Dec. 15, 1959 V. P. KRAMBO ET AL 2,917,604

DUAL VOLTAGE FLASHER DEVICE

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Fig. 1.

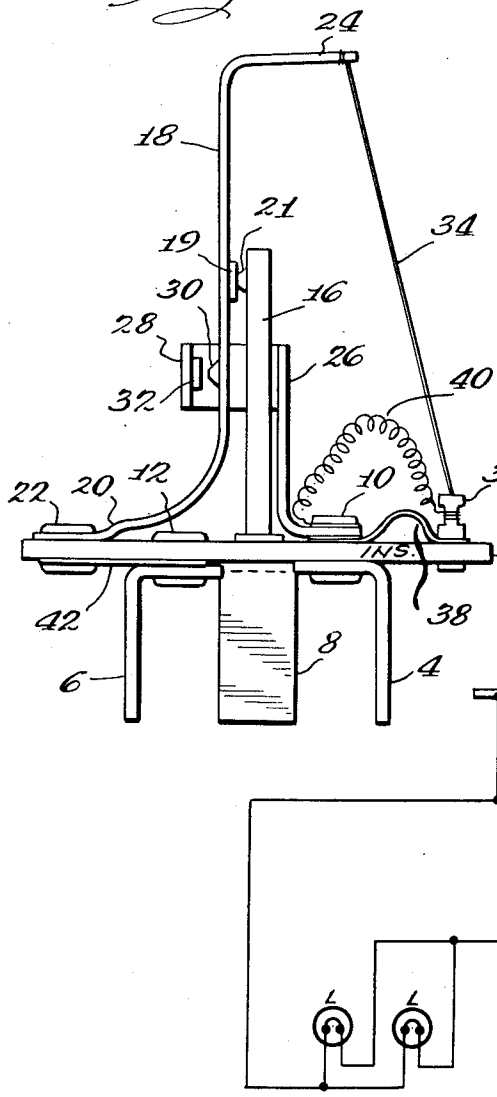
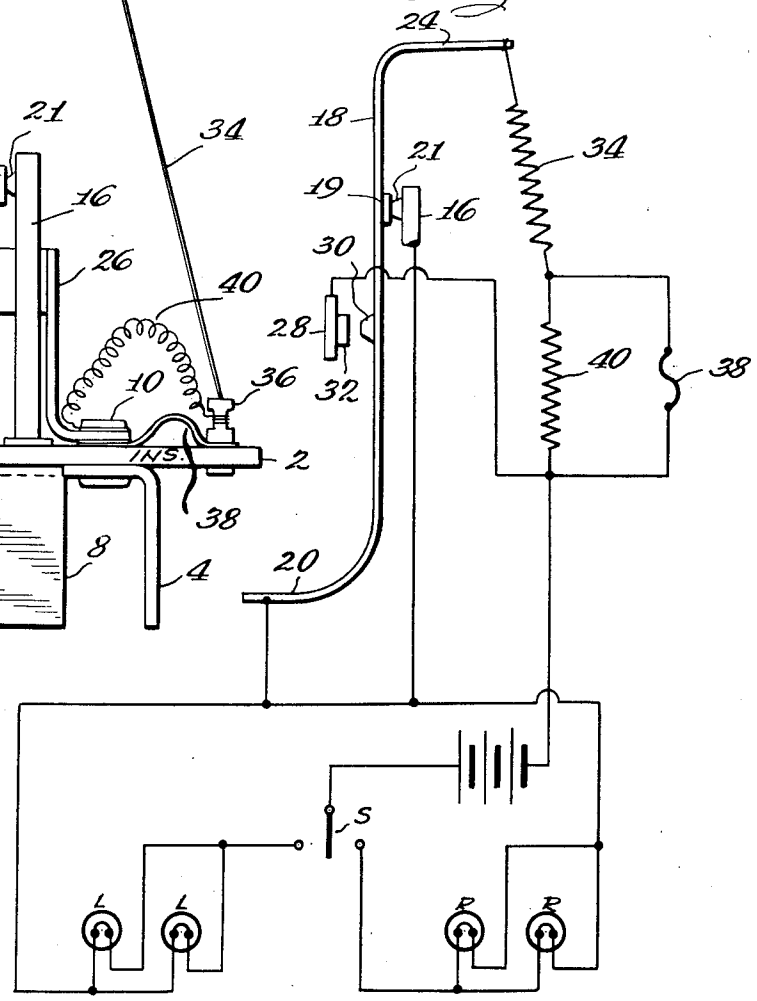


Fig. 2.



INVENTORS.
Victor P. Krambo
Alvin E. Stones
By Byron, Hume, Green & Chestnut
attorneys

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DUAL VOLTAGE FLASHER DEVICE

Victor P. Krambo and Alvin E. Stones, Chicago, Ill., assignors to Triplex Manufacturing Co., Chicago, Ill., a corporation

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1 Claim. (Cl. 200—113)

This invention relates to devices for intermittently varying electrical currents, and more particularly, to an improved flasher device adapted to be used with either of two predetermined voltages to produce the same rate of flashing.

Heretofore, various flasher devices have been developed for use in connection with a single predetermined voltage. However, the present trend in the automobile industry is toward producing automobiles adapted to be supplied with numerous optional electrically operated accessories. This trend has resulted in the use of both six and twelve volt circuits in automobiles. Prior to this invention, flasher devices were designed specifically for a circuit of a particular voltage and were not suitable for use with a circuit having a different voltage. Their use with other voltages either resulted in their burning out or being operated at such a rate as to lose the advantages attendant to periodic flashing. The problems involved in manufacturing, storing, and in obtaining replacements of distinct flasher devices for use with each type of circuit pointed to the desirability of a single flasher device adapted to be used with either of two predetermined voltages and which produced the same rate of flashing with either voltage. Therefore, it is a primary object of this invention to provide a flasher device adapted to be used with either of two predetermined voltages which automatically compensates to produce the same rate of flashing.

