

and these are quite suitable. The circuit of the cell is shown in Fig. 6 and the motor circuits in Fig. 7.

The arrangement of the cell fixing is shown in Fig 8. The voltage required for the cell varies from 20 to 100 volts, depending upon the type used. It is safest to start with a voltage of not more than 20, as there is a danger of burning out the cells if too high a voltage is used. The makers will give you what they consider a safe maximum voltage, and this should not be exceeded.

Having connected the cell as shown in the diagram (Fig. 6), start up the motor driving the radially-perforated disc; see that the light from the lamp is coming through one or other of the perforations of the spirally-perforated disc and is falling on the cell. If now a pair of headphones is connected to the output of the amplifier a clear note should be heard, this note being caused by the interrupted light falling upon the cell. When a hand is interposed between the light and the cell the note should immediately stop.

If you find that this is the case then we can proceed to the next step. If you cannot get a clear note from the amplifier then there is a fault either in the cell or in the amplifier itself. If the cell is a

Selenium Cell.

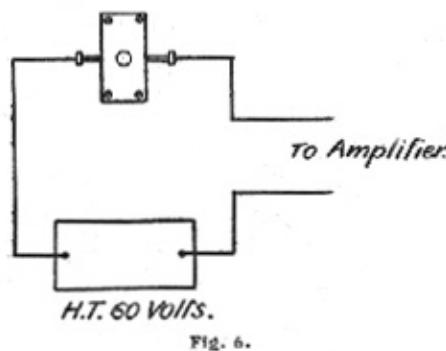


Fig. 6.

purchased one there is not much likelihood of it being faulty, and it would be as well to make sure that the amplifier is in order.

Once having got the sound we have to amplify it sufficiently to give a fairly brilliant light in a Neon tube. An ordinary Neon tube of the Osglim type may be used. These can be purchased from any electrician at the cost of a few shillings. They have in the base a little coil of resistance wire, and it is advisable to remove this or to purchase an

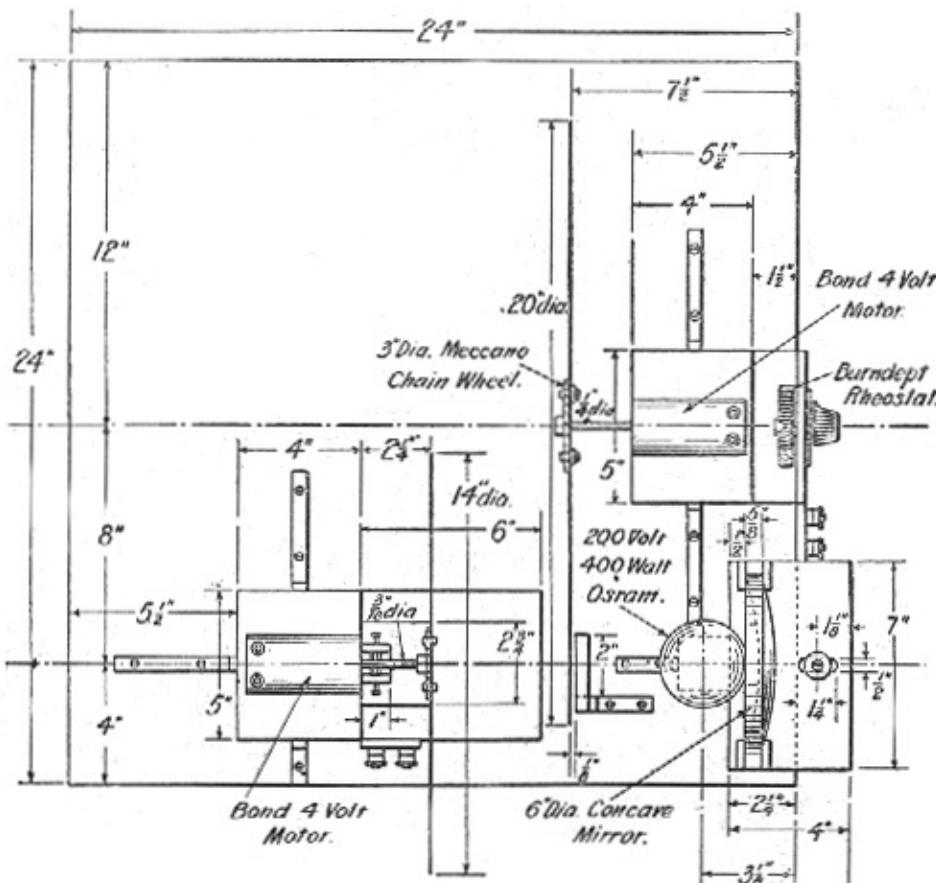


Fig. 5

Osglim from which the resistance has been omitted. Such lamps can be obtained from the makers, Messrs. The G.E.C. It is, however, not essential that the resistance should be removed, the only difference being that the results are somewhat brighter with no resistance.

To amplify the current sufficiently to light these Osglim lamps two more stages of amplification will probably be necessary. An ordinary transformer coupling may be used, but difficulty will probably be experienced in preventing "howling." The easiest way to overcome this ten-

dency is by spacing the valves widely apart. The final valve, which should be of the transmitting type (for example, a Mullard 040), must be kept well away from the input of the first valve, a distance of 4 or 5 feet being advisable, or shielding may be resorted to. The potential on the final valve must be high; the higher the potential, of

course, the brighter the Neon tube. As much as 600 to 700 volts may be necessary on the circuit shown to give a bright image.

It will, of course, be obvious that other systems of amplification may equally well be used, and there lies here an excellent field for the experimenter. We have purposely shown a perfectly straight method of amplification, but the number of valves and the quantity of H.T. might possibly be reduced by using other and more powerful circuit arrangements.

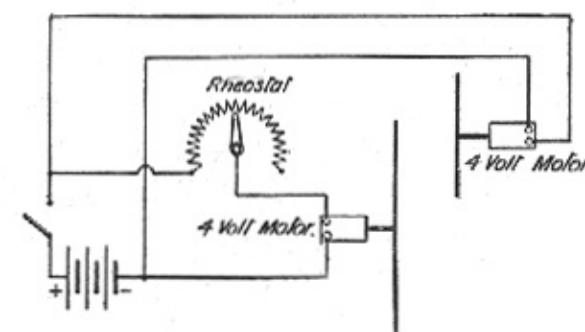


Fig. 7.