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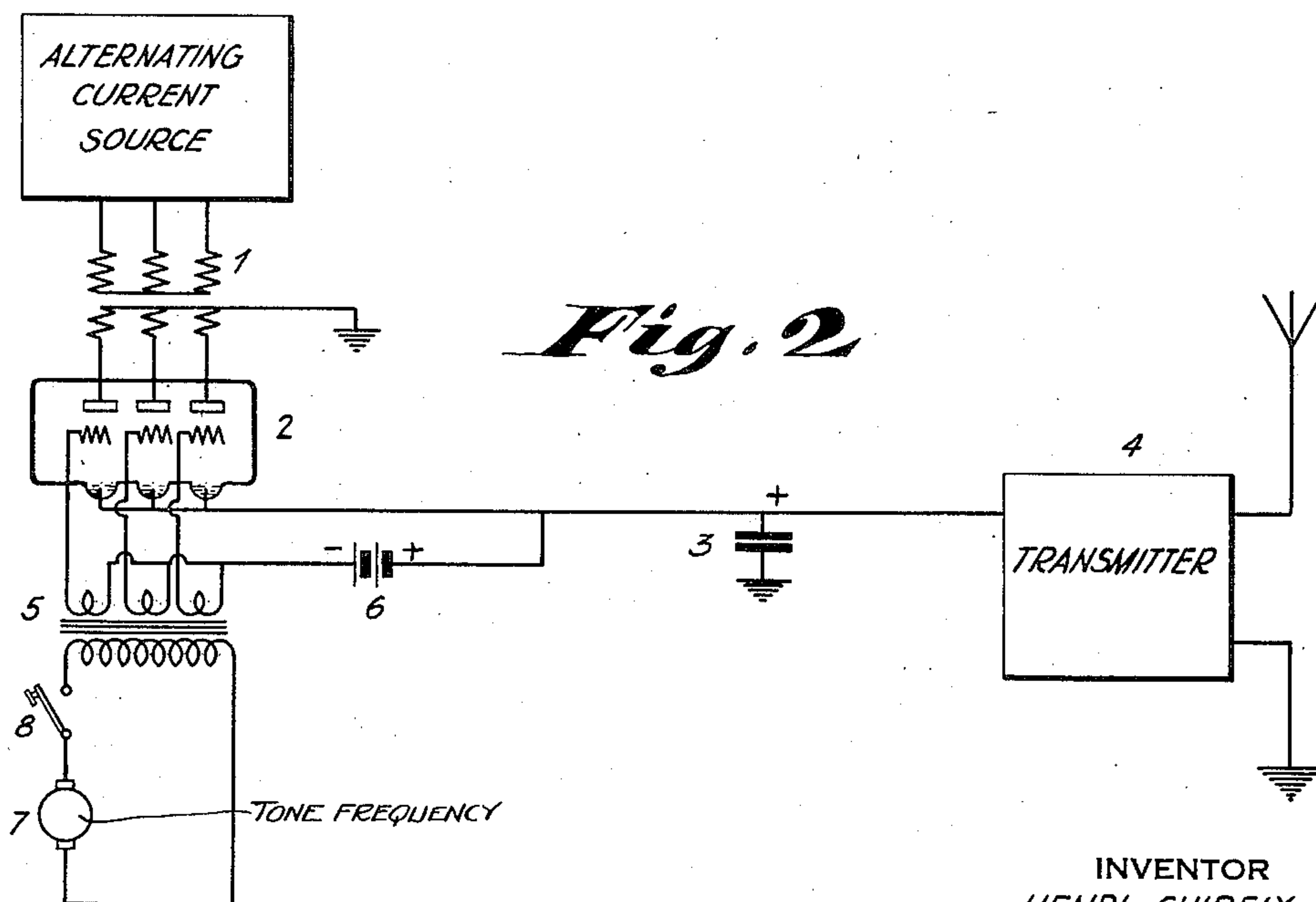
