

"PRIMUS" ENGINEERING OUTFITS

**STANDARDISED FITTINGS
in WOOD and METAL for
CONSTRUCTING MODEL
. RAILWAY PLANT .
AND MANY KINDS OF
MACHINES.**

PRICE - THREEPENCE.



THE "PRIMUS" ENGINEERING OUTFITS.

Registered.



The Models shewn 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.

PRICES.

						£	s.	d.
No. 1	Outfit	...	...	...	...	0	6	0
No. 2	"	...	...	...	...	0	10	6
No. 3	"	...	...	...	...	1	1	0
No. 4	"	...	...	...	...	1	11	6A
No. 5	"	...	...	...	...	2	5	0

Complete with illustrated instruction book.

CONTENTS OF OUTFITS.

	No. 1	2	3	4	5	
Description of Parts.	6/0	10/6	21/0	31/6	45/0	
WOOD-WORK.						
No.						
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 " " "brake," 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 "	—	—	—	—	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. × 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
		6/-	10/6	21/-	31/6	45/-
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	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. × 3in.	—	—	4	4	10
68	Metal plates for trucks, etc. 3in. × 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	for pulleys, etc.	—	—	4	4	4
77	Axle rods 3½ inch	2	2	2	4	4
78	" " 2¾ "	—	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

THE "PRIMUS" ENGINEERING

OUTFITS.

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 x 1 in. wood slips	...	...	...	...	per doz. 1/-
26	Glass for windows	...	...	...	...	" " 3d.

METAL.

50	Screws	...	...	...	...	per doz. 6d.
51	Nuts for do.	...	...	...	...	" 6d.
52	Angle bars 6 in.	...	...	...	...	per half doz. 6d.
53	" " 6½ "	...	...	...	...	" " 6d.
54	" " 8 "	...	...	...	...	" " 9d.
55	" " 12 "	...	...	...	...	" " 1/-
56	Metal Strips 2 in.	...	...	...	...	" " 3d.
57	" " 2½ "	...	...	...	...	" " 3d.

THE "PRIMUS" ENGINEERING OUTFITS.

Extra Parts.

METAL—(continued).

No.							Price.
58	Metal strips	3 in.	...	...	...	per half doz.	3d.
59	"	3½	"	...	...	"	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 × 3 in.	...	...	...	per half doz.	9d.
68	"	3 × 3	"	...	...	"	1/6
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.

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 4-5), so that any special series of the models may be completed together.

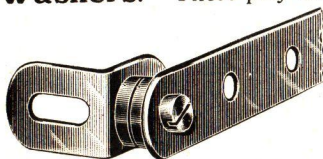
The Trucks and Carriages are designed to run on rails of No. 1 gauge, but as the width between the wheels may be altered they can also be made to run on other gauges. A complete "mixed" train can be made up if desired, by making use of supplementary parts.

No less than 15 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 8, 12, 20, 24, 25, &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.

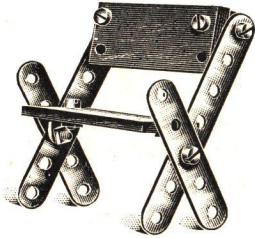
The possibilities of other mechanical models are shown by the Crane, Steam Hammers and Vertical Saw.

Wood bases for Screwing Models to.

Some of the models are shewn 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.

MADE WITH No. 1 OUTFIT.

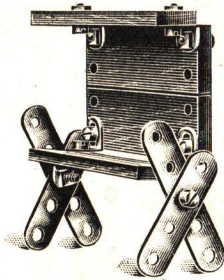
Materials required.



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.



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.

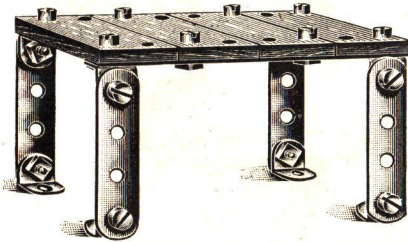
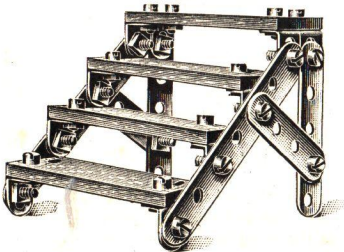


Table.

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.

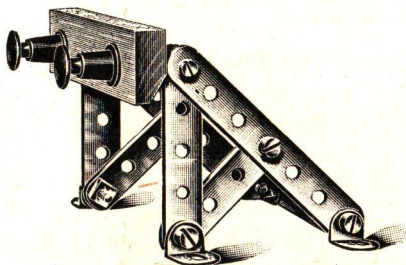


Step Ladder.

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.

MADE WITH No. 1 OUTFIT.



Buffer End.

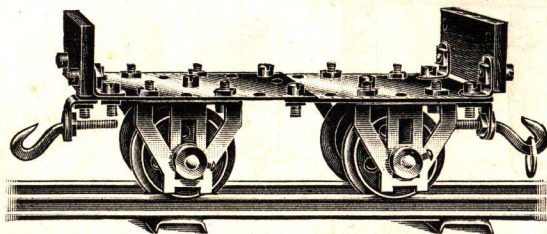
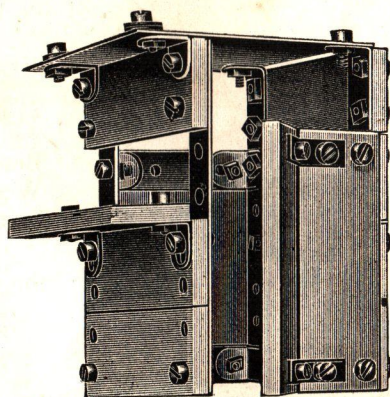
Materials required.

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

Bookstall.

Materials required.

2 in. Metal Strips	...	2
3½ in. " "	...	2
4 in. " "	...	2
3 × 3 in. Metal Plate	...	1
Brackets	...	12
Hinges	...	2
3 × 1 in. Wood Slips	...	10
Washers	...	4
Screws and Nuts	...	35



Trolley Truck.

