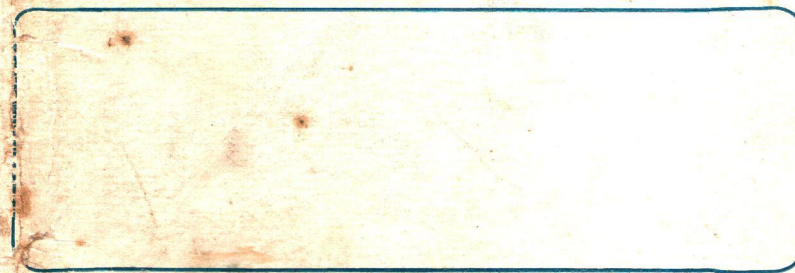




PRIMUS ENGINEERING OUTFITS

BRITISH MADE.



The "Primus" ENGINEERING OUTFITS.

REGISTERED.

A New Hobby for the Boys---a toy that instructs the child in the principles on which Railway Rolling Stock and a host of other mechanical models are constructed.

THE Models shown in this list can all be made up with the fittings contained in the various outfits, and taken apart, to make up other models, so that a "Primus" box will last a boy for years and give scope for his imagination that no other hobby will do.

The woodwork for the carriage and trucks is made of the finest seasoned mahogany, all standardised and finished by the most perfect machines. The platform fittings and railings are of hard white wood, and look extremely handsome.

The metal work is all machine made, and the Trunnions, Wheels, Collars, Buffers, Screws and Nuts, Handles, etc., are brass; the Metal Plates of Aluminium, and the other fittings Nickel Plated.



No. 1	Outfit	-	-	8/6
No. 2	"	-	-	13/6
No. 3	"	-	-	25/-
No. 4	"	-	-	37/6
No. 5	"	-	-	50/-

These prices of extra parts on page 3 have in some cases been slightly advanced.

NOTE.—In the No. 1 Outfit the Buffers, Buffer Block Coupling Hooks, and Straight Hinges are now omitted.

Primus Engineering Outfits.

CONTENTS OF OUTFITS.

WOOD-WORK.

No.	Description of Parts.	No.	1	2	3	4	5
1	Grooved side rails for carriage and truck	..	—	4	4	4	6
2	Grooved side rails with footboard ..	..	—	—	—	2	2
3	Carriage ends .. .. .	..	—	—	—	2	2
4	Buffer blocks .. .. .	..	1	2	2	2	4
5	Right hand window for carriage	..	—	—	—	2	2
6	Left " " " " ..	..	—	—	—	2	2
7	Carriage doors .. .. .	..	—	—	—	4	4
8	Central window for carriage ..	..	—	—	—	2	2
9	Floor for carriage and truck ..	..	—	1	1	1	2
10	Roof " " " " " " " " " " etc.	..	—	—	—	1	1
11	Posts for railings and signals ..	..	—	2	17	17	17
12	End rail for base of house ..	..	—	—	—	—	2
13	Side " " " " " " " " " " " "	..	—	—	—	—	2
14	Sides of station house .. .. .	..	—	—	—	—	2
15A	Window sills for house .. .. .	..	—	—	—	—	4
15D	" sash " " " " " " " " " "	..	—	—	—	—	2
15F	Front of house .. .. .	..	—	—	—	—	1
15B	Back " " " " " " " " " " " "	..	—	—	—	—	1
16	Doors " " " " " " " " " " " "	..	—	—	—	—	2
16A	Lintels for " " " " " " " " " "	..	—	—	—	—	2
17	Sides of goods truck .. .. .	..	—	2	2	2	2
18	Ends of " " " " " " " " " " " "	..	—	2	2	2	2
19	Baseboard for house and station	..	—	—	—	—	1
21	Steps for gate of station .. .. .	..	—	—	1	1	1
22	Slope for platform approach ..	..	—	—	1	1	1
23	Plain platform plank .. .. .	..	—	—	2	2	2
24	Fitted " " " " " " " " " " " "	..	—	—	2	2	2
25	3in. by 1in. drilled wood slips	..	8	16	25	25	25
26	Glass for windows .. .. .	..	—	—	—	—	4

METAL-WORK.

50 & 51	Screws and nuts .. .. .	..	36	66	120	144	312
52	Angle Bars 6 inch .. .. .	..	—	—	—	—	4
53	" " 6½ " " " " " " " " " "	..	—	2	2	2	8
54	" " 8 " " " " " " " " " "	..	2	2	4	4	8
55	" " 12 " " " " " " " " " "	..	—	—	—	2	2

METAL-WORK—continued.

No.	Description of Parts.	No.	1	2	3	4	5
56	Metal strips 2 inch .. .. .	..	4	8	8	10	16
57	" " 2½ " " " " " " " " " "	..	6	6	8	8	16
58	" " 3 " " " " " " " " " "	..	—	—	4	8	8
59	" " 3½ " " " " " " " " " "	..	2	8	8	14	14
60	" " 4 " " " " " " " " " "	..	2	2	3	3	3
61	" " 5½ " " " " " " " " " "	..	—	—	4	4	4
62	" " 6½ " " " " " " " " " "	..	—	2	4	4	4
63	" " 8 " " " " " " " " " "	..	2	2	6	6	12
64	" " 12½ " " " " " " " " " "	..	—	—	3	3	3
65	Architraves .. .. .	..	—	4	4	4	8
66	Brackets .. .. .	..	12	16	38	40	78
67	Metal plates for trucks, roofs, etc., 8in. by 3in.	..	—	—	4	4	10
68	Metal plates for trucks, etc., 3in. by 3in. ..	..	3	3	3	14	14
69	Ridge tiles 6½ inch .. .. .	..	—	—	1	1	1
70	" " 8 " " " " " " " " " "	..	—	—	1	1	2
71	Eaves " 8 " " " " " " " " " "	..	—	—	4	4	10
72	Straight hinges .. .. .	..	2	4	4	4	6
73	Bent hinges for carriage doors	..	—	—	—	8	8
74	Trunnions for wheels .. .. .	..	4	4	4	8	8
75	Flanged wheels with set screws	..	4	4	4	8	8
76	Grooved " " " " " " " " " " " "	..	—	—	4	4	4
77	Axle rods 3½ inch .. .. .	..	2	2	2	4	4
78	" " 2½ " " " " " " " " " "	..	—	2	2	6	6
79	" " 1½ " " " " " " " " " "	..	—	—	1	1	1
82	Collars and set screws .. .. .	..	4	4	8	13	13
83	Handle axles .. .. .	..	—	—	1	1	1
84	Washers .. .. .	..	12	12	12	36	48
85	Buffers and nuts .. .. .	..	4	4	4	4	8
86	Coupling hooks and nuts .. .. .	..	2	2	3	3	4
87	Lamps and nuts .. .. .	..	—	—	2	4	6
88	Carriage door handles and nuts	..	—	—	—	4	4
89	Turnbuttons for " " " " " " " " " "	..	—	—	—	4	4
90	Carriage side rails .. .. .	..	—	—	—	4	4
91	Carriage door screws and nuts	..	—	—	—	16	16
92	Knob screws and nuts .. .. .	..	—	—	1	4	4
93	Turnbuttons for " " " " " " " " " "	..	—	—	—	2	2
95	Catches .. .. .	..	—	4	4	4	4
96	Signal post connecting rods ..	..	—	2	2	2	4
97	Wood screws .. .. .	..	—	6	6	6	12
100	Screwdriver .. .. .	..	1	1	1	1	1

Primus Engineering Outfits.

PRICES OF EXTRA PARTS.

WOOD.

No.		PRICE.
1	Grooved side rail	each 2d.
2	Ditto, with footboard	" 3d.
3	Carriage ends	" 4d.
4	Buffer blocks	" 2d.
5	Right hand window	" 3d.
6	Left " "	" 3d.
7	Carriage doors	" 2d.
8	Centre windows	" 4d.
9	Floor	" 3d.
10	Roof	" 6d.
11	Posts	per doz. 10d.
12	End rail of house	each 2d.
13	Side " " "	" 2d.
14	Sides of house	" 4d.
15A	Window sills	per doz. 6d.
15D	" sash	" " 6d.
15F	Front of house	each 6d.
15B	Back " "	" 6d.
16	Doors " "	" 3d.
16A	" lintels	per doz. 6d.
17	Truck sides	each 2d.
18	" ends	" 3d.
19	House baseboard	" 9d.
21	Steps	" 2d.
22	Slope	" 3d.
23	Platform centre	" 3d.
24	Platform sides	" 4d.
25	3 by 1 inch wood slips	per doz 1/-
26	Glass for windows	" " 3d.

METAL.

50	Screws and nuts	per doz. 6d.
51	Nuts only	" 2d.
52	Angle bars 6 in.	per half doz. 6d.
53	" " 6½ in.	" " 6d.
54	" " 8 in.	" " 9d.
55	" " 12 in.	" " 1/-

METAL—continued.

No.		PRICE.
56	Metal strips 2 in.	per half doz. 3d.
57	" " 2½ in.	" " 3d.
58	" " 3 in.	" " 3d.
59	" " 3½ in.	" " 3d.
60	" " 4 "	" " 4d.
61	" " 5½ "	" " 4d.
62	" " 6½ "	" " 4d.
63	" " 8 "	" " 6d.
64	" " 12½ "	" " 9d.
65	Architraves	" " 6d.
66	Brackets	per doz. 6d.
67	Metal plates 8 x 3 in.	per half doz. 1/6
68	" " 3 x 3 "	" " 9d.
69	Ridge tiles 6½ in.	" " 2/-
70	" " 8 "	" " 2/6
71	Eaves " 8 "	" " 2/6
72	Straight hinges	per doz. 6d.
73	Bent hinges	per half doz. 8d.
74	Trunnions	each 2d.
75	Flanged Wheels	" 9d.
76	Pulley wheels grooved	" 9d.
77	Axles 3½ in.	per half doz. 1/-
78	" 2¾ "	" " 9d.
79	" 1½ "	" " 4d.
82	Collars and screws	each 2d.
83	Handle axles	" 2d.
84	Washers	per doz. 2d.
85	Buffers and nuts	each 6d.
86	Coupling hooks	" 6d.
87	Lamps	" 6d.
88	Carriage door handles and nuts	" 3d.
89	Turnbuttons for do.	per doz. 3d.
90	Carriage rails	per half doz. 3d.
91	Carriage door screws and nuts	per doz. 1/-
92	Knob screws and nuts	per half doz. 2/-
93	Turnbuttons for do.	" " 3d.
95	Catches	" " 3d.
96	Signal post rods	" " 4d.
97	Wood screws	per doz. 2d.
100	Screw drivers	each 3d.

Primus Engineering Outfits.

DETAILS OF PARTS—WOOD.



