

March 11, 1930.

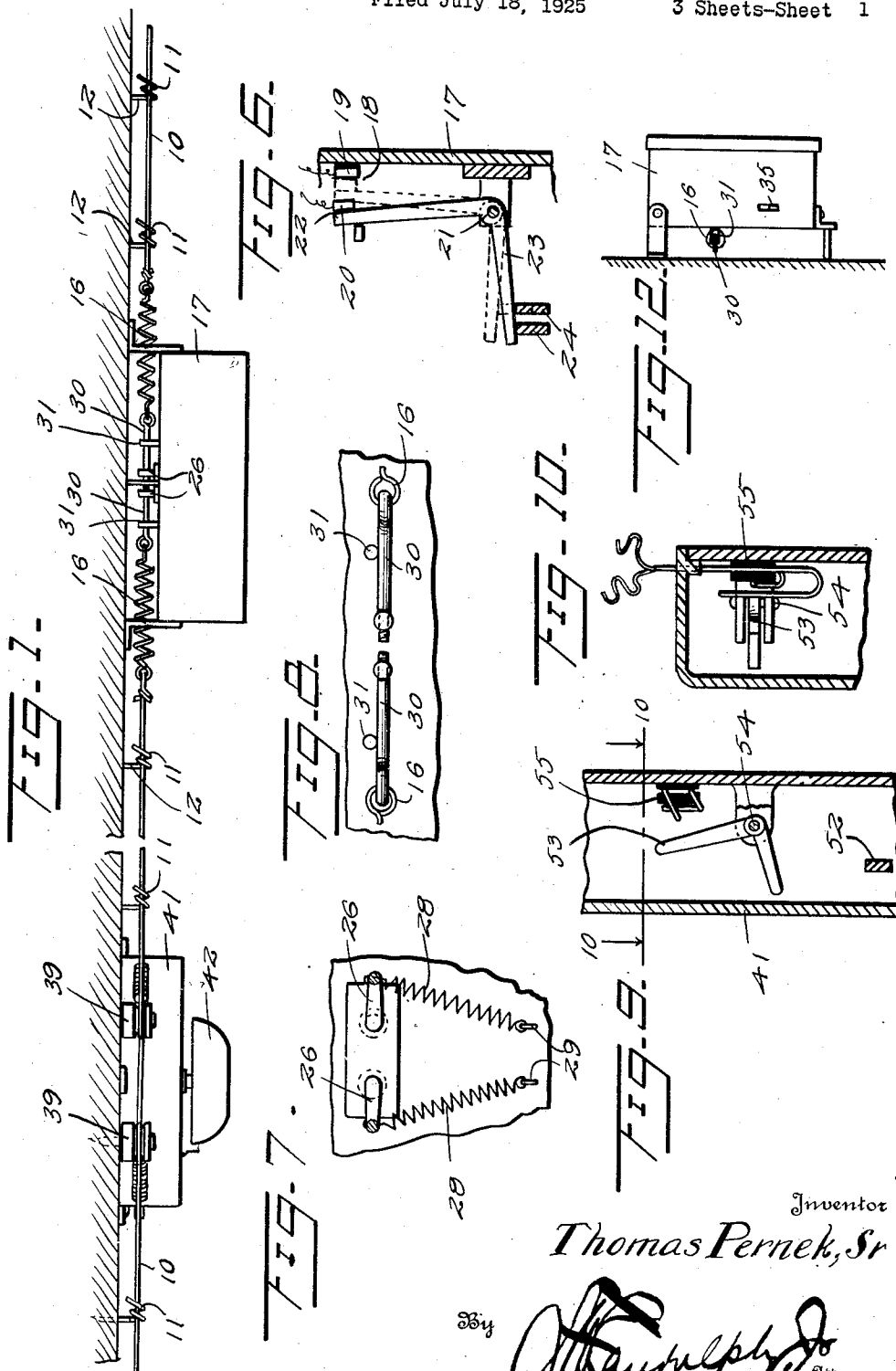
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1,750,488

AUTOMATIC ALARM SIGNAL

Filed July 18, 1925

3 Sheets-Sheet 1



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FIG. 2.

