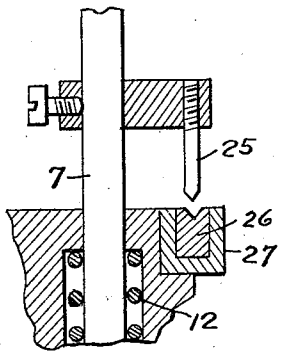
Sept. 18, 1923. 1,468,009

H. EASTMAN

AUTOMATIC FIRE EXTINGUISHING WATER SPRINKLER AND ALARM

Filed May 15, 1920

FIG 4



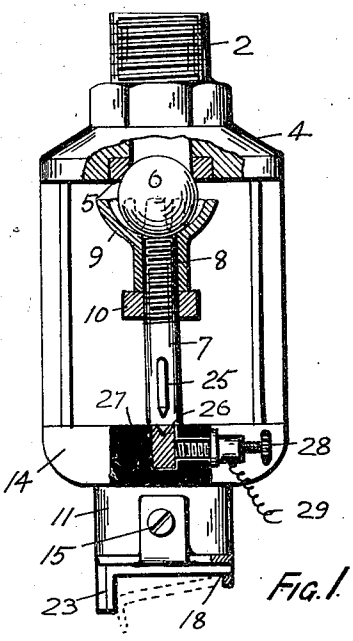


FIG. 1.

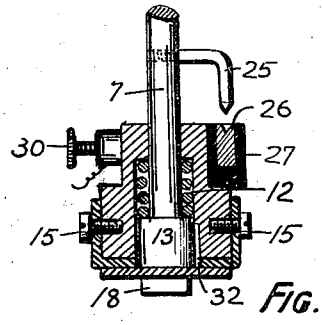


FIG. 2.

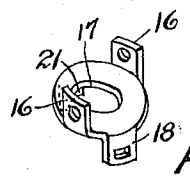
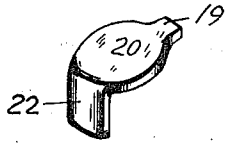


FIG. 3.



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Patented Sept. 18, 1923. 1,468,009

UNITED STATES PATENT OFFICE.

HARRY EASTMAN, OF DARLINGHURST, SYDNEY, NEW SOUTH WALES, AUSTRALIA.

AUTOMATIC FIRE-EXTINGUISHING WATER SPRINKLER AND ALARM.

Application filed May 15, 1920. Serial No. 381,612.

To all whom it may concern:

Be it known that HARRY EASTMAN, a citizen of the United States of America, and residing at 416 Victoria Street, Darlinghurst, Sydney, New South Wales, Australia, has invented a certain new and useful Automatic Fire-Extinguishing Water Sprinkler and Alarm, of which the following is a specification.

This invention relates to an automatic water sprinkler for extinguishing fires which may have associated therewith alarm means for indicating on the exterior of a building and at a fire station if required the location of the premises where a fire has started.

The sprinkler comprises a frame with screwed neck at its head adapted to be connected to a water pressure service pipe, a seating for a ball valve in said head below said neck, a spindle carrying an adjustable water spreader cup for supporting said ball valve, a guide in the lower portion of the frame for said spindle, a thermal release bracket and slip plate adapted to be connected to the bottom of the frame, a spring adapted to force said spindle downwardly when said slip plate is released from said bracket, and electrical make and break devices associated respectively with said frame and spindle.

One embodiment of the invention is illustrated in the accompanying drawings, in which Fig. 1 is an elevation partly in section of the sprinkler with the electrical make and break devices attached thereto; Fig. 2 is a detail sectional view of the lower end of the sprinkler frame with thermal release bracket and slip plate attached thereto and the electrical make and break devices; Fig. 3 is a perspective view of the thermal release bracket and slip plate, and Fig. 4 is a detail of a modification of the invention.

The sprinkler frame 1 is of metal and is preferably of open construction. At the head of the frame is the threaded neck 2 adapted to be connected to a water pressure service pipe. Below the neck 2 in the head 4 of the frame is the seating 5 for the ball valve 6; the seating 5 may consist of a lead bushing and the ball valve 6 may be of glass or metal, but preferably glass. On the spindle 7 a tapped sleeve 8 carrying a slitted water spreader cup 9 is mounted; the spindle 7 is screw threaded to enable the cup 9 to be adjusted to permit the ball valve 6 to be closed tightly on its seating, a lock nut 10 being provided to keep the sleeve 8 in adjusted position on the spindle.

A recess is furnished in an extension 11 of the lower portion 14 of the frame 1 in which the spring 12 is fitted. This spring surrounds the spindle 7 and one end of it abuts the top of the recess whilst its other end abuts the collar 13 on the lower end of the spindle 7. The recess is made of such dimensions to permit the collar 13 to slide freely therein. When the ball valve 6 is resting tightly against its seating 5 the spring 12 is under compression.

