Aug. 10, 1948. R. B. THORNTON 2,446,794

PORTABLE FIRE ALARM

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Fig. 1.

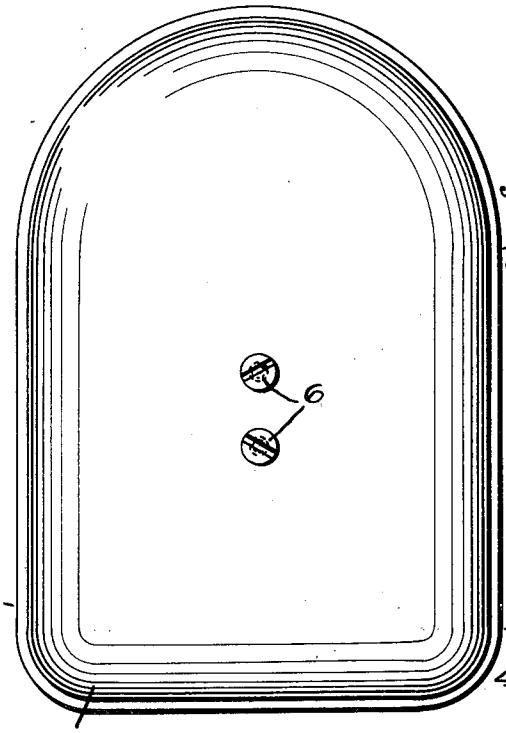


Fig. 2.

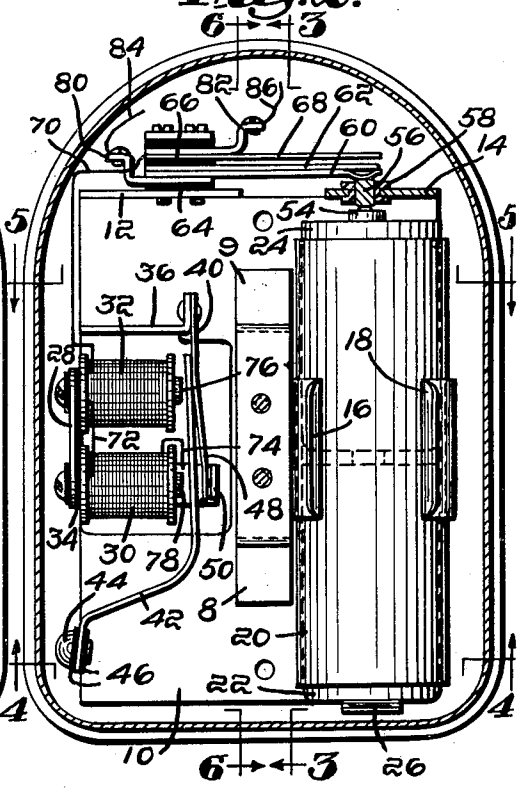
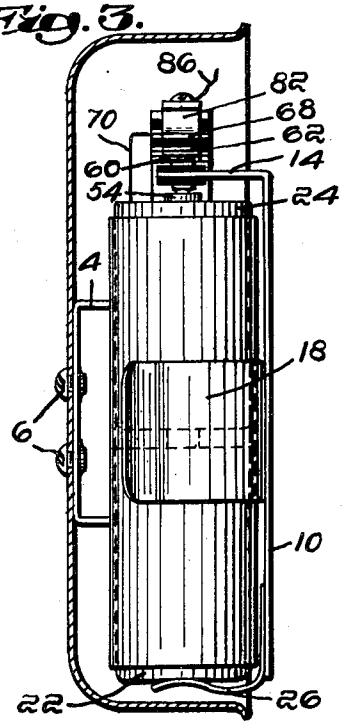


Fig. 3.



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Fig. 4.

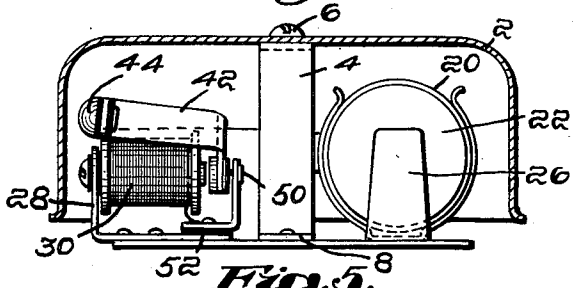


Fig. 5.

