

# New Outfit Models

## The "Direct Lifting" Autogiro and a Fret-Machine

THE four models dealt with this month are varied in character, and among them there must be one to suit almost every type of Meccano enthusiast. For the straightforward model-builder, who delights in reproducing fine engineering structures, there is a steam shovel that is remarkable for its clean and well balanced appearance. A neat model of a "Direct Lifting" Autogiro will meet the needs of the aeroplane specialist, and an excellent little working model of a fret-machine is very effective, although it is simple and easily constructed, and will be attractive to the beginner or the model-builder with a small Outfit. Finally there is a humorous scene, the reproduction of which in Meccano may arouse unpleasant memories for a few readers, but the model will provide great fun for all who build it for themselves.

The model Cierva "Direct Lifting" Autogiro is shown in Fig. 1, and is built with Outfit G. The construction of the fuselage is commenced by attaching two  $12\frac{1}{2}$ " Strips to the ends of a  $5\frac{1}{2}$ " Strip that has been bent into a semi-circle, and bolting the loose ends to a  $\frac{1}{2}$ "  $\times$   $\frac{1}{2}$ " Angle Bracket. Below these further  $12\frac{1}{2}$ " Strips 1 are fastened, one on each side of the fuselage, and these are joined to the first Strips by Obtuse Angle Brackets, bolted in the third hole from the remote end. Two  $1\frac{1}{2}$ " Strips, connected by a Double Bracket, also are attached to the Strips 1 at the tail. A fifth  $12\frac{1}{2}$ " Strip is then bolted to the centre hole of the  $5\frac{1}{2}$ " Strip and to the Double Bracket.

Two  $5\frac{1}{2}$ " Strips, curved into semi-circles as before, and overlapped three holes at each end, are bolted between the  $12\frac{1}{2}$ " Strips to form the division between the two cockpits. A  $2\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flexible Plate, a  $2\frac{1}{2}$ "  $\times$   $1\frac{1}{2}$ " Flexible Plate and a U-section Curved Plate are then bolted across the fuselage. Two  $2\frac{1}{2}$ " Strips are curved and extended one hole from a  $2\frac{1}{2}$ "  $\times$   $2\frac{1}{2}$ " Flexible Plate and fastened to the  $12\frac{1}{2}$ " Strip 1. The free end of the Flexible Plate is then attached to the  $12\frac{1}{2}$ " Strip on the underside of the fuselage. This construction is repeated on the opposite side. The fuselage is completed with  $5\frac{1}{2}$ " Strips, and a  $3\frac{1}{2}$ " Strip 2 is bolted

adjacent to these to close in the fuselage floor.

The fin is built up of two  $2\frac{1}{2}$ " small radius Curved Strips and a  $2\frac{1}{2}$ " large radius Curved Strip bolted to a 3" Strip. Below the 3" Strips is a  $5\frac{1}{2}$ " Strip, attached by Flat Brackets, and a  $2\frac{1}{2}$ "  $\times$   $1\frac{1}{2}$ " Flexible Plate is attached as shown. An Obtuse Angle Bracket 3 and an Angle Bracket bolted at 4 secure the fin to the fuselage. An extension piece, consisting of a  $2\frac{1}{2}$ " Strip fastened by an Angle Bracket to the fuselage, is attached underneath the fuselage near the tail wheel. This is not shown in the illustration, but its construction and position offer no difficulty. The construction of the tail plane can readily be followed from the illustration.

A 2" Pulley and a Road Wheel, fastened to a  $3\frac{1}{2}$ " Rod and held in the nose by the curved  $5\frac{1}{2}$ " Strip, serves as an engine, and the tail wheel is a  $\frac{1}{2}$ " loose Pulley held in a small Fork Piece that is attached to the fuselage by a  $\frac{3}{8}$ " Bolt. The landing wheels are attached by  $\frac{3}{8}$ " Bolts to a  $5\frac{1}{2}$ " Strip that is fitted to the fuselage by means of two Bolts, one of which is a  $\frac{3}{8}$ " Bolt 5. The rotor and the pylon are constructed as

shown in the illustration, and the rotor is fastened to a compound rod composed of a  $4\frac{1}{2}$ " Rod and a  $1\frac{1}{2}$ " Rod, that is journalled in the floor of the fuselage.

