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ARRANGEMENT FOR CONTROLLING TWO
OR MORE ELECTRIC VAPOR OR GAS DIS-
CHARGE TUBES

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3 Claims. (Cl. 175-354)

My invention relates to devices for controlling a plurality of gaseous discharge tubes whose control circuits contain a control inductance; the control inductances, between which a potential variation may suddenly occur, being "conductively separated" from each other, but being capacitatively coupled to each other.

The control inductances may be in the form of transformers, in which case the expression "conductively separated" means that the secondary windings of the transformers are conductively separated from each other.

The invention is based on recognition of the fact that in such control arrangements disturbances in the control of a discharge tube may occur due to the fact that capacitive currents which pass through the control inductances due to the sudden potential variations are liable to set up additional potential pulses therein which may result in ignition of the discharge tubes at an undesired moment.

According to the invention, in order to remove this defect, one or more of the inductances are provided with electrostatic screening in such manner that the capacitive currents that interfere with the control do not pass through the screened windings.

In order that the invention may be clearly understood and readily carried into effect it will now be described more fully with reference to the accompanying drawing.

The figure shows a circuit for welding purposes comprising two grid-controlled gaseous discharge tubes 1 and 2 which are oppositely connected in parallel and are connected to the supply mains 4 via a welding transformer 3. The discharge tubes are controlled by grid transformers 5 and 6 which are supplied from a common source of control voltage 7, and for this purpose the primary windings have one end connected to the source 7 and their other ends interconnected by a conductor 11. According to the invention the control transformers 5 and 6 are provided with electrostatic screening such that the capacitive currents that interfere with the control do not pass through the grid transformer windings. For this purpose the screens 17 are connected to the windings. The connection is obviously such that the screens for the secondary windings are connected to the cathode of the discharge tubes concerned and the screens for the primary windings are connected to the conductor 11 between these windings. Due to the sudden potential variation occurring between the points 8 and 9 upon extinction or ignition of

one of the discharge tubes 1 and 2 a capacitive current will flow from the point 8 and via the four screens 17 to the point 9 without the windings themselves giving passage to this current so that there is no danger of disturbances in the control from this side.

It should be mentioned that the conductor 11 may be grounded to a greater or less degree. Since the star point of the usual three-phase mains supply transformer is generally grounded there is in such cases a conductive connection between a point of the mains 4 and the common point 18 of the primaries of the control transformers 5 and 6. This has the effect that there exists between the windings of the transformer 5 a permanent alternating voltage which does not induce interfering voltages in the windings and that the said sudden potential variations can only be set up between the windings of the transformer 6. In such cases it suffices to use screening in the transformer 6 only.

Although grid-controlled discharge tubes are shown in the circuit described the invention is not limited thereto. Use may also be made of other vapor- or gas-discharge tubes, for example tubes of the kind comprising a capacitive ignition device or an ignition electrode made of semi-conductive material permanently immersed in a liquid cathode.

The invention is also not limited to a circuit comprising two discharge paths oppositely connected in parallel but it may be used in any case where a sudden potential variation exists between two control windings which are coupled capacitatively so that potential pulses interfering with the control may be set up due to the capacitive currents.

What I claim is:

1. A circuit arrangement comprising a plurality of controlled gaseous discharge tubes, a control circuit for each tube including a control inductance, said control inductances being conductively separated from each other and being capacitatively coupled to each other, and means for preventing disturbances in the control of said discharge tubes by the capacitive currents set up in the control inductances due to sudden potential variations, said means including electrostatic screening on at least one of said inductances.

2. A circuit arrangement comprising two controlled gaseous discharge tubes oppositely connected in parallel, a control circuit for each tube including a control transformer having a primary winding and a secondary winding, said primary windings being conductively connected, and

means for preventing disturbances in the control of said discharge tubes by the capacitive currents set up in the windings due to sudden potential variations, said means including electrostatic screening on at least one of said windings.

3. A circuit arrangement comprising a plurality of controlled gaseous discharge tubes each having a cathode, a control circuit for each tube including a control transformer having a primary winding and a secondary winding, a conductive connection between said primary windings, and

means for preventing disturbances in the control of said discharge tubes by the capacitive currents set up in the windings due to sudden potential variations, said means comprising an electrostatic screen for each secondary winding and connected to the cathode of a discharge tube, and an electrostatic screen for each primary winding and connected to the conductive connection.

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