March 18, 1958 G. F. CLARK 2,827,122

FIRE EXTINGUISHER

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Fig. 1.

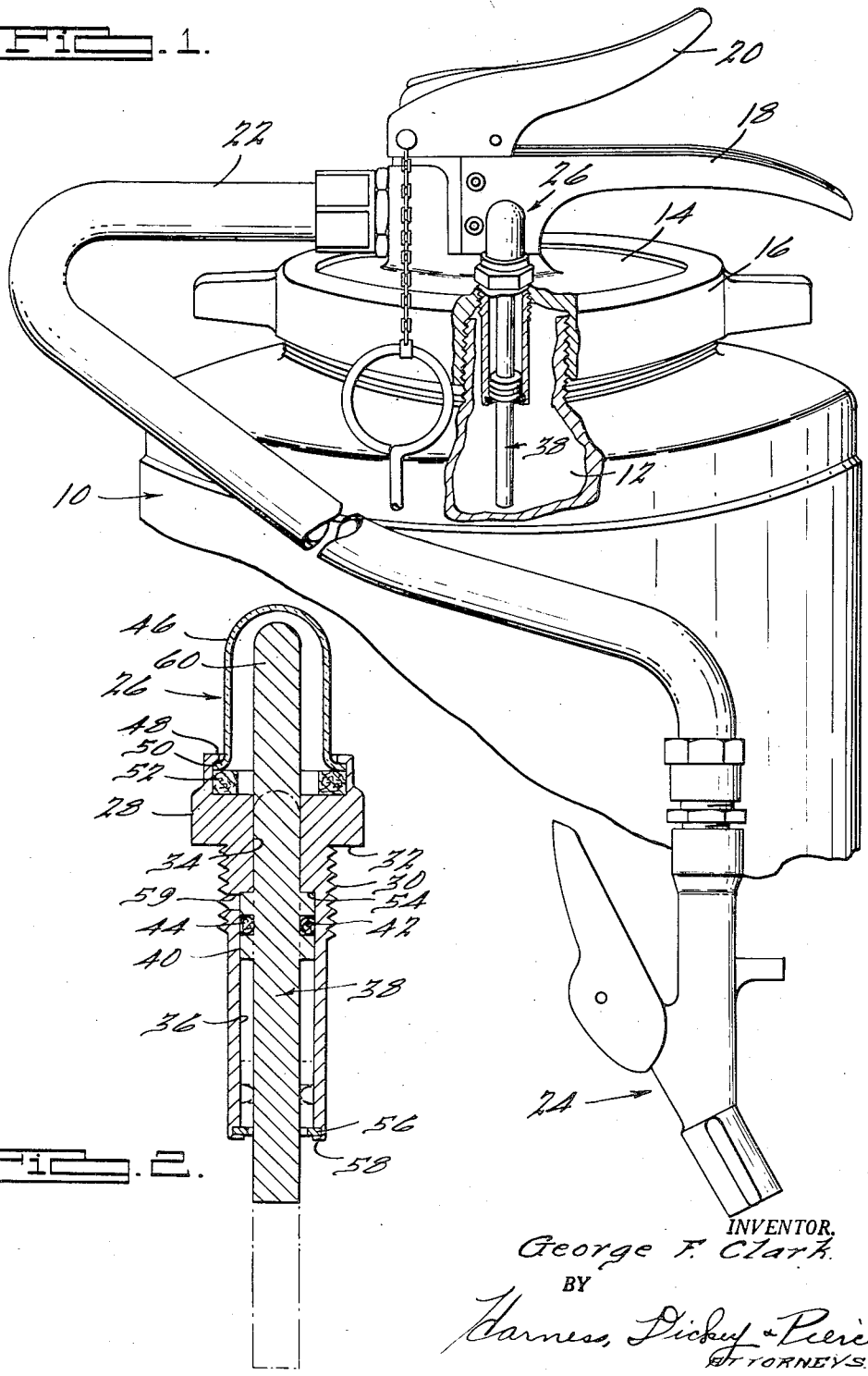


Fig. 2.