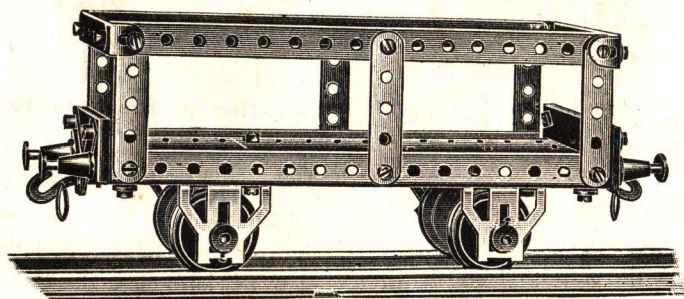
Materials required.

2 in. Metal Strips	...	2	Wheels	...	...	4
3 × 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.

MADE WITH No. 1 OUTFIT.

Timber Truck.



Materials 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

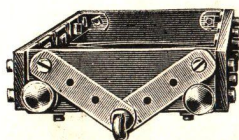
This truck should be made up first, and then those which follow will be better understood. Brackets are fitted *inside* the angle bars to the slotted sides, with 2 washers on each screw. A washer should be placed on the buffer screw and then fit them through the hole in the 3 × 1 wood slip and pass the 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.

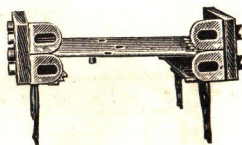
The wheels can be adjusted to the gauge of the rails, but most of the models are best suited to No. 1 gauge.

DIAGRAMS OF TRUCK FITTINGS.



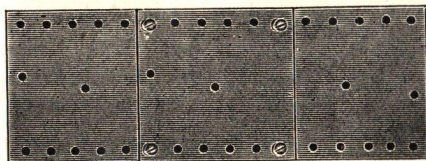
How the Buffers and Coupling Hooks are fitted.

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



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.



Base Plates bolted together.

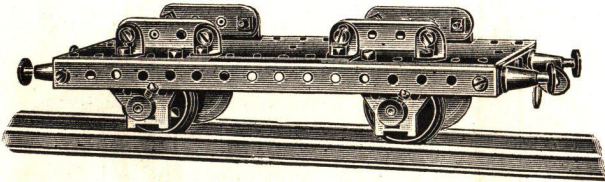
The base plates are composed of three of the square metal plates, and can be laid in loose and caught between the sides when they are pressed in and the end screws tightened up.

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 25.

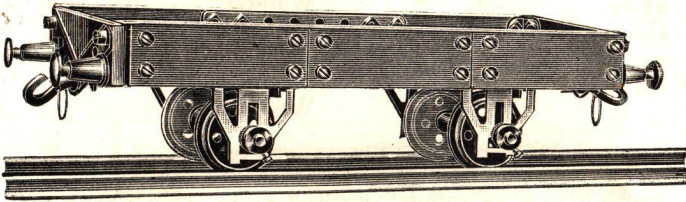
MADE WITH No. 1 OUTFIT.



Low Level Transport Truck For Boilers, Heavy Girders, &c.

Materials required.

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

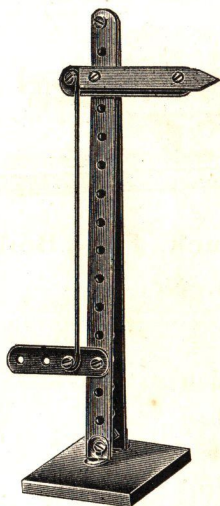


Ballast Truck.

Materials required.

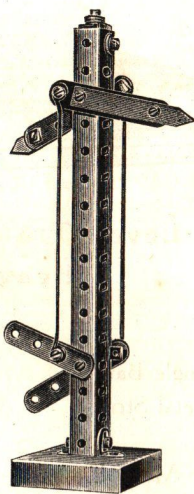
8 in. Angle Bars	...	2	Wheels	...	...	4
4 „ Metal Strips	...	2	Collars	...	...	4
2 „ „	...	4	3 × 3 in. Square Plates	...	...	3
Brackets	...	8	Buffers	...	...	4
Trunnions	...	4	Coupling Hooks	...	...	2
3½ in. Axles	...	2	Washers	...	...	8
3 × 1 in. Wood Slips	...	8	Screws & Nuts	...	...	36

MADE WITH No. 2 OUTFIT.



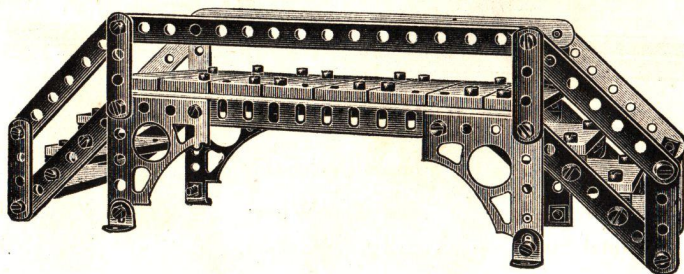
Single Signal Post.

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.

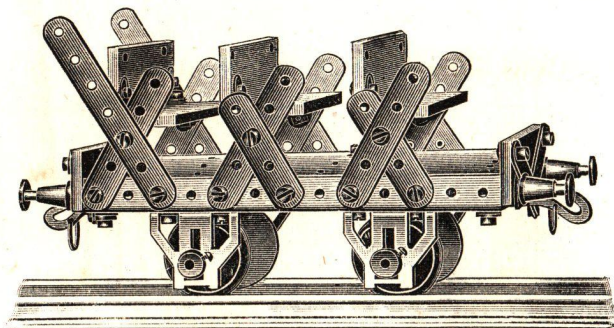
8 in. Angle Bars	...	2
2½ in. Metal Strips	...	2
2 in. " "	...	2
Brackets	...	4
Washers	...	3
Wood Bars	...	2
Connecting Rods	...	2
Screws and Nuts	...	15
Wood Screws	...	2



Low Foot Bridge—3 Steps.

