Feb. 7, 1950 L. F. AMPRIM 2,496,687

MECHANICAL AND ELECTRICAL THERMOSTATIC ALARM ACTUATOR

Filed June 25, 1946

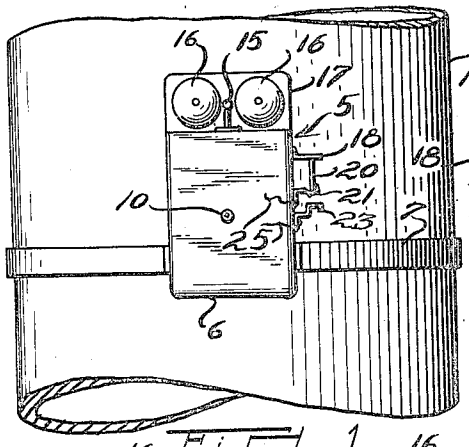


FIG. 1.

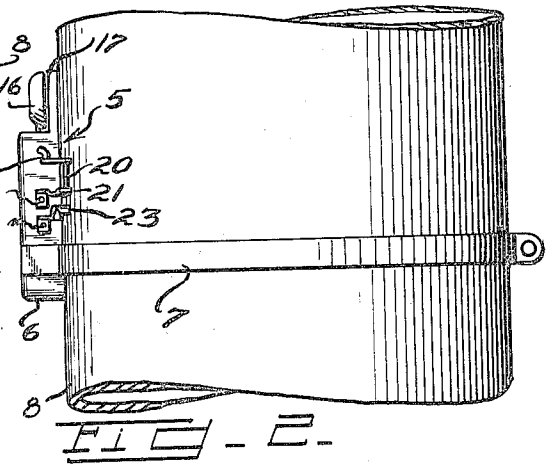


FIG. 2.

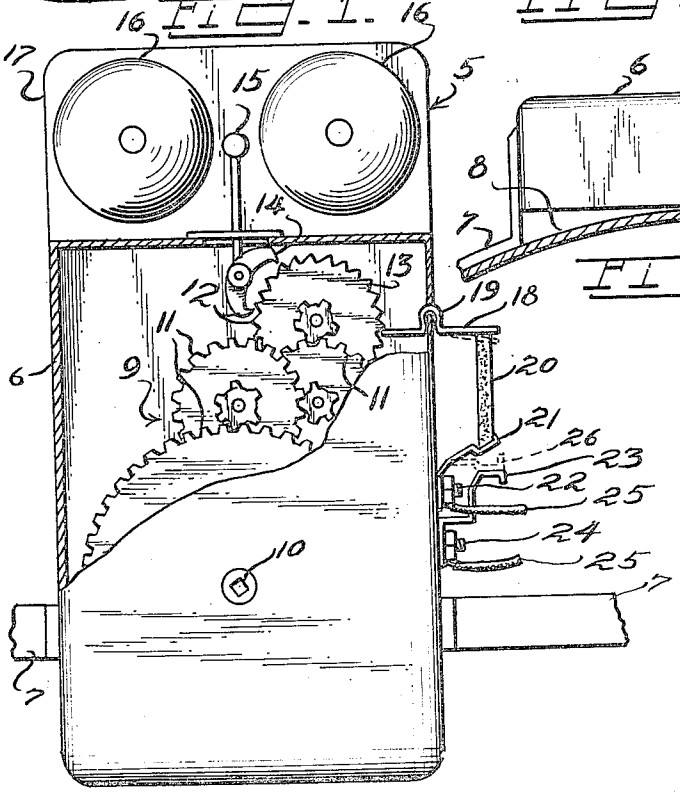


FIG. 3.

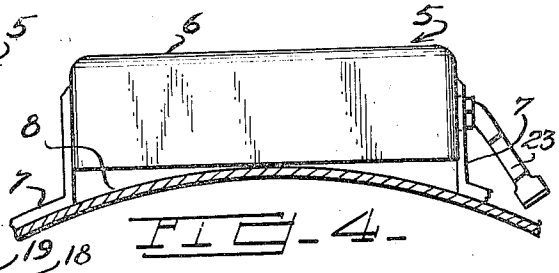


FIG. 4.

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MECHANICAL AND ELECTRICAL THERMOSTATIC ALARM ACTUATOR

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3 Claims. (Cl. 177—311)

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This invention relates to new and useful improvements and structural refinements in warning devices, and the principal object of the invention is to provide a device of the character described herein, such as may be effectively and conveniently employed for issuing audible and visible signals, when the temperature of its surroundings reaches a predetermined degree.

A further object of the invention is to provide a warning device which, by virtue of the construction and operation above outlined, may be effectively employed in association with chimneys, stove pipes, oil burners, and other forms of heating equipment.

