H. M. McCASLIN.

FIRE EXTINGUISHER.

APPLICATION FILED MAR. 13, 1916.

1,204,040.

Patented Nov. 7, 1916.

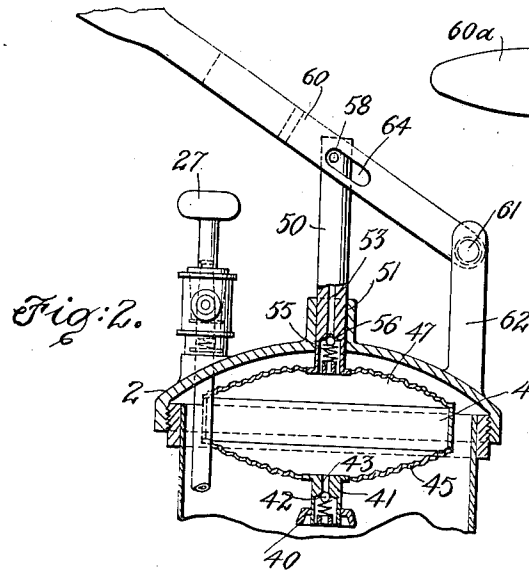


Fig. 2.

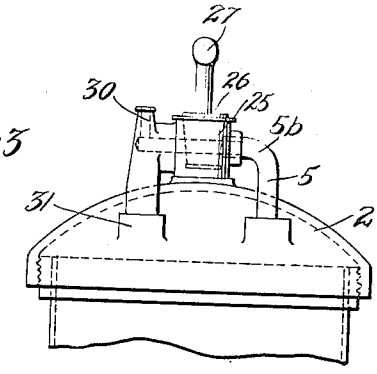


Fig. 3.

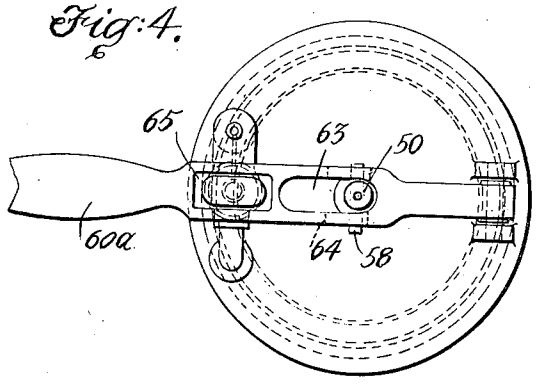


Fig. 4.