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

MADE WITH No. 2 OUTFIT.

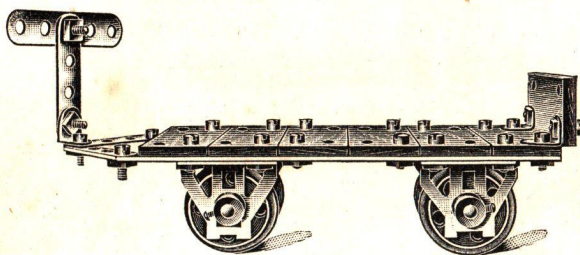


Tourist Car for Light Railways.

Materials required.

6½ in. Angle Bars	...	2	Collars	...	4
3½ in. Metal Strips	...	2	Buffers	...	4
2½ in. " "	...	6	Coupling Hooks...	...	2
2 in. " "	...	8	Washers	...	12
Brackets	...	16	3 × 3 Square Plates	...	3
Trunnions	...	4	3 × 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.)

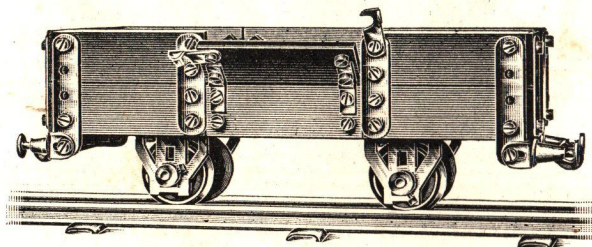


Luggage Trolley.

6½ in. Metals 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

MADE WITH No. 2. OUTFIT.

Coal Truck with Hinged Sides.



Materials 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	3×3 in. Metal Plates	...	...	3
Brackets ...	...	12	Hinges	...	...	4
Trunnions	...	4	Catches	...	...	4
Wheels	...	4	Wood Slips	...	...	16
3½ in. Axles	...	2	Screws & Nuts	...	...	64

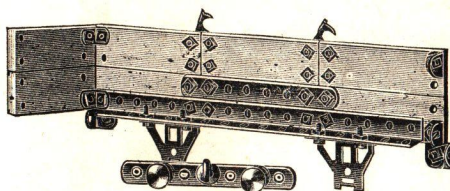


Diagram of inside, showing how the sides are fitted up.

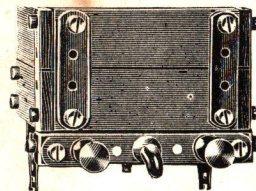


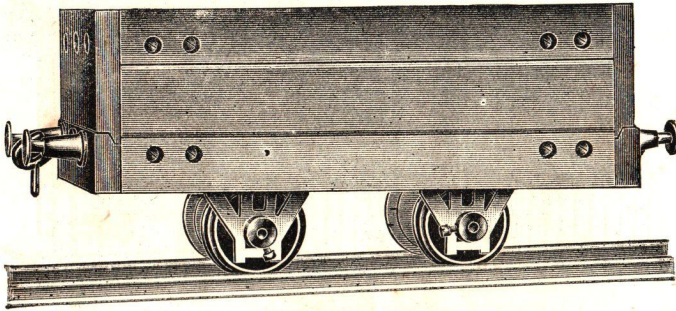
Diagram showing how the end is formed.

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

MADE WITH No. 2 OUTFIT.

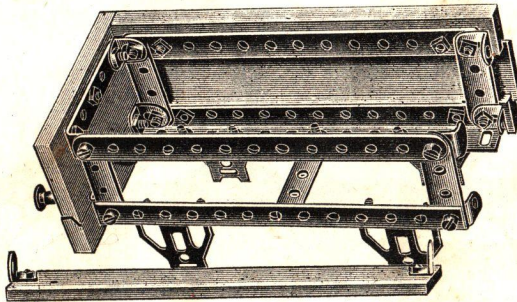
Heavy Goods Truck.

All wood, Sides, Ends and Buffer Blocks.



Materials required.

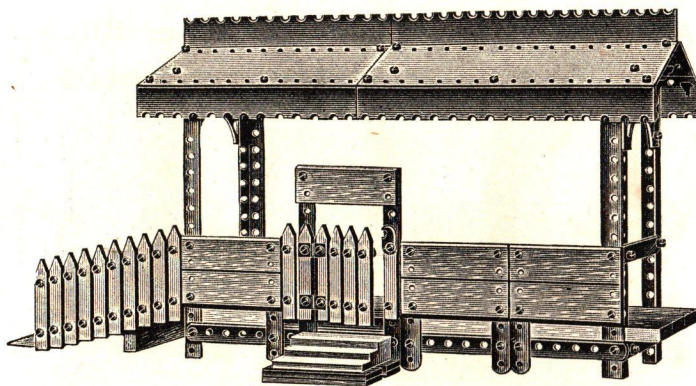
6½ in. Angle Bars	...	2	Washers	...	...	4
6½ in. Metal Strips	...	2	Buffers	...	...	4
2½ in. " "	...	3	Coupling Hooks	...	...	2
2 in. " "	...	4	Grooved Bars	...	...	4
Brackets...	...	10	Angled Sides	...	...	2
Trunnions	...	4	Buffer Blocks	...	...	2
Wheels	...	4	Ends	...	...	2
2¾ in. Axles	...	2	Wood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

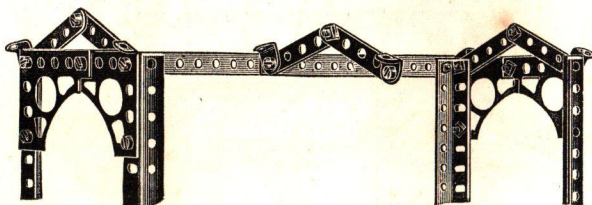
MADE WITH No. 3 OUTFIT.



