

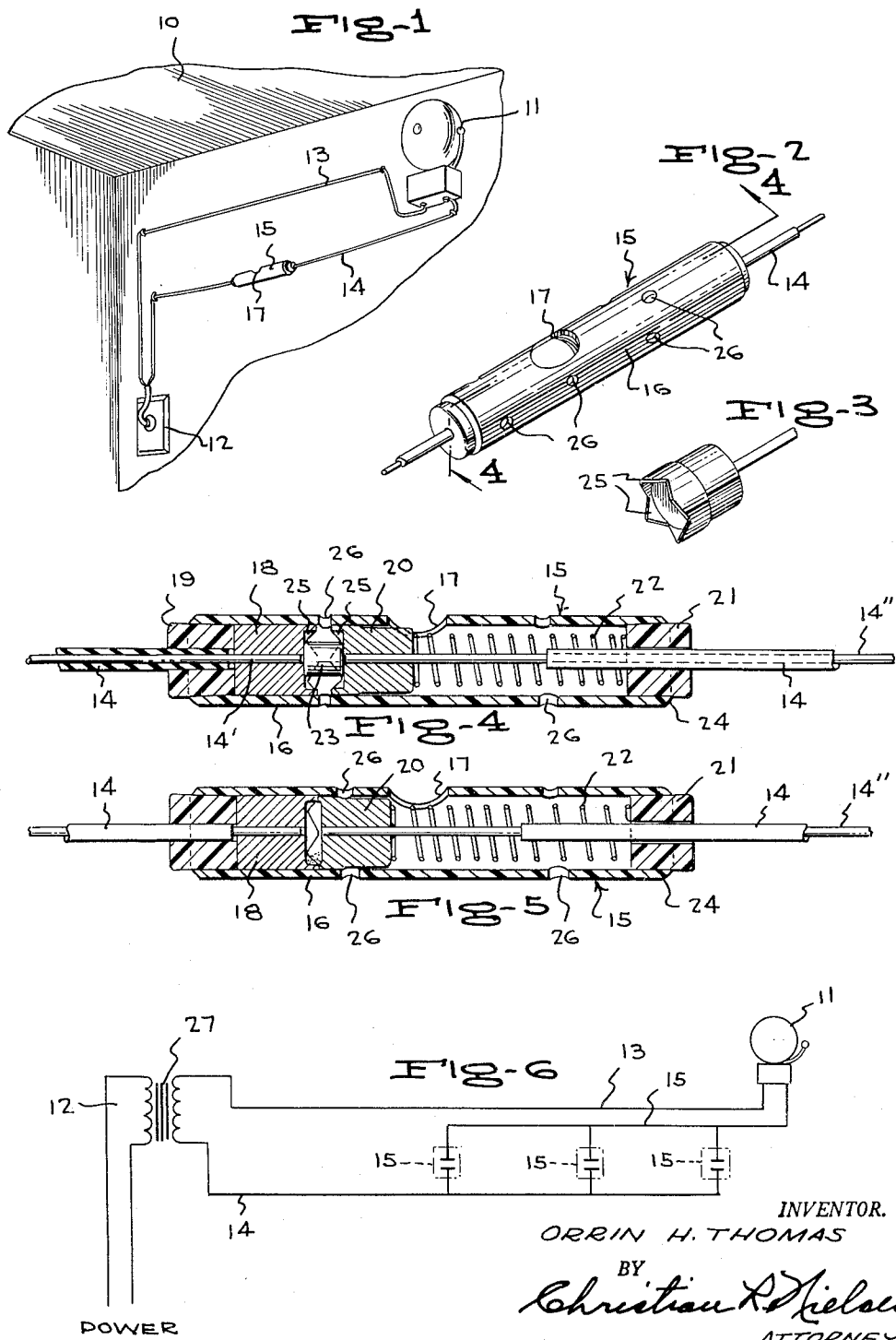
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DETECTOR FOR FIRES AND EXCESSIVE TEMPERATURES

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2,996,591 DETECTOR FOR FIRES AND EXCESSIVE TEMPERATURES

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1 Claim. (Cl. 200—142)

This invention relates to a fire and/or excessive temperature detecting means, which includes an alarm device, the circuit to which is a normally open one end which will be closed upon a predetermined temperature rise and it consists in the constructions, arrangements and combinations herein described and claimed.

It is the cardinal object of the invention to provide a means which may be permanently established in an electrical circuit of an alarm device which is operative as a fire alarm, or as a means of detecting excessive temperatures which may develop from fire or in electrical machinery and the like and in which said means, after operation may be readily re-conditioned for continued use of the system.

It is also an important object of the invention to provide an element which may be readily installed in an electrical circuit associated with a fire alarm, electrical machinery or the like, in which, when an excessive predetermined temperature develops in the circuit thereto or in near proximity, a spring tensioned contact element will be urged to complete the normally open circuit to an alarm device upon disintegration of a fusible element interposed between said spring tensioned contact and a fixed contact of the circuit.

