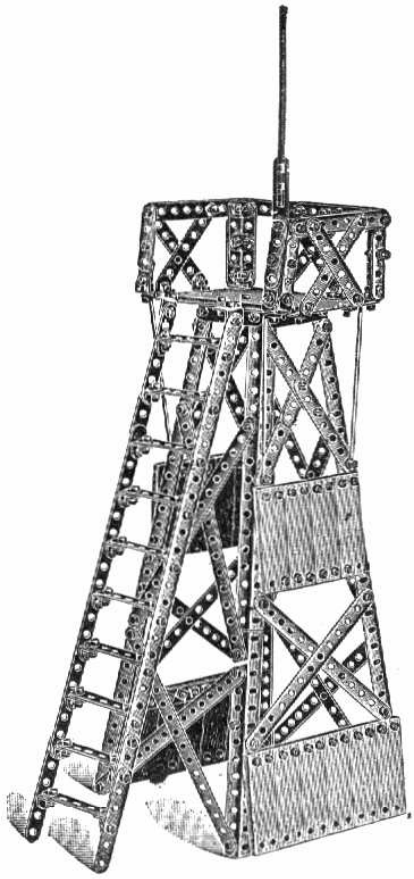


Lighthouse No. 312.

1	End	No. 3	1	Strip, 4 in.	No. 60
25	Slips, 3 × 1 in.	,, 25	3	Strips, 5½ in.	,, 61
150	Screws	,, 50	2	,, 8 ,,	,, 63
4	Bars, 6 in.	,, 52	45	Brackets	,, 66
8	,, 8 ,,	,, 54	3	Plates, 3 × 3	,, 68
2	,, 12 ,,	,, 55	2	Wheels	,, 75
2	Strips, 2 in.	,, 56	1	Wheel	,, 76
14	,, 2½ ,,	,, 57	1	Axle, 3½ in.	,, 77
7	,, 3 ,,	,, 58	16	Washers	,, 84
13	,, 3½ ,,	,, 59	1	Lamp	,, 87

The skeleton is made on angle bars screwed together and secured by metal strips, which are slightly bent. The platforms are made of 3 × 3 in. plates.

To form the lantern, slightly curve six 2½-in. strips. The beacon light is made by rolling pink paper round two flanged wheels, one being placed at the top and the other near the bottom of a 2¾-in. axle, which passes through a 4-in. metal strip placed across the base of the lantern as shown, and is secured in position by a pulley wheel.



Pylon No. 313.

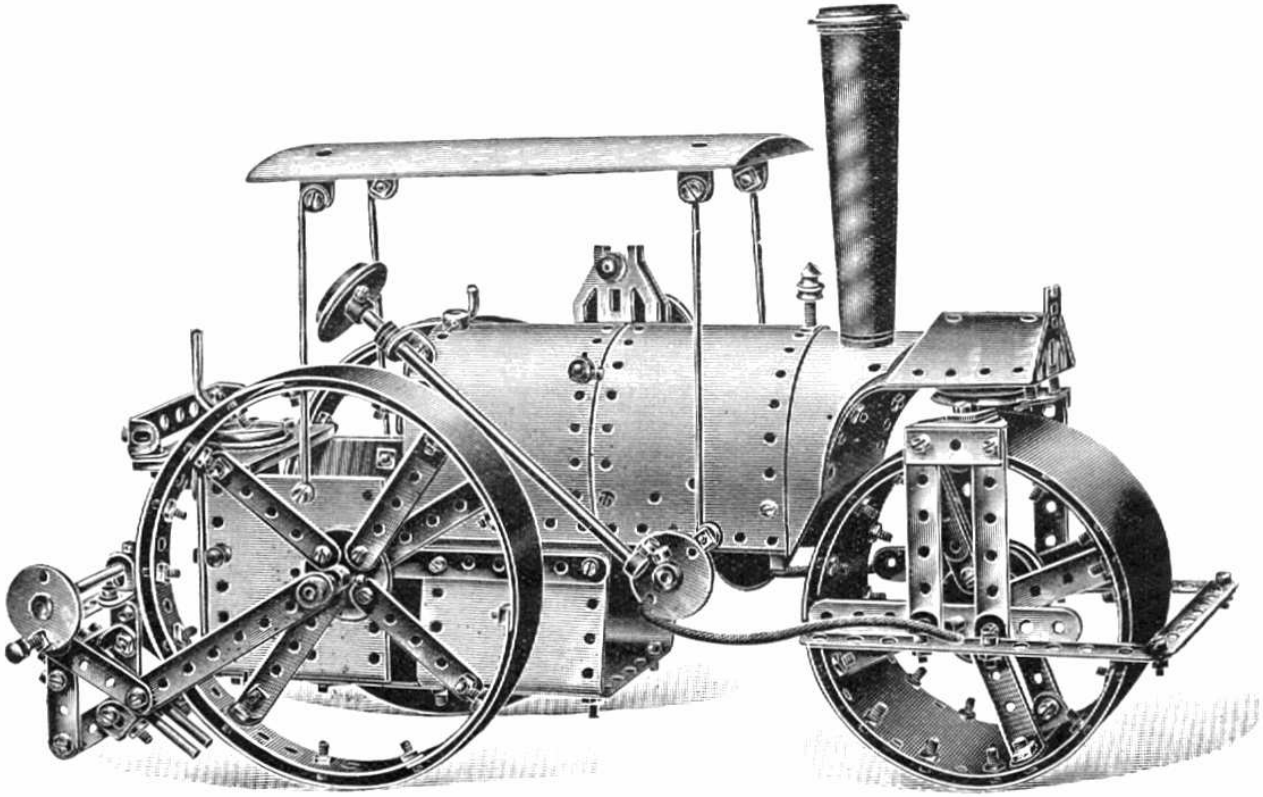
20	Slips, 3 × 1 in.	No. 25	4	Strips, 4 in.	No. 60
190	Screws	,, 50	2	,, 5½ ,,	,, 61
2	Bars, 6½ in.	,, 53	4	,, 6½ ,,	,, 62
4	,, 8 ,,	,, 54	8	,, 8 ,,	,, 63
2	,, 12 ,,	,, 55	2	,, 12 ,,	,, 64
16	Strips, 2 in.	,, 56	44	Brackets	,, 66
16	,, 2½ ,,	,, 57	4	Plates, 3 × 3 in.	,, 68
5	,, 3 ,,	,, 58	6	Washers	,, 84
12	,, 3½ ,,	,, 59	4	Signal rods	,, 96

The four sides are built up with angle bars joined together.

The No. 25 wood slips are screwed on to the metal strip sides.

The floor of the observation platform consists of four 3 × 3in. metal plates. The signal is an axle rod fixed to a 3½-in. metal slip by means of wire.

The ladder is made of metal slips fitted by means of brackets.



Ruston Steam Roller, with Scarifier No. 360.

1	Carriage roof	No. 10
2	Wood slips	,, 25
150	Screws	,, 50
2	Angle bars, 6 in.	,, 52
16	Metal strips, 2 in.	,, 56
9	,, ,, 2½ ,,	,, 57
5	,, ,, 3 ,,	,, 58
3	,, ,, 3½ ,,	,, 59
2	,, ,, 4 ,,	,, 60
3	,, ,, 5½ ,,	,, 61
4	,, ,, 6½ ,,	,, 62
5	,, ,, 8 ,,	,, 63
59	Brackets	,, 66
7	Plates, 8 × 3 in.	,, 67
6	,, 3 × 3 ,,	,, 68
8	Trunnions	,, 74
8	Flanged wheels	No. 75
3	Grooved wheels	,, 76
1	Axle rod, 3½ in.	,, 77
3	,, ,, 2¾ ,,	,, 78
13	Collars	,, 82
1	Handle axle	,, 83
18	Washers	,, 84
1	Buffer	,, 85
2	Lamps	,, 87
1	Carriage side rail	,, 90
3	Knob screws and nuts	,, 92
4	Signal post rods	,, 96
3	Wood screws	,, 97

Extra Part.

1	Axle, 6½ in.	No. 165

Fit up front roller first ; for this two 8 × 3 plates are used. Roll them round a large bottle or jar to make them form circle, lapping two holes each end. Screw on outside fittings to boiler before fixing back plate ; screw piece of wood on to bracket at front of boiler to slip funnel on.

Roller and wheels are covered with cardboard.

To make funnel to shape screw a piece of round wood underneath wheel at top.

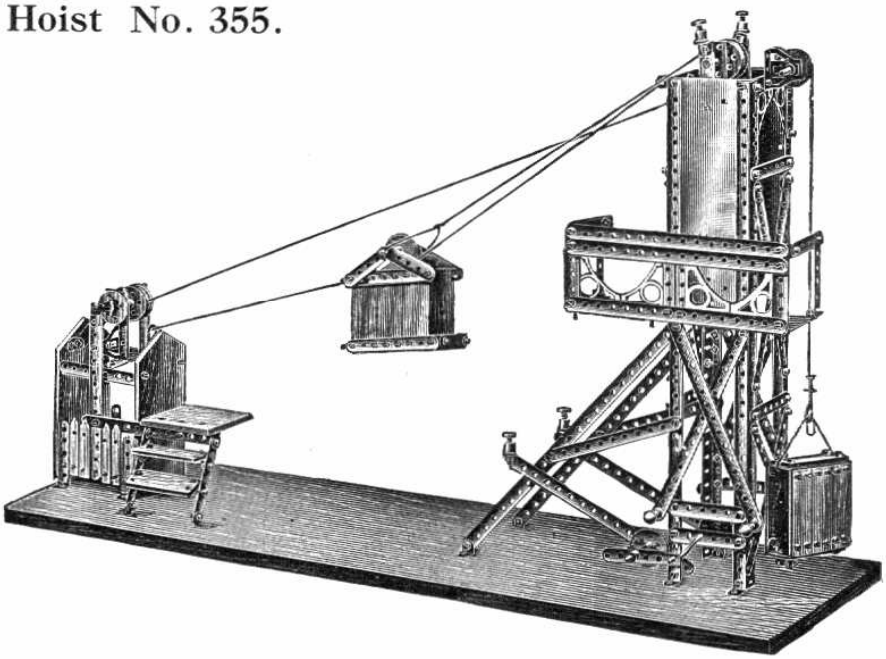
The model is 11½ in. high, 17½ in long, 8 in. wide.

Overhead Travelling Hoist No. 355.

1	End ..	No. 3
4	Posts ..	,, 11
2	Sides ..	,, 14
21	Slips ..	,, 25
234	Screws	,, 50
2	Angle bars, 6 in.	,, 52
2	Angle bars, 6½ in.	,, 53
5	Angle bars, 8 in.	,, 54
2	Angle bars, 12 in.	,, 55
16	Strips, 2 in.	,, 56
16	,, 2½ ,,	,, 57
8	,, 3 ,,	,, 58
14	,, 3½ ,,	,, 59
2	,, 4 ,,	,, 60
4	,, 5½ ,,	,, 61
3	,, 6½ ,,	,, 62
12	,, 8 ,,	,, 63
2	,, 12½ ,,	,, 64
8	Architraves	No. 65
61	Brackets	,, 66
3	Plates, 8 × 3	,, 67
7	Trunnions	,, 74
8	Wheels	,, 75
2	,, ..	,, 76
2	Axles, 3½ in.	,, 77
3	,, 2¾ ,,	,, 78
11	Collars	,, 82
1	Handle	,, 83
29	Washers	,, 84
6	Buffers	,, 85
3	Couplings	,, 86
2	Catches	,, 95
2	Rods ..	,, 96
12	Wood screws	,, 97

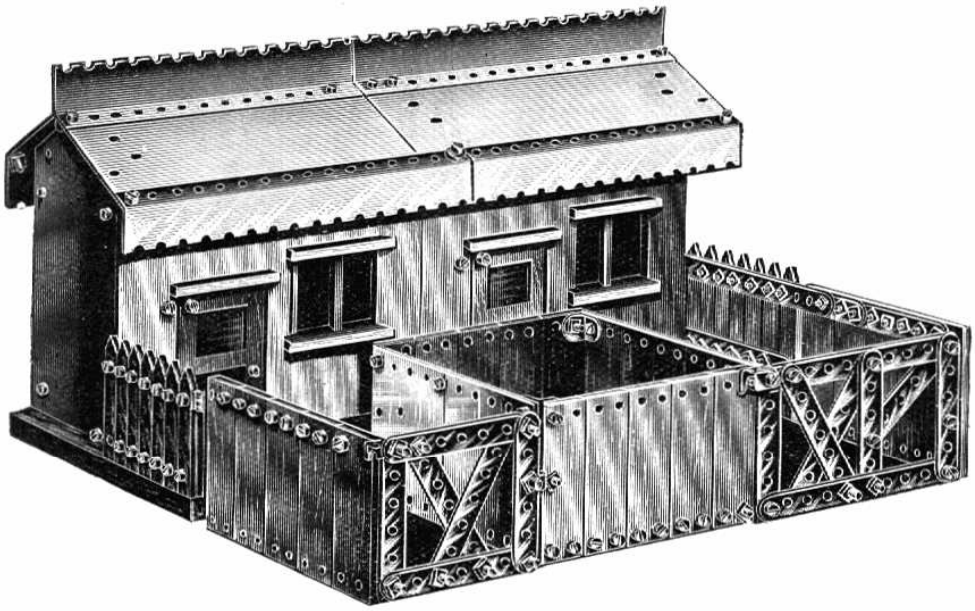
Extra Parts required:

11	Wood screws	No. 97



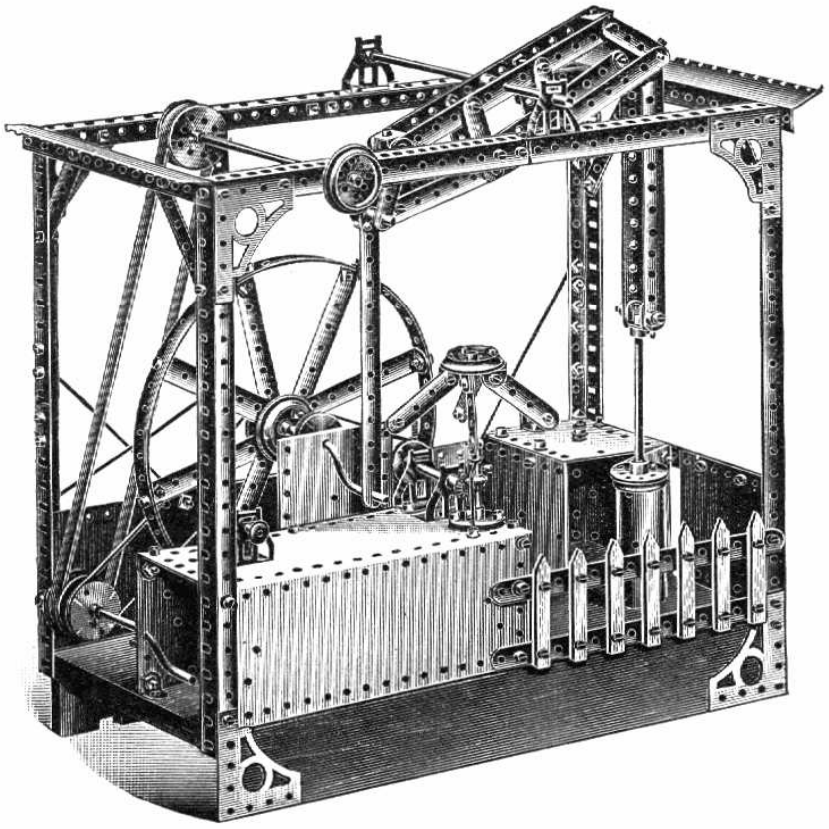
Cord is gripped between flanged wheels for pulley ropes. This model should be screwed to a long wood plank.

Bungalow No. 300.



The back of the bungalow is made of metal plates bolted together; the roof is built and laid on last.

14	Posts ..	No. 11
2	Sides	,, 14
4	Sills ..	,, 15A
2	Sashes	,, 15D
1	Front	,, 15F
1	Back	,, 15B
2	Doors	,, 16
2	Lintels	,, 16A
1	Baseboard	,, 19
25	Slips ..	,, 25
2	Glasses	,, 26
150	Screws	,, 50
7	Strips, 2 in.	,, 56
3	,, 2½ ,,	,, 57
5	,, 3 ,,	,, 58
14	,, 3½ ,,	,, 59
1	,, 4 ,,	,, 60
16	Brackets	,, 66
8	Plates, 8 × 3 in.	,, 67
4	,, 3 × 3 ,,	,, 68
1	Tile, 6½ in.	,, 69
1	,, 8 ,,	,, 70
4	Eaves, 8 in.	,, 71
6	Hinges	,, 72
6	Washers	,, 84
2	Handles	,, 88
4	Knobs	,, 92
2	Catches	,, 95



Beam Engine No. 357.

		No.			No.
7	Posts	11	2	Eaves, 8 in.	71
1	Baseboard	19	4	Trunnions	74
2	Platforms	24	8	Wheels	75
166	Screws	50	4	,,	76
4	Angle bars :		1	Axle, 3½ in.	77
	6 in.	52	1	,, 1½ ,,	79
4	,, 8 ,,	54	13	Collars	82
2	,, 12 ,,	55	1	Handle	83
14	Strips, 2 in.	56	44	Washers	84
5	,, 2½ ,,	57	2	Buffers	85
3	,, 3 ,,	58	2	Lamps	87
11	,, 3½ ,,	59	4	Connecting rods	96
3	,, 5½ ,,	61	8	Wood screws	97
3	,, 6½ ,,	62		**Extra Parts :**	
2	,, 8 ,,	63	2	Axle rods, 1½in.	79
3	,, 12½ ,,	64	1	Handle axle	83
6	Architraves	65	1	Wheel	158
30	Brackets	66	2	Bevel gears	162
5	Plates, 8 × 3in.	67	2	8 in. Axles	166
9	,, 3 × 3in.	68			

To make wheel join two 12½-in. strips and leave five holes between each spoke.

Fit governors, etc., to 8 × 3 in. plate before fixing plate on.

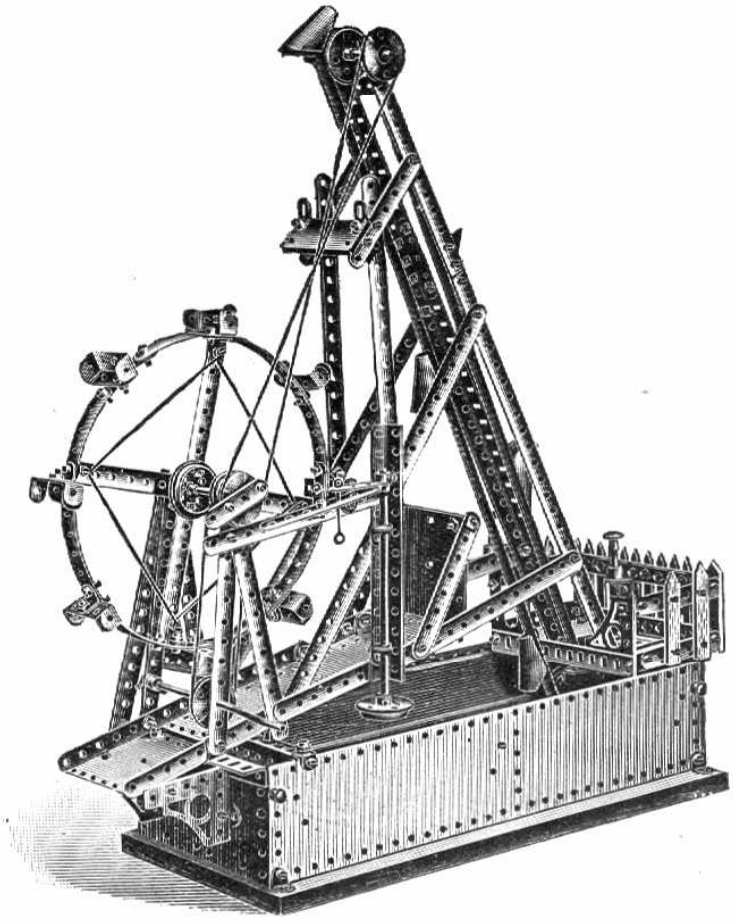
Dredger Waterwheel and Pile Driver No. 358.

