New Meccano Model

Powerful Steam Roller

A STURDY steam roller driven by an Electric Motor is the subject of this month's new model. In building the model, which is shown in Figs. 1, 2 and 3, it is best to commence by assembling the engine unit. This is built up around an E20B Electric Motor, through the side-plate of which the rear wheel axle passes.

The flanges on the sides of the Motor are extended three holes on each side by $5\frac{1}{2}$" Strips, which are joined at their forward ends by a $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flanged Plate 1 mounted on a $2\frac{1}{2}$" Strip. The Bolts holding the $2\frac{1}{2}$" Strip support also two $5\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips 2 that form the main uprights for the flywheel shaft bearings. These are 1" Triangular Plates, and the flywheel shaft is a $4\frac{1}{2}$" Axle Rod. Strips 3 provide supports for the Double Angle Strips 2, and the fourth holes from their lower ends are used to attach vertical $2\frac{1}{2}$" Strips 4. These $2\frac{1}{2}$" Strips are bolted at the top to Flat Trunnions, which provide bearings for a $2\frac{1}{2}$" Rod that forms the crankshaft and carries a Single Throw Eccentric.

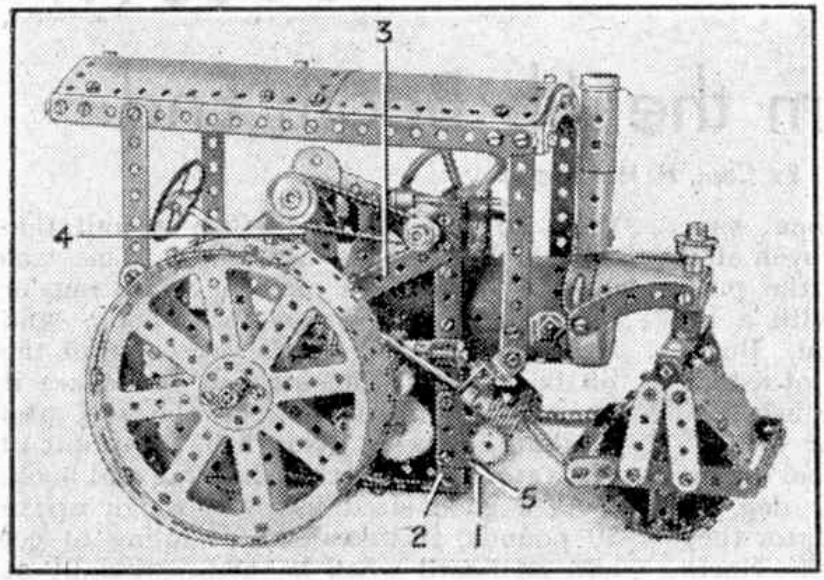

Fig. 1. A powerful steam road roller driven by an Electric Motor.

The Crankshaft is positioned by Collars and a 1" Pulley that takes the drive from a $\frac{1}{2}$" Pulley on the flywheel shaft. Three Couplings on a 4" Rod form a barrel for the steering chain, and this arrangement is attached to the Double Angle Strips 2 by Flat Trunnions 5.

The spokes for the front roller are made from $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips bolted to Bush Wheels, and the centre part of the roller is formed round a Road Wheel. The rim consists of two $5\frac{1}{2}" \times 1\frac{1}{2}"$ and two $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plates, bolted around the circumference of the Road Wheel and attached at the edges to the Double Angle Strips.

The axle for the roller is a 4" Rod, and the forks are made up from a $3\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip, two 1" Triangular Plates, four 2" Strips and a Double Bent Strip. These forks are attached to a framework consisting of two $3\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips and two $3\frac{1}{2}"$ Strips, which carries the front axle. The steering chain is a length of Sprocket Chain, which is attached to the roller framework by Fishplates.

Each of the rear rollers consists of three $5\frac{1}{2}" \times 1\frac{1}{2}"$ and a $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plate bolted to the rims of two $5\frac{1}{2}"$ diam. Hub Discs, as shown in the illustration. A Bush Wheel is bolted to the centre of each Hub Disc to accommodate the rear axle.