1



3



4



5



6



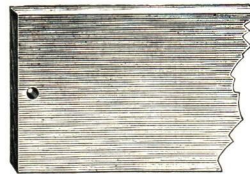
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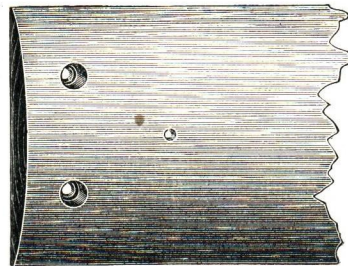
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2



9



10



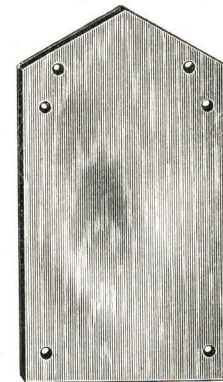
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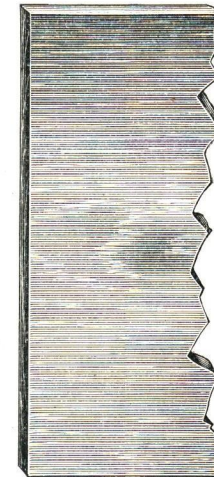
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13



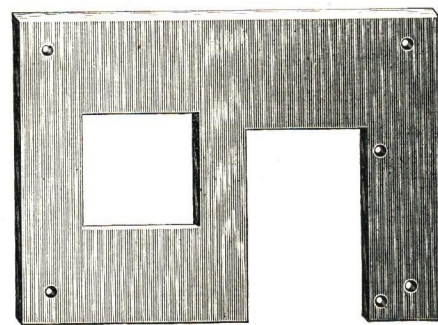
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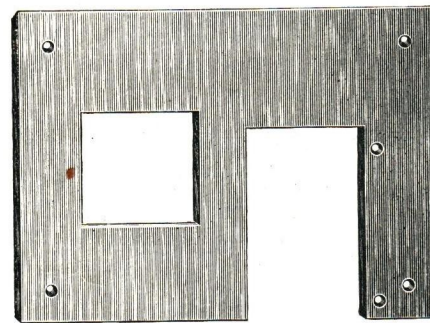
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18



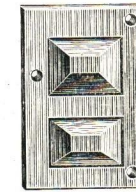
15B



15F



15D



16



15A



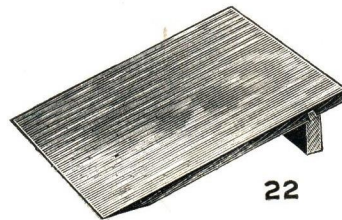
16A



25



21



22



23

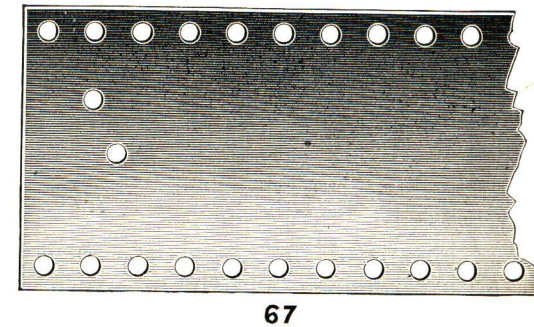
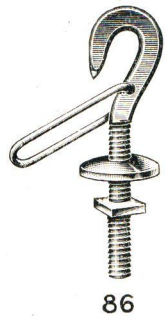
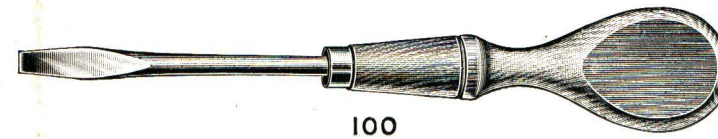
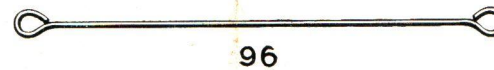
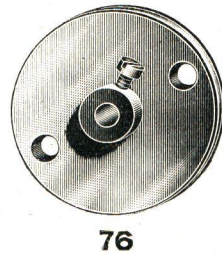
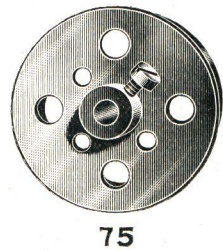
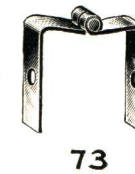
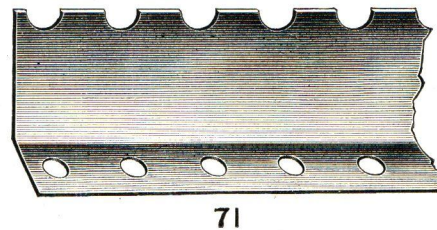
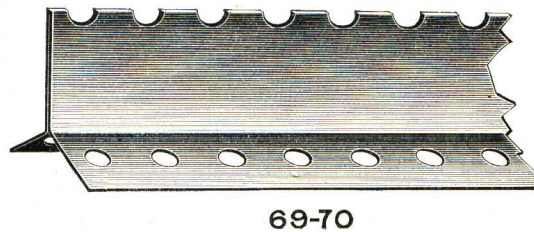
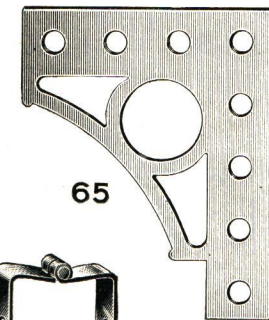
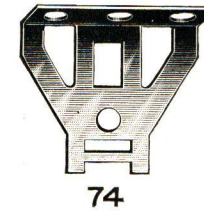
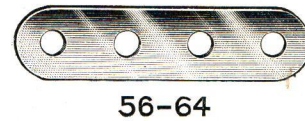


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Primus Engineering Outfits.

DETAILS OF PARTS—METAL.

Primus Engineering Outfits.

GENERAL INSTRUCTIONS.

It is important to thoroughly understand how the various parts fit together, and therefore the beginner should commence by making up the simplest models shown in the list, afterwards the more elaborate ones will be quite easy.

All the parts are standardized, and extra parts can be supplied (see pages 3 to 5), so that any special series of the models may be completed together.

The Trucks and Carriages are designed to run on rails of No. 1 gauge, but as the width between the wheels may be altered they can also be made to run on other gauges. A complete "mixed" train can be made up if desired, by making use of supplementary parts.

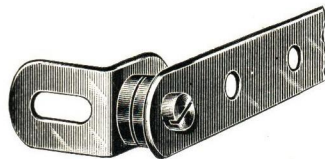
No less than 19 different Trucks and Carriages are shown, and many others may be made up by an intelligent boy.

Always collect together the parts required before commencing.

BRACKETS.

It is important to understand why one side has a hole and the other a slot. This is to allow for the thickness of the metal or wood strips to be joined on, and will be best understood by making up the simplest models.

WASHERS.



These play an important part in Mechanics: they are used in many Models to adjust the length of the screws, so that the corner pieces may fit quite square and not jam on the opposing screw. They are also used to adjust the Brackets to width of some of the other fittings as in the Models on pages 7, 8, 11, 13, 14, 17, 23, 24, &c.

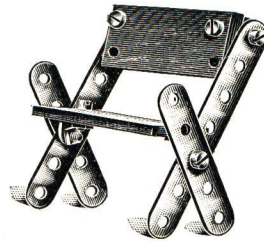
With such an extensive variety of parts, it will be well believed that the present illustrations only exhibit very few of the models that can be made up, and practically a whole railway plant can be produced, except the Rails and Engines.

The possibilities of other mechanical models are shown by the Cranes, Steam Hammers and Vertical Saw, &c.

WOOD BASES FOR SCREWING MODELS TO.

Some of the models are shown screwed down to wood bases, this is not supplied in the boxes, as it is most likely always available and the size varies to suit the situations.

Primus Engineering Outfits.

MADE WITH No. 1 OUTFIT.**PLAIN SEAT.**

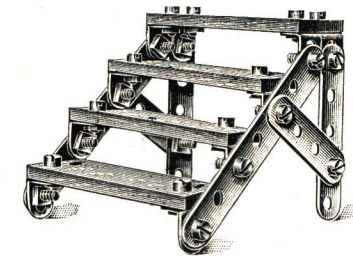
3½ in. Metal Strips	..	..	2
2½ in. " "	..	..	2
Brackets ..	..	..	4
Wood Slips ..	..	..	2
Screws and Nuts	..	..	8

The brackets should be fixed with the slot on to the wood.

**TABLE.**

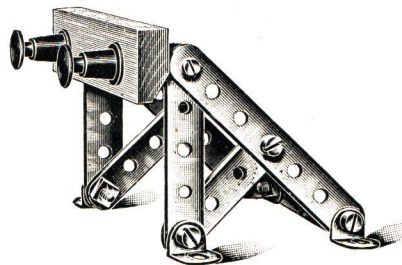
4 in. Metal Strips	..	..	..	2
2 in. " "	..	..	..	4
Brackets ..	..	..	..	8
Wood Slips ..	..	..	..	4
Screws and Nuts	..	..	..	16

4 in. Metal Strips are screwed below the table to hold the top together.

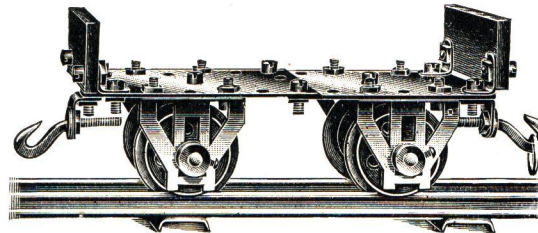
**STEP LADDER.**

3½ in. Metal Strips	..	..	2
2½ in. " "	..	..	2
2 in. " "	..	..	2
Brackets ..	..	..	10
Wood Slips ..	..	..	4
Screws and Nuts	..	..	22

Fix Brackets to steps with slots at side.

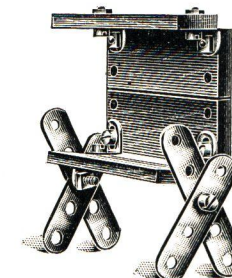
**BUFFER END.**

2 in. Metal Strips	..	2
2½ in. " "	..	3
3½ in. " "	..	2
Brackets ..	..	8
Wood Buffer Block	..	1
Buffers ..	..	2
Screws and Nuts	..	10

**TROLLEY TRUCK.**

2 in. Metal Strips	..	2	Wheels	..	..	4
3 x 3 in. Metal Plates	..	2	Collars	..	..	4
Brackets ..	..	6	Coupling Hooks	..	..	2
Trunnions ..	..	4	Washers	..	..	12
Screws and Nuts	..	22	Wood Slips	..	..	2

The hooks are fixed to 2 in. metal strips and the end of each strip pivoted through centre hole of baseplate, 2 washers are put between the screw and the plate. A washer is also placed over each of the 8 screws between the trunnions and base plates.

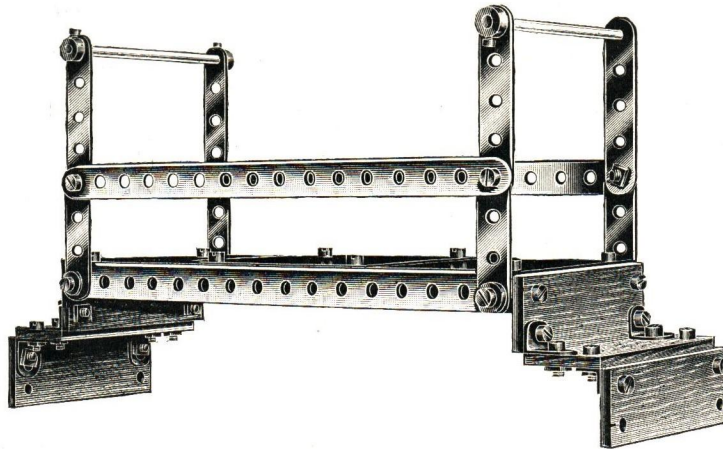
**SEAT WITH COVER**

2½ in. Metal Strips	2
2 in. " "	4
Brackets ..	6
Wood Slips ..	4
Screws and Nuts ..	10

2 in. strips are screwed behind the wood back for support.

Primus Engineering Outfits.

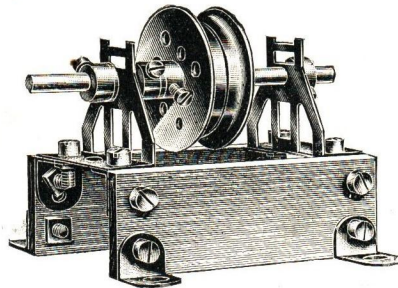
MADE WITH No. 1 OUTFIT.



LOW LEVEL BRIDGE.

PARTS REQUIRED.

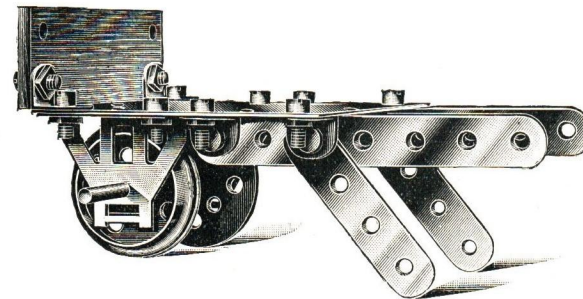
8 in. Angle Bars	..	..	..	..	..	2
2 „ Metal Strips	..	..	..	..	..	4
2½ „ „ „	..	..	..	..	..	4
8 „ „ „	..	..	..	..	..	2
Brackets .. ..	..	..	..	..	..	12
3 x 3 Metal Plates	..	..	..	..	..	3
3½ in. Axle Rods	..	..	..	..	..	2
Collars .. ..	..	..	..	..	..	4
Washers .. ..	..	..	..	..	..	8
3 x 1 Wood Slips	..	..	..	..	..	6
Screws and Nuts	..	..	..	..	..	36



COUNTER SHAFT.