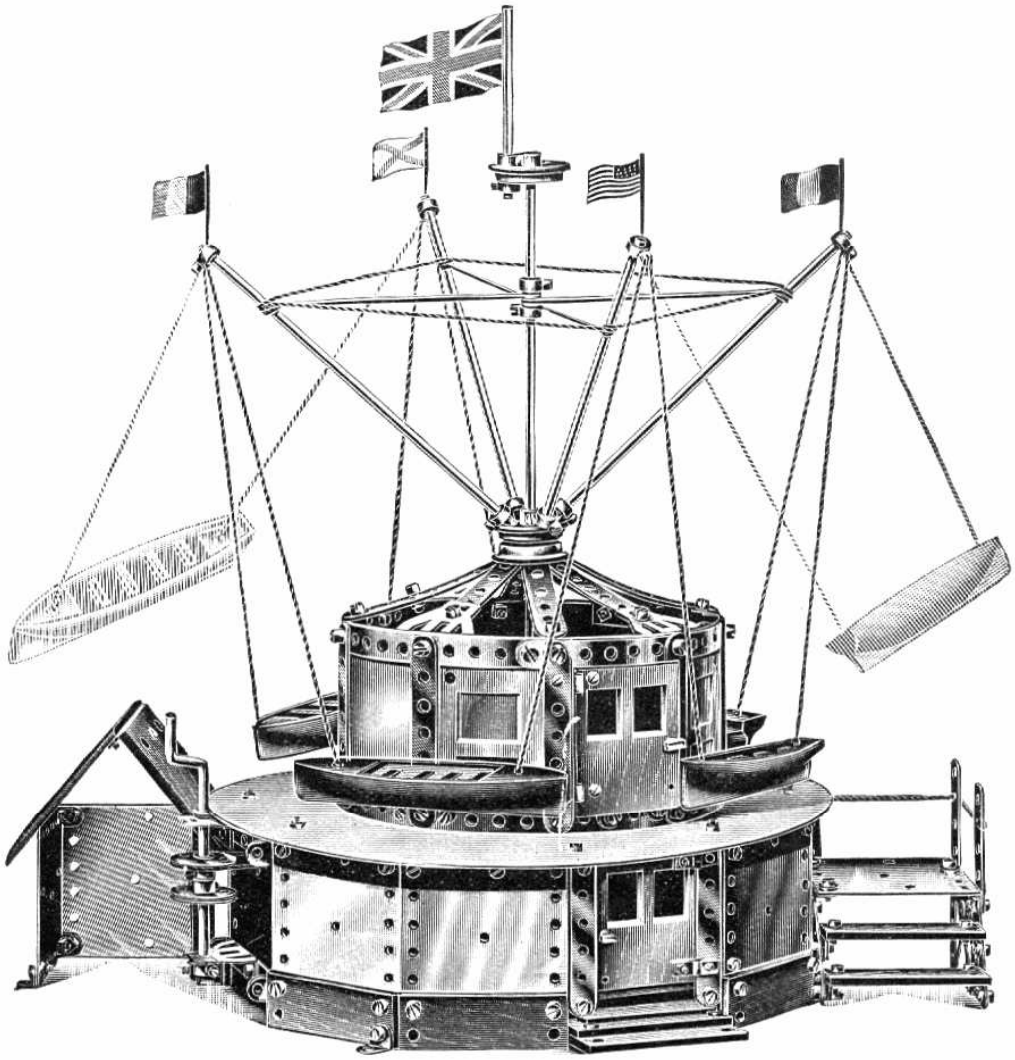
		No.			No.
16	Posts	11	61	Brackets	66
1	Baseboard	19	5	Plates, 8 × 3 in.	67
2	Plain platforms	23	6	,, 3 × 3 ,,	68
2	Fitted	24	2	Trunnions	74
5	Slips, 3 × 1 in.	25	6	Wheels	75
170	Screws	50	4	,,	76
4	Angle bars, 6 in.	52	2	Axles, 3½ in.	77
3	,, ,, 6½ ,,	53	1	,, 1½ ,,	79
2	,, ,, 12 ,,	55	7	Collars	82
14	Strips, 2 in.	56	1	Handle Axle	83
8	,, 2½ ,,	57	13	Washers	84
4	,, 3 ,,	58	2	Buffers	85
9	,, 3½ ,,	59	2	Screws and nuts	91
3	,, 4 ,,	60	2	Knobs	92
4	,, 5½ ,,	61	4	Signal Post rods	96
4	,, 6½ ,,	62	15	Wood screws	97
4	,, 8 ,,	63			
2	,, 12½ ,,	64		**Extra Parts :**	
4	Architraves	65	3	Wood screws	97

Base should be built first, and then wheels for bottom of band should be fitted in. Four 3½-in. strips, three 8-in. strips, and one 2-in. strip are used to construct wheel.

Pieces of card can be made into shape for buckets.

This model can be run by power by adding extra pulley wheel to big wheel axle.

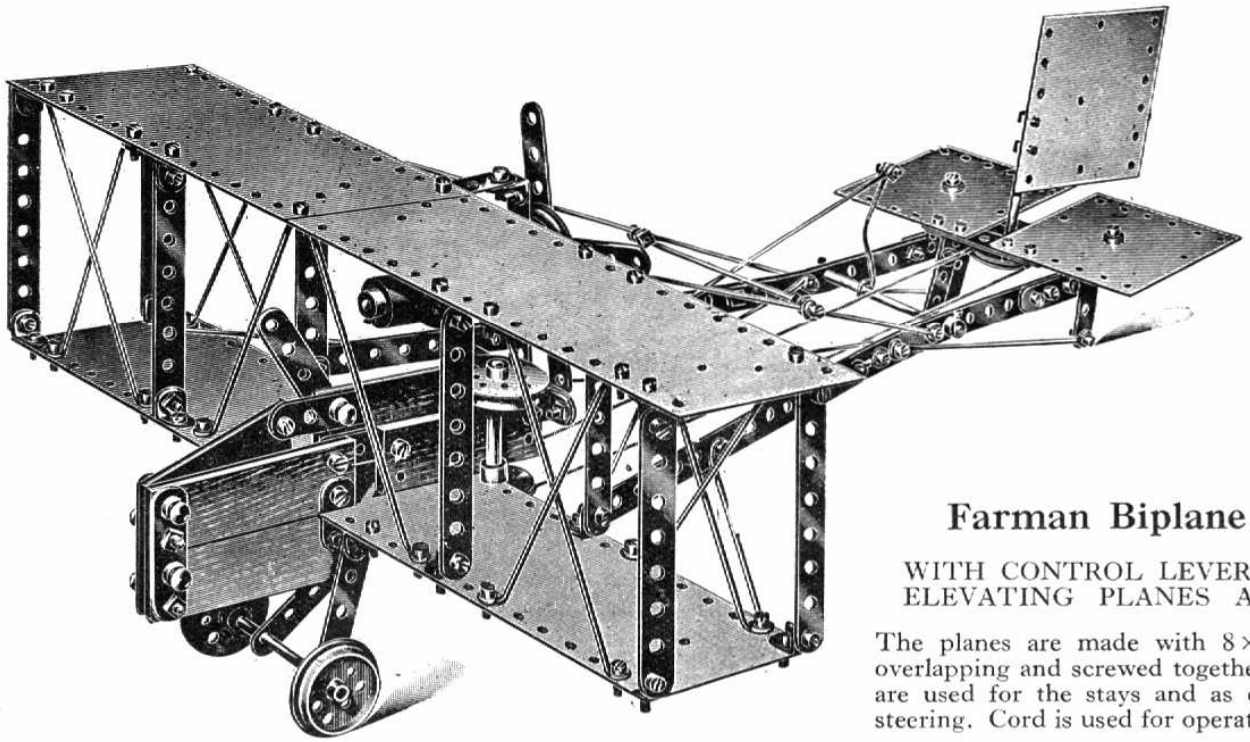




Hiram Maxim Flying Boats No. 363.

2	Central windows	No. 8
2	Doors of house	,, 16
1	Lintel for house	,, 16A
14	Wood slips	,, 25
100	Screws	,, 50
7	Strips, 2 in.	,, 56
9	,, 2½ ,,	,, 57
3	,, 3 ,,	,, 58
14	,, 3½ ,,	,, 59
3	,, 4 ,,	,, 60
2	,, 5½ ,,	,, 61
5	,, 8 ,,	,, 63
3	,, 12½ ,,	,, 64
2	Architraves	,, 65
48	Brackets	,, 66
14	Plates, 3 in. × 3 in.	No. 68
2	Straight hinges	,, 72
2	Bent hinges	,, 73
6	Trunnions	,, 74
4	Flanged wheels	,, 75
4	Grooved wheels	,, 76
1	Axle, 3½ in.	,, 77
13	Collars	,, 82
1	Handle	,, 83
16	Washers	,, 84
2	Door handles	,, 88
2	,, screws	,, 91
4	Rods	,, 96
	Extra Parts :	
6	Axles, 8 in.	,, 166

Build base first ; card disc for top of base ; use four wood boats to make swings.



Farman Biplane No. 350.

WITH CONTROL LEVERS OPERATING ELEVATING PLANES AND RUDDER.

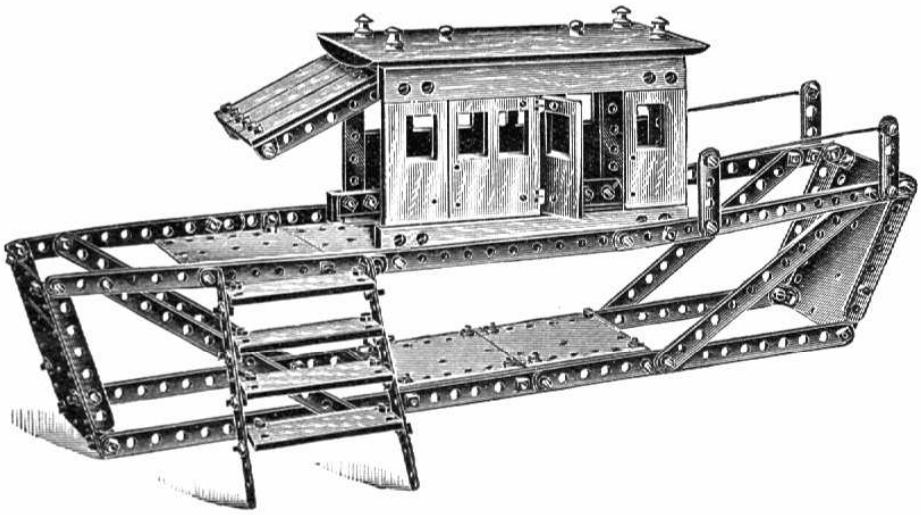
The planes are made with 8 × 3 in. metal plates, overlapping and screwed together. Signal post rods are used for the stays and as connecting rods for steering. Cord is used for operating the rudder.

No.		With No. 5 Outfit.	Extra Parts.
25	Wood slips, 3 × 1 in.	6	—
50	Screws	112	—
56	Metal strips, 2 in.	16	1
57	,, ,, 2½ ,,	4	—
60	,, ,, 4 ,,	3	7
64	,, ,, 12½ ,,	2	—
66	Brackets	34	—
67	Metal plates, 8 × 3 in.	4	—
68	,, ,, 3 × 3 ,,	3	—

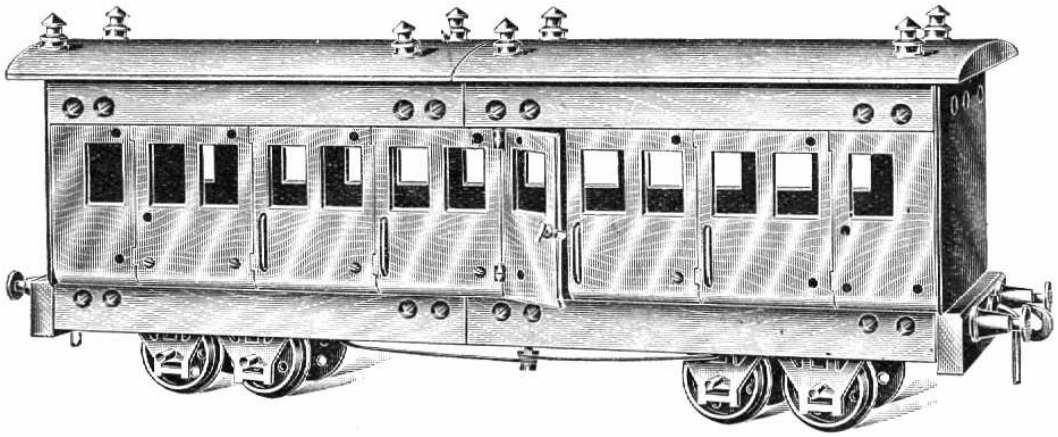
No.		With No. 5 Outfit.	Extra Parts
75	Flanged wheels	4	—
76	Grooved wheels	3	—
77	Axle rods, 3½ in.	4	—
78	,, ,, 2¾ ,,	2	—
82	Collars	13	—
84	Washers	20	—
92	Knob screws	4	1
96	Signal post rods	4	18

House Boat No. 308.

4	Rails	No. 1
2	Windows	,, 5
2	,,	,, 6
2	Doors	,, 7
2	Windows	,, 8
1	Roof	,, 10
7	Slips	,, 25
111	Screws	,, 50
2	Angle bars, 6½ in.	,, 53
9	Strips, 2 in.	,, 56
3	,, 2½ ,,	,, 57
1	,, 3 ,,	,, 58
10	,, 3½ in.	,, 59
2	,, 4 ,,	,, 60
5	,, 5½ ,,	,, 61
4	,, 6½ ,,	,, 62
5	,, 8 ,,	,, 63
3	,, 12½ ,,	,, 64
36	Brackets	,, 66



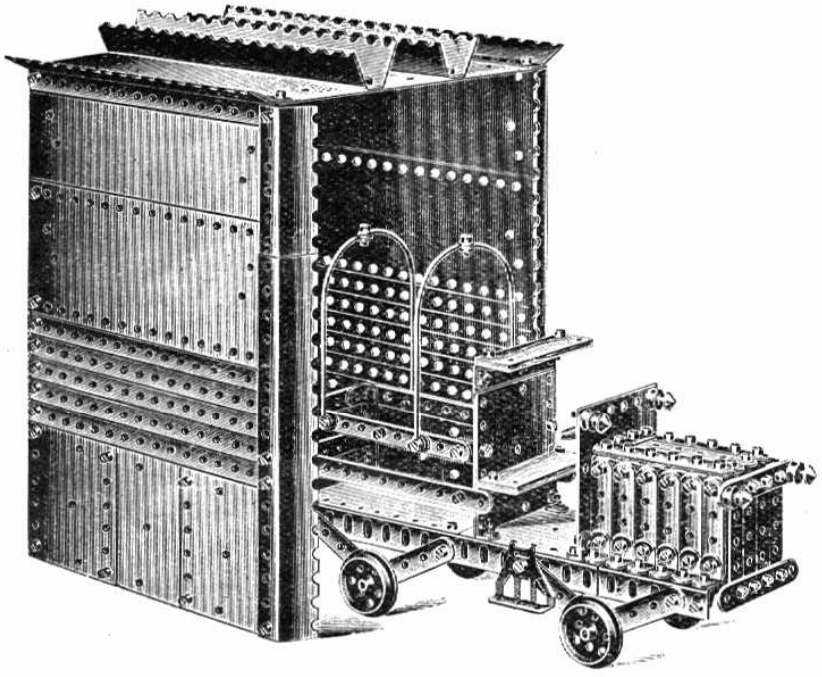
2	Plates	No. 67
8	,,	,, 68
4	Hinges	,, 73
4	Lamps	No. 87
4	Screws	,, 92
2	Rods	,, 96



Saloon Carriage No. 352.

No.		Parts in No. 5 Outfit.	Extra Parts.
1	Side rails	6	2
3	C. ends	2	—
4	Buffer blocks	2	—
5	R.H. windows	2	—
6	L.H. ,,	2	—
7	Carriage doors	2	—
8	,, windows	2	8
10	Roof	1	1
50	Screws	57	—
53	Angle bars, 6½ in.	4	—
56	Strips, 2 in.	3	—
57	,, 2½ ,,	8	—
58	,, 3 ,,	4	—
59	,, 3½ ,,	10	—
62	,, 6½ ,,	2	—
63	,, 8 ,,	2	—
66	Brackets	12	—
73	Hinges	4	—
74	Trunnions	8	—
75	Wheels	8	—
76	Wheels	2	—
78	Axles, 2¾ in.	4	—
85	Buffers	4	—
86	Couplings	2	—
87	Lamps	6	2
88	Handles	2	—
90	Rails	4	4
91	Screws	16	—
92	Screws	2	—
96	Rods	4	—

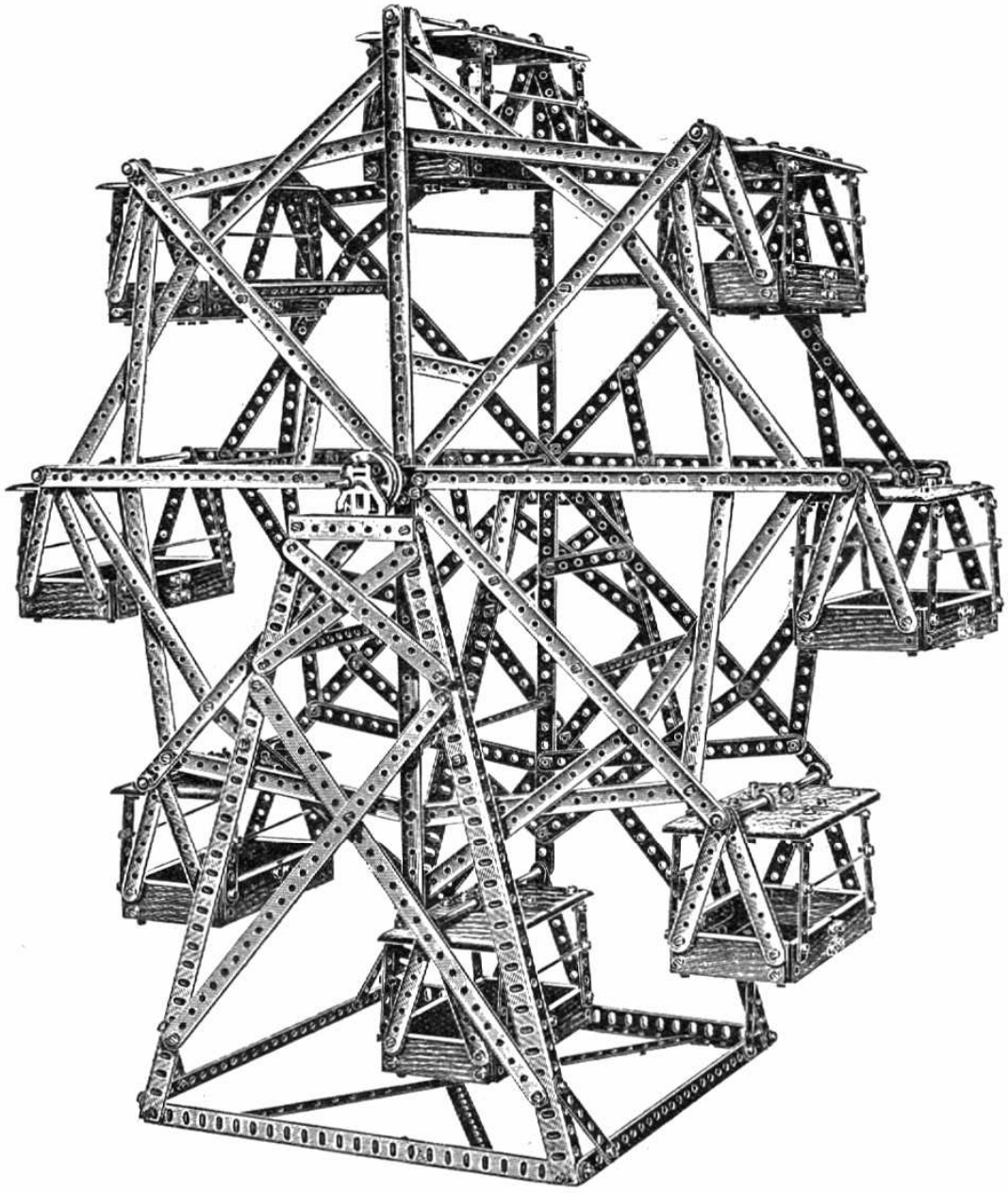
The metal framework of saloon should be made first ; join two 6½-in. angle bars with a 2½-in. metal strip, leaving only the central hole between them. This applies to both sides. The top is supported with two 3½-in. strips each side, and the top sides are made by joining one 8-in. and one 6½-in. metal strips. Then fix wood as illustration. For making up bogie wheels, see page 53.