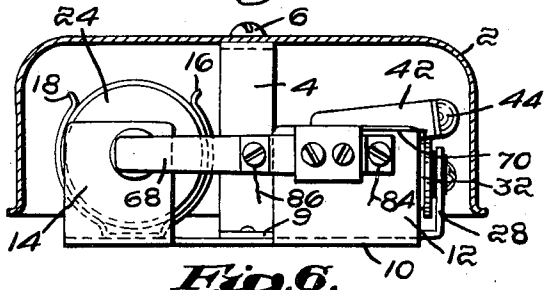


Fig. 6.

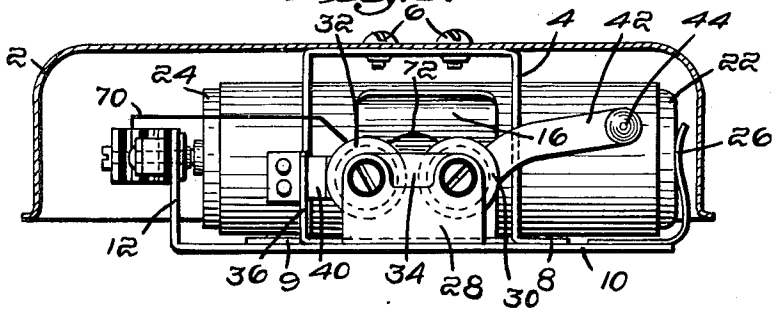
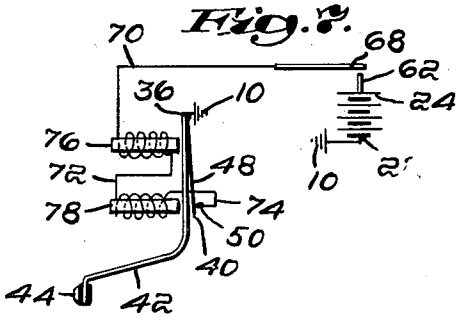


Fig. 7.



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Patented Aug. 10, 1948

2,446,794

UNITED STATES PATENT OFFICE

2,446,794

PORTABLE FIRE ALARM

Rudolph B. Thornton, Winchester, Mass.

Application July 30, 1947, Serial No. 764,821

1 Claim. (Cl. 177—311)

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This invention relates to fire alarms, and is particularly concerned with a portable fire alarm which may be carried from place to place to be used wherever it is deemed expedient.

The invention contemplates the utilization of a thermostatic element which will function to close a circuit to sound the alarm when the temperature at the alarm's location has risen to a predetermined degree.

It is appreciated that portable fire alarms operating broadly on the same general principle as my alarm have been made, but the alarms of the prior disclosures have been cumbersome and ill adapted for convenient transportation and use.

Accordingly, the present invention resides in the particular arrangement of the parts which results in a novel, compact, sturdy structure which will have long life. In addition, the utilization of the cover member as the bell reduces the size and number of parts.

The nature of the invention will be more particularly understood as the description proceeds with the aid of the accompanying drawings, in which

Fig. 1 is an elevational view of the unit as it would appear hanging on a wall.

Fig. 2 is an elevational view similar to Fig. 1 with the cover broken away to expose the interior mechanism.

Fig. 3 is a view on the line 3—3 of Fig. 2.

Fig. 4 is a section on the line 4—4 of Fig. 2.

Fig. 5 is a section on the line 5—5 of Fig. 2.

Fig. 6 is a section on the line 6—6 of Fig. 2.

Fig. 7 is a schematic drawing of the electrical circuit.

Referring to Figs. 1 to 6, the alarm comprises a housing 2 which serves not only to cover and protect the bell ringing mechanism but also acts as the bell part of the unit. This cover or bell is secured to an inverted U-shaped support 4 by means of screws 6. The area of engagement between the bell and support 4 is small. Support 4 has feet 8 and 9 preferably spot-welded to a mounting plate 10. This mounting plate carries all of the electrical and working elements of the unit, which are positioned to be entirely clear of bell 2, but at the same time adequately protected thereby. Since the only connection between bell 2 and plate 10 is support 4, a clear loud bell sound is obtained when the bell is struck by the operating mechanism which will hereinafter be described.

