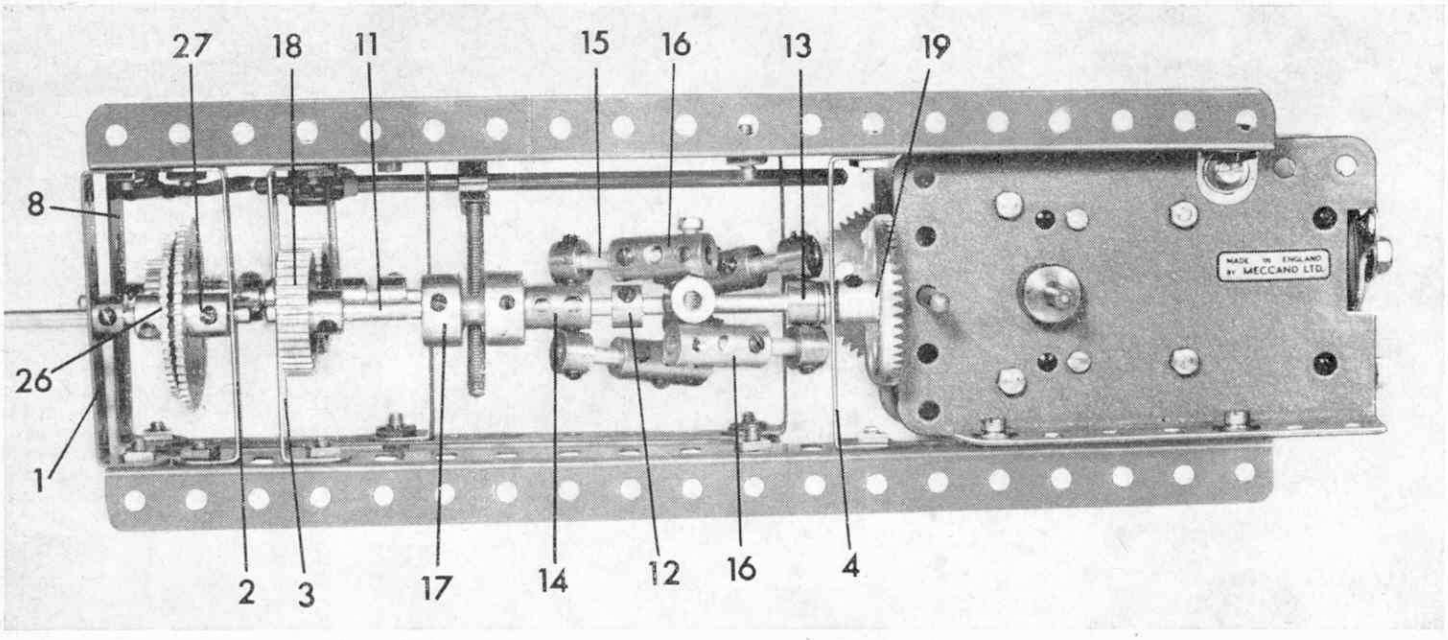

among the model builders

'READ THE MECCANO MAGAZINE FOR INSPIRATION'—This, I hasten to add, is not a new advertising slogan created by our M.M. Circulation people, but is a little something which flashed into my mind when I received details of the Automatic Gearbox, described below. It was designed by Michael Edwards of Stanmore, Middlesex, and is clear proof of how models or, more particularly, mechanisms featured in these pages can inspire the interested reader into expanding his own mechanical abilities.

In the October M.M., you may remember, we published details of a simple Automatic Gearbox designed by Paul and Clive Woods of Oadby, Leicestershire. This, while being a first-class mechanism in its own right, was rather too large to incorporate in, say, a medium-sized car, as I am sure Messrs. Woods will be the first to agree. Mr. Edwards, therefore, has taken the principles involved and has developed them into a very much smaller and more compact two-speed unit. As he says himself, however, it still 'works on the same principle as the one described in the M.M.'. He goes on to say, 'It works extremely effectively on small or medium-sized models, but it needs a speed controller for the motor, as it is the speed of the motor which governs the gearbox.' This is a point which must be remembered when operating a model in which the unit is fitted.

Construction of the slightly modified mechanism, illustrated here, is not difficult. Two 9½ in. Angle Girders are connected, through their first, second, fourth and thirteenth holes respectively, by four 2½ in. by ½ in. Double Angle Strips 1, 2, 3 and 4. The Bolts securing Double Angle Strip 1 also hold two 1½ in. Strips 5 in place. A further two 1½ in. Strips 6 are fixed to the Girders through their eleventh holes, then Strips 5 and 6 at each side are joined by a 5½ in. Strip 7, at the same time securing two 2½ in. by ½ in. Double Angle Strips 8 and 9 between the sides. Another 2½ in. by ½ in. Double Angle Strip 10 is added.

A governor is now built up on a 5 in. Rod 11 which acts as the gearbox input shaft. Two Collars 12 and 13 and a Coupling 14 are placed on the Rod, then two $\frac{7}{32}$ in. Grub Screws (Part No. 69b) are screwed tight into the transverse tapped bores of Collar 13, and another two screwed into the end tapped bores of the Coupling. The latter two, however, must not grip the Rod. Having done this, you will find that approximately half the length of the Grub Screws protrude above the Collar and Coupling. Screwed loosely on to this protruding length, in each case, is another Collar in which a 1 in. Rod 15 is held. A Coupling 16 is fixed on the other end of each of these Rods, leaving about ¼ in. between it and the Collar.

At this stage, you should have four Collar-Rod-Coupling arrangements, two attached to Collar 13 and two to Coupling 14. Assuming that one arrangement in each case lies above Rod 11, with the other lying below the Rod, the upper arrangement in Collar 13 and the lower arrangement in Coupling 14 are moved to one side, then a 1½ in. Bolt is passed through the end transverse smooth bore of upper Coupling 16, is screwed through the tapped bores of a Collar and is fitted into the corresponding bore of lower Coupling 16. The remaining two arrangements are similarly treated.

A Socket Coupling 17 and a 1 in. Gear 18 are now mounted on Rod 11 which is then journalled in Double Angle Strips 3 and 4. Collar 13 being spaced from Double Angle Strip 4 by Washers. Coupling 14 is fixed tightly in the Socket Coupling, but the combined units must still be free to move on the Rod. Gear 18 is fixed, as also is a 1½ in. Contrate Wheel 19, on the end of the Rod.

Journalled in Double Angle Strips 9 and 10 is a 5 in. Rod 20, on which are secured a Crank 21 and a Collar 22. A 2 in. Screwed Rod fixed in the tapped bore of this Collar engages with the slot in Socket Coupling 17. The arm of Crank 21 is held between a 1 in. Gear 23 and a Collar fixed on the layshaft, which is a 3½ in. Rod mounted in Double Angle Strips 8 and 10. Also fixed on the layshaft are a ¾ in. Pinion 24, a $\frac{7}{8}$ in. Pinion 25 and a Collar, the last acting as a 'stop' for the Rod.

The output shaft, journalled in Double Angle Strips 1 and 2, carries a 50-teeth Gear 26 and a 60-