E. FLANAGAN.

FIRE EXTINGUISHER.

APPLICATION FILED APR. 23, 1913.

1,087,752. Patented Feb. 17, 1914.

Fig. 1.

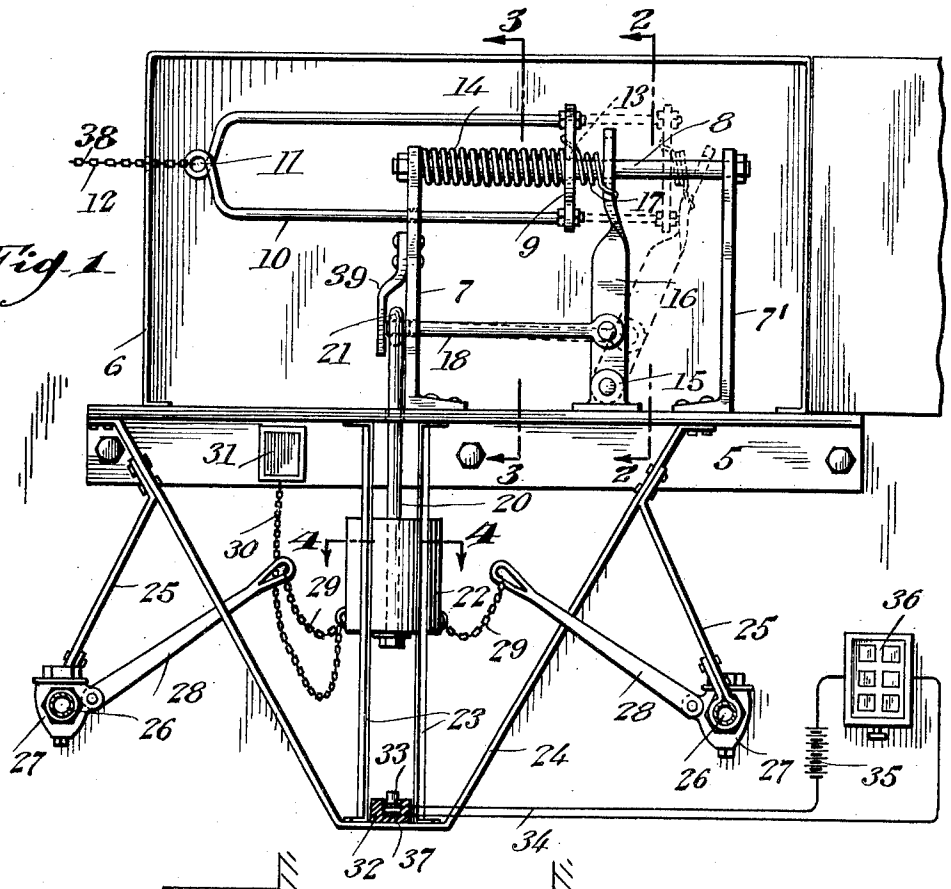


Fig. 2.

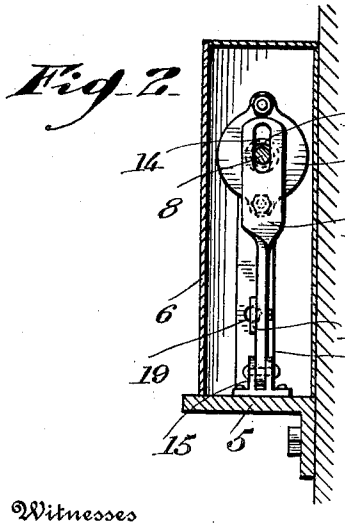


Fig. 3.

