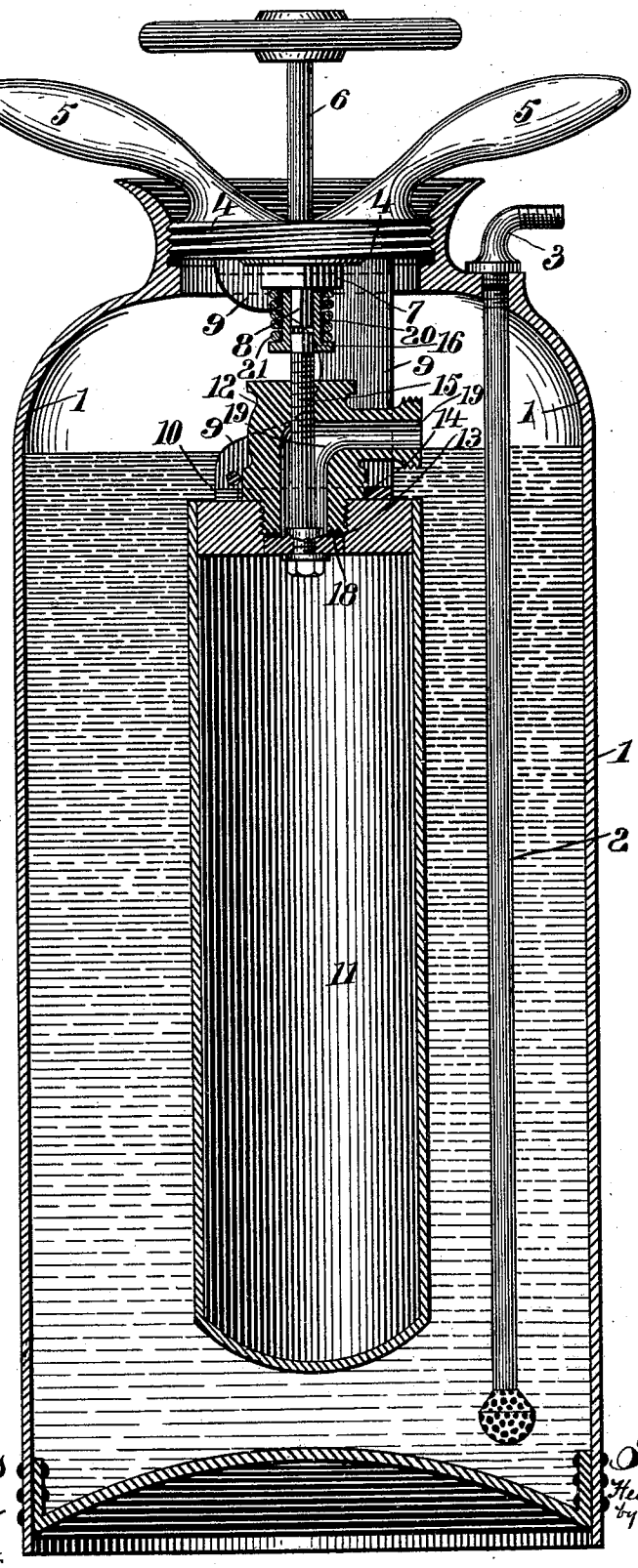
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H. A. MANSFIELD.

FIRE EXTINGUISHER.

No. 406,174. Patented July 2, 1889.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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FIRE EXTINGUISHER.

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Fig. 2.

