

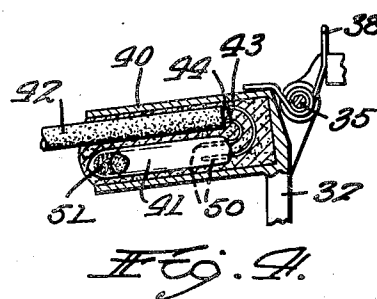
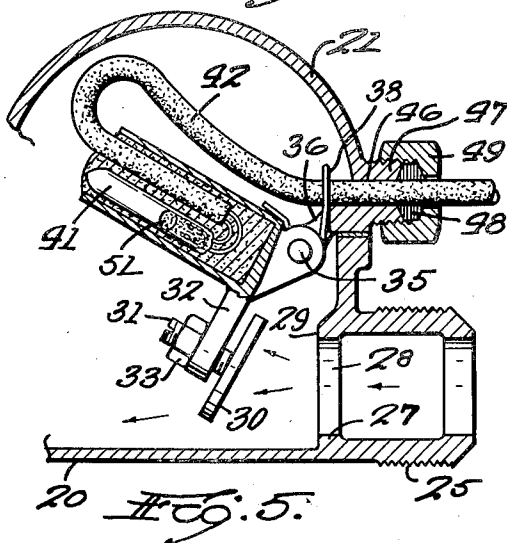
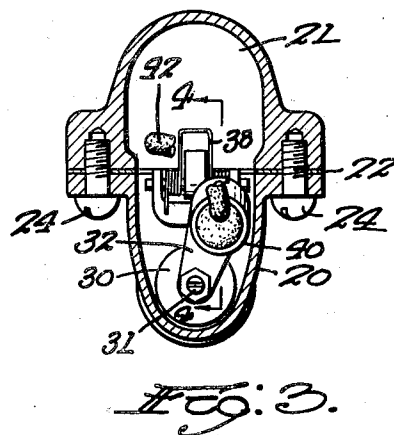
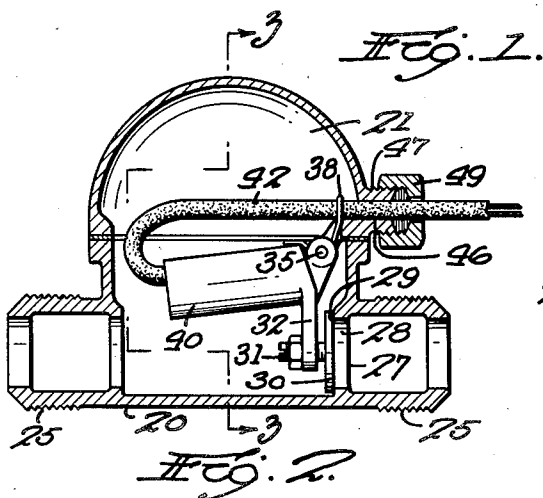
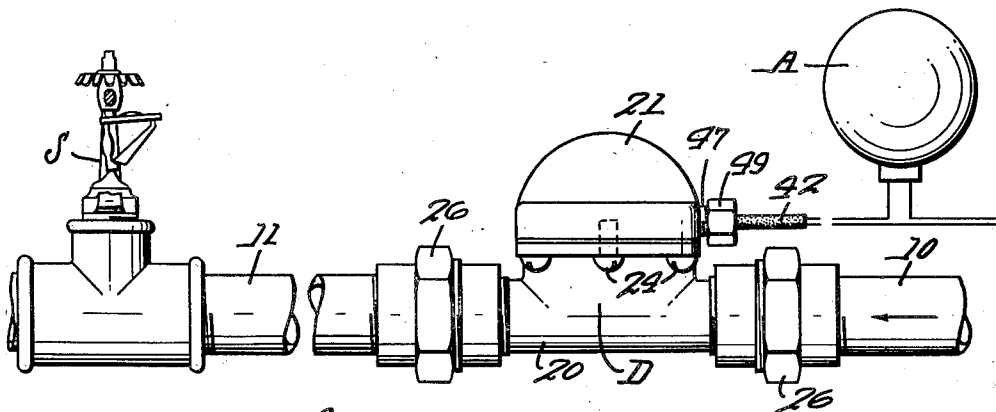
July 31, 1934.

H. C. KENDALL

1,968,648

SPRINKLER ALARM SWITCH

Filed Oct. 3, 1932



Inventor
H. Clayton Kendall
By Attorneys
Southgate & Hawley

UNITED STATES PATENT OFFICE

1,968,648

SPRINKLER ALARM SWITCH

Horace Clayton Kendall, Worcester, Mass., assignor to Rockwood Sprinkler Company of Massachusetts, Worcester, Mass., a corporation of Massachusetts

Application October 3, 1932, Serial No. 635,934

2 Claims. (Cl. 200—81)

This invention relates to fire protective apparatus and particularly to devices for causing an alarm to be sounded when a sprinkler opens.

It is the general object of my invention to provide an improved control device for such purposes, which is simple in construction, reliable in operation and economical in manufacture, so that the device may be found available for use in small plants or in domestic installations.

More specifically, my invention relates to the provision of an improved electrically-operated circuit-closing device for a sprinkler alarm, said control device being rendered effective to close a circuit by flow of water to an open sprinkler.

An important feature of my invention relates to the provision of a control device in which the moving parts are mounted entirely within an enclosing casing, which casing is connected into the sprinkler water system. By this construction, the use of glands and stuffing boxes for moving parts is avoided and the corresponding friction is eliminated.