PARTS REQUIRED.

Brackets .. ..	..	..	..	..	..	8
Trunnions .. ..	..	..	..	..	..	2
Flanged Wheels ..	..	..	..	..	..	2
3½ in. Axle Rod ..	..	..	..	..	..	1
Collars .. ..	..	..	..	..	..	3
Washers .. ..	..	..	..	..	..	3
3 x 1 Wood Slips	..	..	..	..	..	2
Screws and Nuts	..	..	..	..	..	12

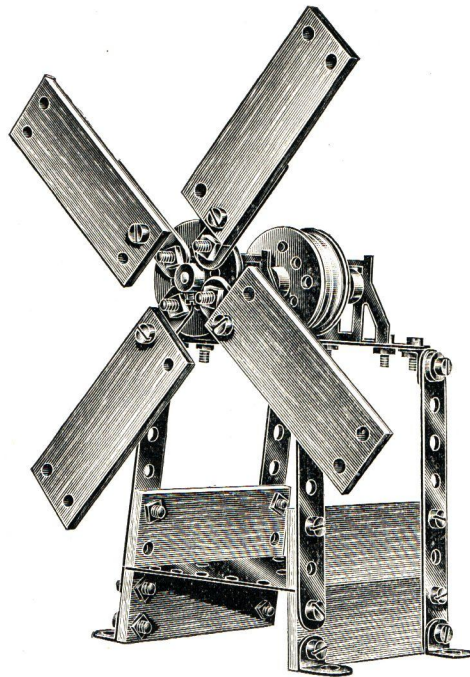


LUGGAGE BARROW.

PARTS REQUIRED.

2 in. Metal Strips	..	..	..	..	..	2
3½ „ „ „	..	..	..	..	..	2
Brackets .. ..	..	..	..	..	..	6
Trunnions .. ..	..	..	..	..	..	2
Flanged Wheels ..	..	..	..	..	..	2
3½ in. Axle Rod ..	..	..	..	..	..	1
3 x 3 Square Plate	..	..	..	..	..	1
3 x 1 Wood Slip	..	..	..	..	..	1
Screws and Nuts	..	..	..	..	..	10

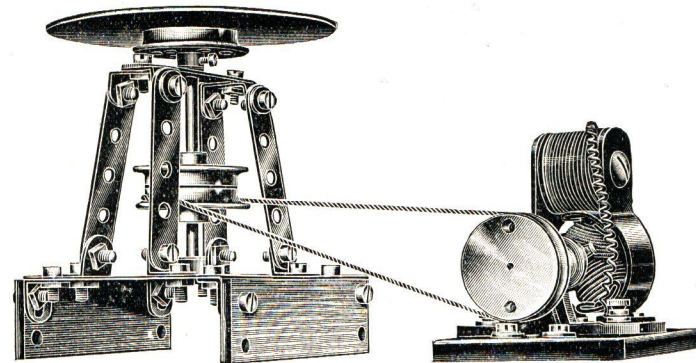
Primus Engineering Outfits.

MADE WITH No. 1 OUTFIT.**WINDMILL.****PARTS REQUIRED.**

2 in. Metal Strips	..	..	..	..	..	..	..	..	4
2½ " " "	..	..	..	..	..	..	..	..	2
3½ " " "	..	..	..	..	..	..	..	..	2
4 " " "	..	..	..	..	..	..	..	..	2
Brackets ..	..	..	..	..	..	..	..	..	8
3 x 3 Metal Plate	..	..	..	..	..	..	..	..	1
Trunnions ..	..	..	..	..	..	..	..	..	2
Flanged Wheels	..	..	..	..	..	..	..	..	3
3½ in. Axle Rods	..	..	..	..	..	..	..	..	1
Collars ..	..	..	..	..	..	..	..	..	2
Washers ..	..	..	..	..	..	..	..	..	10
3 x 1 Wood Slips	..	..	..	..	..	..	..	..	8
Screws and Nuts ..	..	..	..	..	..	..	..	..	32

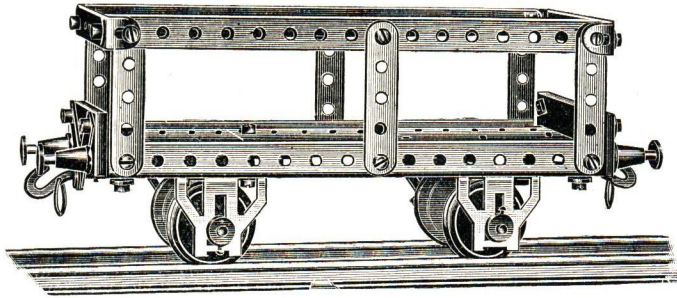
CHAMELEON TOP.**PARTS REQUIRED.**

2½ in. Metal Strips	..	..	..	..	..	..	5
Brackets ..	..	..	..	..	..	..	12
3 x 3 Metal Plates	..	..	..	..	..	..	1
Flanged Wheels	..	..	..	..	..	..	3
3½ in. Axle Rod	..	..	..	..	..	..	1
Collars ..	..	..	..	..	..	..	1
Washers ..	..	..	..	..	..	..	5
3 x 1 Wood Slips	..	..	..	..	..	..	2
Screws and Nuts	..	..	..	..	..	..	22



The Electric Motor for driving these Models is not included in the Outfits but are stocked by all dealers.

MADE WITH No. 1 OUTFIT.



TIMBER TRUCK.

PARTS REQUIRED.

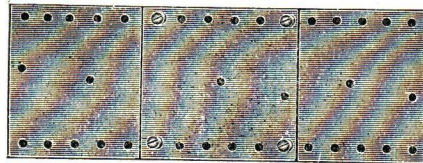
8 in. Angle Bars	..	..	2	Trunnions	..	..	..	4
8 in. Metal Strips	..	..	2	Wheels	..	..	..	4
3½ in. " "	..	..	2	3½ in. Axles	..	..	..	2
2½ in. " "	..	..	6	Collars..	..	..	..	4
2 in. " "	..	..	4	Buffers	..	..	..	4
Brackets	..	..	12	Coupling Hooks	..	..	..	2
Square Plates	..	..	3	Washers	..	..	..	12
Wood Slips	..	..	2	Screws and Nuts	..	..	..	36

This truck should be made up first, and then those which follow will be better understood. Brackets are fitted **inside** the angle bars to the slotted sides, with two washers on each screw. A washer should be placed on the buffer screw and then fit them through the hole in the 3×1 wood slip and pass the screw through the slot of the bracket. The 2 in. strips can be fixed on and the coupling hooks put through the bottom holes of the angle they will form.

The trunnions should be fitted on first.

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 wheels can be adjusted to the gauge of the rails, but most of the models are best suited to No. 1 gauge.



Base Plates bolted together.

The base plates are composed of three of the square metal plates, and 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) when the truck has an 8 in. base like the "Timber Truck." To suit the Tourist Car on page 13, which has a 6½ in. base, they can be shortened by bolting in other holes.

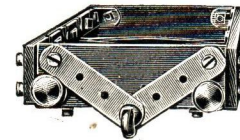
If they are bolted together a few more screws will be required than are specified.

As an alternative, the bases can be formed by bolting the square plates below the angle bars, using the screws which fix on the trunnions, but then all the screws will project inside. See model on page 24.



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.

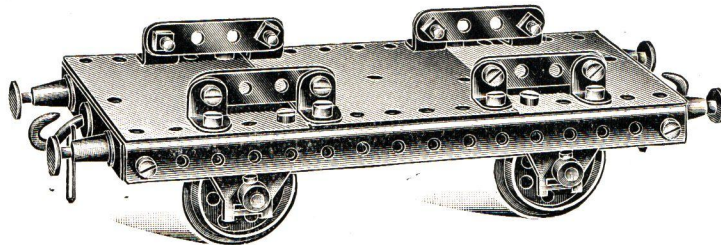


How the Buffers and Coupling Hooks are fitted.

Washers must be placed over the screw of the buffers to make the ends level, otherwise they will catch on the 2 in. strips and not set straight.

Primus Engineering Outfits.

MADE WITH No. 1 OUTFIT.



LOW LEVEL TRANSPORT TRUCK FOR BOILERS, HEAVY GIRDERS, &c.

PARTS REQUIRED.

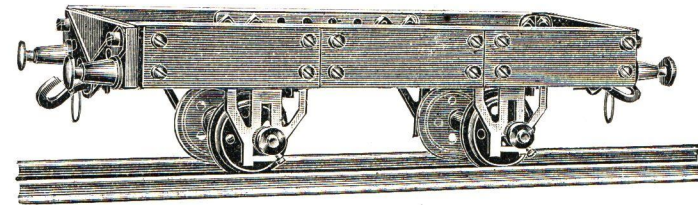
8 in. Angle Bars	2	Wheels	4
2 in. Metal Strips	4	Collars	4
2½ in. " "	2	3½ in. Axles.. ..	2
3 x 3 in. Metal Plates ..	3	Buffers	4
Brackets	12	Coupling Hooks ..	2
Trunnions	4	Washers	12
Screws & Nuts ..		24	

2 Washers are placed between each Bracket and the 8 in. Angle Bars where they are bolted on, to adjust the 2½ in. strips to the ends, as described on page 6.

BALLAST TRUCK.

PARTS REQUIRED.

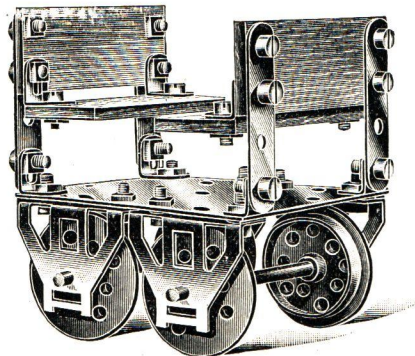
8 in. Angle Bars	2	Wheels	4
4 in. Metal Strips	2	Collars	4
2 in. " "	4	3 x 3 in. Square Plates ..	3
Brackets	8	Buffers	4
Trunnions	4	Coupling Hooks	2
3½ in. Axles.. ..	2	Washers	8
3 x 1 in. Wood Slips ..	8	Screws & Nuts	36



TWO SEATED TRAILER.

PARTS REQUIRED.

2 in. Strips	4
Brackets	8
3 x 3 Plates	1
3½ in. Axle Rods	2
Trunnions	4
Wheels	4
Washers	12
3 x 1 Wood Slips	4
Screws & Nuts	24



Primus Engineering Outfits.



**SHAFTING & COUNTER
SHAFT, LOOSE PULLEY.**

PARTS REQUIRED.

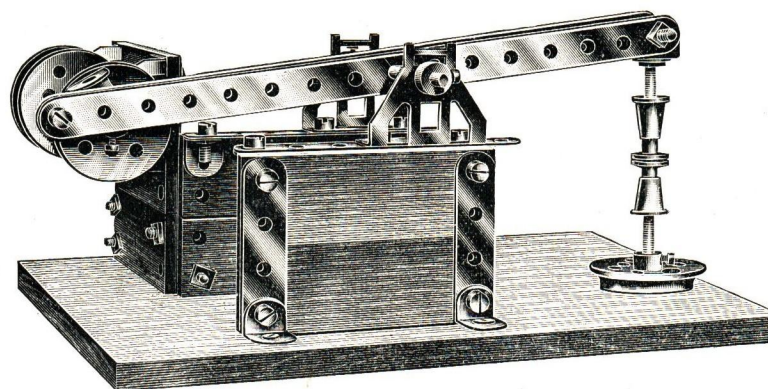
8 in. Angle Bars	..	2
3½ in. Metal Strips	..	2
4 " " "	..	2
Trunnions	..	2
3½ in. Axle Rod	..	1
Flange Wheels	..	4
Collars	..	3
Washers	..	3
3 x 1 Wood Slips	..	2
Screws and Nuts	..	16

MADE WITH No. 1 OUTFIT.

