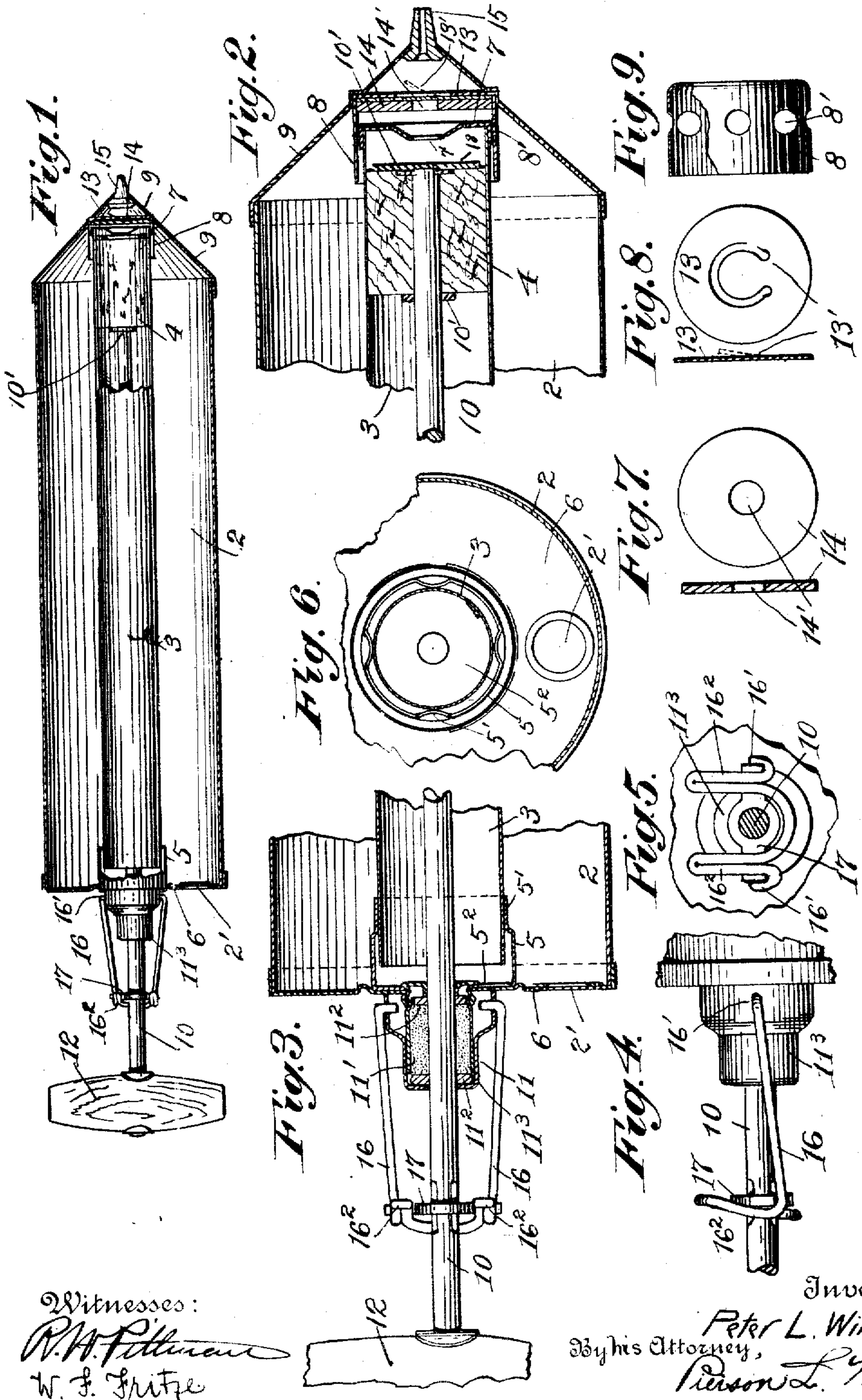


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 SYRINGE.  
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Witnesses:  
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# UNITED STATES PATENT OFFICE.

PETER L. WILBUR, OF NEW YORK, N. Y.

## SYRINGE.

No. 915,917.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed April 11, 1908. Serial No. 426,444.

*To all whom it may concern:*

Be it known that I, PETER L. WILBUR, of the borough of Bronx, city and State of New York, have invented a certain new and useful Improvement in Syringes, of which the following is a specification.

This invention has for its principal object the provision of a syringe construction such that the operating handle may be reciprocated a number of times before the liquid in the charged syringe is exhausted, it being possible, moreover, to obtain this result by simple means especially directed to ease and cheapness of manufacture. A syringe constructed in accordance with the present invention, embodies, moreover, means for positively locking the syringe against the accidental or unintentional discharge of the liquid therein.

In the drawing accompanying the present specification Figure 1 is mainly a longitudinal section through a syringe embodying my present invention, certain parts being in elevation. Fig. 2 is a view similar to Fig. 1, showing the nozzle portion of the syringe; this figure and the remaining figures are drawn to a somewhat larger scale than Fig. 1. Fig. 3 is a similar view of the opposite or handle end of the syringe. Fig. 4 illustrates the locking device for the handle the axis about which the locking lever swings being perpendicular to the plane of the paper. Fig. 5 is a view of the locking device looking along the piston rod. Fig. 6 is a partial interior view looking toward the left in Fig. 3. Fig. 7 is respectively, a cross section and a plan of the perforated washer constituting a valve seat for the forward end of the lengthwise movable syringe cylinder when the latter is at the forward end of its stroke. Fig. 8 is respectively, a cross section and a plan of the outwardly opening and inwardly closing syringe discharge valve. Fig. 9 is partly an elevation, partly a section of the perforated cylindrical guide for the forward end of the syringe cylinder.