Parts required to build the model Cierva "Direct Lifting" Autogiro: 9 of No. 1; 17 of No. 2; 2 of No. 3; 5 of No. 4; 5 of No. 5; 2 of No. 6a; 9 of No. 10; 2 of No. 11; 7 of No. 12; 3 of No. 12c; 1 of No. 15a; 1 of No. 16; 1 of No. 18a; 1 of No. 20a; 2 of No. 22a; 1 of No. 23; 1 of No. 24; 103 of No. 37; 7 of No. 37a; 4 of No. 59; 1 of No. 63; 1 of No. 90; 2 of No. 90a; 5 of No. 111c; 1 of No. 116a; 2 of No. 126a; 1 of No. 187.

A model of a lighter and more amusing kind is the representation of a schoolmaster and his pupil shown in Fig. 2. This can be built with the contents of B Outfit. The victim of the drastic action seen in progress is first built up. The body consists of two  $2\frac{1}{2}$ " small radius Curved Strips joined together by means of Double Angle Brackets, and with a  $2\frac{1}{2}$ " Strip 1 curved to represent the back and attached at its loose end by an Angle Bracket to the Curved Strip. Legs and arms are fitted as shown. A  $\frac{1}{2}$ " loose Pulley 2 is attached by a  $\frac{3}{8}$ " Bolt to an Angle Bracket and bolted to the

Double Bracket. This represents his head. The irate master is next constructed. His body is built up by bolting two Trunnions 3 together by their flanges, and

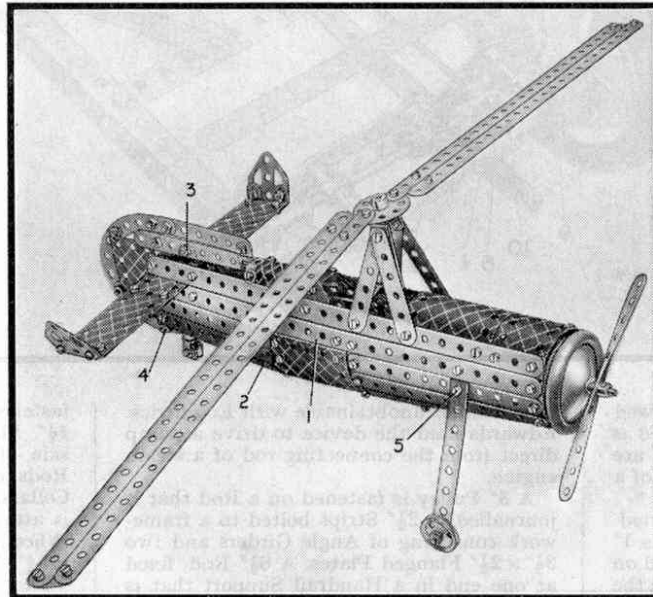


Fig. 1. An excellent reproduction in Meccano of the "Direct Lifting" Autogiro, built with Outfit G. This machine was described in an article on page 558 of the "M.M." for October 1936, and is capable of taking off without a run.

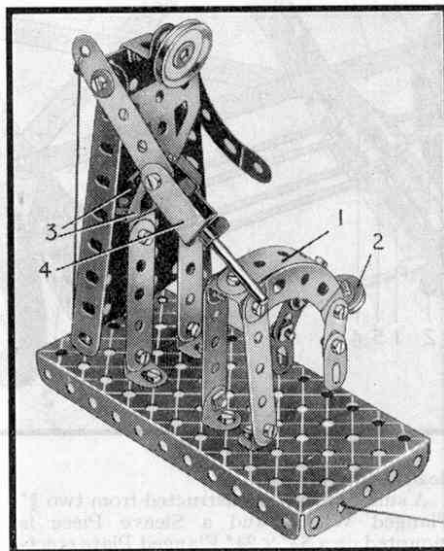


Fig. 2. A painful scene. When the string of this model, built with Outfit B, is pulled and released, the unfortunate schoolboy is heavily punished.