My invention further relates to arrangements and combinations of parts which will be herein-after described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawing, in which

Fig. 1 is a side elevation of parts of a sprinkler system embodying my improved control device;

Fig. 2 is an enlarged sectional side elevation of the control device;

Fig. 3 is a sectional end elevation, taken along the line 3—3 in Fig. 2;

Fig. 4 is an enlarged detail sectional view, taken along the line 4—4 in Fig. 3, and

Fig. 5 is a view similar to Fig. 2 but showing the parts in a different position.

Referring to the drawing, I have shown my improved circuit-closing control device D as connected into a sprinkler system between a water supply pipe 10 and a distributing pipe 11 to which one or more sprinkler heads S are connected.

The control device D comprises a casing formed with a main or body portion 20 and a cap or cover portion 21. A suitable gasket or packing 22 (Fig. 3) is provided between the parts 20 and 21 and these parts are firmly secured together in any convenient manner as by screws 24. End portions of the body 20 are beveled and externally threaded, as indicated at 25, for connection by the usual couplings 26 (Fig. 1) to the supply pipe 10 and distributing pipe 11.

The body 20 is provided with an internal partition 27 having an opening 28 therethrough and

providing a seat 29 for a check valve 30. The valve 30 is provided with a valve stem 31 threaded into an arm 32 and secured in adjusted position therein by a lock nut 33. The arm 32 is pivoted at 35 to a bearing support 36 formed on the cap or cover 21 and projecting downwardly and inwardly therefrom, as clearly shown in Fig. 5.

The check valve 30 is normally held against its seat 29 by a spring 38 when there is no flow of water through the sprinkler system, but is moved to the position shown in Fig. 5 by the flow of water to one or more sprinkler heads S.

The arm 32 is provided with an offset tubular recessed portion 40 (Fig. 4) in which a "mercury bulb" type of circuit-closing element 41 is mounted. An insulating or rubber tubing 42 containing wires 43 and 44 is extended into the recessed portion 40 and the parts 41 to 44 are firmly secured therein by filling the recessed portion around said parts with a suitable sealing material M, such as ordinary sealing wax.

The insulating tubing 42 extends out of the casing through an opening 46 (Fig. 5) in a threaded projection 47 and is sealed therein by a packing 48 secured and compressed by a threaded cap or nut 49. The tubing 42 and wires 43 and 44 are of easily flexible construction and the location of the opening 46 fairly adjacent to the pivot 35 reduces the necessary bending movement of the tubing 42, so that the flexing of the tubing and wires interferes very slightly with the movement of the arm 32 and check valve 30.

The circuit-closing element 41 is of a usual commercial type and contains terminals 50 and a portion of mercury 51. The terminals 50 are secured to the wires 43 and 44 and the mercury 51 closes the circuit between the terminals when the parts are in the position shown in Fig. 5, but breaks the circuit when the parts are in the position shown in Fig. 4.

Consequently, the rocking of the check valve 30 and arm 32, caused by flow of water on the opening of a sprinkler, causes the mercury 51 to close the alarm circuit and sound a suitable alarm A (Fig. 1), which alarm may be at any desired distance from the location of the control device D.

The normal angular position of the circuit-closing element 41 may be varied by adjusting the check valve 30 in the arm 32. The spring 38, assisted by gravity, closes the check valve 30 as soon as flow of water ceases and there is practically no frictional resistance to this action.

It will be noted that the arm 32 is the only

moving part in my improved control device and that this arm and its pivotal support are entirely enclosed within the casing members 20 and 21. Consequently no moving parts extend outward through glands or stuffing boxes and there is practically no frictional resistance to opening or closing of the valve 30.

Furthermore, all parts are fully protected from injury, and the contact terminals are within a sealed tube where dust and corrosion is not encountered.

The device is thus extremely simple in construction and reliable in operation and may be quickly and easily inserted in any sprinkler alarm system, even of the smallest capacity.

If it is desired to operate the device in a normally closed rather than a normally open alarm circuit, it is merely necessary to reverse the position of the element 41 in the recessed portion 40.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. In a sprinkler alarm, a control device comprising a casing having a body portion and a cover portion, said body portion having provision for connection into a sprinkler system to form a part of the path of flow thereof and having a valve opening and a valve seat, an inwardly-opening check valve normally engaging said valve seat, an arm on which said valve is mounted, a pivotal support for said arm carried by said cover portion and removable as a unit therewith, said

arm having a tubular recessed portion, a circuit-closing element sealed in said recessed portion, and connections from said circuit-closing element to an alarm circuit, said connections allowing free movement of said circuit-closing element and check valve, and the condition of the alarm circuit being changed by movement of said check valve from closed to open position by flow of water through said casing.

2. In a sprinkler alarm, a control device comprising a casing having a body portion and a cover portion, said body portion having provision for connection into a sprinkler system to form a part of the path of flow thereof and having a valve opening and a valve seat, an inwardly-opening check valve normally engaging said valve seat, an arm on which said valve is mounted, a stud fixed to said valve and threaded into said arm to support said valve thereon in adjusted position relative thereto, means to hold said parts in adjusted relation, a pivotal support for said arm carried by said cover portion and removable as a unit therewith, said arm having a tubular recessed portion, a circuit-closing element sealed in said recessed portion, and connections from said circuit-closing element to an alarm circuit, said connections allowing free movement of said circuit-closing element and check valve, and the condition of the alarm circuit being changed by movement of said check valve from closed to open position by flow of water through said casing.

HORACE CLAYTON KENDALL.

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