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GASEOUS ELECTRIC DISCHARGE DEVICE

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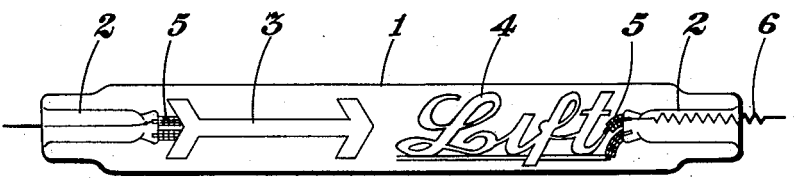

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GASEOUS ELECTRIC DISCHARGE DEVICE

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2 Claims. (Cl. 176—14)

The present invention relates to gaseous electric discharge devices generally and more particularly the invention relates to such devices in which the gaseous electric discharge is of the negative glow type.

It is now known in the art that the electrodes of such electric discharge devices can be made in the form of various characters which are covered with a luminous glow during the operation of the device. Heretofore electrodes of this type have been rather small which limited considerably the usefulness of such devices for advertising and other similar purposes.

The object of the present invention is to provide a gaseous electric discharge device of the negative glow type having electrodes of sufficient size that the configuration of the electrodes is discernable from places comparatively remote from the electric discharge device. Further objects and advantages attaching to the device and to its use and operation will be apparent to those skilled in the art from the following particular description and from the appended claims.

In accordance with this object the invention comprises an elongated, tubular glass container filled with a gaseous atmosphere and having electrodes sealed therein, one at each end thereof. Said electrodes are flat, sheet-metal electrodes and are located approximately in the same plane. Each of said electrodes are of different and distinctive configuration and of greater area than similar electrodes now known in the art. The size of the electrodes and the distance between them is such that their remote ends are separated a distance greater than 10 cm.

In the drawing accompanying and forming part of this specification an embodiment of the invention is shown in a side elevational view.

Referring to the drawing the new and novel gaseous electric discharge device comprises an elongated glass container 1 filled with a gaseous atmosphere such as neon at 20 mm. pressure of a mixture of neon and argon. Flat, sheet-metal electrodes 3 and 4 are sealed in said container 1 at each end thereof. Said electrodes 3 and 4 have different and distinctive configurations as shown, said electrode 3 forms an arrow and said electrode 4 forms the word "Lift". Where desired said electrodes 3 and 4 have other shapes than that shown and described and have the same shape where that is desired. Said electrodes are polished iron plates of a thickness of ½ to 1 mm. Where desired a coating of material having a low "breakdown" potential, such as barium oxide is applied to the surface by means well known in the art, in which case the electrodes may or may not be polished as desired. The adjacent ends of said electrodes 3 and 4 are separated a distance of approximately one and one-half cm. while the remote ends thereof are separated a distance of approximately 17 cm. The current inlead and support wires of said electrodes 3 and 4 are sealed into stems 2 of said container 1 and are covered with insulating bodies 5 to prevent the development of a negative glow discharge thereat. Glass tubes or glass beads are useful for this purpose. An ohmic resistance 6 is connected in series with the discharge path in said electric discharge device, and said resistance 6 has a value of 3,000 ohms and is located in the recessed stem 2 of container 1, or, where desired, said resistance is located in the base for said device.

When the above described electric discharge device is connected to a 220 volt alternating current source both electrodes 3 and 4 are completely covered with a negative glow discharge notwithstanding the large area of said electrodes, and the configuration of the electrodes is easily discernable from points remote from said electric discharge device. The flicker of the negative glow discharge covering both of said electrodes, caused by the alternating current, attracts the eye of a passer-by. For the foregoing reasons the new and novel electric discharge device is useful for advertising and other similar purposes.

While I have shown and described and have pointed out in the annexed claims certain novel features of the invention, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its use and operation may be made by those skilled in the art without departing from the broad spirit and scope of the invention, for example, the dimension may be changed to enable the device to be operable on a 125 volt alternating current source.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. A negative glow electric discharge device comprising a container, a gaseous atmosphere therein, electrodes sealed therein, said electrodes being plate electrodes located in the same plane, each of said electrodes having a different and distinctive configuration, the remote ends of said electrodes being separated a distance greater than 10 cm., the discharge supporting surfaces of said electrodes being substantially equal in area.

2. An electric discharge device comprising an elongated container, a gaseous atmosphere therein, electrodes sealed therein at each end thereof, said electrodes being plate electrodes located in the same plane, each of said electrodes having a different and distinctive configuration, the distance between the adjacent ends of said electrodes being 1½ cm., the distance between the remote ends of said electrodes being 17 cm., the discharge supporting surfaces of said electrodes being substantially equal in area.

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