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MECCANO

DINKY TOYS · HORNBY DUBLO & GAUGE 'O'

A Breakdown Service Crane

IN the course of my duties as Meccano model-building correspondent for the 'M.M.' I see many different types of models. Many of these are good, but, once in a while, an outstanding example comes to my notice. The Breakdown Crane described here, I feel, falls into this category. It was designed and built entirely by Peter ('Teddy') leConte, of West Kirby, Cheshire and I should like to congratulate him on his obvious mechanical ability.

Experienced builders may notice a few sections of the model where construction could be improved. I do not deny that these exist, but Peter was only 14 when he built it, which is adequate reason for accepting any irregularities. They are certainly not important enough to let an otherwise excellent machine slip by unnoticed.

This large Breakdown Service Crane was built by fourteen-year old Peter ('Teddy') leConte of West Kirby—see text.

To help construction, I have described the model in individual sections, as follows:

Chassis and Steering Gear

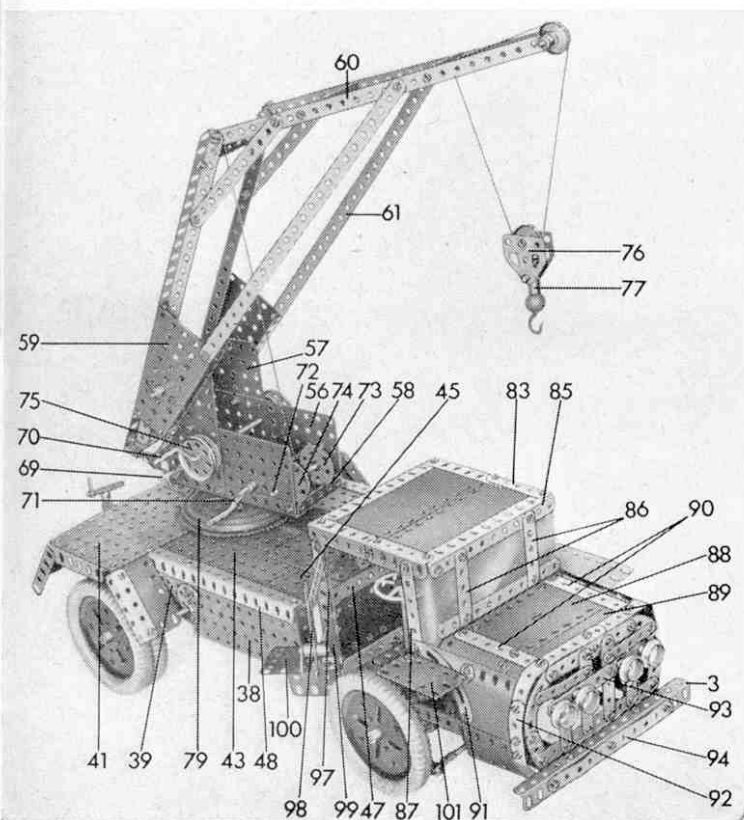
Two compound 16½ in. angle girders 1 and 2 are each built up from a 12½ in. Angle Girder and a 5½ in. Angle Girder, overlapped three holes. The compound girders are connected by a 7½ in. Angle Girder 3, a 'U' section channel girder 4, built up from two 3½ in. Angle Girders, two 3½ in. Strips 5 and 6, and a 5½ in. Angle Girder 7. Bolted to each compound girder 1 and 2, but spaced from it by a Collar on a ½ in. Bolt, is a 5½ in. Angle Girder 8, pointing outwards as shown, and fixed at its other end to a 5½ in. × 2½ in. Flanged Plate 9.

Four 1 in. Triangular Plates are attached, in two sets of two, to the channel girder 4 by 1½ in. Bolts. Between each pair, a Coupling 10, carrying a 1½ in. Rod 11, is fixed by another 1½ in. Bolt. Washers being used as spacers. To the top of each girder 1 and 2 a Double Bracket is bolted, directly above the channel girder, and a Small Fork Piece is attached inside its lugs by a ¾ in. Bolt. A 1 in. Rod, with another Small Fork Piece 12 mounted in its other end, is fixed in the boss of the first Fork Piece, then yet another Small Fork Piece 13 is secured on the free end of Rod 11. A Collar is held by Set Screws between the arms of Fork Pieces 12 and 13.

A 1½ in. Rod 14, carrying a free-running Face Plate, is fixed in the transverse bore of a Coupling 15, after which a 1 in. Rod is slipped through each of the Collars in Fork Pieces 12 and 13, and into the longitudinal bore of the Coupling, a Washer being used as a spacer in each case. Grub Screws hold the 1 in. Rods tight in the Coupling, but note that the Set Screws holding the Collars in the Fork Pieces must not grip the Rods. A Collar holds the upper Fork Piece in place, while a Crank 16 holds the lower Fork Piece.

