

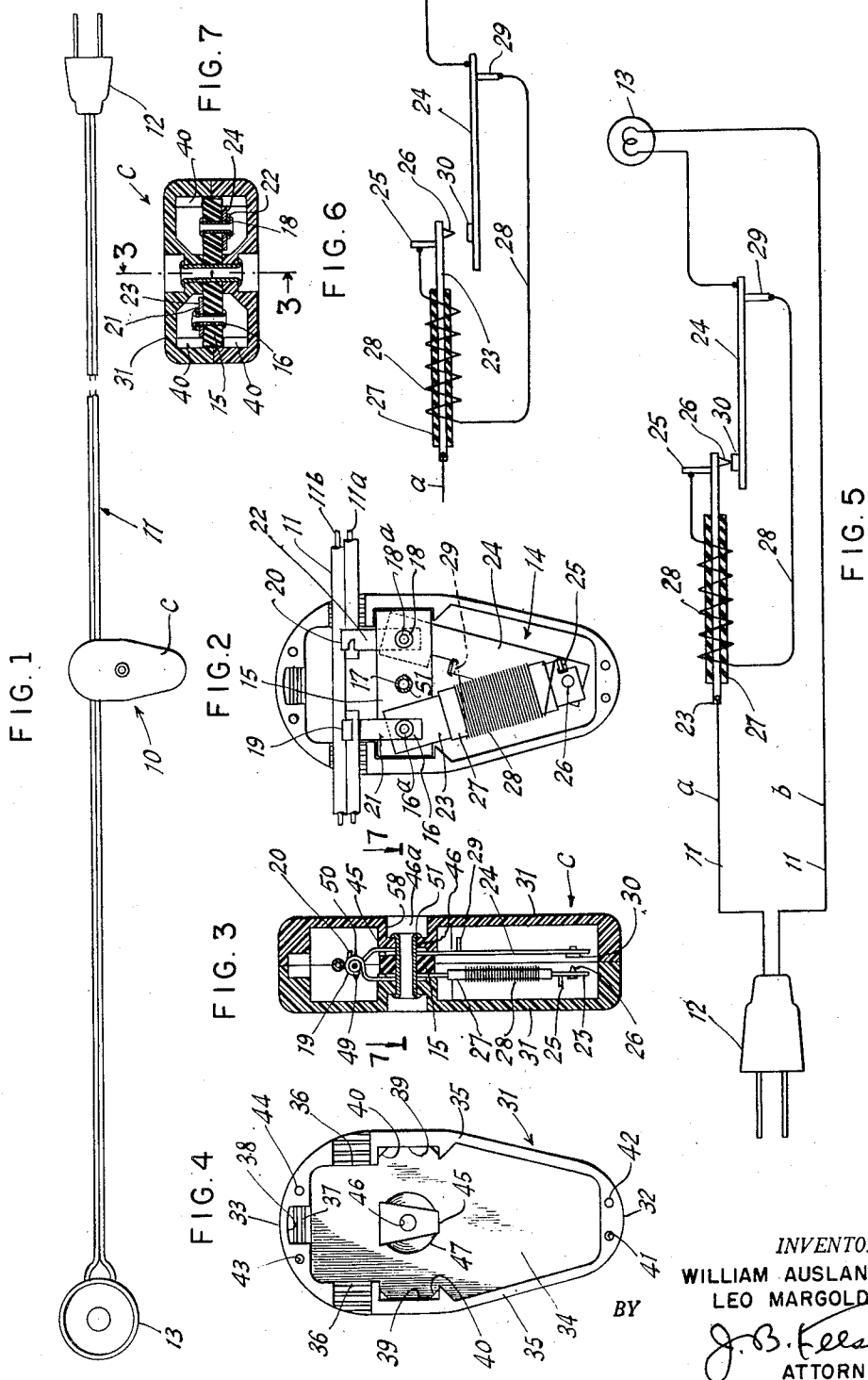
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ELECTRIC FLASHERS FOR LIGHTING DISPLAYS

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ELECTRIC FLASHERS FOR LIGHTING DISPLAYS 5

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This invention relates to electric flashers for lighting displays and similar uses and is particularly directed to an improved design and arrangement of parts in an electric flasher to be spliced directly onto a line between a power source and an electric light bulb or like electrical device.

Several objects of this invention shall be to provide a highly improved flasher of simplified construction wherein assembly shall be made by use of grommets and no solder shall be used; which will have a case of streamlined teardrop design, said case being formed of two identical halves which are fastened together by only one bolt or grommet, and which may be connected to an electric power line without the use of solder, and without necessity for stripping wire ends.