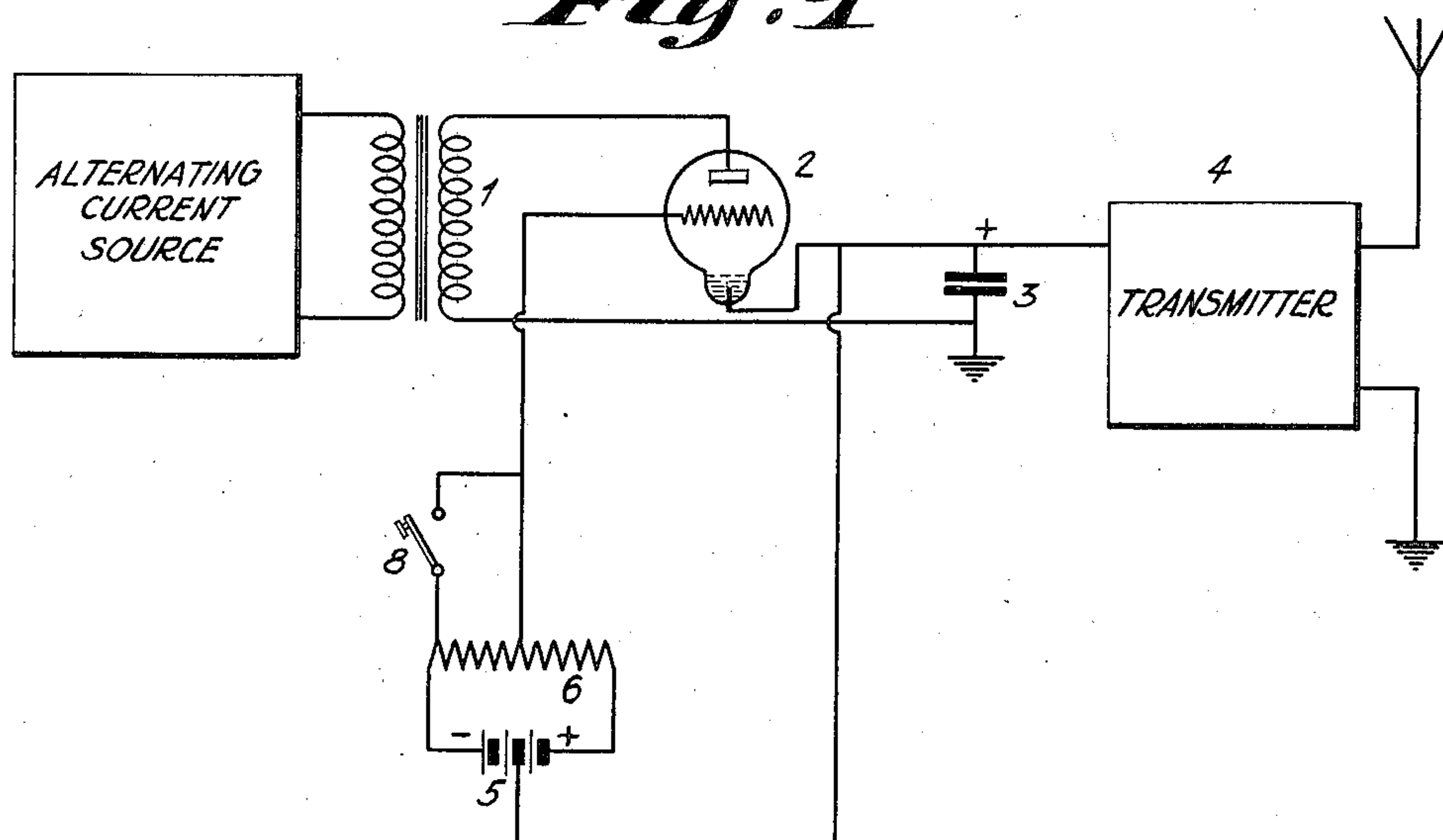
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TRANSMITTER

