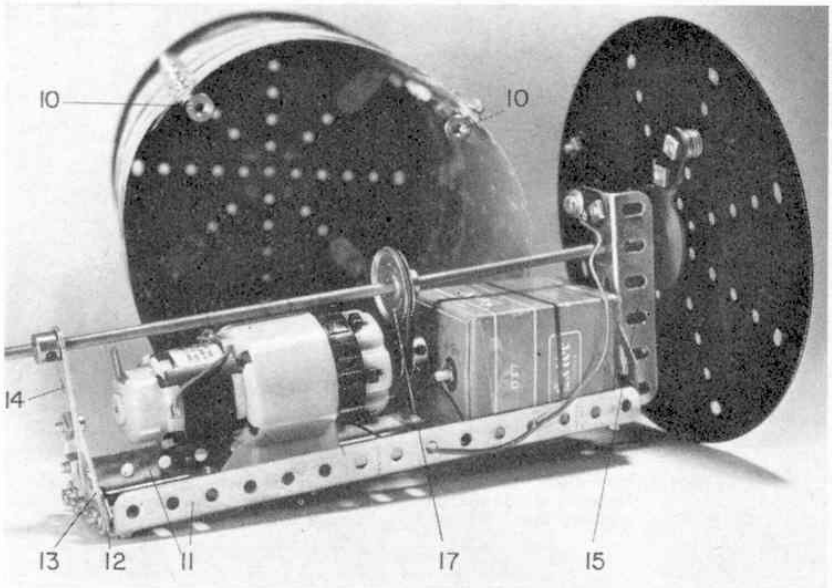
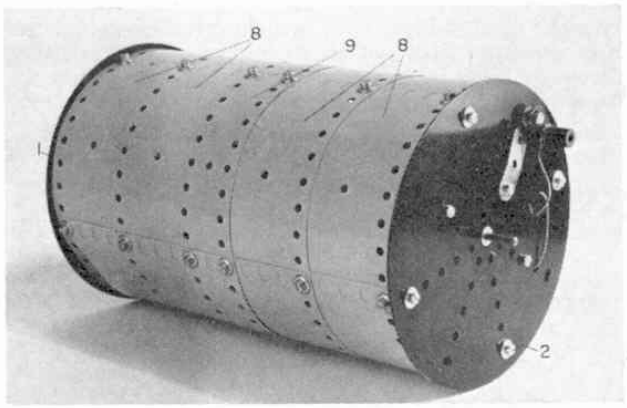


Power for the Roly-Poly comes from a Meccano 3-12 volt D.C. Motor with 6-ratio Gearbox carried on a tray inside the drum.

This strange device rolls along under its own power and 'Spanner' describes below how you can build yourself a . . .

ROLY-POLY

BROADLY SPEAKING (very broadly!) Meccano models can usually be grouped under two general headings: "Scale" and "Working". In the former group can be found anything—vehicles, engineering structures, machinery—based, within reasonable limits, on equipment found in real life. In the latter group go models which reproduce movements performed by real-life equipment, although they need not necessarily look like the real-life equipment, itself. There is, however, another lesser-known group and one which can be even more interesting than the first two—a classification which, for want of a better description, I call the "Fun" group. This contains models which have no known full-size counterpart, either in looks or movement, but which are—simply—great fun to build and operate.



An unusual model, packed with fun, is this "Roly-Poly" self-rolling drum designed and built by Mr. Ray Cook of Neston, Cheshire.

Featured here is a perfect example of a "fun" group model: a "Roly-Poly" or Self-rolling Drum, driven by a 3-12 volt D.C. Motor with 6-ratio Gearbox. It sounds an odd description, I know, but that's what it is—a drum that rolls along on its own! Full credit for the idea and the final working model goes to Mr. Ray Cook of Neston, Cheshire, a man worthy of special congratulations as he has had no previous experience with Meccano.

Construction of the model, as illustrated, is perfectly straightforward, but the actual drum does use a fair number of costly Flexible Plates. If these are not available, an ideal substitute drum can be supplied by an ordinary 7 pint beer can (empty!), obtainable anywhere.

Dealing first with the Meccano drum, however, the end cheeks of this are supplied by two 6 in. Circular Plate 1, and 2. Bolted to the outside centre of Plate 1 is an 8-hole Bush Wheel, while attached to the inside of Plate 2, but spaced from it by six Washers on the shank of each securing $\frac{1}{2}$ in. Bolt are two Insulating Fishplates 3, positioned diametrically opposite each other, between which a Commutator 4 is fixed. The boss of this Commutator, pointing outwards, must line up with the centre hole in the Circular Plate. Another Insulating Fishplate 5 is lock-nutted to the outside of the Plate, being spaced from it by three Washers on the shank of the fixing Bolt, while an Insulating Spacer 6 is bolted to the free end of this Fishplate. When the Fishplate is turned on its Bolt, the head of the Bolt fixing the Spacer to the Fishplate should make contact with a $1\frac{1}{2}$ in. Strip 7 also bolted to the outside of the Circular Plate. A length of insulated wire is taken from one terminal of the Commutator, is threaded through the Circular Plate and attached to the Spacer fixing Bolt.