The fore carriage is a $2\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate, which is attached to a Boiler fitted with one End, by a Formed Slotted Strip. The edges of the Plate are folded, as shown and braced with $2\frac{1}{2}"$ Curved Strips. A bolt used to attach the Formed Slotted Strip and the Flexible Plate to the Boiler, holds in position also a Double Bracket and a $2\frac{1}{2}"$ Strip. This Double Bracket supports the chimney, which consists of two Sleeve Pieces held together by Chimney Adaptors, a $\frac{3}{4}"$ Flanged Wheel and $3\frac{1}{2}"$ Screwed Rod. A $3\frac{1}{2}"$ Rod held in position by a $\frac{3}{4}"$ Wheel and a Collar, passes through the Flexible Plate, the end of the $2\frac{1}{2}"$ Strip and the Double Bent Strip providing a pivot for the front roller assembly.

The Boiler is fixed in place by $\frac{1}{2}"$ Bolts attached to the top of the Flanged Plate 1, and also to the Double Angle Strips 2 on each side of the model. The coal bunker has a $3\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate 7 for its base, two $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flanged Plates 6 forming the sides and another

$3\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 8 making up the back. The Plate 8 is attached to the sides by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. A $4\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip bolted to the top of the Plate 8 supports the rear end of the canopy, which is attached to $3\frac{1}{2}''$ Strips.

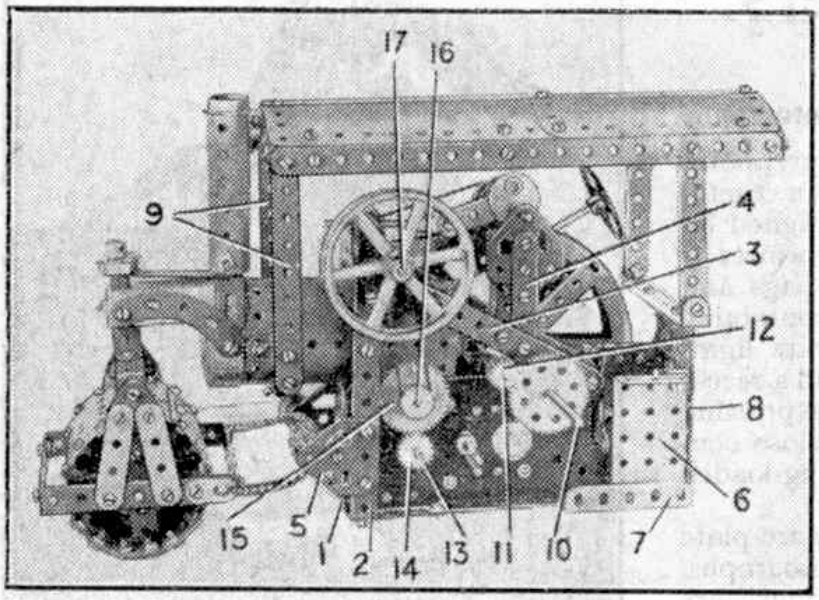

Fig. 2. In this view of the steam roller the left-hand road wheel is removed to reveal the gearing.

The front supports for the canopy are $4\frac{1}{2}''$ Strips 9, and these are joined to the sides of the Boiler by Reversed Angle Brackets attached by means of a $3\frac{1}{2}''$ Screwed Rod. This Rod passes through the fourth holes from the rear end of the Boiler, and the Reversed Angle Brackets are spaced by nuts and Washers. An 8" Rod 10 forms the rear axle, and the drive is taken to a 57-teeth Gear mounted on it by means of a $\frac{1}{2}''$ Pinion 12, which is held on a 4" Rod 11 journalled in Fishplates.

A $\frac{3}{4}''$ Pinion 20, mounted on the driving shaft of the Motor, takes the drive to a 50-teeth Gear 19 on a $3\frac{1}{2}''$ Rod 13. The other end of this Rod carries another $\frac{3}{4}''$ Pinion 14 that meshes with a 50-teeth Gear 15 on a $3\frac{1}{2}''$ Rod 16. The $\frac{1}{2}''$ Pulley also is locked on the Rod 16, and this takes the drive to the Flywheel. The other end of Rod 16 holds a Worm in mesh with a third $\frac{3}{4}''$ Pinion on a 5" Rod 18. This Rod is supported by a $1'' \times \frac{1}{2}''$ Reversed Angle Bracket and a Double Bracket as shown. A $\frac{7}{8}''$ diam. Bevel Wheel on Rod 18 takes the drive to a similar Bevel on the other end of the Rod 11.

