

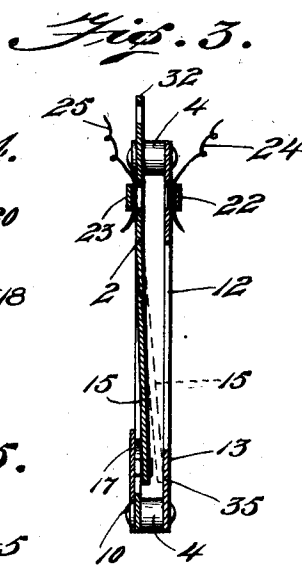
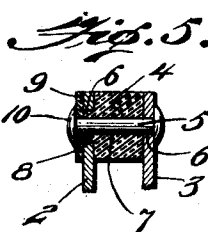
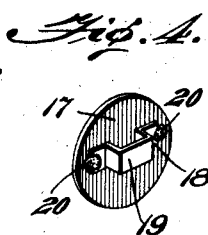
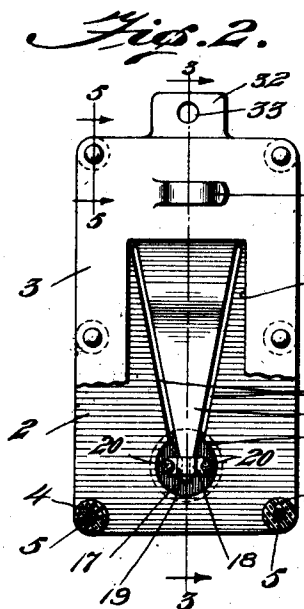
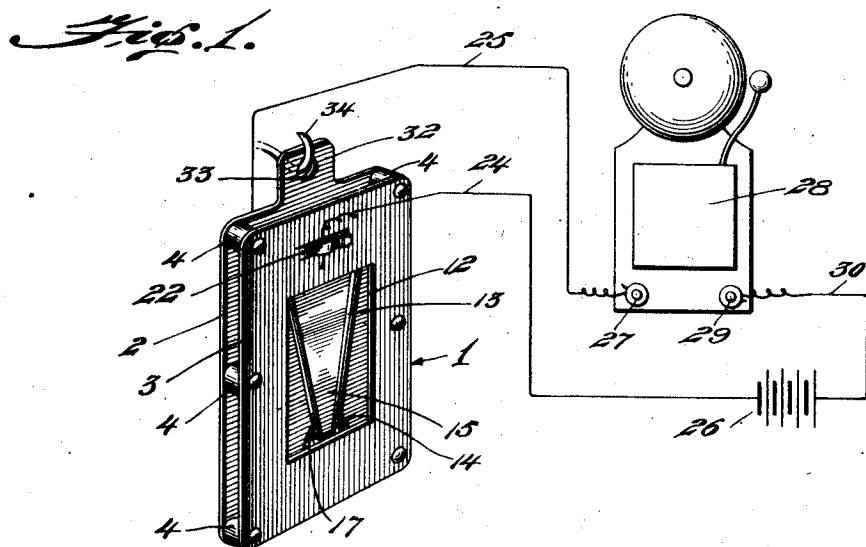
Aug. 10, 1926.

1,595,598

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AUTOMATIC ALARM MECHANISM

Filed May 29, 1925



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UNITED STATES PATENT OFFICE.

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AUTOMATIC ALARM MECHANISM.

Application filed May 29, 1925. Serial No. 33,693.

This invention relates to an automatic alarm mechanism adapted for use in connection with an electric bell to indicate fires or the overheating of furnaces, chimneys or other parts of heating equipment liable to overheat and cause fires in dwelling houses, factories and the like, as well as in indicating the overheating of machine parts.

One object of the invention is the provision of a structure of the character described wherein a readily fusible metal clip is employed to hold electric contacts out of engagement, such clips being renewable after each operation of the alarm mechanism thereby making it unnecessary for the user to either provide a new alarm mechanism or resolder the fusible connection after each operation as is the case with the structures now in use.

A further object of the invention is to provide a device of this character adapted to be suspended in any desired position relative to the heating equipment, and so constructed as to occupy little space whereby it may be so placed as to be out of the way and not liable to be disturbed by the operation of the heating apparatus.

