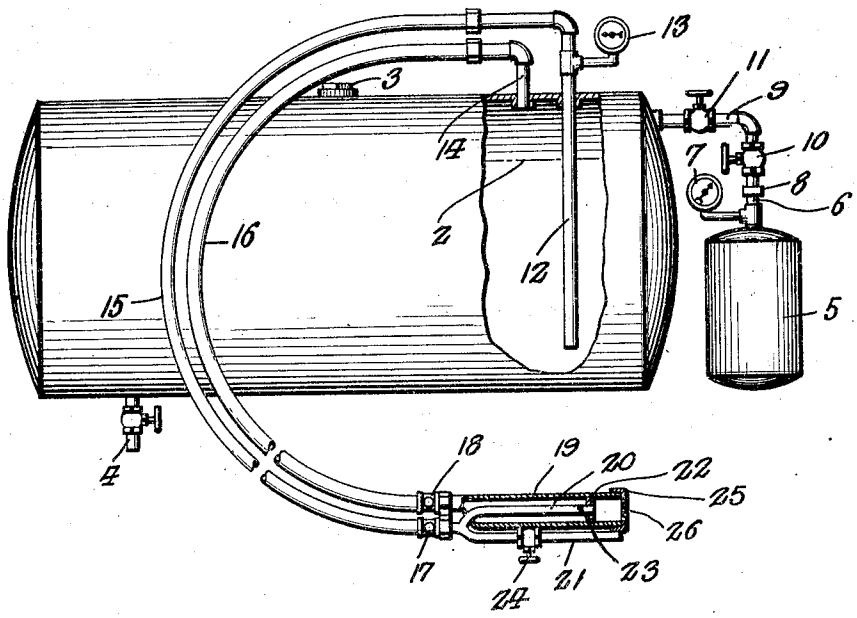
June 13, 1933. H. J. ECHOLA 1,914,245

VAPOR FIRE EXTINGUISHER FOR FIRE APPARATUS

Filed Nov. 5, 1930

Fig. 1.



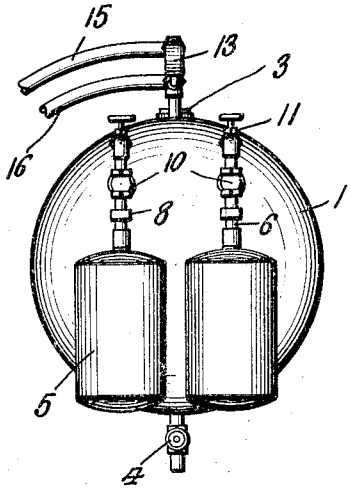


Fig. 2.

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VAPOR FIRE EXTINGUISHER FOR FIRE APPARATUS

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My present invention has reference to a fire extinguisher primarily designed for use by municipal fire apparatus, and my object is the provision of an extinguisher for small fires, such as those created by the ignition of gasoline, kerosene, and the like, which if not extinguished would result in conflagrations, by subjecting such fires to an aqueous vapor or water which from experience I have found will quickly extinguish the fire and will not damage property such as is true with respect to the ordinary chemical extinguishers employed by fire departments, etc.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawing which forms part of the application, with the understanding, however, that the improvement is capable of extended application and is not confined to the exact showing of the drawing nor to the precise construction described and, therefore, such changes and modifications may be made therefrom as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claim.

In the drawing:

Figure 1 is a side elevation of a fire extinguishing apparatus in accordance with this invention, parts being broken away and parts in section.

Figure 2 is an end view thereof.

The improvement is primarily designed to form a part of a portable fire apparatus, such as is employed by fire departments in municipalities, but obviously the same may be employed with equal success as a portable member in a building.

Essentially the improvement comprises a tank or reservoir 1, that receives therein a desired quantity of water, the level of water being indicated in Figure 1 by the numeral 2. The tank at the top thereof is provided with a filler opening closed by a plug 3 and has its bottom provided with a valve controlled drain pipe 4.

At one of the ends of the water containing tank 1 I preferably arrange a pair of spaced but suitably supported tanks 5 that contain air under compression. In lieu of these compressed air containing tanks a suitable air compressor may be employed.

The top of each of the tanks 5 has a pipe extension 6 to which is attached a gage 7. The pipe 6 is removably coupled, as at 8, to an air inlet pipe 9 that communicates with the reservoir 1 above the water level 2. The pipes 9 for the respective compressed air tanks 5 are of rightangle formation and each branch thereof is controlled by a valve 10 and 11, respectively. The valves are hand operated and the valves 10 provide the outlet valves from the tanks 5, while the valves 11 provide the control pipe for the air that is let into the reservoir 1.