Plate 10 has two upturned tabs 12 and 14 which carry the thermostatic switch mechanism. Also mounted on plate 10 are a pair of spring clips 16

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and 18 which rigidly grip a tube 20, ordinarily made of insulating material, in which are positioned in series two dry cells 22 and 24. The bottom contact of cell 22 rests against a spring clip 26 which is grounded to plate 10.

On the edge of plate 10 opposite the batteries is another upstanding support 28 which carries a pair of bell ringing coils 30 and 32. These coils are insulated from support 28 by an insulating sheet indicated at 34.

Another support 36 adjacent the coils carries a flexible strip spring 40 to which is attached the bell hammer arm 42, having on its end bell hammer 44. This latter member is insulated from arm 42 by the two insulating discs 46. Spring 40 extends in the usual manner as at 48, to be normally in engagement with the upstanding contact 50, which, as shown in Fig. 4, is insulated from the base 10 by the insulation 52.

The top contact 54 of battery 24 is an engagement with conductor 56, which extends through tab 14 and is insulated therefrom by the tubular insulator 58. Conductor 56 is also in engagement with the two spring fingers 60 and 62, which are mounted on tab 12 and insulated therefrom by insulating block 64. Another insulating block 66 separates fingers 60 and 62 from the thermostatic element 68, which is normally separated from contact 62 as shown. Element 68, being preferably a bimetallic strip, bends downwardly to engage finger 62 when the temperature has risen to the predetermined degree.

From thermostatic element 68 leads a wire 70 which connects with one end of coil 32. Another wire 72 leads away from the other end of coil 32 to connect with one end of coil 30. Another wire 74 leads from the other end of coil 30 to the contact 50. Thus, when thermostatic element 68 is in engagement with finger 62, there is completed an electrical circuit as follows: starting with battery 22 through battery 24, conductor 56, fingers 60 and 62, thermostatic element 68, wire 70, coil 32, wire 72, coil 30, wire 74, contact 50, spring 48, support 36, plate 10, and spring 26, back to battery 22.

This closed circuit magnetizes the two cores 76 and 78 to draw hammer arm 42 to the left, as viewed in Fig. 2, thereby breaking the circuit between contact 48 and contact 50. This demagnetizes cores 76 and 78 and spring 40 causes contacts 48 and 50 to come into engagement again. Thus the bell hammer vibrates continuously so long as thermostatic element 68 remains in contact with finger 62.

From the foregoing description it can be seen

that an alarm will be given immediately upon the temperature rising to the predetermined degree. The alarm will continue to sound until the unit is removed to a cooler place or the circuit is broken.

It will be noted in the several figures, and particularly in Fig. 2, that there are provided two auxiliary connectors, **80** and **82**, which may conveniently be connected by wires **84** and **86** to a small push button switch (not shown). If such push button switch is included, it provides an easy way of closing the circuit by hand for the purpose of testing the condition of the batteries and the operativeness of the electrical circuit. Ordinarily, however, it will be sufficient to test the circuit by pressing thermostatic element **68** against finger **62**.

While the invention has been illustrated by reference to a preferred form, it is to be understood that it is not to be limited thereby, but only by the appended claim.

I claim:

A portable fire alarm, comprising a mounting plate, a centrally located support on said mounting plate, a cover acting as a bell mounted on said support and having only a small area in contact with said support, said cover being of such dimensions as to completely conceal said mounting plate when viewed from the cover side, the rear of said mounting plate extending beyond the rear edge of said cover whereby said plate may be positioned against a surface without said surface interfering with said cover, a pair of upturned tabs at one end of said plate, one of said tabs supporting a contact adapted to be engaged by a battery and the other of said tabs supporting a thermostatically operable element, a battery positioned on said plate on one side of said support, a bell-ringing mechanism attached to said plate on the other side of said support in a position where the hammer of said mechanism will, when in operation, hit said cover, and electrical circuit connecting the aforesaid parts whereby, when said circuit is closed by the operation of said thermostatic element, said alarm will ring.

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