Sept. 8, 1942. G. B. DAVIS, JR 2,295,202

THERMOSTATIC FLASHER

Filed Jan. 23, 1940 3 Sheets-Sheet 1

Fig. 1

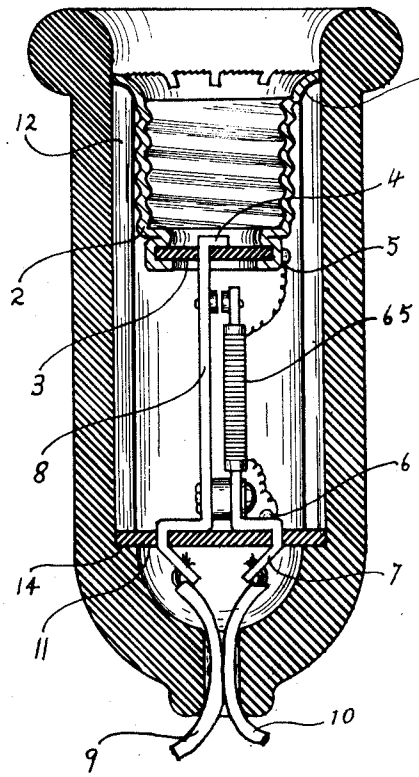


Fig. 3

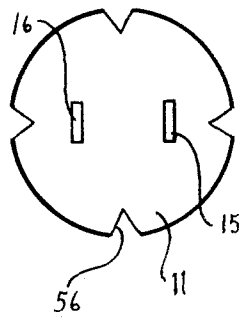


Fig. 5

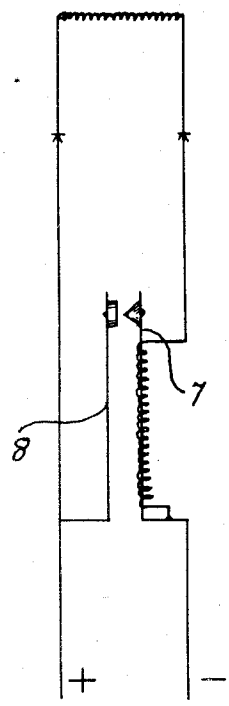
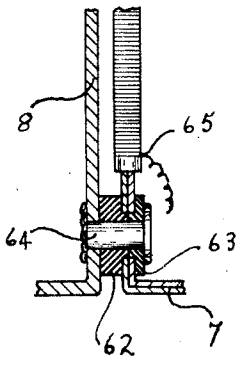


Fig. 2



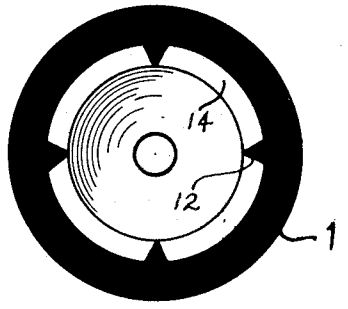


Fig. 4

Inventor

George B. Davis Jr.

Sept. 8, 1942. G. B. DAVIS, JR 2,295,202

THERMOSTATIC FLASHER

Filed Jan. 23, 1940 3 Sheets-Sheet 2

Fig. 7.

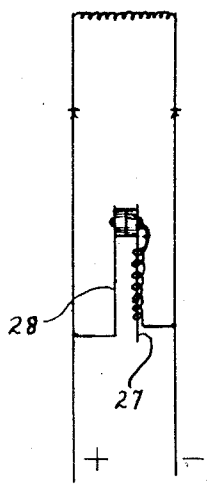


Fig. 6.