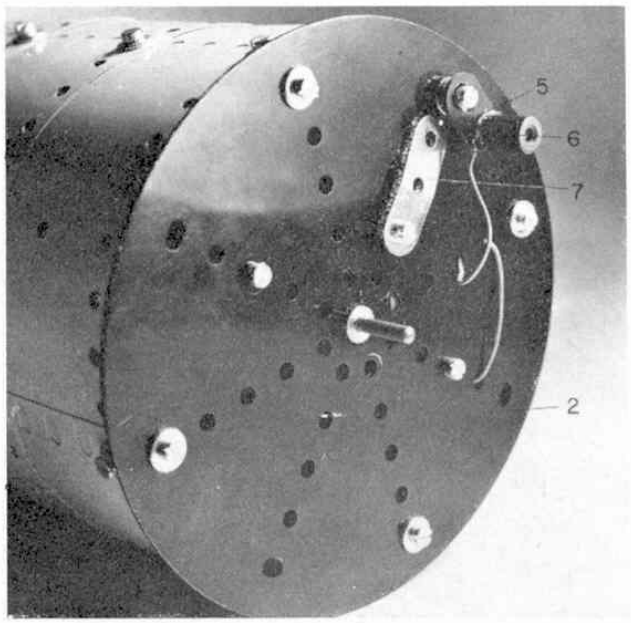
Now secured to the inside face of Circular Plate 1 are four 1 × 1 in. Angle Brackets, the free lug of each of which is extended by a $12\frac{1}{2}$ in. Strip. Bolted to these Strips, as shown, to form the drum casing are sixteen $5\frac{1}{2} \times 2\frac{1}{2}$ in. Flexible Plates 8 and four $5\frac{1}{2} \times 1\frac{1}{2}$ in. Flexible Plates 9, all curved to shape and suitably overlapped. Note that the Bolts fixing the end set of Plates to the Strips are screwed, not into Nuts, but into the transverse bores of Threaded Bosses 10, care being taken to ensure that the longer section of each Boss points outwards. Each Boss is spaced from its Strip by a Washer.

The drive unit, carried inside the drum, is amazingly simple. A tray is built up from two $7\frac{1}{2}$ in. Angle Girders 11 connected together at the ends by two $1\frac{1}{2}$ in. Angle Girders 12, to the vertical flange of each of which a Flat Trunnion 13 is bolted. At one end of the tray, this Flat Trunnion is extended two holes upwards by two $2\frac{1}{2}$ in. Strips 14, placed one on top of the other for strength, while at the other end, the Trunnion is extended three holes upwards by a 3 in. Angle Girder 15. Bolted to the top of this Angle Girder is an Insulating Fishplate, to the free end of which a 2 in. Wiper Arm 16 is fixed.

A 3-12 volt D.C. Motor with 6-ratio Gearbox is next bolted to Angle Girders 11, in the position shown. Mounted on the output shaft of this unit is a $\frac{1}{2}$ in. Pulley with boss which is connected by a $2\frac{1}{2}$ in. Driving Band to a 1 in. Pulley 17 fixed on an $11\frac{1}{2}$ in. Rod held by Collars in Strips 14 and Angle Girder 15. It will be noticed that sufficient room remains on the tray for a suitable battery to drive the motor and we found, here, that an Exide DT7, or Ever Ready PP7, taped to Girders 12, was ideal both for size and power.

At this stage Commutator 4, with Circular Plate 2, is fixed on the $11\frac{1}{2}$ in. Rod, close to, but not touching Angle Girder 15. Wiper Arm 16 is then bent round until it makes contact with the continuous-circuit section of the Commutator, after which the wiring should be completed. One of the motor leads is connected to the Bolt fixing Wiper Arm 16 to its Insulating Fishplates, while the other motor lead is connected to one terminal of the battery. The other battery terminal is earthed by connecting it to one of the tray Girders. The motor switch is left in a drive position.

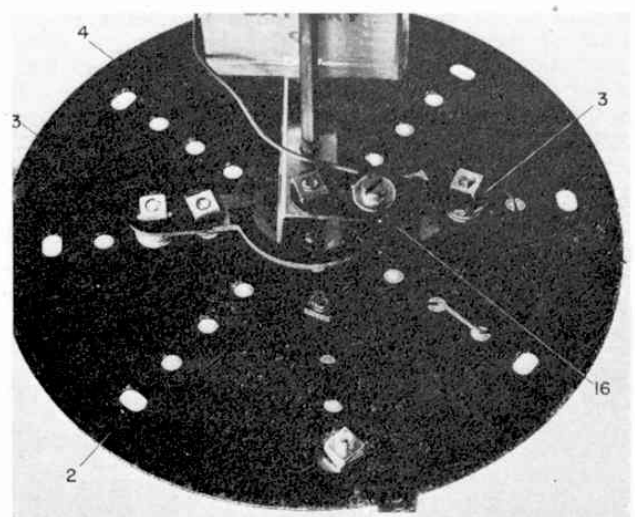
Finally, the completed drive assembly is mounted in place in the drum by fixing the appropriate end of the $11\frac{1}{2}$ in. Rod in the boss of the Bush Wheel bolted to Circular Plate 1 and by bolting Circular Plate 2 to Threaded Bosses 10, using the longitudinal bores of the Bosses. Now, when the circuit is completed by means of the switch provided by Strip 7 and the Bolt securing Insulating Spacer 6, the drum should "magically" roll along under its own power! It will even negotiate substantial inclines, depending on the Gearbox ratio used.



A close-up view of one end plate of the drum showing the built-up control switch.

PARTS REQUIRED

4—1	1—13	56—38	1—186
2—5	1—22	2—59	4—189
1—6a	1—23a	4—64	16—192
2—8b	1—24	3—111a	3—513
1—9c	61—37a	2—126a	1—533
2—9f	64—37b	2—146	1—551
			1—564



The Commutator arrangement fixed to the inside of one end plate.