March 15, 1949. C. V. NEWBILL 2,464,340

THERMOSTATICALLY OPERATED ELECTRIC SWITCH

Filed April 24, 1946

Fig. 1

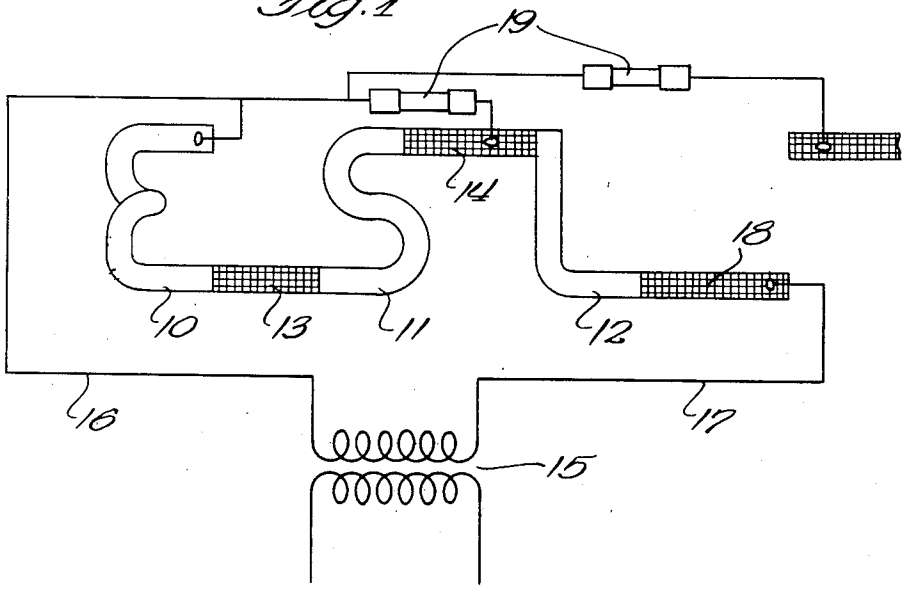


Fig. 2

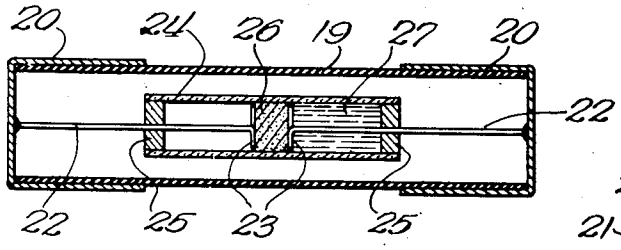


Fig. 3

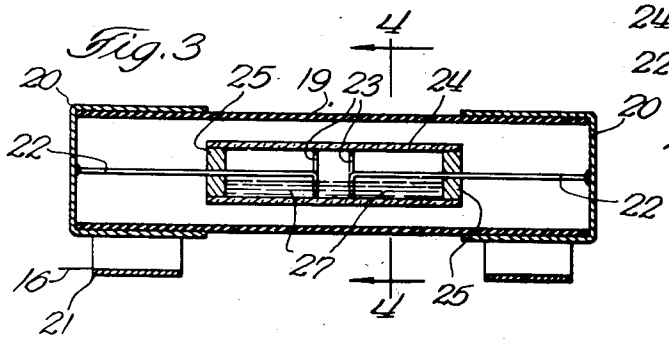
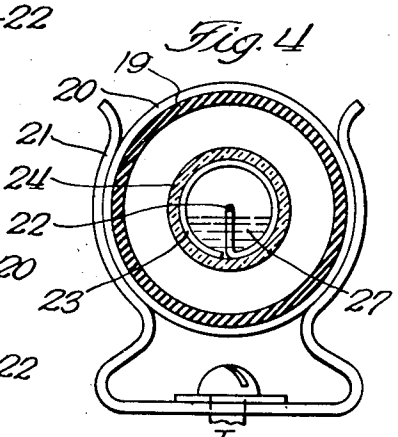


Fig. 4



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THERMOSTATICALLY OPERATED ELECTRIC SWITCH

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2 Claims. (Cl. 200—142)

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This invention relates generally to electrical equipment and particularly to a high tension arc arrestor.