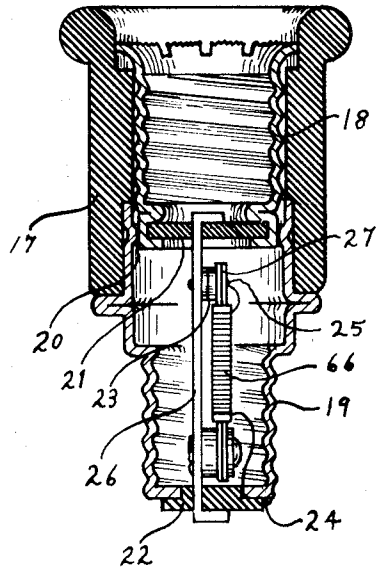


Fig. 8.

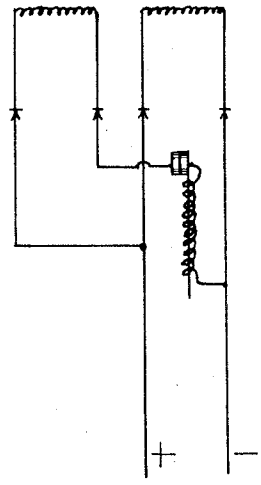
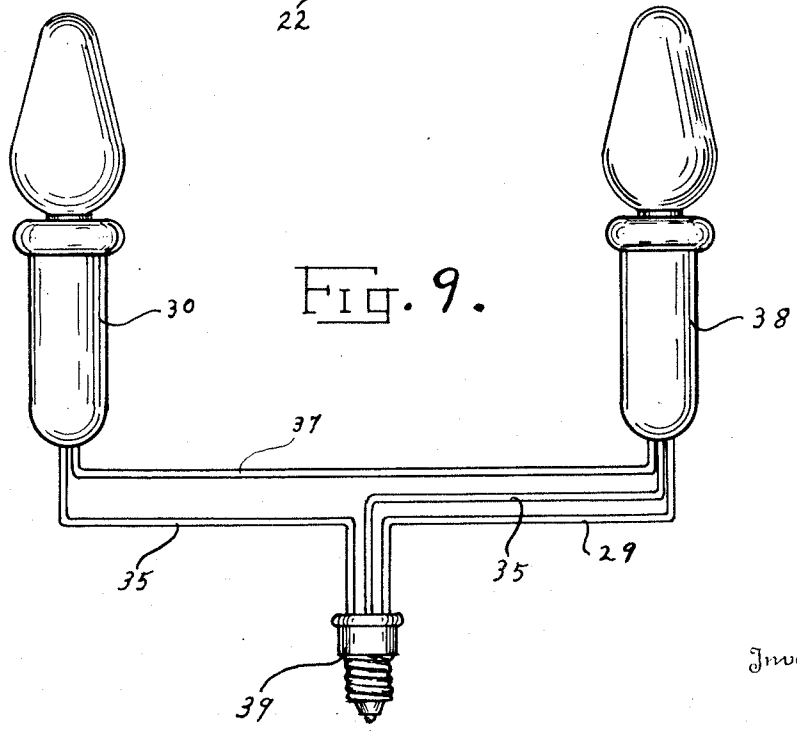


Fig. 9.



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George B. Davis Jr.

