

The "Tayco" Electric Clock.

SO many of our readers have a liking for clock construction that we feel sure the following notes and drawings of an electric clock which any model engineer can make will be found of interest.

This clock has been designed to enable amateurs to construct a first-class instrument from finished parts, which are sold as a complete set or separately as desired. The design incorporates the Hipp electrical escapement invented many years ago, and recognised to-day as the most simple and reliable method of using electrical energy for accurate time-keeping.

The general arrangement of the clock will be clear from the accompanying drawings. No difficulty should present itself in the assembling of the finished parts, but a few hints and tips may be useful.

Dealing with the dial movement first, after fitting the three pillars to the back clock plate, the various gears together with ratchet and back stop arbors can be assembled in the order shown

in Fig. 1, taking care that every part is clean and free from dust. Slip the front plate in position and turn the gears slowly to make sure that they run with perfect freedom and without undue friction. A small amount of end-play will be noticed and is desirable. Remove the front plate, oil all pivot holes with best quality clock oil and reassemble. No oil is required on the teeth of the gears as this causes dust to collect.

The assembly of the parts to the aluminium base-plate is a simple job. Care should be taken that the screw clamping the pendulum suspension spring is screwed home tightly without over-straining it. Note that the left-hand terminal with contact point is insulated from the base.

The pendulum parts are best assembled with the aid of a vice. Commence by sliding the detent and sleeve over the rod, lightly tighten the screw to prevent it moving, hold the rod firm in the vice, horizontally, protecting it from damage from the jaws with lead or card-board.

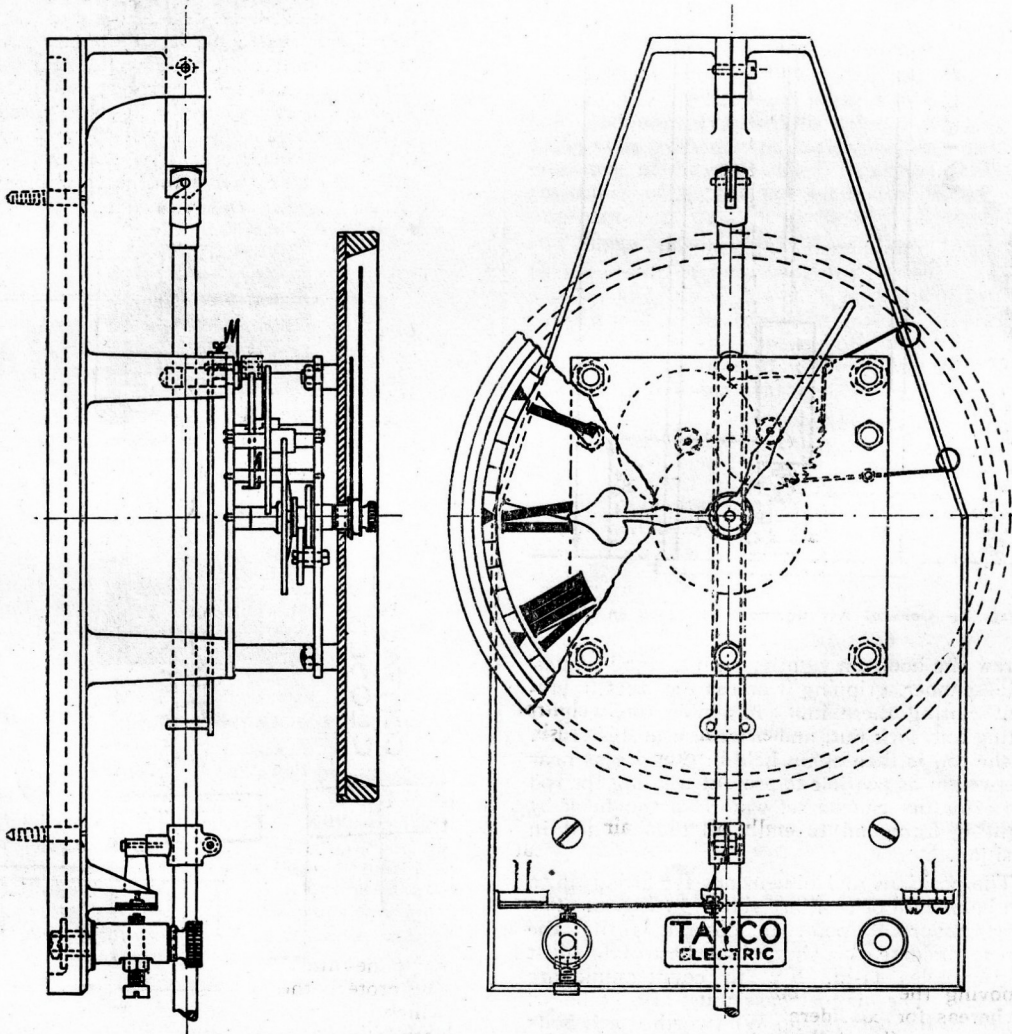


Fig. 1.—General Arrangement of Dial Movement Assembly.