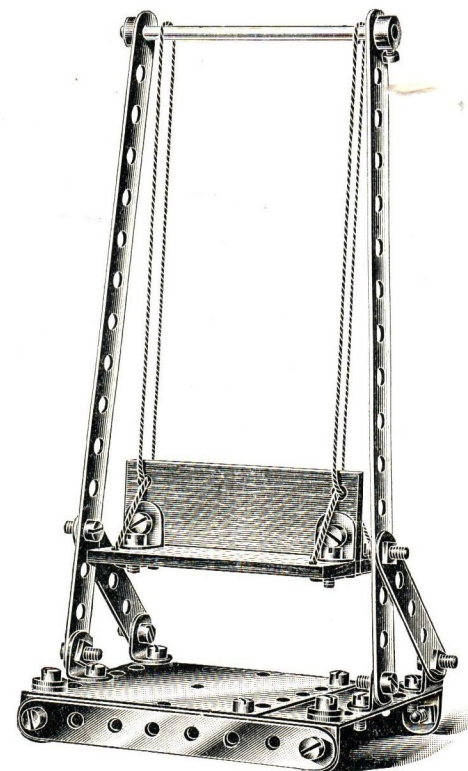
HAMMER.

PARTS REQUIRED.

2 in. Metal Strips	4
2½ " " "	4
3½ " " "	2
8 " " "	2
Brackets	.. 12
Trunnions	.. 4
Flanged Wheels	4
3½ in. Axle Rods	2
Collars	.. 4
Washers	.. 8
Buffers	.. 2
Wood Screws	.. 6
3 x 1 Wood Slips	7
Screws and Nuts	26



This model can be worked by a Motor or Steam Engine.
If required to work by hand a Handle Axle can be procured,
price 2d. each extra.



SWING.

PARTS REQUIRED.

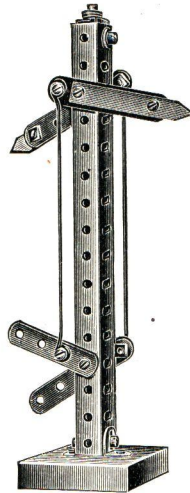
2½ in. Strips	..	..	2
4 " " "	..	..	2
8 " " "	..	..	2
Brackets	..	..	12
3 x 3 Plates	..	..	2
3½ in. Axle Rod	..	..	1
Collars	..	..	2
3 x 1 Wood Slips	..	..	3
Washers	..	..	4
Screws and Nuts	..	..	24

Primus Engineering Outfits.

MADE WITH No. 2 OUTFIT.**SIGNAL POST.**

PARTS REQUIRED.

8 in. Metal Strips ..	2
2½ in. „ „ ..	1
2 in. „ „ ..	1
Wood Bar ..	1
Brackets ..	2
Connecting Rod ..	1
Screws and Nuts ..	7
Wood Screws ..	2

**DOUBLE SIGNAL POST.**

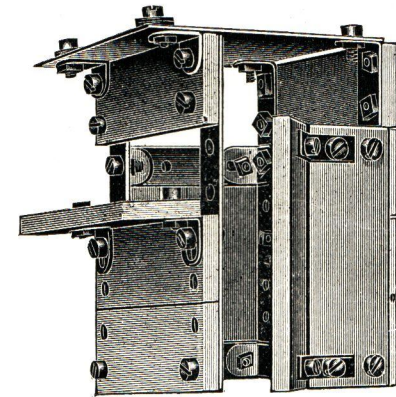
PARTS REQUIRED.

8 in. Angle Bars ..	2
2½ in. Metal Strips ..	2
2 in. „ „ ..	2
Brackets ..	4
Washers ..	3
Wood Bars ..	2
Connecting Rods ..	2
Screws and Nuts ..	15
Wood Screws ..	2

**DOUBLE ELECTRIC LIGHT STANDARD.**

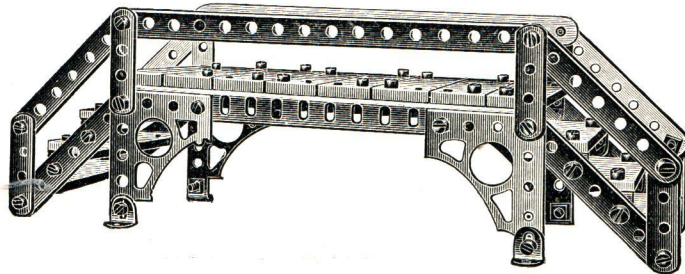
PARTS REQUIRED.

8 in. Angle Bars ..	2
Brackets ..	4
Architraves ..	2
Washers ..	6
Screws and Nuts ..	7
Wood Screws ..	2

**BOOKSTALL.**

PARTS REQUIRED.

2 in. Metal Strips ..	2
3½ in. „ „ ..	2
4 in. „ „ ..	2
3 x 3 in. Metal Plate ..	1
Brackets ..	12
Hinges ..	2
3 x 1 in. Wood Slips ..	12
Washers ..	4
Screws and Nuts ..	35

**LOW FOOT BRIDGE—3 STEPS.**

PARTS REQUIRED.

8 in. Angle Bars ..	2	Architraves ..	4
8 in. Metal Strips ..	2	Brackets ..	16
2 in. „ „ ..	8	Wood Slips ..	14
3½ in. „ „ ..	8	Screws and Nuts ..	60

Primus Engineering Outfits.

MADE WITH No. 2 OUTFIT.

COAL TRUCK WITH HINGED SIDES.

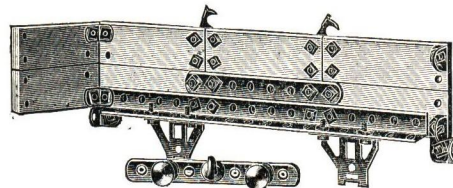
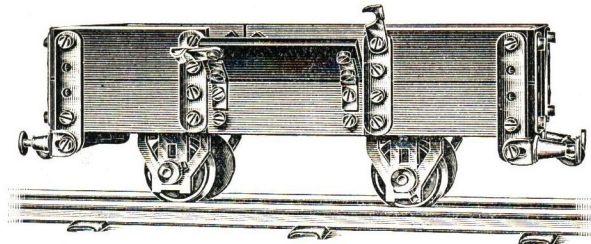


Diagram of inside, showing how the sides are fitted up.

PARTS REQUIRED.

8 in. Angle Bars	2	Collars.. .. .	4
2 „ Metal Strips	8	Washers	4
2½ „ „ „	4	Buffers	4
3½ „ „ „	2	Coupling Hooks	2
4 „ „ „	2	3 x 3 in. Metal Plates ..	3
Brackets	12	Hinges.. .. .	4
Trunnions	4	Catches	4
Wheels	4	Wood Slips	16
3½ in. Axles	2	Screws & Nuts	64

This is a very handsome model and shows how the Buffer ends can be built up in a different manner to the other models.

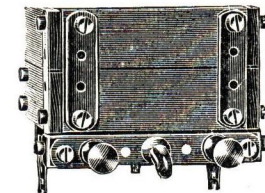


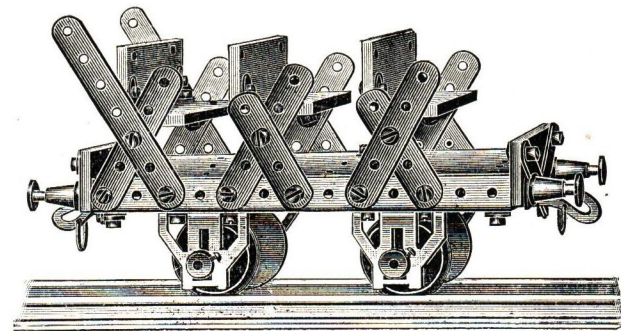
Diagram showing how the end is formed.

TOURIST CAR FOR SCENIC RAILWAYS.

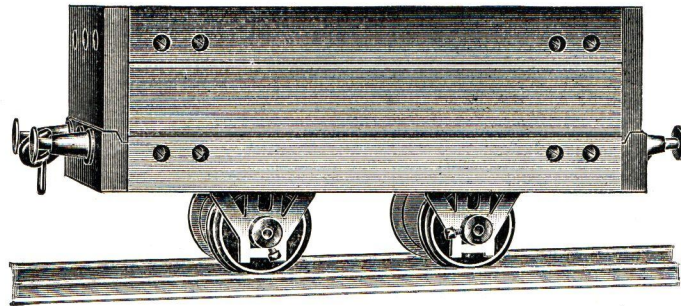
PARTS REQUIRED.

6½ in. Angle Bars	2	Collars.. .. .	4
3½ „ Metal Strips	2	Buffers	4
2½ „ „ „	6	Coupling Hooks	2
2 „ „ „	8	Washers	12
Brackets	16	3 x 3 Square Plates	3
Trunnions	4	3 x 1 Wood Slips	8
Wheels	4	Screws and Nuts	50
3½ in. Axles	2		

Note.—2 Washers are placed over each screw that secures brackets to angle bars. (See illustration, page 6.)



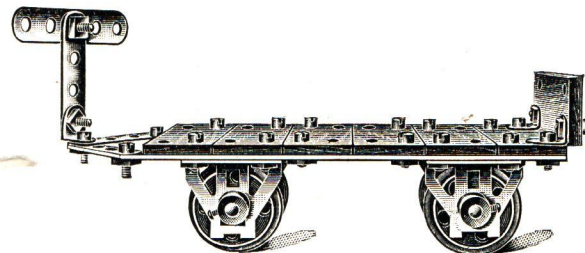
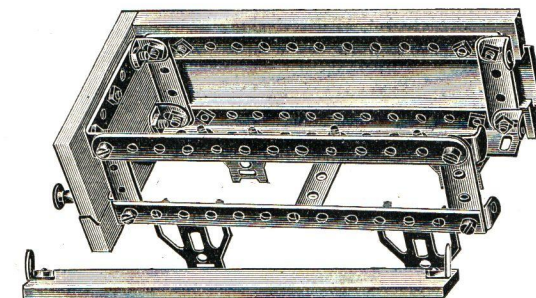
Primus Engineering Outfits.

MADE WITH No. 2 OUTFIT.**HEAVY GOODS TRUCK.****All Wood, Sides, Ends and Buffer Blocks.****PARTS REQUIRED.**

6½ in. Angle Bars	..	2	Washers	4
6½ in. Metal Strips	..	2	Buffers	4
2½ in. " "	..	3	Coupling Hooks	2
2 in. " "	..	4	Grooved Bars ..	4
Brackets	..	10	Angled Sides ..	2
Trunnions	..	4	Buffer Blocks ..	2
Wheels ..	..	4	Ends	2
2¾ in. Axles	..	2	Wood Floor ..	1
Collars ..	..	4	Screws and Nuts	36

Inside showing how frame is built up. The wood floor has two brackets screwed on as shown; it is then placed inside with brackets downwards and secured, when the coupling hooks are pushed through.

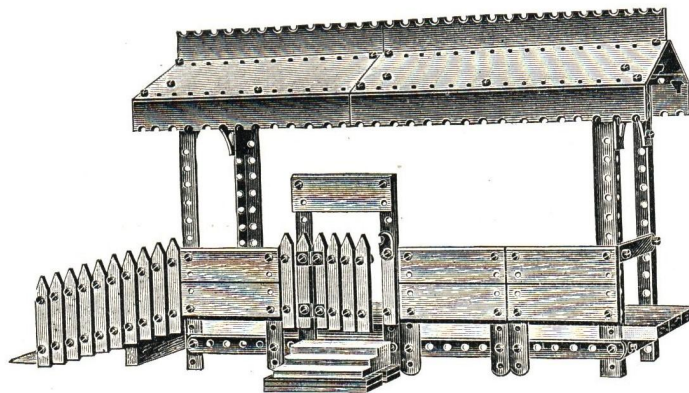
Build up the whole metal frame first.

**LUGGAGE TROLLEY.****PARTS REQUIRED.**

6½ in. Metal Strips	..	2	Trunnions	4
2½ in. " "	..	1	Wheels	4
2 in. " "	..	3	3½ in. Axles ..	2
Brackets	..	3	Wood Strips ..	7
Collars	..	4	Screws and Nuts	19

Primus Engineering Outfits.

MADE WITH No. 3 OUTFIT.



SIDE STATION.

PARTS REQUIRED.