Sept. 8, 1942. G. B. DAVIS, JR 2,295,202

THERMOSTATIC FLASHER

Filed Jan. 23, 1940 3 Sheets-Sheet 3

Fig. 10

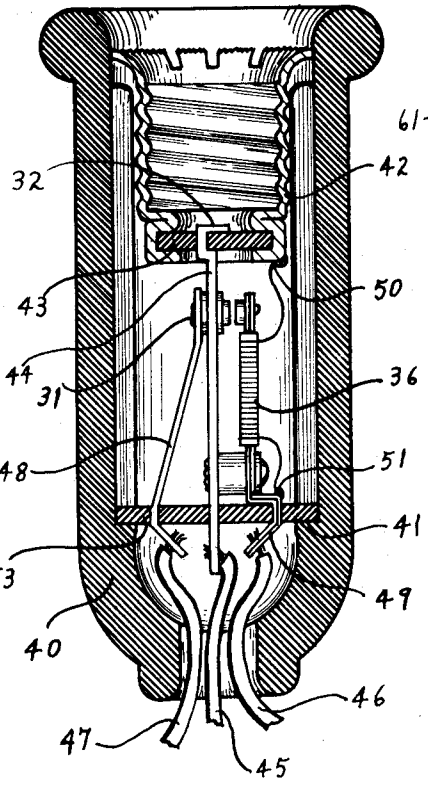


Fig. 12

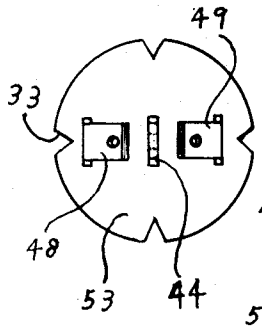


Fig. 13

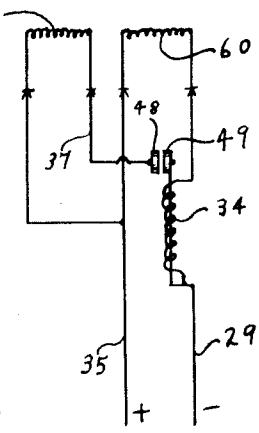
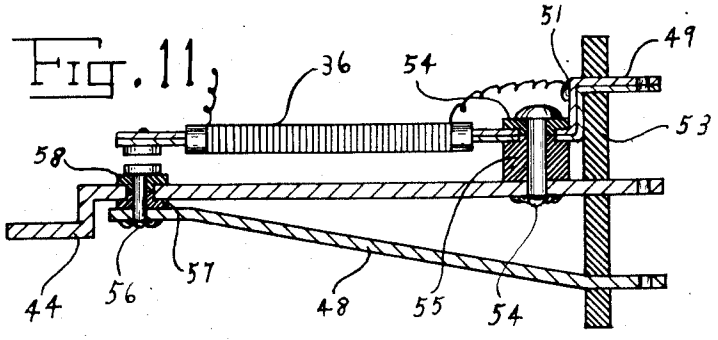


Fig. 11



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Patented Sept. 8, 1942 2,295,202

UNITED STATES PATENT OFFICE

2,295,202

THERMOSTATIC FLASHER

George B. Davis, Jr., Washington, D. C.

Application January 23, 1940, Serial No. 315,265

5 Claims. (Cl. 177—347)

This invention relates to a thermostatic circuit control mechanism adaptable solely and specifically to lights hooked up in series, as those for display and ornamental purposes.

I believe this invention new and novel, in that, instead of breaking circuit to the remaining lights in the series, as is the case with the various flashers now in use, this mechanism accomplishes the flashing effect by shorting out the active filament in the individual globe and at the same time maintaining the flow of current to support the remaining lights on the line.

Another object of the invention is to provide a means for having a thermostatic mechanism flash two lights alternately, thus by diverting the flow of current through a second globe the current to the remaining lights in the series is not increased.

A further object of the invention is to provide a flasher, rugged in construction, which shall be relatively inexpensive to manufacture, easily assembled, yet practical and efficient to a high degree.

I anticipate and provide for the use of this flasher mounted, either in an individual socket or in a combination fitting having a receptacle portion for receiving the base of the light or globe, and a screw threaded plug portion adaptable to be screwed into any suitable outlet, receptacle or socket.

In the accompanying drawings are shown the various possible embodiments of this invention.

Fig. 1 is a sectional view of a socket embodying the invention.

Fig. 2 is a sectional view of the thermostatic assembly.

Fig. 3 is a plan view of the insulated disk that supports the thermostat.

Fig. 4 is a plan view of the insulating shell.

Fig. 5 is a circuit diagram of the invention as shown in Fig. 1.

Fig. 6 is a sectional view of a variation of the invention in an inserting socket.

Fig. 7 is a circuit diagram of the invention as shown in Fig. 6.