The Cranks are each extended by a 1½ in. Strip, to one of which a Rod and Strip Connector, on a 2½ in. Rod 17, is lock-nutted. The other is connected to a similar 2½ in. Rod by means of a Pivot Bolt through a Collar in a Small Fork Piece fixed on the Rod. On the other end of the Rods is fixed a Small Fork Piece with a Collar held between its arms. Two arrangements having been built, both Collars are then lock-nutted together, along with a 4½ in. Strip 18, by a ¾ in. Bolt.

A 1 in. × ½ in. Double Bracket, on its side, is bolted through the first hole of one of its lugs to the top of Strip 5. Bolt 19 holding it in place. A 3½ in. Rod 20 is journaled in the second holes of this Double Bracket, being held in position by a Collar beneath Strip 6 and a ½ in. Pinion above the Double Bracket. Connected to the Double Bracket by a 2 in. Strip, bolted through the first hole in its upper lug, is a Channel Bearing, also on its side. Mounted in the Channel Bearing is a 1½ in. Rod 21, held by a ½ in. Pinion 22 beneath Strip 6 and another ½ in. Pinion above the Channel Bearing, and a 2 in. Rod 23, held by a Collar



above the Channel Bearing and a 57-tooth Gear 24 beneath Strip 6. Pinion 22 meshes with Gear 24, and the two Pinions above the Double Bracket and Channel Bearing mesh with each other. Strip 18 is secured to Gear 24, as shown, and a $2\frac{1}{2}$ in. Steering Wheel is fixed on top of Rod 20.

Differential and Rear Axle

Two $2\frac{1}{2}$ in. \times 1 in. Double Angle Strips 25 are bolted between two Face Plates 26 and 27, the bosses of which point outwards. Two $2\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strips connected by an eight-hole Bush Wheel 28, are then fixed to the outside of each Face Plate. A $\frac{3}{8}$ in. Bevel Gear 29 and a Collar are mounted on a $4\frac{1}{2}$ in. Rod 30, journaled in Face Plate 26 and Bush Wheel 28, that is fitted part-way into the longitudinal bore of a Coupling 31. Fitted part-way into the other end of the Coupling is a 5 in. Rod that carries another $\frac{3}{8}$ in. Bevel Gear 32 and a 60-tooth Gear 33. The Gear is spaced from Face Plate 27 by two Washers, and from Bevel Gear 32 by three Washers.

Fixed through diametrically opposite holes to the Gear 33, but spaced from it by four Washers on $\frac{3}{8}$ in. Bolts, are two 1 in. \times $\frac{1}{2}$ in. Angle Brackets 34. Secured in the end holes of these Angle Brackets, and screwed in the centre transverse tapped bore of Coupling 31, is a 2 in. Screwed Rod on which a further two $\frac{3}{8}$ in. Bevel Gears 35 are loosely mounted. These Bevels are in constant mesh with Bevel Gears 29 and 32.

At this stage, the complete rear-axle assembly is fixed to compound angle girders 1 and 2 by two leaf-spring constructions 36, each formed from one $7\frac{1}{2}$ in., one $5\frac{1}{2}$ in., one $4\frac{1}{2}$ in., one $3\frac{1}{2}$ in., one $2\frac{1}{2}$ in. Strip and one $1\frac{1}{2}$ in. Angle Girder 37. Angle Girder 37 is bolted to Angle Girder 8.

The wheel arrangement is single-front and twin rear, making six in all, and each wheel is composed of a 3 in. Pulley with Motor Tyre. Both pairs of rear wheels are secured, tightly, on the respective Axle Rods, but the front wheels are free to turn on Rods 14, being held by Collars.

Body

It is best to build this part of the model separately, and join it to the chassis later. Each side is similarly built. A $5\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flanged Plate 38, to which is bolted a $1\frac{1}{2}$ in. Corner Bracket 39, is extended along one edge by a $7\frac{1}{2}$ in. Angle Girder 48. The sides are then connected by six $5\frac{1}{2}$ in. \times $3\frac{1}{2}$ in. Flat Plates 40, 41, 42, 43, 44 and 45, and a $7\frac{1}{2}$ in. Flat Girder 46. A $5\frac{1}{2}$ in. Angle Girder 47 is bolted beneath Flat Plates 44 and 45 at the front of the body. This is later bolted to the Angle Girders supporting the cab roof.

Rear mudguards are formed by attaching a compound $8\frac{1}{2}$ in. flexible plate 49, obtained from two $5\frac{1}{2}$ in. \times $1\frac{1}{2}$ in. Flexible Plates, to Plates 40 and 41, and edging each of them with one $3\frac{1}{2}$ in. and two $2\frac{1}{2}$ in. Angle Girders.

Two Couplings 50 are fixed to Flanged Plate 9 by $\frac{1}{2}$ in. Bolts, held in their longitudinal bores by Grub Screws, but are each spaced from it by two Washers. Beneath each Coupling, as shown, a 1 in. \times 1 in. Angle Bracket is bolted. This serves as a guide for a $3\frac{1}{2}$ in. Screwed Rod 51, mounted in the end transverse tapped bore of the Coupling. A Double Arm Crank carrying a Threaded Pin is fixed on the top of the Rod, which is extended, via a Coupling 52, by a 2 in. Rod on which a $\frac{3}{4}$ in. Flanged Wheel is secured.

