

Another fine new Meccano Model: Traction Engine

WE believe the model Traction Engine described below will prove one of the most popular Meccano models that have yet been published. It is not only a most realistic model, but it is extremely powerful. The illustration at the top of this page actually shows the model pulling more than ten times its own weight! Any Meccano boy of average weight should be able to build the model and then take himself for a ride with it! The engine will run splendidly from the Meccano 4-volt 8 ampere-hour Accumulator, and the latter may be placed in the coal bunker, thus making the model an entirely self-contained power unit.

Steam traction engines, or road locomotives, have always interested boys almost as much as the more imposing railway locomotives. They are capable of pulling very heavy loads and are frequently to be met with on the great highways of the country hauling two or three heavily-laden trailers.

Steam tractors are used, apart from ordinary haulage work, for driving agricultural machinery of all kinds, such as threshing machines, ploughs, crushing mills, etc. Frequently they are equipped with a dynamo mounted on the front of the boiler and so arranged that it may be driven merely by placing a belt round a pulley on its armature and round the flywheel of the engine. Travelling showmen, for whom some of the finest traction engines have been built, often use the dynamo to supply the necessary power to drive as well as to illuminate their roundabouts or scenic railways, etc.

Particulars of the Controls

The various control handles in the model are all placed conveniently for easy operation. The steering gear, which, as in actual practice, consists of worm gearing and chain connection to the front axle, is operated by the hand wheel 4 (Fig. 1). Operation of the handle 5 applies or releases an external-contracting brake on the rear axle. Just below this lever in the illustration is the

Another solution to the transport problem! The Meccano Traction Engine is capable of easily hauling its driver along, not to mention the trailer!



handle by means of which the Electric Motor is started, stopped, or reversed, and to the right of this is the handle by which either of the two speeds incorporated in the transmission may be brought into operation. These two handles are numbered 71 and 72 respectively in Fig. 3.

We would draw special attention to the manner in which the Electric Motor has been incorporated in the model. While it conforms to the general lines of the engine, the Motor takes up a minimum amount of space and allows ample room for the gearing, etc., and for the Accumulator.

In order to complete the realistic appearance of the model a miniature cylinder block, with valve chest and crankshaft, etc., is included, the crankshaft being driven from the Electric Motor. In addition, a representation of a dynamo is placed at the front of the boiler.

Every detail of the engine has been planned so that it can be built up as far as possible section by section, and no expense has been spared in preparing detailed illustrations that show the construction of every part of the model. Providing that he follows the instructions carefully, every Meccano boy should

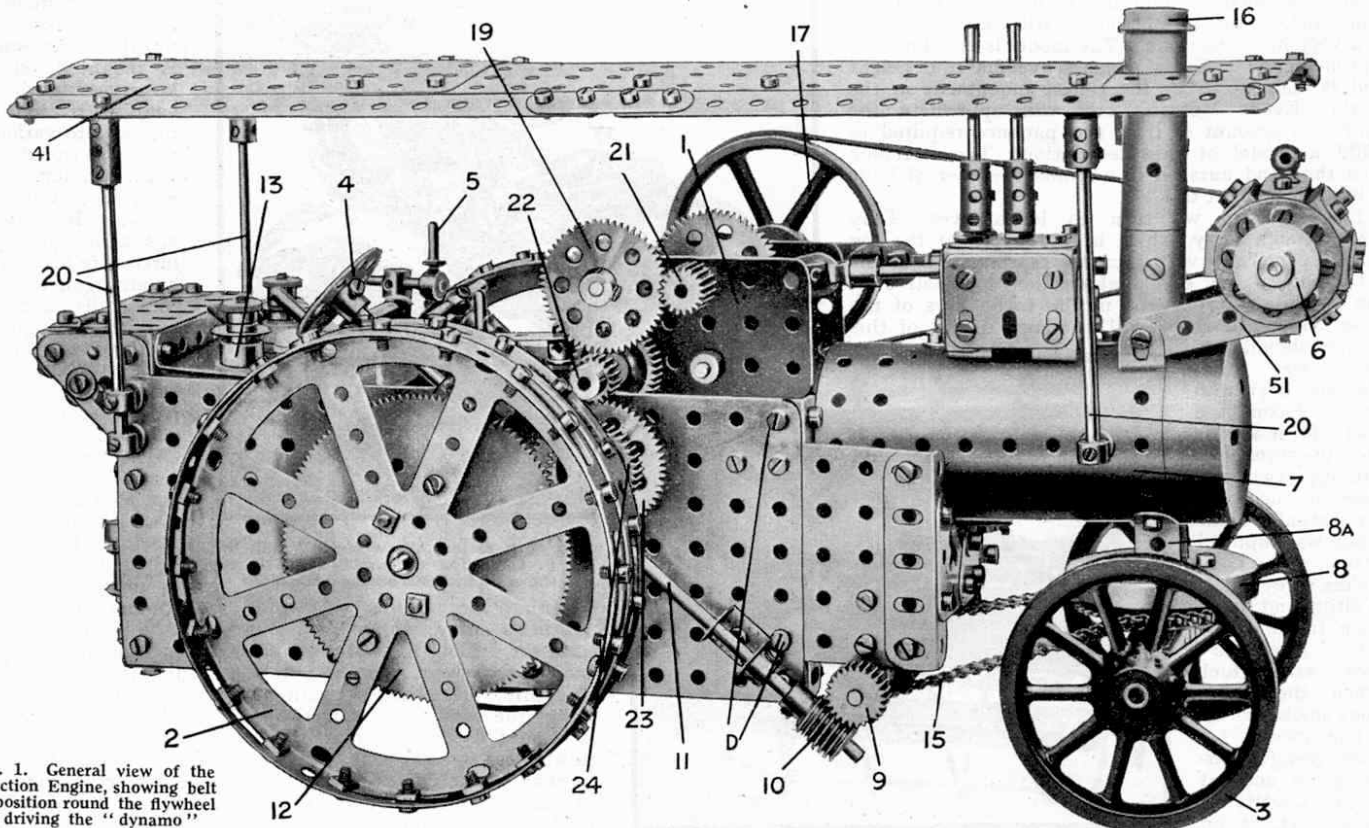
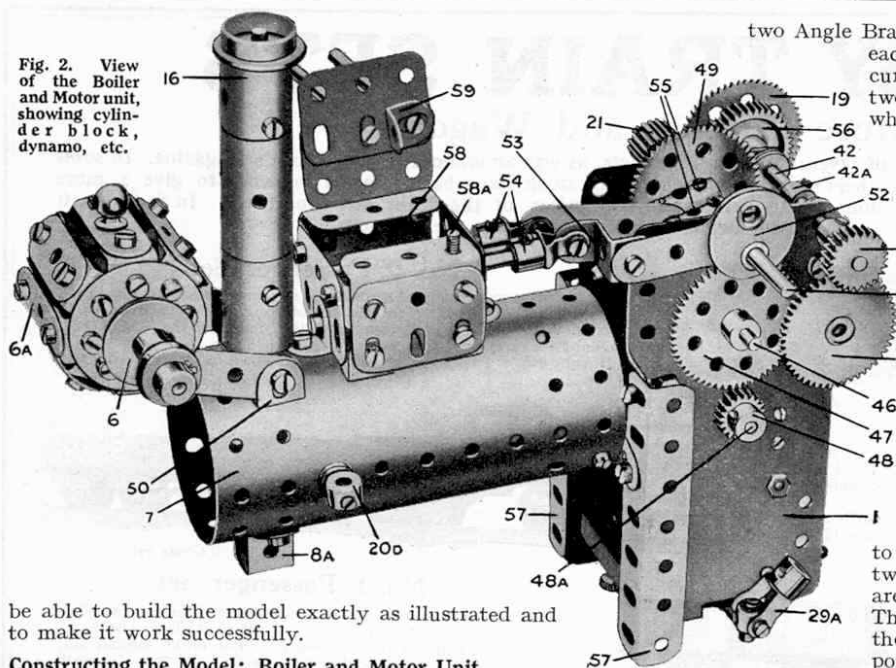