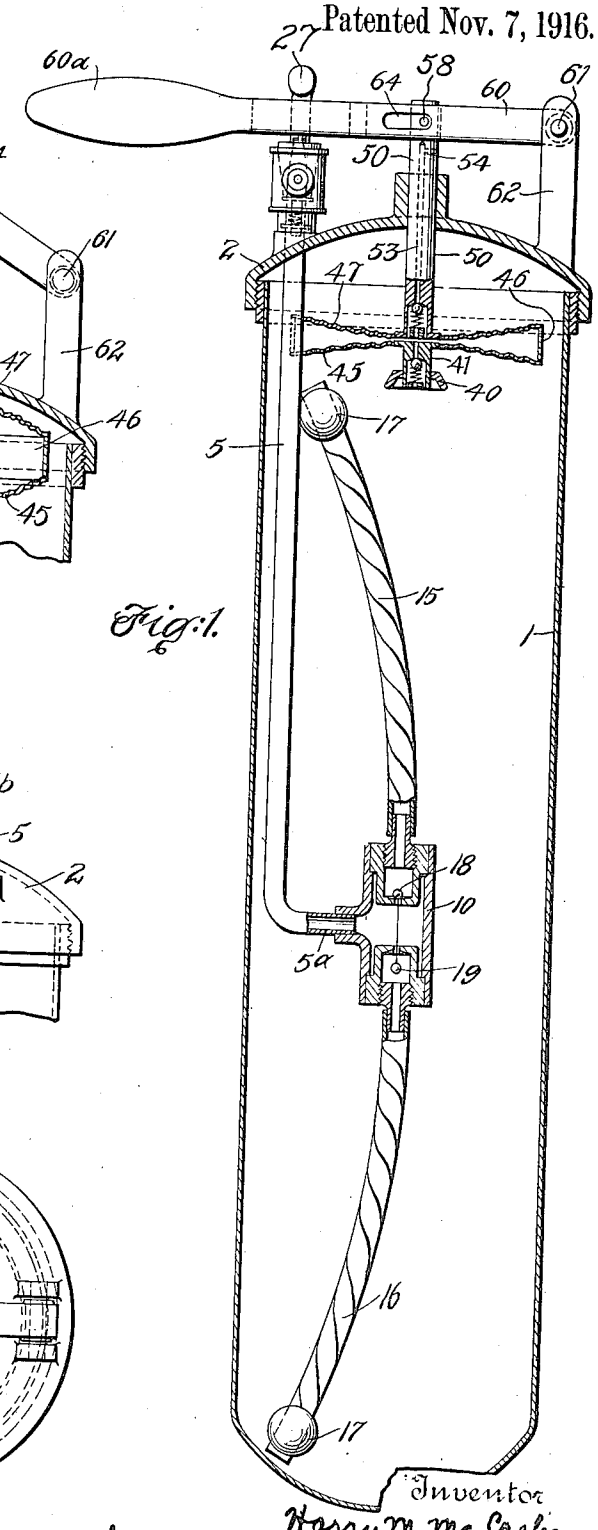


Fig. 1.

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UNITED STATES PATENT OFFICE.

HARRY M. McCASLIN, OF ELMIRA, NEW YORK, ASSIGNOR TO AMERICAN LA FRANCE FIRE ENGINE COMPANY, INC., OF ELMIRA, NEW YORK, A CORPORATION OF NEW YORK.

FIRE-EXTINGUISHER.

1,204,040. Specification of Letters Patent. Patented Nov. 7, 1916.

Application filed March 13, 1916. Serial No. 83,875.

To all whom it may concern:

Be it known that I, HARRY M. McCASLIN, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a full and clear specification.

The present invention relates to improvements in fire extinguishers of the portable or hand type, in which a fire extinguishing fluid, such as carbon tetrachlorid, is carried in a suitable tank or container provided with a hand-operated pump, which causes the fluid to be projected through the discharge nozzle of the container in a thin stream, which can be conveniently directed upon a fire.

This type of extinguisher is usually provided with means for maintaining communication between the discharge nozzle and the lowest part of the tank or container, whatever position the tank may be held in, said means being connected with the nozzle, either directly or through the pump, so as to permit the discharge of the entire contents of the tank or container in any desired direction.

The present invention comprises a fire extinguisher of the portable type, provided with an interiorly arranged diaphragm pump operated from without and adapted to effect the discharge of the extinguishing liquid from the container.

The diaphragm pump comprises two flexible metal diaphragms secured at their edges to a connecting ring to form an alternately contracting and expanding chamber communicating through valved passages with the interior of the extinguisher tank and the exterior air. One of the diaphragms is centrally secured to a rigid brace suitably fastened in the extinguisher tank, while the other diaphragm is centrally secured to a reciprocating rod or plunger extending through a suitable opening in the head of the tank and connected with an operating hand lever mounted upon the tank. A discharge nozzle is also preferably mounted upon the head of the tank adjacent to the operating handle and a communicating pipe leads from the interior of the tank to the discharge nozzle, which is preferably provided with a controlling cock. The handle upon the stem of the cock is presented in the plane of the operating hand lever of the pump, which lever is formed with a vertical slot extending through it to permit the handle of the cock to pass therethrough and to turn at right angles for locking the pump handle against movement.

In order that the invention may be fully understood I will first describe the same with reference to the accompanying drawings and afterward point out the novelty more particularly in the annexed claims.

In said drawing,—Figure 1 is a vertical longitudinal sectional view of a fire extinguisher having my improvements applied thereto; Fig. 2 is a similar view of the upper end of the extinguisher, showing the pump mechanism in a shifted position; Fig. 3 is a detail side elevation of part of the head of the extinguisher showing the discharge nozzle and controlling cock, the pump operating mechanism being omitted; Fig. 4 is a plan view of the extinguisher head.

In the drawings, 1 is a cylindrical tank or container for holding an extinguishing liquid, such as carbon tetrachlorid. This tank 1 has secured to it at one end a removable head 2 from which all of the operating parts are supported. A discharging pipe 5 passes through a suitable opening in the head 2 adjacent to one wall of the container 1, and is formed with an inturned end 5^a, approximately midway between the ends of the tank. A three-way coupling 10 is mounted upon the end 5^a and extending oppositely from the coupling 10 are the flexible metal branch pipes 15, 16, whose open ends are presented adjacent to the opposite ends of the tank. Weights 17 are carried upon the free ends of the branch pipes 15, 16. Coupled valves 18, 19 are mounted in the three-way coupling 10. This arrangement of branched discharging pipe, formed of flexible metal tubing, is the same as covered in my application Serial No. 81872, filed March 3rd, 1916, and is not specifically claimed in the present case.