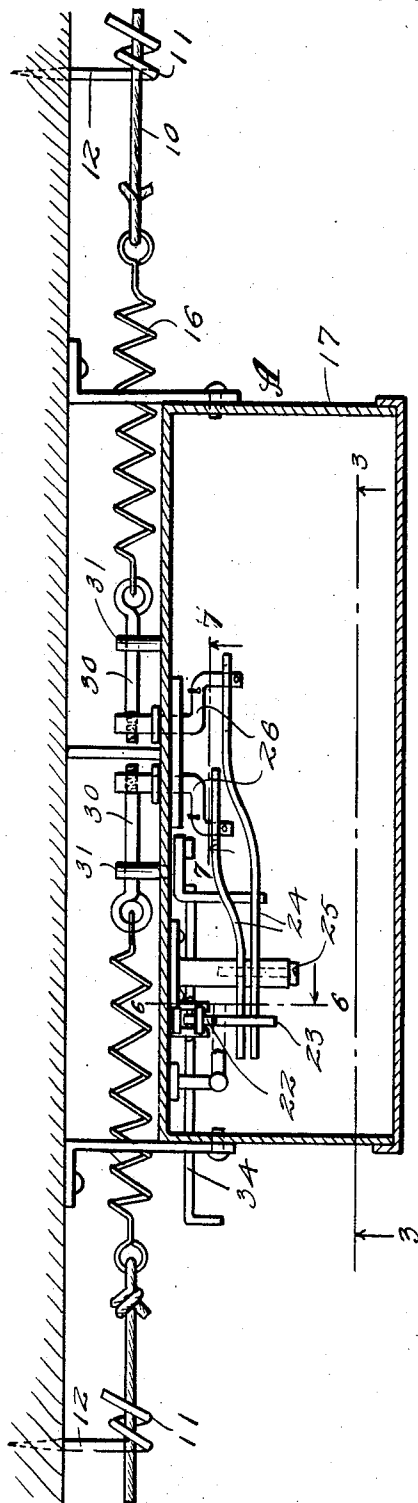


FIG. 3.

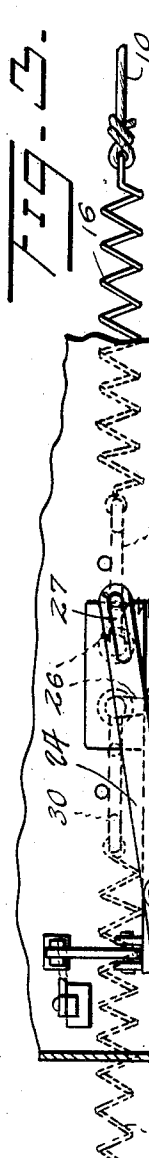
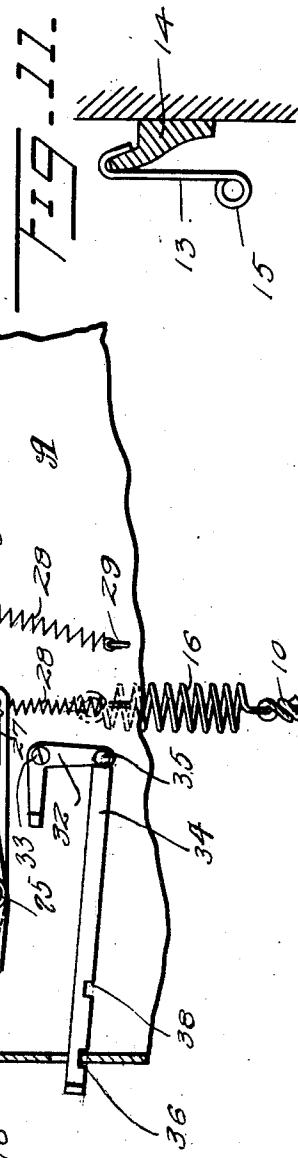


FIG. 11.



