(No Model.)

W. H. FREAR.

PORTABLE FIRE EXTINGUISHER.

No. 428,596. Patented May 27, 1890.

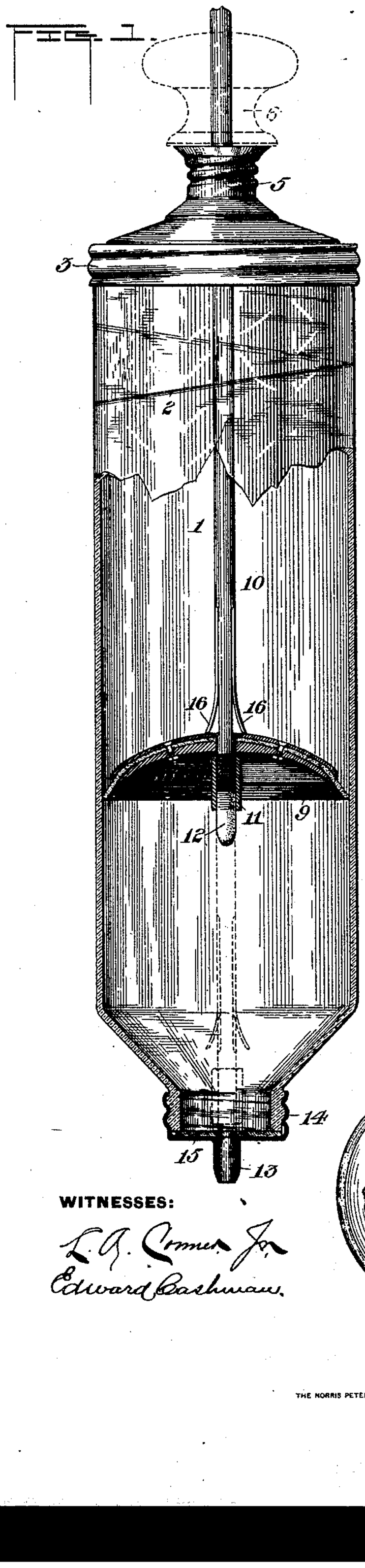


FIG. 2.

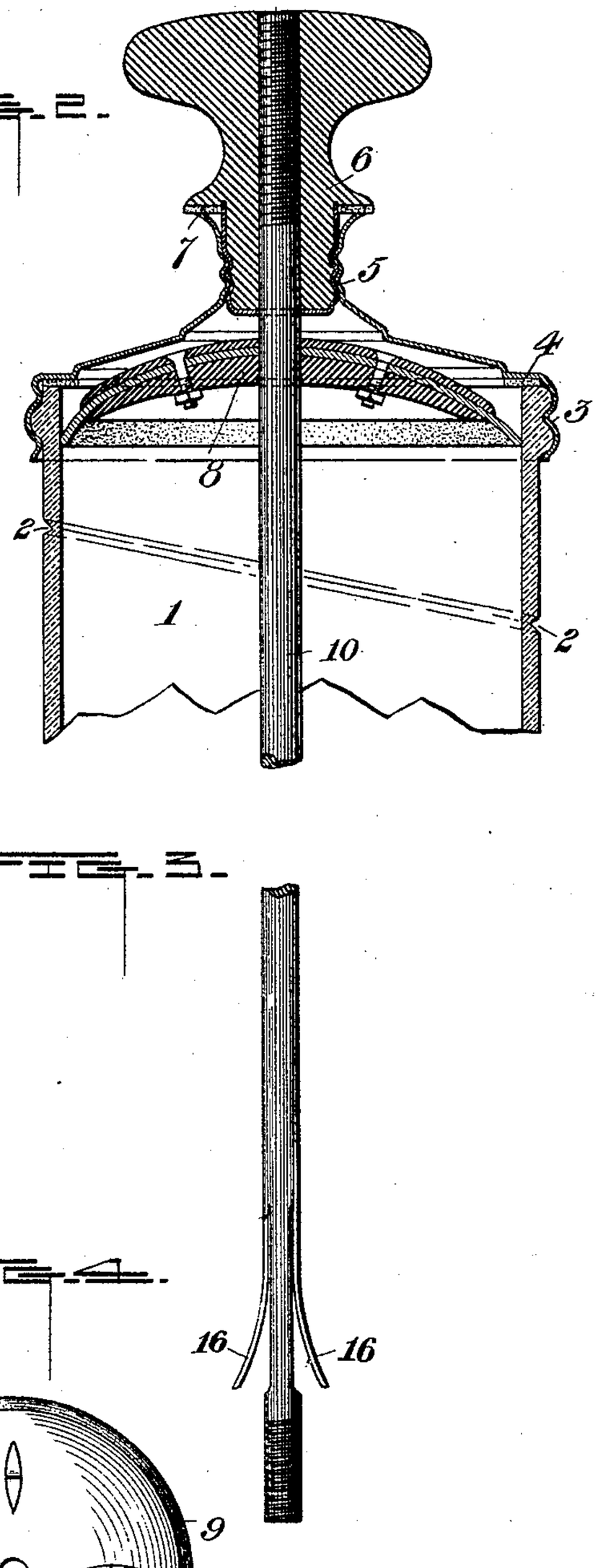
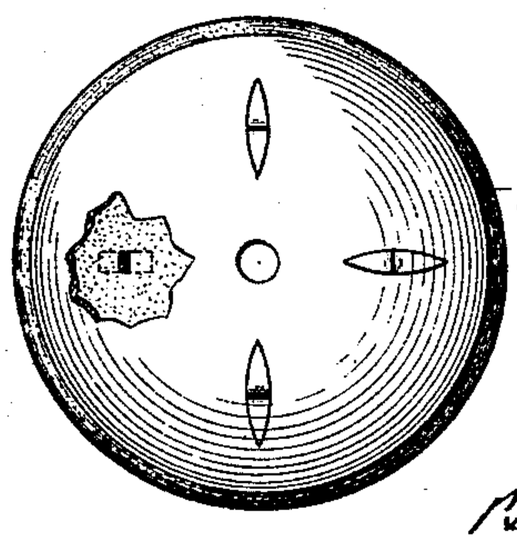