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FIRE EXTINGUISHER

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4 Claims. (Cl. 169—31)

The present invention relates to fire extinguishers and more particularly, to an improved warning device for indicating a particular condition of the extinguisher.

The primary object of the present invention is to provide an improved warning device for fire extinguishers of the type in which the fire extinguishing material is stored in a container from which it is expelled by raising the pressure within the container from a normal pressure to a discharge pressure, and opening a discharge outlet. The function of this improved warning device is to indicate a predetermined increase in the pressure within the container, both in the case where an increase in pressure is intentionally effected by an operator desiring to discharge the fire extinguishing material from the container, and in the case where the increase in pressure is inadvertently produced or results from a defective condition of the fire extinguisher.

It is an object of the present invention to provide such an improved warning device which is simple in design, economical to manufacture, easy of installation, and reliable and efficient in operation.

It is a further object of the present invention to provide an improved warning device of the above mentioned type in which the indicating device, once actuated to indicate such a predetermined increase in the pressure within the extinguisher, remains in its warning position until it is manually reset, independently of any subsequent decrease in the pressure within the extinguisher.

Other and more detailed objects of the present invention will be apparent, to those skilled in the art, from a consideration of the following specification, the appended claims, and the accompanying drawing wherein:

Figure 1 is a broken elevational view, partly in section, showing a fire extinguisher embodying the improved warning device of the present invention; and,

Figure 2 is an enlarged sectional view of the improved warning device.

The improved warning device of the present invention is readily applicable to any fire extinguisher of the type in which the extinguisher, after being charged and prior to use, has a chamber in which the pressure is approximately atmospheric or relatively low and in which, as an incident to the use of the extinguisher, the pressure within the chamber is substantially raised. It will thus be appreciated that the applicant's improved warning device may be incorporated in any cartridge operated extinguisher, and for illustrative purposes but not in a limiting sense, the present invention is herein illustrated and described as embodied in a dry chemical cartridge operated fire extinguisher.

Referring to the drawing, this extiguisher comprises a tank 10 defining a chamber 12 and closed at its upper end by a cover 14 held in place by a cover ring 16. The cover, or head 14, carries a handle 18 and a lever 20, the latter being operated to release the contents of a cartridge (not shown) into the chamber 12 to raise the pressure within the chamber for effecting discharge of the dry chemical material from the tank 10 through the discharge line 22 and the discharge valve 24 shown at the outer end of the line 22.

In accordance with the present invention, the head or cover 14 carries a warning device generally indicated at 26 and shown in detail in Figure 2. This warning device comprises a generally cylindrical elongated plug or body 28 which may be a screw machine product, and which includes a central threaded portion 30 adapted to be screwed into a tapped opening provided in the cover 14. The body 28 is also provided with an annular shoulder 32 at the outer end of the threaded portion 30, adapted to engage the outer surface of the cover 14 when the plug 28 is threaded into the tapped opening provided in the cover 14.

The body 28 is also provided with a central opening 34 extending axially therethrough and having an enlarged elongated counterbore portion 36 at its inner end. An elongated pin 38 is mounted in the bore 34 and is provided with an enlarged portion 40 slidably received in the counterbore portion 36. The enlarged portion 40 of the pin has an annular groove 42 receiving an O-ring 44 providing a seal between the pin 38 and the body 28. The O-ring 44 also yieldably resists movement of the pin 38 relative to the body 28. At its outer end the body 28 carries a Plexiglas dome 46 which may be held in place by spinning a flange 48 on the outer end of the body 28 radially inwardly over a radially outwardly extending flange 50 integrally formed on the Plexiglas dome 46. The reference numeral 52 indicates a weather seal which may be formed of felt or other suitable material.