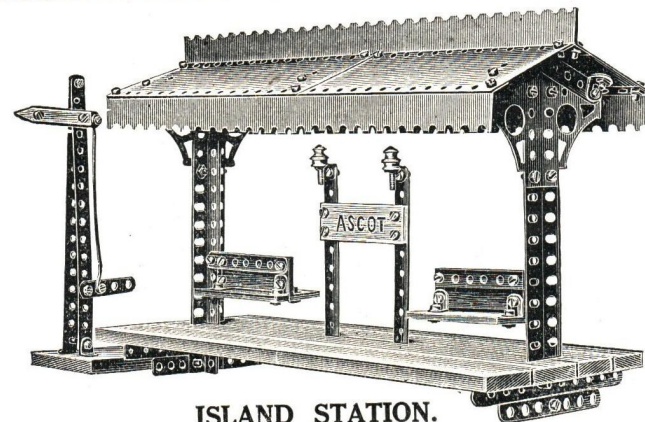
8 in. Angle Bars	4	8 in. Ridge Tiles	1
12½ in. Metal Strips	3	Eaves	4
5½ " " " "	4	Hinges	2
4 " " " "	3	Catch	1
3½ " " " "	4	Wood Posts	16
2½ " " " "	6	No. 25 Wood Slips	7
2 " " " "	4	Platform	3 pieces
Brackets	7	Wood Steps	1
8 x 3 in. Plates	4	Slope	1
6½ in. Ridge Tiles	1	Screws and Nuts	88



COMPOSITION OF ROOF FRAME.

Be particular and put in the Brackets as shown.

The whole Roof with Ridge Tiles and Eaves should be bolted up together before it is fitted on.



ISLAND STATION.

With Seats and Nameboard.

PARTS REQUIRED.

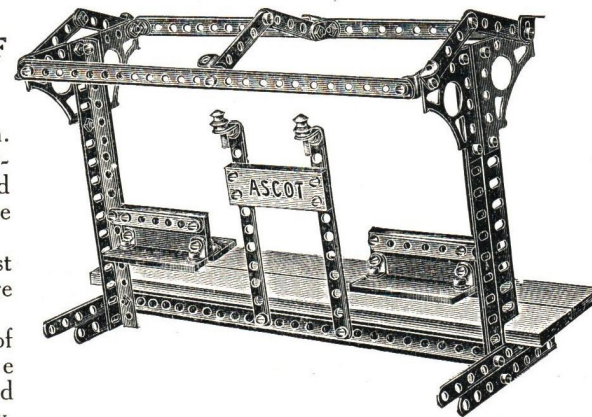
8 in. Angle Bars	4	6½ in. Ridge Tiles	1
12½ in. Metal Strips	3	8 " " " "	1
5½ " " " "	4	Eaves	4
4 " " " "	4	Lamps	2
2½ " " " "	6	No. 25 Wood Slips	7
Architraves	4	Platform	4 pieces
Brackets	22	Screws and Nuts	72
8 x 3 in. Metal Plates	4		

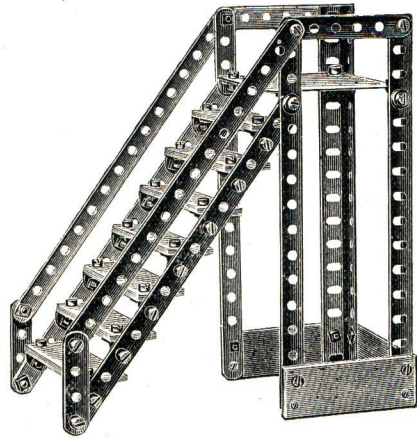
**DIAGRAM OF
FRAME FOR
ROOF.**

The 12½ in. Strip below Platform must be fitted between the Angle Bars.

The Signal Post is shown on page 13.

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

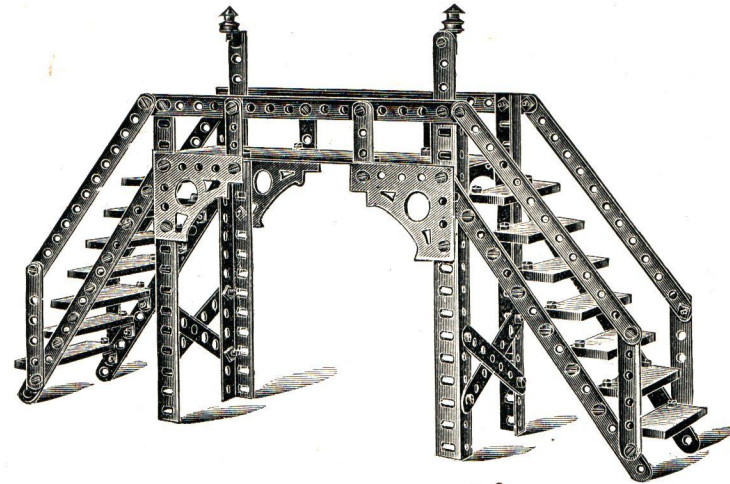


MADE WITH No. 3 OUTFIT.**STAIRCASE WITH LANDING.****PARTS REQUIRED.**

8 in. Angle Bars	..	..	..	2
2 in. Metal Strips	..	..	..	2
3 in. „ „	..	..	..	2
8 in. „ „	..	..	..	6
3 x 3 in. Metal Plate	..	..	..	1
Brackets .. ..	..	..	..	18
No. 25 Wood Slips	..	..	..	11
Screws and Nuts..	..	..	..	50

In this staircase the brackets are fitted in the front holes of the No. 25 wood slips.

Washers are put over the 4 screws that bolt the metal plate in to keep it square.

**HIGH LEVEL BRIDGE.****PARTS REQUIRED.**

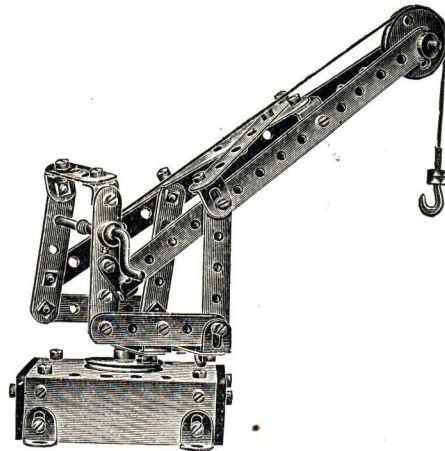
8 in. Angle Bars	..	4	Brackets	..	..	38
8 in. Metal Strips		4	Architraves	..	..	4
6½ in. „ „	..	4	Lamps	..	..	2
5½ in. „ „	..	4	No. 25 Wood Slips	..	..	14
3½ in. „ „	..	4	8 x 3 Metal Plates	..	..	1
3 in. „ „	..	4	Screws and Nuts	..	..	98
2 in. „ „	..	6				

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

MADE WITH No. 3 OUTFIT.

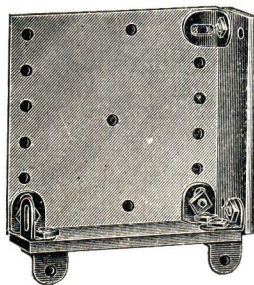
CRANE.

PARTS REQUIRED.



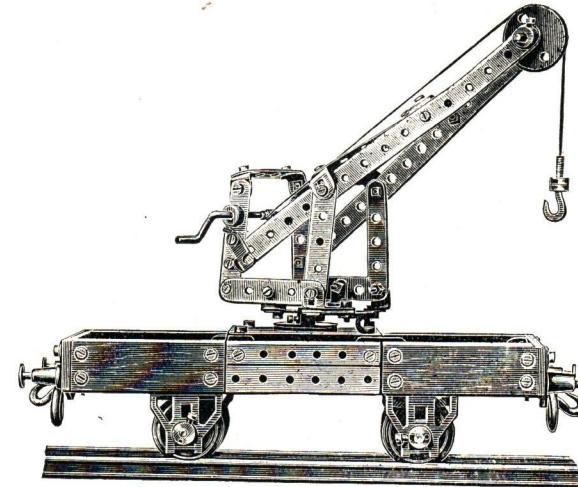
8 in. Metal Strips	..	2
3 " " "	..	2
2½ " " "	..	8
2 " " "	..	1
Brackets	..	23
3 × 3 in. Metal Plate	..	1
No. 25 Wood Slips	..	4
Pulley Wheels	..	2
1½ in. Axle	..	1
Handle "	..	1
Collars	..	4
Coupling Hook	..	1
Knob Screw	..	1
Washers	..	4
Catch	..	1
Screws and Nuts	..	63

The frame of the Crane is fitted to the stand by means of knob screw passed through the centre of metal base and supported by a pulley wheel, flat side down. A bracket is fitted in centre of lower strip in front to support the weight. (This is clearly shown in the crane on page 19). The 8 in. strips should be slightly bent to allow the pulley wheel and axle to run free.



This illustration shows the way the inside of the stand and base is built up; there are two brackets in each corner and brackets on both sides to enable it to be screwed down with wood screws to a plank of wood.

CRANE TRUCK.



PARTS REQUIRED.

8 in. Angle Bars	..	2	Pulley Wheels	..	2
8 " Metal Strips	..	2	Collars	..	8
4 " " "	..	2	Washers	..	12
2½ " " "	..	8	3½ in. Axles	..	2
2 " " "	..	5	1½ " " "	..	1
Brackets	..	19	Handle do.	..	1
3 × 3 in. Metal Plates	..	3	Buffers	..	4
No. 25 Wood Slips	..	6	Coupling Hook	..	2
Trunnions	..	4	Catch	..	1
Wheels	..	4	Knob Screw	..	1

Screws and Nuts 63.

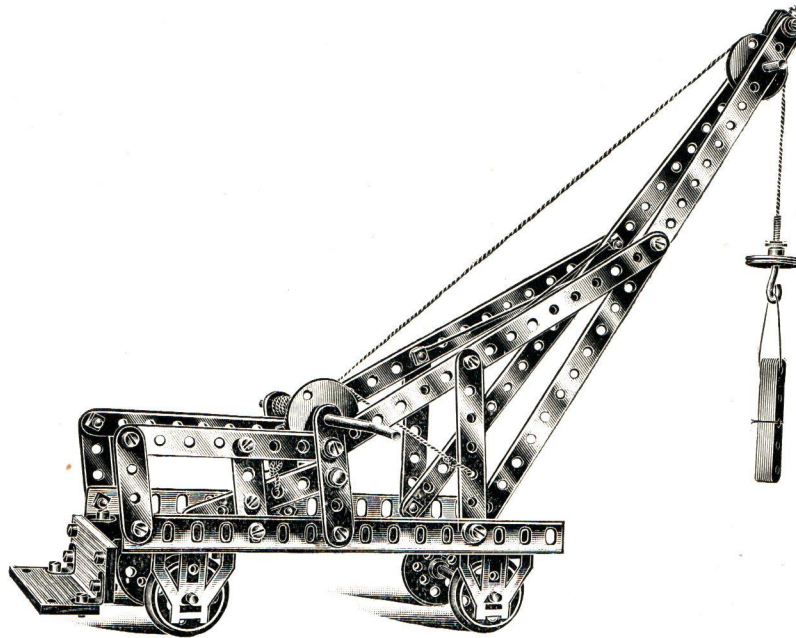
The Crane is made up as in the previous model. The truck is the same as on page 11 except the centre part—which does not have the 2 wood slips—and the base plate for crane to swivel on is fixed on by four brackets.

Primus Engineering Outfits.

MADE WITH No. 3 OUTFIT.

CRANE ON WHEELS.

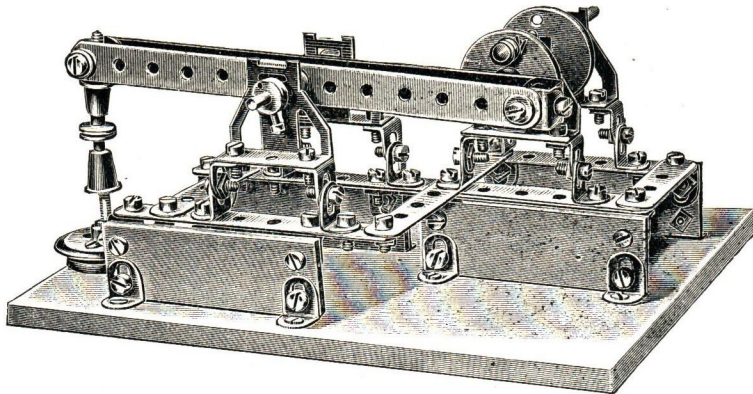
PARTS REQUIRED.