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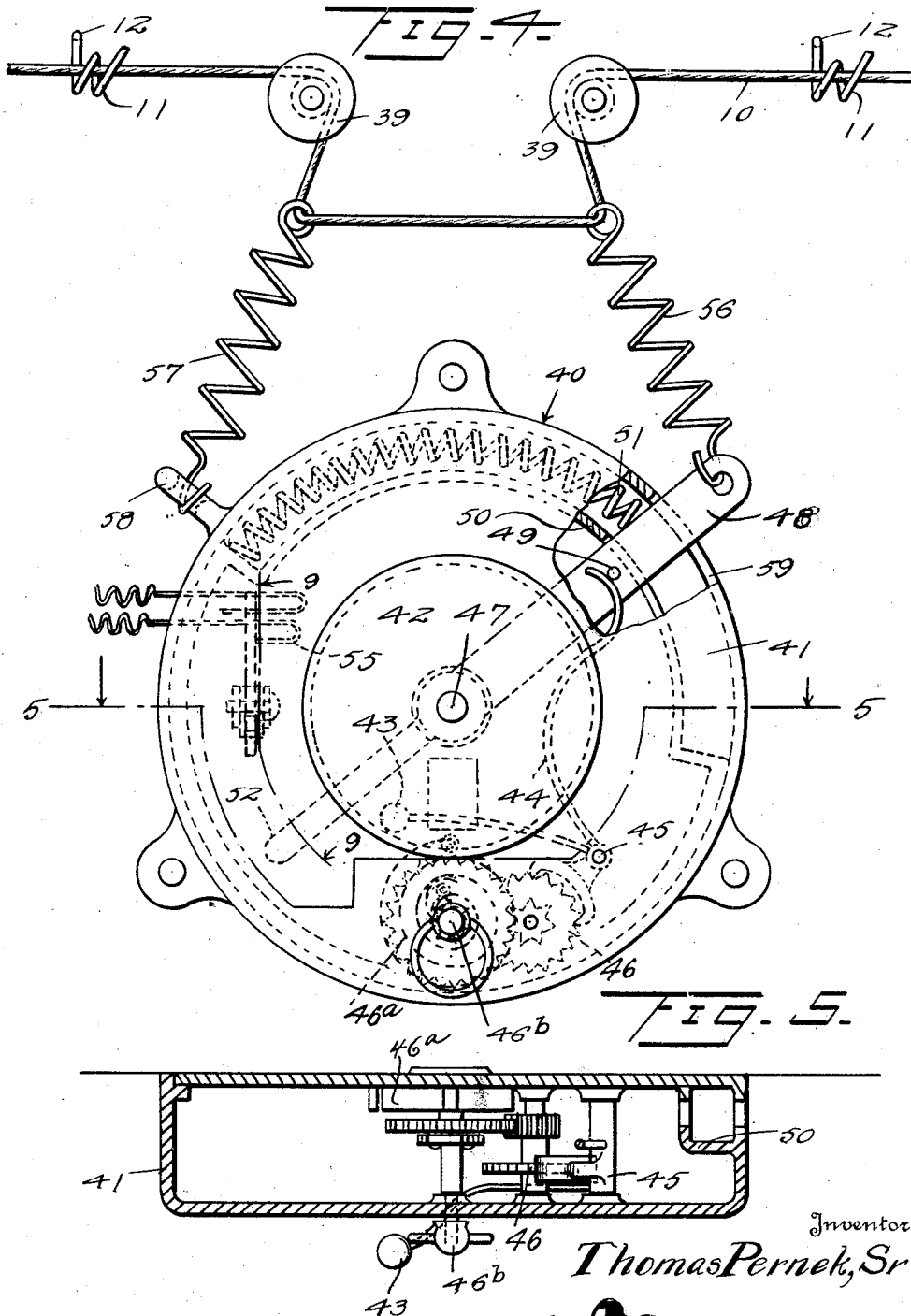
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AUTOMATIC ALARM SIGNAL

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UNITED STATES PATENT OFFICE

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AUTOMATIC ALARM SIGNAL

Application filed July 18, 1925. Serial No. 44,597.

This invention relates to a signal adapted to operate automatically in the presence of fire or excessive heat so as to sound an alarm or otherwise give a signal as to the unusual condition.