Motor Car and Garage No. 311.

		No.
2	Slips 3 × 1 in.	25
174	Screws	50
6	Angle bars, 6½ in.	53
2	,, ,, 8 ,,	54
14	Strips, 2 in.	56
16	,, 2½ ,,	57
8	,, 3 ,,	58
2	,, 4 ,,	60
2	,, 5½ ,,	61
3	,, 6½ ,,	62
12	,, 8 ,,	63
50	Brackets	66
10	Plates, 8 × 3 in.	67
12	,, 3 × 3 ,,	68
2	Tiles, 8 in.	70
8	Eaves, 8 in.	71
2	Trunnions	74
4	Wheels	75
1	Wheel	76
3	Axles, 3½ in.	77
2	Collars	82
10	Washers	84
4	Lamps	87
4	Rods	96

The lower portion of the garage is made on 6½-in. angle bars, which hold the plates and metal strips. Higher brackets are sufficient where the 8 × 3-in. plates are used.



Big Wheel No. 353.

No.		Parts from No. 5 Outfit.	Extra Parts.
3	Carriage ends	2	14
25	Slips	25	23
50	Screws	312	195
53	Angle bars, 6½ in.	4	—
55	Angle bars, 12 in.	2	4
56	Strips, 2 in.	16	32
58	,, 3 ,,	8	36
60	Strips, 4 in.	3	29
61	,, 5½ ,,	4	—
63	,, 8 ,,	12	32
64	Strips, 12½ in.	3	19
66	Brackets	78	66
68	Plates	10	6
74	Trunnions	2	—
75	Wheels	2	—
77	Axles, 3½ in.	4	12
82	Collars	13	23
84	Washers	48	22
96	Rods	4	12

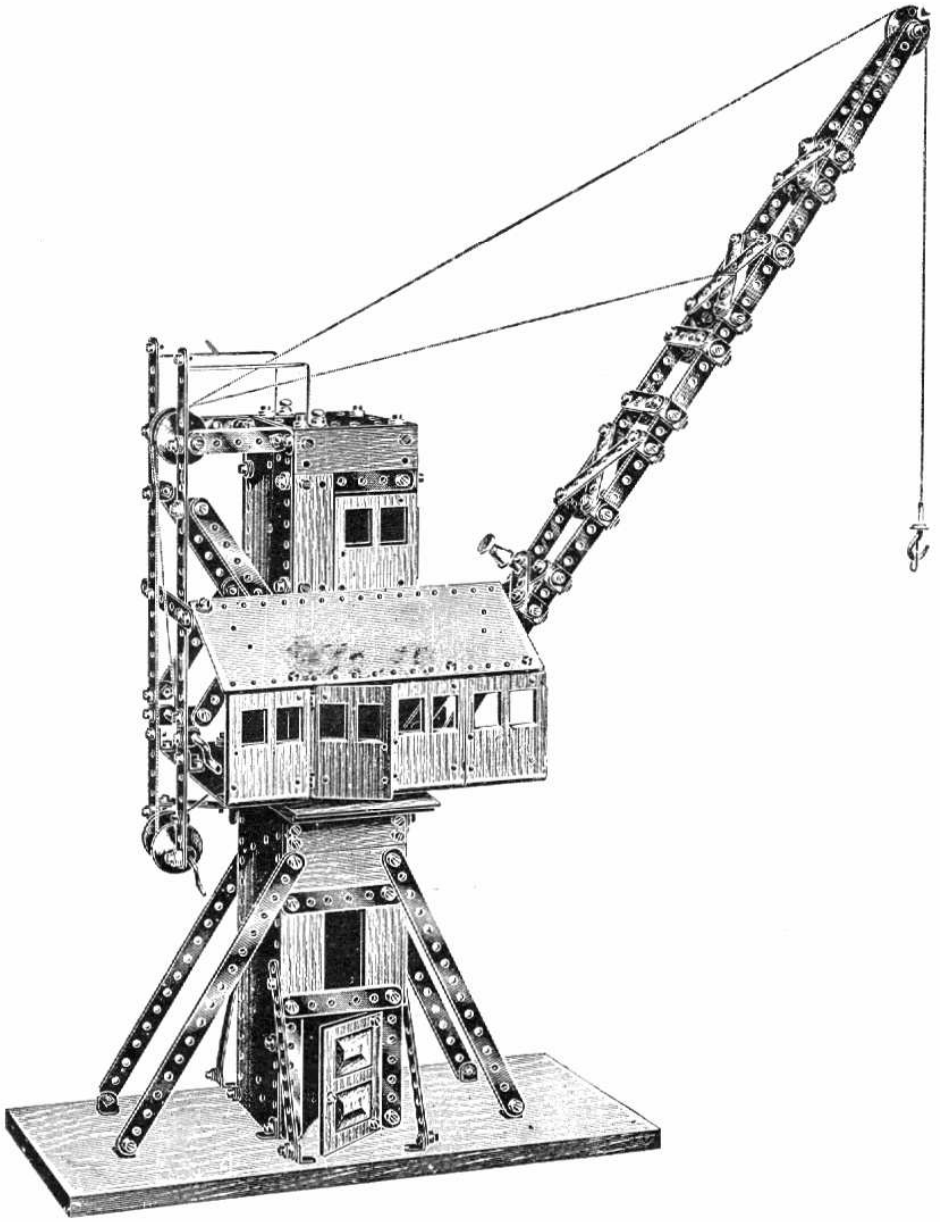
SPECIAL. One 12-in. axle rod.
One 8-in. angle bar, cut in half.

MEASUREMENTS.

Height .. 28½ in. Diameter of wheel .. 23 in. Width .. 25 in. Depth of wheel .. 8½ in.

The stand should be built and then the framework of the wheel.

The roofs of the carriages are made with two carriage ends, placed lengthways, and are joined together with 2-in. metal strips. Two extra holes require to be made in each, for brackets to be fixed to for sides to hang from. The model otherwise is straightforward.

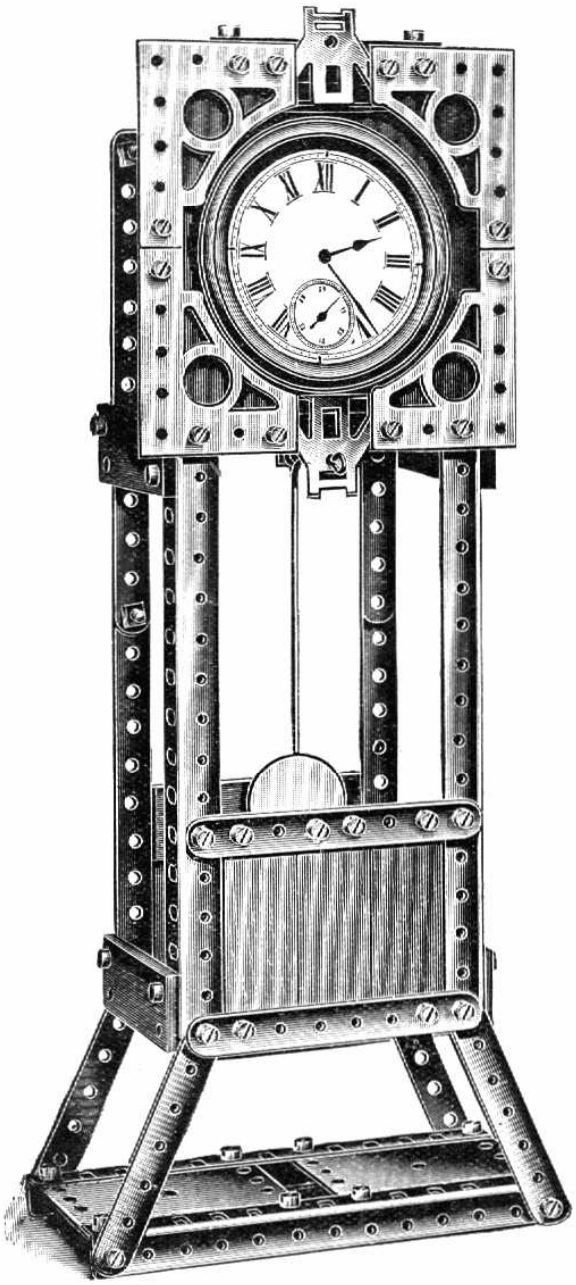


Luffing Crane
No. 354.

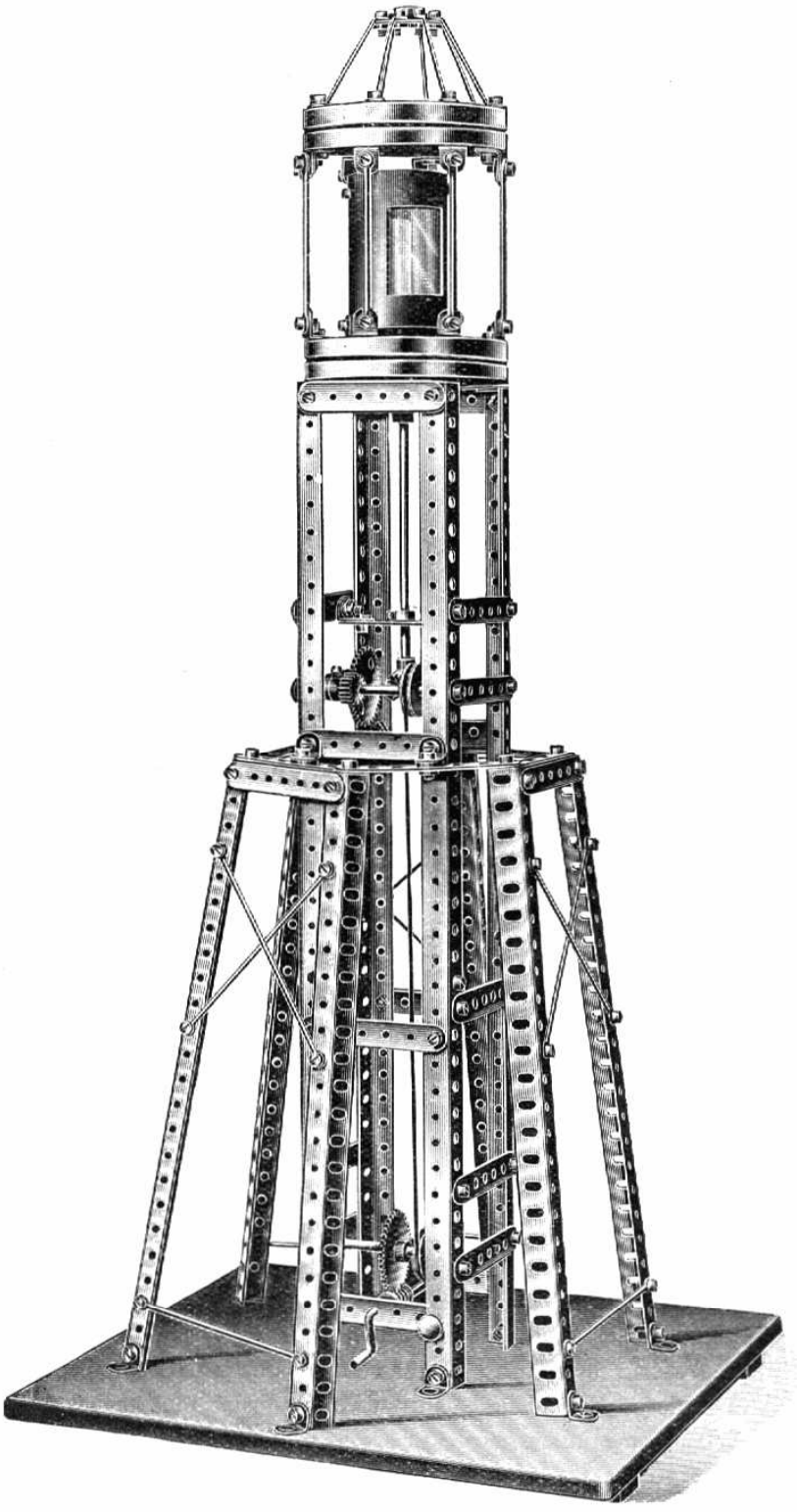
No.		No. 5 Outfit Parts.	Extra Parts
8	Windows	2	4
16	Door	1	—
18	Truck ends	1	—
19	Baseboard	1	—
25	Slips	11	—
50	Screws	202	—
56	Strips, 2 in.	14	—
57	,, 2½ ,,	4	—
58	,, 3 ,,	8	3
59	,, 3½ ,,	6	—
60	,, 4 ,,	3	—
61	,, 5½ ,,	4	4
63	,, 8 ,,	4	—
64	,, 12½ ,,	3	3
66	Brackets	78	37
67	Plates, 8 × 3 in.	6	—
68	,, 3 × 3 ,,	5	—
72	Hinges	2	—
73	Bent hinges	2	—
75	Wheel	1	—
76	Wheels	4	3
77	Axle, 3½ in.	2	—
79	,, 1½ ,,	1	—
82	Collars	8	—
83	Handle	1	1
84	Washers	48	90
85	Buffers	1	—
86	Coupling	1	—
88	Door handle	1	—
91	,, screws	16	1
92	Screws	4	3
96	Rods	3	—
97	Wood screws	8	—

The base of this model is composed of three 8 × 3 in. metal plates standing on end, and the front part with 3-in. and 3½-in. metal strips and 3 × 1 in. wood slips, and is supported by means of four 8½ in. metal slips at each corner, joined to brackets, screwed to the baseboard. The roof of base is a 3 × 3-in. plate. The floor of engine house is two 8 × 3-in. plates screwed together, and is joined to the lower part by means of a 3½-in. axle rod, using pulley and flanged wheels, as in earlier models. The balance is kept by using four knob screws inserted in 3 × 3-in. plate at similar height to one flanged and one pulley wheel. The front and back of engine house are made with 8 × 3-in. plates, the lower parts of sides with 3 × 3-in. plates, and the upper part with carriage windows and 3 × 1-in. wood slip ; the remainder is easily gleaned from illustration.

TWO FINE MODELS BUILT BY PRIMUS ENGINEERS



Grandfather Clock.

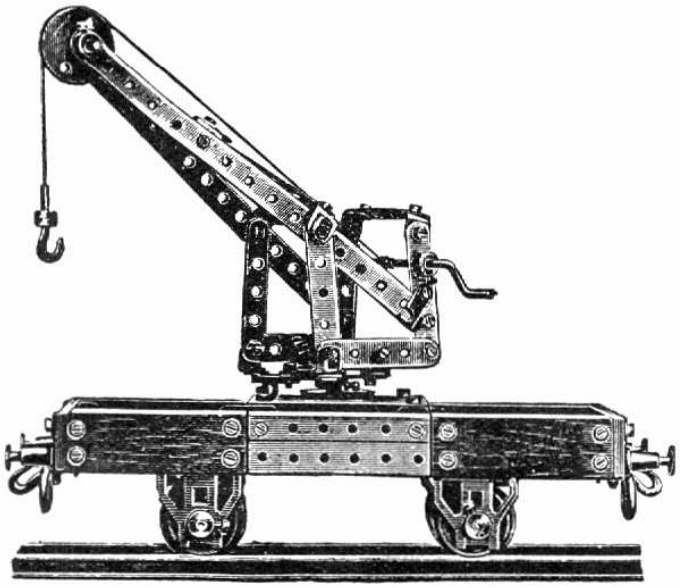


Revolving Lighthouse.

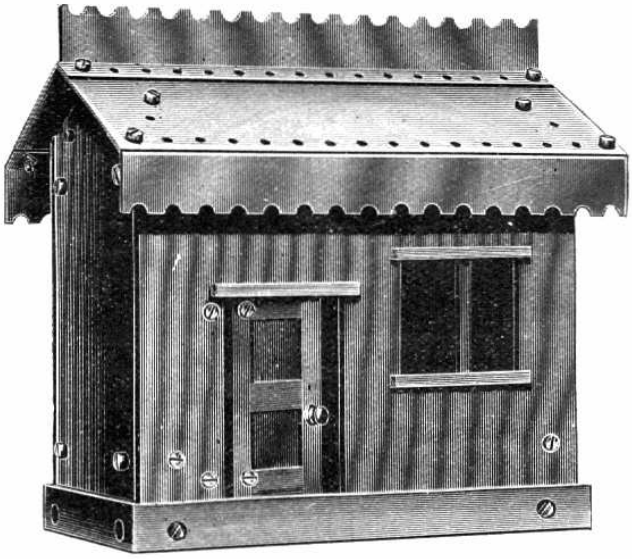
PRIMUS ENGINEERING
BRITISH MADE

WOOD PARTS OUTFIT

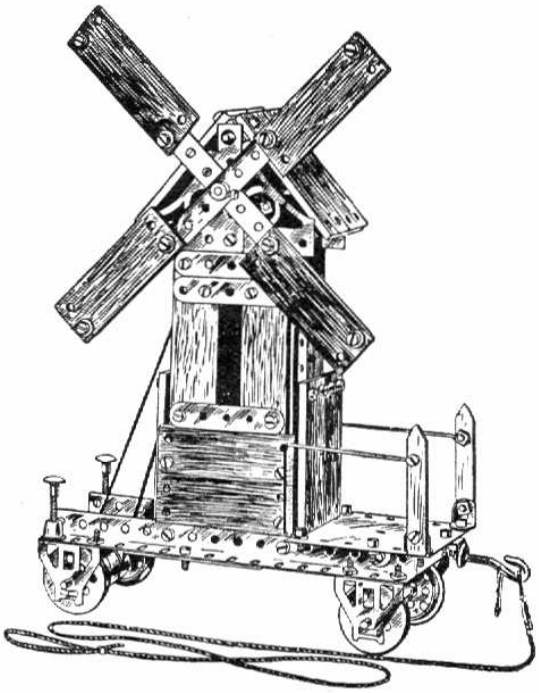
These models can be made with this outfit and parts from a No. 2 Primus Engineering Outfit.



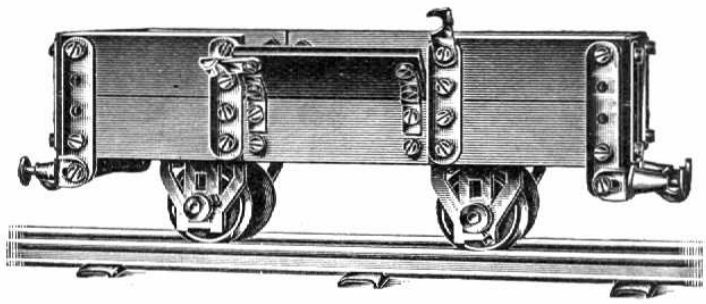
Crane Truck No. 189,
see page 54.



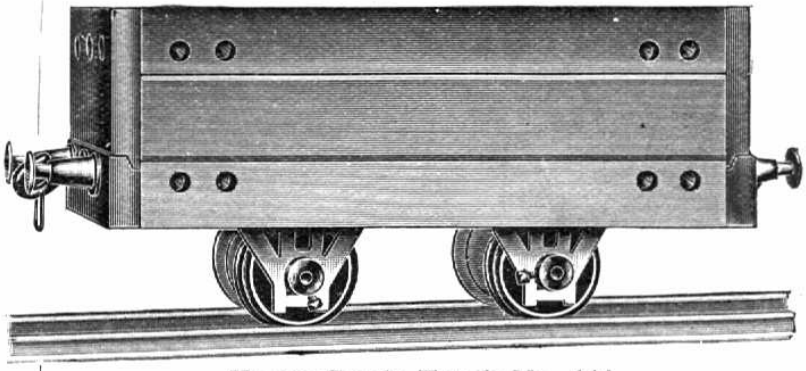
Station House No. 302,
see page 67.



Working Windmill No. 138,
see page 40.



Coal Truck No. 113,
see page 44.



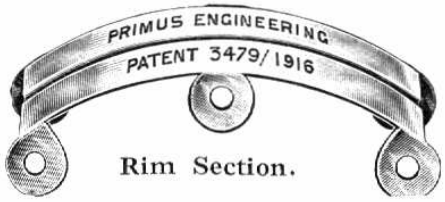
Heavy Goods Truck No. 116,
see page 44.