Fig. 1. General view of the Traction Engine, showing belt in position round the flywheel for driving the "dynamo"

Fig. 2. View of the Boiler and Motor unit, showing cylinder block, dynamo, etc.



be able to build the model exactly as illustrated and to make it work successfully.

Constructing the Model: Boiler and Motor Unit

The construction of this portion, which embodies the main gear train controlling the travelling movements of the model, is shown in detail in Fig. 2. Two $3\frac{1}{2}$ " Angle Girders 57 bolted to the flanges of the Electric Motor form the supports by which the completed unit is secured later to the rear portion of the model.

A Boiler 7 with front end plate is bolted to the Girders 57 and carries on its upper surface the cylinder block 58, which is built up from six $1\frac{1}{2}$ " Flat Girders, eight $\frac{1}{2}$ " \times $\frac{1}{2}$ " Angle Brackets, two $1\frac{1}{2}$ " Angle Girders and two $1\frac{1}{2}$ " \times $\frac{1}{2}$ " Double Angle Strips. The sides of the block are connected to the back and front cylinder covers by Angle Brackets, whilst the top (consisting of two $1\frac{1}{2}$ " Flat Girders) is attached to the sides by means of the $1\frac{1}{2}$ " Angle Girders. The entire block is secured to the boiler top by means of two $1\frac{1}{2}$ " Double Angle Strips bolted to the bottom edges of the side Flat Girders, and also by two Angle Brackets.

The top of the cylinder block carries on the inside an Angle Bracket 59, in the hole of which one of the 2" Rods 54 is journaled. This Rod represents the piston rod and carries an End Bearing to which one end of a 2" Strip is attached pivotally by means of a nut and bolt. The other end of the 2" Strip is pivoted on the pin of the crankshaft 43. The latter is built up as follows: Two Couplings 55 are secured at right angles to two 2" Rods 43 (the Couplings should be fixed very securely on their respective Rods by employing two Grub Screws in each Coupling) and a $\frac{3}{4}$ " Bolt is passed through their end holes to form the crank pin. The crankshaft is journaled in the Motor side plates in the centre of the top row of holes.

The valve rod is formed by the other 2" Rod 54 journaled in the end cylinder cover and also in an Angle Bracket secured by means of a bolt 58A to one of the $1\frac{1}{2}$ " Angle Girders of the cylinder block 58. This Rod carries an End Bearing that is attached rigidly by nut and bolt to a $\frac{1}{2}$ " Reversed Angle Bracket, which, in turn, is connected pivotally by a bolt and two nuts (see Standard Mechanism No. 262) to a Single-throw Eccentric 52 carried on the end of the crankshaft.

A "safety valve" composed of two Couplings carrying $1\frac{1}{2}$ " Rods (see Fig. 1) may now be mounted on the cylinder block as shown.

The chimney 16 (Fig. 2) is composed of three Sleeve Pieces placed end to end with the centre Sleeve Piece overlapping each of the other two by $\frac{3}{4}$ ". A $3\frac{1}{2}$ " Rod passed lengthwise through the centre of the three Sleeve Pieces carries at one end a $\frac{3}{4}$ " Flanged Wheel that forms the top of the chimney. The top and bottom Sleeve Pieces are held in place by means of bolts passed through them and inserted in the holes of new-style Collars carried on the $3\frac{1}{2}$ " Rod.

