New Outfit Models

Good Subjects for Large and Small Outfits

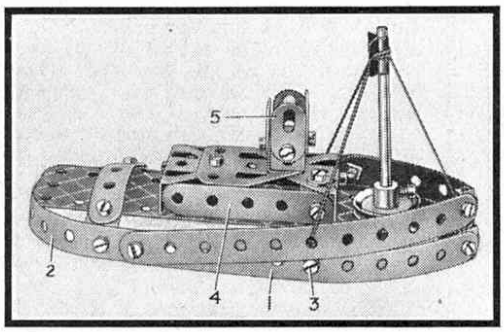

Fig. 1. A model steam tug built from Outfit No. 1.

THE five new models described this month differ so widely in type and size that every Meccano model-builder, whatever his Outfit, will find one or more that he will be delighted to construct. They include a scooter and a steam tug, built from the contents of Outfits Nos. O and 1 respectively. Then comes a trench digger that is capable of real work, and for which Outfit No. 4 is required. Finally the needs of owners of larger Outfits are met with fine working models of a horizontal steam engine and a swing bridge, each of which can be built from the contents of Outfit No. 7.

The steam tug shown in Fig. 1 is the first model to be described. This is very effective and it is very easy to assemble. Construction is commenced with the hull, which consists of two $5\frac{1}{2}''$ Strips 1 joined at the bows by an Angle Bracket and at the stern by a second $5\frac{1}{2}''$ Strip 2. A $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip is then fixed in place by the bolt 5. The deck is a $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate, extended at the front by a Flat Trunnion, and it is held in place by a 1″ Pulley and a Spring Clip fixed on the $3\frac{1}{2}''$ Rod forming the mast. The sides are made to slope upward at the bows by the use at each side of a $5\frac{1}{2}''$ Strip and a $4\frac{1}{2}''$ strip made from two $2\frac{1}{2}''$ Strips. The Strips are joined at the bows by an Angle Bracket.

The deck cabin is formed with two Trunnions, which are joined together by a Flat Trunnion and a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. The bolt that holds the funnel is $\frac{3}{8}''$ long, and it passes through four Angle Brackets, each of which is fitted with a Flat Bracket 5. The $2\frac{1}{2}''$ Strip 4 is fixed in place by a Reversed Angle Bracket that serves to hold the deck cabin to the deck.

The model is completed by the addition of the towing beam, which consists of a $2\frac{1}{2}''$ Strip that is joined to the sides of the hull by Angle Brackets.

Parts required to build the model steam tug: 4 of No. 2; 4 of No. 5; 4 of No. 10; 8 of No. 12; 1 of No. 16; 1 of No. 22; 3 of No. 35; 24 of No. 37; 3 of No. 37a; 1 of No. 38; 3 of No. 111c; 1 of No. 125; 2 of No. 126; 2 of No. 126a; 1 of No. 189.

Fig. 2 shows a small but interesting model of a horizontal steam engine built with Outfit No. 7. The fire-box of this is formed of two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ and two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates, which are curved to the required shape and then overlap five holes. They are bolted together as shown in the illustration. The lower ends of the sides of the fire-box are joined by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip.

The boiler of the engine is represented by a Meccano Boiler, which is fixed to the top of the fire-box. The fire-box is next secured to the base, which consists of two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plates 1 bolted together, by the $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip joining its sides. The forward end of the fire-box is filled in by a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate, and the rear end by a compound plate formed by a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate and a Semi-Circular Plate. The compound plate is secured in position by Angle Brackets.

The water supply tank 2, which forms also a support for the forward end of the Boiler, is built up by bending a $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate to form a square tube, and fastening it to the base plate by a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. The top of the tank consists of two overlapping $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates.

The supports for the crankshaft are provided by two $2\frac{1}{2}''$ Strips, bolted to the sides of the Boiler, the lower ends of the Strips being curved slightly to conform with the contour of the Boiler. Each web of the crank consists of two Collars. These are joined by unscrewing the Grub Screw of one of them so that it projects about $\frac{1}{8}''$, and screwing the second Collar over the projecting portion. A 1″ Rod is used for the crank pin. One of the webs is fastened on the end of a $1\frac{1}{2}''$ Rod and the other on the end of a $\frac{3}{4}''$ Bolt, both the Rod and the Bolt being journalled in the upper holes of the $2\frac{1}{2}''$ Strips.