The "Signal Post Rods" are used in this model as ties to hold the front bars rigid.

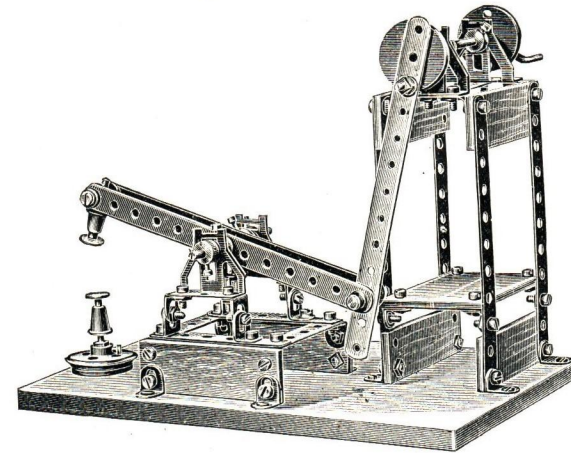
8 in. Angle Bars	..	..	..	2
2 in. Metal Strips	..	..	..	3
2½ in. " "	..	..	..	2
3 in. " "	..	..	..	1
3½ in. " "	..	..	..	2
4 in. " "	..	..	..	2
8 in. " "	..	..	..	2
12½ in. " "	..	..	..	2
Brackets .. ..	..	..	..	7
8 x 3 Metal Plate	..	..	..	1
Trunnions .. ..	..	..	..	4
Flanged Wheels ..	..	..	..	4
Grooved Wheels ..	..	..	..	3
3½ in. Axle Rods	..	..	..	2
1½ in. " "	..	..	..	1
Collar .. ..	..	..	..	1
Handle Axle .. ..	..	..	..	1
Washers .. ..	..	..	..	11
Coupling Hooks	..	..	..	1
Knob Screws .. ..	..	..	..	1
Signal Post Rods	..	..	..	2
3 x 1 Wood Slips	..	..	..	2
Screws and Nuts	..	..	..	36

Primus Engineering Outfits.

MADE WITH No. 3 OUTFIT.**HAMMER WORKED BY CAM ACTION.****PARTS REQUIRED.**

6½ in. Metal Strips	3	2¾ in. Axle	..	..	1
4 in. „ „	2	Handle do.	..	..	1
3 in. „ „	1	Buffers	..	..	2
2½ in. „ „	1	Collars..	..	..	6
2 in. „ „	1	Washers	..	..	10
Brackets	..	Knob Screw	..	..	1
Trunnions	..	No. 25 Wood Slips	..	..	4
Flange Wheel	..	Screws and Nuts	..	..	54
Pulley	..	Wood Screws	..	..	6

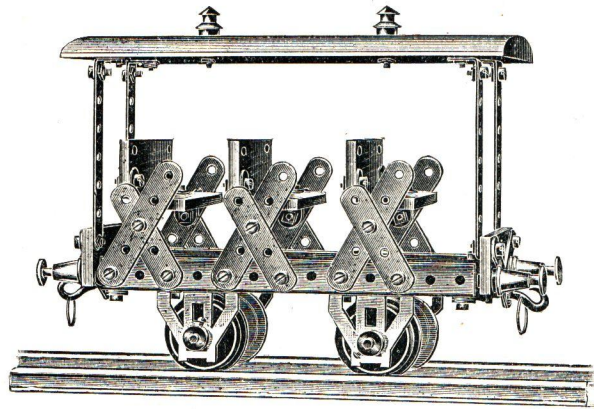
The knob screw for the eccentric action should be double nipped into the wheel.

STAMP HAMMER WORKED BY CRANK.**PARTS REQUIRED.**

6½ in. Metal Strips	3	2¾ in. Axle	..	..	1
5½ in. „ „	4	Handle do.	..	..	1
3 in. „ „	2	Buffers	..	..	2
2½ in. „ „	2	Collars..	..	..	6
2 in. „ „	2	Washers	..	..	10
Brackets	..	Knob Screws	..	..	2
Trunnions	..	No. 25 Wood Slips	..	..	8
Flange Wheel	..	Screws and Nuts	..	..	54
Pulley	..	Wood Screws	..	..	8

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 nipped. It should be fitted to the beam in a similar manner. The table below shafting is supported on 2-inch strips, which cannot be seen in the illustration.

Primus Engineering Outfits.

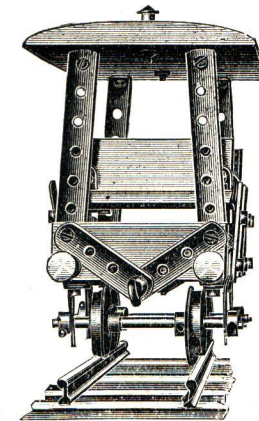
MADE WITH No. 4 OUTFIT.

The wood floor is fixed in the same manner as described for the Goods Truck on page 15. Square metal plates can be adapted instead, in which case the list of materials required will be slightly varied.

TOURIST CAR WITH ROOF.

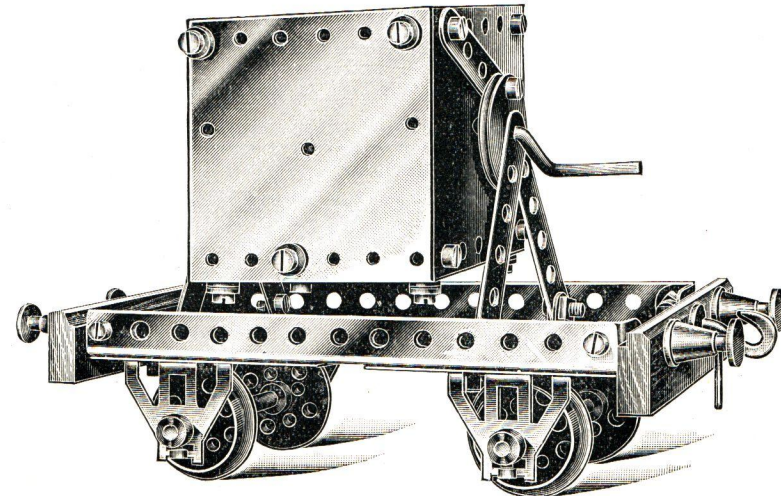
PARTS REQUIRED.

6½ in. Angle Bars	2
2 in. Metal Strips	10
2½ in. „ „	6
3½ in. „ „	4
Brackets	22
Trunnions 1	4
Wheels	4
3½ in. Axles	2
Washers	16
Buffers	4
Coupling Hooks	2
Lamps	2
Roof	1
No. 25 Wood Slips	8
Wood floor	1
Screws and Nuts	56

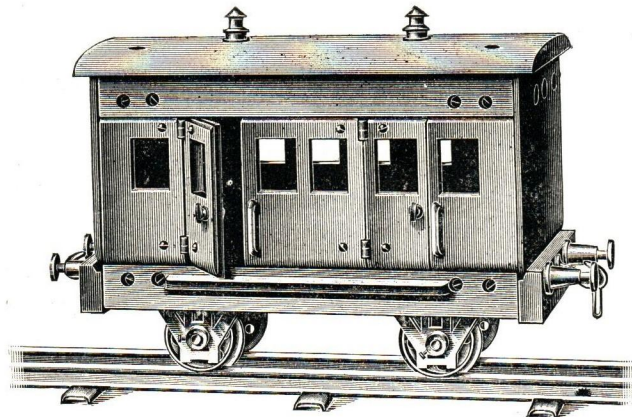
**TIPPING TRUCK.**

PARTS REQUIRED.

6½ in. Angle Bars.. .. .	2
2 in. Metal Strips	1
3 in. „ „	4
Brackets	18
3 x 3 Metal Plates	7
Trunnions	4
Flanged Wheels	4
Grooved „	1
3½ in. Axle Rods	2
Collars	5
Handle Axle	1
Washers	28
Buffers	4
Coupling Hooks	2
Wood Buffer Ends	2
Screws and Nuts	39



Primus Engineering Outfits.

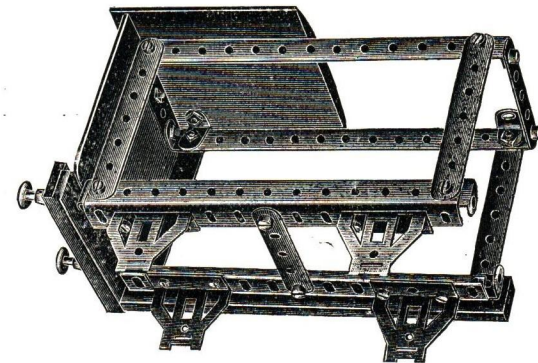
MADE WITH No. 4 OUTFIT.**RAILWAY CARRIAGE.****PARTS REQUIRED.****METAL.**

6½ in. Angle Bars	..	2	Washers	..	..	..	4
6½ in. Metal Strips	..	2	Buffers	..	..	..	4
3½ in. " "	..	4	Coupling Hooks	..	..	..	2
2½ in. " "	..	3	Lamps	..	..	..	2
Brackets	..	..	Door Handles	..	..	..	4
Trunnions	..	..	Bent Hinges	..	..	..	4
Wheels	..	..	Side Rails..	..	..	..	4
2¾ in. Axles	..	..	No. 50 Screws and Nuts	..	..	..	40
Collars	..	..	No. 91 " "	..	..	..	16

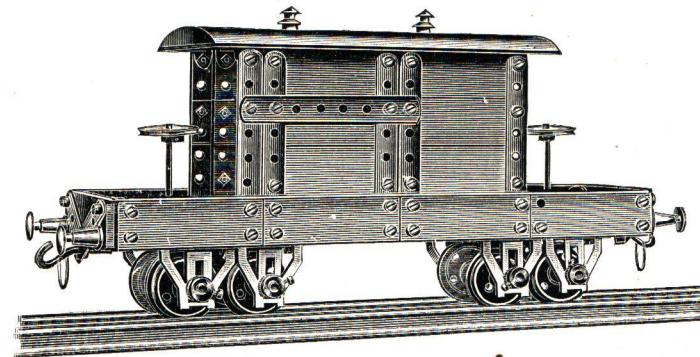
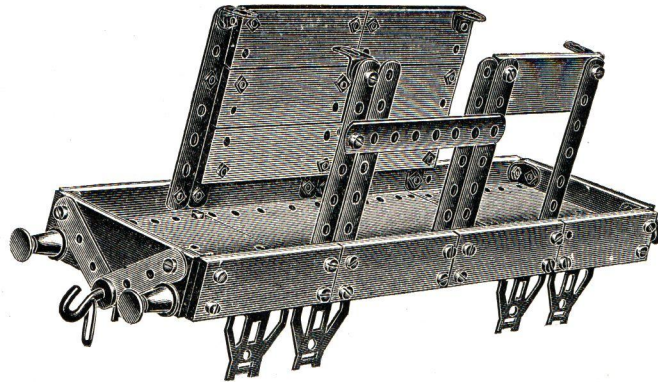
WOOD.

No. 1 Side Rails	..	2	Doors	..	..	..	4
Ditto, with Footboards..	..	2	L. H. Window	..	..	..	2
Buffer Blocks	..	..	R. H. " "	..	..	..	2
Ends	..	..	Central	..	..	..	2
Roof	..	..	Floor	..	..	..	1

Make up the whole metal frame and be careful in fixing brackets. Then fit on side rails, one buffer block and one end ; slide the windows and doors in the grooves—put in floor, and lastly 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, page 15.



Primus Engineering Outfits.

MADE WITH No. 4 OUTFIT.**DOUBLE BRAKE VAN ON 8 WHEELS.****PARTS REQUIRED.**

12 in. Angle Bars 2	Grooved Pulley Wheels 2
2 in. Metal Strips 4	(for Brakes) 2
3½ in. „ „ 10	3½ in. Axle Rods 4
4 in. „ „ 2	2¾ in. „ „ 2
Brackets 12	Buffers 4
No. 25 Wood Slips 22	Coupling Hooks 2
Carriage Roof 1	Lamps 2
3 x 3 in. Metal Plates 2	Collars 12
8 x 3 in. „ „ 1	Washers 12
Trunnions 8	Screws and Nuts 84
Flanged Wheels 8	

In this model the No. 25 wood slips for the body are fitted 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.