Fig. 8 is a circuit diagram of how the current may be diverted from one globe to another.

Fig. 9 is a side view of a socket assembly.

Fig. 10 is a sectional view of a socket embodying a variation of the invention.

Fig. 11 is a sectional view of the thermostatic mechanism as shown in Fig. 10.

Fig. 12 is a bottom view of the insulating disk supporting the invention.

Fig. 13 is a circuit diagram of the invention as shown in Fig. 10.

In Fig. 1, 1 is an insulating casing, 2 a receiving screw socket. The thermostatic mechanism is affixed to an insulating disk 11 that rests on flange 14 and is held in a stationary position by grooves 56 fitting along projections 12 that extend down along the inside of 1. Current passes in through 9 and into bar 8 and up to the base contact 4. Current passes through 10 into bimetal strip 7, a resistor is connected with 7 at 6 and passes around 7 and contacts shell 2 at 5. The operation of this flasher is to blink the light that has been inserted in the socket by shorting out the current beneath it. In order that this can be done resistor 65 must be able to carry sufficient curent to support the other lights in the series. As current enters through 10 and passes through resistor 65, the heat given off causes thermo-strip 17 to bend forward and contact bar 8, the other terminal to the lamp. This allows the current to pass under the globe causing it to black out. On the cooling of the thermo-strip it backs off breaking circuit through bar 8 allowing current to resume its course through the globe.

In Fig. 2, 8 is the supporting bar, 7 is a bimetal strip, 64 a rivet for holding said bars together. 62 and 63 are insulating washers separating bar 7 from 8. In Fig. 3, 56 shows how 11 is cut so as to fit along the projections 12 inside casing 1. The elements 16 and 15 are slots through which 8 and 7 extend. Fig. 5 is a circuit diagram of the invention as shown in Fig. 1. In Fig. 6, 17 is an insulating shell housing a receiving screw shell 18. Inserting screw shell 19 extends up into shell 17 and engages 18 at 20. Bar 26 extends through disks 21 and 22 and serves as a base contact for both sockets. Affixed to 26 is a thermostatic strip 27 around which passes a resistance filament 66 which connects with 27 at 25, and 19 at 24. Bimetal strip 27 contacts bar 26 at 23.

The action of this mechanism is to flash an inserted globe by first shorting out the current beneath it, and in so doing the current is forced through a resistor, 66, causing it to heat, thus actuating bar 27 causing it to move away from contact with bar 26 and allowing current to flow through the lamp causing it to light. The result accomplished by this variation is the same as that described in Fig. 1 except that in this case when current is first applied to the mechanism the globe is dark and only lights when bar 27 has moved away from bar 26.

Fig. 7 is a circuit diagram of the invention as shown in Fig. 6.

Fig. 8 is a circuit diagram showing how, instead of shorting out the current beneath the globe, it may be shunted to a second globe of equal resistance and in so doing flash two globes alternately without increasing the curent along the series line.

Fig. 9 shows how such a flasher as that described in Fig. 13 may be constructed in connection with another socket and screw plug **39** for inserting in an ordinary series. The elements **30** and **38** are sockets, **38** containing a mechanism as described in Fig. 10.

Fig. 10 shows a sectional view of a socket embodying a thermo-mechanism for diverting the current from one globe to another. The element is an insulating shell, **42** a receiving screw shell. Bar **44** extends through insulating disk **43** and **53** and forms a central support for **49** and **48** and also forms a base contact **32** for shell **42**. **48** is affixed to **44** at **31** and extends down and makes contact with wire **47**. The bimetal strip **49** extends down through **53** and connects with wire **46**. Resistor **36** connects **49** at **51** and shell **42** at **50**.

