Feb. 4, 1958 S. G. MILLER 2,822,534

FIRE ALARM

Filed Sept. 16, 1955

Fig. 1

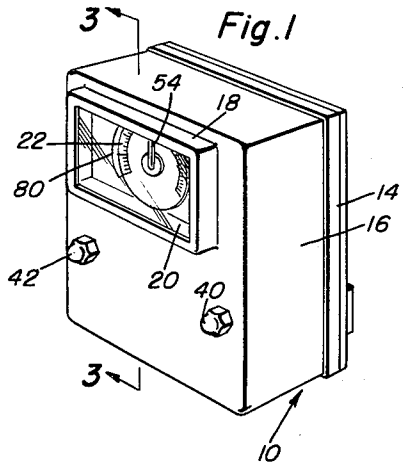


Fig. 2

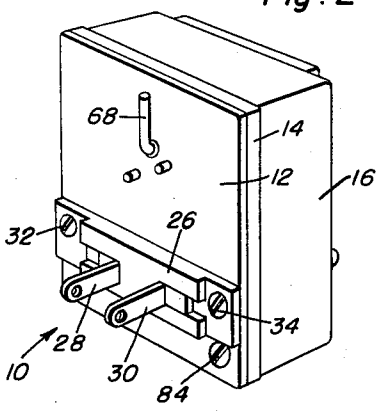


Fig. 3

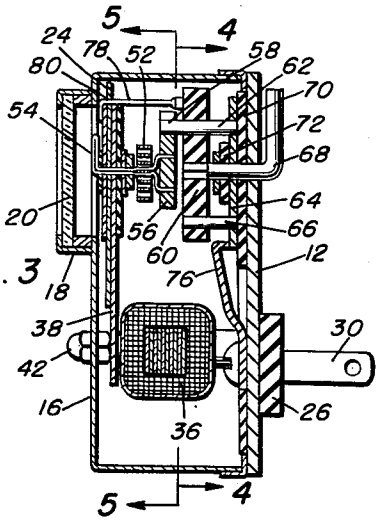


Fig. 4

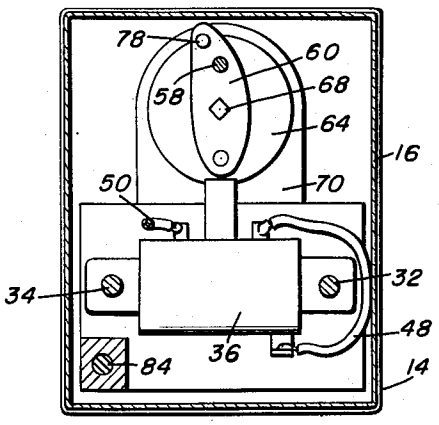


Fig. 5

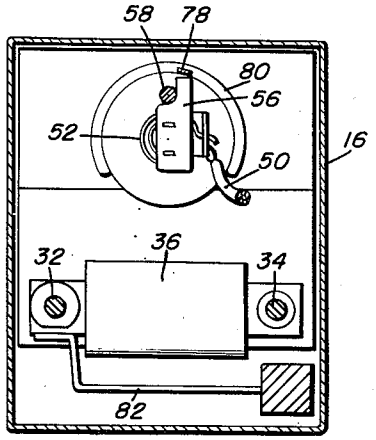
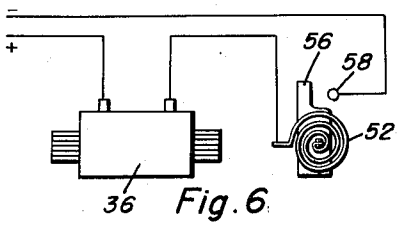


Fig. 6



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FIRE ALARM

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7 Claims. (Cl. 340—227)

This invention relates to a fire alarm, and more particularly to a device which is capable of being associated with an electric outlet box or the like so as to provide a warning that the area adjacent and surrounding the fire alarm has exceeded a certain temperature, thus providing a warning of fire.

The primary object of the present invention resides in the provision of a portable fire alarm capable of being transported from one location to another and having prongs insertable into a conventional electric outlet receptacle. Further, the invention provides means for enabling the fire alarm to be set to operate at a selected predetermined temperature.