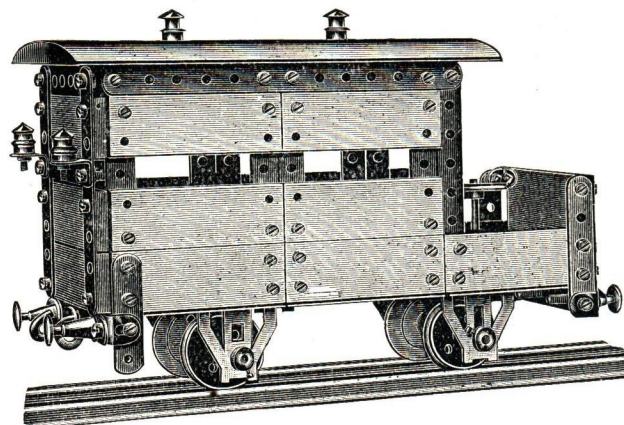
Two grooved wheels are used to simulate the brake wheels, and are fitted to 2¾ in. axles and secured by means of collars above and below the base plates.

Primus Engineering Outfits.

MADE WITH No. 4 OUTFIT.

SINGLE BRAKE VAN.

PARTS REQUIRED.

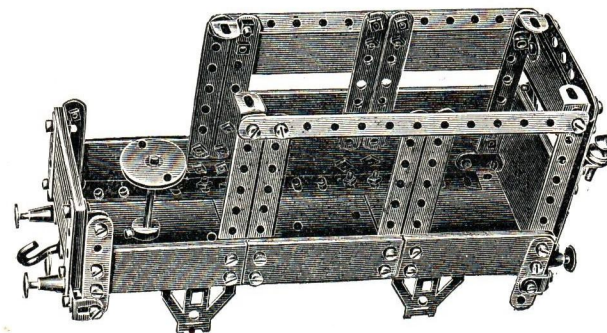


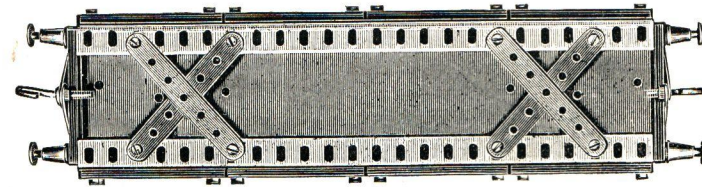
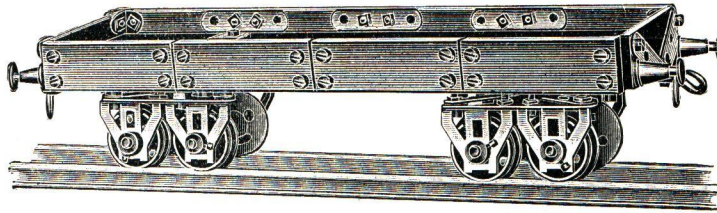
8 in. Angle Bars ..	2	Trunnions	4
2 in. Metal Strips ..	4	Flanged Wheels ..	4
2½ in. „ „ ..	2	Grooved Pulley Wheel	
3½ in. „ „ ..	12	(for Brake) ..	1
4 in. „ „ ..	2	3½ in. Axles	2
6½ in. „ „ ..	2	2¾ in. „ „ ..	1
Brackets	16	Buffers	4
Collars	6	Coupling Hooks ..	2
Washers	12	Lamps	2
No. 25 Wood Slips ..	24	Screws and Nuts ..	72
Carriage Roof ..	1		

In this model the chassis is built up like Truck on page 14. In making the body the No. 25 wood slips are fitted **outside** the frame, and washers are used to adjust the brackets to fit roof as in front of previous model.

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

This is an exceptionally handsome model, and should be made after the previous one, as it is a little more difficult



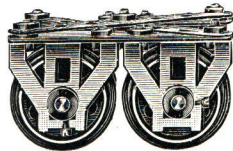
MADE WITH No. 4 OUTFIT.

Base of Truck.

EXPRESS TRUCK ON BOGIES.

PARTS REQUIRED.

12 in. Angle Bars	..	..	..	..	..	2	Collars	..	..	..	..	..	..	8
3½ in. Metal Strips	..	..	..	..	..	8	3 x 3 in. Plates	..	..	..	..	..	..	2
3 in. „ „	..	..	..	..	..	4	8 x 3 in. Plate	..	..	..	..	..	..	1
2 in. „ „	..	..	..	..	..	10	Buffers	..	..	..	..	..	..	4
Brackets	..	..	..	..	..	8	Coupling Hooks	..	..	..	..	..	..	2
Trunnions	..	..	..	..	..	8	Knob Screws	..	..	..	..	..	..	2
Wheels	..	..	..	..	..	8	Washers	..	..	..	..	..	..	22
2¾ in. Axles	..	..	..	..	..	4	No. 25 Wood Slips	..	..	..	..	..	..	10
Screws and Nuts						..	..	..	..	..	..	..	..	64



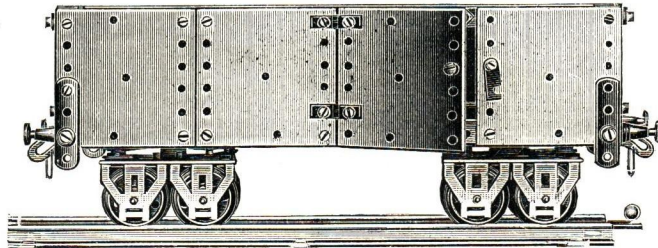
Elevation of Bogie.



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.

MADE WITH No. 4 OUTFIT.**EXPRESS COAL TRUCK ON BOGIES.****All Metal.****Bogie Frame.****Elevation of Bogie.**

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.

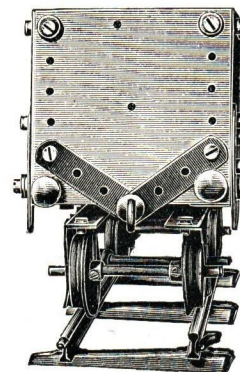
PARTS REQUIRED.

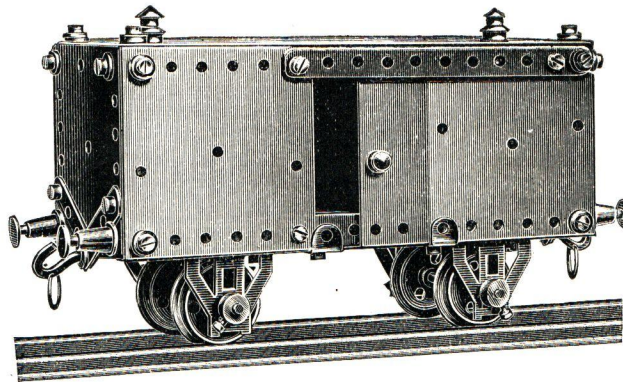
12 in. Angle Bars ..	2	Trunnions	8
3½ in. Metal Strips ..	8	Wheels	8
3 in. „ „ ..	4	2¾ in. Axles	4
2 in. „ „ ..	10	Collars.. ..	8
Brackets	8	Knob Screws	2
3 x 3 in. Plates ..	14	Washers	28
Buffers	4	Hinges.. ..	4
Coupling Hooks ..	2	Catches	2
Screws and Nuts		66	

The ends should be fitted to the angle bars first and the sides fitted on afterwards.

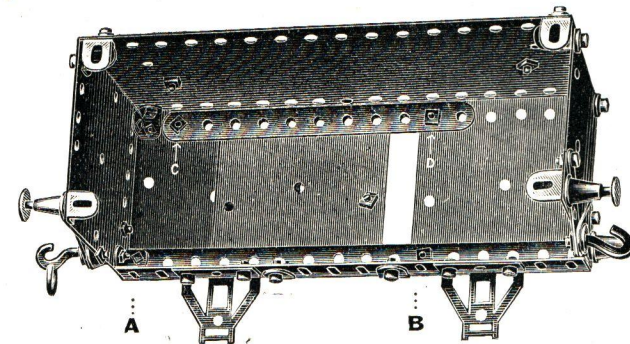
The base and frames are made up as on the Express bogie truck.

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.



MADE WITH No. 4 OUTFIT.**ARMOURED VAN.****PARTS REQUIRED.**

8 in. Angle Bars ..	2	Collars.. ..	4
2 in. Strips ..	4	Buffers	4
5½ in. „ ..	4	Coupling Hooks ..	2
Brackets	16	Lamps	2
8 x 3 in. Plates ..	2	Knob Screws ..	2
3 x 3 in. „ ..	8	Washers	34
Wheels	4	Screws.. ..	38
3½ in. Axles ..	2		



1. Fix Trunnions on angle bars. .
2. Fix up the two ends, fix buffers and a washer beneath each ; see that the brackets are right way ; put two washers beneath each screw in the corners ; then fit 2 in. strips and coupling hooks.
3. Fit on the plates for one side, and note when fixing the 5½ in. strips one goes inside and one out, and washers must be put between the inside strip, at C and D, and the 3 x 3 in. plates so as to allow space for the door to slide in, also washers 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 and secured by the two angle brackets. Knob screws for handles can be fixed last, and the floor will rest on the screws of buffers. Wheels are fitted as in other models.

VERTICAL SAW.

PARTS REQUIRED.

8 in. Angle Bars	4	3½ in. Axles	3
5½ in. Metal Strips	2	Handle do.	1
4 in. " "	3	Collars	13
3½ in. " "	2	Wheel	1
2½ in. " "	4	Pulley do.	2
2 in. " "	6	Washers	10
Brackets	18	Screws and Nuts	37
Trunnions	2	Wood Screws	4

The frame to carry saw is composed of four 2 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 easy in the grooves.

A fret-saw can be placed between the collars—as shown—to complete the model. The saw is not included in the outfit. Most boys already have some, and if not they can be obtained at any ironmonger's for a penny.

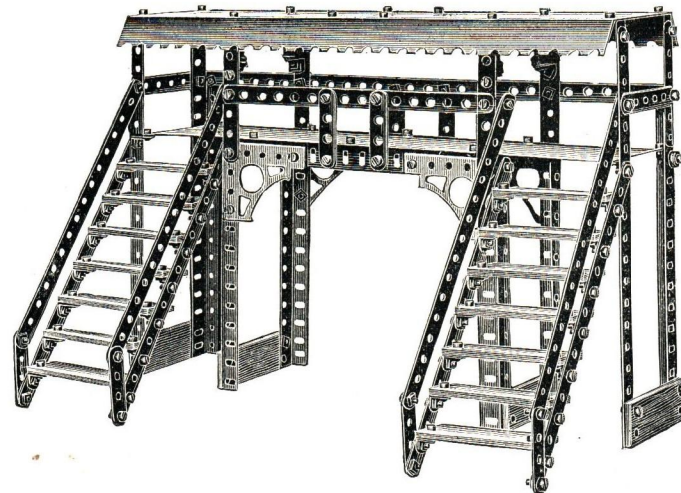


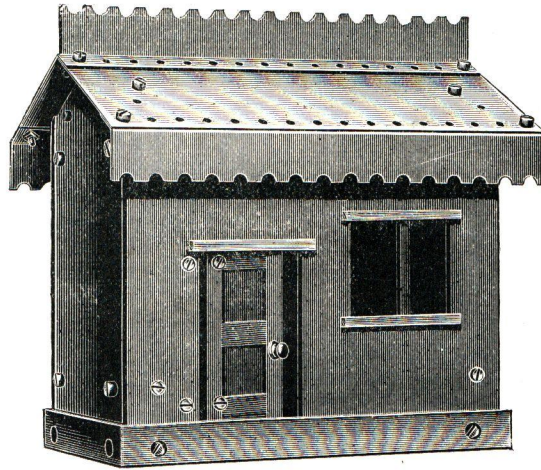
HIGH LEVEL BRIDGE WITH COVERED GALLERY AND RIGHT ANGLE STAIRWAYS.

PARTS REQUIRED.

