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FIRE EXTINGUISHER

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Fig. 1

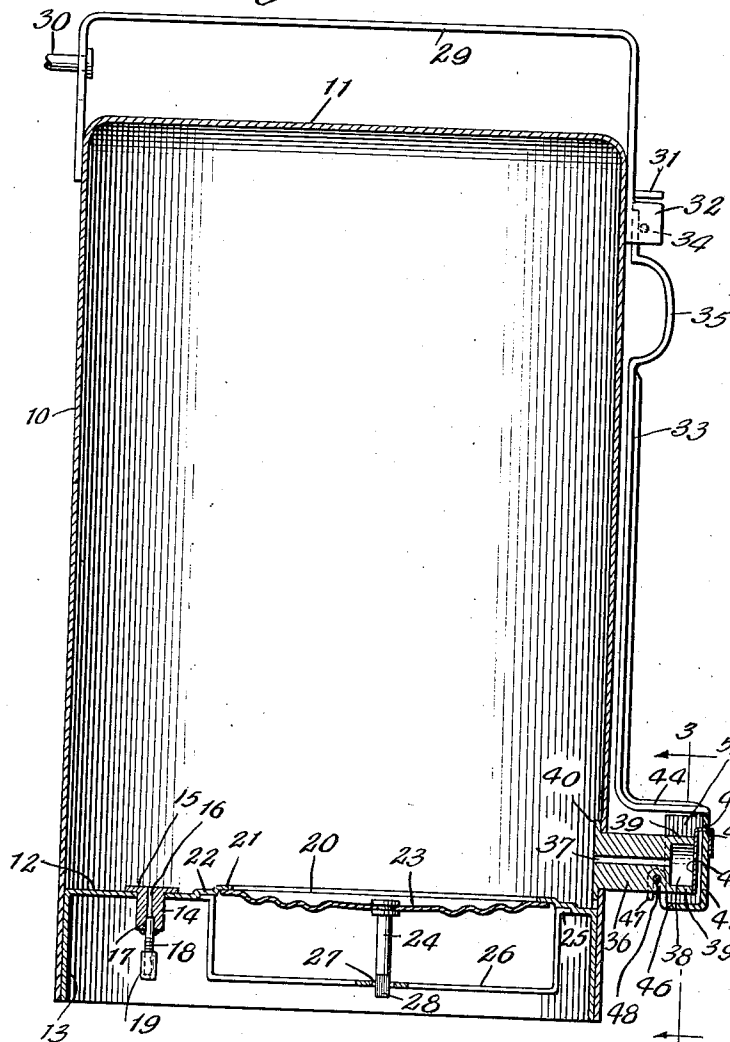


Fig. 2

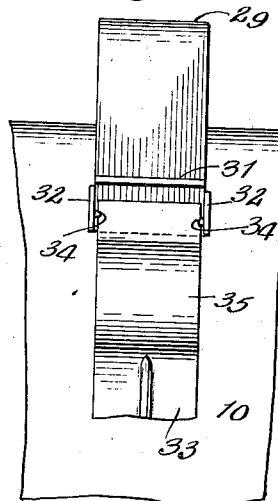


Fig. 3

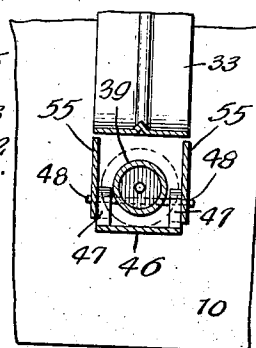
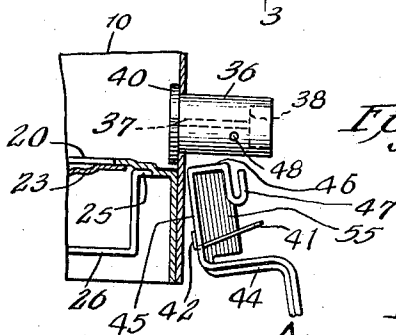


Fig. 4



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FIRE EXTINGUISHER

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10 Claims. (Cl. 169—31)

My invention relates to fire extinguishers and it has specific reference to devices of this character that are relatively small in size so that they may be readily carried in the hand of the user or may be stored in a convenient space such, for example, as on the wall or other portion of an automobile body.