The extension 11 carries the thermal release bracket 33 which may be detachably secured by the screws 15. Such bracket has laterally directed portions 16 which are apertured to receive the screws 15; it is also apertured at 17 and has a slotted depending lug 18 in which the toe piece 19 of the slip plate 20 may be set. The bracket has also depending from it an extension 21 which is adapted to abut a similar extension 22 on the slip plate 20 when the bracket and slip plate are fastened to the sprinkler. The extensions 21 and 22 are secured together at 23 by a suitable thin fusible solder joint.

Mounted in the spindle 7 is a steel or like metal pin 25 which is downturned and adapted to coact with a copper or other suitable metal contact plate 26 mounted in the vulcanite or other insulating block 27 to which a screw terminal 28 is fitted. Said pin 25 may be screw threaded at one end to fit a tapped socket for it in the spindle 7; it may, however, be constructed in any other suitable manner so that when it is connected with the spindle it will be fixed therein and not likely to be displaced from alignment with the contact plate 26. The inner end of the terminal 28 contacts with the plate 26. A wire 29 adapted to be connected to a source of electric current may be secured to the terminal 28. A similar terminal 30 is also fastened to the foot 14 of the frame 1 to enable a series of sprinklers attached to a water pressure service pipe to be electrically connected by wires with each other and to an alarm bell if required. The electrical connections to the sprinklers are so arranged that current may be conveyed to them from an electric current main or other source of supply through suitable switch means. The spindle 7 is prevented from rotating by the

spline pin 32 which fits grooves respectively in the collar 13 and the extension 11 on the lower end of the frame 1. Any other suitable make and break devices for the electric current may be substituted for those shown in the drawings. The pin 25 may be substituted by a non-rotatable collar attached to the spindle 7 which collar may carry a downturned steel or like pin to make contact with the contact plate 26.

When it is desired to connect the sprinklers to a bell positioned on the exterior of a building in which they are installed for the purpose of creating an alarm, electric current conducting wires are connected to the switch controlling current to the sprinklers and to a suitable alarm bell operable when any of the sprinklers blow through the release of the slip plate 20 from the bracket 33 by the fusing of the fusible solder securing the plate and bracket together, causing the spindle 7 to descend and the electric circuit of the sprinklers to be established. Such alarm bell may be electrically connected to a fire station, so that when the bell circuit has been closed an indication will be given at the fire station of the existence of the fire.

In operation, the ball valve 6 is held against the seating 5 when the slip plate 20 has been secured to the bracket 33 by fusible solder and the lower end of the spindle 7 is resting against such plate, the cup 8 carrying the valve being suitably adjusted on the spindle 7. Immediately the solder is fused, the slip plate 20 is detached from the bracket 33 and the spindle 7 descends by the pressure of the water in the service pipe and the action of the spring 12 and the ball valve 6 leaves its seating 5 and water from the service pipe is then free to be dispersed by the sprinkler by means of the spreader cup 9. Upon the descent of the spindle 7 the electric circuit of the sprinkler is closed and the alarm bell is operated and if such bell is connected to a fire station an indication will be given thereat of the existence and location of the fire.

I wish it to be understood that the details of the apparatus described and shown may be modified within limits without departing from the scope of the invention as set forth in the appended claims.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In an automatic fire extinguishing water sprinkler, a frame provided with a discharge port terminating in a valve seat, a ball valve normally engaged with said seat, means normally retaining the ball valve in engaging with the seat, said retaining means including a bracket carried by the frame, depending extensions carried by said bracket, one of said extensions having a slot therein and the other extension constituting an abutment, a slip plate having reduced extremities respectively engaged in the slotted extension of the bracket and abutting the second mentioned extension of the bracket, and fusible means normally maintaining the slip plate in position.

2. In an automatic fire extinguishing water sprinkler, a frame provided with a discharge port terminating in a valve seat, a ball valve engaging with said seat, thermosensitive means normally retaining the ball valve in engagement with the seat, said retaining means including a spindle slidable in the frame, a bracket having an opening therein to receive the spindle when said ball valve is off said seat, means removably securing the bracket to the frame, depending extensions carried by the bracket, one of said brackets having a slot therein and the other constituting an abutment, a slip plate overlying the opening in the bracket and normally obstructing the valve opening movement of the spindle, said slip plate having reduced ends respectively engaged in the slotted extension of the bracket and abutting the second mentioned extension of said bracket, and fusible means normally maintaining the slip plate in position.

In testimony whereof I have affixed my signature.

HARRY EASTMAN.