A fuel tank 53 is built up from a Cylinder and two $1\frac{1}{8}$ in. Flanged Wheels, one of which is fixed to Flanged Plate 38 by a 1 in. \times 1 in. Angle Bracket. The filling tube is obtained by screwing a Threaded Pin, carrying a Collar, into a Threaded Boss, and attaching it to the Cylinder with a Spring Clip inside.

An 8 in. Rod, fitted with a Worm 54, is mounted in Flanged Plates 38 and held in position by a 1 in. Bush Wheel 55 (Elektrikit Part No. 518) and a Collar.

Winch

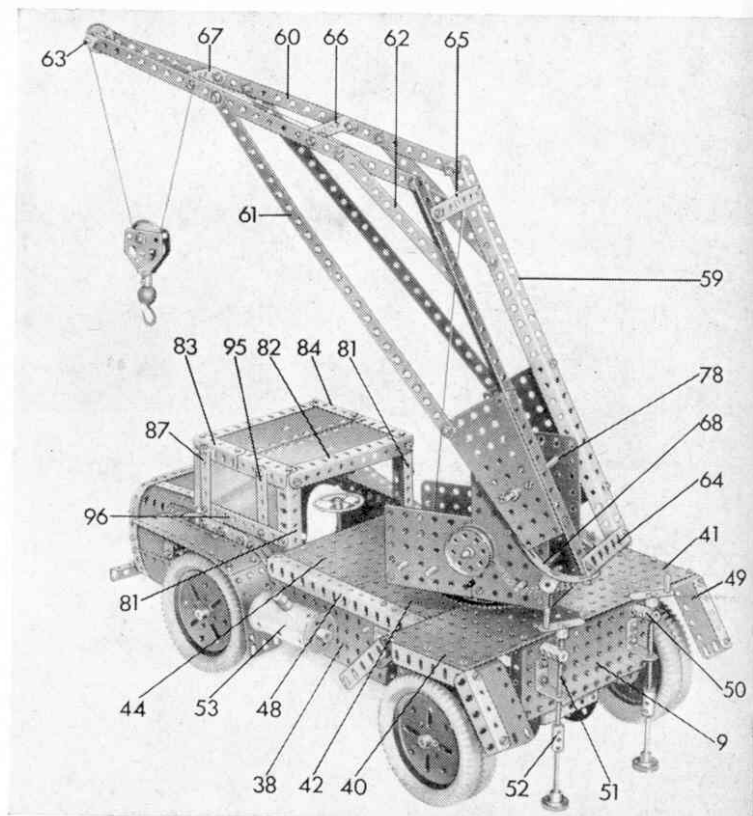
Two $5\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flat Plates 56, extended by two $4\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flat Plates 57, are bolted to a $5\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flanged Plate 58. The jib itself is built up from two Flanged Sector Plates, each extended by a $12\frac{1}{2}$ in. Angle Girder 59 and a $12\frac{1}{2}$ in. Strip 60. Another $12\frac{1}{2}$ in. Strip 61 is bolted to Girder 59 and Strip 60, with a $5\frac{1}{2}$ in. Strip 62 being used as a bracer. A $1\frac{1}{2}$ in. Rod 63, carrying a 1 in. loose Pulley and six Washers, is journaled in the end holes of Strips 61, Collars holding it in place. Both sides of the jib are joined by a $3\frac{1}{2}$ in. Angle Girder 64, a $3\frac{1}{2}$ in. Strip 65, a $2\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strip 66 and a $1\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strip 67. A Formed Slotted Strip 68, to which a Double Bracket is bolted, connects each Flanged Sector Plate to Angle Girders 64.

Mounted in Plates 56 are a $5\frac{1}{2}$ in. Rod 69, held by Spring Clips, a $5\frac{1}{2}$ in. Crank Handle 70 on which two Bush Wheels, two $1\frac{1}{2}$ in. Pulleys and a Ratchet Wheel are secured, a $3\frac{1}{2}$ in. Crank Handle 71 held by a Collar and a 50-tooth Gear, this just inside the right-hand Plate, and a $3\frac{1}{2}$ in., and a $3\frac{1}{2}$ in. Rod 72 carrying a $\frac{3}{4}$ in. Pinion and two Bush Wheels 73 and 74. Gear 72 and the Pinion are in constant mesh. A Pawl on a Pivot Bolt engages with the Ratchet Wheel which is hidden by $1\frac{1}{2}$ in. Pulley 75.

A hook is built up from two Flat Trunnions 76, spaced by two $\frac{1}{2}$ in. and one 1 in. Pulleys, all without bosses on a $\frac{3}{4}$ in. Bolt. Mounted in the apex holes of the Flat Trunnions is a 1 in. Rod carrying a Strip Coupling 77, to which a Large Hook is fixed.