Another object of the invention is to provide a warning device which is entirely self-contained and therefore, independent in operation of external actuating agents such as electric supply of the building in which it is used.

An additional object of the invention is to provide a warning device which is simple in construction, dependable in operation, and which cannot easily become damaged.

A still further object of the invention is to provide a warning device which will readily lend itself to economical manufacture.

With the above more important objects in view, and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the invention.

Figure 2 is a side elevation thereof.

Figure 3 is a further front elevation, the same being enlarged and partially broken away, and

Figure 4 is an underside plan view of the invention.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention embodies in its construction a warning device designated generally by the reference character 5, consisting of a suitable housing 6, such as may be conveniently attached by the mounting strap 7, or the like, to a structure with which it is used, the latter being exemplified in the drawings by the chimney 8.

The housing 6 accommodates a clockwork mechanism designated collectively by the reference character 9, this including a winding shaft 10, suitable step-up gearing 11 and the escapement mechanism 12.

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The latter includes an escapement wheel 13 and a co-acting rocker 14, which in turn, is associated with an alarm actuating hammer 15.

This hammer co-acts with a pair of suitable bells 16 mounted on the extension 17 of the housing 6.

A starting lever 18 is formed medially of its length with an arcuated, loop-like portion constituting what may be referred to as a detent 19. This detent engages a seat assuming the form of an aperture provided in the housing 6, and it will be noted that one end of the arm 18 is in engagement with the teeth of the escapement wheel 13, while its remaining end protrudes from the housing and is connected to one end of a fusible link 20.

The remaining end of this link is secured to a resilient contact arm 21, this being configurated substantially as shown and attached to the housing 6 by means of an insulating bolt 22.

A further, relatively rigid contact arm 23 is secured to the housing 6 by means of a further bolt 24, and it will be observed that the two arms are positioned in a relatively adjacent relationship, as is best shown in the accompanying Figure 3.

When the invention is placed in use, the device is mounted in position as has been already explained, and the terminal screws 22, 24 are used for connecting the device by means of the conductors 25 to a visible warning element (not shown) such as an incandescent lamp.

It will be noted that the link 20 will normally hold the resilient arm 21 in a separated relationship with respect to the stationary arm 23, whereby the two arms will constitute what may be referred to as a normally open switch. At the same time, the inner end of the lever 18 will engage the escapement wheel 13, thus preventing the actuation of the clockwork mechanism 9.

When the temperature of the chimney rises to a predetermined degree, the fusible link 20 will, of course, melt, thereby freeing the lever 18 and permitting the mechanism 9 to actuate the hammer 15. An audible warning signal will thus be produced.

Simultaneously with the melting of the link 20, the contact arm 21 will be released and by virtue of its inherent resiliency, will contact the arm 23, thereby completing the circuit through the conductors 25. The associated lamp (not shown) will produce a visible warning signal, and the advantages of the invention thus become clearly apparent.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure and accordingly, further descriptions thereof at this point is considered unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim as my invention is:

1. A thermostatic actuating means for use with a housing and a clockwork mechanism positioned therein, said mechanism including an escapement, comprising a wall of said housing having an aperture, a starting lever pivotally mounted medially of its length, one end of said lever extending through said aperture and engaging said escapement and normally preventing actuation of the mechanism, a fusible link secured at one end thereof to the remaining end of said lever, and a pair of normally open contact arms mounted on said housing, the remaining end of said link being secured to one of said arms, and the fusing of said link simultaneously closing said arms to complete an electrical circuit and to release said starting lever from said escapement.

2. A thermostatic actuating means for use with a clockwork mechanism and including an escapement, comprising a casing for said mechanism, a starting lever pivoted on the wall of said casing and extending through said casing and having the inner end thereof in a position normally engaging said escapement, a pair of contacts on the outside of said casing for connection in a

circuit to be closed simultaneously with the operation of the clockwork mechanism, a fusible link connecting one of said contacts with the outer end of said starting lever, said link normally holding said starting lever in said position and simultaneously holding one of said contacts out of contact with the other of said contacts, said one of said contacts being biased toward the other contact, whereby said starting lever is released and said contacts closed on the fusion of said link.

3. A thermostatic actuating means for use with a clockwork mechanism, comprising a casing having an aperture therein, a starting lever pivoted on the casing and having one end extending through said aperture for engagement with said mechanism, a pair of electrical contacts connected in an electrical circuit and mounted on the casing, one of said contacts being spring biased toward the other contact, and a fusible link connected to and between the other end of said starting lever and said spring biased contact so that on fusion of the link the starting lever releases the mechanism and said contacts are closed.

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