The dynamo is mounted on two 2" Strips secured to

two Angle Brackets 50 (Fig. 2). It consists of two Bush Wheels each carrying seven Angle Brackets to which are secured $1\frac{1}{2}$ " Strips. A $2\frac{1}{2}$ " Axle Rod passed through the two Bush Wheels carries two $\frac{3}{4}$ " Flanged Wheels 6, one wheel being placed on either side of the dynamo. A $\frac{1}{2}$ " loose Pulley also is placed on one end of the Rod and is spaced from the $\frac{3}{4}$ " Flanged Wheel by two Collars, while a further Collar secured to the Rod on the outer side of the $\frac{1}{2}$ " Pulley holds the latter in position. The dynamo lifting hook is formed by a Handrail Support fitted to one of the $1\frac{1}{2}$ " Strips forming its frame.

Main Frame, Coal Bunker, etc.

The framework of the rear portion (Fig. 3) houses the control levers, rear axle, coal bunker, etc., as well as the 4-volt Accumulator from which the current supply is obtained.

Two $5\frac{1}{2}$ " \times $3\frac{1}{2}$ " Flat Plates 62 overlapped four holes and bolted together form each side of the main frame. The rear end is composed of two $2\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flat Plates overlapped four holes and bolted to Angle Girders secured to the Flat Plates 62. Two $5\frac{1}{2}$ " Angle Girders 64 are bolted to the lower edges of the Plates 62 and are spanned by two 3" Angle Girders 39. Two $5\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flat Plates are secured to the Angle Girders 64 of the main frames. These plates form the floor of the body and support the Accumulator 13 (Fig. 1) carried in the rear portion of the model.

Two $2\frac{1}{2}$ " \times $2\frac{1}{2}$ " Flat Plates 63 bolted to the front ends of the Plates 62 (Fig. 3) carry two $2\frac{1}{2}$ " Angle Girders to which are bolted Corner Brackets 65 connected in the centre by the 1" Triangular Plate 66 that carries an Angle Bracket 66A. The construction of the tool box 70 (Fig. 3) should be quite clear from the illustrations and does not require a detailed description.

A $6\frac{1}{2}$ " Rod 31 is journaled in the side Plates 62 and in $1\frac{1}{2}$ " Pulley Wheels 37, which are secured to the inside faces of the Plates to reinforce the bearings of the Rod. This Rod forms the axle for the rear road wheels, and is held in position by Collars placed against the bushes of the Pulley Wheels 37.

The brake drum 30

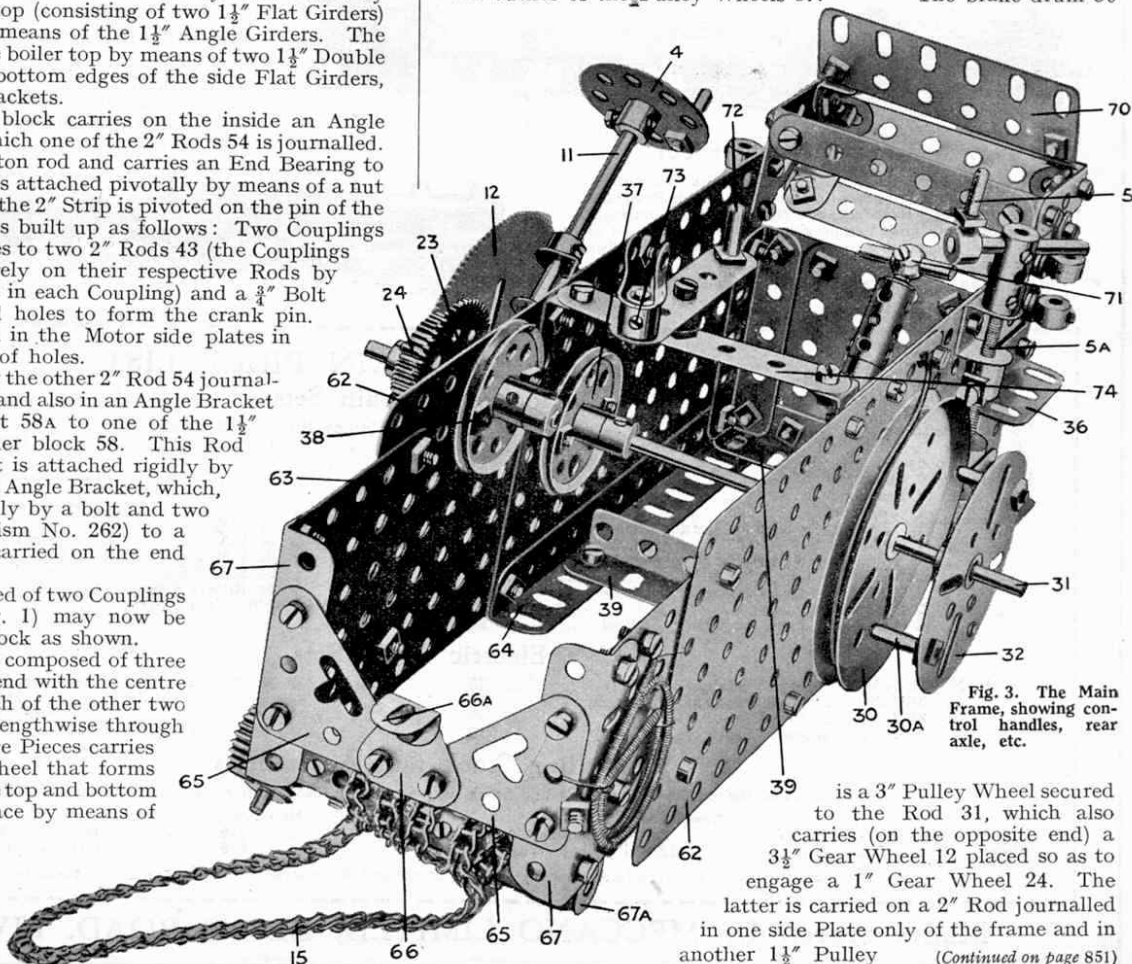


Fig. 3. The Main Frame, showing control handles, rear axle, etc.

is a 3" Pulley Wheel secured to the Rod 31, which also carries (on the opposite end) a $3\frac{1}{2}$ " Gear Wheel 12 placed so as to engage a 1" Gear Wheel 24. The latter is carried on a 2" Rod journaled in one side Plate only of the frame and in another $1\frac{1}{2}$ " Pulley (Continued on page 851)

Stamp Collecting—(continued from page 849)

course. There are also commemorative stamps, but these usually are ordinary postage stamps celebrating with a special design some important public event or anniversary.