The fire extinguisher which I have invented embodies a container, preferably of sheet-metal, that is charged with a suitable fire extinguishing fluid under pressure, and means are provided for clearly indicating whether the pressure in the container has been dissipated. The container or receptacle is made so the contents are sealed against leakage and I have provided novel means that may be quickly operated to open the container for the discharge of the fire extinguishing fluid.

One of the objects of my invention is to provide a fire extinguisher that is novel in construction and effective in performing its functions. Another object is the provision of a device that has practically no complicated parts to get out of order, and which will discharge its fluid by means of the self-contained pressure in the container, thus avoiding the use of a hand-pump or the like. The article which I have invented is not bulky and it is easy to manipulate when being used. Other objects and advantages of my improved fire extinguisher will be apparent to persons skilled in the art after the construction and operation thereof is understood from the following description taken in connection with the drawing.

I prefer to practice my invention, and to accomplish the numerous objects thereof, in substantially the manner hereafter fully disclosed. Reference is now made to the accompanying drawing in which like reference characters are used to identify like parts in the several views.

In the drawing:

Figure 1 is a vertical axial section of my improved fire extinguisher.

Figure 2 is a fragmentary front elevation of the upper portion of the structure shown at the right in Figure 1.

Figure 3 is a vertical section on line 3—3 of Figure 1, looking into the direction of the arrows.

Figure 4 is a view, partly in section, showing relative positions of certain parts after the discharge nozzle has been unsealed and the extinguisher is in use.

The drawing is to be understood as more or less schematic and is for the purpose of show-

ing a typical or preferred form in which my invention may be made. Referring initially to Figure 1, the container comprises a cylindrical wall 10 of suitable diameter having an upper end wall 11 that is integral with the cylindrical wall, and a lower end wall 12 that is cupped and has its annular flange 13 brazed, soldered, or otherwise permanently secured to and sealed to the adjacent inner surface of the cylindrical wall 10 to prevent leakage of air or liquid. Thus assembled the container has a shallow recess at its bottom to accommodate certain instrumentalities of the fire extinguisher.

The bottom wall 12 is provided with a small opening in which a filling stub 14 is positioned, which stub has a flanged inner end 15 that is soldered or otherwise secured to the lower end wall, and said stub has a central passageway 16 to communicate with the interior of the container. The passageway 16 has a small tube 17 inserted in it and secured in place by solder or otherwise, which seals the joint between these parts. The extinguishing fluid is inserted through the tube under pressure in the usual manner of filling sealed containers and after the container has been charged with a quantity of fluid the walls of the protruding portion of the tube 17 are tightly crimped together as indicated at 18 and its end is covered with a cap 19. After the crimping and capping this portion of the structure is dipped in solder to provide a definite seal.

It is desirable to indicate to the user whether there is pressure in the container, and in order to do this I have provided a novel device. As shown in Figure 1, the lower end wall has an opening 20 of substantial diameter and the margin of the metal around the opening is provided with annular shoulder or stepped portions forming seats 21 and 22 disposed concentric to each other. A diaphragm plate 23 of the corrugated type is placed upon and sealed in the annular seat 21, and a small stud 24 is anchored to the central or axial portion of the diaphragm 23 and projects down therefrom into the recess at the bottom portion of the container. The lateral end portions or feet 25 of a U-shaped bridge member 26 are anchored in the annular seat 22 so that the horizontal portion of the bridge member extends diametrically across the diaphragm and is spaced therefrom a distance equal to the length of the stud. A central aperture 27 is made in the bridge to accommodate the free end stud 24 which, for the purpose of providing a visual indicator is coated with a red or other colored

coating 28. When the container is empty or when there is no pressure therein the colored indicator end of the stud 24 is disposed flush with the surface of the bridge 26, but when there is pressure in the container the diaphragm will be bulged outward is shown in Figure 1 causing the indicator end 28 of the stud to protrude beyond the bridge where it may be both seen by the eyes as well as touched by the fingers of the person examining the apparatus.