Side Station.

Materials 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
8×3 in. Plates	...	4	Slope	...	1
6½ " Ridge Tiles	...	1	Screws and Nuts	...	88

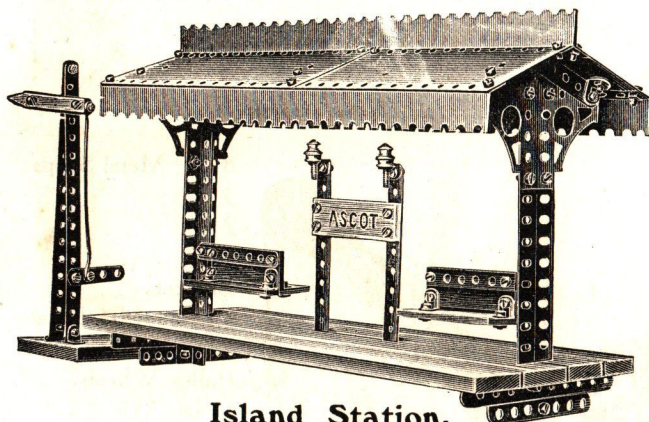


Composition of Roof Frame.

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.

MADE WITH NO. 3 OUTFIT.



Island Station.

With Seat and Nameboard. *Materials 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
8×3 in. Metal Plates	...	4			

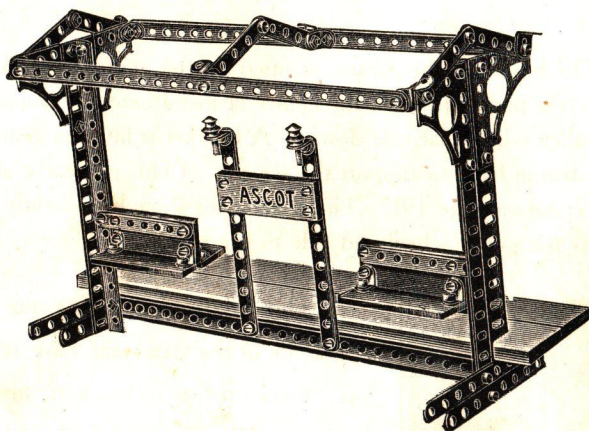


Diagram of Frame for Roof.

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

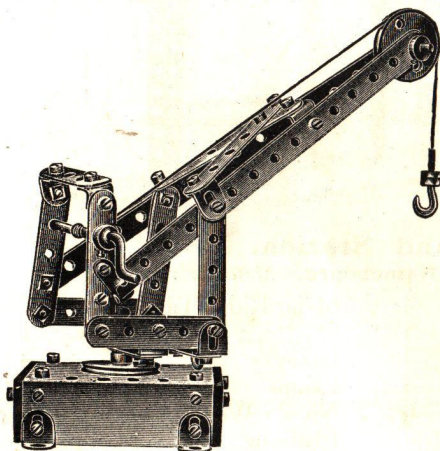
The Signal Post is shown on page 12.

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

MADE WITH No. 3 OUTFIT.

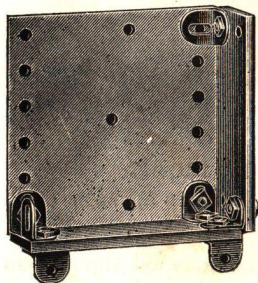
Crane.

Materials required.



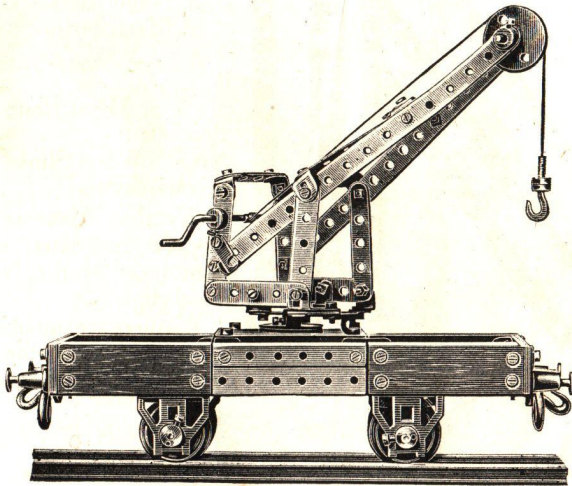
8 in. Metal Strips	2
3 " " "	2
2½ " " "	8
2 " " "	1
Brackets ...	23
3 × 3 in. Metal Plate	1
No. 25 Wood Slips	4
Pulley Wheels ...	2
1½ in. Axle ...	1
Handle ..	1
Collars ...	4
Coupling Hook ...	1
Knob Screw ...	1
Washers ...	4
Catch ...	1
Screws and Nuts ...	63

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.

MADE WITH No. 3 OUTFIT.



Materials required.

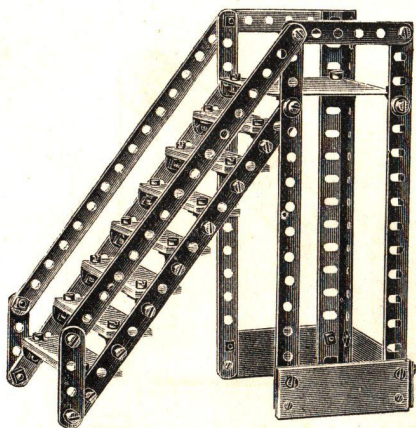
8 in. Angle Bars	...	2	Pulley Wheels	...	2
8 „ Metal Strips	...	2	Collars	...	8
4 „ „ „	...	2	Washers	...	12
2½ „ „ „	...	8	3½ in. Axles	...	2
2 „ „ „	...	5	1½ „ „	...	1
Brackets	...	19	Handle do.	...	1
3 × 3 in. Metal Plates	...	3	Buffers	...	4
No. 25 Wood Slips	...	6	Coupling Hook	...	2
Trunnions	...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

MADE WITH No. 3 OUTFIT.

