

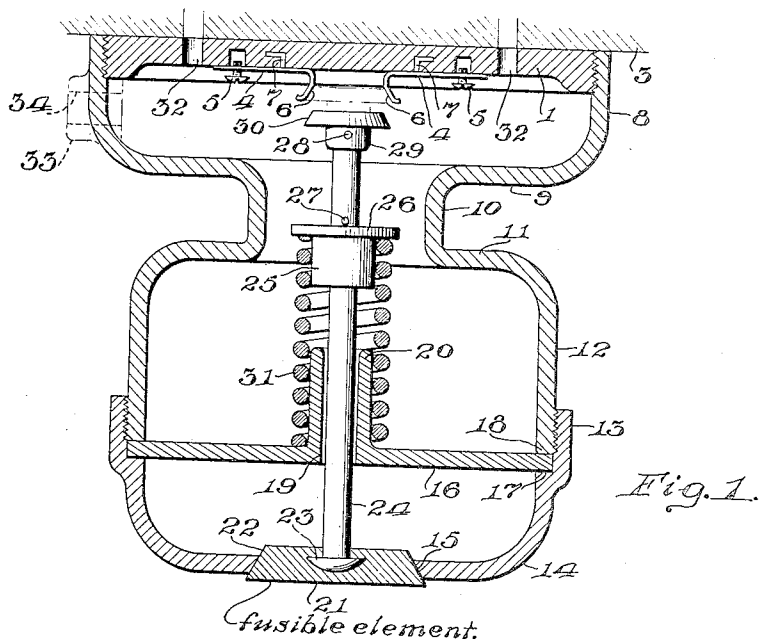
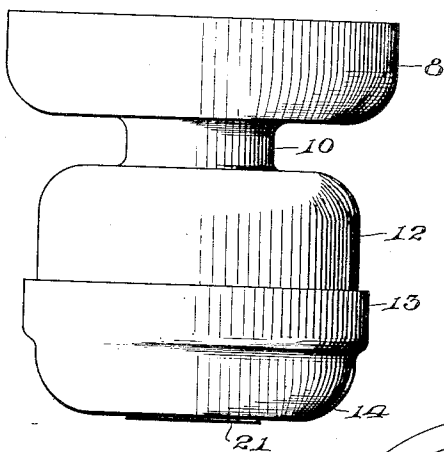
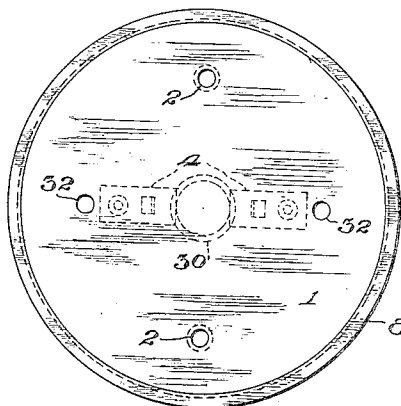
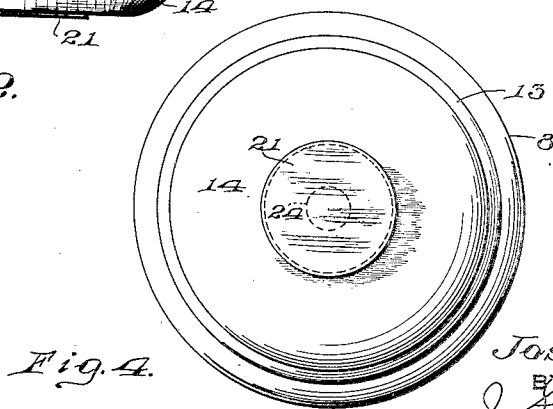
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ELECTRIC FIRE ALARM

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ELECTRIC FIRE ALARM

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5 Claims. (Cl. 200—142)

The object of the invention is to provide improvements in switches such as are used in fire alarm systems, in which the switch automatically closes (in normally open-circuit systems) the circuit in order to thereby indicate in well-known manner the location of the blaze, or at least the excessive heat therefrom.

Another object is to provide a device of this character, which is not only inexpensive to manufacture, but which comprises but few parts and those parts so constructed and inter-related as to prevent any tendency of their becoming broken, loosened or otherwise inoperative, or fail to function.