8 in. Angle Bars ..	4	Brackets	46
6½ in. " " ..	4	No. 25 Wood Slips ..	18
8 in. Metal Strips ..	11	8 x 3 in. Metal Plates ..	4
3½ in. " " ..	4	Eaves	4
3 in. " " ..	4	Lamps	4
2 in. " " ..	8	Washers	6
Screws and Nuts ..		144.	

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.

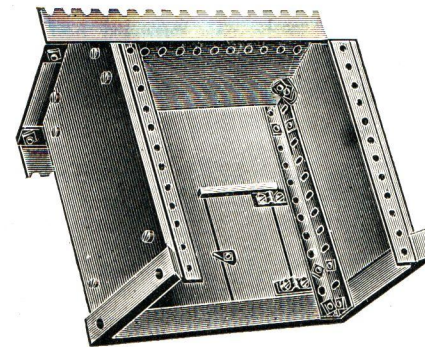


MADE WITH No. 5 OUTFIT.**WOOD STATION HOUSE WITH METAL ROOF.****PARTS REQUIRED.**

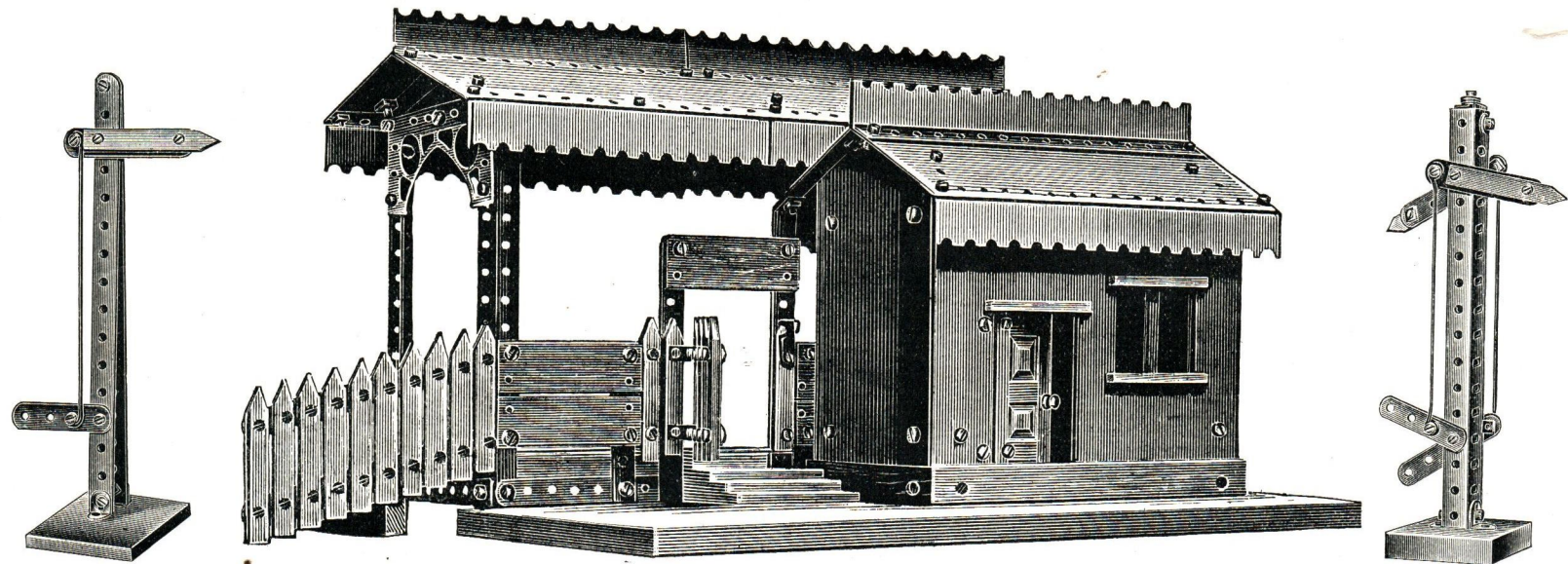
6 in. Angle Bars	4	House Back	1
Brackets	4	„ Sides	2
8 x 3 in. Plates	2	„ Front Rails	2
Ridge Tile	1	„ Side „	2
Eaves	2	Doors	2
Straight Hinges	4	Lintels.. .. .	2
Knob Screws (for door handles)	2	Window Sills	4
Turn Buttons	2	Sash Bars	2
House Front	1	Window Glass	2
		Screws and Nuts	48

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 is screwed to the Angle Bars.

Fit up the base frame and ends first.



Primus Engineering Outfits.

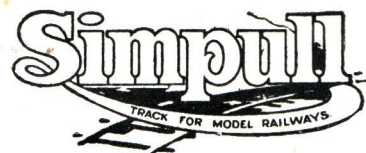


STATION AND STATION HOUSE.

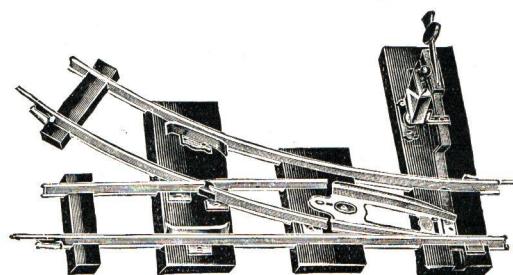
The parts for this Handsome Model are given in the previous pages 16 and 29, and only the large wood baseboard is added to make it a complete Station.

Signal Posts, Lamps, and High Level Bridge can be added as desired.

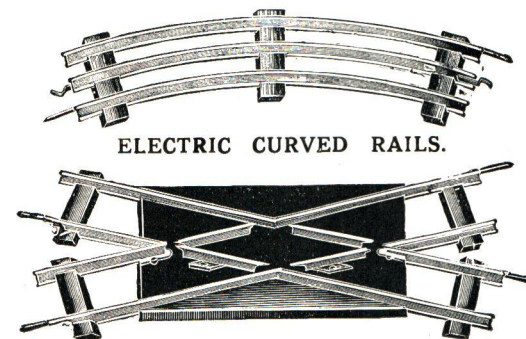
With the No. 5 Outfit, the Carriage, Goods Truck, Side Station, Station House, and High Level Bridge with Covered Gallery, can be made up complete at the same time, as well as many other smaller models.

THE IDEAL MODELRAILWAY TRACK. (A)

STRAIGHT AND CURVED RAILS.



SWITCHES.



ELECTRIC CURVED RAILS.

CROSSINGS.

"Simpull" track has revolutionised model railway construction. It makes an excellent portable track and quite as good a permanent one, it can easily be turned into a 5-sleeper rail, or if required still more sleepers may be added to each length. "Simpull" track has wooden sleepers which are of hard wood, stained dark. The rails are made of pressed sheet steel, so formed that they slide into grooved cuts in the sleepers, making a solid and stiff track.

The "Simpull" rails are distinguished by their strength, rigidity, realism and cheapness. They lie flat, are quiet running and simple to make up or take apart.

There is no model railway track like the "Simpull," because you can convert the ordinary pattern which is used for Steam and Clockwork Trains into Electric Track by simply inserting the extra centre rail for current. "Simpull" Electric Track is ideal, perfectly insulated, rigid, realistic and inexpensive.

"SIMPULL" ORDINARY RAIL.

SMALL RADIUS.

No.	Gauge.			
931G/35	0	Straight Rails	.. ..	3/6 doz.
931G/48	1	Straight Rails	.. ..	4/6 "
931R/35	0	Round Rails (6 to circle)	.. ..	3/6 "
931K/35	0	Crossings	.. ..	3/- each
931W/35	0	Switches	.. ..	3/9 pair

LARGE RADIUS.

930R/35	0	Round Rails (12 to circle)	.. ..	4/- doz.
930R/48	1	Round Rails (16 to circle)	.. ..	5/6 "
930K/48	1	Crossings	.. ..	4/- each

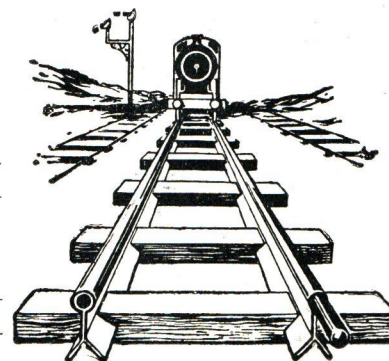
"SIMPULL" ELECTRIC RAILS.

ELECTRIC SMALL RADIUS.

No.	Gauge	No.			
1931G/35	0	Straight Rails	.. ..	doz.	6/-
1931G/48	1	Straight Rails	.. ..	"	7/-

ELECTRIC LARGE RADIUS.

1930R/35	0	Round Rails (12 to circle)	doz.	6/-
1930R/48	1	Round Rails (16 to circle)	"	7/-

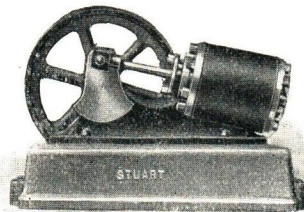


THE PRIMUS—STUART CASTINGS.

(A)

These sets consist of all the necessary castings ready for finishing. They are the best of their respective materials, and have been designed by engineers who know the peculiar difficulties of the amateur and engineering apprentice or student. Plenty of metal is provided for machining and the sets are complete with all screws, shafts, rods, drawings, and instructions. The most difficult part of the work—the boring and facing of the cylinders—is already accomplished. Furthermore, the "Progress" sets have the excellent world-wide reputation of the "STUART" castings behind them.

OSCILLATING ENGINES



VERTICAL, $\frac{1}{2}$ in. bore, $\frac{3}{4}$ in. stroke in best Gunmetal with disc wheel in iron, including crank and piston rods, all studs, bolts and nuts.

No. OV. Price 4/9

HORIZONTAL, $\frac{1}{2}$ in. bore, $\frac{3}{4}$ in. stroke, all castings in best Gunmetal and box bed in iron, complete with all crank and piston rods, studs, nuts and bolts.

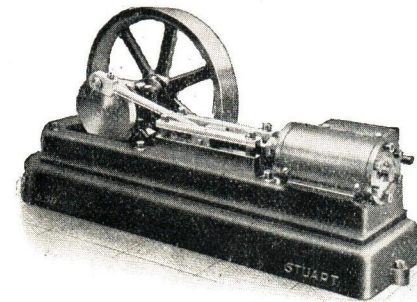
No. OH. Price .. 5/9

MODEL MILL ENGINE.

The set consists of all the parts necessary to erect the engine illustrated. The base, $8\frac{1}{2}$ in. long, is a beautifully moulded casting and stove enamelled; the fly-wheel, 4 in. diameter, is turned and polished; the cylinder is a gunmetal casting, perfectly machined, with the various covers, glands, etc.; the crank shaft, slide bars, connecting rod and eccentric rod are made from solid steel.

No. S 50, fitted complete 30/0

„ S 50, finished parts ready to put together 21/0



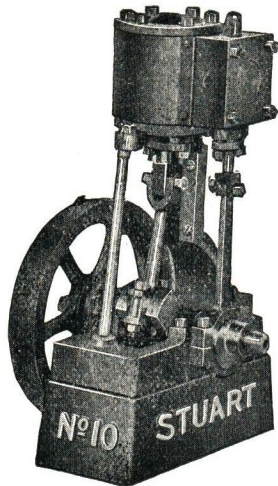
HIGH SPEED STEAM ENGINES.

A set of castings ready finished for making a beautiful model of a slide valve engine without the use of lathe, $\frac{3}{4}$ in. bore x $\frac{3}{4}$ in. stroke. The bedplate and cylinder are of best cast iron, the other parts of fine gunmetal or of solid steel.

No. V 10. Vertical Engine .. 10/6

No. H 10. Horizontal Engine 10/6

Box Bedplate extra for Vertical 2/0



MODEL MILL ENGINE BOILER.

For Engine No. S 50.

A Model Cornish Boiler, $9\frac{1}{2}$ in. long by $4\frac{1}{2}$ in. square, with the back and front of cast iron and the casing of planished steel, lined with asbestos; the generator consists of a strong copper tube with all joints brazed; fitted with an efficient safety valve, first-class steam gauge. A glass water gauge and main steam cock are fitted. A methylated spirit lamp is included with the boiler, or a gas burner can be supplied instead without extra cost.

Price .. 40/0

