

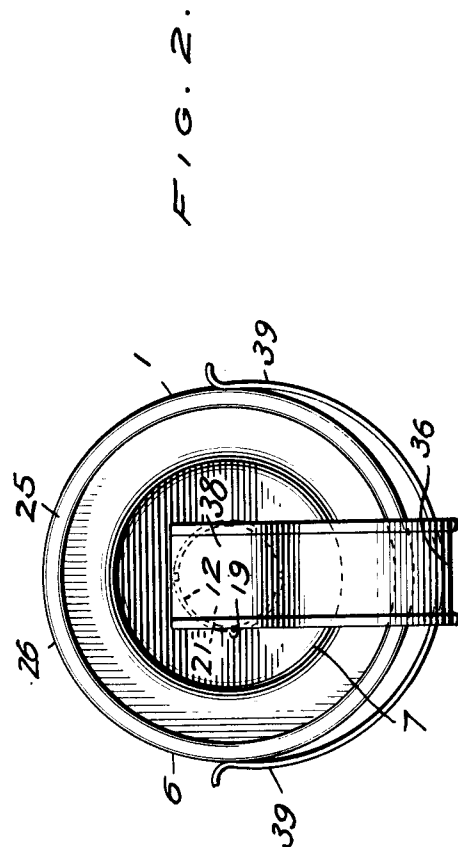
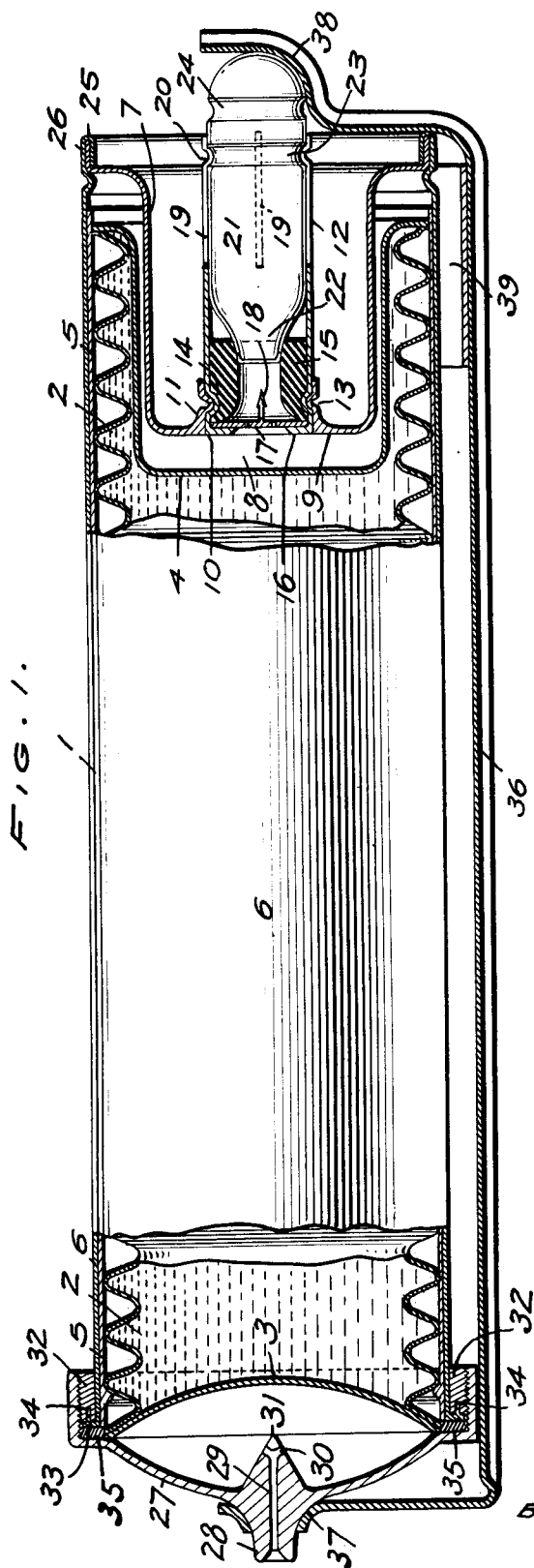
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FIRE EXTINGUISHER

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FIRE EXTINGUISHER

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This invention relates to fire extinguishers, and has for its object to provide a device of this class which may be operated by one hand.

5 The invention is particularly applicable for aircraft as its use permits one hand of the pilot to be available for the manipulation of his plane.

The invention also facilitates the fighting 10 of fires generally, in that an extinguisher can be employed in each hand of the user.