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*Fig. 1*



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## TRANSMITTER

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1 Claim. (Cl. 250—17)

The present invention discloses a method of and means for simplifying transmitter equipment including tubes and circuits used in telegraphy work.

5 The invention consists in feeding transmitter equipment of the same kind with high direct potentials from an industrial network by way of multiphase rectifiers comprising gas-filled tubes. The tubes may be of the mercury vapor type and  
10 may contain a control grid.

The said control grid may be normally negative and serve to insure "manipulation" (keying) either by raising the grid to a potential higher than the striking or flash potential of the tube  
15 throughout the duration of the signal to be sent out by application of a direct current potential to the grid, or else by applying to the grid-filament path, throughout the entire period or duration of the signal an alternating voltage of a frequency that is relatively high (tone frequency)  
20 compared with the feed frequency, i. e. the rectifier supply source. The tone frequency may be several thousand cycles per second. As known from the operation of gas-filled or gaseous tubes fitted with a control grid, the rectifier will be  
25 active or operative throughout the entire duration of the signal sent out.

The second scheme may be of greater practical interest because it permits of feeding the grids  
30 of the rectifiers by way of a transformer, this being of practical advantage whenever insulation problems have to be solved.

The novel features of my invention have been pointed out with particularity in the claim appended hereto.

35 The invention will be better understood by the following detailed description thereof and therefrom when read in connection with the drawing, throughout which like reference characters indicate like parts, and in which:

40 Figure 1 shows a circuit arrangement wherein the operativeness of the gaseous discharge tube is controlled by direct current potentials; while,

45 Figure 2 shows a modification wherein the operativeness of the device is controlled by keyed tone frequency.

Referring to Figure 1 of the drawing, a gaseous discharge tube 2 has its anode electrode connected, as shown, with the secondary winding of a transformer 1, the primary winding of which  
50 may be connected to a source of alternating current, as shown. The cathode of this tube may be connected to a filter condenser 3, one terminal of which is grounded, as shown. The condenser 3  
55 has a capacity sufficient to filter out components

resulting from the rectification of commercial alternating current in the tube 2. The cathode of tube 2 is also connected to a terminal on a transmitter 4 so that the direct current potentials applied from the cathode to the transmitter  
5 may be utilized to key the transmitter in any well known way. For example the cathode of tube 2 may be connected to the electrodes of tubes in the transmitter 4. Other electrodes of said tubes may be grounded as shown. This completes a direct current circuit from the cathode  
10 of tube 2 through the tubes in the transmitter 4 to ground and from ground back to the anode of tube 2. The conductivity of the tube 2, and therefore the rectifying ability of said tube to  
15 furnish control potentials to the anodes of the tubes in the transmitter 4, is determined in accordance with the potentials applied to the control grid thereof by way of the potentiometer resistance 6 connected, as shown, in parallel with  
20 the source 5, and a portion of the potentiometer 6 is shunted, as shown, by a key 8 so that the bias on the control grid may be highly negative to stop the flow of current in rectifier 2 or to a value  
25 such that current flows in the rectifier 2.

In Figure 2 the thermionic tube 2 is of the multi-electrode type and has its anodes connected, as shown, with a source of multiphase current by way of a transformer 1, as shown. The control grids of the tube 2 are connected, as  
30 shown, by way of a transformer 5 having a split secondary winding and a key 8 to a source of tone frequency 7. One end of each of the secondary windings of the transformer 5 is connected, as shown, by way of a source 6 to the cathodes of  
35 the tube 2. The source 6 normally biases the control grids to a value at which no current is passed by the rectifier. Here, as in Figure 1, the cathode electrodes of the tube 2 are connected, as shown, to one terminal of a filter condenser  
40 3, the other terminal of which is grounded, and to a transmitter 4, the operativeness of which is controlled by the presence or absence of direct current potentials on the cathodes of 2. The transmitter 4 may be keyed in any known manner  
45 by the direct current pulses on the cathodes of tube 2. The tone frequency applied from 7 to the control grids of tube 2 when the key 8 is closed overcomes the negative bias on the control grids so that rectified current may flow in  
50 the tube 2 and to the transmitter 4.

For example, when the key 8 is closed the normal negative bias of tube 2 applied from the source 6 is overcome by grid rectification of the alternating current impressed by 5 between the  
55



control grids and cathodes of tube 2 to overcome said negative bias. This causes the three phase current applied to the input circuit of the rectifier 2 to be rectified so that direct current components flow from the anodes of tube 2 to the cathodes of tube 2 and then to electrodes of tubes in the transmitter 4. From electrodes of tubes in the transmitter 4 the rectified current flows to ground and thence to the secondary winding of transformer 1 and to the anodes of tube 2. The condenser 3 provides filtering effect for the alternating current components in the output of rectifier 2.

Having thus described my invention and the operation thereof, what I claim is:

The combination of a transmitter and keying means therefor including, a thermionic tube of

the multielectrode type, said tube including a plurality of anodes, a plurality of cathodes and a plurality of control grid electrodes, a source of alternating current connected by way of a multiphase transformer to the anodes of said tube, a transformer having a primary winding connected by way of a key with a source of tone frequency and a plurality of secondary windings each having one terminal connected with one of the control grids of said tube, connections between the other terminal of each of said secondary windings and one of the cathodes of said tube, said connections including a source of direct current potential, and a connection between the cathodes of said tube and said transmitter, said last named connection including a filter circuit.

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