An 8" Axle Rod forms the steering column and its upper part is pivoted in a Threaded Coupling attached to the Flat Trunnion by a $\frac{3}{4}''$ Bolt spaced with two Collars. The lower end of the steering column is held in a Fishplate attached to one of the $4\frac{1}{2}''$ Strips 9 by a Corner Angle Bracket. A Worm on the end of the steering column meshes with a $\frac{3}{4}''$ Pinion on the chain barrel, thus providing the steering mechanism.

The canopy is made up from four $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates, attached to a framework made from two $12\frac{1}{2}''$ Strips and four $2\frac{1}{2}''$ Curved Strips. Four Angle Brackets and Obtuse Angle Brackets are used for this purpose.

Parts required for model Steam Roller: 2 of No. 1a; 4 of No. 2; 2 of No. 2a; 4 of No. 3; 2 of No. 4; 3 of No. 5; 4 of No. 6; 6 of No. 10; 3 of No. 11; 10 of No. 12; 1 of No. 12b; 5 of No. 12c; 2 of No. 13a; 2 of No. 15a; 1 of No. 15b; 3 of No. 16; 2 of No. 16a; 1 of No. 16b; 1 of No. 17; 2 of No. 20b; 1 of No. 22; 2 of No. 23a; 6 of No. 24; 4 of No. 25; 1 of No. 26; 2 of No. 27; 1 of No. 27a; 2 of No. 30; 2 of No. 32; 210 of No. 37; 20 of No. 37a; 45 of No. 38; 1 of No. 45; 2 of No. 48; 6 of No. 48a; 3 of No. 48b; 1 of No. 48c; 2 of No. 48d; 3 of No. 51; 2 of No. 53; 16 of No. 59; 3 of No. 63; 1 of No. 63c; 4 of No. 77; 2 of No. 80c; 6 of No. 90; 1 of No. 94; 3 of No. 111a; 4 of No. 111c; 4 of No. 118; 2 of No. 125; 4 of No. 126a; 1 of No. 132; 1 of No. 154b; 1 of No. 160; 1 of No. 162a; 1 of No. 162b; 2 of No. 163; 2 of No. 164; 1 of No. 166; 1 of No. 185; 2 of No. 186; 1 of No. 187; 2 of No. 188; 8 of No. 189; 1 of No. 190; 1 of No. 191; 5 of No. 192; 1 of No. 215. One E.20B Electric Motor.

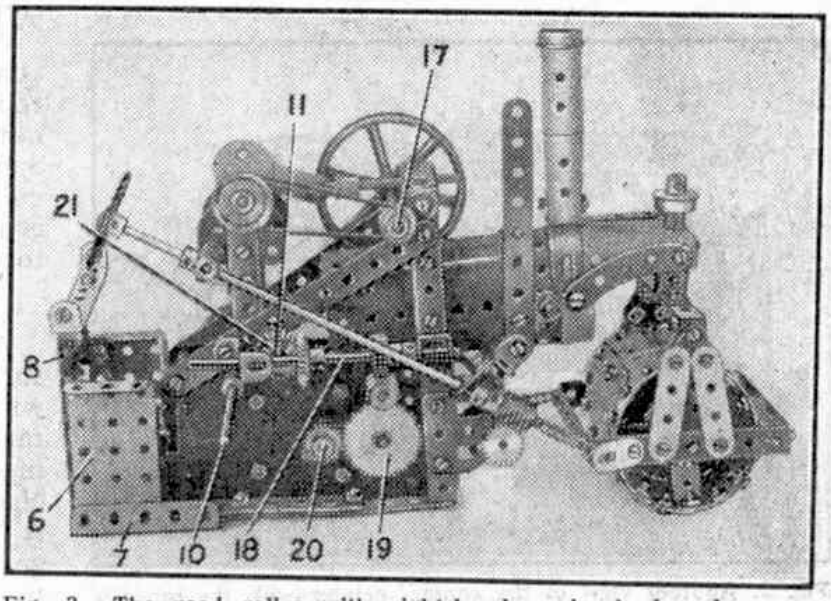

Fig. 3. The road roller with right-hand road wheel and canopy removed to show the interior arrangements.