April 25, 1933. H. FRIEDRICHSEN 1,905,697

POLARITY INDICATOR

Filed Feb. 8, 1930

Fig. 1

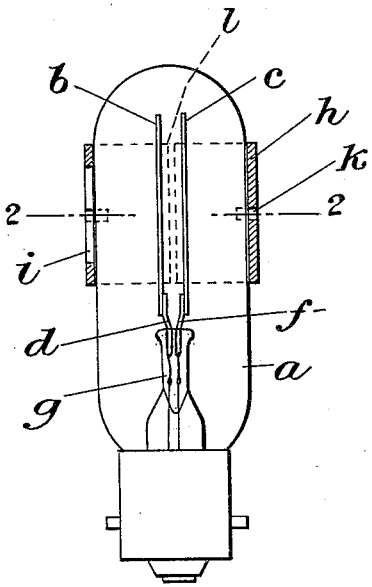
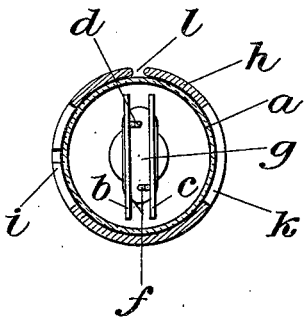


Fig. 2



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UNITED STATES PATENT OFFICE

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POLARITY INDICATOR

Application filed February 8, 1930, Serial No. 427,033, and in Germany June 21, 1929.

The present invention relates generally to electric discharge devices of the cathode glow type, and more particularly the invention relates to means and methods for adapting such devices to serve as polarity indicators.

The object of this invention is to provide a cathode glow lamp whereby the polarity of an electrical circuit is indicated clearly and unmistakably. A further object of the invention is to provide such a device of great simplicity and practicability.

In accordance with the object of the invention the cathode glow lamp is provided with two rectangular flat shaped electrodes placed in parallel positions and a stencil which is mounted on the vitreous bulb of such device, said stencil having a plus and a minus sign thereon, one opposite each of the electrodes.

In the drawing accompanying and forming part of this specification an embodiment of the invention is shown for purposes of illustration, in which

Fig. 1 is a side elevational view of the new and novel polarity indicator with the stencil shown in cross section and the position thereof being shown by dotted lines.

Fig. 2 is a top view of the device along the line 2—2 of Fig. 1.

As shown in the drawing the new and novel polarity indicator consists of two rectangular plate electrodes "*b*", "*c*" arranged in parallel vertical positions in the cylindrical chamber "*a*" of the lamp, said chamber "*a*" having a suitable gaseous atmosphere therein. Lead wires "*d*", "*f*" sealed in the stem "*g*" connect with said electrodes "*b*", "*c*" respectively and are adapted to support said electrodes. Stencil "*h*" is a split resilient cylinder having its inside diameter slightly less than the outside diameter of the bulb "*a*" so that it is held in position on said bulb "*a*" by the friction resulting from the pressure it exerts on said bulb "*a*" by reason of its elastic resiliency. On opposite walls of said stencil "*h*" and opposite the flat side of each of said electrodes "*b*", "*c*" are punctures "*i*", "*k*" in the shape of a plus and a minus sign, respectively.

Each electrode lead "*d*", "*f*" is connected to one of the two contact members of the "Edi-Swan" socket illustrated. Lead "*d*" is connected to the positive contact member and lead "*f*" is connected to the negative contact member. Thus when operating with the right polarity a glow is produced around negative electrode "*c*" which can be seen by looking through puncture "*k*". No light shines through puncture "*i*" as the positive electrode "*b*" has no glow and in addition shuts off the light from the glow around negative electrode "*c*". Thus the correct polarity is clearly indicated. Wrong polarity is just as clearly and unmistakably indicated, for under wrong operating conditions the positive electrode "*b*" glows and the light can only be seen through the plus sign "*i*" thus it becomes immediately apparent that the lamp is operating on wrong polarity, as such glow lamps only show a glow around the negative electrode when operating on proper polarity.

Various changes in the device and in its various parts may be made without departing from the spirit of the invention. Stencil "*h*" may be attached to the insulated socket instead of to the lamp bulb as shown. Said stencil may be made of any suitable material or have any suitable perforation therethrough; under certain circumstances it may consist of a lacquer or other material. The lamp bulb may be made in various shapes, and any suitable socket may be used.

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

A polarity indicator consisting of an electric discharge device of the cathode glow type comprising a container, a gaseous atmosphere therein, electrodes therein and a stencil mounted externally thereon, said stencil being a split-ring, resilient shell having

its inside diameter slightly less than the outside diameter of the container and having a plus sign opposite the flat side of the positive electrode and a minus sign opposite the flat side of the negative electrode, said electrodes being plates mounted in coextensive parallel relation, one of said plates being a shield to prevent light from the other plate from passing through the lamp wall in the direction of the first named plate.

In witness whereof, I have hereunto set my hand this 23d day of January, 1930.

HEINRICH FRIEDRICHSEN.