In the early days of stamp collecting it was the practice to collect every variety, but gradually, as the number of stamp issues became larger, the fiscals were discarded and then the impressed stamps. Even with postage stamps proper, that is, those that have been used to pay the fee for the carriage of correspondence from one place to another—stamps used on telegrams do not come within this category—there is a big field still to be covered, and some collectors now refuse to include anything other than simple postage stamps, including under this heading, air, charity and commemorative issues.

Having thus decided the principles upon which his collection is to be formed, the beginner can make a start. Stamps can be secured from many sources before financial outlay is necessary. Fathers, uncles, elder brothers, and their business friends can be very helpful, for most business houses are constantly in touch with firms abroad. Duplicates can be exchanged with stamp collecting friends, and stage by stage the pages of the album will begin to assume a business-like air.

At this stage the full fascination of the hobby will be felt, but at no time should the collector allow his desire to possess a numerically strong collection to over-rule the simple message of his stamps. The collector who knows the history of each of his stamps enjoys a greater sense of pride than he who knows only that his album contains several hundreds of stamps.

Next month we shall give practical advice upon the preparation of stamps for mounting, the actual method of mounting, and various other matters upon which the beginner requires help if he is to make best progress in his hobby.

Stamp Gossip

A Swedish Celebration

To celebrate the seventieth birthday of King Gustave V, Sweden recently issued a commemorative series of stamps, from which we illustrate the 15 öre value.



The complete series consists of five values, ranging from five to 25 öre. The design is the same for each of the stamps which were sold at a premium of five öre in order to provide funds for extension of Cancer Research work.

King Gustave was born in 1858 and ascended the throne in December, 1907.

Yun-nan Province Surcharge

Some time ago there came into my hands a pair of 2 cents (green) and two single 4 cents (bronze-green) stamps, of the 1922 general issue, that had been surcharged horizontally in black with the five Chinese characters reproduced below, a literal translation of these characters being "Yun-nan Province affix use," which being translated from the Chinese idiom means "ONLY for use in Yun-nan Province." Until very recently Yun-nan was using the same stamps as the rest of China. Why, then, this sudden change?



Inquiries have revealed a very interesting state of affairs. Many of the Chinese provinces mint their own money. There is a standard to which each Mint ought to conform, but in practice the money minted at the various Mints varies to a very remarkable degree. The percentage of silver in a dollar, which ought to stand at 87, has been known to fall below 45. Thus the dollar of any particular province not only varies in value from the dollar of any other province, but it also varies from itself from time to time!

Uprisings, earthquakes, famines and floods seem to be the all-important factors of these fluctuations in value. Thus we find that the unrest in the South of China, combined with a bad famine in 1925, has told very heavily on the silver currency of Yun-nan. So great was the fall in value of the Yun-nan dollar, that towards the end of 1926 it was worth only a fraction of the Northern province's dollar.

Certain "sharp" Chinese saw, in this state of affairs, a good opportunity to reap a small fortune. They set to work and

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systematically bought stamps in bulk from Yun-nan post offices—paying for them with Yun-nan dollars. The stamps were sent up North, where they were sold—the buyers paying for them in Northern dollars! A very paying game for those Chinese concerned, but they reckoned without the Post Office. The sharp practice was soon discovered, and a stop was put to it by having those stamps destined to be used in Yun-nan so surcharged that they could not be used elsewhere. I am informed that the whole set to \$2 has been surcharged in this way.

China is a land of many surprises, and it would be hard to imagine a more curious state of affairs than that set out above. Again China takes the biscuit!

(Gordon A. Clayton, in *Stanley Gibbons' Monthly Journal*).

West Australian Centenary Commemoratives

To commemorate the centenary of the first permanent settlement in Western Australia, founded by Captain Fremantle at the mouth of the Swan River on 2nd May, 1829, the West Australian Ministry has decided to issue a special commemorative stamp. This issue probably will be confined to one denomination, 1½d., and the design will include the black swan that was used as the standard design for all West Australian stamps other than the high values of the issues subsequent to 1902. It is probable that the quantity of stamps issued will be limited to ten million, and the whole of the work,

including the cutting of the dies and the printing, will be done within the Commonwealth.

There is a possibility of a new Commonwealth design making its appearance in the near future. In connection with the International Philatelic Exhibition, to be held at the Melbourne Town Hall at the end of this month, a prize has been offered for a design suitable for a Commonwealth postage stamp. The winning design will be considered by the Postal Authorities and may be adopted for use later.

Traction Engine—(continued from page 843)

38 bolted to the Plate. This 2" Rod is held in position by a Collar secured against the bush of the 1½" Pulley. It carries in addition to the Gear 24, a 57-teeth Gear Wheel 23 that engages the ½" Pinion 22 (Fig. 1) of the Motor unit. The Gear 23 (Fig. 3) is spaced from the frame Plate 62 by its boss and several Washers, so as to give clearance for the steering column 11.

External-contracting Brake

A Threaded Pin 5 (Fig. 3) is secured in a Collar on a 1½" Rod and the latter is passed through the end of a Coupling in which is carried a 3½" Screwed Rod 5A journaled in two Double Brackets bolted to the frame Plates as shown. The Screwed Rod carries a Threaded Boss between the Double Brackets, and is retained in position by a Collar secured to its lower extremity.