A further object of the invention is to provide a fire extinguisher which is extremely light in weight, easy and simple to operate, efficient and positive in action. 15

With these objects in view, the invention consists of the novel construction of the extinguisher and in certain combinations and arrangements of parts, all of which will be 20 first fully described and afterwards specifically pointed out in the appended claims.

Referring to the accompanying drawing:

Figure 1 is a side elevation partly in longitudinal section of a fire extinguisher constructed in accordance with the invention; 25 and

Figure 2 is an end elevation of the same.

Like numerals of reference indicate the same parts throughout the figures, in which:

30 1 indicates the device, which includes a collapsible liquid-holding container 2, the same including a readily puncturable head or seal 3 and a deeply recessed upper end or head 4. Surrounding this container 2 is a pressboard 35 tubular covering 5 for protecting the said container and to establish an insulation between the container 2 and the metallic wall of the tubular housing or casing 6.

Referring to said casing 6, it will be seen 40 that the same embodies a deep recessed upper head or end 7 adapted to enter the recessed head 4 of the container 2 and providing a space 8 around and between the said head 7 of the casing and the head 4 of the container. 45 The bottom 9 of the said head 7 is provided with a central opening 10 around which is spun an annular flange 11 to receive and retain a tubular holder or receiver 12 for a gas bomb. Permanent connection between 50 these elements 11 and 12 is effected by the

annular bead 13 and groove 14. Disposed within the said casing 12 at this point of connection is a compressible gasket 15 of rubber or the like, and between this gasket 15 and the partially closed end 16 of the casing 12 55 is a perforated disc 17 upon which a cartridge-puncturing device or pin 18 is mounted.

The outer end portion of the receiver 12 is provided with preferably four longitudinal 60 slots 19, and in this slotted portion and near the end of the receiver 12 there is rolled a bead 20, this slotted construction lending a spring resiliency to the outer end portion of the casing 12. 65

Disposed within this receiver 12 is a gas bomb or cartridge 21 containing gas under pressure and having a sealed neck 22 which snugly enters the gasket 15, and terminates 70 adjacent the cartridge-puncturing pin 18, while the outer end of said bomb 21 projects beyond the end of the receiver, as shown, and is provided with two annular grooves 23 and 24 to successively receive the said annular 75 bead 20 as will be presently described.

Referring again to the recessed head 7 of the casing 6, it will be seen that, said head includes an annular rim 25 around which the end portion 26 of the casing is rolled, thus 80 presenting a strong and stiff gas-tight joint.

27 is the nozzle-holding cap of the casing 6. This cap is preferably outwardly convex and centrally provided with a nozzle or outlet 28 having a central port 29 in communication with a plurality of angularly dis- 85 posed ports 30 in the sharp conical inner end or seal-fracturing device 31, which lies immediately adjacent the readily puncturable head or seal 3 of the container 2, and in the path of movement thereof. 90

Referring now to the lower end of the casing 6, it will be seen that we provide a threaded metallic ring 32 thereat, and spin over an extending flange 33 at the extreme end of said casing 6. A plurality of holes 34 is drilled 95 in said ring, and the material of the casing 6 is indented into said holes so that the said ring slightly floats on the said casing. Directly upon the said spun flange 33 is a gasket 35 to be engaged and compressed by the 100

cap 27, said cap threading on the said ring 32 as shown. The effect of this is that a full floating seat and gas-tight joint is provided by a more perfect and a more even compression of the gasket 35 than could be accomplished by rigidly securing the threaded ring 32 to the casing 6.

For conveniently holding the extinguisher in an accessible position, we provide a bracket 36 having an apertured flange 37 to receive the nozzle 28 of the extinguisher, and at its upper end a projecting guard 38 for protecting the gas bomb from casual shock or pressure such as might result in unintentional discharge of the gas bomb. Adjacent to said guard 38, the bracket 36 is provided with a pair of spring fingers 39 which embrace the cylindrical casing 6 and detachably hold the extinguisher in position for ready removal and use.