A prime object of the present invention is to provide a means to control the signal which will operate practically instantaneously, thus avoiding that interval of time necessary for the increase in temperature of a thermostat as usually depended upon to operate such a signal, and to provide such an improved means as will not support flame to the end that it cannot spread fire.

Another object is to provide a construction which may be used independently of or in connection with the automatic extinguisher disclosed in Letters Patent 1,269,501, issued to me on June 11, 1918.

Another object is to provide a novel means for closing an electric switch, particularly as used in connection with the apparatus.

Various additional objects and advantages will be partly pointed out and otherwise become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a view fragmentarily showing the improvements in plan and as connected to a wall and adjusted in section;

Figure 2 is a view on an enlarged scale in horizontal section through the circuit control means for the bell or other signal;

Figure 3 is a sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a view in elevation partly broken away, enlarged, and detailing the bell or signal;

Figure 5 is a sectional view taken on the line 5—5 of Figure 4;

Figure 6 is a sectional view taken on the line 6—6 of Figure 2;

Figure 7 is a sectional detail taken on the line 7—7 of Figure 2;

Figure 8 is a fragmentary view showing the circuit controlling levers in elevation;

Figure 9 is a sectional view taken on the line 9—9 of Figure 4;

Figure 10 is a sectional view taken on the line 10—10 of Figure 9;

Figure 11 is a view detailing a hanger which may be used in connection with the frangible control strip, and

Figure 12 is an end view of the switch box.

Referring specifically to the drawing, an improved flexible release element is provided as at 10, which is adapted to be placed at various suitable locations within a room, building or the like and where fire is most likely to originate, said release element being guided through coil eyelets 11 of staples 12 driven into the wall, floor or the like and being suspended where desired by hooks or hangers 13 as detailed in Figure 11, 14 in that figure designating molding or the like. Said hangers have eyelets 15 through which the release element 10 passes. The terminals of the element 10 are connected, as shown in Figures 1, 2 and 3, to eyelets of contractile coil springs 16 which in turn are secured to circuit closing mechanism generally designated A and to be hereinafter specifically referred to.

Reverting to the release element 10, this is preferably made of a textile material, for instance, art silk, fibre silk, in the form of a rope, ribbon or otherwise. This material is preferred because it will not support a flame but at the same time is affected by heat and will readily char or disintegrate in the presence of heat, thus enabling the heat to break the element 10 and set the mechanism into operation. The heat acts directly on the element 10 and at practically all locations where there is danger of a fire, and as distinguished from a single location or several locations where thermostats are disposed and which thermostats of course have to wait until the surrounding atmosphere reaches a certain temperature in order to operate. In connection with applicant's release tape or element 10, the heat acts immediately and more instantaneously than is true with thermostatic means. For this reason I prefer to use the present apparatus in most instances as an accessory to that set forth in my Patent 1,269,501 aforesaid, operation of which depends upon thermostatic means.

Referring specifically to the circuit closing means A, it may comprise a suitably supported casing or box 17, arranged at any desired location and having therein a normally open electric switch 18, as best shown in Figures 2 and 6. Casing 17 carries a contact 19 and the switch 18 has a switch arm in the form of a bell crank lever 20 pivoted at 21 to the casing and at one arm carrying a contact 22 to coact with the contact 19 to close an electric circuit. The other arm 23 of the bell crank switch 20 normally rests on shifting levers 24. Levers 24 are pivoted at 25 to the casing 17 so as to be capable of joint and individual operation. Crank arms 26 are journaled in the wall of casing 17 and are pivotally connected at one end to the shifting levers 24 as they pass through elongated slots 27 of said levers. Contractile coil springs 28 are connected one to each crank 26 at one end and to the casing 17 at the other end as at 29, thus serving to tend to rock crank 26 and elevate the distal ends of the shifting levers 24 to rock the switch lever 18 to switch closing position as suggested by the dotted lines in Figure 6. Outside of the casing 17, eye rods 30 are screwed to the cranks 26 and have the springs 16 directly connected thereto. The rods 30 in normal position abut stops 31 projecting from the casing.