A further object is to provide in such a device a base, which is attachable to and detachable from a supporting wall or ceiling surface, independently of the other parts of the device, together with a casing in which the switch is unitarily mounted, and which casing can be readily and securely attached to said base after the latter is installed, or removed therefrom for the purpose of inspecting the parts of the switch, without in any way altering or affecting the other conductors, contacts and connections of the circuit.

Still another object is to provide in such a switch, the combination of a casing having an aperture, the sides or edges of which aperture provide a seat, a disc of fusible alloy or other suitable material, normally spanning and closing said aperture and resting uniformly against said seat, a switch element secured at one end to said disc and its opposite end portion being operative to span and electrically connect two or more contact members, together with a suitable spring operative to actuate and cause said switch element to function instantly upon the softening or melting of said disc.

And a still further object is to provide in such a device, the combination of a partition within said casing having an aperture, surrounded by an integral cylindrical extension, thru which said switch element extends loosely and slidably, and by means of which said element is guided towards said contact members, and if desired said casing comprising a radially restricted portion, the walls of which can be made to operate as an auxiliary guide for the purpose of controlling the direction of movement of said element, in the event of said cylindrical extension in any way becoming broken off or fractured.

With these and other objects in mind, the invention comprises further details of construction and operation, which are hereinafter fully

brought out in the following description, when read in conjunction with the accompanying drawing, in which,

Fig. 1 is a normal vertical diametrical sectional view of an improved switch comprising one embodiment of the invention;

Fig. 2 is a side elevational view of the same;

Fig. 3 is a top plan view of the same, separated from the supporting ceiling or other wall surface; and

Fig. 4 is a bottom plan view of the same.

Referring to the drawing, the device here illustrated as comprising one embodiment of the invention, comprises a circular, externally threaded disc-like base 1, having a suitable number of properly positioned apertures 2, thru which screws, bolts, or other means, may extend in order to attach said disc to the ceiling 3, or other suitable wall surface. This disc is preferably formed from plastic material such as the well-known bakelite or similar insulating material, and fixedly carries two or more electrical contact members 4, each of which is provided with a screw or other suitable means 5, for attaching one or more wires thereto, while the adjacent end portions of said members are directed angularly away from said supporting disc, and thence divergently in order to provide a pair of contact surfaces 6, said members being also provided with any suitable lug or the like 7, which by being embedded within the body of said disc, serves to rigidly and unitarily secure such member thereto.

The casing for the improved switch comprises an annular upwardly extending and internally threaded cylindrical portion 8, the walls of which at a position spaced from said disc, when operatively attached thereto, are directed inwardly at 9, and thence again downwardly, to form a substantially cylindrical section 10 of relatively restricted diameter, and adapted to perform a function hereinafter referred to. Beneath said cylindrical section, said walls are again directed outwardly at 11 and thence downwardly to form a cylindrical housing 12, the lower end portion of which is externally threaded, in order to detachably receive the similarly threaded flanged extension 13 of a closure member 14, which latter is provided centrally in its normally downwardly directed surface with an aperture, bounded by upwardly converging surfaces 15. Positioned within said housing is a partition 16, the radially outer edge portions of which rest upon an annular shoulder 17 of said closure member, and are secured in fixed binding relation therewith by the free edge portion 18 of the housing section

12 of said casing. This partition in turn is provided with a preferably centrally positioned aperture 19, in alignment with which projects an upwardly projecting cylindrical extension 20.

5 Normally spanning the area of the aperture in said closure, and uniformly seated upon and with respect to the conical surfaces 15, is a suitably shaped disc of a fusible alloy 21, having an upper periphery 22, which conforms in shape with the
10 seat 15. Embedded within said fusible disc is the head portion 23 of a rod 24, comprising a switch element, which extends slidably thru said partition extension 20, and is provided with a collar 25, having a radially extending flange 26
15 and secured against movement upon said element by means of a pin or the like, while the opposite end of said element has secured to it by means of a second pin or the like 28 an enlarged circular metallic head 29, having an annular conical
20 contact surface 30, adapted when in the dot-and-dash position indicated in Fig. 1 to electrically contact with and span the gap between the contact surfaces 6 of the electrically conductive members 4.

25 A coil spring or the like 31 extends between and bears against the partition 16 and collar flange 26 at its respective opposite ends, which ends surround and are axially positioned by said cylindrical extension 20 and collar 25, the function of this spring being to force said switch
30 element 24 normally upwardly, so that the metallic head 29 contacts with and electrically connects the electric contact members 4 instantly upon the softening or melting of the fusible disc
35 21, in the presence of fire or heat therefrom rising above a predetermined temperature, which is predetermined by the composition of the alloy of said fusible disc.

