June 10, 1952 E. E. SEABERG 2,599,728

FIRE EXTINGUISHER NOZZLE

Original Filed Dec. 3, 1948

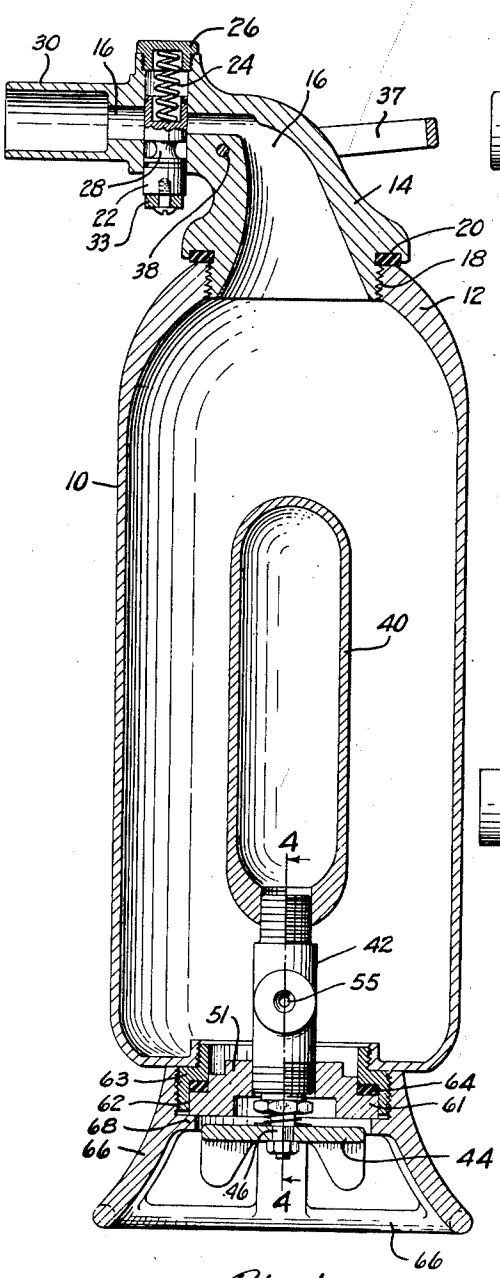
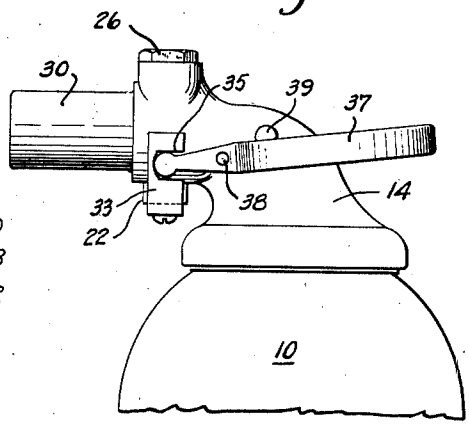


Fig. 1

Fig. 2



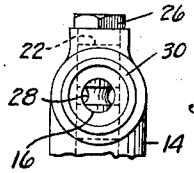


Fig. 4.

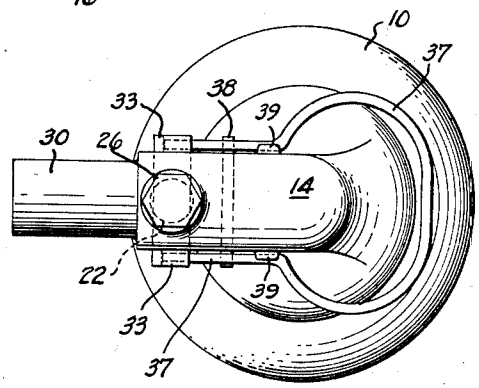


Fig. 3

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FIRE EXTINGUISHER NOZZLE

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2 Claims. (Cl. 169—1)

1

The present invention relates to a novel and improved gas-propelled fire extinguisher nozzle.

The present application is a division of my prior co-pending application Serial No. 63,260 filed December 3, 1948.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part thereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:

Figure 1 is a vertical section showing a typical and preferred embodiment of the invention;

Figure 2 is a fragmentary side elevation and Figure 3 is a top plan view of the embodiment of Figure 1;

Figure 4 is a detailed front elevation of the nozzle shown in Figure 1.