In assembling this mechanism in the insulating socket **40**, bar **44**, **48** and **49** are placed through the holds in disk **53** as shown in Fig. 11, then they are bent together as shown in Fig. 12. The receiving screw shell is then affixed to bar **44** as shown. The wires **45**, **46** and **47** are brought up through the hole in the base of **40** and connected as shown, then the whole assembly is pressed into position with the disk **53** resting on flange **41**. This will prevent the mechanism being pulled out of position by the lead-in wires.

Fig. 11 is a sectional view of the mechanism as shown in Fig. 10. The element **56** is a rivit holding bar **48** and bar **44** together and also serving as a contact for engaging **49**. The elements **58** and **57** are insulating washers, and **54** is a rivet holding bar **44** and **49** together. The elements **55** and **56** are insulating washers separating electrically said bars.

Fig. 12 is a bottom view of the insulating disk **53** showing how bars are bent into position for wiring.

Fig. 13 is a circuit diagram of the invention as shown in Fig. 10. Current passing up through **35** and **29** through resistor **34** to filament **60** causes resistor to heat and in doing so acts on thermostrip **49** which moves into circuit closing engagement with **48** throwing the current through **37** to second filament **61**. Current is thus shunted around resistor **34** allowing it to cool and bar **49** will move away from **48** permitting the current to resume its course through filament **60**.

I claim:

1. A flasher lamp socket organization for use in connection with a Christmas-tree series or the like, including an insulating casing, a receiving screw shell within said casing, leads to the terminals of said shell, a low resistance heater in circuit with one of said leads and connected in common with a bimetallic strip, said strip having a portion movable for moving into circuit closing engagement with the other of said leads when actuated by the heat from said resistor, said strip being located in position for effectively shorting out said heater and said socket member.

2. A socket connector for a series-connected Christmas-tree lamp string or the like including an insulating casing having a receiving member comprising a shell and a center contact, a conductor lead connected to the shell, a second conductor lead for supplying current to the center contact, electroresponsive means within the casing operated by current flow through said leads for periodically electrically short circuiting said lead conductors by a connection having a low resistance with respect to a lamp to be used in said series; a part of the electroresponsive means being in circuit relation to be shunted along with the filament of said inserted lamp when said short circuit is made.

3. A socket connector for inserting in a series-connected Christmas-tree lamp string or the like, including an insulating casing, having at one end a shell contact and a center contact, at the other end an inserting member comprising a shell and a center contact, a conductor lead connected to one contact of said receiving member and one contact of said inserting member, a second conductor lead connected to the other contact of said receiving member and the other contact of said inserting member, electroresponsive means within said casing operated by current flow through said leads for periodically electrically short circuiting said lead conductors by a connection having a low resistance with respect to a lamp to be used in said series, a part of the electroresponsive means being in circuit relation to be shunted along with the filament of said inserted lamp when said short circuit is made.

4. A flasher lamp socket organization for use in connection with a Christmas-tree series string or the like, including an insulating casing, a lamp base receiving member having a shell contact and a center contact, a conductor lead connected to the shell, a second conductor lead connected to the center contact, a two point thermostatic circuit controller connecting said leads beneath said receiving member, said controller including a low resistance heater in circuit with one of said leads and connected with one of the said points of the controller, the second point of said controller being connected to the other said lead, a thermostatic member in heat receiving relation to said resister and having a portion movable for shorting out the said receiving member by bringing together the points of the controller when actuated by the heat from said resistor which is also in circuit relation to be shunted along with said receiving member.

5. A socket connector for a series-connected Christmas-tree lamp string or the like, including an insulating casing having a receiving member comprising a shell and center contact, a conductor lead connected to the shell, a second conductor lead to the center contact, a two point thermostatic circuit controller within said casing, and connecting said leads, said controller including a low resistance heater in circuit relation to one of said leads and making contact with the other said lead through one point of the controller, the other point of the controller being connected to the second conductor lead, a thermostatic member in heat receiving relation to said resistor and having a portion movable for intermittently separating the points of said controller when actuated by the heat from said resistor.

GEORGE B. DAVIS, JR.