

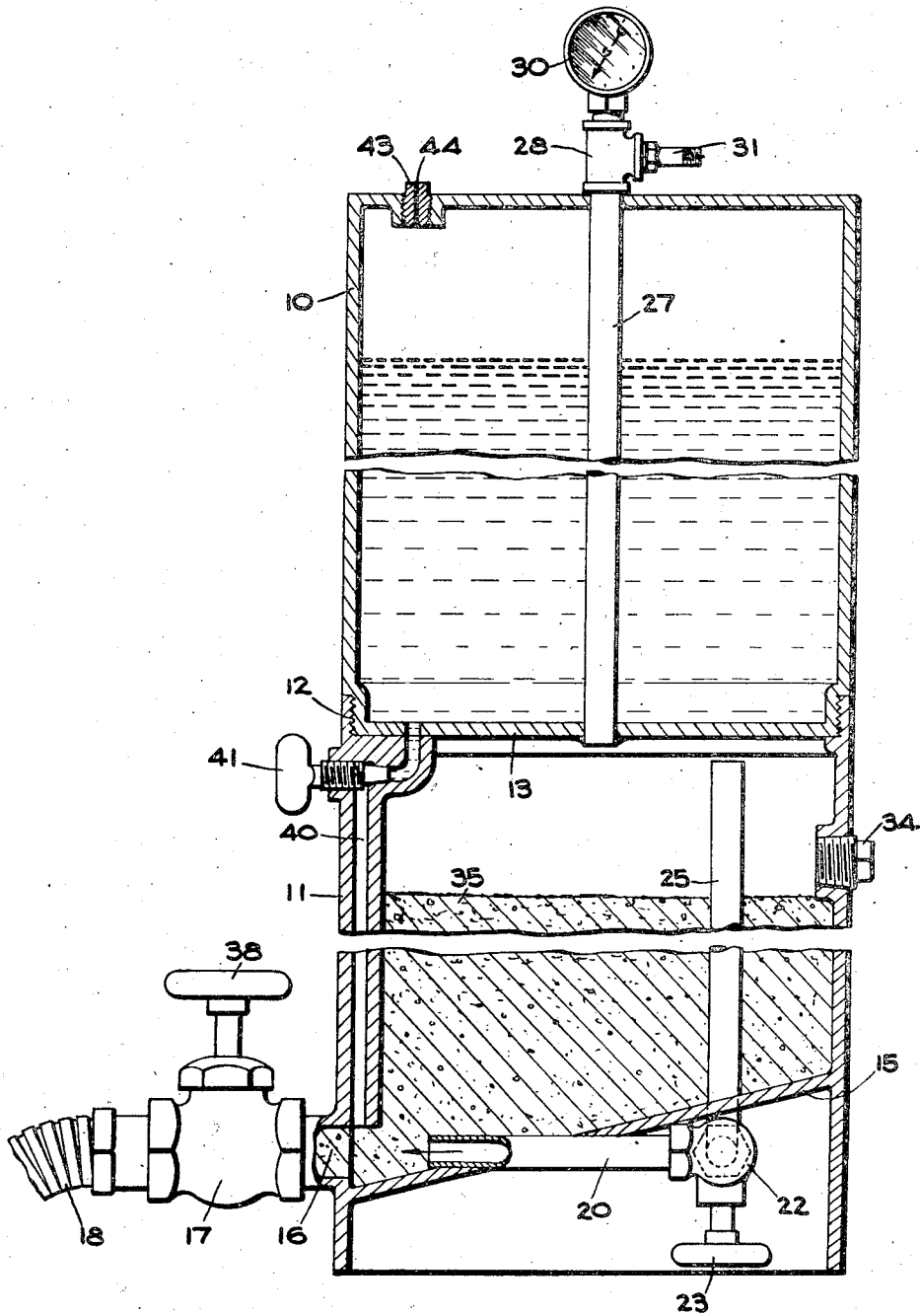
May 18, 1948.

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2,441,700

FIRE EXTINGUISHER APPARATUS

Filed Jan. 16, 1945



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UNITED STATES PATENT OFFICE

2,441,700

FIRE EXTINGUISHER APPARATUS

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Application January 16, 1945, Serial No. 573,018

6 Claims. (Cl. 169—31)

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This invention relates to fire fighting apparatus and particularly to novel fire extinguishing means.

