A New Meccano Model

Light Tractor Driven by a Clockwork Motor

IN the illustrations on this page is shown a model of a light tractor that forms a splendid subject for enthusiastic model-builders. It is driven by a No. 1 Clockwork Motor and is capable of hauling considerable loads.

Construction of the model should be commenced by assembling the boiler and the front wheel unit. A Boiler End 1 is secured to one end of a Boiler by means of a 3½″ Screwed Rod 2, and the chimney, which consists of two Sleeve Pieces, is secured to this Screwed Rod by a ¾″ Disc, a ¾″ Flanged Wheel and a Nut. A Crank is bolted to the inside of the lower half of the Boiler, and in its boss is held a 1½″ Rod that carries a 2″ diam. Sprocket 3. The Rod is held in place by a Collar. The Sprocket is secured to a 2½″×½″ Double Angle Strip 4, but is spaced from it by two Washers, and it is also attached to a Boiler End by two 1⅛″ Bolts and Nuts. The front axle is a 3½″ Rod, and is passed through the ends of the Double Angle Strip and through opposite holes in the Boiler End. It carries two 3″ diam. Wheels.

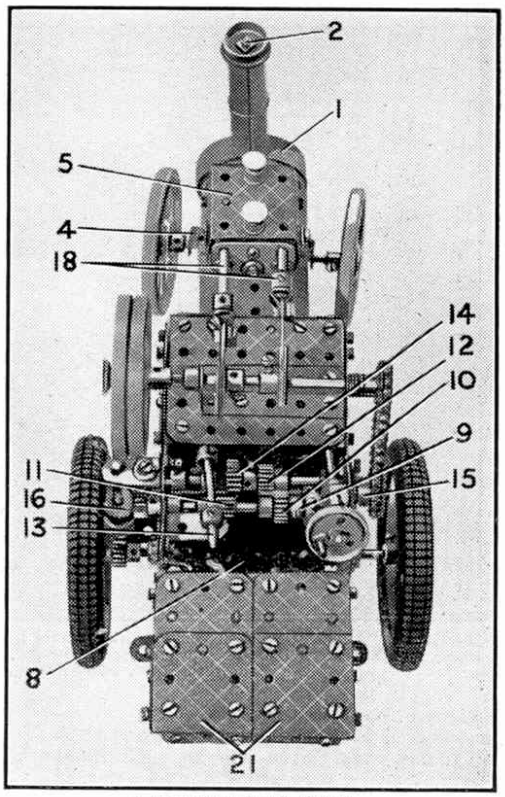
The cylinder block and valve chest 5 consists of two 1½″ Flat Girders secured to the ends of a 1½″×½″ Double Angle Strip bolted down the centre top of the Boiler, and two 2½″×1½″ Flexible Plates are joined to the Girders by 1½″×½″ Double Angle Strips. Two Spring Buffers are attached to the top of the block.. The valve and connection rods pass through the rear Flat Girders and through two ½″×½″ Angle Brackets bolted to the Flexible Plates. At its rear end the Boiler carries two 3″ Angle Girders 6, which in turn are bolted at their lower ends to a 3″ Cranked Curved Strip. The Boiler is attached to the latter by an Angle Bracket. A 4½″×2½″ Flat Plate 7 and a 4½″ Strip are joined at each end to the 3″ Angle Girders, and form the sides of the body. A No. 1 Clockwork Motor 8 is supported on, but spaced by a Washer, from two 4½″ Angle Girders bolted to the Flat Plates. The tractor is provided with two speeds, and the gearing by which these are produced is as follows. A ½″ Pinion on the driving shaft of the Motor meshes with a ¾″ Contrate 9 fixed on a 3½″ Rod, which also carries a ½″ Pinion 10, a No. 1 Clockwork Motor Pinion and two Collars secured in the positions shown. The layshaft is a 4″ Rod that is slideable in its bearings, and it is controlled by a selector consisting of a 2″ Rod 13 that is pivoted by means of a Collar on a Bolt journalled in a 1″×1″ Angle Bracket. A ⅜″ Bolt screwed into the tapped bore of a Collar fixed on the forward end of the selector engages between two Collars on the layshaft, which also carries a ½″ Pinion 12 and a ¾″ Pinion 14. The ½″ Pinion 12 is in constant mesh with a ½″ diam. ½″ face Pinion, which is mounted on a 4″ Rod that also carries a ¾″ Sprocket 15 and a ¾″ Pinion on its other end outside the body. The ¾″ Pinion transmits the drive to the rear axle through a ¾″ Contrate 16, which is mounted on a 3″ Rod journalled vertically in a 2½″×1″ Double Angle Strip bolted to the side of the body. This Rod also carries a Worm that meshes with a ½″ Pinion mounted on the rear axle. The latter is a compound rod consisting of a 2″ and a 3½″ Rod joined by a Coupling.

On moving the layshaft over to the left the drive is led through the Clockwork Motor pinion 11 and the Pinion 14. Movement of the layshaft hard over to the right disengages the Pinion 11 and the Pinion 14, and the ½″ Pinion then meshes with Pinion 12.