Yet another object of this invention is to provide an electric flasher of the type described in which the contact means shall be mounted on a single phenolic or other non-conductive base piece which shall be rectangular in shape and formed with three circular openings, one for attachment to the case and the other two to receive terminal connectors.

It is a further object of this invention to provide a flasher of the character described wherein a pair of contact strips shall be mounted on the ends of the phenolic base and shall overlap only at the point of contact thereby forming a triangle to fit in the teardrop case.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described and of which the scope of invention will be indicated in the appended claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention:

Fig. 1 is a top plan view of the device of the invention connected to a light circuit;

Fig. 2 is a top plan view of the device of the invention with the top cover of the case removed;

Fig. 3 is a cross-sectional view taken on the line 3—3 of Fig. 7;

Fig. 4 is a plan view of the inside of a case half;

Fig. 5 is a schematic diagram of the flasher circuit with contacts closed;

Fig. 6 is a schematic diagram of the flasher circuit with the contacts open; and

Fig. 7 is a cross-sectional view taken on the line 7—7 of Fig. 3.

Referring to the drawings in detail, the flasher 10 in Fig. 1 is connected to an electrical cable 11, one end of which is connected to a power plug 12 and the other end to an electric lamp socket 13, or other electrical device. The cable 11 is a two lead wire comprising wires 11a and 11b.

The construction of the flasher system 14 itself, as seen in Fig. 2, has been greatly simplified. A base member 15 formed of phenolic, plastic, or any other non-conductive

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material of rectangular shape, is formed with three through openings 16, 17 and 18 in a line across the length of base member 15. A pair of wire clip members 19 and 20 have extended ends 21 and 22 which overlie the openings 16 and 18 of the base member 15. The ends 21 and 22 of clips 19 and 20 are also formed with openings corresponding to holes 16 and 18. Between clip end 21 and base 15 is the end of a contact breaker strip 23. Between clip end 22 and the base 15 is the end of a contact strip 24. Contact breaker strip 23 is an elongated bi-metal strip formed with a turned up tab 25 at the inside extended corner thereof. A conical contact point 26 is formed facing downwardly at the extended end of contact breaker strip 23. A sheet of asbestos 27, or similar insulating material, is wrapped about the contact breaker strip 23 and about this sheet of insulating material 27 is wound a coil 28 of insulated fine copper wire. Contact strip 24 is formed with an upturned tab 29 at the end adjacent the base member 15. A contact button 30 is formed facing upwardly at the extended end of contact strip 24. The outward end of the wire coil 28 is stripped of insulation and wrapped around tab 25 on contact breaker strip 23 and secured thereto. The inward end of wire 28 is stripped and wrapped around tab 29 on contact strip 24 and secured thereto. Contact breaker strip 23 and strip 24 may be grommeted to openings 16 and 18 as at 16a, 18a with clips 19 and 20. The flasher unit 14 may then be inserted into the case.

The case C for flasher 14 is formed of two identical half sections 31 one of which is shown in Fig. 4. Each cover member 31 is a half shell of teardrop or triangular shape, having a narrow end wall 32 with all corners rounded. Opposite the tapered end wall 32 there is a wide end wall 33 of the shell. Each shell is formed with a back wall 34 and converging side walls 35 built up about the periphery of wall 34. At the wide end 33 there are a pair of grooved recesses 36 which receive the cable 11. A third recess 37 is provided which has a thin cover wall 38 which may be broken away when it is desired to use recess 37. Between recess 36 and narrowing end 32 of the cover shell 31, the encircling wall 35 is formed with a pair of rectangular recesses 39 opposite each other at the inside of wall 35. A pair of shoulder supports 40 of triangular cross sectional shape are also formed in the corners of recesses 39.

At the tip of the tapered end 32 there is formed a circular recess 41 and a protruding pin 42. Similarly, at the head end 33 there is also formed a recess 43 and a pin 44. Centrally located within the confines of wall 35 and protruding from the back wall 34 is a wedge-shaped lug 45 which is formed with a circular through opening 46 therein countersunk at the outside as at 46a. Lug 45 has a built-up circular base 47. On the outside surface of the shell back wall 34 opening 46 is enlarged at 58.

When the flasher mechanism is inserted into a case half 31, the base member 15 is seated within recesses 39 of the shell walls 35 and supported by and between built-up portions 40 and lugs 45. Hole 17 overlies the hole 46. The contact strips 23 and 24 extend outwardly from grommeted openings 16 and 18 and overlap at the tapered end 32 of the shell thus forming a triangle. A second shell half is fitted over the first shell in like manner to form a complete case and flasher unit. Strips 23, 24 lie between wedge shaped lugs 45 and side walls 35.