Lengths of Sprocket Chain are tied to Crank Handle 70 between both $1\frac{1}{2}$ in. Pulleys, and the adjacent Bush Wheels,

The model viewed from behind. Note the construction of the crane jib.



and are also tied to the ends of Angle Girder 64. A long length of Cord is secured between the Bush Wheels on Rod 73, is threaded through the centre holes of Strip 65 and Angle Strips 66 and 67, is passed round the Pulley on Rod 63 and round the 1 in. Pulley in the hook and, finally, is tied to Angle Strip 67.

Bolted to the inside of each Flanged Sector Plate is a Bush Wheel and in these is journalled a 5 in. Rod 78, held by Collars, which serves as the jib pivot.

Flanged Plate 58 is bolted to a Ball Thrust Race Flange Disc 79, the same Bolts fixing an eight-hole Bush Wheel beneath the Disc. The rest of a Ball Thrust Race is positioned, and the whole is held in place by a 2 in. Rod fixed in the Bush Wheel journalled in a Double Bent Strip bolted to Flat Girder 46, and held in place, beneath, by a 3 in. Gear 80. This Gear meshes with Worm 54.

Two 5½ in. Angle Girders 81 are connected by another 5½ in. Angle Girder 82. Bolted to this are two 5 in. compound angle girders 83 and 84 each made up of a 3½ in. and a 2½ in. Angle Girder which, in turn, are connected by a further 5½ in. Angle Girder 85. The resultant space is filled in by two 5½ in.×2½ in. Flexible Plates. Bolted to Girder 85 are two 3 in. Strips 86, joined one hole from their ends by a 5½ in. Strip. Another 3 in. Strip 87 is bolted to compound angle girders 83 and 84.

The windscreen and left-hand side window, built up from two 5½ in.×2½ in. and a 2½ in.×1½ in. Transparent Plastic Plate, are fixed to these Strips, to Strips 86 and to the left-hand side Angle Girder 81.

The bonnet-top is formed from a 5½ in.×2½ in. Flexible Plate 88 and a 5½ in.×2½ in. Plastic Plate 89, overlaid by two 3½ in. Strips 90. It is joined to Strips 86 by Angle Brackets. Each bonnet-side is composed of a 2½ in.×2½ in. Plastic Plate, a 2½ in.×2½ in. Plastic Plate and a Flexible Gusset Plate, the last overlaid by a 3 in. Stepped Curved Strip 91 and bolted, along with an Angle Bracket, to Strip 87. The front of the whole bonnet is edged by a compound

12½ in. strip 92, made from three 3 in. Strips, two 2 in. Strips and a 2½ in. Strip. At the front, each side is connected to Angle Girders 1 and 2 respectively by a 1 in.×1 in. Angle Bracket bolted to a Reversed Angle Bracket.

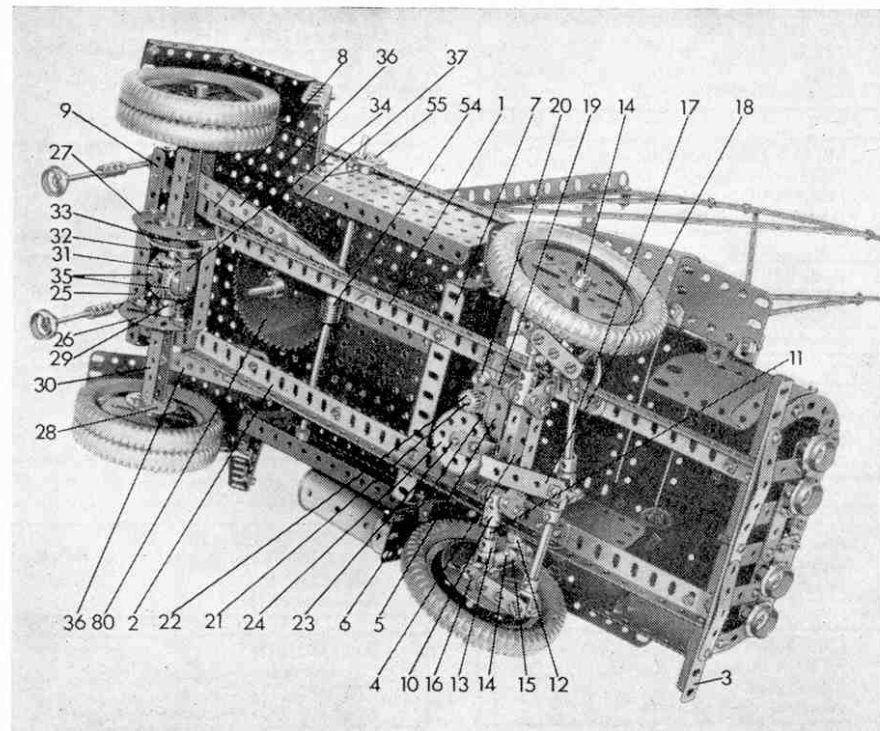
Working in order from the right-hand side of the model to the left, the radiator grille is edged by a 1½ in. Strip, a 2½ in. Stepped Curved Strip, two 2½ in. Strips overlaid two holes, another 2½ in. Stepped Curved Strip and another 1½ in. Strip. Along the lower edge is a 5½ in. Strip. The grille-work itself comprises two 3 in. Strips, running from top to bottom, crossed by a compound 4½ in. strip 93, built up from another two 3 in. Strips, two 2 in. Strips, and two 2½ in. Narrow Strips. Fixed to compound strip 93 by ½ in. Bolts are four ¾ in. Flanged Wheels to serve as headlamps, while a bumper is formed by bolting a 5½ in. Strip 94, bent as shown, to Angle Girder 3.