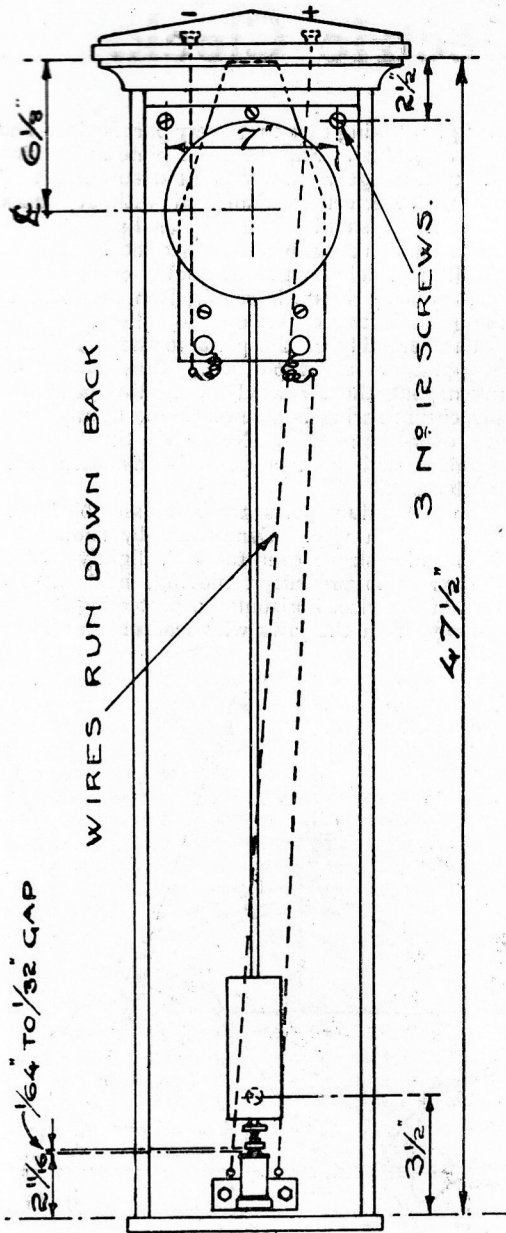


Fig. 2.—General Arrangement of Clock in case.

Screw the hook on tightly, with a small adjustable spanner, gripping it across the slots to prevent closing these in. Assemble the weight, rating nut, lock nut, and armature in this order. If the rod is then again held in the vice as near the weight as possible to prevent bending the rod the armature can be set square to the hook by sighting from end to end, and then locked in position.

The positions and dimensions for fitting up to the baseboard or case are shown in Fig. 2. The most important point to observe is that the screws holding the aluminium base-plate must fit the holes (1-in. No. 10 countersunk are correct). The magnet base must also be bolted firmly to the back (1/4-in. Whitworth coach bolts and nuts are correct). If this is not observed a slight movement of these parts will take place

when contact is made due to the pull of the magnets causing the armature to strike the magnet cores.

The clock case should now be firmly fixed to the wall by No. 12 screws at least 2 ins. long into wood plugs or "Rawlplugs." Begin by removing the door and dial movement. Choose, if possible, a position where the temperature is fairly even, and not where the hot sun will shine on it, if it can be avoided. The centre of the dial should be 6 ft. from the floor level. It must be hung vertically in both planes; this can be tested by hanging the pendulum in position, when if all is correct the armature will be central over the magnets both forwards and sideways.

Assuming that the foregoing has been correctly assembled, the final adjustment of the contact is made as follows: With the current disconnected, turn the contact screw upwards until it just touches the contact point on the flat spring or blade, then screw it back again half to one turn and lock in position. Set the "V" plate on the blade so that the centre of its screw is in line with the side of the pendulum rod when viewed from the front (Fig. 3). Remove the pendulum while tightening the nut. Hold the