Having thus fully described the invention its operation is as follows:

The parts being assembled as shown in the drawing, the extinguisher is removed from its supporting bracket for use. The gas bomb 21 is forced inwardly which movement carries its inner sealed end into contact with the cartridge-puncturing pin 18, which discharges the contents of the bomb into the space 8 between the casing head 7 and the container head 4. This movement of the bomb 21 carries the neck 22 thereof well within the surrounding gasket 15, effectively compressing the same and establishing a pressure-tight joint against leakage of the contents of the bomb. Simultaneously the annular groove 23 is carried out of engagement with its complemental annular head 20, and the adjacent annular groove 24 passes into interlocking engagement with the said annular head 20. In this manner the gas bomb 1 is retained in its innermost position of discharge. The container 2 being readily compressible endwise, the pressure from the discharging bomb 21 acts against the container-head 4 and exerts an endwise collapsing pressure on the said container 2. This pressure so exerted on the upper end of the collapsible container, the liquid contents of which are non-compressible, instantly forces the lower readily puncturable container head or seal 3 into engagement with the sharp conical seal-fracturing point 31 of the nozzle 28 and establishes a connection between the port 29 of said nozzle and the contents of the receptacle, so that the said contents are discharged through said nozzle under pressure, which discharge continues until the total collapse of the container has been accomplished.

Recharging of the extinguisher is effected by the simple substitution of the collapsed receptacle 2 by a filled receptacle, upon removal of the nozzle-cap 27, and by the application of a new gas bomb 21 for the one discharged.

Having thus fully described the invention, we do not wish to be understood as limiting ourselves to the exact construction herein set forth, but consider ourselves clearly entitled to all such changes and modifications that fall within the limit and scope of the appended claims.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A device of the character described including a collapsible liquid container having a readily puncturable head and a deeply recessed head, a metallic container casing therefor, a nozzle-carrying cap secured to said container casing, the nozzle of the cap having a sharp puncturing point disposed adjacent the said readily puncturable head of said container, a deeply recessed head on said container casing; the recessed portion thereof lying within the said recessed head of said container and spaced apart from the latter, a gas bomb casing carried in the recessed head of the container casing, a gas bomb movably mounted in the gas bomb casing, a firing pin disposed in the path of movement of the gas bomb for discharging the gas bomb, the said gas bomb and the gas bomb casing including resilient detent interlocking means for retaining the gas bomb in inactive position and in active position of engagement with said firing pin, and means for effecting a pressure-tight connection between said gas bomb and the gas bomb casing, the whole arranged whereby upon movement of the gas bomb into active position of engagement with said firing pin to discharge the gas bomb, the discharge therefrom enters the space between the two said recessed heads to endwise collapse the said container and move the said readily puncturable head thereof into engagement with the puncturing point of said nozzle to establish connection of the said nozzle with the contents of the said container.

2. A device of the character described including a collapsible liquid container having two heads, one of which is readily puncturable, a metallic container casing, a nozzle-carrying cap for said container casing, the nozzle of the cap having a puncturing point disposed adjacent the said readily puncturable head of said container, a head on said container casing spaced apart from the adjacent head of the container, a gas bomb casing carried by the said head of the container casing, a gas bomb movably mounted in the gas bomb casing, a firing pin disposed in the path of movement of the gas bomb for discharging the gas bomb, the said gas bomb and gas bomb casing including resilient detent interlocking means for retaining the gas bomb in inactive position and in active position of engagement with said firing pin, and means for effecting a pressure tight connection between said gas bomb and the gas bomb casing, the whole arranged whereby upon

movement of the gas bomb into active position of engagement with said firing pin to discharge the gas bomb, the discharge therefrom acts upon the adjacent head of the container to endwise collapse the same and move the said readily puncturable head thereof into engagement with the puncturing point of said nozzle to establish connection of the said nozzle with the contents of the said container.

3. A fire extinguisher including a casing, a sealed cartridge containing gas under pressure to be released and directed into said casing, and a cartridge-receiver on said casing and in communication therewith, said cartridge-receiver having a cartridge puncturing device at its inner end and spring fingers at its outer end for yieldably engaging and supporting the cartridge in an exposed position to be thrust against the said cartridge-puncturing device by direct impact of the hand.

4. A fire extinguisher having, in combina-

tion, a casing having a re-entrant portion at one end forming a deeply recessed head, said re-entrant portion having its inner or bottom end centrally apertured and having a flange around said aperture, a cartridge receiver disposed within the recess of said head with its inner end secured to said flange and its outer end slotted to provide a plurality of spring gripping fingers, a cartridge-puncturing device at the inner end of said receiver, cartridge puncturing means at the inner end of the said receiver, and a gas cartridge within the receiver and movable against the cartridge puncturing means, said cartridge having an annular groove to be engaged by the spring fingers in the inactive position of the cartridge and an annular groove to be engaged by the spring fingers in the active position of the cartridge.

In testimony whereof we affix our signatures.

CHARLES L. PAULUS.
ROBERT KAUCH.

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