Another object of the invention is the provision of an improved circuit closing mechanism of the character described and provided with plated contact points whereby the efficiency of the device will not be lowered or the same rendered inoperative through the formation of non-conducting metallic compounds thereon.

Other objects and advantages of the invention relate to certain improved details of construction, as well as certain novel methods of operation as will be more fully set forth in the detailed description to follow.

Referring to the accompanying drawings:—

Fig. 1 is a perspective view of the structure illustrating the alarm mechanism and showing its connection with an electric bell, which may be the usual door-bell of a dwelling house.

Fig. 2 is a front elevational view of the structure, a portion of the front plate being broken away to show certain structural details.

Fig. 3 is a vertical sectional view of the structure, taken along the line 3—3 of Fig. 2.

Fig. 4 is an enlarged perspective view of

the clip provided with a fusible connection for releasing the circuit closing tongue, and,

Fig. 5 is an enlarged sectional view taken along the line 5—5 of Fig. 2 and showing one of the insulating elements in detail.

In the embodiment of the invention illustrated herewith 1 designates generally the alarm mechanism which comprises two metallic plates 2 and 3 which are spaced from each other by two or more spacing washers 4 of insulating material and secured together by suitable fastening means such as screws or rivets 5 passed through the registering openings 6 in the plates 2 and 3 and suitable openings 7 in the spacing washers.

The openings 6 in one of the spaced plates, in the present case the rear plate 2, are formed of sufficient size to receive the reduced ends 8 of the spacing washers 4 whereby the rear plate may be suitably insulated from the fastening means 5, and relatively thin washers 9 of insulating material may be placed between the opposite side of the rear plate 2 and the head 10 of each fastener 5 to insure that the rear plate 2 will be completely insulated from the front plate 3.

An opening 12 is formed in the front plate 3 of sufficient size to give access to a portion of the rear plate 2 for a purpose which will be more fully set forth. The rear plate 2 is provided with converging slots 13 terminating in a arc-shaped opening 14, the cut-away portions of the metal being so shaped as to leave a tapered tongue 15 which is integral with the rear plate 2. The metal plate 2 is preferably formed of resilient material whereby the tongue 15 may be bent to incline towards and have its tip contact with the inner surface of the front plate 3, when the tongue 15 is not restrained by some suitable means.

A clip 17 is provided which may be of circular form or of such other suitable shape as may be desired, the clip 17 being of sufficient size not to pass readily through the arc-shaped opening 14, and a metal strip 18 is soldered upon one face of the clip 17 by means of solder so constituted as to melt at the desired temperature. The metal strip 18 may be bowed slightly so that when secured to the clip 17 it will provide an eye 19 for the reception of the narrowed end of the tongue 15.

In assembling the alarm mechanism for use, the operator may have access to the

tongue 15 through the opening 12 in the front plate to force the tongue 15 backwardly until the end of the tongue may be inserted in the eye 19 formed by the strip 18, whereupon the clip 17 may be permitted to engage the rear plate as shown in Figs. 2 and 3 of the drawings, the tongue 15 being thereby held from contact with the front plate 3 and the plates 2 and 3 being insulated from each other. The strip 18 is of less length than the diameter of the arc-shaped opening 14 whereby when the solder 20 connecting the strip 18 to the clip 17 melts the strip 18 will no longer hold the tongue 15, the end of which will spring forward and engage the inner surface of the front plate to thereby close the circuit to the electric bell.

A metal lip 22 is struck out from the front plate 3 and a similar lip 23 is struck out from the rear plate 2 which serve as means for connecting wires 24 and 25 to the front and rear plates respectively, the said wires being connected respectively to one terminal of an electric battery 26 and one terminal 27 of an electric bell 28, the terminal 29 of the electric bell 28 being connected with the other terminal of the battery 24 by means of the wire 30.

A support 32 may be formed integral with one of the plates or suitably secured thereto as may be found desirable in practice and provided with an opening 33 by which the plates may be suspended from any suitable hanger 34 if desired.

The end portion of the tongue 15 which contacts with the inner surface of the front plate 3 at approximately the point 35, when the tongue 15 is released by the melting of the solder 20, may be plated or washed with any suitable metal as well as that part of the inner surface of the front plate 3 with which the end of the tongue 15 contacts, whereby the failure of the device to act to close the circuit by reason of the formation of non-conducting material on the end of the tongue or the inner surface of the front plate will be obviated.

