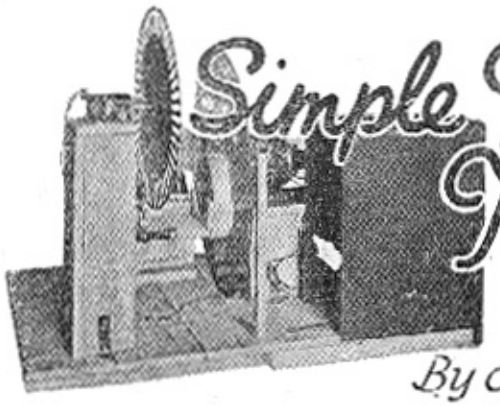
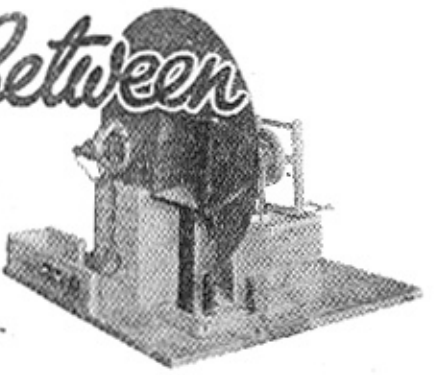


Simple Television Between Two Rooms.



By our Technical Staff

LAST month we concluded our description of a simple televisor, which consisted of a transmitter and receiver combined, so that in consequence problems of synchronisation were not involved.

It is now proposed to show how, by building a separate receiving machine and by slightly modifying the original apparatus to form the transmitter, simple shadowgraphs may be transmitted over any distance. Two leads of twin flex form the sole connection between the two machines (one to carry the shadowgraph signals and one to carry the synchronising current), as the amateur would hardly care to go to the trouble and expense of fitting up a wireless transmitter and receiver for the purpose of transmitting the signals by wireless.

The Method Employed.

The method to be employed is briefly this: Instead of placing the neon tube behind the same spiral disc that is used for analysing the image, it is now going to be placed behind a second disc which may be situated at any desired distance away from the transmitter. Now, however, in order to see an image we must ensure that this second disc revolves at exactly the same speed as the first disc and continues to do so. In other words, the second disc must revolve in *synchronism* with the first disc.

One method of obtaining synchronism would be to control the motor driving the second disc with a fine control rheostat until the two discs were exactly in step. This is a very simple method, but constant readjustment is called for; the slightest variation will upset the received image.

The method which will be described here consists in using to drive each of the spiral discs a D.C. motor coupled to a small A.C. generator. In the apparatus to be described two 200 w. W/T Newton motor-alternators were used, as these happened to be available, but any small motor-alternators would be equally suitable.

If Newton motor-alternators are used the connections will have to be traced out as the generator and D.C. motor are combined and housed in one aluminium shell. The field current for the A.C. side must be supplied between the centre carbon brush at one end of the spindle, and the frame. Field and armature connections are easily traced and the insertion of a 2 ohm variable resistance in the armature circuit will enable the speed to be controlled. A 6-volt accumulator will supply ample current for the purpose. The A.C. output comes from the two vacant plug holes in the ebonite block screwed to the side of the machine.

The first experiment to try is to mount a spiral disc on the spindle of each alternator and connect the A.C. sides together, putting a small 3·5-volt flash lamp bulb in the circuit (see Fig. 1). A single-pole knife switch should also be arranged so that the small bulb can be short-circuited. Now supply about 6 volts (derived from the accumulators used to drive the D.C. motors) to the A.C. fields and set the motors going. Leave the shorting switch open and watch the small bulb. It will be seen to be flickering.

Synchronism Adjustments.

Now adjust the speed of one of the motors by varying the series armature resistance until a speed is reached when the bulb flickers at as slow a rate as possible; it should remain out for three or four seconds. While it is out close the knife switch, shorting the bulb. The two motors will now remain exactly in step, provided the original adjustment was sufficiently close and the knife

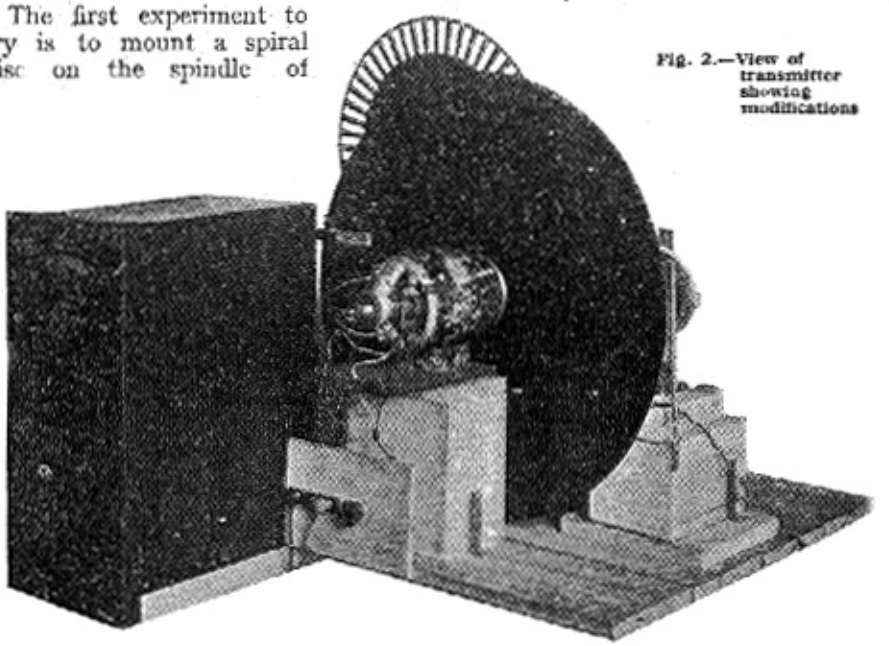


Fig. 2.—View of transmitter showing modifications