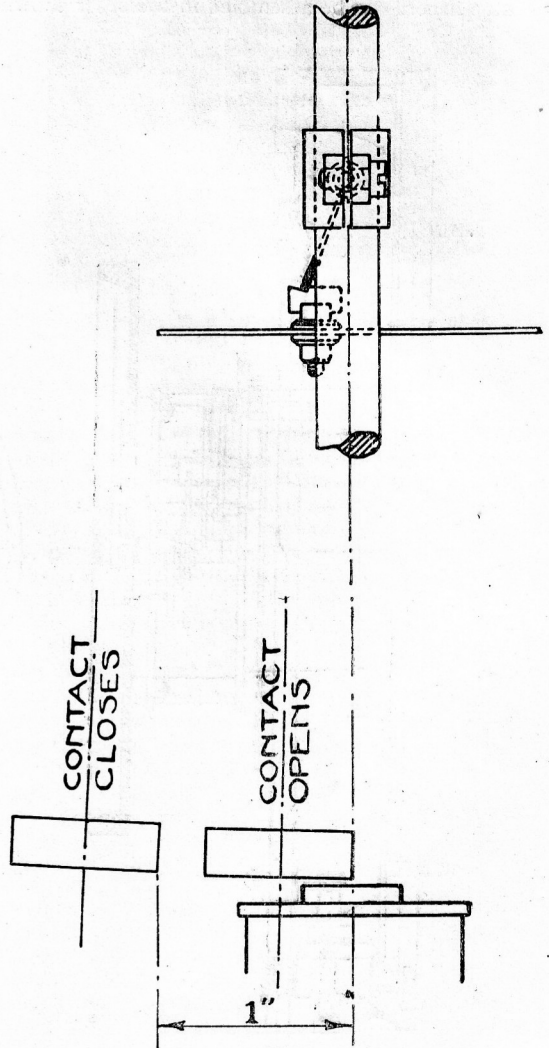
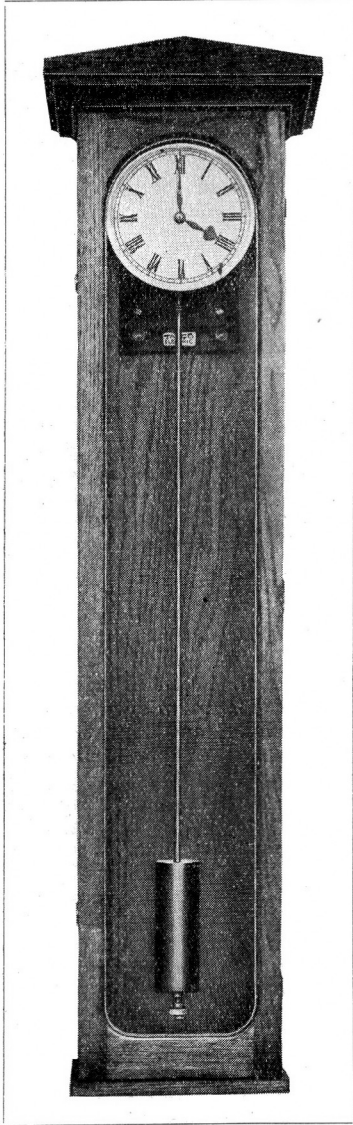


Fig. 3.—Sketches showing relative Positions of Armature when adjusting the Contact.

pendulum weight in the left hand and swing it over to the left, return it slowly, at the same time adjusting the position of the detent sleeve so that the contact points close when the edge of the armature is 1 in. from the centre of the magnet bobbin and open again when the edge is over the centre. If this adjustment is correct the detent should be in the position shown in Fig. 3,



The "Tayco" Electric Clock complete in case.

when the pendulum is at rest, and not place any pressure on the "V" plate.

The current is now connected and the clock started by holding the pendulum weight to the right and then letting go, letting it run for a few minutes to settle down, when it should travel a total distance of $4\frac{3}{4}$ ins. to 5 ins. measured at the armature. Three dry-cells as used for bells, should run the clock for two years or so. It can also be driven from a wireless trickle-charger.

Check the time-keeping from the time-signal over a period of, say, one week. If slow, the rating nut should be screwed upwards; if fast,

turn in the opposite direction and check again in a few days. Hold the armature firmly when turning the nut. When finally set, it should not vary more than a few seconds per month.

All the parts for this clock are of best quality materials and workmanship. They are interchangeable, and are instrument finished and lacquered.

The sets of parts are being made and supplied by Mr. H. A. Taylor, 39, Crouch Hill, London, N.4, and will be shown on the firm's stand at the forthcoming MODEL ENGINEER Exhibition.

Raw materials with a full set of working drawings will also be available shortly, so that amateurs may make the clock complete, or make what they are able, and purchase finished parts for the remainder.

[We have examined a set of the finished parts, and can recommend them as an excellent production for the amateur clockmaker.—Ed., M.E.]