The present invention has for its object the provision of a highly efficient, compact, simple and relatively inexpensive valved nozzle for a gas-propelled dry-powder fire extinguisher. A further object is the provision of a novel and improved fire extinguisher nozzle which will extinguish large fires with a smaller amount of powder and gas than has heretofore been generally possible. Still another object is the provision of an extinguisher nozzle which is effective at unusually long ranges.

As illustratively shown in the accompanying drawings the valved nozzle is combined with an extinguisher comprising a gas bottle to contain propellant gas under high pressure and an exterior bottle into which the gas is released and which is filled with powder to be propelled by the gas through a nozzle controlled by the hand valve. Manually opened valve means are provided for releasing the gas from the high pressure bottle, and special sealing means are provided for mounting the inner bottle and its valve within the outer power-filled bottle.

As shown, the outer bottle 10 comprises a generally cylindrical steel container having dome-like ends which are interiorly apertured and threaded to receive the nozzle portion, and the flange of an interior gas bottle.

2

At one end, 12, the bottle 10 is thickened and interiorly threaded to receive the nozzle and discharge valve assembly. This comprises a strong metal neck 14 having a gradually constricted and curved interior passage 16 which leads to a valve and discharge nozzle. The neck is exteriorly threaded to fit tightly by threads 18 in the bottle and is sealed thereto by gasket 20. The valve means comprises a cylindrical plug 22 slidable in a cylindrical bore formed in the neck casting and urged to closing position by means of a coil spring 24 compressed between an end of the plug 22 and a cap 26 threaded into the bore. Plug 22 is formed with an annular groove 28 which may coincide with the passage 16 so as to provide for discharge through the valve. Plug 22 is sealed in its bore by means of the small O-rings which are seated in annular grooves at either side of the groove 28.

Groove 28 and passage 16 communicate with the nozzle which comprises a short cylindrical tube 30 coaxial with passage 16 and of a slightly larger interior diameter than passage 16, as shown in Figures 1 and 4. When plug 22 is moved to fully open position, the annular groove 28 as intersected by the passage 16 forms two rounded openings at the sides of the passage 16 thereby providing for two streams of propelled powder, which streams are directed towards each other, merge and are deflected by the interior walls of the tube 30 so as to form a gradually increasing cone of powder which is propelled to a considerable distance, often as far as thirty or forty feet.

For opening and closing the discharge valve by axial movement of plug 22, a yoke 33 is fastened to the lower end of plug 22 and is formed with slots 35 which receive the rounded ends of a loop shaped lever 37 pivoted at 38 on a pin extending through the neck casting 14. Stops 39 formed integrally with casting 14 limit movement of the lever 37 by spring 24. When lever 37 is manually depressed, the valve plug 22 is moved to open or discharge position.

The interior or high pressure gas bottle comprises a standard small steel bottle 40 for containing high pressure carbon dioxide or nitrogen under a pressure of 1000 to 2500 pounds per square inch pressure. Bottle 40 is threaded at one end to receive a valve 42 of standard construction which is opened by relative rotation of the valve stem by means of the winged finger disc 44.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom

within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What is claimed is:

1. In a dry-powder fire extinguisher, a valved nozzle comprising a valve body having a passage therethrough and an intersecting cylindrical bore, a slidable cylindrical valve member in said bore, sealing O-rings on said member at either side of said passage, said valve member being formed with a shallow annular groove to form the valve opening, the outlet side of said passage being cylindrical of a diameter only slightly smaller than said member and terminating at its outer end in a larger hollow cylindrical cap, whereby the open valve presents two rounded openings which forcefully discharge powder against the wall of the larger passage to provide a forceful stream of powder emerging from the hollow cylindrical cap.

2. In a dry-powder fire extinguisher, a valved nozzle comprising a valve body having a passage therethrough and an intersecting cylindrical bore, a slidable cylindrical valve member in said bore,

said valve member being formed with a shallow annular groove to form the valve opening, the outlet side of said passage being cylindrical of a diameter only slightly smaller than said member and terminating at its outer end in a larger hollow cylindrical cap, whereby the open valve presents two round openings which forcefully discharge powder against the wall of the larger passage to provide a forceful stream of powder emerging from the hollow cylindrical cap.

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