Aug. 20, 1940. G. B. DAVIS 2,211,884

INCANDESCENT LAMP

Filed Sept. 8, 1938

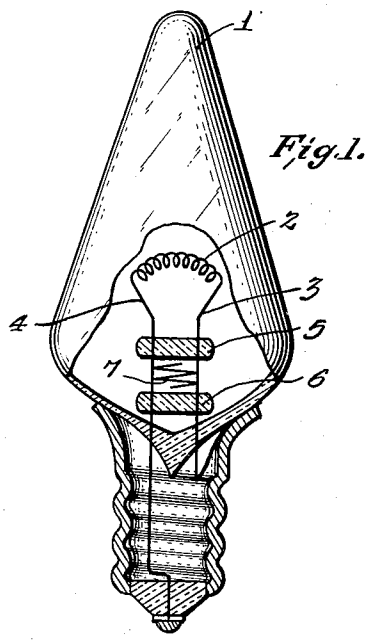


Fig. 1.

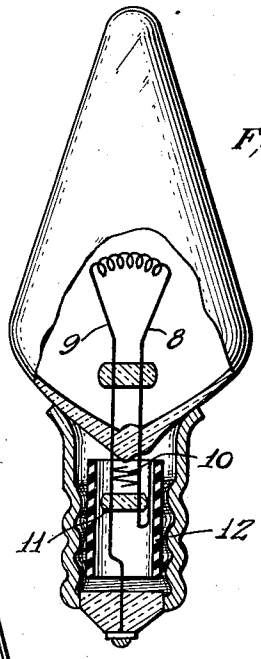


Fig. 2.

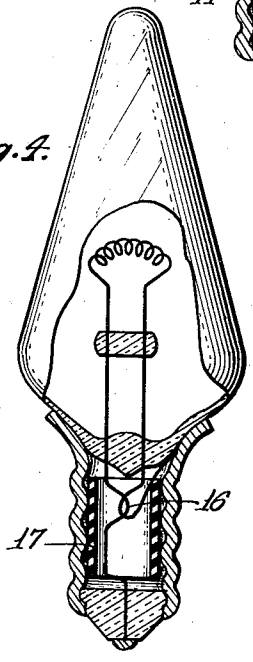


Fig. 4.

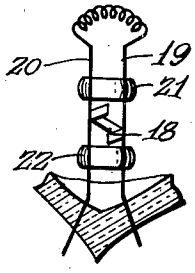


Fig. 5.

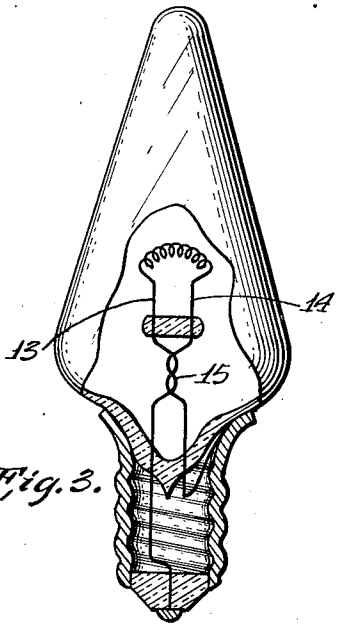


Fig. 3.

Inventor,

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UNITED STATES PATENT OFFICE

2,211,884

INCANDESCENT LAMP

George B. Davis, Washington, D. C.

Application September 8, 1938, Serial No. 228,946

5 Claims. (Cl. 176—24)

This invention relates to an incandescent lamp to be used exclusively in a series hookup. The lamp embodies a shunt mechanism for automatically establishing circuit to the remaining lights in the series upon the rupturing of the filament in the globe.

Another object of the invention is to provide a globe proficient and safe in its operation, yet of such simple construction as to make it practical for ornamental purposes where the cost of manufacturing is a major consideration.

Another object is to provide a globe safe from the fire hazard accompanying globes of this type. In all globes of this nature, hooked up in a series, as a globe burns out the voltage is increased proportionally to the remaining lights in line. This overloading will cause them to deteriorate more rapidly and the failure of each in turn will so increase the voltage that the last two or three globes to remain in operation will flare up and burn out simultaneously, and in so doing, set up a complete circuit through the shunt systems. The result in this case is either a ruptured house plug-fuse or a fire at the globe. In some instances where globes of this type were used, a globe capable of carrying the entire load has been hooked up in the series so as to absorb the excess current. I believe I have, by placing the shunt mechanism within the globe and making it of such material as to rupture at a comparatively low voltage, eliminated this danger.