The construction of this invention features a fire alarm including novel indicating and setting means and further including a novel arrangement of parts whereby electric power is supplied not only to a coil for actuating a vibrator but to a contact brush actuated by a bimetallic coil and to an adjustable contact mounted for rotary movement.

Still further objects and features of this invention reside in the provision of a fire alarm that is simple in construction, highly efficient in operation, light in weight, and inexpensive to manufacture, thereby permitting wide distribution and utilization.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds, are attained by this fire alarm, a preferred embodiment of which has been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is a perspective view of the fire alarm comprising the present invention from the front portion thereof;

Figure 2 is a rear perspective view of the fire alarm;

Figure 3 is an enlarged vertical sectional view as taken along the plane of line 3—3 in Figure 1 and illustrating in particular the construction of the adjustable contact;

Figure 4 is a vertical sectional view as taken along the plane of line 4—4 in Figure 3 and illustrating the manner in which the coil is positioned within the housing;

Figure 5 is a vertical sectional view as taken along the plane of line 5—5 in Figure 3; and

Figure 6 is a schematic diagram of the electrical components of this invention.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 is used to generally designate the fire alarm comprising the present invention. This fire alarm includes a housing which can be either made of metallic or plastic material and which includes a base plate 12 having a peripheral flange 14 within which the housing cover 16 is adapted to sea. The housing cover 16 has an extension 18 which may be covered with a suitable transparent face plate 20 in order that the indicia 22 on the dial plate 24 can be readily observed.

An insulative plate 26 is positioned in overlying relationship relative to the base plate 12 and carries a pair of prongs 28 and 30. Studs having screw heads and indicated by reference numerals 32 and 34 extend through the plate 32 and through the base plate 12 and not only only hold the prongs 28 and 30 in position but also support and position a coil 36 as well as the lower end of the dial plate 24, as indicated at 38. The dial plate 24 is, of course, made of a suitable number of laminations of metallic material or may be integrally formed. The studs 32 and 34 have threaded end portions which extend through the cover plate 16 and cap nuts 40 and 42 are threadedly engaged on the ends of the studs 32 and 34 to hold the cover plate 16 in position.

By means of conductor 48, the prong 28 is electrically operatively connected to the coil 36 and conductor 50 connects the coil 36 to a bimetallic temperature responsive member 52 which can be best seen in Figures 3 and 5. The temperature responsive member 52 carries an indicator 54 which cooperates with the dial 22 to indicate the temperature of the area surrounding the fire alarm 10 and carries a carbon contact brush 56 which is movable into engagement with an adjustable contact rod 58 carried by an adjustable insulative contact member 60. The carbon brush 56 may obviously be made out of any other suitable electrically conductive material, if so desired. The contact rod 58 extends angularly outwardly from the contact member 60 and is an extension of the member 62 fixing the insulative contact member 60 to a disk 64. Another rod 66 is also utilized to mount the insulative contact member 60 on the disk 64. An operating shaft 68 extends through the base plate 12, the insulation 70 separating the electrically conductive disk 64 from the base plate 12, and through suitable washers 72 and is engaged in the insulative contact member 64 and rotatable therewith so that upon operation of the operating shaft 68, the member 60 will rotate, as will the contact rod 58 and the disk 64. The disk 64 is engaged by a resilient contact brush 76 which is electrically operatively connected to the prong 30.

Carried by the insulative contact member 62 is a finger 78 which extends through a slot 80 in the dial plate 24 and which holds the upper portions of the dial plate 24 in position, thus cooperating with the studs 32 and 34 to maintain the dial plate in position. A vibrating member 82 is held by means of a screw fastener 84 or the like in position so as to be actuatable by the coil 36 when the coil 36 is excited.