It is important to note that the Threaded Boss is free on the Rod 5A. The brake cord is attached to a bolt on the frame (see Fig. 3) thence passed round the brake drum 30 and secured to the Threaded Boss carried on the Screwed Rod 5A. On turning the handle 5 the cord is tightened on the brake drum or released according to the direction of rotation of the handle 4.

When this stage of the construction has been reached, the Motor unit (Fig. 2) may be secured to the rear portion (Fig. 3) by bolts passed through the Angle Girders 57 of the Motor unit and the end holes of the frame plates 62 (Fig. 3) as shown at "D" in Fig. 1. The lower surface of the Boiler is bolted to the Angle Bracket 66A (Fig. 3). The two units are thus held securely in position.

The remainder of the instructions for building the model will appear in next month's "M.M." The illustrations that will be included in that number are as follows: plan view, showing crankshaft and gearing, etc.; underneath view, showing steering gear and brake; underneath view of roof.

Parts Required to build the Meccano Traction Engine:—

4 of No.	1B	3 of No.	21	1 of No.	80A
6	"	5	"	18	"
1	"	2	"	1	"
6	"	3	"	1	"
13	"	1	"	2	"
2	"	1	"	6	"
4	"	4	"	1	"
2	"	1	"	1	"
4	"	3	"	10	"
4	"	1	"	2	"
6	"	248	"	5	"
6	"	6	"	1	"
33	"	15	"	4	"
1	"	31	"	1	"
1	"	1	"	4	"
1	"	4	"	2	"
9	"	7	"	52	"
1	"	7	"	1	"
6	"	28	"	3	"
3	"	11	"	1	"
1	"	1	"	1	"
2	"	4	"	2	"
1	"	3	"	1	"

1 4-volt Electric Motor
1 4-volt 8-amp. Accumulator

A Powerful New Meccano Model: Traction Engine

(Concluded from last month)

IN last month's "M.M." we described the construction of the main frame of the Meccano Traction Engine, and also dealt in detail with the Boiler and Motor unit and the brake mechanism. Fig. 4 in this issue is a plan view of the engine showing further details of the gearing and Motor unit, while the underneath view of the complete model (Fig. 5) clearly shows the position of the Motor and the arrangement of the brake and steering gear. Having built the Boiler and Motor unit and secured it to the rear portion of the model as described last month, the gearing controlling the movement of the model should receive attention.

The Main Gear Train

The main gear train is included in Fig. 4 but its arrangement will become more clear by referring to the illustration of the motor unit (Fig. 2 in last month's "M.M."). The armature spindle of the Motor (48a in the latter illustration) carries a $\frac{1}{2}$ " Pinion 48 that engages with a 57-teeth Gear Wheel 47, on the Rod of which is also carried a $\frac{1}{2}$ " Pinion. The latter is secured to the Rod against the inside of the Motor side plate and engages a 57-teeth Gear 49 on the crankshaft 43 (see Figs. 2 and 4).

The crankshaft also carries a $\frac{1}{2}$ " Double-width Pinion 21 that meshes with a 57-teeth Gear Wheel 19 secured to a $3\frac{1}{2}$ " Rod 42, on which is also secured a 1" Gear Wheel 56 placed against the face of the Gear 19. On the other end of the Rod 42 is a $\frac{3}{4}$ " Pinion 44. The Rod is slidable in its bearings and is controlled by the lever 72. The latter is connected pivotally to a Small Fork Piece (shown in Fig. 4 and also in Fig. 3 in the October "M.M.") which engages a Collar 42a (Fig. 4) carried on the Rod 42.

A 1" Gear Wheel 56a (Fig. 4) is secured to a $4\frac{1}{2}$ " Rod and

The Meccano Traction Engine hauls its driver along quite easily



placed against the outer face of the Motor side plate,

and a $\frac{1}{2}$ " Pinion 22 and a 50-teeth Gear Wheel 45 are carried at either end of the same Rod. It will be seen from Fig. 4 that by moving the lever 72 either of two gear trains may be brought into operation, viz.:—the 1" Gear Wheel 56 may be brought into engagement with the 1" Gear 56a, or the $\frac{3}{4}$ " Pinion 44 into engagement with the 50-teeth Gear 45 (in both cases the Gear 19 remains in mesh with the Double-width Pinion 21). Hence a means is provided whereby the Motor drive may be transmitted through two different gear ratios, resulting in a "fast" and "slow" speed of the engine.

It will be noted that the Rod 42 and the Rod carrying Gears 45 and 56a are mounted in reinforced bearings composed of $1\frac{1}{2}$ " Strips bolted to the Motor side plates.

Steering Mechanism

The front road wheels 3 (Fig. 5), which consist of 3" Wheels, are carried on $1\frac{1}{2}$ " Axle Rods 27 journaled in the holes of a $3\frac{1}{2}$ " x $\frac{1}{2}$ " Double Angle Strip. The latter is secured to the inside of a channel girder formed by two $3\frac{1}{2}$ " Angle Girders 26 bolted together as indicated. The inner ends of the Rods are journaled in Angle Brackets bolted to the Girders and are held in position by Collars secured to the Rods against the faces of the