The left-hand side of the cab is completed by bolting a 2½ in. Strip 95 to compound girder 83, and then connecting this to Angle Girder 81 and Strip 87, with a 4½ in. Strip 96. Also bolted to Angle Girder 81 is another Flexible Gusset Plate, edged by a 3 in. Curved Stepped Strip, joined to Curved Strip 91 by a 2½ in. Strip. Two 5½ in.×1½ in. Plastic Plates form the left-hand mudguard, which is fixed to the side by Angle Brackets.

At the right of the cab an opening door is built up from a compound 5½ in. strip 97, obtained from a 2½ in. and a 3½ in. Strip, to which a further two 3½ in. Strips, connected by a 3 in. Strip 98, are bolted, and a Flexible Gusset Plate 99, edged by a 3 in. Stepped Curved Strip. The door is fixed to Angle Girder 81 by two Hinges. A working door handle is supplied by a Pawl with boss and a Crank secured on a ½ in. Bolt.

A 5½ in.×1½ in. Plastic Plate 100, curved as shown, is fixed to the door by Angle Brackets, to represent part of the mudguard, the remainder of which is obtained from a 2½ in.×1½ in. Plastic Plate 101, mounted on the side of the bonnet by means of Angle Brackets.— **Spanner**

An underneath view of the model showing the chassis, steering arrangement and differential.



Parts required:

4 of No. 1	5 of No. 24	4 of No. 109
2 of No. 1b	1 of No. 24a	5 of No. 111
7 of No. 2	3 of No. 24b	8 of No. 111a
4 of No. 2a	1 of No. 25	8 of No. 111c
10 of No. 3	3 of No. 26	6 of No. 111d
12 of No. 4	1 of No. 27	2 of No. 114
8 of No. 5	3 of No. 27a	3 of No. 115
5 of No. 6	1 of No. 27b	9 of No. 116a
4 of No. 6a	4 of No. 30	2 of No. 125
4 of No. 8	1 of No. 32	2 of No. 126a
3 of No. 8b	4 of No. 35	2 of No. 133
10 of No. 9	260 of No. 37a	6 of No. 142b
5 of No. 9b	230 of No. 37b	1 of No. 147
2 of No. 9c	52 of No. 38	1 of No. 147a
6 of No. 9d	1 of No. 40	2 of No. 147b
2 of No. 9f	1 of No. 45	1 of No. 148
4 of No. 11	2 of No. 46	1 of No. 160
1 of No. 11a	1 of No. 48	1 of No. 168
11 of No. 12	5 of No. 48a	1 of No. 173a
5 of No. 12a	4 of No. 52	1 of No. 185
2 of No. 12b	6 of No. 52a	4 of No. 189
1 of No. 13a	2 of No. 53a	3 of No. 190
2 of No. 15	2 of No. 54	1 of No. 191
2 of No. 15a	1 of No. 57b	3 of No. 192
2 of No. 16	26 of No. 59	1 of No. 193
1 of No. 16a	3 of No. 62	2 of No. 193e
5 of No. 17	2 of No. 62b	4 of No. 194
6 of No. 18a	9 of No. 63	2 of No. 194a
7 of No. 18b	1 of No. 63b	1 of No. 194c
6 of No. 19b	2 of No. 70	3 of No. 194d
1 of No. 19h	4 of No. 77	4 of No. 201
1 of No. 19s	2 of No. 80a	1 of No. 212
2 of No. 20	1 of No. 81	2 of No. 215
6 of No. 20b	4 of No. 89a	1 of No. 216
2 of No. 21	2 of No. 90a	2 of No. 235
2 of No. 22a	1 of No. 94	1 of No. 518
2 of No. 23	1 of No. 103k	

Veteran 1900 Benz

LAST month I gave full building instructions for a large and complicated model, based on the 1905 Rolls-Royce. Here we feature a much simpler construction again following the lines of an actual veteran car, but this time one which is even older than the Rolls—a 1900 Benz. The model is powered by an Emebo Motor.