Means are provided at the upper end of the container for carrying the device or for hanging it upon the wall or the like. This means is in the form of a strap handle 29 of substantially U-shape, the arms of which extend down upon the outside surface of the cylindrical wall 10 and are secured thereto in any suitable manner. An aperture of pear-shape or key-hole shape may be made in one of the arms for hanging the extinguisher upon a nail 30 or the like. The other arm of the handle has its lower end portion provided with a horizontal flange 31 extending across it above its end and there is also a pair of oppositely disposed side wings 32, all of which provide a guard or shield for the upper end portion of the operating lever 33. The inner or facing surfaces of the wings 32 have small aligned embossments 34 that permit the adjacent portion of lever 33 to be snapped behind them, as shown in Figures 1 and 2 and thus retain the lever normally against accidental dislodgment. The lever is provided with an outwardly bowed or arched finger-grasp 35 below the guard members above described, and below the finger-grasp the body of the lever extends down substantially parallel with the cylindrical wall of the container to the discharge spout 36.

The discharge spout just mentioned is a metal piece having a small bore 37 that is increased in diameter at its outer portion as at 38 in order to provide an outer wall 39 of reduced thickness. The inner end of this discharge nozzle has an annular flange 40 that is soldered, brazed, or otherwise secured, to the inner surface of the container wall around the opening through which the spout protrudes. The reduced wall 39 has its outer edge sealed by means of a removable strip 41 which is secured in place upon the edge of said wall preferably by a soft solder so that it may be readily ripped or torn loose when the lever 33 is operated. This strip 41 is of sufficient size to cover the entire outer opening of the discharge nozzle and it has an extension 42 that passes through a slit 43 in the adjacent opposite portion of the lever and is securely maintained against the outer surface of the lever in any suitable manner.

At its lower end the lever has a lateral portion 44 that projects outwardly approximately parallel to the axis of the nozzle, and has downwardly extending portion 45 that is disposed across the front of the nozzle, and at its lower end is bent inwardly as at 46 below the nozzle. U-shaped arms 47 extend upwardly from the lower section 46 of the lever and are journaled upon a pin 48 that passes through the nozzle below the bore thereof. These U-shaped arms 47 are open at their lower portions to permit them to be readily disengaged from the pin when the lever has been operated to unseal and open the discharge nozzle as indicated in Figure 4. The container having been opened by this operation the fluid under pressure will be discharged through the central orifice of the nozzle and the operator may direct the stream as desired.

The fluid I prefer to employ is a solution of carbon tetrachloride and other ingredients to lower the freezing point of the fluid, but it will be understood that other fluids or solutions may be used in an effective manner. It will be seen the fire extinguisher I have invented contains the fluid under sufficient pressure to expel such fluid a suitable distance from the container and the container is, at all times prior to its being used, hermetically sealed under pressure. Also I have provided effective means for indicating whether the pressure in the container has become dissipated, such means may be observed both by the sense of touch and by the sense of sight of the person inspecting the same. The free end of lever 33 is protected by the flange and wing guard which prevents accidental dislodgment, and the lower portion of the lever protects the nozzle by its formation of a guard around the latter that is supplemented by wings 55 projecting from the short vertical 45 of the lever inward towards the container on both sides of the nozzle.

What I claim is:

1. A fire extinguisher comprising a cylindrical container charged with a fluid under pressure, said container having end walls, an annular seat in one of said end walls, a flexible diaphragm sealed in said seat, a member extending across said diaphragm, a stud supported by said diaphragm and guided through said member, a sealed nozzle for said container, and means for rupturing the seal of said nozzle to discharge fluid from said container.