According to the present invention means are provided for forcibly directing discrete relatively insoluble material such as sand or the like against and over a burning surface to smother and extinguish the fire. In the apparatus of the present invention the forcible emission and distribution of the sand or like material is accomplished by air or other fluid pressure means. In the form of the invention illustrated herein by way of example the ejection and distribution of solid granular material may be selectively accompanied by controlled discharge of water or other liquid, the water discharge being of varying degree depending on whether the purpose is merely to wet the granular material or to discharge a surplus of liquid to serve a more or less independent fire extinguishing effect.

In the example of the present invention illustrated herein and described in the following specification the apparatus is depicted as comprising a unitary container having two storage chambers. This illustration conveniently sets forth the principles of the present invention but it is to be understood that the underlying novelty is not restricted to a portable device of the kind shown and that two chambers need not be as intimately related as in the form shown in the drawing. In larger forms of the apparatus, such as might be mounted upon a fire fighting vehicle such as a truck, the two chambers may be independently supported on the truck. Similarly, while the example shown and described shows a self-contained stored pressure supply, larger vehicular forms of the apparatus may be provided with continuous pressure generating apparatus in the form of a motor driven pump or the like.

Other modifications of the basic principles of the present invention will occur to those skilled in the art from a perusal of the following detailed description taken in conjunction with the accompanying drawing. It is to be understood that such modifications will not necessarily depart from the principles of my invention, which is limited only as defined in the appended claims.

The single figure of the drawing is a central vertical cross sectional view through one form of the apparatus of my invention.

In the drawing the numerals 10 and 11 designate, respectively, upper and lower hollow cylindrical casings. As shown, the casings may be rigidly connected to form a continuous whole by screw-threading, as at 12. The lower wall of

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upper casing 10, designated 13, thus serves as a top closure for the lower casing 11. The lower casing 11 serves as a container or reservoir for sand or equivalent material while the upper casing 10 is adapted to contain water, either alone or with dissolved gases, or other fluid material, such as the various foam-forming substances employed in this field.

Referring to the drawing, the lower casing 11 has a bottom wall 15 which slopes toward a discharge passage 16, to facilitate egress of the sand. The discharge passage 16 is controlled by suitable valve means 17 and may terminate in a flexible conduit 18 whereby the discharge stream may be effectively directed or played in any desired direction without necessarily moving the device proper.

It will be noted that the sloping bottom wall 15 of lower casing 11 has fixed therein in any desired manner a tube 20 which, in the illustrated form, is substantially coaxial with and directed toward the passage 16. The opposite end of tube 20 is below the wall 15 and terminates in a globe valve 22 which has a suitable control knob or wheel 23. The inlet side of valve 22 has a tube 25 which extends upwardly through bottom wall 15 and through the interior of casing 11 to a point near its upper end.

A tube 27 extends entirely through upper casing 10, opening into the upper end of the interior of casing 11. At its upper end tube 27 is provided with a T fitting 28 which is equipped with a pressure gauge 30 and a conventional Schrader valve 31. By means of valve 31 and tube 27 any desired degree of fluid pressure may be established in casing 11 and such pressure may be readily replenished as required. A conventional pipe plug, as at 34, may be employed to provide a filler opening for introducing sand 35 into casing 11.

From the foregoing it will be seen that a blast of air or other gas through tube 20, which is established and regulated by manipulation of the knob 23 of valve 22, forces sand outwardly through passage 16 and hose 18. The quantity and continuity of sand discharge is ultimately controlled by valve 17 through manipulation of a control handle 38. The air pressure established in the upper part of lower casing 11 thus serves in a dual capacity to discharge sand 35, both directly by reason of the pressure which it exerts on the upper surface of the sand 35 regardless of the condition of valve 22, and by the separately controlled discharge of air through tube 20.

Reference will now be had to the junction and

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purpose of the upper casing 10, which may or may not be optionally employed in conjunction with the apparatus thus far described.

