Nov. 15, 1927.

1,649,718

R. W. McMULLEN

PUMP GUN FIRE EXTINGUISHER

Filed Oct. 29, 1925 2 Sheets-Sheet 1

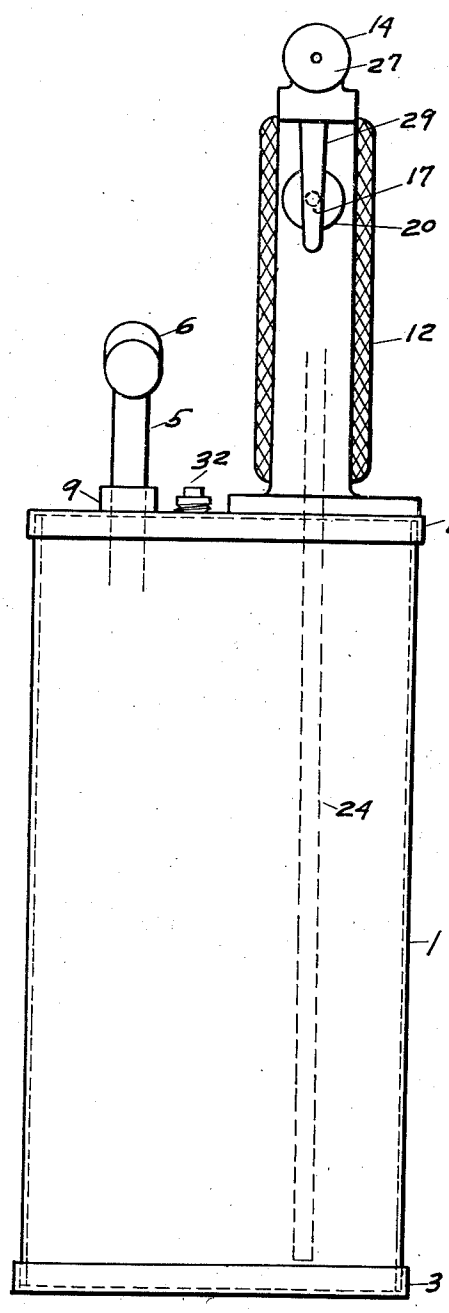


Fig. 2

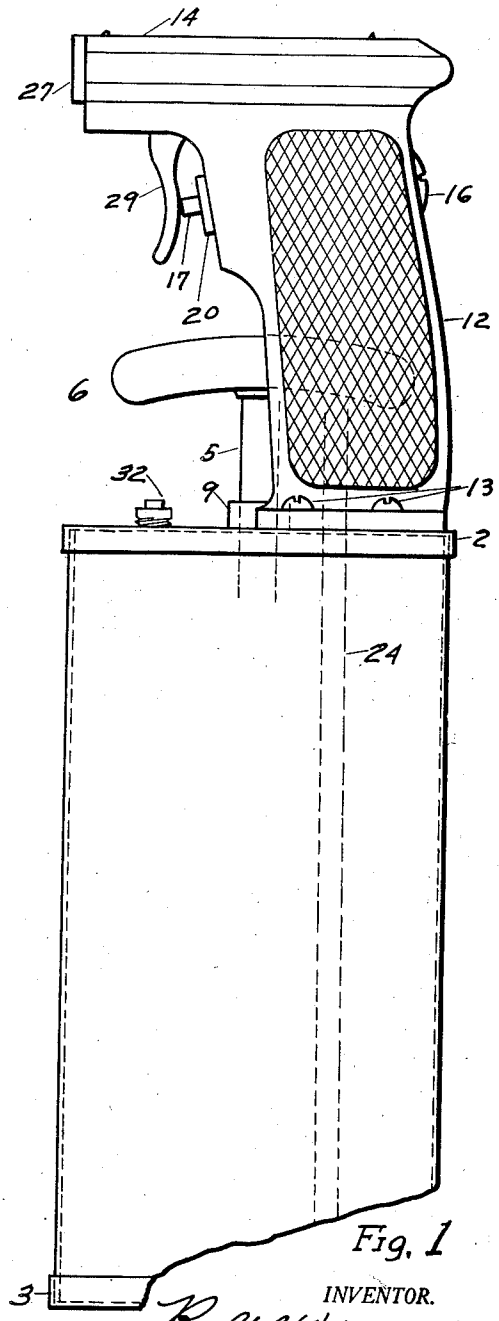


Fig. 1

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2 Sheets-Sheet 2

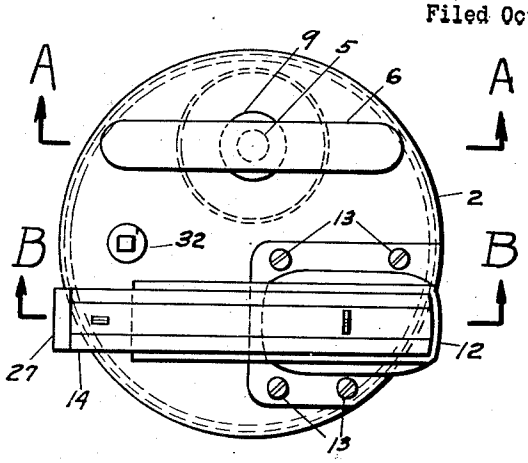


Fig. 3

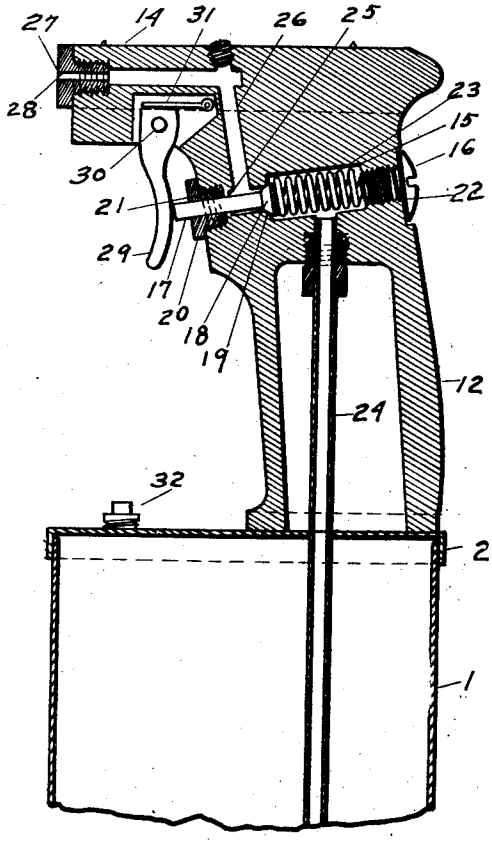


Fig. 5

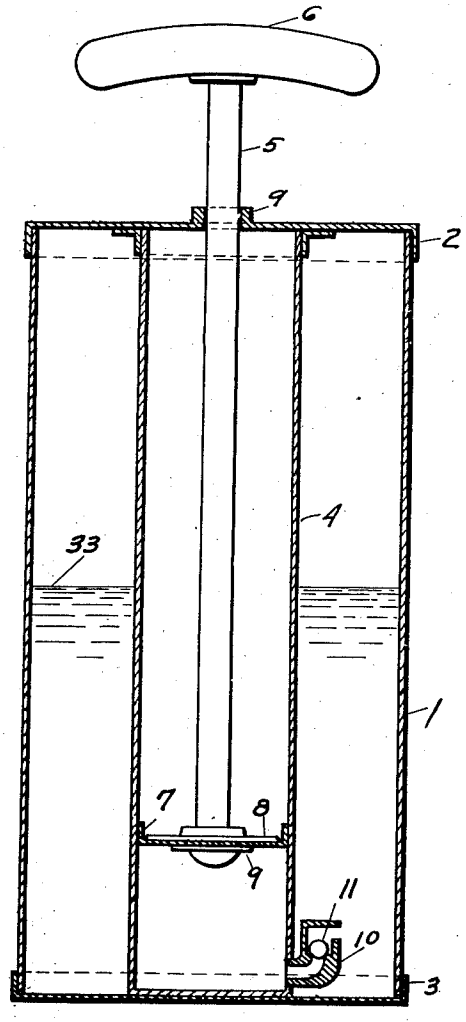


Fig. 4

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UNITED STATES PATENT OFFICE.

RALPH W. McMULLEN, OF DETROIT, MICHIGAN, ASSIGNOR TO McMULLEN FIRE EXTINGUISHER COMPANY, A CORPORATION OF MICHIGAN.

PUMP GUN FIRE EXTINGUISHER.

Application filed October 29, 1925. Serial No. 65,561.

The object of my invention is to produce a fire extinguisher of such combination and design, that its form and arrangement will suggest to the user thereof, the method of operation without reading instructions or directions thereon.

