

Fig. 3.—Another view of the modified transmitter.

switch was closed at the correct instant.

If the two motors are observed both to slow down on shorting the bulb, this indicates that they are not synchronising, and the switch should again be opened and the adjustments repeated more carefully until success is achieved.

Having got the two discs revolving exactly in step the main difficulties are at an end. The connecting lead between the alternators may be of any desired length, and the flash lamp bulb and shorting switch may be conveniently mounted near the receiving apparatus.

#### Connections from Amplifier to Neon Tubes.

All that now remains to be done is to transfer the output leads from the amplifier to a neon tube which will be placed behind the receiving disc. This is most conveniently done by having a double-pole double-throw knife switch arranged so that the output from the amplifier may be thrown at will either to the neon tube on the transmitting machine or to the distant neon tube behind the receiving disc. This is for convenience, so that the amplifier may be adjusted by throwing over to the neon tube behind the disc at the transmitter, and then throwing the switch over so that the distant neon tube is illuminated, when the image should come through perfectly.

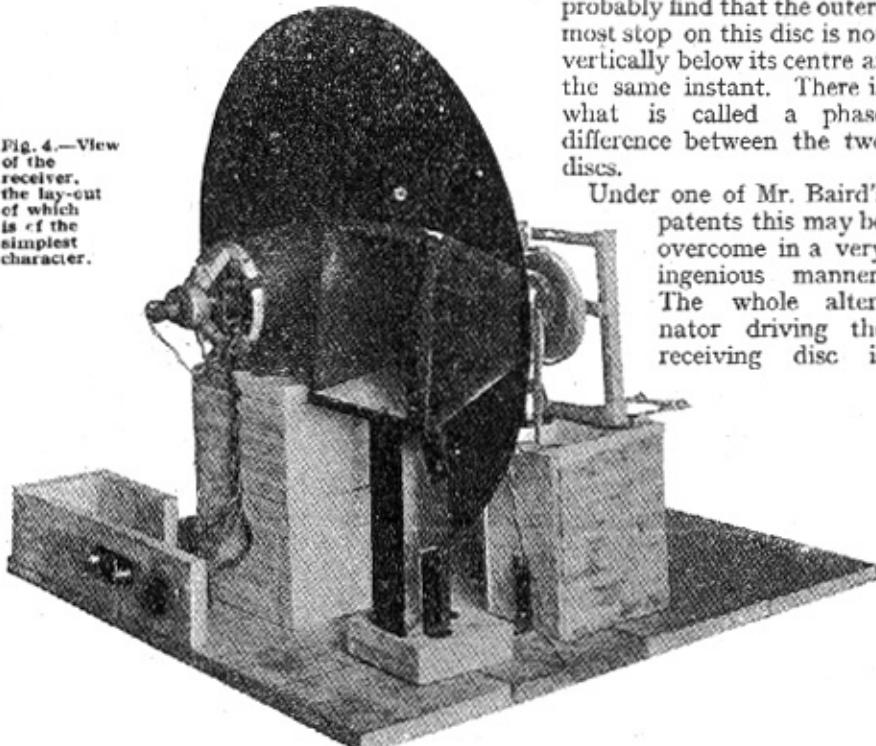
The amplifier and neon tube connections are the same as described in our last two issues.

#### Structural Alteration to Original Machine.

(See Figs. 2 and 3.)

As will be seen from the photo, the original pedestal supporting the four-volt motor driving the spiral disc has

Fig. 4.—View of the receiver, the lay-out of which is of the simplest character.



been reduced in height to 8 in., and a Newton motor-alternator mounted thereon, carrying the original spiral disc on its spindle. The addition of a double-pole double-throw knife switch from amplifier output to neon tube completes the list of alterations, the interruptor disc and motor, selenium cell, projector lamp, etc., being retained intact.

#### Receiving Machine.

Obtain or make another spiral disc exactly similar to that at the transmitting end and mount it on the spindle of another similar motor-alternator. Prepare a wooden baseboard about 18 in. by 24 in. and mount the alternator and its attached disc on a pedestal (about 8 in. high) fastened to the baseboard.

There now arises a point to which the amateur may care to devote some attention. While it is possible to get the two discs revolving at exactly the same speed, there is no guarantee at all that corresponding parts of the two discs will, at any given instant, be in corresponding positions.

To make this clearer, consider either of the two stops on the transmitting disc furthest from its centre. At some instant one of these stops will be vertically below the centre of the disc. Now, if we turn our attention to the receiving disc, running at exactly the same speed, we shall most probably find that the outermost stop on this disc is not vertically below its centre at the same instant. There is what is called a phase difference between the two discs.

Under one of Mr. Baird's patents this may be overcome in a very ingenious manner. The whole alternator driving the receiving disc is