This improved switch may be properly connected in a fire alarm system of wiring, by extending such wires thru the apertures 32 in the base 1, or in the event that such wires have to be brought to said switch thru a metal conduit, especially as when the system is installed after
45 a building is erected, such conduit of any well-known form and construction can be attached to a boss, such as is represented by the dot-and-dash lines 23, forming an integral extension of the upper section 8 of the switch casing, and in
50 which case an inlet aperture 34 would lead thru such boss. It is also to be noted that while there is almost no likelihood of the partition extension 20 being fractured or broken off, in the event that such might occur, the restricted section 10 of said
55 casing if of the proper diameter may serve as an auxiliary guide, either for the switch element 24 direct, or for the collar flange 26, so that the head 29 will be directed more or less in a rectilinear path towards the conical contact members
60 6, upon reaching and cooperating with which said head will be automatically seated centrally with respect thereto.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description
70 to indicate the scope of the invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A switch for electric fire alarm systems, comprising a casing, a base adapted to be normally

secured to a supporting surface and detachably supporting said casing, a plurality of electrical contact members carried by said base, said casing having an open side, a cover detachably closing said side and itself having an aperture, a
5 closure of fusible material normally spanning said aperture, a switch element having a portion attached to said closure, and resilient means operative upon the softening of said closure and the release of said element, to force said element
10 away from said cover and into a position electrically connecting said contact members.

2. A switch for electric fire alarm systems, comprising a casing, a base adapted to be normally secured to a wall or ceiling surface and detachably support said casing in threaded engagement, a plurality of electrical contact members operatively positioned within said casing, said casing having an open side, a cover in threaded engagement with and detachably closing said side, and itself having an aperture, a fusible closure for said aperture, a switch element having an enlarged portion embedded in said closure, and resilient means operative upon the softening of said closure and the release of
25 said element, to force said element into a position electrically connecting said contact members.

3. A switch for electric fire alarm systems, comprising a casing, a base adapted to be normally secured to a wall or ceiling surface and detachably support in threaded engagement said casing, a plurality of electrical contact members operatively positioned within said casing, said casing having an open side, a cover having an annular shoulder and in threaded engagement with said casing, said cover itself having an aperture, a fusible closure for said aperture, a removable partition resting upon said shoulder and maintained thereby by said casing, said partition having an aperture, and a switch element having an enlarged portion embedded in said closure and extending slidably thru said partition aperture, and a spring extending between and engaging said partition and a portion of
45 said element, whereby upon the softening of said closure said element will be automatically shifted so as to electrically connect with said contact members.

4. A switch for electric fire alarm systems, comprising a casing, a base adapted to be normally secured to a wall or ceiling surface and detachably support in threaded engagement said casing, a plurality of electrical contact members operatively positioned within said casing, said casing having an open side, a cover having an annular shoulder and in threaded engagement with said casing, said cover itself having an aperture, a fusible closure for said aperture, a removable partition resting upon said shoulder and maintained thereby by said casing, said partition having an aperture, and a cylindrical projection extending axially with respect to said last-mentioned aperture, and a switch element having an enlarged portion embedded in said closure, a head upon its opposite end and extending slidably thru said cylindrical projection as a guide, and a coil spring surrounding said projection and said switch element between said partition and said head, whereby upon the softening of said closure said element will be automatically shifted so as to electrically connect said contact members.

5. A switch for electric fire alarm systems,

comprising a casing, a base adapted to be normally secured to a wall or ceiling surface and detachably support in threaded engagement said casing, a plurality of electrical contact members
5 operatively positioned within said casing, said casing having an open side, a cover having an annular shoulder and in threaded engagement with said casing, said cover itself having an aperture, a fusible closure for said aperture, a
10 removable partition resting upon said shoulder and maintained thereby by said casing, said partition having an aperture, a cylindrical projection extending axially with respect to said last-mentioned aperture, said casing having a radial-

ly constricted portion, and a switch element having an enlarged portion embedded in said closure, a head upon its opposite end and its intermediate portion extending thru said cylindrical projection as a primary guide, and thru said constricted
5 portion of the casing as an auxiliary guide, and a coil spring surrounding said projection and said switch element between said partition and said head, whereby upon the softening of said
10 closure said element will be automatically shifted so as to electrically connect said contact members.

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