On the real-life vehicle the hood is collapsible, whereas on the Meccano version it is rigid. Also, you will see from the accompanying illustrations that we have left the hood ribs of the model uncovered. This has been done to assist description, but if you build it yourselves, you can use cloth or paper to complete it.

It is interesting to compare this model with last month's Rolls-Royce, as the two machines show the immense advances in motor car design during the five years from the Benz to the Rolls. Whereas the latter looks distinctly like an orthodox car, the former is a definite 'horseless carriage'—a horse-drawn vehicle, minus the horses!

Bodywork

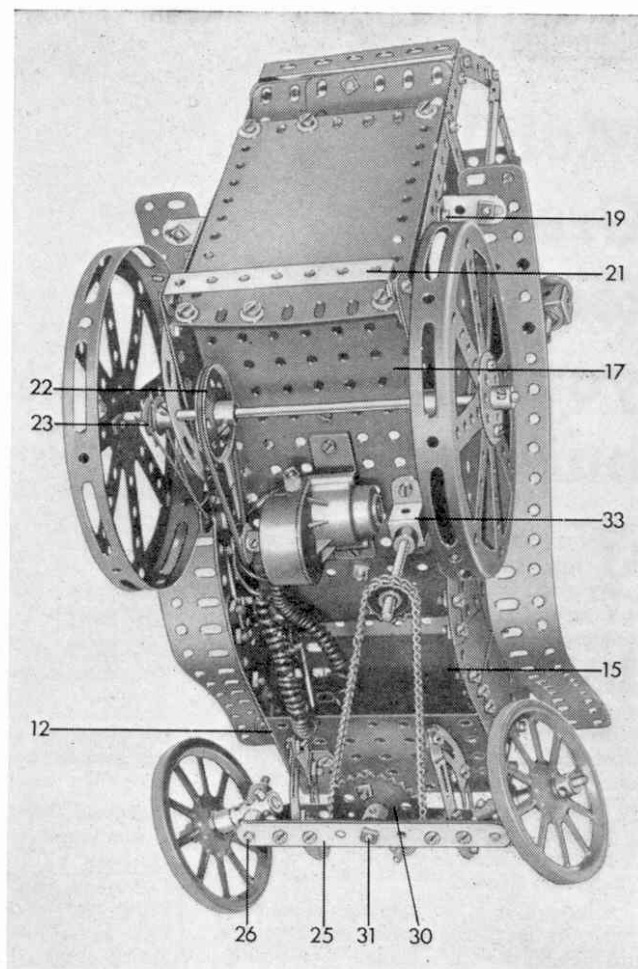
When building each side of the model, it is best to first form the basic Strip outline, and add the Plates, Angle Brackets, etc., later. A Corner Gusset 1, a $1\frac{1}{2}$ in. Strip 2, and a $3\frac{1}{2}$ in. Strip 3 are bolted to a $3\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flanged Plate 4. Attached to the top hole of the Corner Gusset is a $3\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strip 5. The $3\frac{1}{2}$ in. Strip 3 is then extended by two $2\frac{1}{2}$ in. Curved Strips 6, overlapped two holes which, in turn, are extended by a $4\frac{1}{2}$ in. Strip 7 and a $7\frac{1}{2}$ in. Strip 8. The top outline consists, as shown, of a $2\frac{1}{2}$ in. Stepped Curved Strip 9, two $2\frac{1}{2}$ in. Curved Strips, another $2\frac{1}{2}$ in. Stepped Curved Strip and a $2\frac{1}{2}$ in. Strip 10.

At this point, the Plates can be added. Three $2\frac{1}{2}$ in. \times $1\frac{1}{2}$ in. Flexible Plates 11 are fixed in place at the front, followed by a $5\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. and a $2\frac{1}{2}$ in. \times $1\frac{1}{2}$ in. Flexible Plate, bolted to $4\frac{1}{2}$ in. Strip 7. The $2\frac{1}{2}$ in. \times $1\frac{1}{2}$ in. Plate is extended by a $3\frac{1}{2}$ in. \times $1\frac{1}{2}$ in. Triangular Flexible Plate.

Attached to the $3\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flanged Plate is another $3\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flanged Plate 12. A $3\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flexible Plate 13 is bolted to a $3\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strip fixed to the sides by Bolts 14 that also secure Angle Brackets to which is fastened a $3\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Plastic Plate 15. Angle Brackets, held by Bolts 16, also support the Plastic Plate 15 and a $5\frac{1}{2}$ in. \times $3\frac{1}{2}$ in. Flat Plate 17. Two $3\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flanged Plates 18, at right angles to each other, are secured to the sides by Bolts 19, the upright Plate being fixed to the Flat Plate 17 by Angle Brackets. Two $4\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Plastic Plates, overlapped three holes, are bolted to a $3\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strip 20. The back, consisting of two $5\frac{1}{2}$ in. \times $2\frac{1}{2}$ in. Flexible Plates, overlapped three holes, is attached to a $3\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strip and two Angle Brackets as shown. Another $3\frac{1}{2}$ in. \times $\frac{1}{2}$ in. Double Angle Strip 21 forms the rear bumper.