Staircase with Landing.

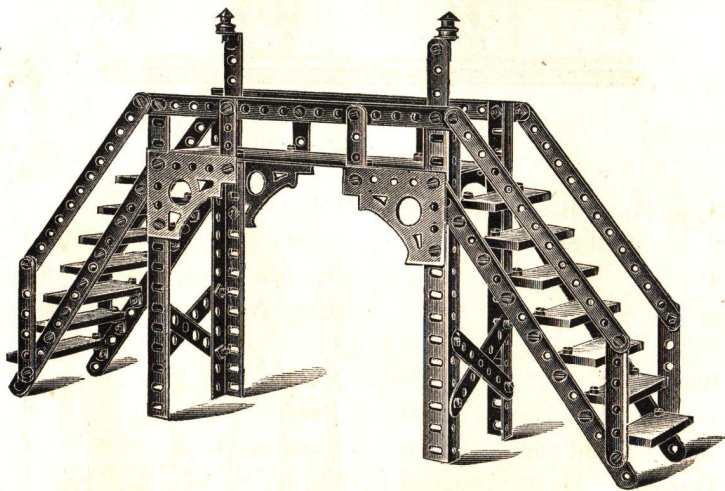


Materials required.

8 in. Angle Bars	...	2
2 „ Metal Strips	...	2
3 „ „ „	...	2
8 „ „ „	...	6
3×3 in. Metal Plate	...	1
Brackets	...	18
No. 25 Wood Slips	...	11
Screws & 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.



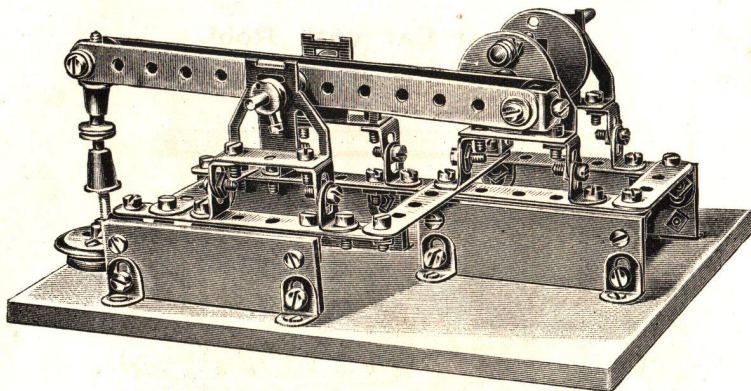
High Level Bridge.

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

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

MADE WITH No. 3 OUTFIT.

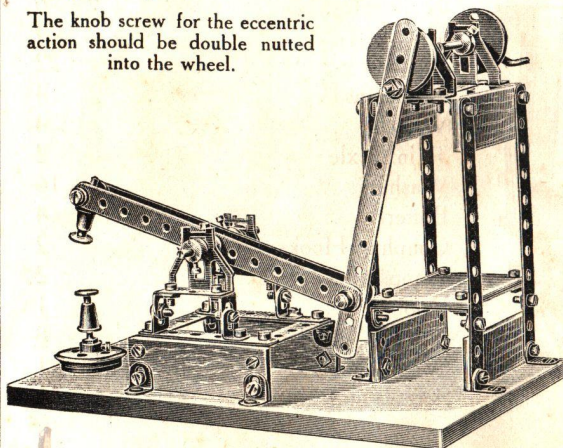
Hammer worked by Cam Action.



Materials required.

6½ in. Metal Strips	...	3	2¾ in. Axle	...	1
4 " " "	...	2	Handle do.	...	1
3 " " "	...	1	Collars	...	6
2½ " " "	...	1	Washers	...	10
2 " " "	...	1	Knob Screw	...	1
Brackets	...	28	No. 25 Wood Slips	...	4
Trunnions	...	4	Screws & Nuts	...	54
Flange Wheel	...	1	Wood Screws	...	6
Pulley	...	2			

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



Stamp Hammer Worked by Crank.

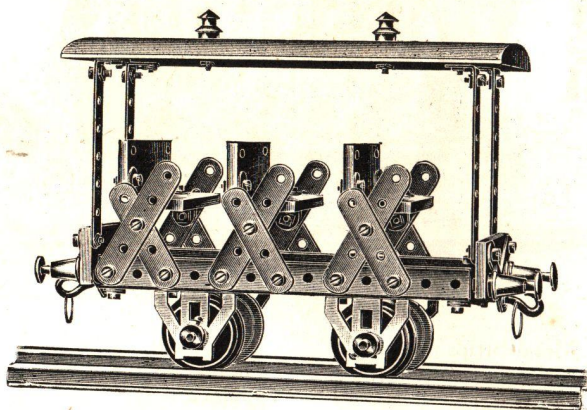
6½ in. Metal Strips	...	3
5½ in. do.	...	4
3 " do.	...	3
2½ " do.	...	2
Brackets	...	30
Knobs & Screws	...	2

The other fittings as above.

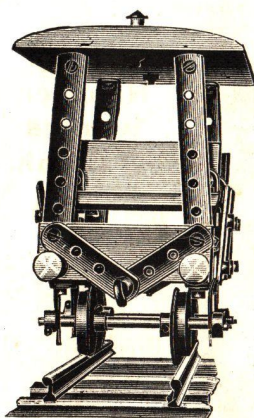
Fitting Crank Arm.—A knob screw should be bolted through the pulley wheel, then a washer put on, then the crank arm and another washer, and lastly double nipped. It should be fitted to the beam in a similar manner. The table below shafting is supported on 2-inch strips, which cannot be seen in the illustration.

MADE WITH No. 4 OUTFIT.

Tourist Car with Roof.