PRIMUS ENGINEERING
BRITISH MADE

BIG WHEEL OUTFIT

Instructions for building wheels.

Three sizes of wheels can be made, 4, 6 and 8 in. diameter. The rim sections are equally useful for forming the curved parts of towers, arches, lighthouses, roundabouts, etc.

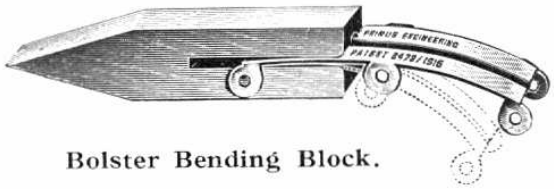


Rim Section.

Fitting the Rim Sections.

If you examine the rim sections carefully you will observe that the two ends are slightly different. Place a section in front of you with the inscription in the proper position for reading, and you will see that the pair of lugs at the end on the right are set a trifle wider apart than those on the left. This is intended to facilitate the joining up of the sections, for the left-hand pair of lugs of one section will fit snugly into the right-hand pair of lugs of another. Great care should be taken to place each section in its proper relative position.

4-inch dia. Double Hub Wheel.


Bolster Bending Block.

Bending the Rim Sections.

The rim sections are bent to a curve necessary to make four section wheels of 4 in. in diameter; to adapt to the larger wheels the curve of each section has to be slightly reduced. This should be done by placing the rim section in the mouth of the bolster bending block and gently bending upwards, then push section further in the block and repeat the process until desired alteration in curve is attained. To bring the section back to its original curve reverse the operation.

Do not bend the sections roughly, or you will make a sharp kink, which besides being ugly will entirely destroy the symmetry of the section and make it impossible to properly fit.

Building 4-in. Double Hub Wheels.

It is best to commence building the easiest wheel, known as the double hub, where the spokes have a rake sideways and are not bent. The spokes are all screwed on to the hubs and then the screws are just turned back a trifle so as to leave them loose until the wheel is finished, one side being dealt with at a time. Then screw one of them to a pair of sections, afterwards screw each alternative spoke to the other pair at the lugs where they join. The central lugs should be screwed up to the alternative spokes last, finally all the screws should be tightened up. In fitting the second series of spokes on hub, see that the rake taken by the spokes is in the same direction as the first series.

The accompanying illustration, together with these instructions, should make it easy for anyone to build a 4-in. double hub wheel.

Building 4-inch Single Hub Wheels with Big Wheel Outfit.

Fig. 1.

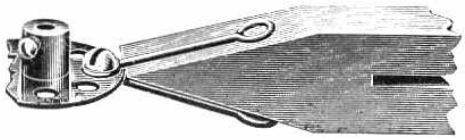
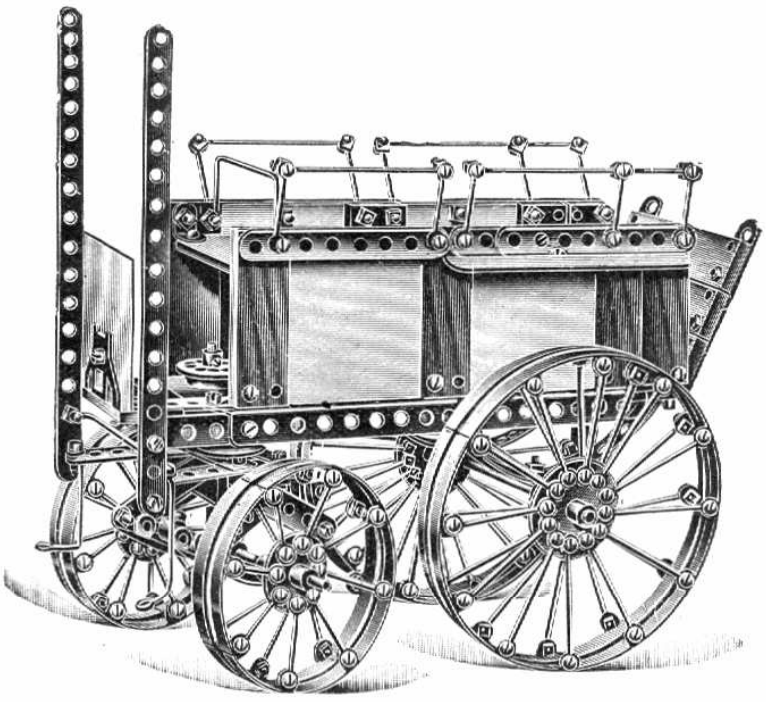


Fig. 2.

Fig. 3.

Commence by fixing the spokes on to the hub in pairs, each pair held on by one bolt and nut. When they are all on, if looked at sideways, they will appear as Fig. 1. Each of the spokes must then be bent slightly outwards by inserting the wedge end of bolster (Fig. 2) to give them sufficient rake to fit the lug on the wheel sections, and they should then appear as nearly as possible like Fig. 3.

The spokes can then be easily fitted by taking two of the sections and screwing one eye of a spoke through the lugs that form the joint. Follow up with other sections, and when the fourth is screwed into its place the remaining spokes may be screwed on to the central lug and the whole series will form a perfect wheel, with a channel for a driving band in the centre.



Tradesman's Cart No. 1012.

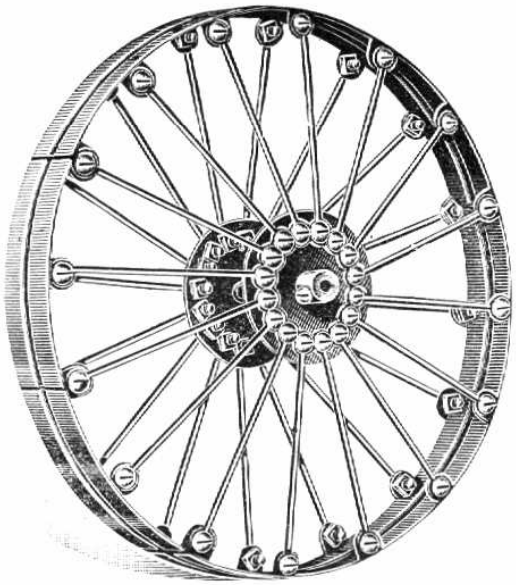
A typical model made with Primus Big Wheel Outfits and parts from a No. 2 set. Further models are shown on following pages.

4-inch Single Hub Wheel.

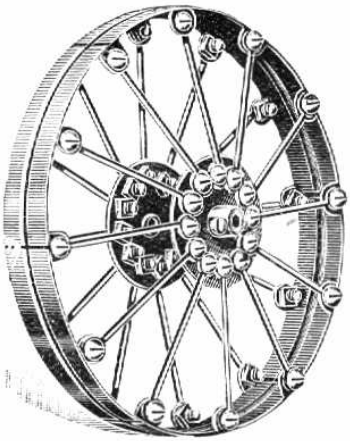
Building Double Hub Standard Wheels.

This is the standard form of wheel and suitable for most purposes. After the spokes are screwed to the hubs, they are given a slight rake by bending them inwards, as shown in the drawing, Fig. 4. They will then be found to fit the section perfectly. The wheels have a handsome appearance, and are perfectly balanced.

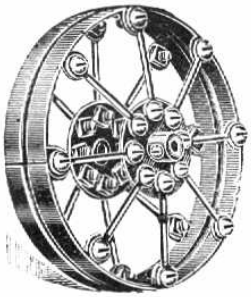
The 6- and 8-in. wheels are built up in exactly the same manner as the smaller one, and once the system is mastered, there is no difficulty.



8-in. wheel.



6-in. wheel.



4 in. wheel.

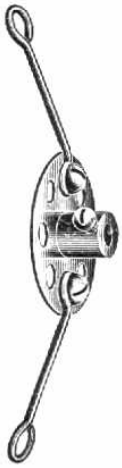


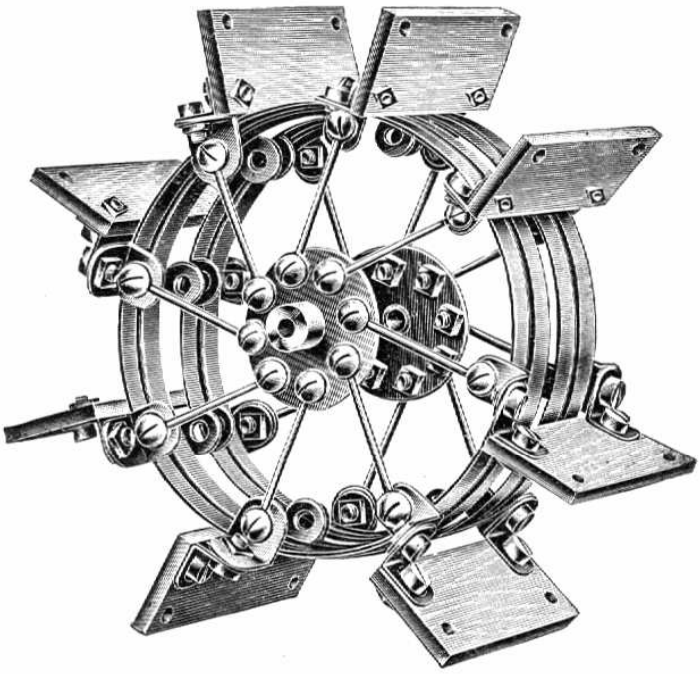
Fig. 4.—Spokes bent for standard wheel.

Building Composite Wheels.

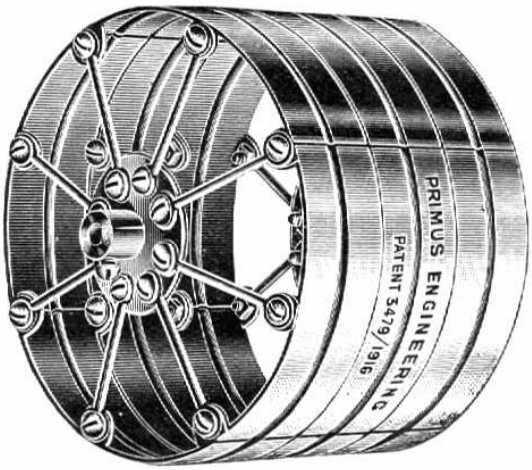
To make composite wheels the same general plan must be followed as for the simple ones.

After one of the hubs with its set of spokes has been fitted to the set of wheel sections on one side only, the side sections should be screwed together, and lastly the second hub with its set of spokes should be screwed on.

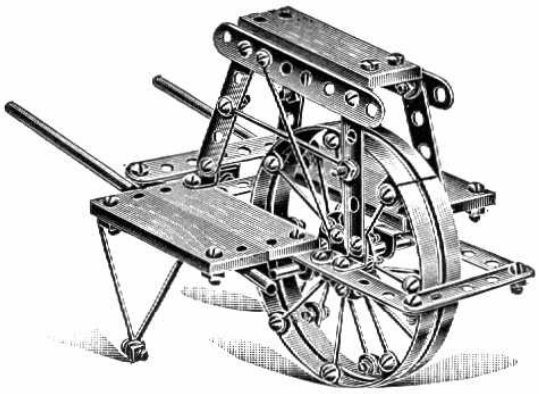
With this plan one side is always open, which makes it more convenient to adjust the screws and nuts.



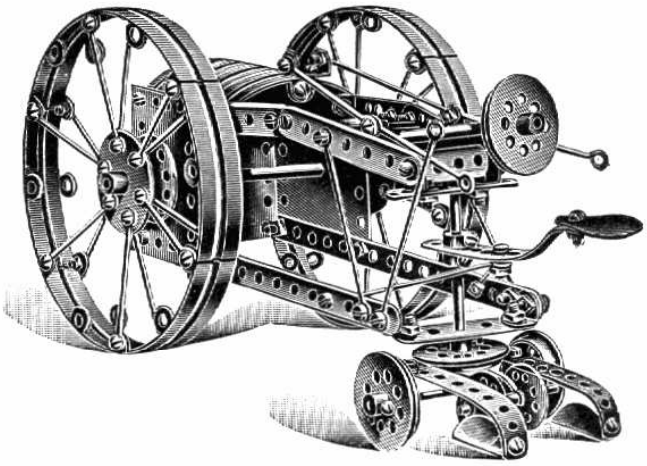
Paddle or Mill wheel.



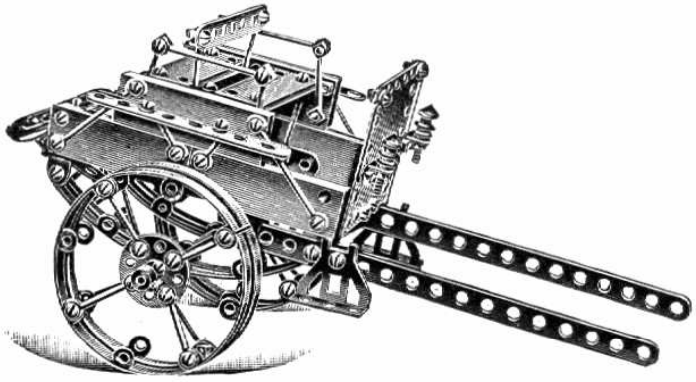
Wheel for Steam Roller, etc.



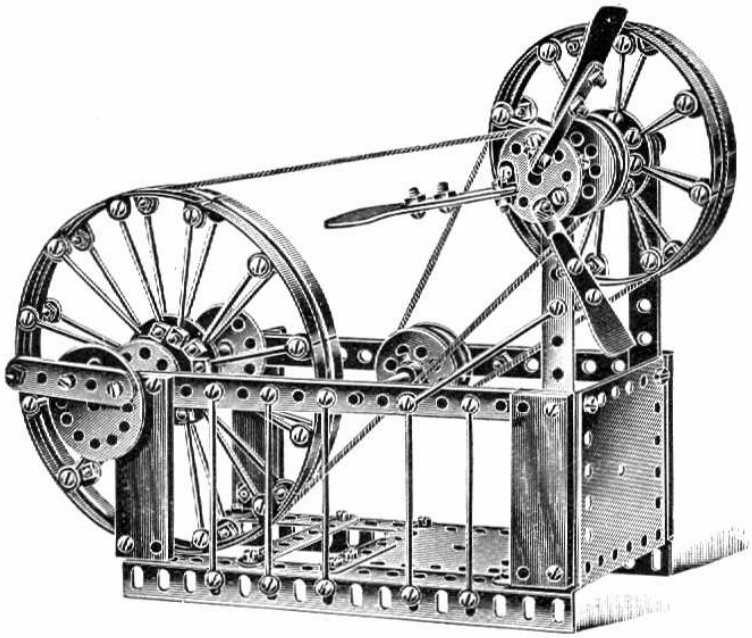
Chinese Luggage Barrow No. 1004.



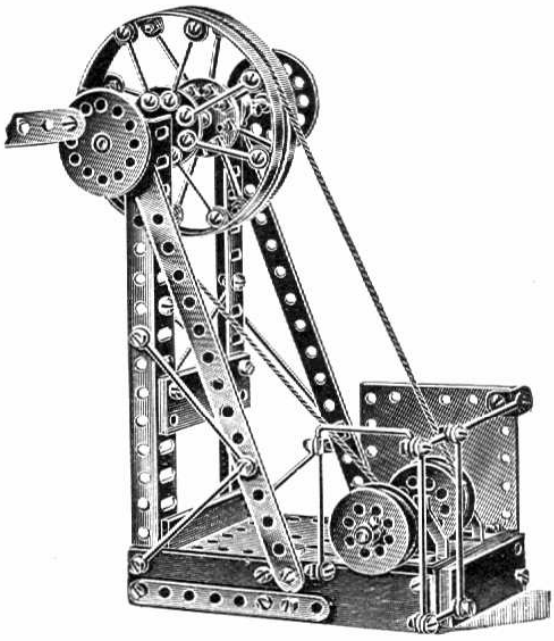
Tractor Plough No. 1001.



Dog Cart No. 1000.

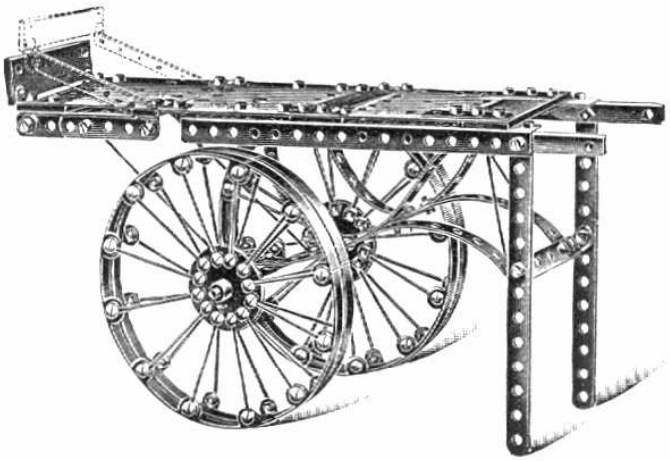


Power Driving Wheel and Fan No. 1003.

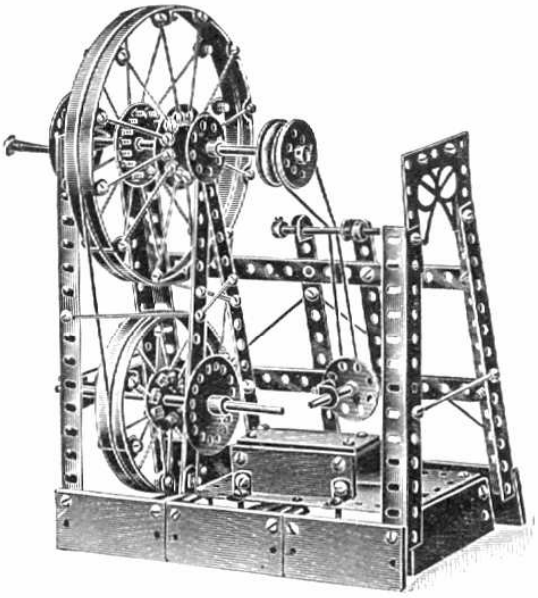


Power Wheel and Counter Shafting No. 1005.

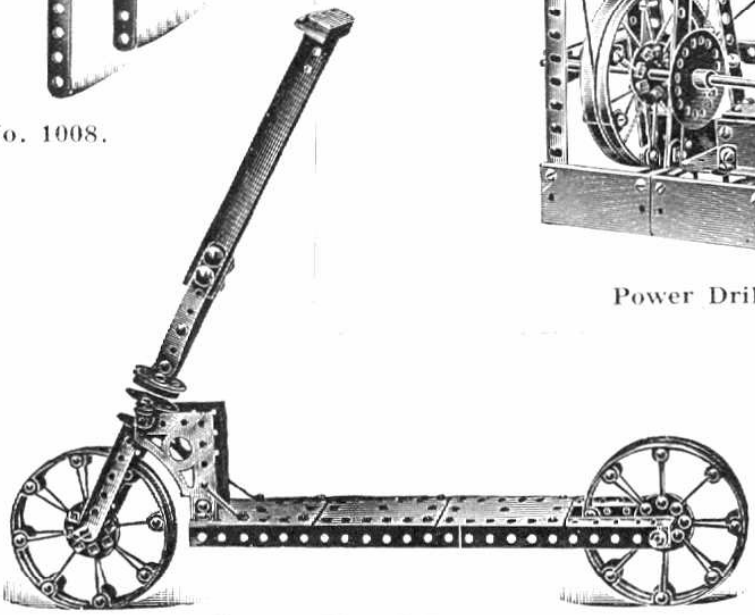
Models made with PRIMUS BIG-WHEEL & No. 2 standard outfit



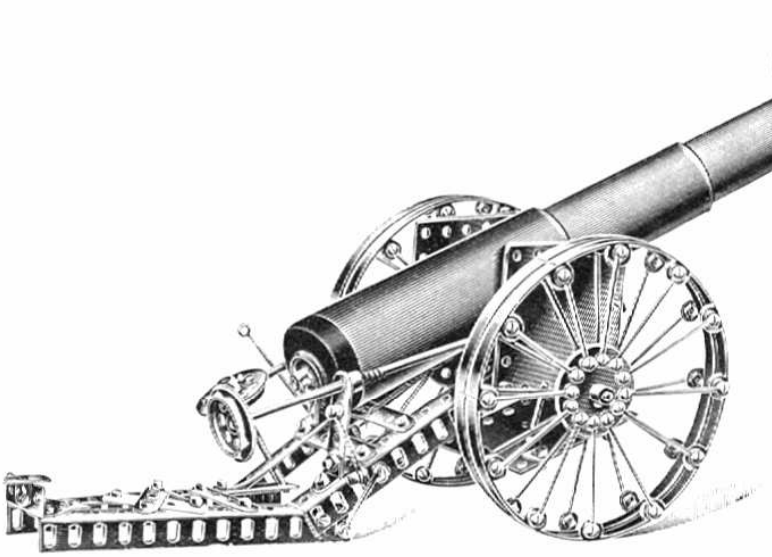
Wheeled Hospital Stretcher No. 1008.



