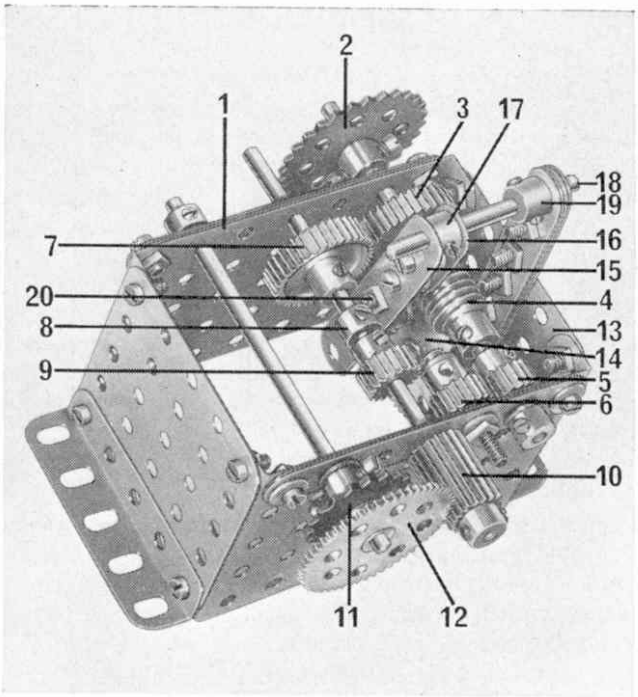
by **Spanner**

Wedding cake on the move



The Meccano automatic forward and reverse gearbox.

MECCANO HAS many uses over and above its primary function as a miniature-engineering hobby, but only recently did I hear of one really imaginative use to which an enterprising businessman in Kingsbridge, Devon has put it.

Mr. F. R. Turner runs a confectionery business in Kingsbridge, and, as an attraction, features animated displays in his shop window. Not only does he himself build machinery, mainly from Meccano, to operate the display, but he also makes out of sugar and chocolate, the actual moving figures and objects which appear in the displays. For example, his last Christmas 'show' consisted of a large, imitation iced cake with a revolving stage inside. This stage was partitioned in five sections with a different scene portrayed in each. Doors in the side of the cake opened when a button was pushed, automatically switching on the stage lighting as they did so. At the same time, the stage began to revolve slowly, and this continued until the doors automatically closed at the end of the cycle.

Forward and reverse gearbox

Moving on to the illustration on this page, here you see a very useful Automatic Forward and Reverse Gearbox, which is constructed as follows:—

A casing is built up from two 3½ in by 2½ in Flanged Plates connected by two 2½ in by 2½ in Flat Plates, the upper edge of each Flanged Plate having two 3½ in Strips 1 bolted to it. The input shaft is a 4 in Rod, fitted with a 1½ in Sprocket Wheel 2, a Gear 3, a Worm 4 and a ½ in Pinion 5, all fixed tightly to the Rod. In mesh with Pinion 5 is another ½ in Pinion 6 on a 1½ in Bolt held in the Flanged Plate by nuts. This Pinion is free to turn on the Bolt.

The layshaft is a 4½ in Rod which carries a 1 in Gear 7, a Collar 8 and yet another ½ in Pinion 9, between the Flanged Plates, and a ½ in Pinion with ¾ in face 10 outside the Plates. The gears are so placed that when Pinion 9 is fully in mesh with Pinion 6, the gears 3 and 7 are out of mesh. When the shaft is moved to the left, there must be a very short neutral, where neither the Pinions 6 and 9 nor the Gears 3 and 7 are in mesh, before the two latter gears come into mesh.

A second 4 in Rod forms the output shaft and this carries a ¾ in Sprocket Wheel 11 and a 57-teeth Gear 12, both outside the Flanged Plates. No matter how far the layshaft moves, this Gear must be in constant mesh with ½ in Pinion 10.

To the inside of Flat Plate 13 a Double Arm Crank is fixed in such a way that its boss is in line with the centre hole of the Plate. The bolts which hold the Crank in position also hold two 1½ in Strips in place on the outside of the Plate. A 1½ in Rod is journalled in the boss of the Crank by two Washers, and is held in place at its other end by a Collar. The Gear is meshed with the Worm on the input shaft. A Sleeve Piece is pivotally connected to Gear 14 by a ⅜ in Bolt which passes through one of the holes in the Gear and is held in the boss of the Sleeve Piece by a Grub Screw.

A 3½ in Strip 15, held in the Sleeve Piece, is connected to a 1½ in Strip 16 by ⅜ in Bolts, but is spaced from it by Collars. Another Collar 17 is held between the Strips and the whole arrangement is slipped on to a 2 in Rod 18. Collar 17 is fixed to the Rod. Four 2½ in Strips, to which a Crank 19 is bolted, are attached to Flat Plate 13 by ⅜ in Bolts and Rod 18 is fixed in the boss of this Crank. Finally, a ⅜ in Bolt is held in the centre hole of 3½ in Strip 15 by nuts, so that its head is located between the boss of Gear 7 and the Collar 8. This is instrumental in changing gear.