In operation, the operating shaft 68 is rotated so that the indicator 78 will indicate the temperature at which the surrounding area must be so as to actuate the temperature responsive element 52 to that temperature which will thus cause the contact brush 56 to engage the contact rod 58 to complete an operative electrical circuit from the source of electric power at the prongs 28 and 30 to the coil 36 thus actuating the vibrating element 82 to sound a buzzing noise or the like.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A fire alarm comprising a housing having a base plate, a pair of contact prongs extending from said base plate for connection to an electric outlet to support and electrically energize said fire alarm, a coil electrically connected to one of said prongs, a vibrator actuated by said coil, spaced support studs carrying said coil, a dial

plate carried by said studs, a temperature responsive member carried by said dial plate and having a contact brush associated therewith electrically connected to said coil, and an adjustable contact carried by said base plate, said adjustable contact being electrically connected to the other of said pair of prongs and being engageable by said contact brush.

2. A fire alarm comprising a housing having a base plate, a pair of contact prongs extending from said base plate for connection to an electric outlet to support and electrically energize said fire alarm, a coil electrically connected to one of said prongs, a vibrator actuated by said coil, spaced support studs carrying said coil, a dial plate carried by said studs, a temperature responsive member carried by said dial plate and having a contact brush associated therewith electrically connected to said coil, and an adjustable contact carried by said base plate, said adjustable contact being electrically connected to the other of said pair of prongs and being engageable by said contact brush, said dial plate having an arcuate slot therethrough, said adjustable contact having a finger extending through said slot.

3. A fire alarm comprising a housing having a base plate, a pair of contact prongs extending from said base plate for connection to an electric outlet to support and electrically energize said fire alarm, a coil electrically connected to one of said prongs, a vibrator actuated by said coil, spaced support studs carrying said coil, a dial plate carried by said studs, a temperature responsive member carried by said dial plate and having a contact brush associated therewith electrically connected to said coil, and an adjustable contact carried by said base plate, said adjustable contact being electrically connected to the other of said pair of prongs and being engageable by said contact brush, said adjustable contact having a contact ring mounted on and insulated from said base plate, and a strip brush connected to said other of said pair of prongs resiliently engaging said contact ring.

4. A fire alarm comprising a housing having a base plate, a pair of contact prongs extending from said base plate for connection to an electric outlet to support and electrically energize said fire alarm, a coil electrically connected to one of said prongs, a vibrator actuated by said coil, spaced support studs carrying said coil, a dial plate carried by said studs, a temperature responsive member carried by said dial plate and having a contact brush associated therewith electrically connected to said coil, and an adjustable contact carried by said base plate, said

adjustable contact being electrically connected to the other of said pair of prongs and being engageable by said contact brush, said temperature responsive member including a coil of bimetallic material.

5. A fire alarm comprising a housing having a base plate, a pair of contact prongs extending from said base plate for connection to an electric outlet to support and electrically energize said fire alarm, a coil electrically connected to one of said prongs, a vibrator actuated by said coil, spaced support studs carrying said coil, a dial plate carried by said studs, a temperature responsive member carried by said dial plate and having a contact brush associated therewith electrically connected to said coil, and an adjustable contact carried by said base plate, said adjustable contact being electrically connected to the other of said pair of prongs and being engageable by said contact brush, said adjustable contact having a contact ring mounted on and insulated from said base plate, and a strip brush connected to said other of said pair of prongs resiliently engaging said contact ring, said dial plate having an arcuate slot therethrough, said adjustable contact having a finger extending through said slot, said temperature responsive member including a coil of bimetallic material.

6. A visual indication switch for a fire alarm comprising a coil, spaced support studs carrying said coil, a dial plate carried by said studs, a temperature responsive member carried by said dial plate and having a contact brush associated therewith electrically connected to said coil, and an adjustable contact, said adjustable contact being engageable by said contact brush, said adjustable contact having a contact ring, and a strip brush resiliently engaging said contact ring, said dial plate having an arcuate slot therethrough, said adjustable contact having a finger extending through said slot.

7. A visual indication switch for a fire alarm comprising a dial plate, a temperature responsive member carried by said dial plate and having a contact brush associated therewith, an adjustable contact, said adjustable contact being engageable by said contact brush, said adjustable contact having a contact ring, and a strip brush resiliently engaging said contact ring, said dial plate having an arcuate slot therethrough, said adjustable contact having a finger extending through said slot.

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