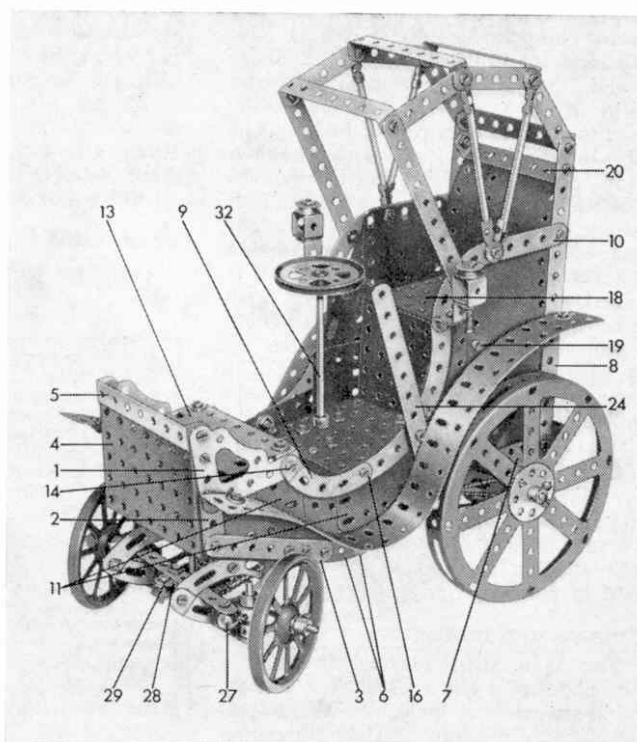
The supporting framework for the hood is clearly seen in the photograph and needs no explanation.

Two 3 in. Curved Strips, bolted to the $4\frac{1}{2}$ in. Strip 7, form bearings for the rear axle, which is a $6\frac{1}{2}$ in. Rod, carrying



An underneath view of the model, showing the Motor drive and steering.

This model veteran car, the 1900 Benz, follows the lines of the real vehicle.



a 1½ in. Pulley 22 and a ½ in. Pulley 23. Two Hub Discs, each bolted to a Bush Wheel, are mounted on the Rod to serve as rear wheels.

An Emebo Motor is secured to Flat Plate 17 and a 6 in. Driving Band connects a ½ in. Pulley on its output shaft to 1½ in. Pulley 22. A 5½ in. Strip 24 is lock-nutted to the left-hand side of the model to represent a brake handle. The brake itself is a length of Cord passed around ½ in. Pulley 23, and through the bottom hole in the 5½ in. Strip.

Steering Mechanism

Two pairs of 3 in. Stepped Curved Strips, each pair bolted together at both ends, are attached by Angle Brackets to the 3½ in.×2½ in. Flanged Plate 12. A 4½ in. Strip 25, with a Crank at each end, is fixed to a 2½×½ in. Double Angle Strip which, in turn, is secured to the bottom Curved Strips. A 1½ in. Rod 26, carrying a loose Coupling, is mounted in the boss of each Crank, being held in place by a Collar. Another 1½ in. Rod, carrying a 3 in. Spoked Wheel, is secured in the Coupling. The spoked wheel is free to turn on the Rod and is held in position by a Collar. Two 1 in. Rods 27, each with a Collar secured to its end, are fastened in the Couplings. The Collars are then connected together by two 2½ in. Strips with a 1 in. Triangular Plate 28 bolted in the centre. A ½ in. Bolt 29 is fixed in the apex hole of the 1 in. Triangular Plate, and its shank placed in the slot of a 2 in. Slotted Strip bolted to a 1½ in. Sprocket Wheel 30 that is mounted on a Long Threaded Pin.

The steering wheel is a 2 in. Pulley, secured on a 6½ in. Rod 32, journaled in Plate 16 and a Double Bent Strip 33, and held in place by Collars. A ¾ in. Sprocket Wheel is fixed on the lower end of the Rod and connected by chain to 1½ in. Sprocket Wheel 30.

Finishing Touches

All that now remains to be built are the headlamps and mudguards. The former are each constructed from three Double Brackets, topped by a ½ in. Pulley, and fixed to a ½ in. Reversed Angle Bracket by a ¾ in. Bolt with two Nuts. The Reversed Angle Bracket is bolted to the side of the model, as shown. Finally, a 12½ in. Flat Girder, bent to shape and fixed to the side by 1 in.×½ in. Angle Brackets, represents each mudguard.