The pin 38 is movable between an upper or extended position illustrated in full lines in Figure 2, and a lower or retracted position illustrated in broken lines in Figure 2. In the upper or extended position movement of the pin relative to the body 28 is prevented by the engagement of the enlarged pin portion 40 with an annular shoulder 54 at the inner end of the counterbore portion 36. Movement of the pin 38 downwardly beyond the broken line position illustrated in Figure 2 is prevented by a retaining ring 56 mounted in the lower end of the body 28 and held in place by a radially inwardly spun flange 58. The body 28 is also provided with a small opening 59 extending radially outwardly through the body 28 at the inner end of the counterbore portion 36 and opening through the threaded portion 30. This small opening 59 permits the escape of gases which might otherwise be trapped in the upper end of the counterbore portion 36 as the enlarged pin portion 40 moves upwardly to the full line position illustrated in Figure 2.

It will be noted that in the lower or retracted position the outer end portion 60 of the pin is withdrawn from the Plexiglas dome 46, and in the extended or outer position of the pin 38, this outer portion 60 extends well into the dome 46 and is readily visible therethrough. To insure that this outer end portion will be noticed when the pin is in its extended or outer position, the outer end portion 60 may be colored to draw attention to it, as for example, by painting it red.

It will now be appreciated that when the warning device 26 is installed in an extinguisher, with the pin in the lower or retracted position illustrated in Figure 1 in full lines and illustrated in broken lines in Figure 2, the O-ring 44 will hold the pin 38 in this position against any jarring which might be incident to movement of the extinguisher, but will permit the pin to be moved outwardly to the extended position illustrated in full lines in Figure 2 when the lever 20 is operated to raise the pressure within the chamber 12 incident to discharge of the fire extinguishing dry chemical from the cylinder 10.

It will also be readily appreciated that in the event that the cartridge, the contents of which are released by the lever 20 to increase the pressure within the chamber

12, should for any reason leak, this would be indicated by the warning device 26 as soon as the leaking produced an appreciable rise in the pressure within the chamber 12.

It will also be readily appreciated that, because the O-ring 44 yieldably holds the pin 38 in any position to which it is moved, the pin would remain in its outer or warning position, even though the pressure within the chamber 12 should drop below the pressure required to move the pin to its outer position. When the extinguisher is recharged, the pin 38 is manually pulled downwardly to the retracted position illustrated in Figure 1.

While only one specific embodiment of the invention has been illustrated and described in detail, it will be readily appreciated by those skilled in the art that numerous modifications and changes may be made without departing from the spirit of the present invention.

What is claimed is:

1. A warning device for a fire extinguisher of the type in which the fire extinguishing material is stored in a container from which it is expelled by raising the pressure within the container from a normal pressure to a discharging pressure and opening a discharge outlet, said warning device comprising a body having a passageway extending therethrough and adapted to be mounted on said extinguisher with said passageway communicating at one end with the interior of said container and at its other end opening externally of said container, an indicator element mounted in said body in said passageway and movable longitudinally thereof between a first position in which said element is adapted to be disposed when said normal pressure exists in said container and a second position indicating a predetermined increase of the pressure within said container above said normal pressure, a portion of said element extending externally of said extinguisher to provide a visual warning when said body is mounted on said extinguisher and said element is in said second position.

2. A warning device as defined in claim 1 including transparent means mounted on said body and co-operating therewith to define a chamber disposed externally of said container, said warning element projecting into said chamber and being visible through said transparent means when disposed in said second position.

3. A warning device as defined in claim 1 including transparent means mounted on said body and co-operating therewith to define a chamber disposed externally of said container, said warning element projecting into said chamber and being visible through said transparent means when disposed in said second position, and annular means disposed within said passageway and preventing escape of fluid between said body and said element, said annular means also yieldably resisting movement of said element relative to said body.

4. A fire extinguisher comprising a tank defining a chamber adapted to contain fire extinguishing material, manually operable means for increasing the pressure within said chamber for effecting discharge of the fire extinguishing material from said chamber, and an indicator device including a body having a passage extending therethrough and mounted with the inner end of said passage communicating with said chamber, a pin mounted in said body and movable along said passage between an extended position in which the outer end of said pin provides a warning visible externally of said extinguisher and a retracted position, said pin being adapted to be moved from said retracted position to said extended position upon a predetermined increase in the pressure within said chamber.

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