The electric power line 11 is laid across the recesses 36 on one of the shell halves before closing the second shell. The clips 19 and 20 are formed with pointed pins 49 and 50 which engage one lead 11a of the power line 11. A small section of the engaged lead is cut away before installing a flasher.

The case halves 31 are fastened together by a central grommet 51 which passes through openings 46 and 17. A nut end bolt may be substituted for the grommet 51.

The ends of the grommet fit in the countersunk openings 46a.

The method of operation of the flasher mechanism may be seen in Figs. 5 and 6. Current from lead a of power line 11 enters bar 23 at the connection thereto, passes through the raised finger 25 to wire 28. Wire 28 is coiled about the insulation bar 23 and extends to finger 29 of contact strip 24 which is connected across the light bulb to wire lead b of the power line. Thus, a circuit is completed in Fig. 6. Wire 28 being of fine gauge creates a higher resistance to the current passing therethrough and so builds up a high degree of heat. The heat thus built up about the bi-metal bar 23 causes the bar 23 to bend downwardly until contact 26 engages contact 30. The engagement of contacts 26 and 30 allows the line current to pass freely and with less resistance directly through strips 23 and 24 to complete the circuit shown in Fig. 5. With the current avoiding wire 28 the bi-metal strip 23 is allowed to cool and so to expand back to its original position in Fig. 6 thus causing the cycle to begin again.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Wire 28 being of nickel-chrome composition creates a higher resistance to the current.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. An electric flasher device comprising a flat elongated base of non-conductive material, a bi-metal strip connected to one end of said base member at one side of said base member, said strip extending outwardly of one longitudinal edge of said base member, contact means at the other end of said bi-metal strip, insulating means wrapped about said bi-metal strip, a coil of fine gauge wire wrapped about said insulating wrapping, said fine wire connected at one end to the bi-metal strip, a second metal strip connected to the other end of said base member at the other side of said base member, said second strip extending outwardly of said one longitudinal edge of said base member, the other end of said fine gauge wire connected to said second metal strip, contact means at the other end of said second metal strip, said bi-metal strip overlapping said second metal strip at the ends extended from said base member, clip means comprising a pair of lugs connected one each to the connections of said first and second strips and extending outwardly of the opposite longitudinal edge of said base member from which said strips extend to connect said bi-metal strip and said second metal strip in series with a power line, and enclosing case means for said base and metallic strips.

2. An elongated flat insulative base means, a bi-metal strip secured to one end of said base means at one side of said base means, a second metal strip attached to the opposite side of the other end of said base means, said metal strips extending outwardly from said base means and overlapping at the far ends thereof, a high resistance coil means about said bi-metal strip and insulated therefrom, said coil means being connected to said bi-metal strip and said second metal strip, and means for connecting each of said metal strips to an electric power supply line, said clip means comprising a pair of connector lugs

connected one each to the attachments of said first and second strips and extending outwardly from said base means in directions opposite to the directions in which said strips extend.

3. The combination of claim 2, said metal strips being attached to said base means by metal grommets.

4. The combination of claim 2, said base means being formed with an opening in the center thereof, a pair of case covers surrounding said flasher switch, said case covers having notches to receive a power line, and said case covers being formed with openings overlying said opening in said base means, and fastening means extending through said openings in said case covers and said opening in said base means.

5. A flasher switch comprising a base member formed of insulated material, said base member being formed with a through opening at each end, and with a through opening at the center thereof, a pair of line clips overlying said end openings in said base member one on each side of said base member, said line clips being formed with openings at the overlying ends thereof, a bi-metal strip extending outwardly from said base member and having one end overlying one of said through openings, a second strip of metal extending outwardly from the opposite side end of said base member and overlapping said bi-metal strip at the extended end thereof and having an end overlying the opposite line clip and through opening in said base member, said strips being formed with openings at the overlying ends thereof, said metal strips and said line clips being fastened to their respective through openings in said base member by grommets, an insulating means on said bi-metal strip, and a length of wire coiled over said insulating means on said bi-metal strip, said wire coil means being connected at one end to said bi-metal strip and the other end connected to said second metal strip.

6. The combination of claim 5, said bi-metal strip being formed with a raised tab member at the extended end thereof, said second metal strip being formed with a raised metal tab at the base end thereof, said coiled wire being attached to said tab means.

7. The combination of claim 5, electrical contact point means formed at the extended ends of said metal strips.

8. The combination of claim 5, a pair of tapered case members covering said flasher, said case members being formed with openings overlying said central opening in said rectangular power line, and a fastening means extending through said central opening in said case members and through said opening in said rectangular base means.

9. The combination of claim 8, said case members being formed with internal seating recesses adapted to receive the ends of said base member, said cover members being formed with means to align them securely, and said fastening means extending through said openings in said case members and through said opening in said base member comprising a metal grommet.

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