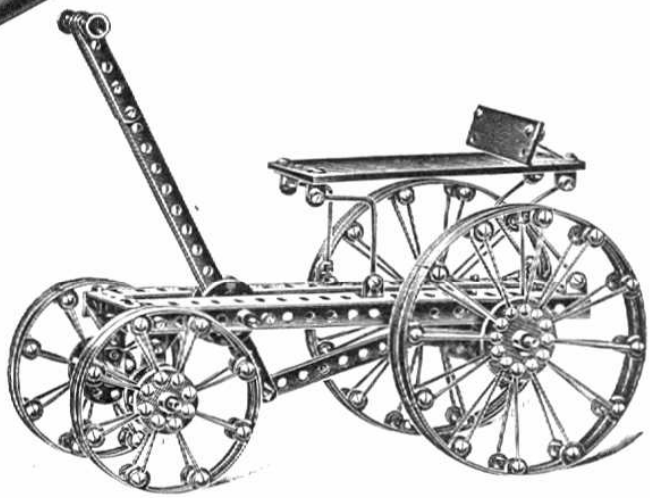
Power Drill No. 1006.



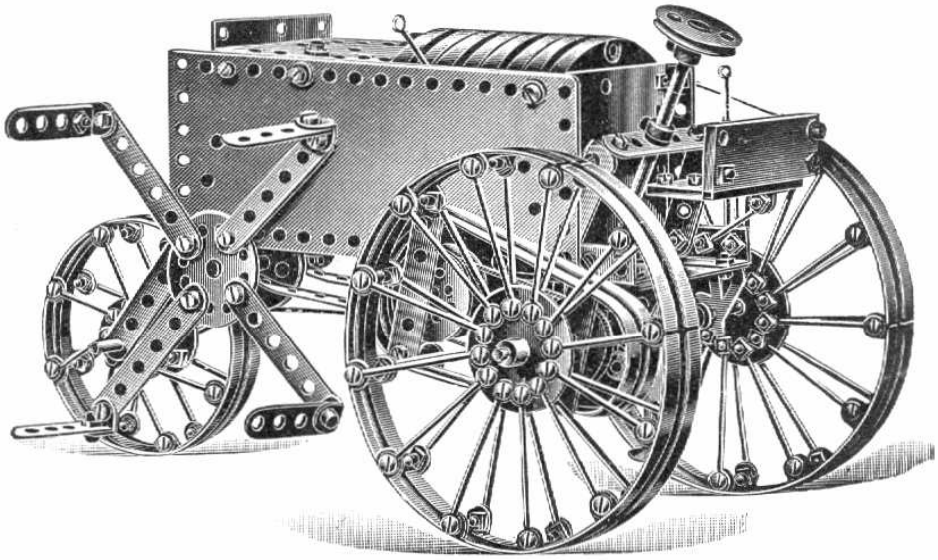
Scooter No. 1007.



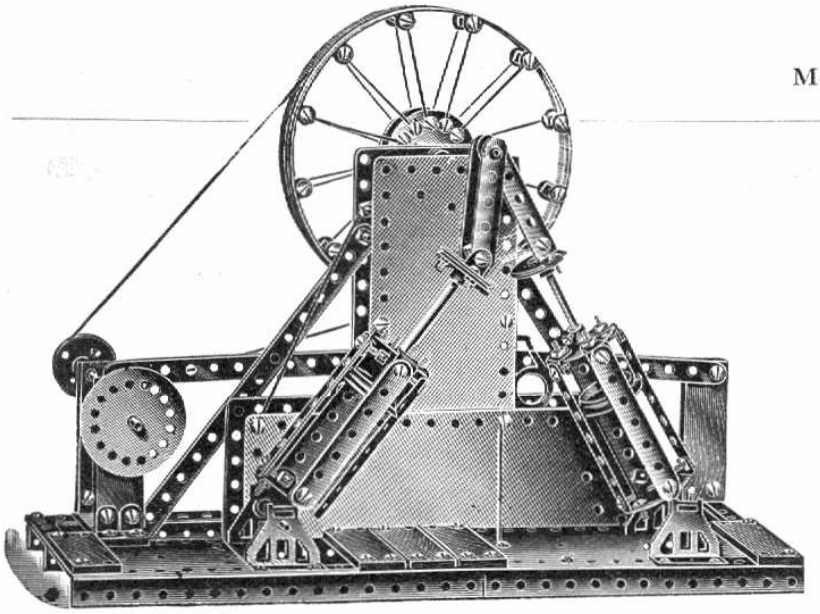
Model of 6-in. Quick Firer No. 1011.



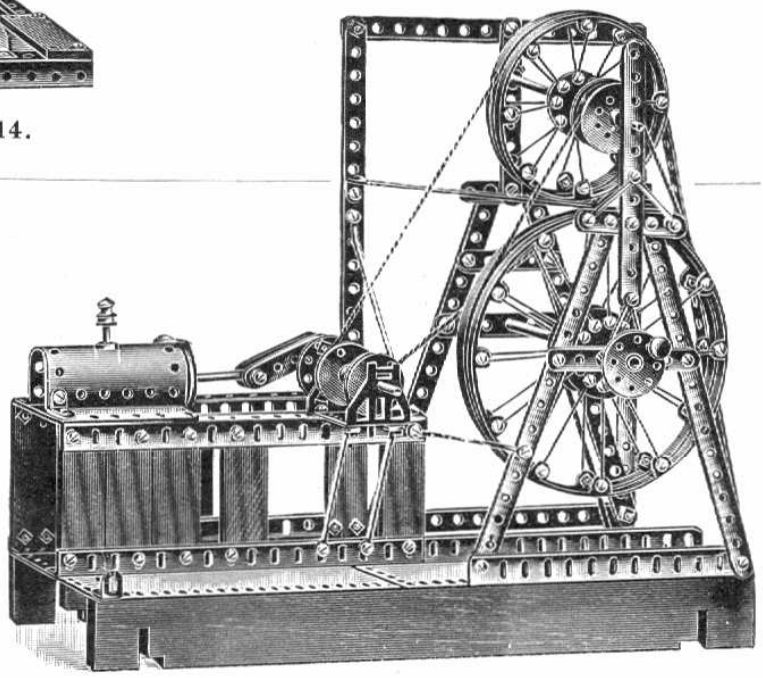
Boy's Scooter Cart No. 1010.



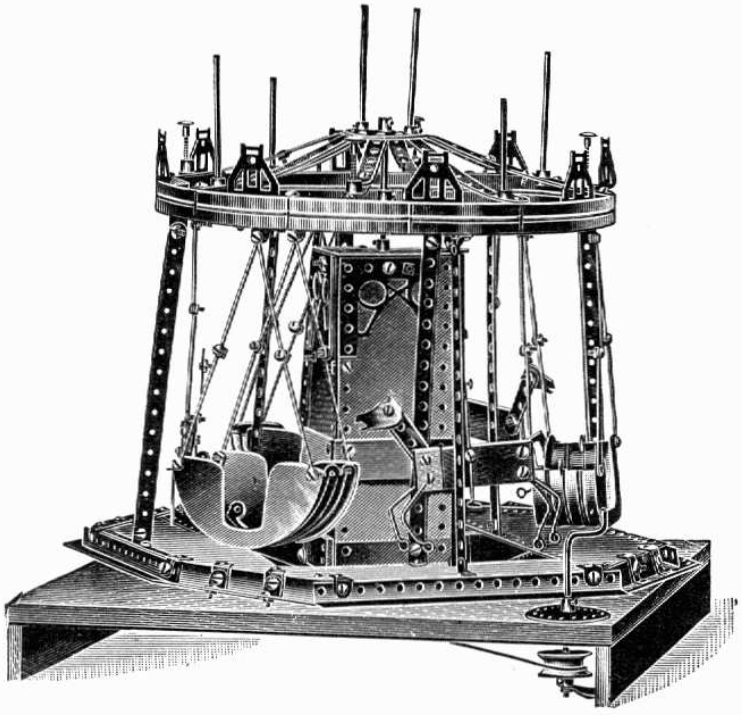
Motor Reaping Machine No. 1015.



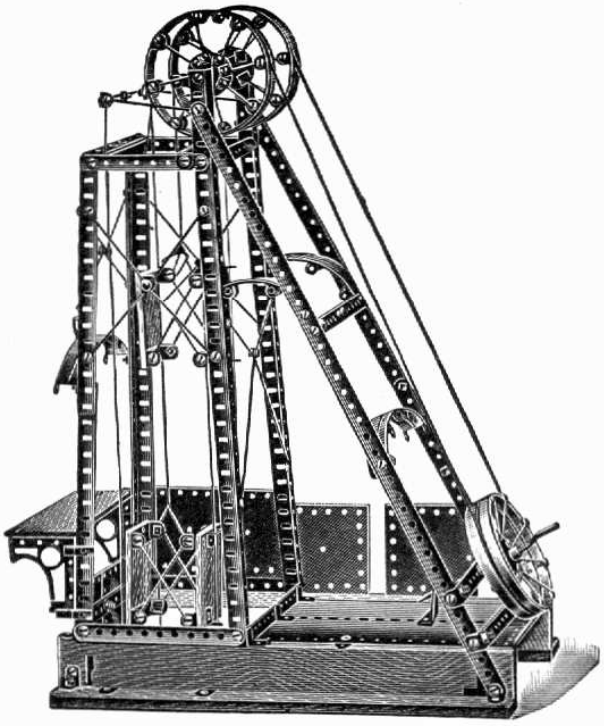
Engine with double oscillating cylinders No. 1014.



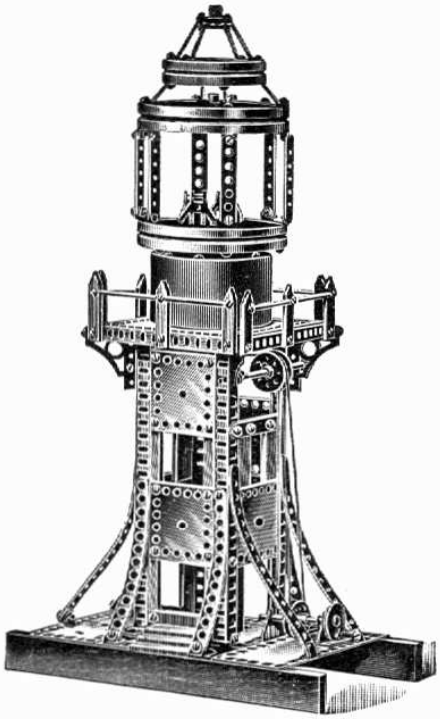
Power Plant with cylinder No. 1013.



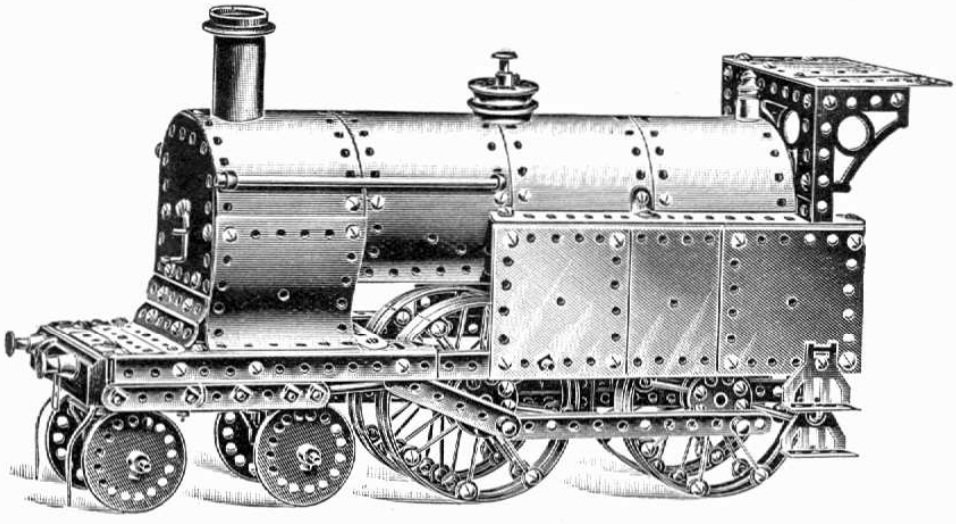
Roundabout No. 1019.



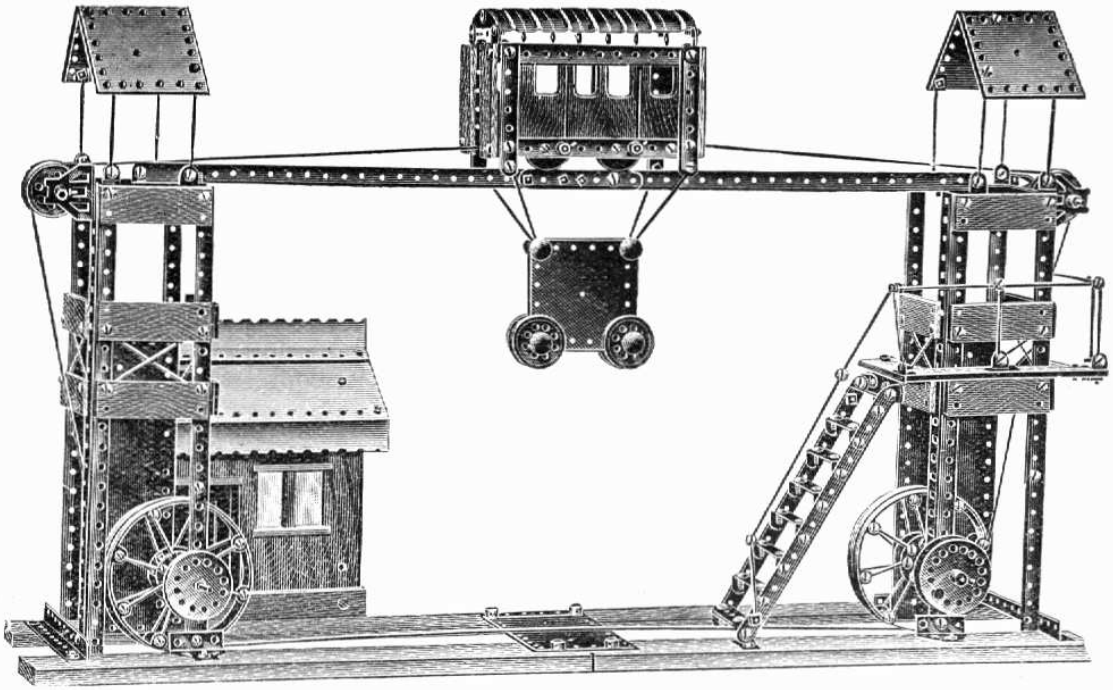
Pit Head Gear No. 1017.



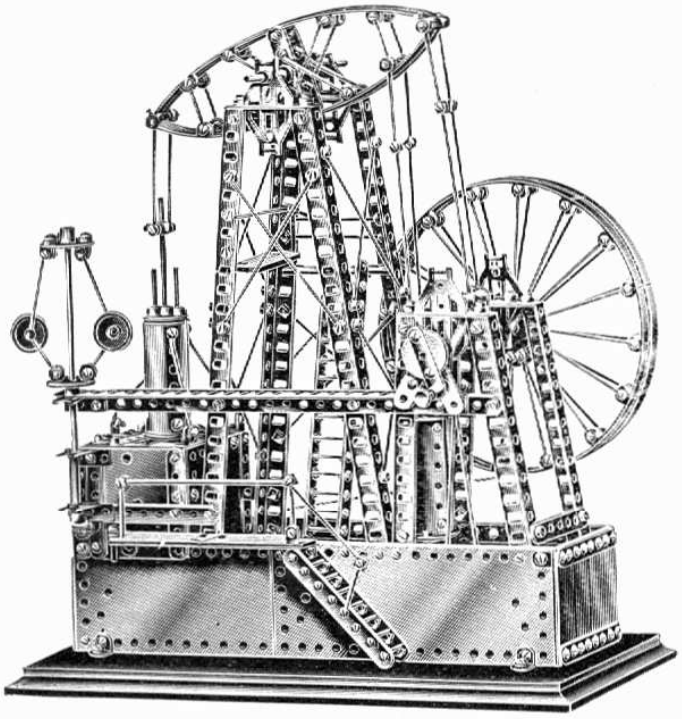
Lighthouse No. 1018.



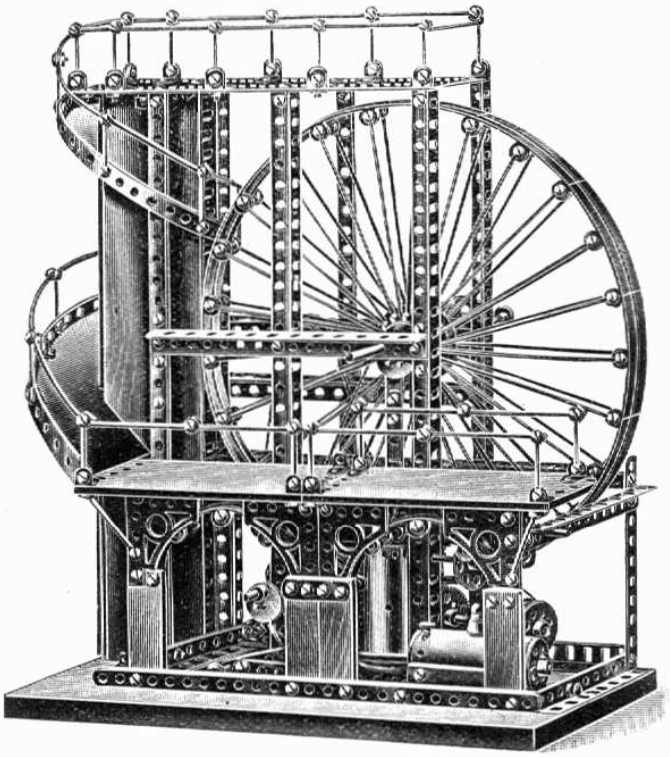
Midland Locomotive 4-4-0 type No. 1020.



Mono Railway No. 1025.



Beam Engine No. 1023.



Laxey Wheel (12-in. Wheel) No. 1024.

PRIMUS ENGINEERING
BRITISH MADE

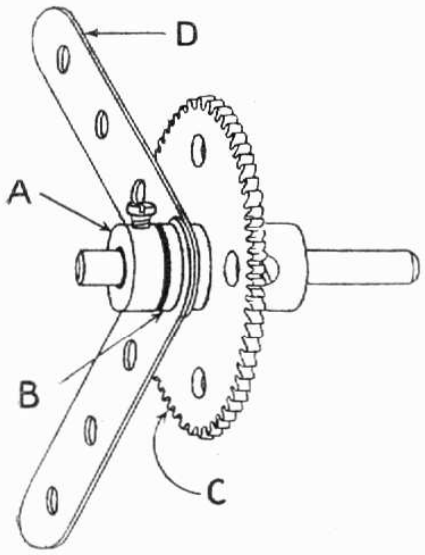
MOTOR CHASSIS OUTFIT

Instructions for building Motor Chassis.

First take the chassis framework, which is supplied in outfit, already fitted, and screw trunnions No. 74 in their correct position, which will be found by placing them over the third and fifth holes in the Angle bars, counting from the back.

Next fit the 2-in. strips in the position shown by the illustrations below. The purpose of these strips is to support the steering gear. The illustrations show the exact method of fixing gears into position.

Once the gears have been fixed, the chassis will be ready for the dashboard. The steering column should then be adjusted, the bonnet, running boards and mudguards fixed in position, and lastly the wheels. All that then remains to be added will be the driving seat, as shown in illustration of complete chassis on page 8.



First fix the collar A on to the 1½ in. rod in the position indicated by the diagram. Then place the washer B on the same rod up to the face of collar A, and pass the rod through the end holes of the 2 in. strips fixed to the chassis as illustrated.