Another is to produce a fire extinguisher that is small, compact and of a design to operate in a natural position suggested wholly by the design of the operating handle and its position thereon.

A further object is to provide a chemical fire extinguisher that is simple in its construction, easily and efficient in its operation and can be manufactured at a very low cost.

These several objects are attained in the preferred form by the construction and arrangement of parts more fully hereinafter set forth.

Similar parts on all drawings are marked by similar numerals.

Fig. 1, is a side view of my device showing the pistol grip discharge nozzle as mounted on the top of the chemical liquid pressure tank.

Fig. 2 is a front view of the device shown in Fig. 1, showing the relative position of the working parts of the extinguisher.

Fig. 3 is a top view of Fig. 1.

Fig. 4, is a sectional view taken on the line —AA— of Fig. 3, showing the pressure pump installed within the liquid tank, as means for raising the pressure therein.

Fig. 5, is a sectional view taken on line —BB— of Fig. 3, showing the operating mechanism of the discharge pistol grip nozzle.

I will now describe more fully the detailed construction of my device, referring to the drawings and the marks thereon.

The general construction of my device comprises a cylindrical liquid pressure tank, having a small pressure pump installed therein, and a pistol grip discharge nozzle attached to the top end of the tank. The pistol grip nozzle being provided with a tubular passage leading from the bottom of the liquid tank, through the pistol grip handle to the discharge nozzle, being designed with a trigger valve for opening and closing the liquid channel within the pistol grip handle, the device being operated and discharged in a similar manner to the discharging of an ordinary revolver.

It is often difficult for the user of a fire extinguisher to understand the exact operation of the device, even by reading the directions printed thereon, and especially when excited by a sudden flame, and often resulting with an attempt to use the extinguisher having the wrong end up, making it useless and wholly inoperative, resulting in confusion and disaster. With my device it is wholly impossible to hold or operate the extinguisher in but one position, and that being suggested by the natural position of the pistol grip handle on the top of the tank, together with its similarity to the ordinary revolver so well known even by young children, and which will naturally suggest the means for operating my device.

The chemical pressure tank —1— is made of pressed sheet metal, preferred in a cylindrical shape, although the shape is not material to the operations of my device, and fitted with air tight end caps —2— and —3—, securely attached thereto, usually being welded thereon, forming an air tight tank suitable for withstanding high pressure therein. The tank being designed to operate in a vertical position as indicated in the drawings. In the cap —2—, at one side of the center, is installed a pressure pump —4—, also made of tubular metal casing, and positioned within the liquid tank —1—. The pump —4— being provided with an operating rod —5— positioned along the axis of the tube —4— and projecting through the end cap —2—, is provided with an end handle —6— for operating same. The rod —5— carries attached to the lower end thereof, a leather plunger head —7—, supported by the metal collars —8— and —9— rigidly attached thereto. The collar —8— and the leather —7— closely fitting the walls of the tube —4—, making it practically air tight on the downward stroke of the plunger, for forcing air within the liquid chamber —1—, but relaxes on the upward stroke of the plunger sufficient to allow the passage of air from the top end of the cylinder to the bottom end as the plunger is raised therein. The air entering the top end of the cylinder through the loose bearing —9— in the cap —2—. At the lower end of the pump cylinder —4— is attached a small air check valve —10—, leading from the pump chamber directly into the liquid pressure tank —1—, and is provided with a check ball —11—, mount-