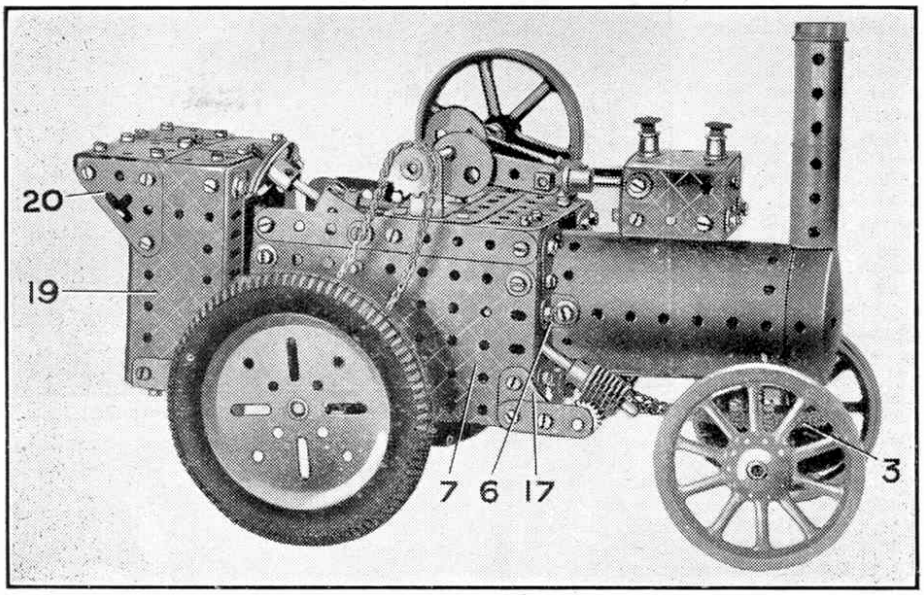
The steering column is a 6½″ Rod that is journalled in a 1″×½″ Angle Bracket, bolted to the right-hand side of the main frame and coal bunker and in the 3″ Angle Girder at the front of the main frame. A handle is formed by a 1″ Pulley without boss fixed to a Rod Socket, a ½″ 6 B.A. Bolt being held in one of the outer holes of the Pulley by a 6 B.A. Nut. Two Collars are held on the Rod to prevent longitudinal motion and a Worm is mounted at its lower end. This Worm meshes with a ½″ Pinion that is fixed on a 3½″ Rod journalled in two 1½″ Strips bolted to 1″ Corner Brackets 17.

The 3½″ Rod carries three Couplings. A length of Sprocket Chain is wrapped two or three times round these and the ends are then passed round the 2″ Sprocket attached to the front axle and there joined. Grub Screws in the Couplings provide a rough surface to grip the Chain.

The engine flywheel is mounted on a 4½″ Rod journalled in the ends of a 2½″×1″ Double Angle Strip bolted to two 3″×1½″ Flat Plates that form the top of the fire-box. This Rod carries also two Single Throw Eccentrics and, at the end opposite to the Flywheel, a ¾″ Sprocket that is connected by Chain to the Sprocket 15. The Eccentrics are pivotally joined to the piston and valve rods 18 by End Bearings and lock-nutted bolts. The valve and piston Rods are each 2″ long. The water tank at the rear of the bunker is supported on two 3½″ Angle Girders that form entensions to the sidemembers. The bottom of the tank consists of a 3″ Angle Girder and a 3″×1½″ Flat Plate. Two further 3½″ Angle Girders are bolted vertically to each of the 3½″ Angle Girders secured to the sidemembers.



A plan view of the tractor.



A powerful model tractor driven by a No. 1 Clockwork Motor.

List of Parts required to make model tractor: 2 of No. 2a; 2 of No. 4; 2 of No. 6a; 2 of No. 9a; 6 of No. 9b; 7 of No. 9c; 14 of No. 12; 1 of No. 12a; 1 of No. 12b; 1 of No. 14; 1 of No. 15a; 2 of No. 15b; 4 of No. 16; 1 of No. 16b; 4 of No. 17; 1 of No. 18a; 2 of No. 19a; 2 of No. 19b; 1 of No. 20b; 1 of No. 22a; 2 of No. 25; 5 of No. 26; 1 of No. 26a; 2 of No. 29; 2 of No. 32; 120 of No. 37af; 106 of No. 37bf; 40 of No. 38; 2 of No. 46; 4 of No. 48; 1 of No. 48a; 2 of No. 53a; 14 of No. 59; 1 of No. 62; 4 of No. 63; 3 of No. 73; 1 of No. 80a; 1 of No. 89a; 1 of No. 94; 1 of No. 95; 2 of No. 96a; 2 of No. 103b; 3 of No. 111c; 2 of No. 111d; 2 of No. 120a; 2 of No. 125; 1 of No. 132; 2 of No. 133; 4 of No. 133a; 2 of No. 142b; 1 of No. 162; 2 of No. 162a; 2 of No. 163; 2 of No. 166; 2 of No. 170; 1 of No. 179; 4 of No. 188; 4 of No. 189; 1 of No. 217b. 1 No. 1 Clockwork Motor and 1 No. 1 Clockwork Motor Pinion.