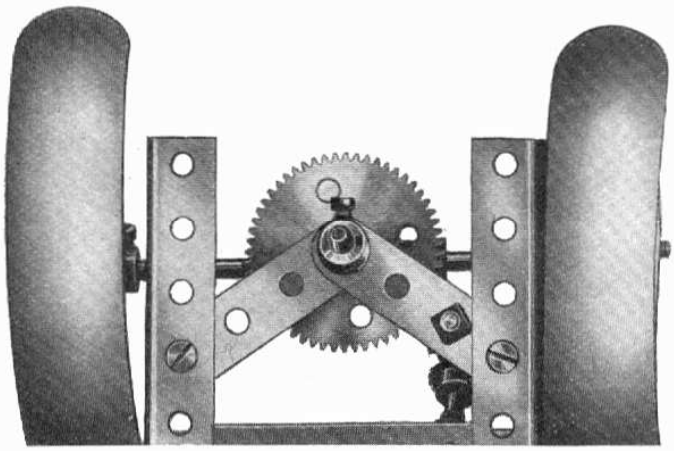
Next place the gear wheel C on to the opposite end of the 1½ in. rod and fix it so that the boss of the wheel and the washer grip the 2 in. strips as tightly as possible. You can now place combination spur and bevel gear, No. 204, in position. This revolves on a shoulder screw, which is fixed tightly on to the 2 in. strips, letter D in the diagram.

The bevel pinion, No. 205, on the steering column should next be fitted. This must be fixed so that the teeth are as deep in mesh as possible. Adjustments are easily made by means of collars on the steering column or by altering the position on the steering column bearing, which has slotted holes for this purpose.

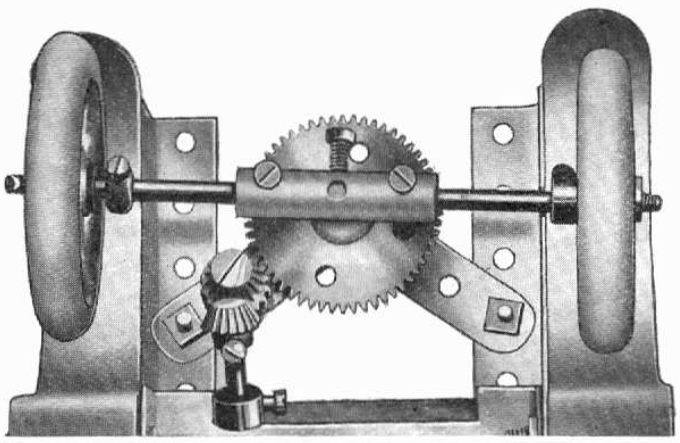
The collars must be fitted in such a position that the set screws will not catch the steering column bearing before the steering lock has been turned to its fullest extent.

The coupling which carries the front axle rods can now be fixed on the 1½ in. rod in such a position that the axle rods are quite clear of the angle bars.

Note :—All the motor chassis models illustrated on following pages are made with this outfit and extra Primus parts as shown.

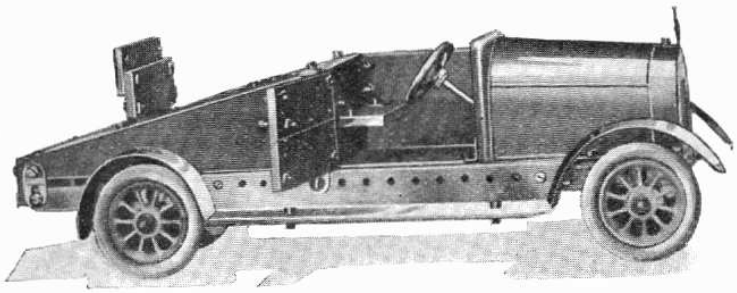


Steering Mechanism, View from top.



Steering Mechanism, View from underneath.

Two-Seater Touring Car with Dickey, M.1.

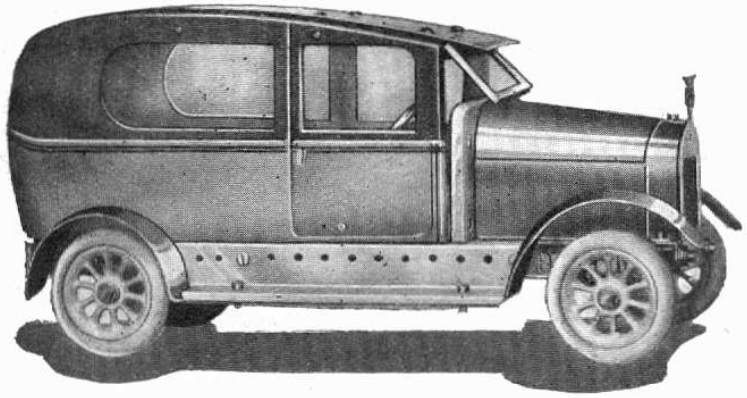


First fix a 2-in. strip to angle bars on either side of the chassis in order to extend the rear, then cut carriage floor wedge-shape for the sides, or cardboard will answer the purpose just as well. Fix by means of 2½-in. strips at front end and with an angle bracket flattened out at the back end. Bend a 3 × 3 plate between the second and third holes to form back inside of car for dickey seat and use wood slips and straight hinges. Also wood slips are used for doors and driving seat.

Extra parts required :

1	Floor board	No. 9	2	Metal strips	No. 57
11	Wood slips ..	,, 25	4	Brackets ..	,, 66
40	Screws and nuts	,, 50/1	8	Straight hinges	,, 72
4	Metal strips	,, 56	2	Knob screws and nuts ..	,, 92

Four-Seater Coupé, M.2.

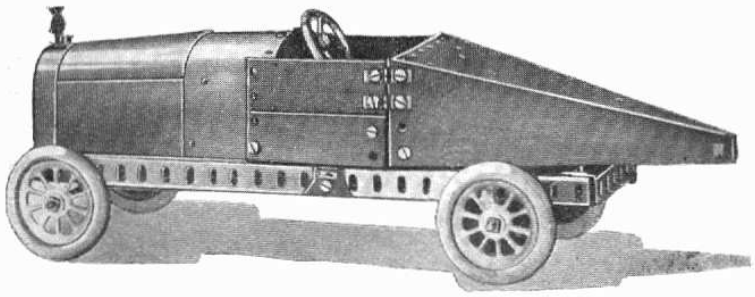


For the roof two 8 × 3 plates need to be bent in order to form both back and roof combined. The sides are made from cardboard or wood, the latter being most satisfactory and more permanent.

Extra parts required :

		No.			No.
18	Screws and nuts	50/51	2	Straight hinges	72
10	Brackets ..	66	2	Carriage door handles ..	88
2	Metal plates	,67	6	Door screws	91

Racing Car, M.3.

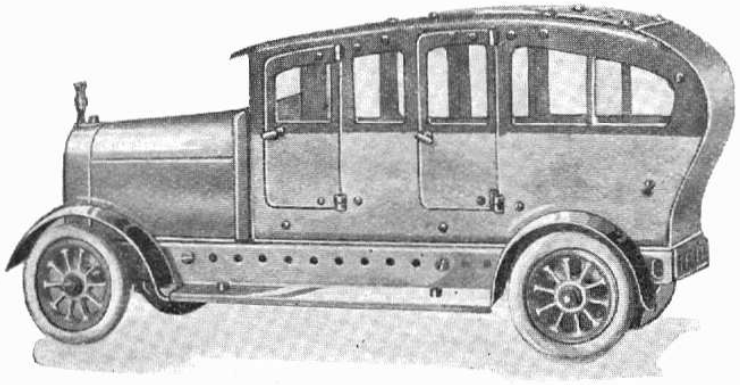


Two 3 × 3 plates are bent to form the bonnet extension. One carriage floor is cut wedge-shape to form the tail of the body and an 8 × 3 plate can be cut to form the top of same, but they also can be made out of cardboard or wood.

Extra parts required :

1	Floor ..	No. 9	8	Brackets ..	No. 66
12	Wood slips	,, 25	1	Metal plate	,, 67
35	Screws and nuts	,, 50/1	2	Metal plates	,, 68
3	Metal strips	,, 62	3	Trunnions	,, 74

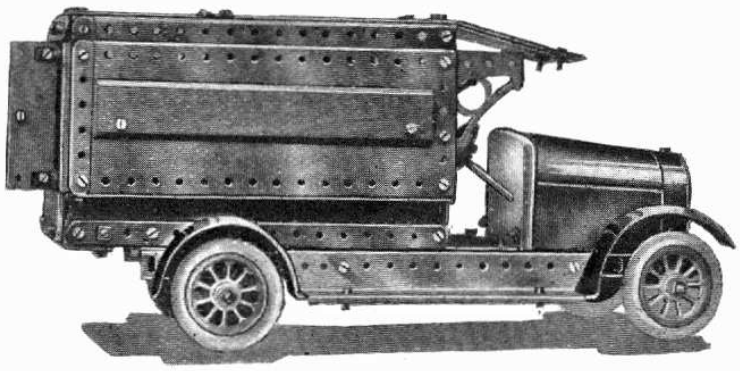
Five-Seater Saloon Body, M.4.



As in the case of the four-seater coupé, two 8 × 3 plates are required for the roof and back, and the photograph shows how these should be bent. Either cardboard or wood can be used for the sides and doors.

Extra parts required :

		No.			No.
14	Screws and nuts	50/51	8	Bent hinges	73
10	Brackets ..	66	4	Carriage door handles ..	88
2	Metal plates	67	28	Carriage door screws	91



Box Delivery Van M.5.

Fix on each side 2-in. strips placed vertically to the floor of the chassis by means of brackets, using the 12th hole from the front, also a 2-in. strip should be fixed in the last hole of the chassis on either side. Build sides of body by first fixing 8-in. strips, and secondly 8-in. angle bars in position, then fit the driver's seat and fix the roof in position.

Extra parts required.

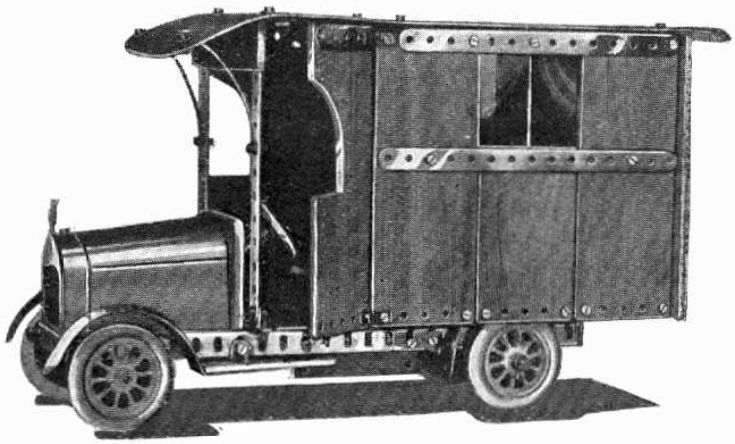
2 Truck sides	No. 17	2 Architraves ..	No. 65
8 Wood slips ..	,, 25	18 Brackets ..	,, 66
80 Screws and nuts	,, 50/51	4 Metal plates ..	,, 67
4 Angle bars ..	,, 54	3 Metal plates ..	,, 68
2 Angle bars ..	,, 55	4 Straight hinges	,, 72
6 Metal strips ..	,, 56	2 Trunnions ..	,, 74
4 Metal strips ..	,, 59	2 Carriage door handles ..	,, 88
5 Metal strips ..	,, 60		
2 Metal strips ..	,, 63	2 Turnbuttons	,, 89

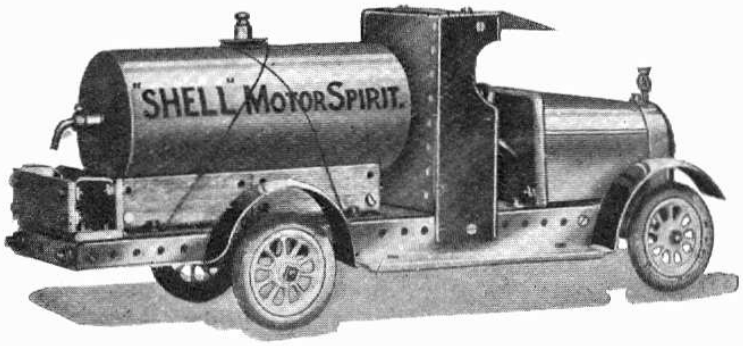
Motor Caravan M.6.

Two 12½-in. strips are used for sides at base, next to chassis, and two 8-in. angle bars for inside tops lengthened with 3½-in. strips. The sides are made with carriage floors or cardboard. Two 3-in. strips are curved and fixed by brackets to form rear mudguards.

Extra parts required.

10 Floors ..	No. 9	1 Metal strip ..	No. 61
1 Side of goods truck	,, 17	2 Metal strips ..	,, 62
4 Wood slips ..	,, 25	4 Metal strips ..	,, 63
71 Screws and nuts	,, 50/51	2 Metal strips ..	,, 64
1 Angle bar ..	,, 52	18 Brackets ..	,, 66
2 Angle bars ..	,, 54	1 Metal Plate ..	,, 68
2 Angle bars ..	,, 55	2 Trunnions ..	,, 74
4 Metal strips ..	,, 56	3 Wire stays ..	,, 155
3 Metal strips ..	,, 57	2 Wire stays ..	,, 156
6 Metal strips ..	,, 60		





Motor Spirit Lorry M.7.

One 8 × 3 plate is used for canopy, bent between 6th and 7th holes for top and between 2nd and 3rd holes at bottom. A piece of wood or cardboard is used for sides. Use wood or round tin for tank, erecting same on wood slips.

Extra parts required.

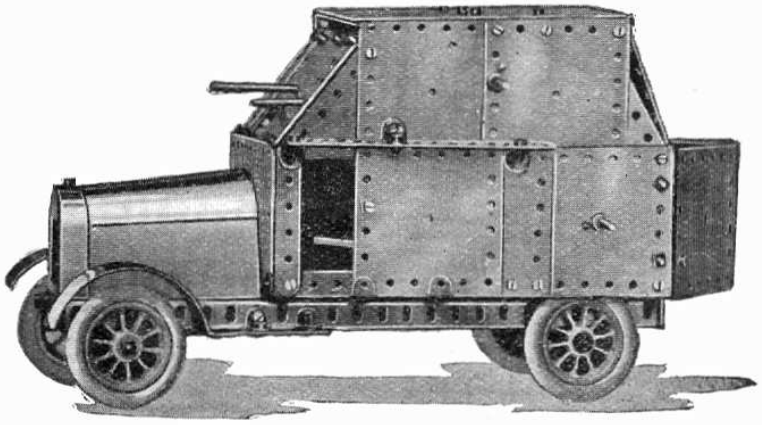
8 Wood slips ..	No. 25	1 Metal plate ..	No. 68
36 Screws and nuts	,, 50/51	1 Knob screw ..	,, 92
2 Metal strips ..	,, 60	2 Wire stays ..	,, 154
12 Brackets ..	,, 66	1 Pulley wheel	,, 158
1 Metal plate ..	,, 67		

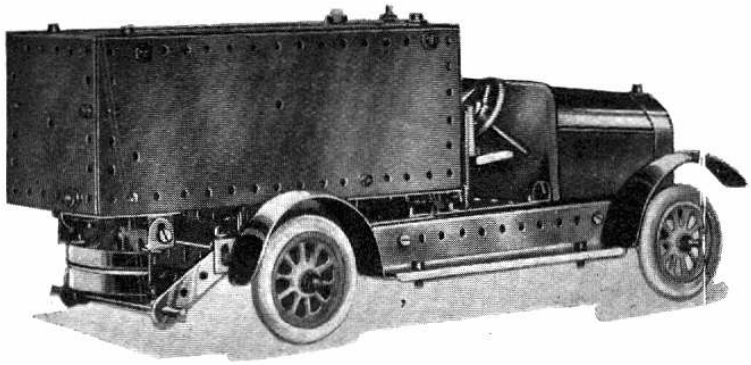
Armoured Car M.8.

The sides are made by overlapping 3 × 3 plates, a 4-in. strip being bolted across the chassis at back and front of body to support same.

Extra parts required.

2 Wood slips ..	No. 25	2 Metal plates ..	No. 67
100 Screws and nuts	,, 50/51	21 Metal plates ..	,, 68
2 Angle bars ..	,, 54	4 Straight hinges	,, 72
2 Metal strips	,, 56	2 Trunnions ..	,, 74
2 Metal strips	,, 57	1 Axle rod ..	,, 77
5 Metal strips	,, 58	1 Axle rod ..	,, 78
5 Metal strips	,, 60	4 Axle rods ..	,, 79
1 Metal strip ..	,, 61	15 Collars and set screws ..	,, 82
30 Brackets ..	,, 66		





Road Sprinkler M.9.

Four 8 × 3 plates are used for the sides, top and bottom of the tank, with a 3 × 3 plate for each end and a rim section from a Primus Big Wheel outfit if fitted at the tail to resemble the sprinkler.

Extra parts required.

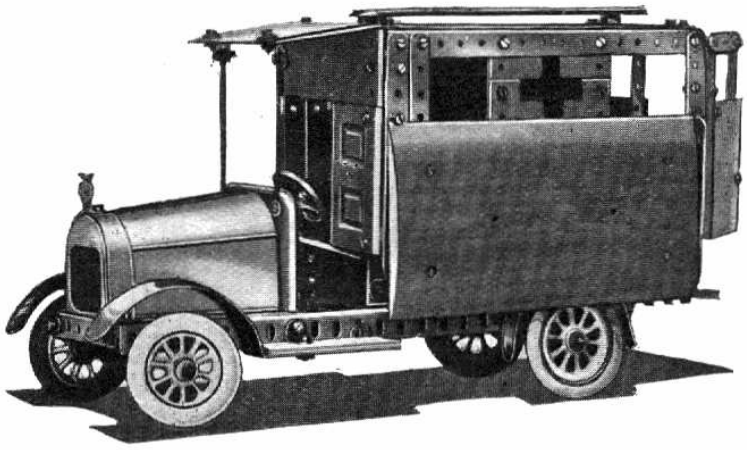
2	Wood slips ..	No. 25	3	Metal plates ..	No. 68
56	Nuts and screws	,, 50/51	2	Trunnions ..	,, 74
5	Metal strips ..	,, 56	2	Collars and set screws ..	,, 82
28	Brackets ..	,, 66	12	Washers ..	,, 84
4	Metal plates	,, 67	1	Rim section ..	,, 150

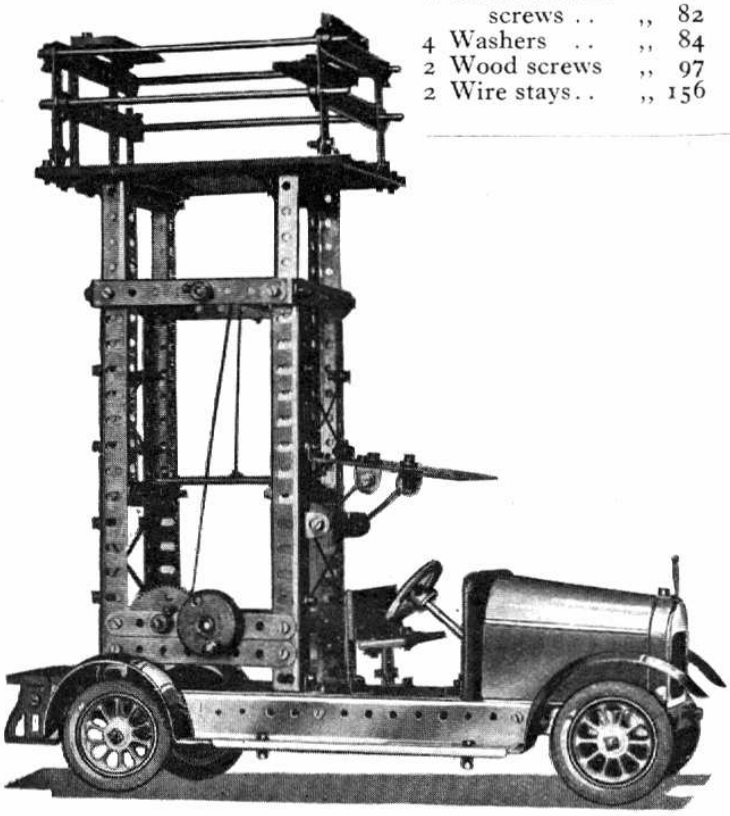
Motor Ambulance M.10.