A further object of the invention is to provide a flasher device utilizing a thermoresponsive switch arrangement particularly suitable for use with either of two voltages and which is economical to manufacture and of sturdy construction.

Further objects and advantages of this invention will become evident as the description proceeds and from an examination of the accompanying drawings which illustrate an embodiment of the invention and in which similar numerals refer to similar parts throughout the several views.

In the drawings:

Figure 1 is a side view of a flasher embodying the invention.

Figure 2 is a circuit diagram illustrating a use of the new flasher device, and in which the flasher is represented schematically.

As shown in Figure 1, the device includes an insulated base 2 to which is attached three terminals, 4, 6 and 8, by means of rivets 10, 12 and 14 (14 not shown). A fixed contact post 16 is mounted vertically on said base and attached thereto by means of rivet 14 (not shown) which also provides electrical communication between terminal 8 and vertical fixed contact 16. A movable contact member 18, preferably made of spring steel, has one end 20 fixed to said base 2 by means of a rivet 22. Movable contact member 18 curves from its fixed end 20 into a vertical position parallel to fixed contact post 16. At a distance above the vertical extremity of fixed contact post 16, movable member 18 makes a substantially right angular bend to form end 24. Movable contact member 18 is formed so as to be biased toward the left as viewed in Figure 1.

A fixed contact member 26 has one end attached to the insulated base 2 by means of rivet 10. This second fixed contact member 26 extends vertically, parallel to said first mentioned fixed contact member 16, to a position intermediate the ends of this contact post. In this position fixed contact member 26 makes an arcuate bend around fixed contact member 16, and spaced therefrom, terminating in a contact portion 28 located behind flexible contact member 18 as seen in Figure 1. The normal bias of flexible contact member 18 urges contact 30 carried by flexible contact member 18 into engagement with contact 32 carried by the terminal end 28 of fixed contact member 26.

An expansible resistance element 34 is attached to the end 24 of movable element 18 and the other end of expansible element 34 is attached to a terminal 36 attached to base 2 in conventional manner. Expansible member 34 is a resistance wire which is adapted to heat when subjected to a current and when heated expands to permit movement of flexible member 18 toward contact 32. In the contracted position, expansible member 34 holds movable element 18, and thus contact 19, in engagement with contact 21 on fixed contact post 16. A fuse element 38 and a resistance element 40 are each connected to said terminal 36 and to fixed contact member 26 by means of rivet 10.

A contact bar 42 attached to rivet 22, electrically connects end 20 of flexible member 18 with terminal 6.

In Figure 2 is shown a circuit similar to those now used in connection with the turn signals on automobiles. In this figure two lamps L and L represent those used in the left front and left rear of an automobile to indicate a turn in that direction, and lamps R and R represent the lamps on the right side of the automobile which are used to indicate a turn in that direction.

Operation of this invention in this circuit is as follows: An indicator switch S is adapted to be thrown to either right or left to indicate the direction of turn. Assuming this switch is thrown to include lamps L and L, when used with a six volt source the circuit is complete through fuse 38, expansible element 34, the end 24 of flexible element 18, contacts 19, 21 and fixed contact post 16, lamps L and L and switch S.

Practically instantaneously expansible element 34 becomes heated and expands permitting flexible contact member 18 to move back so that contact 30 engages contact 28 and contacts 19 and 21 are moved apart. This movement shunts fuse 38 and expansible resistance element 34 and the circuit is then complete through the fixed contact post 26, contacts 28 and 30, rivet 22, contact bar 42 and terminal 6 to lamps L and L and switch S.

When this latter circuit is thus freed of the resistance offered by expansible resistance element 34, the value is sufficient to light the lamps L and L.

Practically instantaneously, expansible element 34 cools when it is shunted from the circuit and contracts, pulling end 24 of flexible contact member 18 to the right as seen in the drawings. This re-establishes the former circuit and the cycle is repeated to present an intermittent lighting of the lamps which have been included in the circuit.

When a twelve volt source is used, the device automatically compensates, fuse 38 being adapted to blow, causing the circuit to be completed through the second resistance element 40. The value of second resistance element 40 is so chosen that the current through resistance 34 will remain the same as it was when the six volt battery was being used. Thus, the cycle then continues as described before.

In the drawings and specification, there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation. Changes in form and in the proportion of parts as well as the substitution of equivalents are contemplated, as circumstances may suggest or render expedient, without departing from the spirit or scope of this invention as further defined in the following claim.

What is claimed is:

A flasher switch device comprising an insulated base, a first terminal attached to said base, a fixed contact member electrically connected to said first terminal and attached to said base, a second terminal attached to said base, a movable contact member having one end attached to said base and electrically connected to said second terminal, the movable portion thereof being biased toward said fixed contact member, a second fixed contact member attached to said base, a third terminal electrically connected to said second fixed contact member and attached to said base, an expansible resistance element having one end attached to the movable end of said movable contact member and the other end fixed relative to said base to hold said movable contact member in contact with said second fixed contact member in the contracted position and adapted to expand to permit said movable contact member to contact said first fixed contact member, a fuse element and a resistance element, each electrically connected to said first terminal and to the fixed end of said expansible member, whereby said movable contact member will be moved to intermittently shunt said resistance at a substantially similar rate for either of two predetermined voltages.

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