More specifically, it is an object of the invention to provide a temperature actuated detector in the form of a cartridge wherein a fixed contact and a spring-urged movable contact are housed therein arranged in opposed tandem relation, each contact having means for connection in an electrical circuit to an appliance or alarm, said contacts being normally held in spaced apart relation by means of a non-conducting fusible element, the housing having an opening positioned intermediate the length thereof, whereby a renewable fusible element may be installed between said contacts upon retraction of the spring-urged contact to a position beyond said opening.

Additional objects, advantages and features of invention will be apparent from the following description, considered in conjunction with the accompanying drawing, wherein,

FIGURE 1 is a fragmentary perspective view of an alarm system constructed in accordance with the invention.

FIGURE 2 is a perspective view of the cartridge.

FIGURE 3 is a perspective view of one of the contacts.

FIGURE 4 is an enlarged longitudinal sectional view taken on the line 4—4 of FIGURE 2, having a fusible element interposed between the contacts.

FIGURE 5 is a similar view illustrating the position of the contacts upon disintegration of the fusible element to complete the circuit to an electrical appliance, and

FIGURE 6 is a diagrammatic view of a circuit embodying a plurality of detectors installed therein.

Reference is first made to FIGURE 1 of the drawing, wherein a structure 10 is shown which is to be protected against a fire hazard and as here shown, an alarm bell 11 is in electrical circuit with a source of electrical power 12 which may be suitable batteries or otherwise, by means of conductors 13 and 14, the latter having a detector 15 installed therein.

As clearly shown in FIGURES 2, 4 and 5, the detector 15 in the present instance is of elongated cylindrical form, although the shape or contour is not arbitrary. The de-

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detector 15 comprises a hollow housing 16 of suitable insulating material, intermediate the ends of which an opening 17 is formed, for a purpose presently to be explained. Within the housing adjacent one end thereof a fixed contact 18 is secured which may be accomplished by a tight press fit or otherwise, and the adjacent end of the lead 14 is provided with an insulated bushing 19 snugly secured in the housing to close the end thereof. The wire 14' of the lead 14 is electrically connected to the contact 18.

A longitudinally movable contact 20 is also positioned within the housing 16 arranged in opposed tandem relation to the fixed contact 18, the wire 14' of the lead being electrically connected to the contact 20 and interposed between the contact 20 and a closure bushing 21 fixed in the housing, there is a helical spring 22 urging the contact 20 in the direction of the fixed contact 18 which movement is limited by inter-positioning of a fusible member 23, here shown as a cylindrical disk, which is of such proportions as to normally maintain the contacts 18 and 20 in spaced relation thus forming an open circuit to an alarm device, such as the bell 11.

The lead 14 is freely slidable in a bore 24 of the bushing 21, so that the contact 20 is slidable within the housing and may be retracted to a position beyond the opening 17 of the housing 16 permitting renewal of the fusible element 23.

The engaging ends of the contacts 18 and 20 are identical in construction and as best seen in FIGURE 3, a series of spaced prongs 25 project forwardly adapted to engage corresponding prongs of the opposed contact and by this construction, it will be seen that the circuit to an alarm device may be completed before entire disintegration of the fusible element 23, and also, by this construction, it will be seen that any residue remaining or developed from a spent fusible element will not interfere with completing the circuit to an alarm device, since the prongs will project beyond any residual matter of the fusible element.

The opening 17, in addition to permitting renewal of the fusible element, also allows circulation of heat to the fusible element, but additional openings 21 may be formed in the housing 16 to allow the free passage of heated air developed from a fire or the like.

In FIGURE 6, I have illustrated a circuit wherein a series of detector units 15 are connected in a circuit embodying a transformer 27. The units 15 may be positioned at remote points for protection purposes and may be separately or collectively actuated by increase in temperature to energize the alarm device 11.

It should be understood that the fusible element 23 may be formed in varying degrees of melting points, so that varying heat ranges may be complied with.

From the foregoing, it will be seen that a system has been provided wherein an excessive rise in temperature, whether it be due to fire or overheating of an electrical appliance, an alarm will be sounded appraising responsible persons of a fire hazard, and while I have shown and specifically described the invention, this is by way of illustration only, and I consider as my own all such modifications in construction as fairly fall within the scope of the appended claim.

I claim:

A switch device constructed to operate when excessive temperatures have been reached comprising an elongated open ended cylinder of insulating material, a pair of contact members within said cylinder, one of said contacts being rigidly fixed adjacent one open end of said cylinder, the other of said contacts being freely slidable a substantial distance of the length of the cylinder, a closure plug for each open end of the cylinder, each closure plug having an axial bore therethrough for passage of a respective insulated electrical cable, said cables being electrically

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connected to respective contact members, the cable connected to said slidable contact being freely movable through the bore of the closure plug, a helical spring housed within the cylinder interposed between the movable contact and said last named closure plug to urge the movable contact in the direction of the fixed contact, a fusible member interposed between said fixed contact and said movable contact and said cylinder having an opening intermediate the length thereof for insertion of the fusible element when the movable contact is retracted against the tension of the spring.

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