In the operation of the mechanism, the tongue 15 may be reached through the opening 12 in the front plate and pressed back a sufficient distance so that the end of the tongue 15 may be inserted in the eye 19 as shown in Fig. 2, whereupon the tongue may be released to permit the clip 17 to bear against the outer surface of the rear plate 2 as shown in Figs. 2 and 3 of the drawings, When the temperature reaches a point sufficient to melt the solder 20, the metal strip 18 will be released from the clip 17 and free the end of the tongue 20 which will move to the dotted line position shown in Fig. 3 and engage the front plate 3 to close the circuit and cause the ringing of the bell 28.

When it is desired to reset the mechanism a new clip 17 may be employed, thus by making the fusible connection on the clip 17 and separate from the rest of the mechanism, a plurality of clips may be kept ready for use and the necessity for resoldering the fusible connection after each operation of the mechanism avoided.

While I have shown and described the above mechanism in connection with the usual type of electric bell for producing an audible alarm I am aware that it may be utilized for a variety of purposes such as for closing an electric circuit to operate an indicator or to actuate a control, and therefore I do not intend to be limited to the use of the same in the precise relationship with associated mechanism as illustrated herewith but propose in the appended claims to cover the circuit closer mechanism broadly regardless of the particular use to which it may be applied.

What I claim is:—

1. An automatic alarm mechanism comprising a pair of oppositely positioned spaced metallic elements insulated from each other, one of said elements being provided with a spring tongue normally movable into contact with the other element, said last named element being provided with an opening for permitting access to the spring tongue, and a separable clip engaging said first named element and having a fusible connection for holding said tongue out of engagement with said second named element, said fusible connection releasing said tongue to permit the same to contact with said second named element when the temperature reaches a predetermined point.

2. An automatic alarm mechanism comprising a pair of oppositely positioned spaced metallic elements insulated from each other, one of said elements being provided with an integral spring tongue normally movable into contact with the other element and having a portion thereof cut away adjacent to the free end of said tongue, and a separable renewable holding member independent of said metallic element contacting with the edges of the cut away portion of said first element and having a fusible connection for holding said tongue out of engagement with said second named element, said fusible connection being adapted to release said tongue to permit the same to contact with said last named element when the temperature reaches a predetermined point.

3. An automatic circuit closer for an electric circuit comprising a pair of spaced metallic elements insulated from each other and secured together, one of said elements having a portion struck out therefrom and normally movable into contact with the other of said elements to close the electric circuit and provided with an enlarged open-

ing adjacent to the free end of said struck out portion, and a renewable clip engaging said first named element adjacent to said opening and having a fusible connection for
5 holding the movable portion of said first named element out of contact with said second named element but adapted to release said movable portion to permit the same to
10 contact with said second named element when the temperatures reaches a predetermined point.

4. An automatic circuit closer for an electric circuit comprising a pair of spaced metallic elements insulated from each other,
15 a spring tongue integral with one of said elements and normally movable into contact with the other of said elements to close the electric circuit, and a clip having a portion engageable with said first-named element
20 and provided with a fusible connection adapted to engage the spring tongue and retain the same substantially in the plane of said first named element and out of contact with said last named element until the tem-
25 perature reaches a predetermined point, the fusible connection being adapted to release said tongue to permit the same to move out of the plane of said first named element

and to contact with said last named element when the temperature reaches a predeter- 30
mined point.

5. An automatic alarm mechanism comprising a pair of oppositely positioned metallic plates secured together in spaced parallel relation and insulated from each other, one of said plates being provided with an integral spring tongue and having an enlarged opening adjacent to the free end of said spring tongue, the said spring tongue being adapted to engage the second 40
of said plates to close an electric circuit, and a renewable clip member provided with a body portion adapted to engage the said first named plate adjacent to the enlarged opening therein and provided with a fusible con- 45
nection engaging the said tongue for holding the tongue out of contact with the said second element, the fusible connection being releasable when the temperature has reached a predetermined point to permit the free 50
end of said tongue to contact with said second element and close the electric circuit.

In testimony whereof I have affixed my signature.

JAMES S. BRENNAN.