Fix on each side 2-in. strips placed vertically to the floor of the chassis by means of brackets. Now fix one 8-in. strip and one 8-in. angle bar on either side. A 5½-in. strip is fixed at each corner in an upright position and one 8-in. angle bar along the sides at top, also one 4-in. strip across the top at each end. The woodwork should then be added as indicated.

Extra parts required.

2	Roofs ..	No. 10	4	Metal strips ..	No. 58
3	Doors ..	,, 16	3	Metal strips ..	,, 60
2	Sides of goods truck ..	,, 17	6	Metal strips ..	,, 61
10	Wood slips ..	,, 25	2	Metal strips ..	,, 63
110	Screws and nuts	,, 50/51	26	Brackets ..	,, 66
4	Angle bars ..	,, 54	1	Metal plate ..	,, 67
8	Metal strips	,, 56	2	Metal plates ..	,, 68
			6	Straight hinges	,, 72
			2	Collars and set screws ..	,, 82
			4	Washers ..	,, 84
			2	Wood screws	,, 97
			2	Wire stays ..	,, 156





Tower-Wagon M.11.

The main structure is made with four 8-in. angle bars for uprights, and the rise and fall platform is made with four 6-in. angle bars so fixed to operate inside the 8-in. angle bars. The 6-in. angle bars are braced together at top by means of 4-in. strips. Base of platform is made with two No. 9 floors.

Extra parts required.

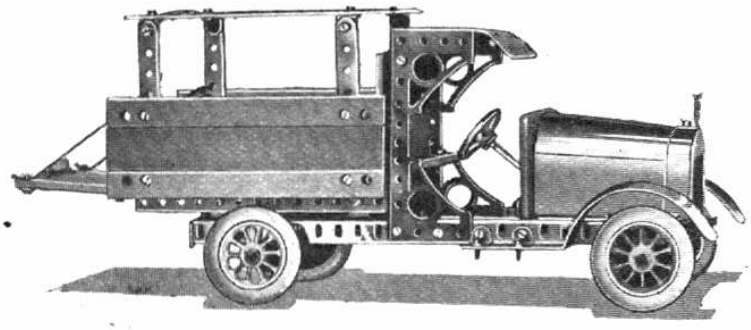
2	Floors ..	No. 9	4	Metal strips ..	No. 61
7	Wood slips ..	,, 25	32	Brackets ..	,, 66
128	Screws and nuts	,, 50/51	2	Trunnions ..	,, 74
4	Angle bars ..	,, 53	1	Grooved wheel	,, 76
8	Angle bars ..	,, 54	2	Axle rods ..	,, 77
4	Metal strips	,, 56	12	Collars and set screws	82
4	Metal strips	,, 57	1	Knob screw and nut	92
6	Metal strips	,, 68	8	Wire stays ..	,, 155
8	Metal strips	,, 60	1	Gear wheel ..	,, 160

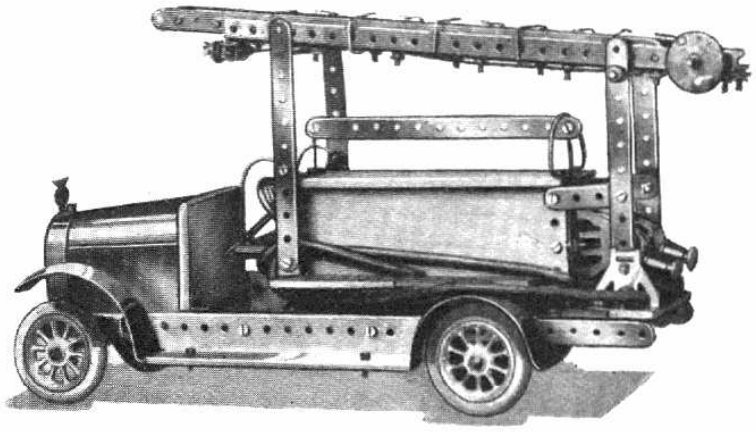
Fire Engine M.12.

It is first necessary to extend chassis with 3-in. strips, the firemen's seat being made with carriage floors erected on two 6½-in. angle bars. The scaling ladder is made by fixing two 12-in. angle bars together with 3¼-in. wire stays and bending them over to clear the inner running ladder ; the rungs are made by bending 1⅜ in. wire stays at each end and screwing to two 12½-in. strips.

Extra parts required.

3 Floors	No. 9	6 Trunnions	No. 74
7 Wood slips	,, 25	1 Grooved wheel	,, 76
86 Screws and nuts	,, 50/51	1 Axle rod	,, 77
2 Angle bars	,, 53	2 Axle rods	,, 78
4 Angle bars	,, 55	1 Axle rod	,, 79
8 Metal strips	,, 56	8 Collars and set screws	,, 82
2 Metal strips	,, 59	10 Washers	,, 84
7 Metal strips	,, 61	2 Buffers and nuts	,, 85
2 Metal strips	,, 64	1 Knob screws and nuts	92
22 Brackets	,, 66	12 Wire stays	,, 154
1 Metal plate	,, 67	14 Wire stays	,, 156





W.D. Lorry M.13.

Take an 8 × 3 plate and bend at a sharp angle at the second hole from one end and the seventh hole at the other end to form the driver's canopy. For sides fix 6½-in. angle bars to chassis with brackets, then screw two more 6½-in. angle bars on to the top of the first ones. These are to form the supports for fixing 4-in. strips and wood sides, which should be bolted on to the chassis plate.

Extra parts required.

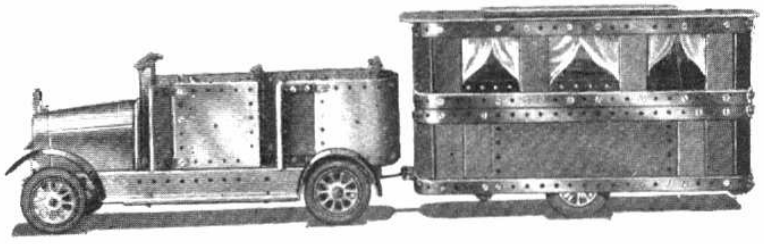
4 Grooved side rails	No. 1	1 Metal strip	No. 60
2 Sides of goods truck	,, 17	2 Metal strips	,, 61
6 Wood slips	,, 25	2 Metal strips	,, 62
49 Screws and nuts	,, 50/51	2 Metal strips	,, 63
4 Angle bars	,, 53	4 Architraves	,, 65
4 Metal strips	,, 56	10 Brackets	,, 66
2 Metal strips	,, 57	3 Metal plates	,, 68
4 Metal strips	,, 59	2 Straight hinges	,, 72

Car and Caravan M.14.

Three 3 × 3 plates are used to form the back of the car, and wood slips for the doors. The body is fixed to the chassis by means of brackets. The trailer is built by bending four 12½ in. strips at the ends, which are used on either side and they are joined by 4-in. strips which run across the front and back of the caravan. Sides and top can be made with either wood or cardboard, and celluloid or glass can be fixed into position for the windows.

Extra parts required.

2 Floors	No. 9	8 Metal strips	No. 64
1 Side of goods truck	,, 17	31 Brackets	,, 66
30 Wood slips	,, 25	1 Metal plate	,, 67
148 Screws and nuts	,, 50/51	5 Metal plates	,, 68
2 Angle bars	,, 55	12 Straight hinges	,, 72
16 Metal strips	,, 56	2 Trunnions	,, 74
1 Metal strip	,, 57	1 Grooved wheel	,, 76
10 Metal strips	,, 60	2 Signal post rods	,, 92
		1 Wire stay	,, 154

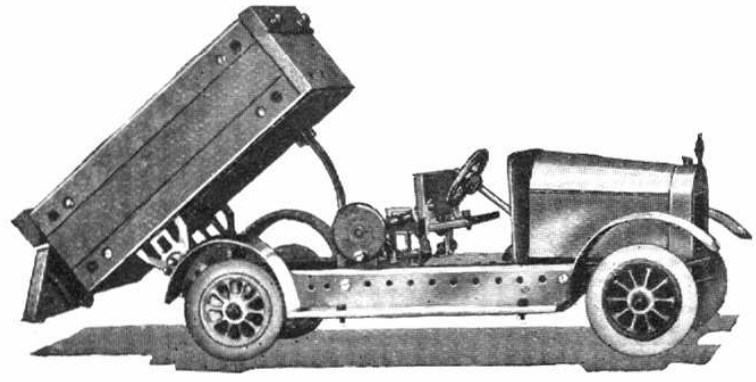


Tipping Wagon M.15.

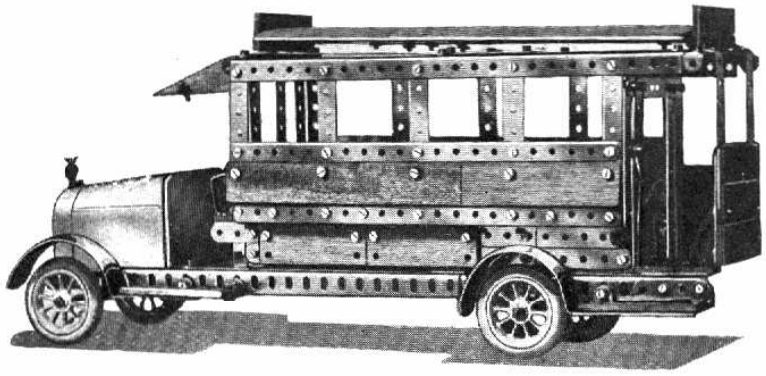
Four 6½-in. strips and two 2-in. strips are used for sides of body framework, and these are joined by two 2½-in. strips at front and one at back, then fix woodwork as shown by illustration. The 8 × 3 plate should be removed from chassis and used as base of wagon body, and a 3 × 3 plate should be clamped to chassis beneath driver's seat. Fix trunnions to truck body and hinge them by means of axle rod fixed at rear of chassis. The tipping mechanism is made by curving a 3-in. strip and attaching with cord to axle rod, using No. 76 wheel for handle.

Extra parts required.

4 Grooved side rails	No. 1	14 Brackets	No. 66
2 Buffer blocks	,, 4	1 Metal plate	,, 68
2 Sides of goods truck	,, 17	2 Straight hinges	,, 72
2 Ends of goods truck	,, 18	4 Trunnions	,, 74
2 Wood slips	,, 25	1 Grooved wheel	,, 76
43 Screws and nuts	,, 50/51	3 Collars and set screws	,, 82
6 Metal strips	,, 56	5 Knob screws and nuts	,, 92
3 Metal strips	,, 57	1 Catch	,, 95
1 Metal strip	,, 58	7 Wood screws	,, 97
4 Metal strips	,, 62		



Motor Bus M.16.

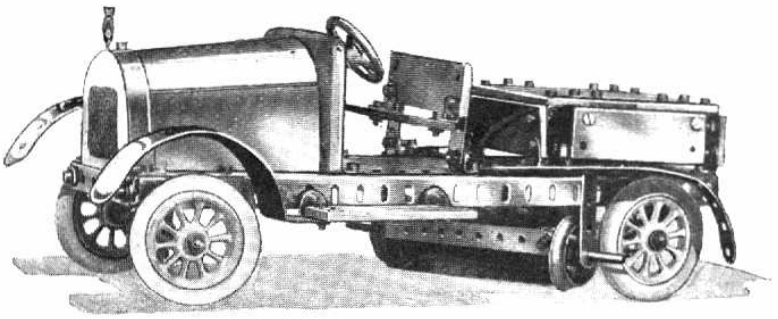


Extend chassis floor with two 8-in. angle bars. Fill in floor with 3 × 3 plate and No. 25 wood slips. Then fix one 2-in. strip vertically (for each corner of bus body) on the chassis with brackets, and erect body by commencing with angle bars and strips. The roof is placed on last by fixing screws through wood slips at either end.

Extra parts required.

2	Roofs ..	No. 10	24	Metal strips ..	No. 60
8	Sides of goods truck ..	,, 17	2	Metal strips ..	,, 61
15	Wood slips ..	,, 25	4	Metal strips ..	,, 64
160	Screws and nuts	,, 50/51	36	Brackets ..	,, 66
4	Angle bars ..	,, 54	1	Metal plate	,, 68
2	Angle bars	,, 55	1	Signal post rod	,, 96
7	Metal strips	,, 56	4	Wood screws	,, 97
			3	Wire stays ..	,, 155

Road Sweeper M.17.

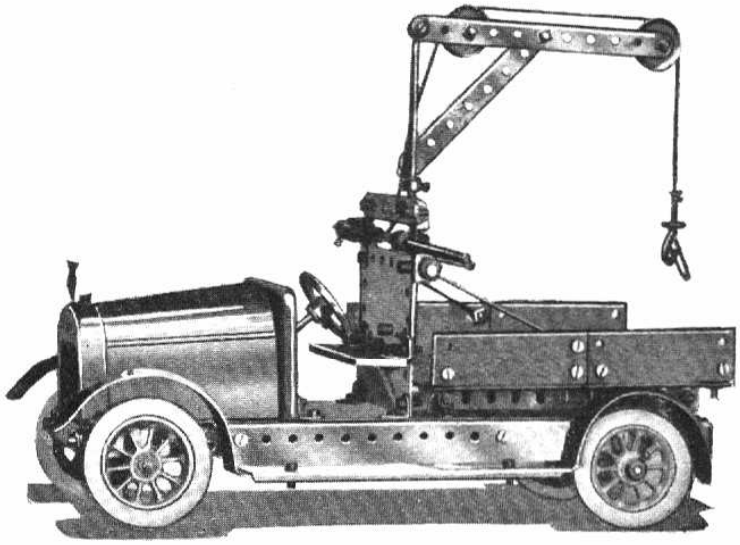


The brush is made with four 4-in. strips bracketed on to two flanged wheels and fitted across at an angle to allow the tyre of back wheel to fit against flanged wheel which turns brush when wheel revolves. Back wheels are raised to allow brush to clear by fitting washers between trunnions and angle bars, using knob screws for bolts.

Extra parts required.

12	Wood slips ..	No. 25	8	Brackets ..	No. 66
56	Screws and nuts	,, 50/51	2	Flanged wheels	,, 75
2	Metal strips	,, 58	1	Wire stay ..	,, 154
6	Metal strips	,, 60	1	Wire stay ..	,, 156
2	Metal strips ..	,, 62	1	Axle rod ..	,, 165

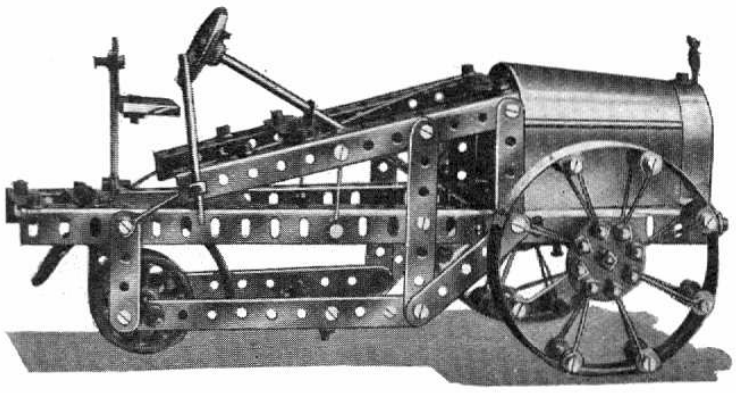
Breakdown Crane M.18.



Four 3 × 3 plates are used for flooring raised on two 6-in. Angle bars which are fixed to chassis with brackets. A 6-in. axle forms upright of crane.

Extra parts required.

5	Slips	No. 25	12	Washers ..	No. 84
50	Screws and nuts	,, 50/51	1	Coupling Hook and nut ..	,, 86
2	Angle bars ..	,, 52	2	Knob screws and nuts ..	,, 92
3	Strips ..	,, 58	2	Wire stays	,, 156
1	Strip	,, 60	2	Pulley wheels with set screws	,, 158
1	Strip	,, 61	1	Axle rod ..	,, 165
24	Brackets ..	,, 66			
5	Plates.. ..	,, 68			
4	Collars ..	,, 82			
1	Handle axle ..	,, 83			



Motor Tractor M.19.

12-in. angle bars are tapered in at tail end to a 2-in. strip and a 3-in. strip at front. Gearing is set back under bonnet, the two 2-in. strips being placed in the 7th hole from front end of angle bars. A 6½-in. axle is used for steering column. 4-in. wheels are made from a Primus Big Wheel outfit. The steering rod is kept in position with 2½-in. strips under bonnet and passed through a bracket on top of body.

Extra parts required.

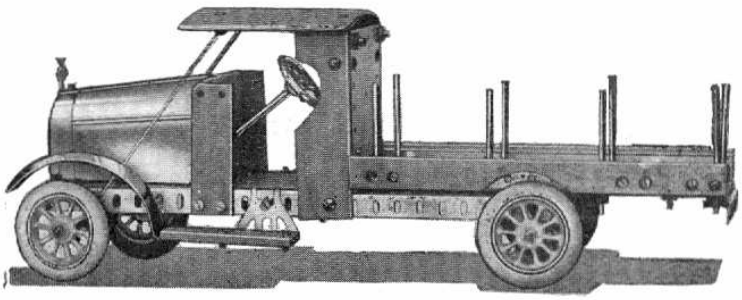
2	Wood slips ..	No. 25	1	Trunnion ..	No. 74
104	Screws and nuts	,,50/51	1	Axle rod ..	,, 77
2	Angle bars ..	,, 52	1	Axle rod ..	,, 78
7	Metal strips	,, 56	7	Collars and set screws ..	,, 82
7	Metal strips	,, 57	2	Signal post rods	,, 96
1	Metal strip ..	,, 58	8	Rim section ..	,, 150
2	Metal strips	,, 59	34	Wire stays ..	,, 154
2	Metal strips	,, 61			
9	Brackets ..	,, 66			

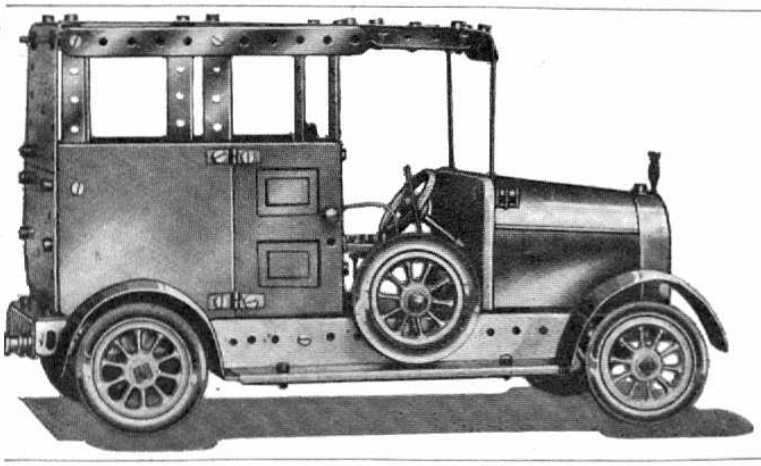
Brewers' Lorry M.20.

Extend chassis with two 8-in. angle bars, filling in floor with 3 × 3 plate Screw on No. 1 side rail, cut out piece of wood or cardboard to erect sides of canopy. Carriage roof or cardboard can be cut to form canopy roof. Eight 2¾-in. axle rods are used (being fixed at bottom with two collars) for barrel staves.

Extra parts required.

3	Grooved side rails	No. 1	2	Metal plates ..	No. 68
1	Roof	,, 10	8	Axle rods ..	, 78
5	Wood slips ..	,, 25	16	Collars and set screws ..	,, 82
30	Screws and nuts	,,50/51	6	Washers ..	,, 84
2	Angle bars ..	,, 54	2	Signal post rods	,, 96
8	Brackets ..	,, 66			





Taxi Cab M.21.

Bend a 3 × 3 plate to shape for lower back panel and screw to chassis, then fix upright strips and work closely to illustration.

Extra parts required.