FIG. 3.

FIG. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM H. FREAR, OF WASHINGTON, DISTRICT OF COLUMBIA.

PORTABLE FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 428,596, dated May 27, 1890.

Application filed August 20, 1889. Serial No. 321,344. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FREAR, a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Portable 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 pertains to make and use the same.

The object of the invention is to provide an extinguishing device embracing a cylinder, preferably of frangible material, provided with a piston capable of throwing an extinguishing-fluid, which device is also adapted upon occasion to be thrown upon a fire and broken, and which extinguisher, if not so thrown, shall be adapted for reuse; and the invention consists in the construction hereinafter described and pointed out.

In the drawings, Figure 1 represents a side elevation, partly in section, one position of the piston-rod being indicated by dotted lines. Fig. 2 is a longitudinal central section of one end of the extinguisher on a larger scale, and Figs. 3 and 4 are modified details.

1 indicates a cylinder, preferably made of frangible material—such as glass—which may, if desired, be colored or otherwise ornamented, and may also be provided with one or more lines 2 of comparatively thin material in the wall thereof to facilitate fracture when thrown upon a burning object; but ordinarily it is desirable, when frangible material is employed, to make the cylinder-wall as thin as practicable, in order to reduce to a minimum the variations of its internal diameter, and in such case a cylinder will readily break when thrown upon a hard object without any special provision.

3 indicates a metallic cap having a screw-thread or equivalent connection with the cylinder, and 4 an elastic packing. The cap has a screw-threaded neck or collar at 5 to receive a correspondingly-threaded extension of a handle 6. The collar is made to abut against a shoulder provided with a packing 7, and the screw-threaded extension is preferably covered with some material that will prevent the absorption of moisture and consequent swelling of the wood of which ordinarily the handle will be composed. For this purpose thin metal may be spun upon the screw-threaded extension, but any known protecting-covering may be substituted, or the handle may be made of material impervious to water. A wooden handle without such protection might operate with some success, but would be liable to be inconveniently swollen by moisture.

8 indicates a piston composed of two disks secured together and holding between them any suitable packing 9, preferably of leather, felt, rubber, or like elastic material of flexible nature and adapted to prevent the passage of fluids between the piston and cylinder wall. The disks inclosing the packing can be secured together by screws or screw-bolts or by fastenings analogous to paper-clips, as indicated in Fig. 4, or in any convenient manner that will permit their separation when desired. Preferably the lower disk is made thicker than the upper, particularly when screw-fastenings are employed, to afford sufficient thickness for screw-threaded openings, and also to provide a more extended bearing on the piston-rod 10. These disks are of concavo-convex form and have similar curvature at all parts, so that no sharp edges are made to bear directly against the packing, and the screws or equivalent fastenings are at several points between the center and periphery of the piston to prevent the springing apart of the disks, as is liable to happen when said disks are only fastened at the center. This rod is secured in the handle by screw-threads or otherwise and extends through the piston, closely fitting a central opening therein, which is packed by the flexible disk 9, or in case such disk does not extend to the rod a special packing may be used.