ed within the valve for preventing the escaping of air from the liquid chamber —1—. The pump —4— operating in the same manner as any ordinary pump. Also in the cap —2—, on the side opposite the said handle —6—, is mounted the pistol grip discharge nozzle —12—, securely attached to the end cap —2— by the rivets —13—, the handle being positioned upright, and to fit the hand as one would ordinarily grasp a pistol. The discharge barrel —14— being formed across the handle grip at right angles to the axis of the attached pressure tank —1—. Within the handle grip —12— is formed a liquid chamber —15—, arranged approximately at right angles to the axis of the handle grip, and in a vertical plane through the axis of the discharge barrel —14—. The said chamber being fitted at the back end thereof with a screw plug —16—, and providing an opening for inserting the valve mechanism therein. At the opposite end, or front end of the chamber —15— is installed a needle valve —17—, having a conical valve head —18— formed thereon which fits and engages the conical valve seat wall formed in the end of said chamber. The valve pin —17— being supported therein by means of the bearing —20— firmly screwed in the wall of the handle —12—. The pin —17— projecting from the pistol grip handle, is free to slide therein in its supporting bearing —20—, for opening and closing the valve —18—. Both the valve bearing —20— and the plug —16— are made air tight by means of the packing rings —21— and —22—. Within the chamber —15— is a coil valve spring —23—, placed under compression by means of the plug —16—, and engages the valve head —18—, firmly pressing same against its supporting valve seat —19—. Opening into the bottom of the chamber —15— is a supply tube —24—, extending to the bottom of the tank —1—, and opening therein, providing an open passage for the liquid in the tank —1— to the chamber —15— when under pressure from the pump —4—. Outside the chamber —15—, at the valve end thereof, is formed a secondary chamber —25—, which surrounds the valve stem —17—, being adjacent to the valve head —18—, and opening directly into the chamber —15— when the valve is in its open position. Connected to the top side of the chamber —25—, is an L-shaped discharge passage —26— leading therefrom directly to the nozzle end of the discharge barrel —14—, and is provided with a nozzle plug —27— for regulating the size of the stream discharged by the extinguisher. To the bottom side of the barrel —14—, and directly in front of the valve pin —17—, is mounted an operating trigger —29—, pivoted to the barrel by the pivot —30—, and free to turn thereon. The said trigger being held firmly against the projecting end of the valve pin —17—, by the spring —31—, but not with sufficient pressure to disturb the valve —18— in its supporting valve seat —19—. In the top of a liquid tank —1— is a filling plug —32—, tightly screwed therein, which can be easily removed when it is desired to re-fill the tank with liquid.

In operating the fire extinguisher, liquid chemicals are poured therein through the opening filled by the plug —32—, filling the tank partly full, as indicated by liquid level —33—, then by means of the pump —4—, the air pressure may be raised to any desired pressure, making the device ready for instant use. By grasping the pistol grip —12— as one would ordinarily grasp the handle of a revolver, pointing the discharge barrel —14— at the flame to be extinguished, and pulling the trigger —29—, opening the valve —18— and allowing the chemicals from the tank —1— to be discharged through the nozzle —28. The whole operation and use of the device being apparent to the user by reason of its special design.

Having fully described my pump gun fire extinguisher, what I claim as my invention and desire to secure by Letters Patent is:

1. A fire extinguisher comprising a liquid pressure tank, means for entering chemicals therein, means attached to said tank for raising a pressure within said tank, a pistol grip discharge nozzle fixedly attached to the top of said pressure tank and having a supply pipe opening into and extending to the bottom of said liquid pressure tank, a liquid passage formed through said pistol grip discharge nozzle and connected with the supply pipe leading into the liquid pressure tank, a trigger valve mounted within said liquid passage for opening and closing said passage, a trigger mounted on said pistol grip discharge nozzle for engaging said trigger valve and operating same in a manner similar to the operating of a pistol.

2. A fire extinguisher comprising a sealed liquid pressure tank, means attached thereto for entering liquid within said tank, an air pump installed within said tank for raising the pressure within the liquid tank to any desired pressure, a pistol grip discharge nozzle fixedly attached to the top of said liquid pressure tank, said discharge nozzle having a liquid chamber formed therein and having an inlet supply pipe leading therefrom directly to the chemicals in the pressure tank, said supply pipe extending to the bottom of the pressure tank, also a discharge passage leading from said liquid chamber to the nozzle discharge end of the pistol grip, a trigger valve mounted within the pistol grip handle within the said liquid chamber for opening and closing the liquid channel, and a trigger pivotally attached to said handle for operat-

ing said trigger valve in a manner similar to the discharging of a pistol.

3. A pistol grip discharge nozzle adapted for use with a fire extinguisher chemical tank, comprising a pistol shaped casting formed like the combined pistol handle and barrel, means for connecting the bottom end of the handle section to said fire extinguisher chemical tank, a liquid passage formed through the said casting having the inlet port at the bottom end of the handle section and its discharge port at the end of the barrel section, a valve chamber formed in the handle section intercepting the said liquid passage, a valve and valve pin installed within said liquid chamber for closing and regulating the liquid passage, a spring within said chamber for closing said valve, said valve pin positioned and projecting from the front side of the handle section, near the lower side of the barrel section, and a trigger pivoted to the lower part of the barrel section, positioned to engage the projecting end of said valve pin for opening said valve.

In witness whereof I sign these specifications.

RALPH W. McMULLEN.