Parts required

2 of No. 1b	1 of No. 20a	9 of No. 59	7 of No. 111c
1 of No. 2	1 of No. 21	2 of No. 62	1 of No. 115a
5 of No. 2a	2 of No. 23	2 of No. 63	2 of No. 118
2 of No. 3	1 of No. 23a	1 of No. 77	2 of No. 125
10 of No. 5	2 of No. 24	6 of No. 89a	1 of No. 186a
2 of No. 6a	110 of No. 37a	8 of No. 90	8 of No. 188
6 of No. 11	101 of No. 37b	4 of No. 90a	4 of No. 192
12 of No. 12	26 of No. 38	1 of No. 94	2 of No. 194b
4 of No. 12b	1 of No. 45	1 of No. 95a	2 of No. 194c
2 of No. 14	1 of No. 48a	1 of No. 96a	8 of No. 212
4 of No. 16b	9 of No. 48b	2 of No. 103b	2 of No. 224
4 of No. 18a	1 of No. 52a	2 of No. 108	1 Emebo
2 of No. 18b	4 of No. 53	2 of No. 111	Motor
2 of No. 19a	1 of No. 55a	1 of No. 111a	

Eiffel Tower in Meccano

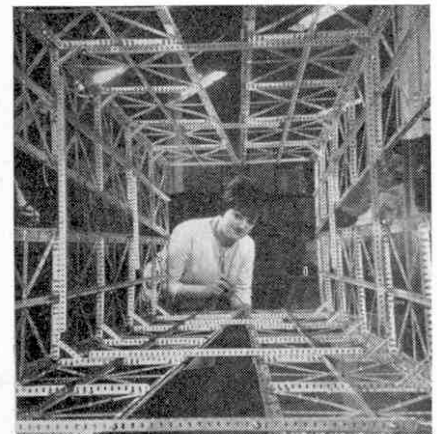
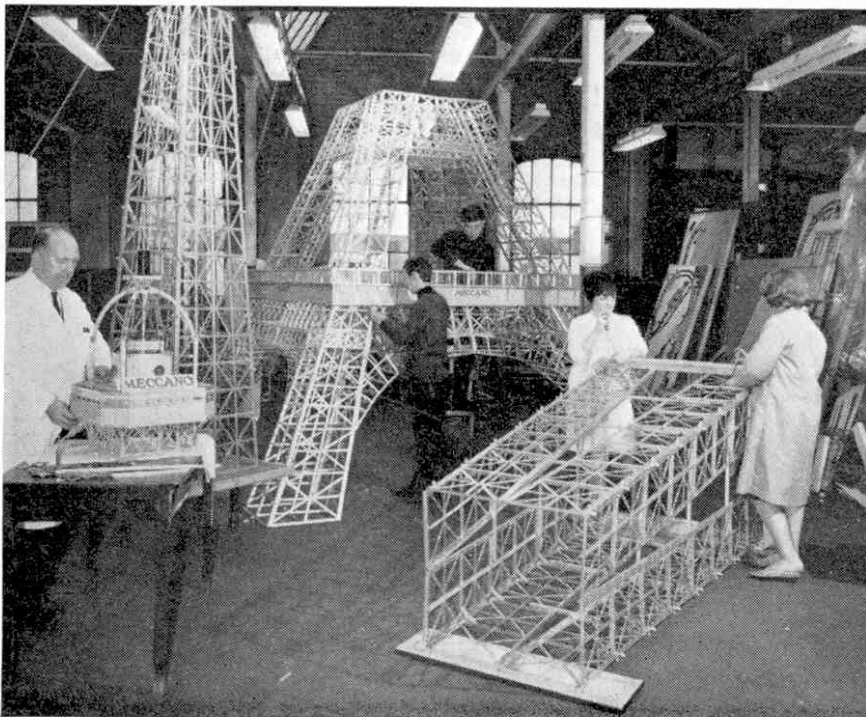
THE biggest display model ever built with Meccano—a 30-ft. high replica of the Eiffel Tower—was recently on show in Birmingham, where it created tremendous interest. Many thousands of parts (including nuts and bolts) were used in its construction, which took five model-builders something over a month to complete.

Fitted from top to bottom with gaily-coloured electric lights, it formed the centrepiece of a gigantic Christmas toy fair in the centre court of Birmingham's new covered shopping thoroughfare, the Bull Ring.

Constructed in Meccano's new true-to-life engineering colours of silver, yellow, black, red, blue and gold, it had

a base 11 feet square and followed as closely as possible the engineering pattern of the actual Eiffel Tower, with such items as the curved supporting struts for the balconies faithfully reproduced.

The model consisted of four main sections which had to be subdivided for the journey by road from the Meccano Works in Liverpool to Birmingham. It was taken overnight from Binns Road and erected on the spot in about four hours.



Picture with a modern frame. Miss Maureen Munro of Liverpool is seen here in an unusual setting. She is working on one of the sections of the large Meccano model of the Eiffel Tower which was on show at the Christmas Toy Fair in the Bull Ring, Birmingham.

The individual sections of the 30-foot high Meccano model of the Eiffel Tower being assembled in the model room of the Meccano factory at Binns Road, Liverpool. This model was designed by Mr. R. Moy (extreme left) and others in the picture are Mr. Keith Roscoe (back to camera), Mr. John McCormick, Miss Maureen Munro and Miss Rita Clay.