In one manner of use of the apparatus of my invention the upper casing 10 may contain merely water. It will be noted that a passage 40 is formed in the side wall of lower casing 11 and that the passage 40 extends upwardly through bottom wall 13 of upper casing 10 and terminates at its lower end adjacent to passage 16. A manual valve 41 controls flow through passage 40 which may in the first instance be under the force of gravity, although such flow will be increased to a greater or lesser extent by the Venturi action of fluid flow from tube 20 through passage 16. In the form shown the upper end of casing 10 is provided with a filler plug 43 which includes a vent opening 44.

The upper casing 10 may contain any available or desirable foam-forming agents. It may also contain water solutions of various pressure-evolving materials such as bicarbonate of soda or carbon dioxide. In that case the vent 44 will be either omitted or closed.

I claim:

1. Fire extinguishing apparatus comprising a receptacle adapted to contain sand and like material, a discharge passage adjacent the lower end thereof, means for introducing and maintaining fluid pressure in said receptacle above and against the sand contained therein, a conduit extending from the upper portion of the interior of said receptacle to a point adjacent and opening toward said discharge passage to supply pressure from the upper portion of the interior of the receptacle to the discharge passage, manual valve means in said conduit, valve means for manually controlling said discharge passage, a second receptacle adapted to contain liquid, and a passage extending from the second receptacle to a point adjacent said discharge passage to merge with the discharge flow thereof.

2. Fire extinguishing apparatus comprising a receptacle adapted to contain sand and like material, a discharge passage adjacent the lower end thereof, means for introducing and maintaining fluid pressure in said receptacle above and against the sand contained therein, a conduit extending from the upper portion of the interior of said receptacle to a point adjacent and opening toward said discharge passage to supply pressure from the upper portion of the interior of the receptacle to the discharge passage, valve means for manually controlling said discharge passage, a second receptacle adapted to contain liquid, and a passage extending from the second receptacle to a point adjacent said discharge passage to merge with the discharge flow thereof.

3. Fire extinguishing apparatus comprising a plurality of chambers, one adapted to contain sand and like material and the other adapted to contain liquid, a discharge passage extending from the first chamber, a passage extending from the second chamber to a point adjacent said discharge passage to merge with the discharge flow thereof, and fluid pressure means for forcibly discharging sand through said discharge passage, said last mentioned means comprising means for maintaining fluid pressure in said first chamber and a conduit extending from the upper portion of the interior of the first chamber above the nor-

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mal sand level to a point adjacent and opening toward said discharge passage to direct pressure fluid from said first chamber through said discharge passage.

4. Fire extinguishing apparatus comprising a receptacle adapted to contain sand and like material, a discharge passage adjacent the lower end thereof, means for introducing and maintaining fluid pressure in said receptacle above and against the sand contained therein, a conduit extending from the upper portion of the interior of said receptacle to a point adjacent and opening toward said discharge passage to direct pressure fluid from said upper receptacle interior portion through said discharge passage, manual valve means in said conduit, valve means for manually controlling said discharge passage, a second receptacle adapted to contain liquid, a liquid passage extending from the second receptacle to a point adjacent said discharge passage to merge with the discharge flow thereof, and manual valve means for controlling the liquid passage.

5. Fire extinguishing apparatus comprising a receptacle adapted to contain sand and like material, a discharge passage adjacent the lower end thereof, means for introducing and maintaining fluid pressure in said receptacle above and against the sand contained therein, a conduit extending from the upper portion of the interior of said receptacle to a point adjacent and opening toward said discharge passage to direct pressure fluid from said upper receptacle interior portion through said discharge passage, valve means for manually controlling said discharge passage, a second receptacle adapted to contain liquid, a liquid passage extending from the second receptacle to a point adjacent said discharge passage to merge with the discharge flow thereof, and manual valve means for controlling the liquid passage.

6. Fire extinguishing apparatus comprising a plurality of chambers, one adapted to contain sand and like material and the other adapted to contain liquid, a discharge passage extending from the first chamber, a passage extending from the second chamber to a point adjacent said discharge passage to merge with the discharge flow thereof, and fluid pressure means for forcibly discharging sand through said discharge passage, said last-mentioned means comprising means for maintaining fluid pressure in said first chamber and a conduit extending from the upper portion of the interior of the first chamber above the normal sand level to a point adjacent and opening toward said discharge passage to direct pressure fluid from said first chamber through said discharge passage, and valve means for controlling fluid flow through said conduit.

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