Entering from the top of the reservoir there is a pipe 12 which terminates a slight distance above the bottom of the tank. There is, of course, an air and water tight joint between the pipe 12 and the top of the tank and the outer portion of the pipe 12 has attached thereto a gage 13. Also let in the top of the tank there is an air outlet pipe 14. Of course, the pipe is connected to the tank in a manner that will render the joint therebetween both air and water tight and the outer ends of both of the pipes 12 and 14 have coupled thereto flexible pipes or hose members 15 and 16, respectively. The hose members 15 and 16 are of desired lengths, whereby an aqueous vapor or water can reach the flame to be extinguished.

Both the water conducting pipe 15 and the air conducting pipe 16 have their passages controlled by valves 17 and 18, respectively, to whose casings the outer ends of the hose are coupled and the valve casing 18 is directly coupled to the cylindrical mixing chamber or nozzle 19. The coupling for the valve 17 is formed with two branch pipe extensions, one indicated by the numeral 20, and the other by the numeral 21. The pipe or tube 20 is received through the rear end of the nozzle or mixing chamber 19 and the extremity of the said tube 20 is received in the bore of a supporting disc 22. The tube 20, inward of the disc 22 is provided with one or more apertures 23. The tube 20 extends the full length

of the mixing chamber nozzle 19, being arranged exteriorly thereof and this tube has its passage controlled by a hand operated valve 24. The outer end of the cylindrical nozzle is closed by a cap 25 provided with spaced minute apertures 26, the same being preferably three in number and being triangularly arranged.

When the device is conveyed to a fire to be extinguished the valve 10 of one of the compressed air tanks 5 is opened and the valve 11 is opened to a determined degree. The compressed air is thus let in the reservoir 1 and will act upon the water therein to force the said water through the pipe 12, tube 15 and through the tubular pipe branch 20, it being understood that the valve 24 is closed. Air is directed through the pipe 14 and the tube 16 so that such air is forcibly received in the mixing chamber or nozzle 19. This air also enters the port or ports 23 in the tube 20 and mixing with the water causes the same to be ejected through the apertures 26 in vapor formation. The force of the vapor is regulated by the amount of air let in the tank and likewise by the amount of air and water let in the mixing chamber by the valves 17 and 18.

From experience I have found that the aqueous vapor of water will quickly and readily extinguish fires caused by the ignition of gasoline, kerosene or from other causes without serious injury to the article on which the fire occurs. I have also found that in fires originating from the ignition of gasoline or kerosene that the vapor will extinguish the flame before the ignitable fluid burns into the article on which it is arranged so that with my improvement such articles are not subjected to injury as is true when chemical apparatus is employed for extinguishing such flames. Should the flame gain a headway the valve 24 is opened, so that water will be effectively ejected through the tube 21, which mixing with the vapor from the nozzle 19, will serve to extinguish blazes of what may be termed major proportions without permitting such blazes resulting in a conflagration.

I employ two tanks 5 in order that a supply of compressed air will be always at hand but the air from only one of the tanks is employed at a single operation of the apparatus, except, of course, in the event that the air supply in the said tank is not sufficient to create the necessary vapor in the nozzle. By coupling the tanks 5 to the pipes 9 and by controlling the valve 10, tanks may be attached to or removed from the said pipe 9.

A pump is necessarily employed in filling the tanks 5 with air and this pump may, if desired, be connected directly to the pipes 6 in which instance the tanks 5 are dispensed with. Also if desired, the tube 20 may have a number of branches connected and extending longitudinally therewith.

Having described the invention, I claim:

A nozzle comprising a cylindrical member for connection to a source of air under pressure, a tube axially arranged in the cylindrical member and adapted for connection to a source of water under pressure, said tube terminating short of the end of the cylindrical member, a disk positioned in the cylindrical member and supporting the end of said tube, a removable apertured cap closing the cylindrical member at one end and spaced slightly from said disk, said tube being provided with apertures just back of said disk, and a second tube exterior to the cylindrical member and paralleling the same, and a valve controlling said second tube, the latter being in communication with the first tube between said valve and the point of supply of the water under pressure.

In testimony whereof I affix my signature.

HEINO J. ECHOLA.