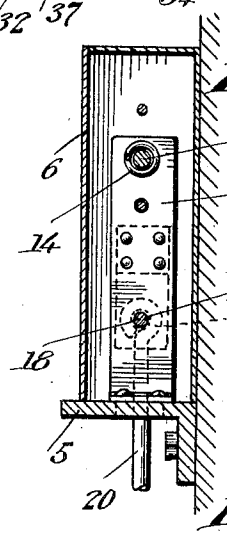
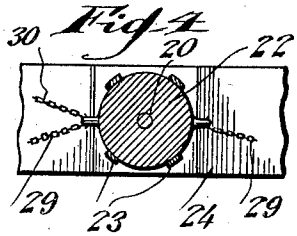


Fig. 4.



Witnesses

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FIRE-EXTINGUISHER.

1,087,752. Specification of Letters Patent. Patented Feb. 17, 1914.

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To all whom it may concern:

Be it known that I, EDWARD FLANAGAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

The invention relates to fire indicators and extinguishers, and more particularly to the class of automatic fire extinguishers.

The primary object of the invention is the provision of an apparatus of this character wherein steam will be automatically set into action on the breaking out of a fire in a building such as a smoke house or other inclosure, for the extinguishing of its flames.

Another object of the invention is the provision of a fire extinguisher which will automatically control a source of steam supply and at the same time actuate suitable signals which indicate a fire and the location thereof as well as the point within the inclosure where the fire originated.

A further object of the invention is the provision of an apparatus of this character which is simple in construction, thoroughly reliable and efficient in operation, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts as will be hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereunto appended.

In the drawing:—Figure 1 is a side elevation of an apparatus constructed in accordance with the invention, showing the water mains in vertical transverse section. Fig. 2 is a sectional view on the line 2—2 of Fig. 1, looking in the direction of the arrow. Fig. 3 is a sectional view on the line 3—3 of Fig. 1, looking in the direction of the arrow. Fig. 4 is a sectional view on the line 4—4 of Fig. 1, looking in the direction of the arrow.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing by numerals, 5 designates a horizontally disposed stationary support which is suitably fixed to a vertical wall of a building either interiorly or exteriorly thereof, and on this support is permanently mounted a casing 6 which may be of any preferred construction having arranged therein the trip mechanism for the fire extinguisher presently described.

Fixed to the support 5 and extending vertically within the casing 6 are a pair of uprights or standards 7 and 7′, the same being arranged in spaced relation to each other and have connected thereto a horizontally supported guide rod 8 on which is adapted to travel the guide cross piece 9 of a shiftable bail 10 which is fixed to the cross piece and is formed at its closed end with an eye 11 to which is connected one end of a fusible link chain 12, the cross piece 9 being formed with an opening 13 centrally thereof which receives the guide rod 8, and working against this cross piece 9 is one end of a coiled expansion spring 14 which loosely surrounds the guide rod 8 and has its opposite end working against the standard or upright 7 so that on the separation of any of the links of the fusible chain 12 the spring 14 will become active to move the bail in one direction for a purpose presently described.

Mounted upon the support 5 between the uprights or standards 7 and 7′ is a bearing 15 in which is pivoted a swinging trip arm 16, the same being extended in the path of movement of the bail and has connected thereto one end of a retractile spring 17 which is coiled about the guide rod 8 and has its opposite end connected to the cross guide piece 9 of the said bail so that upon pulling the chain 12 taut the arm 16 will be simultaneously moved with the bail to normal set position. Pivotally connected to the trip arm 16 is a latch pin 18 which works through an opening 19 formed in the standard or upright 7 at one side thereof for locking engagement with a releasable valve operating mechanism presently described.

The releasable valve operating mechanism comprises a stem 20 working through the support 5 and is formed at one end with an eye 21 in which is engaged the latch pin 18, while carried at the opposite end of the said stem is a cylindrical weight 22 which is slidably held between a series of guide

stay rods 23 vertically mounted in a hanger frame 24 which is fixed to the support 5 and depends therefrom, the guide stay rods 23 being also fixed to the said support at their upper ends. Secured to opposite sides of the hanger frame 24 are downwardly diverging supporting brackets 25 in which are hung steam supply pipes 26 which are provided with gate valves 27, each being formed with an operating lever 28, both of which are connected to the lower portion of the weight 22 by the flexible members 29 so that upon the lowering of the weight the latter will be pulled upon for operating the levers 28 and thereby opening the gate valves 27 for the turning on of the steam supply through the pipes 26 for use in extinguishing a fire. The weight 22 also has connected thereto a chain 30 which leads to and is connected to a Gamewell fire alarm box 31 which is set in action on the lowering of the weight 22 when the levers 28 are operated for turning on the steam supply through the pipes 26 as hereinbefore described.