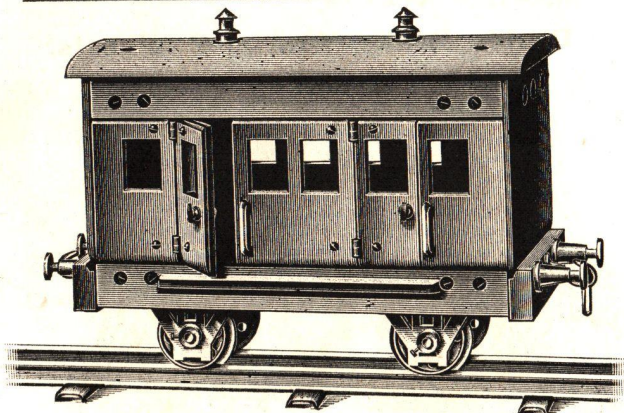
Materials required.



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

The wood floor is fixed in the same manner as described for the Goods Truck on page 15.

MADE WITH No. 4 OUTFIT.



Railway Carriage.

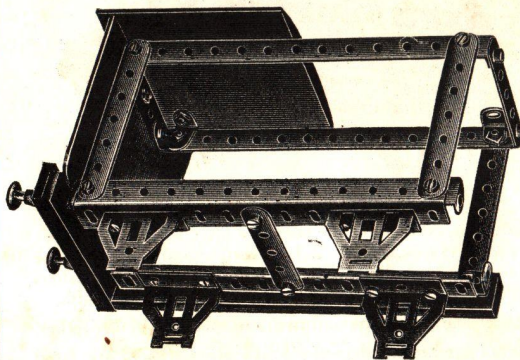
Materials required.

METAL.

6½ in. Angle Bars	...	2	Washers	...	4
6½ „ Metal Strips	...	2	Buffers	...	4
3½ „ „	...	4	Coupling Hooks	...	2
2½ „ „	...	3	Lamps	...	2
Brackets	...	14	Door Handles	...	4
Trunnions	...	4	Bent Hinges	...	4
Wheels	...	4	Side Rails	...	4
2½ in. Axles	...	2	No. 50 Screws and Nuts	...	40
Collars	...	4	No. 91 „ „	...	16

WOOD.

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

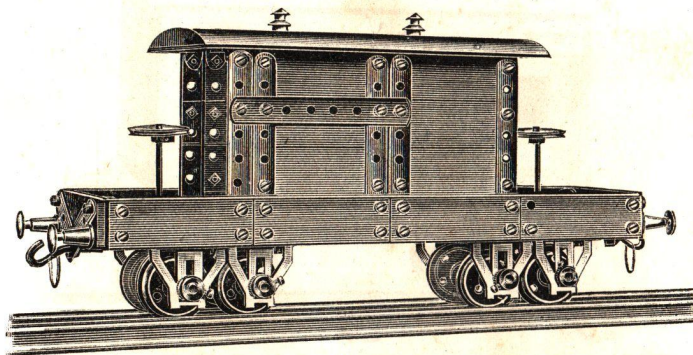


Make up the whole metal frame and be careful in fixing brackets. Then fit on side rails, one buffer block and one end; slide the windows and doors in the grooves—put in floor, and lastly fix on 2nd buffer block and then the 2nd end. The screw for fastening this should be put in and the nut carefully 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.

MADE WITH No. 4 OUTFIT.

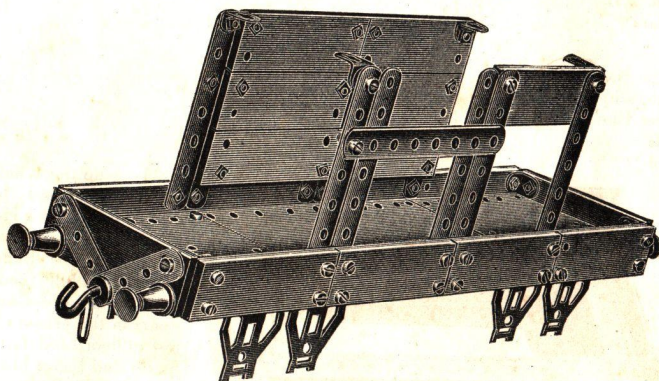
Double Brake Van on 8 Wheels.



Materials required.

12 in. Angle Bars	...	2	3×3 in. Metal Plates	...	2
2 „ Metal Strips	...	4	8×3 „ „ „	...	1
3½ „ „ „	...	10	Collars	...	12
4 „ „ „	...	2	Washers	...	12
Brackets	...	12	Screws and Nuts	...	84
No. 25 Wood Slips	...	22			

The other fittings are clearly shown.



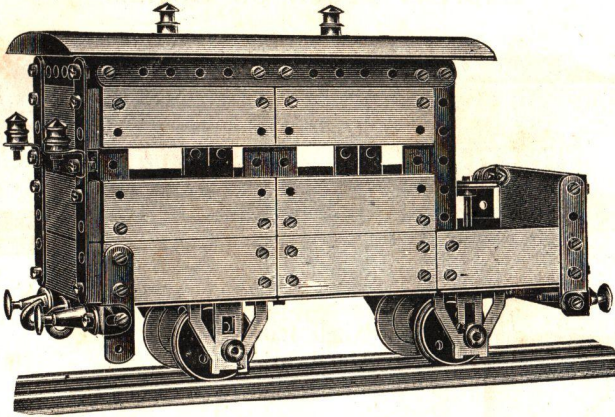
In this model the No. 25 wood slips for the body are fitted *inside* the frame ; this is important, as the roof screw-holes are 2 in. centres, and by fixing the brackets *inside* the wood body at back this width will be found exact. Washers are used between the brackets and 3½ in. strips in the front 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 axles and secured by means of collars above and below the base plates.

MADE WITH No. 4 OUTFIT.