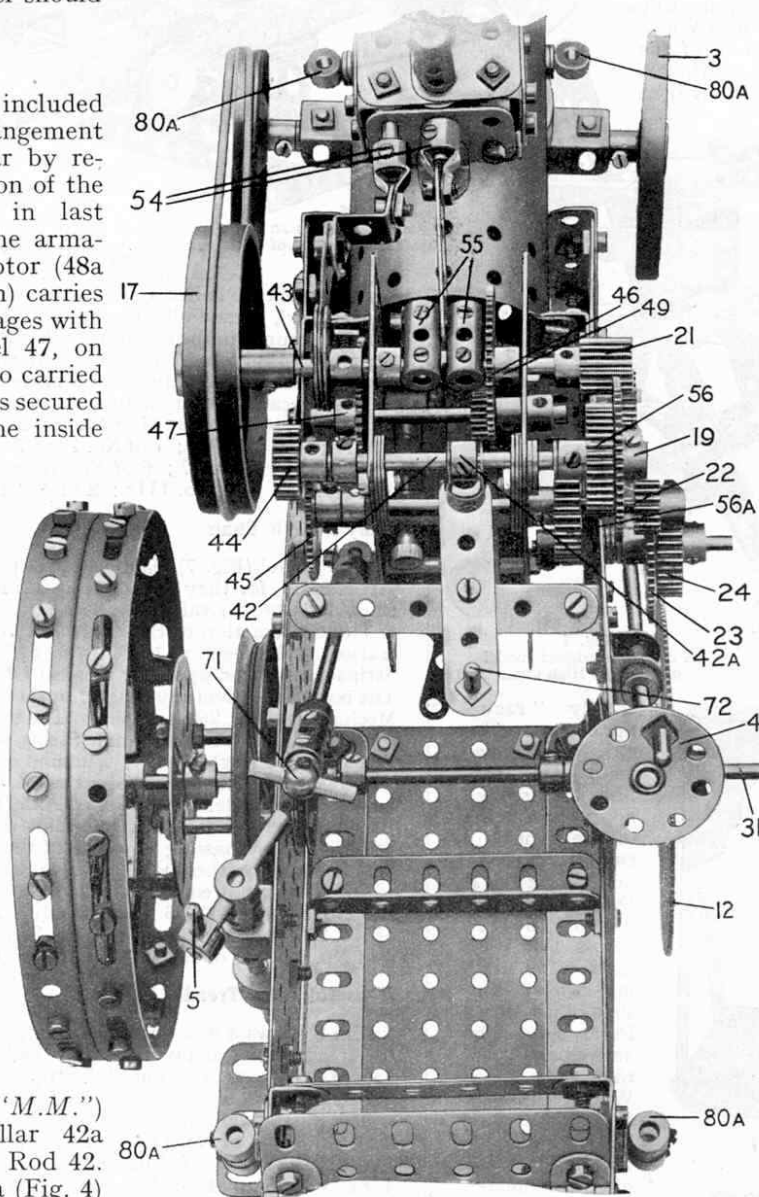


Fig. 4. Plan view, showing Crankshaft and Gearing, etc.

Angle Brackets. This arrangement is shown quite clearly in Fig. 5.

The Wheel Flange 8 (Fig. 5) is secured to the Girders 26 by bolts passed through a 2" Sprocket Wheel, and a $1\frac{1}{2}$ " Rod secured in the latter acts as a pivot for the front axle unit. The Rod is journalled in a Double Bent Strip 8a (see Fig. 2 in the October "M.M.") bolted to the underside of the Boiler and in the second hole of the Boiler, and is held loosely in position by means of a Collar placed on the Rod inside the Boiler.

The steering mechanism is controlled from a steering wheel 4 (Fig. 4) secured to an 8" Rod 11 that is journalled in Double Brackets bolted to the side frame plate of the rear portion (see also Fig. 3, October "M.M."). The steering Rod 11 carries at its lower end a Worm 10 (Fig. 5) engaging a $\frac{3}{4}$ " Pinion 9 on a $3\frac{1}{2}$ " Rod 28, which is journalled in $1\frac{1}{2}$ " Strips bolted to the side plates of the framework (see also Fig. 3, October "M.M.").

The Rod 28 carries several Couplings and Collars 28a (Fig. 5), the heads of the grub screws of these serving to grip a 16" length of Sprocket Chain that is wound round the Coupling five or six turns and thence passed round the 2" $1\frac{1}{4}$ " Sprocket Wheel attached to the front axle. The ends of the chain are of course joined together. By reason of this arrangement the front wheels may be directed either to right or left according to the direction in which the steering wheel is turned. This steering gear closely follows the method used in actual practice.

Building the Driving Wheels

The actual construction of the driving wheels (see Figs. 3 and 4) should offer little difficulty. Two Hub Discs bolted together and secured to a Bush Wheel (which acts as a hub) form both the right and the left-hand wheel but slightly differing methods are adopted to secure them to the axles. In the case of the right-hand wheel (shown in Fig. 1, October "M.M.") the method is as follows:—

Two $\frac{3}{4}$ " Bolts are secured by nuts to the Hub Discs, the

bolts being 1" from the centres of the discs and placed diametrically opposite to each other. When the wheel is placed on the Axle Rod 31 (Fig. 5; also Fig. 3, October "M.M.") it will be found that the shanks of the bolts will engage in the holes or slots of the $3\frac{1}{2}$ " Gear Wheel 12. The idea of this arrangement is to provide a more

secure hold for the road wheel than would be possible simply by tightening the set-screws of the Bush Wheels secured to the Hub Discs.

In the case of the left-hand driving wheel it is necessary to space it from the frame plate of the rear portion in order to allow sufficient clearance for the Flywheel 17 (Fig. 4), and for this purpose a $2\frac{1}{2}$ " Face Plate 32 (Fig. 5) carrying two Threaded Pins is passed over the Rod 31 and its set-screw tightened so that it is secured with the Threaded Pins engaging slots or holes in the brake drum 30. The left-hand driving wheel may now be placed in position, the $\frac{3}{4}$ " Bolts of the wheel engaging slots or holes in the Face Plate 32.

The Motor Control

The control handle for the 4-volt Electric Motor is shown at 71 (Fig. 4). By pulling or pushing this handle the Motor may be started, stopped, or reversed. The handle, which consists of a 1" Rod inserted in a Hand-rail Support, is secured by a Coupling to a $4\frac{1}{2}$ " Rod on the lower end of which is a Swivel Bearing 29a (Fig. 5) attached pivotally by a bolt 29 to one of the Motor switch arms.

A support and guide for the $4\frac{1}{2}$ " Rod is formed by a Collar

pivotaly attached by a bolt to the side plate of the frame, the bolt being locked in position against the Collar by a nut (see Fig. 4). It is important to note that the bolt does not nip the $4\frac{1}{2}$ " Rod; the latter must be quite free so that the Motor switch may be moved by pushing or pulling the handle 71.