In order to prevent accidental closing of the circuit at the switch 18, when the release element 10 is being fastened, inspected or the like, a bell crank lever is provided as at 32, pivoted at 33 to the casing 17 and having a control rod 34 pivoted thereto at 35. The lever 32 is normally held out of interfering relation with the shifting lever 24, as shown in Figure 3, by the engagement of a notch 36 of said bar 34 with the wall of casing 17 adjacent an opening 37 through which the bar 34 passes. To prevent engagement of the shifting lever 24 with the switch as before suggested, the bar 34 is raised from the position of Figure 3 and moved outwardly so that the lever 32 will engage the lever 24 and notch 38 of the rod 34 will engage the wall 17.

As a result of the construction described, upon breakage of the control element 10, the rods 30 will be released and the cranks 26 will be free to be moved by the contraction of springs 28. The contraction of said springs will serve to rock one or both of the levers 24, as suggested in Figure 3, rocking the switch lever 18 and causing engagement of contacts 19 and 20. The switch 18 corresponds to the switch at 41 in my Patent 1,269,501 aforesaid, and controls the same or equivalent parts as in said patent.

As particularly shown in Figures 1 and 4, a portion of the control element 10 passes over guides 39 suitably fastened to the wall or other support. Adjacent to the guides 39, the

combined bell and circuit closer 40, as shown in Figure 4, is provided. This circuit closer 40 is located in a different room from the circuit closing means A and parts controlled by that circuit, in order to give an audible signal to awaken sleeping occupants or the like.

The device 40 has a suitable casing 41 on which a bell 42 is carried and adapted to be sounded by a clapper 43 on one arm of a V-shaped escapement lever 44 pivoted at 45 and coacting with a conventional form of escapement mechanism 46, geared to a spring motor 46^a, 46^b indicating a shaft adapted to be turned by hand to wind the motor. A shaft 47 is disposed axially of the casing 41 and has a switch arm 48 pivoted thereon which also has an abutment pin 49 thereon in engagement with the other arm of the lever 44 as shown in Figure 4. Casing 41 has an arcuate pocket 50 in which an expansive coil spring 51 is disposed and which engages arm 48, tending to shift it and move an end 52 of arm 48 into engagement with a bell crank lever 53 pivoted at 54 within casing 41 and being engageable with contacts 55 to close an electric circuit which may include audible or other signals arranged in various rooms or at different locations, so that the occupants thereof may be apprised of the fire or danger. The bell crank 53 is of course mounted in insulated relation to the casing 41. Contractile coil springs 56 and 57, have the release element 10 provided through eyelets thereof and said springs are respectively connected through openings in the arm 48 and in a lug 58 rigid with the casing 41.

As a result of the foregoing, the tautness of the release element 10 not only holds the springs 28 normally inactive but it also holds the spring 51 normally inactive. When the element 10 breaks, in addition to operating the mechanism A as previously described, the springs 56 and 57 are released whereupon spring 51 is free to move the lever 48 in a clockwise direction as shown in Figure 4 through a slot 59 of the casing 41, so that abutment 49 will move out of contact with arm 44 and release the escapement mechanism 46 at the same time the end 52 will be moved to engage lever 53 and the latter will contact with and close the contacts 55.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. An audible alarm, comprising a bell, a V-shaped lever, a clapper for the bell secured to one arm of said lever, an escapement mounting the lever, a motor geared to the escapement, an arm pivotally mounted and provided in one position to hold said lever and escapement inactive, means to hold the arm in said position, and spring means engaging the arm and adapted to move the arm

when released to release the lever to actuation by the escapement.

2. An audible alarm, comprising a bell, a V-shaped lever, a clapper for the bell secured to one arm of said lever, an escapement mounting the lever, a motor geared to the escapement, an arm pivotally mounted, an abutment on said arm and engageable with the other arm of said lever, means to hold the arm in lever engaging position to maintain the lever and escapement inactive, and a spring engaging said arm and tensioned to move the arm to release the lever to actuation by the escapement.

15 In testimony whereof I affix my signature.
THOMAS PERNEK, SR.

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