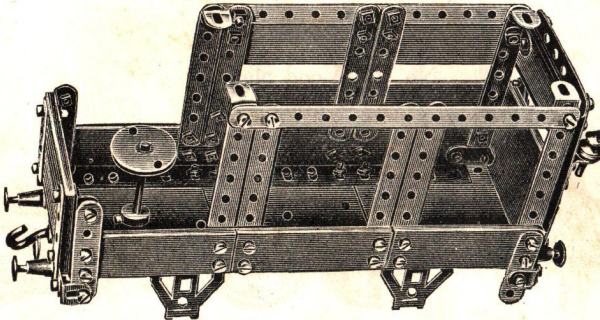
Single Brake Van.



Materials required.

8 in. Angle Bars	...	2	Brackets	...	...	16
2 " Metal Strips	...	4	Collars	...	...	6
2½ " " "	...	2	Washers	...	...	12
3½ " " "	...	12	No. 25 Wood Slips	...	...	24
4 " " "	...	2	Screws and Nuts	...	...	72
6½ " " "	...	2				

The wheels and trunnions and other fittings are clearly shown.



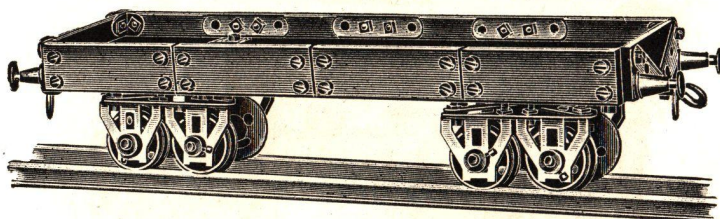
In this model the chassis is built up like Truck on page 14. In making the body the No. 25 wood slips are fitted *outside* the frame, and washers are used to adjust the brackets to fit roof as in front of previous model.

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

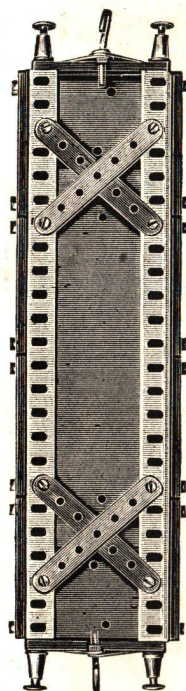
This is an exceptionally handsome model, and should be made after the previous one, as it is a little more difficult.

MADE WITH No. 4 OUTFIT.

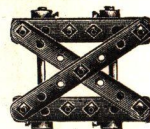
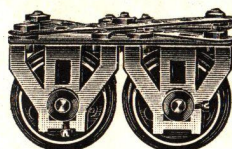
Express Truck on Bogies.



Materials required.



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



Base of Truck.

Elevation of Bogie.

Bogie Frame.

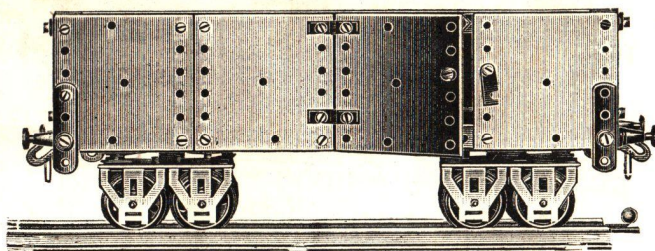
The Bogie frame is made up with two 3-in. strips for sides and two 3½-in. strips for cross pieces; washers are set on the screws at opposite corners to level up the cross strips.

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

MADE WITH No. 4 OUTFIT.

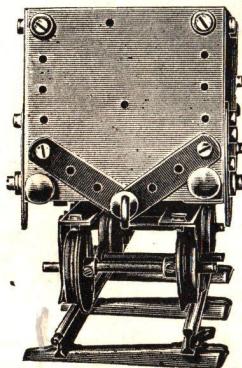
Express Coal Truck on Bogies.

All Metal.



Materials required.

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

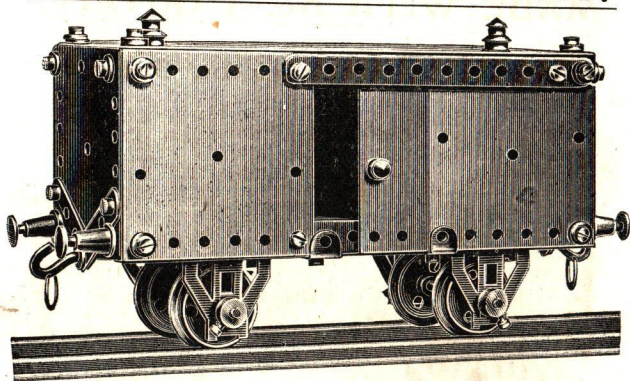


The ends should be fitted to the angle bars first and the sides fitted on afterwards.

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.

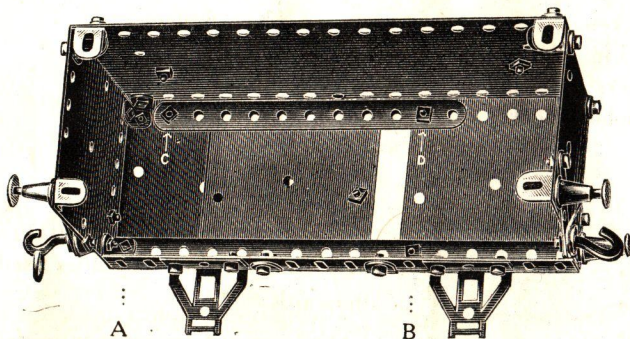
MADE WITH No. 4 OUTFIT.



Armoured Van.

Materials required.