2. A fire extinguisher comprising a cylindrical container charged with a fluid under pressure, said container having end walls, an annular seat in one of said end walls, a flexible diaphragm sealed in said seat and normally in the plane of said end wall but adapted to be moved into a bulged position outside said plane by pressure within the container, a stationary member extended across said diaphragm, a stud anchored on said diaphragm and disposed with its outer end in co-active relation with said stationary member whereby to indicate pressure conditions within said container, a discharge nozzle for said container, a seal closing said nozzle, and means for removing said seal.

3. A fire extinguisher comprising a container adapted to hold fluid, a nozzle therefor, a lever having its portion adjacent its fulcrum disposed across the discharge port of said nozzle and provided with a slit, and a rip-strip sealing the discharge port of said nozzle, said strip having an extension that passes through said slit and is anchored to an adjacent portion of said lever.

4. A fire extinguisher comprising a container adapted to hold fluid, a nozzle therefor, a hand lever fulcrumed at one end adjacent said nozzle and extended across the discharge port of said nozzle, said lever having a slit adjacent said nozzle and having its free portion disposed along the adjacent wall of said container, and a seal closing the discharge port of said nozzle, said seal having a portion passed through said slit and anchored to said lever.

5. A fire extinguisher comprising a container adapted to hold fluid, a nozzle in the lower portion thereof, a hand lever having a fulcrum adjacent the lower end of said container, said lever extending in front of said nozzle and upward along the side wall of said container toward the upper end thereof, said lever having a slit adjacent said nozzle, a rip-strip sealing the discharge

port of said nozzle, said strip having a portion passed through said slit and anchored to said lever, whereby when said lever is moved upon its fulcrum said strip is adapted to be torn from said nozzle to unseal the discharge port.

6. A fire extinguisher comprising a container charged with fluid under pressure, a discharge port therefor, a handle at an end of said container, a hand-lever extending in front of said port and having a portion disposed in association with said handle, a rip-strip sealed across said discharge port and anchored to said hand-lever, and means releasably maintaining said lever normally in associated relation to said handle, said hand-lever adapted for movement on its fulcrum and radial to the container axis and in a direction away from said container, whereby to unseal said rip-strip from said port and discharge the fluid.

7. A fire extinguisher comprising a container charged with fluid under pressure, a discharge port adjacent an end of said container, a handle for said container, a hand-lever fulcrumed for movement with respect to said port and disposed outside said container, said hand lever having a portion overlying a portion of said handle, a rip-strip sealed across said discharge port and anchored to said hand-lever, and means releasably maintaining said lever in associated relation to said handle, whereby, upon being released from said handle, said hand-lever is adapted for movement in a plane radial to the axis of said container and away from said container to remove said rip-strip from said port to discharge the fluid.

8. A fire extinguisher comprising a container charged with fluid under pressure, a discharge

nozzle near an end thereof, a handle at the upper end of said container, a rip-strip healing the port of said nozzle, and means for unsealing said rip-strip and to which said rip-strip is connected, said means embodying an operating lever extending in front of said nozzle and disposed alongside said container, and a protecting cap on said lever disposed around the outer portion of said nozzle.

9. A fire extinguisher comprising a container charged with fluid under pressure, a discharge port near an end thereof, a handle at the upper end of said container, a rip-strip sealing said discharge port, and means for unsealing said rip-strip to which said rip-strip is connected, said means embodying an operating lever disposed alongside said container and having a portion releasably associated with said handle, a protecting cap on said lever disposed around said discharge port, and means for releasably maintaining said lever in association with said handle, said lever upon being released adapted for movement in a plane radial to the axis of the container and away from the latter whereby the discharge port is unsealed.

10. A fire-extinguisher comprising a cylindrical container charged with a fluid under pressure; a nozzle for said container having a discharge port, said nozzle disposed with its axis in a plane common to the axis of said container; a rip-strip releasably secured to said nozzle and providing a seal for said port; and lever means connected to said seal and fulcrumed for movement with respect to said nozzle, said lever means adapted for movement in an outward direction radial to the axis of the container whereby to rip said seal from said port and open the latter.

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