2	Doors ..	No. 16	3	Metal plates ..	No. 68
4	Wood slips ..	,, 25	5	Straight hinges	,, 72
66	Screws and nuts	,,50/51	3	Lamps and nuts	,, 87
5	Metal strips ..	,, 56	3	Knob scews and nuts ..	,, 92
4	Metal strips	,, 60	2	Wire stays ..	,, 154
4	Metal strips ..	,, 61	2	Wire stays ..	,, 156
22	Brackets ..	,, 66	1	Pulley wheel, plain	,, 159
1	Metal plate ..	,, 67			

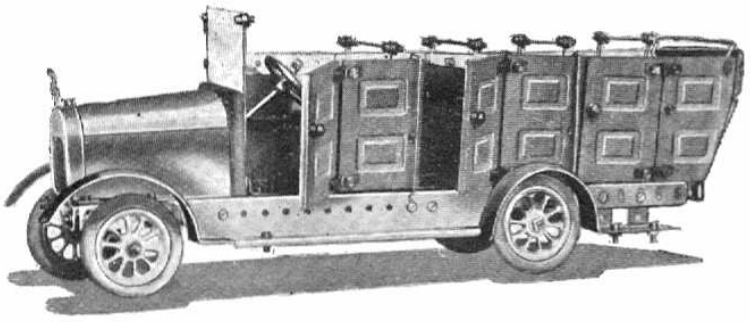
One extra road wheel for spare.
Cardboard is used for panel of body.

Motor Charabanc M.22.

Extend chassis by adding two extra angle bars at rear end. The No. 16 doors on one side are screwed to No. 59 strips to which hinges of doors are also fixed. The other side is made from No. 16 doors screwed to a 12-in. strip along the top, a 12½-in. strip is also fitted inside the body, by means of angle brackets, to support seats. A No. 16 door and a No 17 truck side is cut to form back of charabanc, or cardboard can be used. Running boards must be brought away from charabanc by means of washers placed between angle bars and running boards.

Extra parts required.

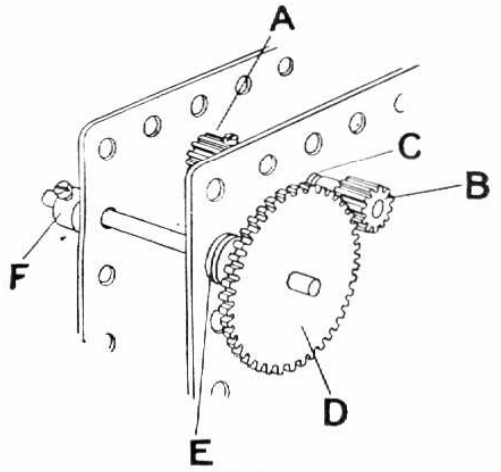
13	Doors ..	No. 16	1	Metal strip ..	No. 64
1	Side of goods truck ..	,, 17	30	Brackets ..	,, 66
12	Wood slips ..	,, 25	6	Straight hinges	,, 72
60	Screws and nuts	,,50/51	3	Knob screws and nuts ..	,, 92
2	Angle bars ..	,, 53	5	Signal post rods	,, 96
4	Metal strips	,, 56	14	Wire stays ..	,, 154
6	Metal strips ..	,, 59	5	Wire stays ..	,, 156
			1	Pulley wheel, plain	,, 159



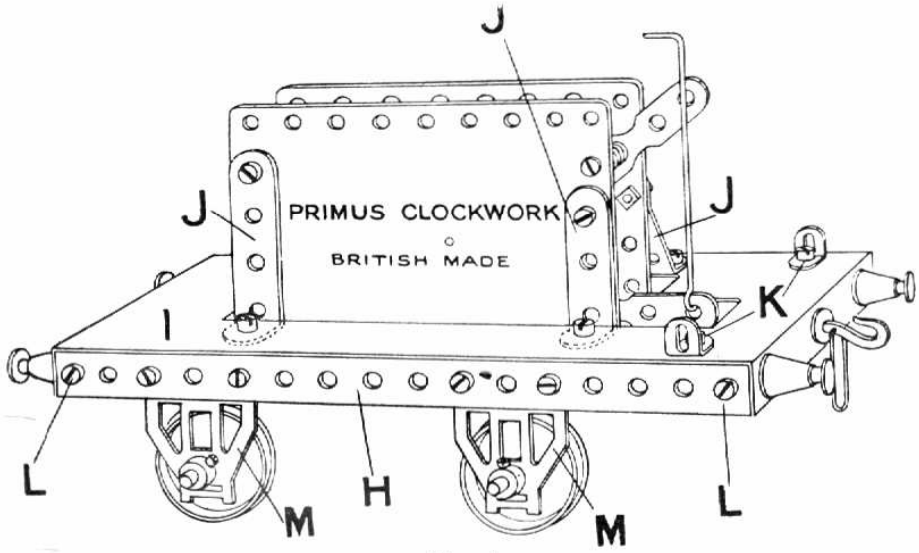
PRIMUS ENGINEERING
BRITISH MADE

CLOCKWORK LOCOMOTIVE OUTFIT

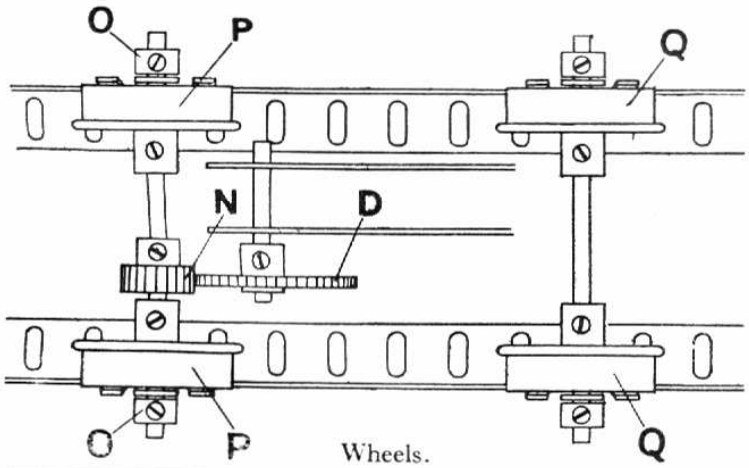
Instructions for Building Clockwork Locomotives.



Clockwork.



Chassis.



Wheels.

CLOCKWORK.

1. Loosen screw in driving pinion (A), push the short axle rod through far enough to receive the gear wheel (B), place washer (C) between gear wheel and side plate.

2. Fit the large gear wheel (D) on a short axle, put two washers between gear wheel and side plate (E), insert axle through holes provided, fix with a collar (F) on free end.

CHASSIS.

3. Bolt the angle bars (H) to the foot plate (I), engaging at the same time the ends of the three bent strips (J, J, J).

4. Place clockwork part way through foot plate (I) from the top, bolt bent strips (J, J, J) to plates of clockwork and fix the reversing rod.

5. Bolt two brackets (K) at rear end, also a bracket at the four corners (L).

6. Bolt the buffers and couplings at each end, also the four trunnions (M) on the sides.

WHEELS.

7. Fit the front axle with a pinion (N) in position to engage with the large gear wheel (D) on the clockwork, fix in position with screw collars and washers (O), slide the wheels (P) on axle, fix one close against pinion (N) and the other to allow $\frac{9}{16}$ in. between the flanges, to fit gauge 1 rails.

8. The back wheels (Q) are then fitted as illustrated.

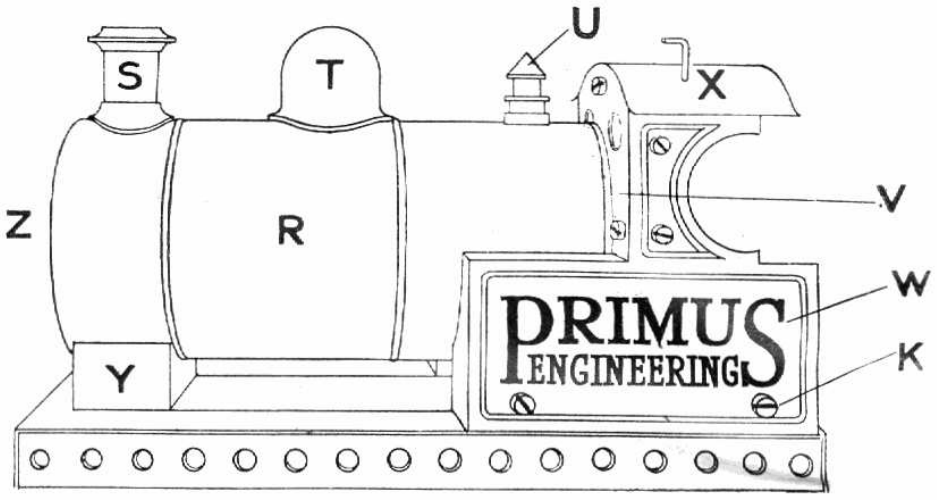
9. Adjust all the bearings to ensure free running and slightly oil.

Instructions for Building Clockwork Locomotive (*contd.*)

BOILER.

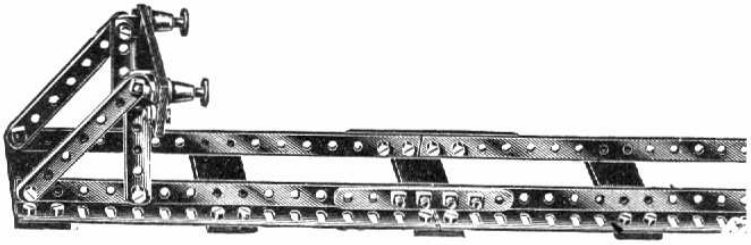
10. Take boiler shell (R) and fix on funnel (S) with long bolt and nut, also steam dome (T) and safety valve (U).
11. Bolt the cab front (spectacle plate, V) to rear end of boiler, using a bracket inside boiler. Fit a bracket on top of spectacle plate ready to take roof, and two specially bent brackets to take cab sides.
12. Erect cab sides (W) on foot plate by bolting to brackets (K) previously fixed, slide boiler (R) over clockwork bolt to cab sides, then bolt on roof (X) inserting reversing rod through the roof.
13. Take smoke box saddle (Y) and fit under smoke box, pass the long screw through footplate saddle and smoke box, bolt up slightly, place round smoke box door (Z) in position, press in sides of boiler tightly and bolt up.

For renewal parts, see page 17.

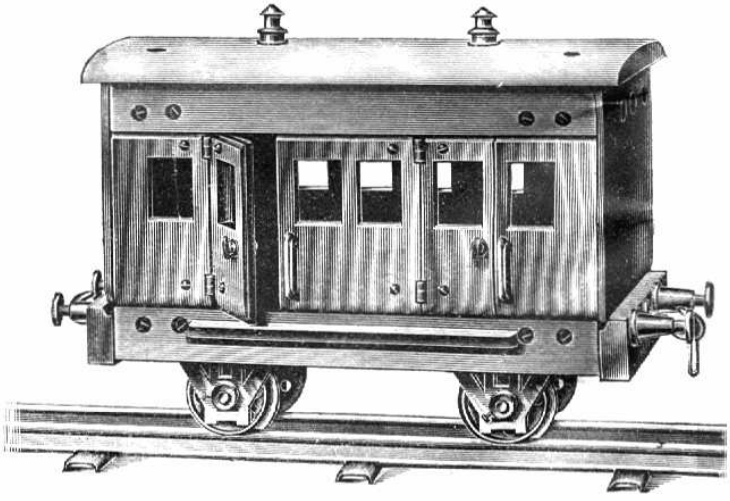


BOILER.

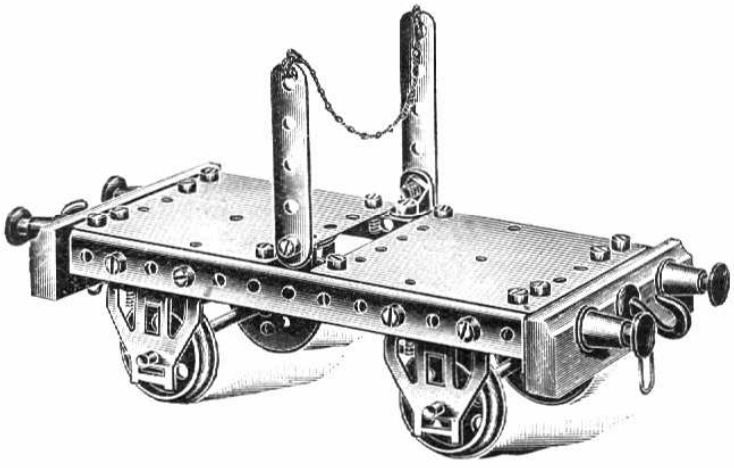
Realistic Models for use with Clockwork Locomotive, easily made from Primus Engineering Parts.



Railway Track No. 205. For instructions see page 50.



Passenger Coach No. 254, see page 44.

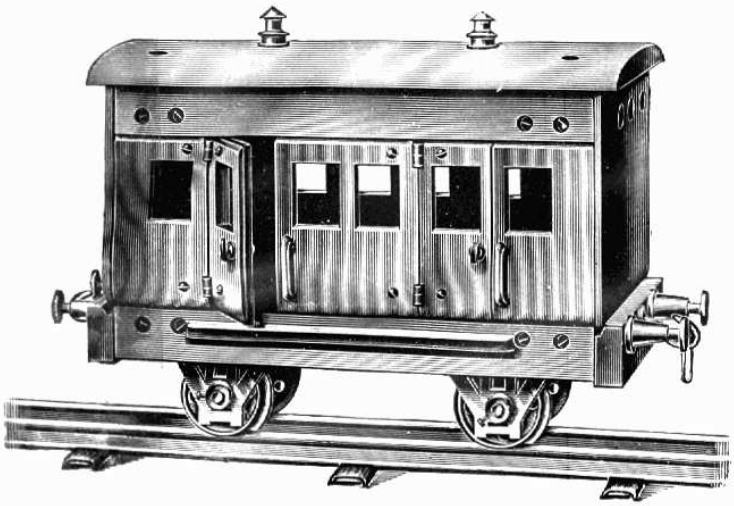


Timber Truck No. 123, see page 43.

Printed by Percy Lund, Humphries & Co., Ltd., Bradford and London.

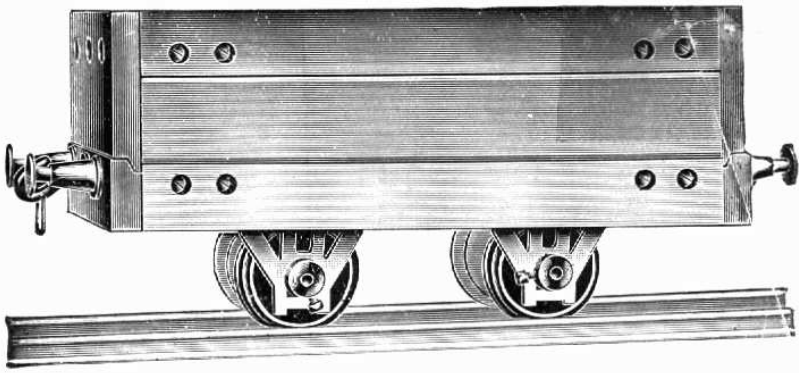
PRIMUS Boys' Own Ready Made Models

For prices, see page 19.



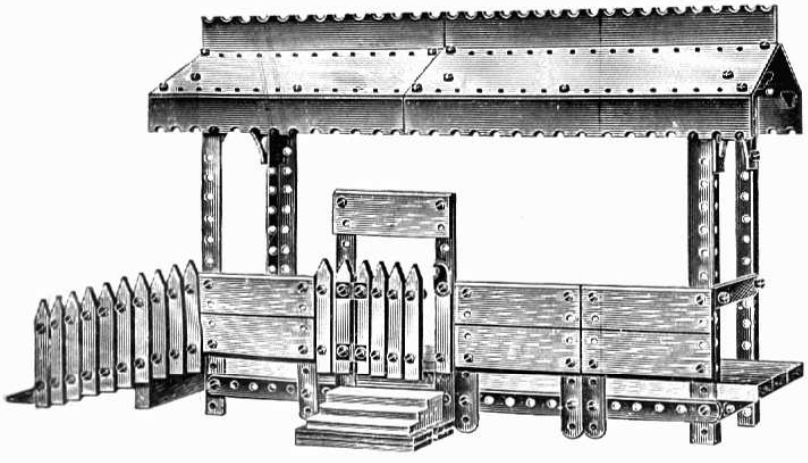
Passenger Coach.

Modelled to scale, two hinged doors each side, buffers and coupling hooks. For gauge 0 or 1 rails.



Goods Truck.

Realistic and strongly made, with wheels adjustable to gauge 0 or 1 rails.



Railway Station.

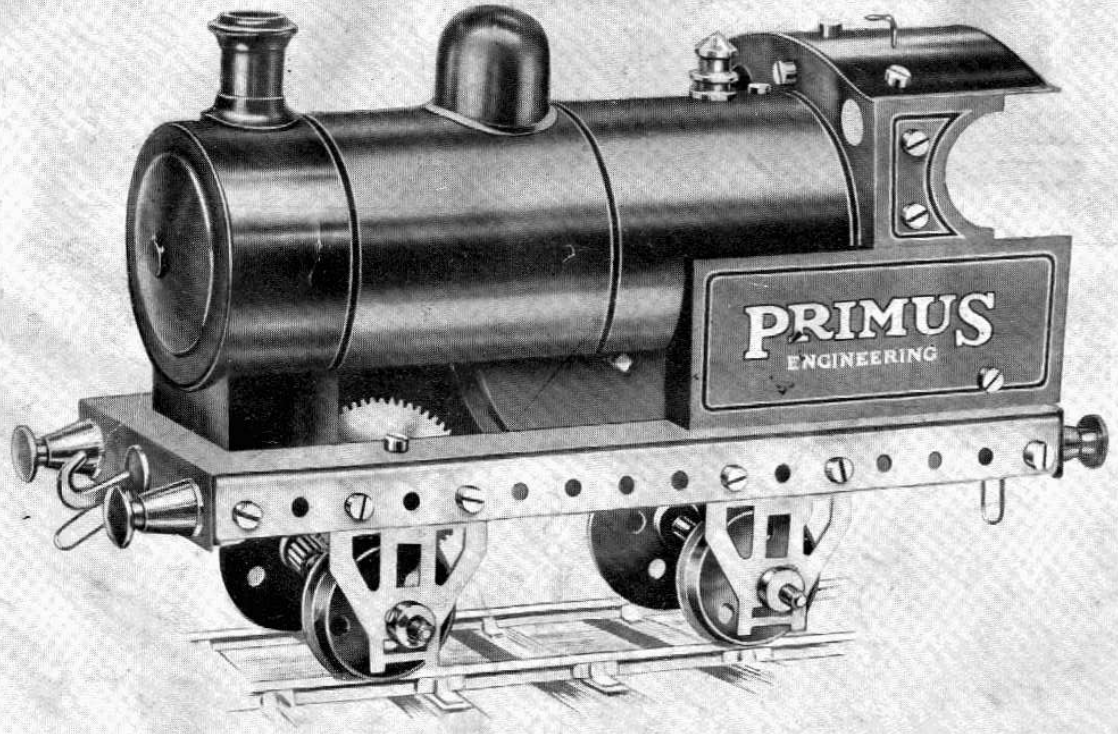
With wood platforms, metal roof and standards, hinged entrance gate.

Station House.

Has mahogany front, back and ends, metal roof and ridges, hinged door and glass-fitted window.

PRIMUS
ENGINEERING
CLOCKWORK LOCOMOTIVE OUTFIT

CONTAINS ALL THE PARTS TO BUILD THIS LOCOMOTIVE



INCLUDING STRONGEST AND LONGEST RUNNING CLOCKWORK MOTOR

PRIMUS Clockwork Loco.

Runs on any Guage 1 rails

BOYS CAN BUILD THIS ENGINE WITH PRIMUS

W. BUTCHER & SONS LTD., CAMERA HOUSE, LONDON, E.C.4.

PRIMUS ENGINEERING

The BRITISH TOY *for the* BRITISH BOY

Prices of Outfits

No. 0 Outfit	5/-
,, 1 ,, ...	8/6
,, 2 ,, ...	15/-
,, 3 ,, ...	22/6
,, 4 ,, ...	40/-
,, 5 ,, ...	55/-
,, 6 Cabinet complete	105/-
,, 6 ,, only	45/-
,, 1s Supplementary Outfit ..	7/6
,, 2s ,, ,, ..	8/6
,, 3s ,, ,, ..	18/6
,, 4s ,, ,, ..	16/6
Wood Parts Outfit	15/-
Big Wheel Outfit	10/6
Motor Chassis Outfit	16/6
Locomotive Outfit	30/-
,, Erected	32/6
Clockwork Motor	10/6