The "big end" is formed by a large Fork Piece fitted on the crank pin. A $1\frac{1}{2}''$ Rod is locked in the boss of the Fork Piece to form the connecting rod, and to its free end a 2″ Rod is pivotally secured by two Rod and Strip Connectors. The 2″ Rod represents the piston rod, and it slides in a cylinder consisting of a Sleeve Piece, which is fastened to the top of the fire-box by a $\frac{1}{2}''$ Bolt, but spaced from it by six washers. A $\frac{3}{4}''$ Flanged Wheel is pressed on each end of the Sleeve Piece.

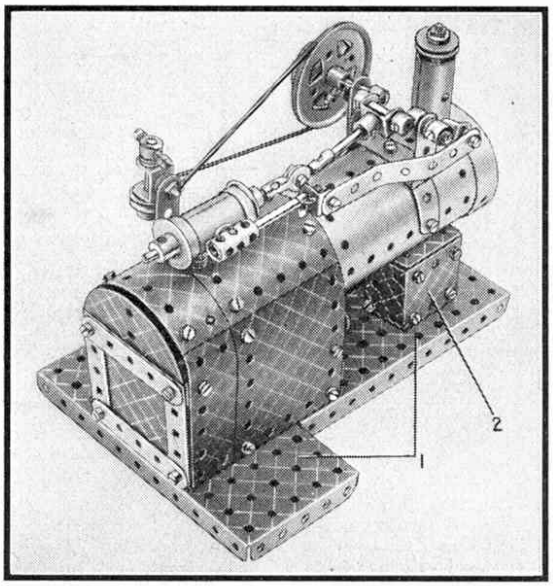

Fig. 2. A model overtype stationary steam engine and boiler, which forms an unusual subject for Outfit No. 7.

The valve chest is a Coupling, which is bolted to the side of the cylinder, and carries a 2″ Rod that is connected by a $3\frac{1}{2}''$ Strip and an Angle Bracket to a Collar on the end of the crankshaft. To make the centrifugal governor two bolts are screwed into the tapped holes of a Collar, which is mounted on the upper end of a $1\frac{1}{2}''$ Rod journalled in a Double Bracket. The Double Bracket is supported by a $1\frac{1}{2}''$ Strip and an Obtuse Angle Bracket from the top of the fire-box. At its lower end the $1\frac{1}{2}''$ Rod carries a $\frac{1}{2}''$ Pulley, which is connected by a Driving Band to the flywheel.

Parts required to build model steam engine: 1 of No. 3; 6 of No. 5; 1 of No. 6a; 1 of No. 11; 1 of No. 16; 1 of No. 17; 3 of No. 18a; 1 of No. 18b; 1 of No. 20a; 2 of No. 20b; 1 of No. 22; 1 of No. 23a; 56 of No. 37a; 48 of No. 37b; 22 of No. 38; 2 of No. 48; 2 of No. 48a; 1 of No. 51; 2 of No. 52; 6 of No. 59; 1 of No. 63; 1 of No. 80c; 1 of No. 111; 1 of No. 111a; 1 of No. 116; 1 of No. 162a; 1 of No. 162b; 2 of No. 163; 1 of No. 164; 1 of No. 186a; 2 of No. 188; 3 of No. 189; 1 of No. 190; 2 of No. 192; 2 of No. 212; 1 of No. 214; 2 of No. 217b.

The scooter is illustrated in Fig. 3. It is best to commence construction by bending a $5\frac{1}{2}''$ Strip 1 to the shape shown, and then fitting it with a Bush Wheel 2 and two Flat Trunnions. Two Angle Brackets are next bolted to the rear end of Strip 1 in the form of a reversed angle bracket, and to them are fastened two Trunnions. The rear wheel revolves between the latter on the shanks of two bolts, which are bolted in each Trunnion as shown.