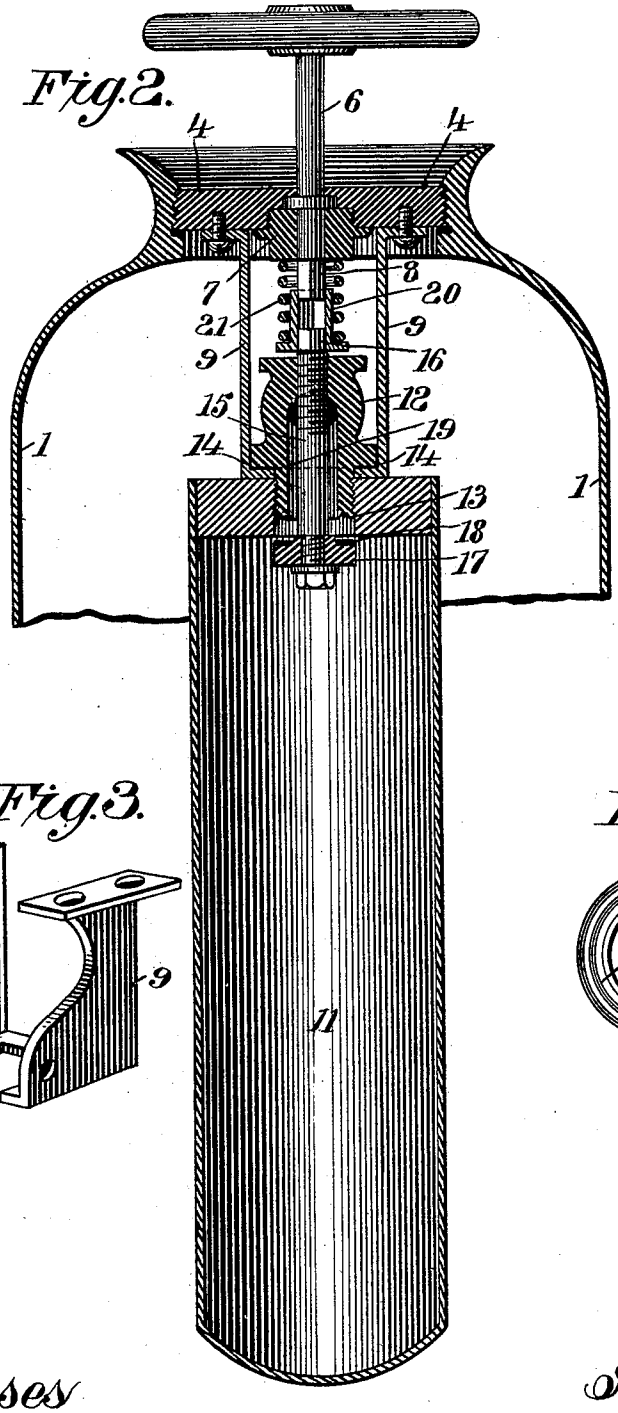
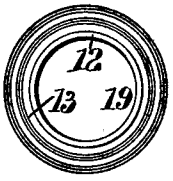


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY A. MANSFIELD, OF BRIDGEPORT, ASSIGNOR OF ONE-HALF TO SAMUEL BABCOCK, OF MIDDLETOWN, CONNECTICUT.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 406,174, dated July 2, 1889.

Application filed January 26, 1889. Serial No. 297,604. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. MANSFIELD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Fire-Extinguishers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in fire-extinguishers, but more particularly to that class of machines in which a fire-extinguishing fluid is driven out of its reservoir by the force of a compressed gas or compressed air contained in a receptacle in the machine and under control of the operator; and the object of my invention is to simplify the construction of the apparatus, so that the reservoir may be as simple and cheap as possible, and may be readily detachable and replaceable by another when such change becomes desirable from any cause, as the exhaustion of pressure; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully explained, and then recited in the claims.

A type of the machine with which my invention has to do is shown in the Letters Patent to W. Harkness, No. 243,128, June 21, 1881; but in that machine the air-holding cylinder, the valve whereby the contents of said cylinder is controlled, the gage, and, in fact, all the nicely-adjusted and expensive working parts are made inseparable from the cylinder, so that a change of cylinders sent with a machine necessarily includes duplicate working parts.

In my machine the cylinders may readily be changed, and one operating-handle, cover, valve-stem, &c., serve to operate as many cylinders as are required. I propose to furnish a plurality of the inexpensive cylinders herein shown and described with each machine, and the change from an exhausted to a newly-filled cylinder can be made in a very short space of time.