The main object of this invention is to provide an arc arrestor especially adapted for use in conjunction with signs employing gas filled tubes as illuminating elements, whereby a section may be shunted out of a high tension circuit whenever that section has become inoperative.

The second object is to reduce the hazards and inconveniences caused by leaks common in installations where one or more sections of gas filled signs have become inoperative.

The third object is to construct a device whereby the failure of one section of a sign will not cause the entire sign to be rendered inoperative.

These and other objects are set forth in the following specification as illustrated in the accompanying drawing, in which:

Fig. 1 is a diagrammatic view showing a common form of application.

Fig. 2 is a longitudinal section through one of the units showing the parts in an open circuit condition.

Fig. 3 is a view similar to Fig. 4 showing the parts in a closed circuit condition.

Fig. 4 is a transversed section taken along the line 4—4 in Fig. 3.

Similar numbers of reference refer to the same or similar parts throughout the several views.

Referring in detail to the drawing, there is shown a sign, which in this instance, consists of the letters E, S, and L, which are numbered 10, 11 and 12 respectively. These letters are joined by the blackened portions 13 and 14 at points where illumination is not desired.

The usual type of transformer 15, is indicated and its lead 16, is connected to the letter 10, while the lead 17, is connected to the blackened portion 18, which shows the letter 12. It will be understood that the letters 10, 11 and 12 are gas filled and become luminous when high tension current from the transformer passes through them.

If for any reason, a single unit, which in this instance, will consist of the letters 10 and 11, should fail, then of course no current would flow to the letter 12 whose blackened portion 18, is connected to the lead 17.

It will be understood that the letters shown are merely illustrative and that the letters E and S would constitute one unit while the letter L would constitute the second unit. In actual practice, each unit must be protected and for this purpose a separate arrestor is placed between each unit and the transformer.

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Referring particularly to my device, same will be seen to consist of a tubular shell 19, having the metallic ends or caps 20, which normally fit into the spring caps 21, by means of which current is conducted to the device from the lead 16.

Secured to each cap 20, is a rod 22, which terminates in a ring 23. The two rings 23, are spaced as shown and enclosed within the glass tube 24, whose ends are sealed with heat resisting caps 25 which hermetically enclose the rod 22. The space between the rings 23, is occupied with a wax 26, or other compound which will liquify when heated. A quantity of mercury is stored in the tube 24, on opposite sides of the dam, protected by the wax 26.

It is essential that the tube 19, and its contained tube be horizontal. The operation of the device is as follows:

Assuming that it is installed as shown in Fig. 1, and that either of the members 10 or 11 have broken down thereby destroying the usefulness of that section. The current will now flow between the rings 23, thereby melting the wax 26, which is displaced by the mercury 27, which in turn closes the circuit across the rings 23, and shunts out the inoperative section.

It must be understood that each section is provided with its own arrestor which is merely a means of shunting the section out of the circuit and affording the desired protection for the sign. I am, of course, aware that various forms of arc arrestors have been constructed in the past and it is therefore not my intention to cover such devices broadly. I do however intend to cover all such forms and modifications thereof as fall fairly within the appended claims.

I claim:

1. A thermostatically operated electric switch consisting of a fibre tube having a metallic cap at each end thereof, inwardly projecting rods secured to said caps, each having a ring formed thereon concentric with the rod, the rings of both of said rods being spaced from each other, a glass tube enclosing said rings and sealed on said rods, a fusible non-conductor of electricity forming a

dam between said rings and a quantity of mercury disposed between said fusible non-conductor and one outer end of said tube.

2. A switch of the class described, consisting of a glass tube having a fusible dam across the middle thereof, constructed of a non-conductor of electricity, an electrode on each side of said dam and a quantity of mercury in one side of said dam, said electrodes projecting from the sealed ends of said tube, whereby the fusing of said dam will permit mercury to bridge the gap between said electrodes and close said switch.

CARL V. NEWBILL.

REFERENCES CITED

The following references are of record in the file of this patent:

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