Constructing the Canopy and its Supports

The canopy (Fig. 6) may now be constructed. It is built up from three $5\frac{1}{2}$ " \times $3\frac{1}{2}$ " Flat Plates 41 joined

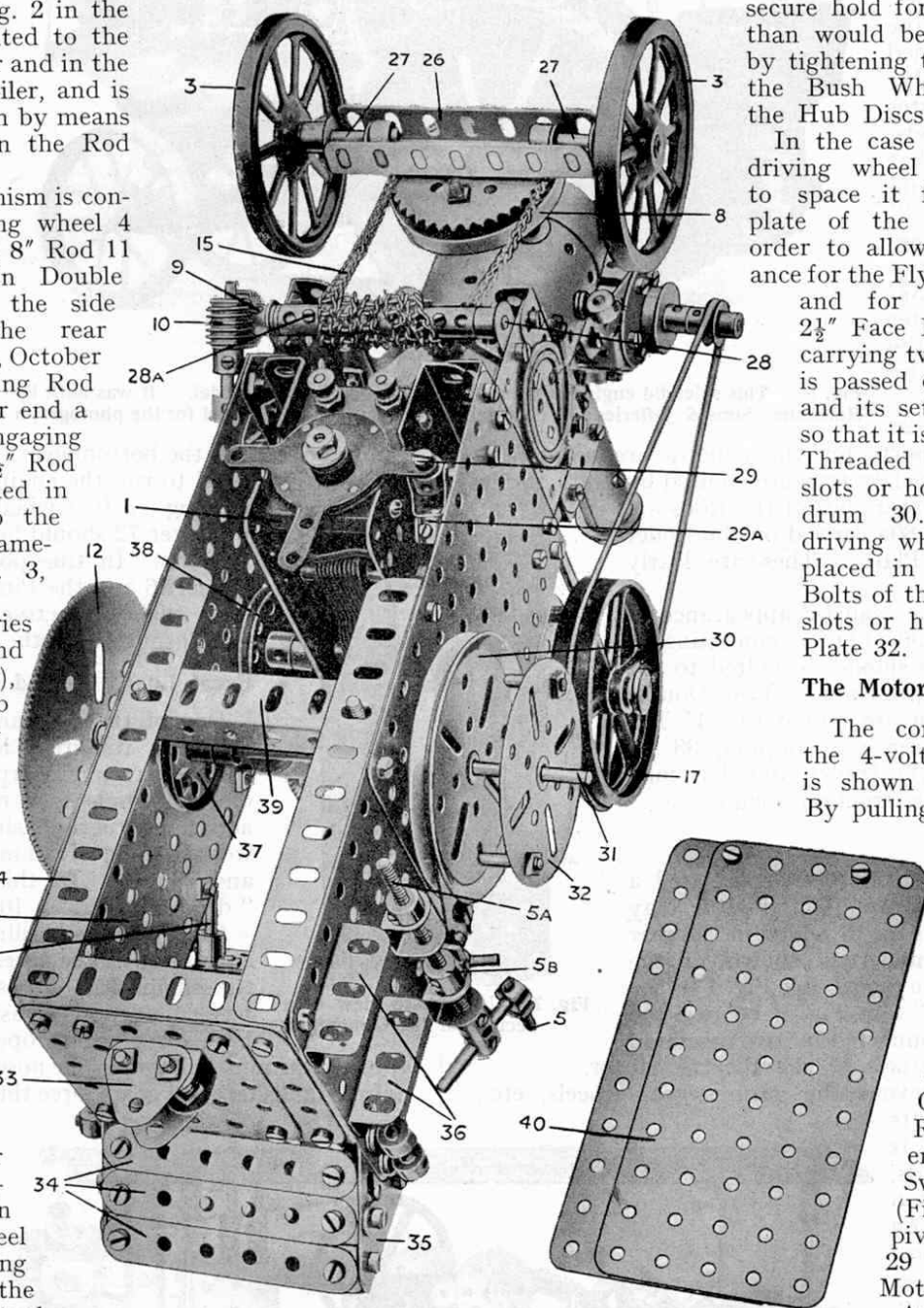


Fig. 5. Underneath view, showing Steering Gear and Electric Motor, etc.

together with the centre Plate overlapping the rear end Plate by three holes and the front end Plate by four holes. The sides of the canopy are extended by $7\frac{1}{2}$ " Strips 41a joined to the Plates 41 by Flat Brackets, and the portion that surrounds the chimney is formed by 2" Flat Girders 20c secured to the front Plate 41 and to a $3\frac{1}{2}$ " Flat Girder, the latter being joined to the $7\frac{1}{2}$ " Strips 41a by Flat Brackets.

The $3\frac{1}{2}$ " Rods 20 forming the supports for the canopy are secured in Couplings 20a, which in turn are secured by bolts to the Plates 41. The lower ends of the Rods are secured in Collars 80a carried on the Boiler and bunker frame Plates. These are clearly shown in Fig. 4.

To complete the realistic appearance of the model steps 36 (Fig. 5) consisting of $1\frac{1}{2}$ " Angle Girders should be bolted to the Plates of the main frame. Two Double Brackets to which are bolted two 1" Triangular Plates form the coupling 33 by means of which the trailer draw-bar may be attached to the traction engine.

General Remarks

When the model has been completed a Meccano 4-volt 8-amp. Accumulator may be placed in the space provided in the rear portion of the model as shown in the general view of the model (see Fig. 1 in the October "M.M.," also Fig. 6 below), the terminals being connected by two insulated wires to the terminals of the Electric Motor.