Provisions have been made for locating the shunt within the shell cap and insulating it from the same, but this method does not lend itself to be as safe as that formerly discussed, where the shunt is sealed within the globe.

In order that this invention may be more fully understood reference will be had to the accompanying drawing:

Fig. I: A sectional view of the lamp with the invention located within the globe.

Fig. II: A sectional view of a lamp with the shunt mechanism in the shell-cap.

Fig. III: A sectional view of a lamp with the shunt obtained by twisting together the oxidized lead in wires within the globe.

Fig. IV: A sectional view of the lamp with the shunt obtained by twisting together the oxidized lead in wires beneath the globe.

Fig. V: A detail view of how an insulated fuse material may be used.

The lamp illustrated in Fig. I comprises an envelope 1. Within this envelope is the regular filament supported by lead-in wires 3 and 4. These lead-in wires are oxidized or covered with any suitable insulation before being wound about by wires 7 as illustrated. Glass beads 5 and 6 are merely for supports to prevent the warping of the lead-in wires away from the engaging shunt wire 7. Should it prove to be an advantage, wire 7 could be insulated instead of the lead-in wires 3 and 4. A very satisfactory insulation for this purpose can be obtained by oxidizing the metal, or by a very thin coating of insulating varnish. The connecting wire 7 can be made of very small copper wire or a slightly heavier tungsten wire, either will carry sufficient voltage to support the lights in the series but will rupture at line voltage, and at a definitely lower amperage than the house plug fuse.

The globe illustrated in Fig. II is substantially the same as that described in Fig. I, varying in that the lead-in wires 8 and 9 have been wrapped beneath the globe at 10. Support bead 11 is suspended in the shell cap and insulating sleeve 12 has been inserted to prevent shorting of the leads within the metal shell-cap.

In Fig. III, instead of the lead-in wires 13 and 14 being wrapped with a third wire they are insulated and twisted together at point 15. A practical shunt may be formed by twisting the two leads and then heating them. In this way a coating of oxide will form in between the two wires insulating them from each other. In this type of globe the standard support wire now in use will rupture at about 3 amps, but should it be necessary, supports would be made of any size or alloy to conform to any requirements. Precaution may be taken to prevent a rupture taking place beneath the globe by dipping the outer extending leads in lead. The additional coating will increase their capacity sufficiently to assure a rupture at the point desired.

In Fig. IV the wrapping of the leads takes place beneath the globe at point 16. In this case insulating sleeve 17 is inserted within the shell cap to prevent shorting with the shell.

Fig. V carries out the same principle as that brought out in Fig. I, varying in that a strip 18 of oxidized or insulated fuse material is used instead of the wire. In this illustration 18 is simply folded over lead-ins 19 and 20 and supporting beads 21 and 22 hold the leads firmly in place to prevent warping or shaking out of contact with 18.

In the operation of this globe, current flows normally through the filament following the course of least resistance, but upon the rupturing of said filament the voltage pressure is so increased across the shunt mechanism that the sep-

arating insulation is broken down, and upon its destruction circuit is reestablished through the line.

My shunt means, does not permanently close the circuit through the globe beneath the filament upon the rupturing of the filament; it is a fuse for rupturing and again opening the circuit upon a definite increase in current amperes through the line.

I claim:

1. An electric lamp, lead in conductors to said lamp, a fuse strip wrapped around said leads, but insulated therefrom.

2. An incandescent electric lamp, the combination of a pair of leads having portions thereof juxtapositioned, a fuse strip wound around said leads but insulated therefrom.

3. An incandescent lamp, leads to said lamp, metallic oxide surrounding said leads, a fuse strip wound around said oxidized leads.

4. An incandescent lamp, lead in conductors to said lamp, a fuse strip wound around said leads, said fuse strip insulated from one only of said leads.

5. An incandescent lamp, leads to said lamp, oxide insulation surrounding one only of said leads, a fuse strip wound around said leads.

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