The lower end of the piston-rod is screw-threaded or otherwise adapted to receive a thimble or socket 11 to hold an elastic plug 12. The purpose of this plug or stopper, which may be made of rubber, cork, wood, or like material, is to stop the nozzle 13, formed in the screw-cover 14, applied to the discharge end of the cylinder, which cap is closely fitted on the cylinder end and provided with a packing 15. This cap can be unscrewed and the socket 11, which has for the purpose a screw-thread or equivalent connection, can be removed and fitted with a fresh plug, if de-

sired, and at such time the piston-rod can be withdrawn entirely from the cylinder and it or a new one can be reinserted with either the old or a new piston, as desired.

The cylinder is intended to hold any suitable extinguishing-fluid, and be kept convenient for immediate use in case of fire. Normally the piston, piston-rod, and handle are in the positions illustrated in Fig. 2, the stopper 12 at such time filling the nozzle, as indicated by dotted lines in Fig. 1, the cylinder being filled with fluid. To prepare for use it is only necessary to disengage the handle from the collar by unscrewing and drawing the piston-rod through the piston, so that the spring-catches 16 shall engage its rear, and it can then be thrust forward, as in a syringe. The springs 16 are secured to the rod in recesses formed therein, so that when the rod is drawn through the piston to make ready for use they are pressed down into the recesses and offer no appreciable resistance, but immediately expand upon being withdrawn from the piston, in readiness to engage the rear of the piston when the rod is pushed forward. One or more of these springs may be employed, preferably two. The form of the springs is not material. They can be secured to the rod in any well-known manner, as by brazing or by rivets, or they may be formed integral with the rod itself, being suitably tempered and arranged.

As before stated, the extinguisher is adapted for breaking by throwing in an appropriate emergency, although such use will be exceptional, it being one of the objects of the present improvement to provide for adapting the extinguisher to repeated use, for which it is only necessary to compress the springs 16 and reinsert the piston-rod and arrange the parts as above described, the cylinder being refilled with fluid. To compress the springs, so that the rod can be pushed through the piston, pinchers or other suitable tool may be introduced through the collar 5, or the screw-cap 3 may be removed, as found most convenient.

The construction of the piston provides for renewing the packing should it be injured by repeated use or by the long-continued influence of the extinguishing-fluid. The packing is a very important element of the device, and if broken or unduly hardened by long-continued use will defeat its object. The stopper 12 is also made renewable in case it is found defective or becomes so. The cylinder can be filled with fluid by removing the smaller screw-cap or the other screw-cap and the piston, or a special opening may be provided in the small cap.

I do not broadly claim either detachable piston-rods or pistons comprising detachable disks, but only the particular construction and combination of parts hereinafter pointed out.

Having thus described my invention, what I desire to secure by Letters Patent is as follows:

1. The extinguishing device consisting of the cylinder provided with packed caps, the piston, and the piston-rod provided with spring-catches and with recesses to receive the same when compressed, the rod and springs being adapted to be drawn through the piston, substantially as described.

2. The extinguishing device consisting of the cylinder with packed caps, the piston and piston-rod, and the handle having a screw-threaded extension integral therewith to engage a collar in a screw-cap, said extension being protected from moisture by a metallic covering spun or otherwise fitted thereon, substantially as described.

3. The extinguishing device consisting of the cylinder with packed caps, the piston and piston-rod, the screw-threaded socket with elastic plug, and the handle having a screw-threaded extension integral therewith to engage a collar in a screw-cap, said extension being protected from moisture by a metallic covering spun or otherwise fitted thereon, substantially as described.

4. The extinguishing device consisting of a cylinder of frangible material having packed caps, a piston made in detachable parts holding a packing, a rod provided with spring-catches and with recesses therefor, and a movable stopper, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM H. FREAR.

Witnesses:
E. L. WHITE,
BENJ. R. CATLIN.