In order to prevent the various gear wheels, etc., slipping on the shafts when the model is hauling heavy loads, it is wise to tighten two set-screws on each Gear Wheel (assuming, of course, that the wheels are fitted with the new-style bosses, the tapped holes of which pass completely through the bosses, diametrically). If this is done there will be no trouble with loose Wheels.

To set the model in operation it is necessary first to engage the slow or

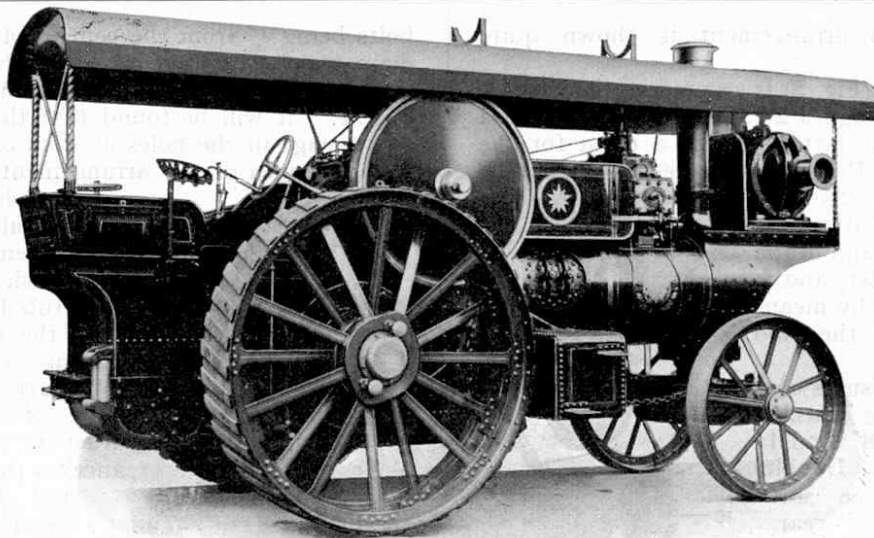


Fig. 8. This splendid engine is the prototype of the Meccano model. It was built by Ransomes, Sims & Jefferies Ltd. (Ipswich), to whom we are indebted for the photograph

bottom gear by moving the lever 72 over to the extreme left. Before switching on the Electric Motor see that the brake is "off," i.e., with cord slack. Now switch on the Motor by pulling or pushing the handle 71 (Fig. 4) according to the direction (either forward or reverse) in which it is desired to travel. When only a light load is being hauled or the engine is running "light" the fast or top gear may be employed, but for

the heavier loads the bottom gear should always be used. When it is desired to run the engine without the tractor moving (such as when driving the dynamo) the lever 72 should be placed in the central position. In this position both the Gear Wheel 56 and the Pinion 44 are disengaged from their respective gears and no power is transmitted to the driving wheels.

Great Loads Hauled by the Model

One of the outstanding features of this model is its great load-pulling capacity. The illustration incorporated in the heading of this article is a reproduction from an actual photograph showing the tractor at work hauling a load many times its own size and weight. In this particular case the "driver" weighs 100 lbs.!

Of course, in hauling a load of this description it will be necessary to add ballast to the engine for, unless firmly held down, it has a tendency for using its back axle as a base for pivoting operations! The engine affords a curious sight when the nose rises in the air as the flying crankshaft and gears force the driving pinion round the stationary axle!

The additional weight required can be obtained by filling the Boiler with pieces of lead or a large number of Meccano Strips.

To obtain the best results care must be paid to every detail of the construction and the gear shafts must run quite freely. A little oil applied to the Gear Wheels and Rods will greatly assist the smooth working of the model.

For list of parts required to build this model see October "M.M.," p. 851.

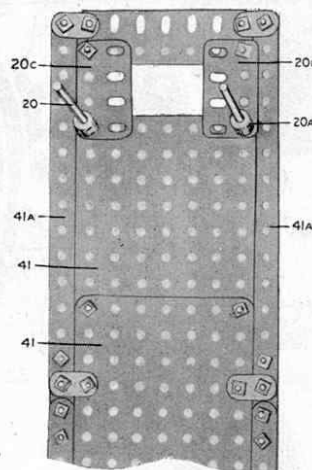


Fig. 7. Underneath view of a Section of the Canopy

affords a curious sight when the nose rises in the air as the flying crankshaft and gears force the driving pinion round the stationary axle!

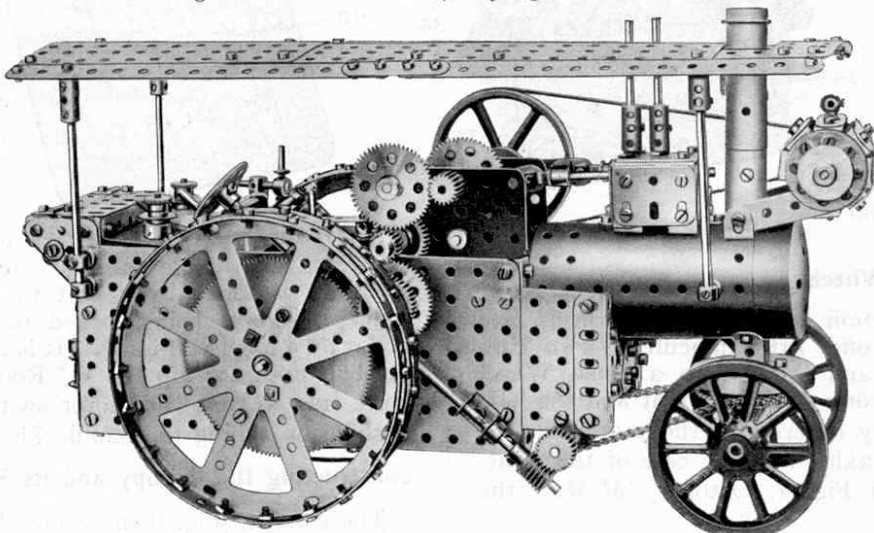


Fig. 6. The Complete Meccano Model Traction Engine