In order that those skilled in the art to which my invention appertains may fully understand its construction and operation, I will describe the same in detail, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a central vertical section through a machine constructed in accordance with my invention; Fig. 2, a similar view at right angles to Fig. 1; Fig. 3, a detail of the bracket for supporting the air-holding cylinder, and Fig. 4 a detail plan of the annularly-grooved valve-seat.

Like reference-numerals denote the same parts in all the figures of the drawings.

1 is the outside cylinder or reservoir, which is adapted to contain water or a chemical fire-extinguishing fluid, and 2 is an outlet-pipe extending from the lower end of the reservoir upward and outward through the top thereof. To the outer end of this outlet-pipe is adapted to be attached any convenient flexible hose.

4 is a screw-threaded cap having thereon any convenient handles, as 5, and 6 is a valve-operating stem which passes downward through a stuffing-box 7 in said cap (see Fig. 2) and terminates in a square sectional key 8. From the under side of this cap depends a bracket 9, (shown in detail at Fig. 3,) which is secured astride the valve-stem and stuffing-box, and the central part of whose lower side is cut away, as seen at 10.

11 is the air-holding cylinder, which is constructed so that the air may be forced and retained therein under heavy pressure, and 12 is a valve-casting, screw-threaded into the top of the cylinder and having at its lower end an annularly-grooved valve-seat 13. It has also just above the top of the cylinder outwardly-projecting flanges 14, which, when the cylinder is in position, rest upon the flanged edges of the bottom of the bracket and so support the cylinder. (See Fig. 2.)

15 is a valve-stem, formed at its top into a square key 16. It is screw-threaded through the top of the valve-casting, and, extending downward through the bottom of said casting, carries a valve-disk 17, on which is a soft metal washer 18, adapted when the valve is shut to form a tight packing against the annularly-grooved valve-seat.

A way 19, controlled at its bottom by the

valve just described, extends from the interior of the cylinder upward and then outward through the side of the valve-casting into the outer cylinder.

20 is a coupling-sleeve of square interior section, whereby the two square keyed ends of the respective valve-stems may be joined, and 21 is a spiral spring longer than said coupling-sleeve, whereby the latter is held in engagement with both stems by the abutment of said spring against the cap and the flanged lower end of the sleeve, respectively.

In operating my invention the gas or compressed air is liberated from the interior cylinder by means of the valve-stem and wheel at the top of the cap, and the force of this gas escaping into the outer cylinder throws the liquid therein contained outward through the outlet pipe and hose.

When it is desired to replace one cylinder by another for any cause, the cap is unscrewed from the top of the outer cylinder and the interior cylinder, which is supported on the bracket, and is thereby secured to the cap, is lifted out through the opening. Then by raising the spring-actuated coupling-sleeve out of engagement with the end of the lower valve-stem the air-cylinder may be drawn outward from its engagement with the bracket. In putting a fresh cylinder in place the spring-actuated coupling-sleeve is raised so that the lower valve-stem may pass under it as the cylinder is slid into place upon the bracket, when the sleeve is allowed to drop over the top of said stem, and so form a rigid connection between it and the upper valve-stem, which may be turned by the hand-wheel. The coupling therefore performs the double function of joining the valve-stems and of locking the inner cylinder fast upon its bracket.

I claim—

1. The combination, with the outer liquid-holding cylinder and a discharge-pipe leading therefrom, of the screw-threaded cap adapted to fit the top of said cylinder, a valve-stem extending downward through said cap, an air-holding cylinder suspended within the liquid-holding cylinder and provided with a valve and valve-stem, and a removable connection between the upper and lower valve-stems, substantially as set forth.

2. The combination, with the outer liquid-holding cylinder, of a cap secured thereon and a valve-stem extending through said cap, a bracket open as to one side thereof depending from the said cap, an air-holding cylinder having a valve and stem and a flange near its upper end adapted to engage the bracket, and a coupling embracing the ends of the two valve-stems, and whereby the lower stem may be rotated by the upper stem and the lower cylinder retained as against displacement on the bracket, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY A. MANSFIELD.

Witnesses:
S. H. HUBBARD,
M. C. HINEHCLIFFE.