Similar characters of reference designate corresponding parts in all figures.

The present syringe is a portable instrument in which the liquid reservoir, the ejecting piston and its cylinder are readily manipulated as a unit by one hand of the user, leaving the other hand free to operate the piston backward and forward, a portion of liquid being drawn into the cylinder from the

reservoir during the former stroke and ejected from the syringe during the latter.

Obviously such an instrument may be used for various purposes. One of the uses contemplated is that for the ready application of a fire-extinguishing liquid against a spot toward which the discharge nozzle is directed.

Proceeding with a description of the illustrated embodiment, co-axial with and located, interiorly of a reservoir 2, conveniently of cylindrical form, is a cylinder or barrel 3. A solid piston 4, is adapted to work within the bore of the cylinder against a frictional resistance sufficient to cause the piston and cylinder to move together during the first portion of each to and fro stroke of the piston. The cylinder at one end is guided during this limited axial movement by the inwardly extending portions 5' of a thimble 5 affixed to end closure 6 of reservoir 2. The opposite end of the cylinder is provided with a cap 7 which is slidably mounted in a thimble 8 affixed to the other end closure 9 of the reservoir.

Piston rod 10, provided with piston-retaining collars 10', 10', extends longitudinally through cylinder 3, passing through a stuffing box 11 in which suitable packing 11' is held between disks 11<sup>2</sup>, 11<sup>2</sup> by a retaining cap 11<sup>3</sup>. A grip 12 on rod 10 enables the latter to be readily pushed in and out. During the first portion of the latter movement the friction between the piston and the bore of its cylinder causes the two to move backward until the rear end of the cylinder strikes against the radial portion 5<sup>2</sup> of thimble 5, this movement of the cylinder uncovering openings 8' in thimble 8. Further backward movement of the piston draws in liquid from the reservoir (charged through capped opening 2') discharge valve 13' formed by slotting a disk 13 of suitable material being closed by the suction. When the piston is pushed forward, cylinder 3 moves forward, cap 7 ultimately seats itself against a washer 14 at the bottom of the thimble thereby closing off communication through openings 8' of the reservoir with the space forwardly of the advancing piston. Washer 14 further functions as a seating for valve 13' when the latter is drawn inward by suction. Further continued movement of the piston forces liquid out through opening 7' in cap 7, opening 14' in washer 14, and



past outwardly opening discharge valve 13', the liquid issuing through nozzle 15. This action is repeated during the reciprocation of the piston, the longitudinally shiftable cylinder performing the function of a valve in opening and closing communication with the reservoir.

For the purpose of precluding the exit of liquid when the syringe is not in use, there is shown a locking lever conveniently made of bent wire embodying a pair of opposed legs 16, 16' whose inwardly bent ends 16', 16' are swiveled in openings in cap 11<sup>3</sup>, the wire being bent to form lateral arms 16<sup>2</sup>, 16<sup>2</sup> adapted to cooperate with a cross piece 17 secured to piston rod 10. When this lever is swung to the position indicated in Figs. 1, 3, 4, and 5, the piston is forced inward to the inner limit of its movement in which position a washer 18 on the piston closes the opening 7' in cap 7, the latter being forced against washer 14.

Having described my invention, I claim:

1. The combination of a reservoir, a cylinder adapted to have a limited to and fro longitudinal movement, and to close the entrance from the reservoir into the cylinder when at one limit of its movement, a piston in said cylinder, means for causing a longitudinal movement of the cylinder, simultaneously with the beginning of each piston stroke and an outwardly opening and inwardly closing discharge valve.

2. The combination of a reservoir, a cylinder adapted to have a limited to and fro longitudinal movement and to close the entrance from the reservoir into the cylinder when at one limit of its movement, a piston in said cylinder, means for causing a longitudinal movement of the cylinder simultaneously with the beginning of each piston stroke, an outwardly opening and inwardly closing discharge valve, and means for locking said piston and thereby precluding the discharge of liquid.

3. In a syringe, the combination of a reservoir, a cylinder in the reservoir adapted to have a limited to and fro longitudinal movement, and to close the entrance from the reservoir into the cylinder when at one limit of

its movement, a piston fitting frictionally tight in said cylinder for causing said longitudinal movement of the cylinder, and an outwardly opening and inwardly closing discharge valve.

4. In a syringe, the combination of a reservoir, a cylinder in the reservoir adapted to have a limited to and fro longitudinal movement and to close the entrance from the reservoir into the cylinder when at one limit of its movement, a piston fitting frictionally tight in said cylinder for causing said longitudinal movement of the cylinder, an outwardly opening and inwardly closing discharge valve, and means for locking said piston and thereby precluding the discharge of liquid.

5. In a syringe, the combination of a cylindrical reservoir, a cylinder located within and co-axial with said reservoir, a thimble contiguous to each end of the reservoir which serves as a guide for the corresponding end of the cylinder, a perforated cap at the discharge end of the cylinder, a perforated washer in the thimble at that end which serves as a seat for said cap to thereby close the inlet from the reservoir into the cylinder, an outwardly opening and inwardly closing cylinder discharge valve adapted to seat itself against said washer, a piston rod, a cross piece thereon, and a fulcrumed locking lever adapted to cooperate with said cross piece.

6. The combination with a cylinder and its piston, of a piston rod, a cross piece on the rod, and a fulcrumed piston-locking lever adapted to cooperate with said cross piece.

7. The combination with a cylinder and its piston, of a piston rod, a stuffing box embodying a retaining cap, a cross piece on said rod, and a piston-locking lever fulcrumed to said retaining cap and adapted to cooperate with said cross piece.

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

PETER L. WILBUR.

Witnesses:

CHAS. GLAS,  
W. F. FRITZE.