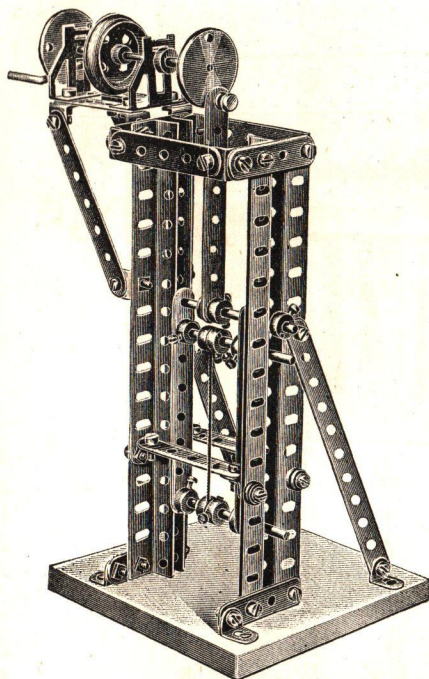
8 in. Angle Bars	...	2	Collars	...	4
2 „ Strips	...	4	Buffers	...	4
5½ „ „	...	4	Coupling Hooks	...	2
Brackets	...	16	Lamps	...	2
8 × 3 in. Plates	...	2	Knob Screws	...	2
3 × 3 „ „	...	8	Washers	...	34
Wheels	...	4	Screws	...	38
3½ in. Axles	...	2			



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 3×3 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.

MADE WITH No. 4 OUTFIT.

Vertical Saw.



Materials required.

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

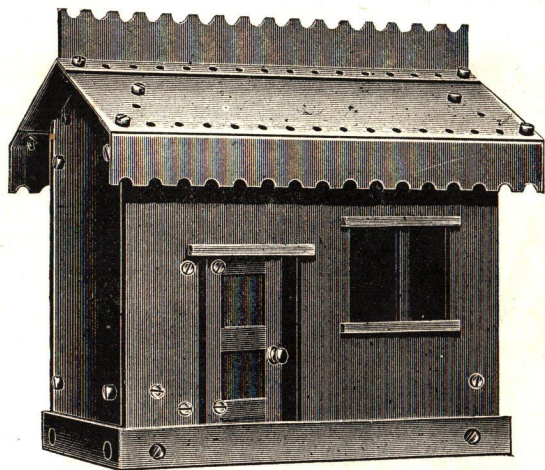
The crank arm is fitted to the grooved wheel by means of knob screw with washers and double nutted.

The frame to carry saw is composed of 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.

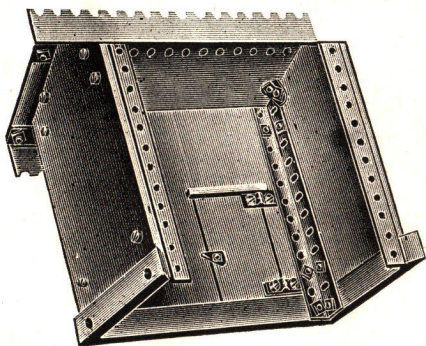
MADE WITH No. 5 OUTFIT.

Wood Station House with Metal Roof.



Materials required.

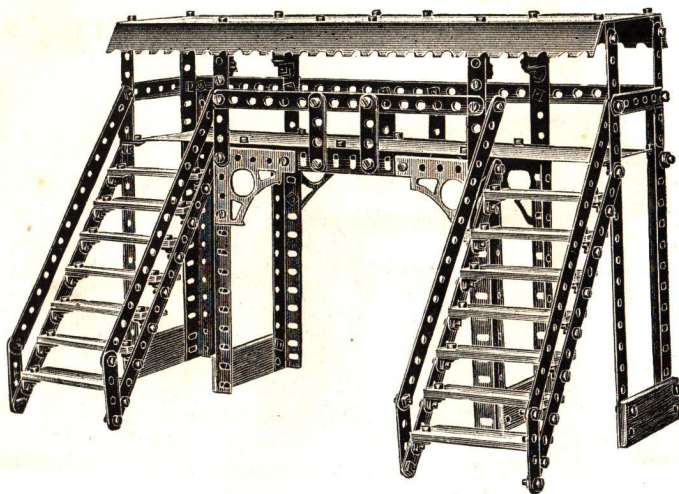
6 in. Angle Bars	...	4	House Back	...	1
Brackets	...	4	„ Sides	...	2
8×3 in. Plates	...	2	„ Front Rails	...	2
Ridge Tile	...	1	„ Side „	...	2
Eaves	...	2	Doors	...	2
Straight Hinges	...	4	Lintels	...	2
Knob Screws (for door handles)	...	2	Window Sills	...	4
Turn Buttons	...	2	Sash Bars	...	2
House Front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

MADE WITH No. 5 OUTFIT.



High Level Bridge with Covered Gallery and Right Angle Stairways.

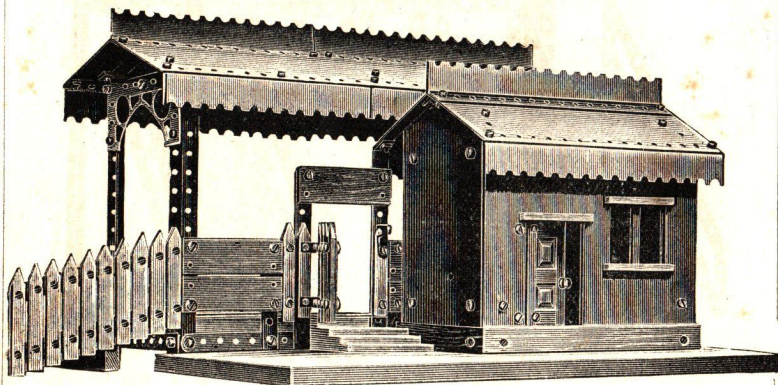
Materials required.

8 in. Angle Bars	... 4	Brackets	... .. 46
6½ " " "	... 4	No. 25 Wood Slips	... 18
8 " Metal Strips	... 11	8 × 3 in. Metal Plates	... 4
3½ " " "	... 4	Eaves	... 4
3 " " "	... 4	Lamps	... 4
2 " " "	... 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.




Station and Station House.

The parts for this Handsome Model are given in the previous pages 16 and 30, 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.



**Manufactured
by
W. BUTCHER & SONS, LTD..
Camera House,
Farringdon Avenue,
London, E.C.**