The wheel at the front is supported on two bolts 5 between two $5\frac{1}{2}''$ Strips 4, arranged in a similar manner to the supports for the rear wheel. The Strips 4

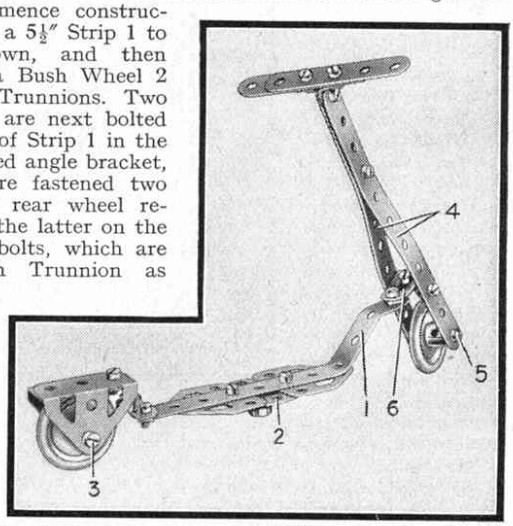

Fig. 3. The simple scooter constructed as shown above is made with parts from Outfit No. O.

New Outfit Models

Suggestions for Large and Small Outfits

NONE of the four fine models we are describing this month requires an Outfit larger than Outfit No. 6 for its construction. They include a neat lathe built with Outfit No. 4, and driven by a *Magic* Motor, a grabbing crane constructed from Outfit No. 2, and a horizontal steam engine that can be built from the contents of Outfit No. 3. The fourth model is a fine reproduction of a Westland "*Lysander*" monoplane. This requires an Outfit No. 6 for its construction.

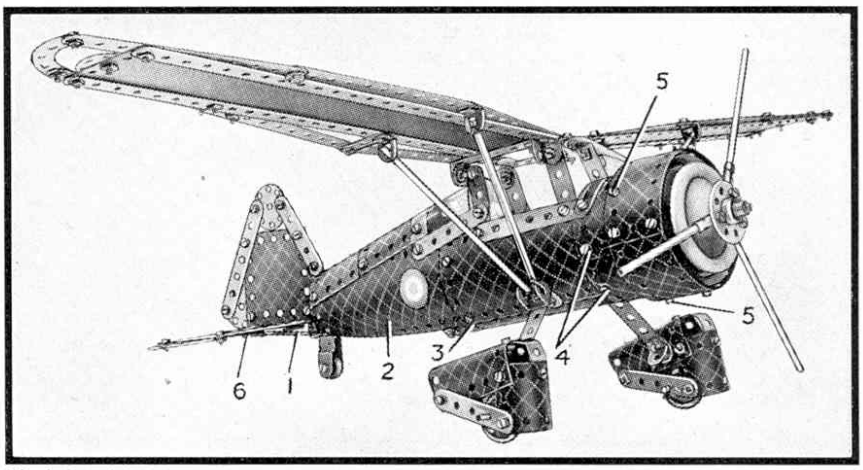

Fig. 1. A model of a Westland "Lysander" monoplane constructed with the parts of Outfit No. 6. The cockpits are fitted with windscreens made from transparent celluloid.

The model of the Westland "*Lysander*" aeroplane shown in Fig. 1 is particularly interesting as it demonstrates the value of Flexible Plates in reproducing the streamlined fuselage of a modern high-performance machine. The aeroplane on which the model is based was illustrated in the "*M.M.*" for January 1937.

It is best to begin construction with the fuselage. Two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates 2 are first curved as shown and one corner of each is bolted in the seventh hole from one end of a $12\frac{1}{2}''$ Strip 1. The Plates are extended forward on each side by a $4\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate, the lower corners of which are bolted to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 3. The forward end of the fuselage, just behind the engine, is completed by bolting a cylinder formed from two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates to the $4\frac{1}{2}'' \times 2\frac{1}{2}''$ and $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates. The cylinder is strengthened internally by three Formed Slotted Strips held by Bolt 4. The tail of the fuselage is sloped forward to the rear cockpit with two $1\frac{11}{16}''$ radius Curved Plates, and the sides of the cockpits are edged round as shown.

The engine cowling is made from two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates bolted together to form a cylinder, and is attached to the fuselage by three $\frac{3}{8}''$ Bolts, two of which are indicated at 5. Each bolt carries four washers on its shank. The engine is represented by a 3″ Pulley and a Road Wheel fastened on a 2″ Rod, the Pulley being held in place by four bolts that engage in its groove.