Supported by the hanger frame 24 in the path of movement of the weight 22 when dropped is an electric circuit closing box 32 so that as the weight drops it is brought into engagement with a resilient contact 33 in said box forming one terminal of an electric circuit 34 which includes a battery 35 and an annunciator 36, the opposite terminal of the circuit 34 being connected to a contact 37 which is stationary within the box 32 upon which the weight rests when released, and in this manner the annunicator is operated for indicating the exact point of location of the fire when started. The discharge ends of the pipes 26 are of course rounded and in such position as to direct the supply of steam or other fluid on to the fire, while the annunciator is located at any suitable point so as to notify persons that a fire is in progress in a particular building or on a particular floor of the building, it being of course understood that these devices may be located on a plurality of floors if so desired.

Arranged or included in the chain 12 at intervals throughout its length are fusible links 38 which when melted by the action of heat permits the movement of the bail 10 under the action of the spring 14 in a direction to cause the tripping of the arm 16 and thereby disengage the pin 18 from the eye 21 of the stem 20 and in this manner freeing the weight so that it will drop, thereby opening the valves 27 which are normally closed in the pipes 26 so that the fluid supply will be turned on for use in extinguishing a fire.

The instant the levers 28 of the valves 27 are operated the alarm box 31 becomes active for the sounding of the alarm, and also the annunciator is operated under the influence of the electric circuit 34 for the purposes hereinbefore set forth.

Secured to the standard or upright 7 through which works the latch pin 18 is a stop member 39 disposed in the path of the latter so as to limit the latching movement of the said pin when brought into position for locking engagement in the eye 21 of the stem 20 carrying the weight, and when this stem is locked the said weight is sustained elevated, thus preventing the working of the fire extinguisher, but instantly on the melting of the fusible links of the chain 12 the said extinguisher will become active for the purposes hereinbefore named.

From the foregoing it is thought that the construction and manner of operation of the device will be clearly understood, and therefore a more extended explanation has been omitted.

What is claimed is:—

1. An apparatus of the class described comprising a support, standards rising from said support in spaced parallel relation to each other, a guide rod held in said standards, a swinging lever pivoted to the support between the said standards and slidably engaging the said guide rod, a guide piece resiliently connected to the lever and mounted upon the guide rod, a bail connected with the guide piece, a fusible element connected with the bail, expansion means surrounding the guide rod and acting against the guide piece and one of the standards for displacing the said guide piece and bail on the severing of the fusible element, a vertically movable weight, means depending from the support for guiding the weight in its movement, means on the lever and working through one of the standards for locking the weight in normally elevated position, and mechanisms operated upon the lowering of the weight.

2. An apparatus of the class described comprising a support, standards rising from said support in spaced parallel relation to each other, a guide rod held in said standards, a swinging lever pivoted to the support between the said standards and slidably engaging the said guide rod, a guide piece resiliently connected to the lever and mounted upon the guide rod, a bail connected with the guide piece, a fusible element connected with the bail, expansion means surrounding the guide rod and acting against the guide piece and one of the standards for displacing the said guide piece and bail on the severing of the fusible element, a vertically movable weight, means depending from the support for guiding the weight in its movement, means on the lever and working through one of the standards for locking the

weight in normally elevated position, mechanisms operated upon the lowering of the weight, and stop means carried by one of the standards and arranged in the path of the means for locking the weight to limit its movement in one direction.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD FLANAGAN.

Witnesses:

HELEN G. DALEY,

NORMAN J. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."