The outward end of the discharging pipe 5 is curved at 5^b to connect with a valve casing 25, from the opposite side of which leads the discharge nozzle 30 to which the usual flexible discharging pipe may be applied, if preferred. The discharge nozzle 30 is supported upon an integral lug 31 of the head 2. The valve casing 25 carries a two-way controlling valve or cock 26, having a flattened

elongated handle 27 secured to the upper end of the valve stem.

40 is a suitable curved metal brace secured to the interior of the tank 1, adjacent to the head 2 and rigidly mounted in this brace 40 is a tubular block 41, hollowed out to form a valve chamber, in which is seated a spring actuated ball valve 42, normally closing the passageway 43.

45 is a flexible metallic diaphragm mounted centrally upon the block 41 and secured around its circular edge to the lower edge of a connecting ring or band 46, which is supported by the diaphragm 45. A second diaphragm 47 is secured at its circular edge to the upper edge of the connecting ring 46 to form with the ring and lower diaphragm 45 an inclosed chamber, which is alternately contracted and expanded for pumping air. Centrally secured to the upper diaphragm 47 is a rod or plunger 50, which passes through, and is journaled in, a central opening 51 of the head 2 and is formed with a central port or passageway 53, connected at its outer end with the inlet air port 54 and at its inner end with the valve chamber 55, in which is mounted the spring actuated ball valve 56, which normally closes the opening through the port 53. The valve chamber 55 opens into the pump chamber between the diaphragms 45 and 47.

60 is the operating handle freely pivoted at 61 in bracket post 62 upon head 2 and formed with a central longitudinal slot 63, in which is received the upper end of the rod or plunger 50. The plunger 50 carries at its upper end a cross pin 58, which is seated in the longitudinal side slots 64 of the lever 60 to effect an operative connection between the lever and the plunger. The lever 60 is also formed with an elongated slot 65, adjacent to its handle end 60^a to receive the elongated handle 27 of the cock 26, so that when the lever is in its lowest position the handle 27 can be turned to shut off the outlet nozzle 30 and simultaneously to lock the lever 60 in its movement.

The contracted position of the diaphragm pump is shown in Fig. 1, while the expanded position of the pump is shown in Fig. 2. The extinguisher can be held in any convenient position to direct the stream in the desired direction and while thus held the lever 60 is worked up and down to cause the diaphragm pump to alternately expand and contract with the result that successive charges of air are drawn into the pump chamber and expelled therefrom into the interior of the tank 1. The compression of air in the tank 1, by this pumping operation, forces the extinguishing liquid out through the system of discharging pipes to the discharging nozzle. It has been explained in the above named application how the flexible discharging pipes aways lead from the lower part of the tank or container and insure the outflow of liquid and prevent the escape of the air being compressed in the tank.

I claim:

1. In an extinguisher, the combination of a fluid container having a discharge nozzle, and means communicating between said nozzle and the low part of the container in all of its positions, with a diaphragm pump mounted upon and communicating with said container.

2. In an extinguisher, the combination of a fluid container, a discharge nozzle therefor, a pump formed of two connected diaphragms supported in said container, a fixed support centrally engaging one diaphragm, a ring connecting the diaphragms at their edges and forming a contracting and expanding pump chamber, a rod engaging the other diaphragm at its center, a hand lever pivotally mounted upon the container and connected with the outer end of said rod, and valved inlet and outlet ports to the chamber between said diaphragms.

3. In an extinguisher, the combination of a fluid container, a discharge nozzle therefor, a pump supported in said container, a hand lever pivotally mounted upon the container and operatively connected with said pump, and a turn cock controlling the nozzle passage way and adapted to engage the hand lever and lock it against movement.

4. In an extinguisher, the combination of a fluid container, a discharge nozzle therefor, a pump supported in said container, a pump rod passing through a bearing opening in a wall of said container, a hand lever pivotally mounted upon the container and connected with said rod and formed with a slot, a turn cock in the nozzle, and a handle on the stem of said cock adapted to enter said slot and engage said hand lever.

HARRY M. McCASLIN.