The tail-plane consists of the halves of a Hinged Flat Plate, overlapped three holes and fitted at each end with a Semi-Circular Plate, 3″ Strips being used to give it a tapered outline. The fin is built up in the manner shown, and together with the tail-plane is bolted to Strip 1.

The characteristic shape of the wings of the actual machine is reproduced as closely as possible in the model. Each wing consists of a $12\frac{1}{2}'' \times 2\frac{1}{2}''$ Strip Plate strengthened at each edge by a $12\frac{1}{2}''$ Strip. The leading and trailing edges each consist of three $5\frac{1}{2}''$ Strips, and are joined at the tip by a $2\frac{1}{2}''$ Cranked Curved Strip. The trailing edge is supported by a $1\frac{1}{2}''$ Strip and a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. The two wings are joined together by overlapping their leading and trailing edges by three holes. They are supported from the front of the fuselage by two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips, which are joined at their upper ends by a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. Their trailing edges are connected to the fuselage by $2\frac{1}{2}''$ Strips.

Parts required to build the model Westland "*Lysander*": 5 of No. 1; 12 of No. 2; 3 of No. 3; 2 of No. 4; 9 of No. 5; 2 of No. 6a; 2 of No. 10; 2 of No. 11; 9 of No. 12; 2 of No. 12a; 3 of No. 12c; 2 of No. 15; 1 of No. 15b; 4 of No. 16; 1 of No. 17; 3 of No. 18a; 1 of No. 18b; 1 of No. 19b; 2 of No. 22; 1 of No. 23; 1 of No. 23a; 1 of No. 24; 2 of No. 35; 102 of No. 37; 8 of No. 37a; 20 of No. 38; 1 of No. 40; 1 of No. 44; 1 of No. 48; 6 of No. 48a; 2 of No. 90a; 2 of No. 111; 1 of No. 111a; 5 of No. 111c; 2 of No. 155a; 1 of No. 187; 2 of No. 188; 4 of No. 189; 1 of No. 190; 2 of No. 191; 3 of No. 192; 2 of No. 197; 1 of No. 198; 2 of No. 199; 2 of No. 200; 2 of No. 212; 2 of No. 213; 2 of No. 214; 4 of No. 215; 4 of No. 217a.

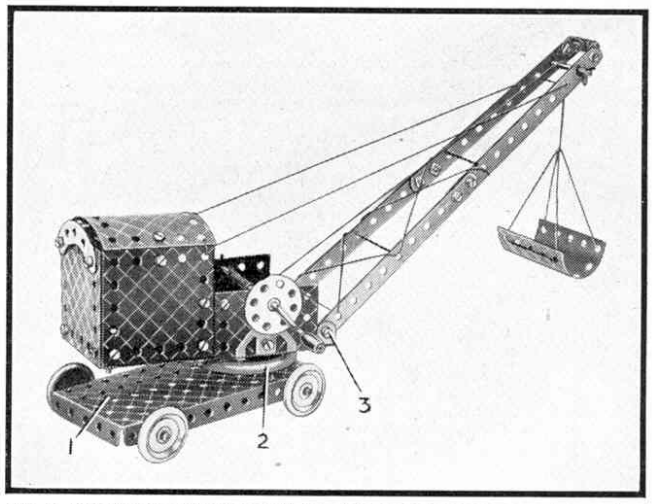

Fig. 2. This simple swivelling grabbing crane is a good example of a working model that can be built from the contents of Outfit No. 2.

The second model to be described is the miniature grabbing crane shown in Fig. 2. The base of this consists of a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate 1, which is mounted on 1″ Pulleys fitted with Rubber Rings. The superstructure is built by bolting two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates side by side, and then fixing two Double Angle Strips to them. One of the Double Angle Strips provides support for the jib, and the other carries the $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates that form the sides of the cab. These Plates are further supported at the rear by Angle Brackets, and similar parts are used to hold the back of the cab in position. The roof is a $1\frac{11}{16}''$ radius Curved Plate, and is attached to the sides of the cab by Angle Brackets.

The Crank Handle is journalled in two $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates supported from the floor by Trunnions. The Bolts