(No Model.)

E. K. PARKER.

PORTABLE FIRE EXTINGUISHER.

No. 381,276. Patented Apr. 17, 1888.

Fig. 1.

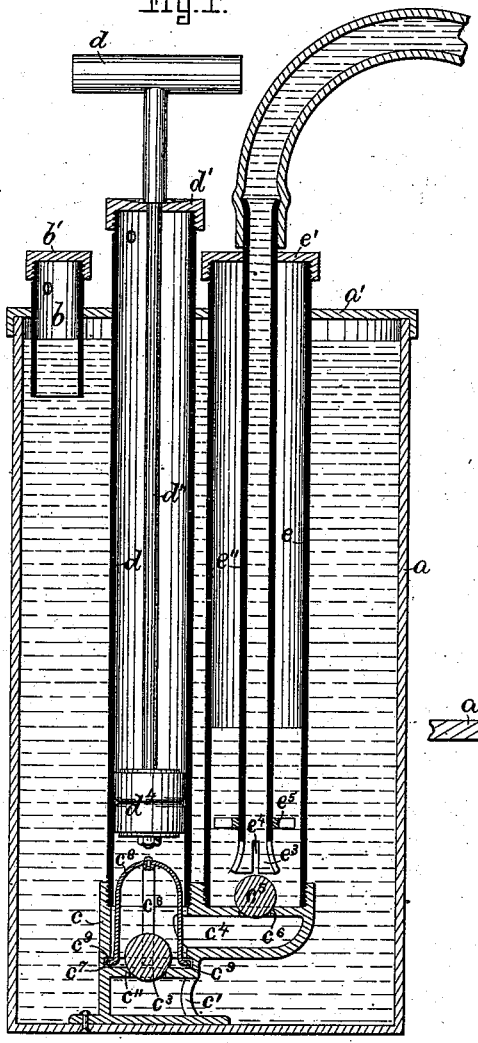


Fig. 2.

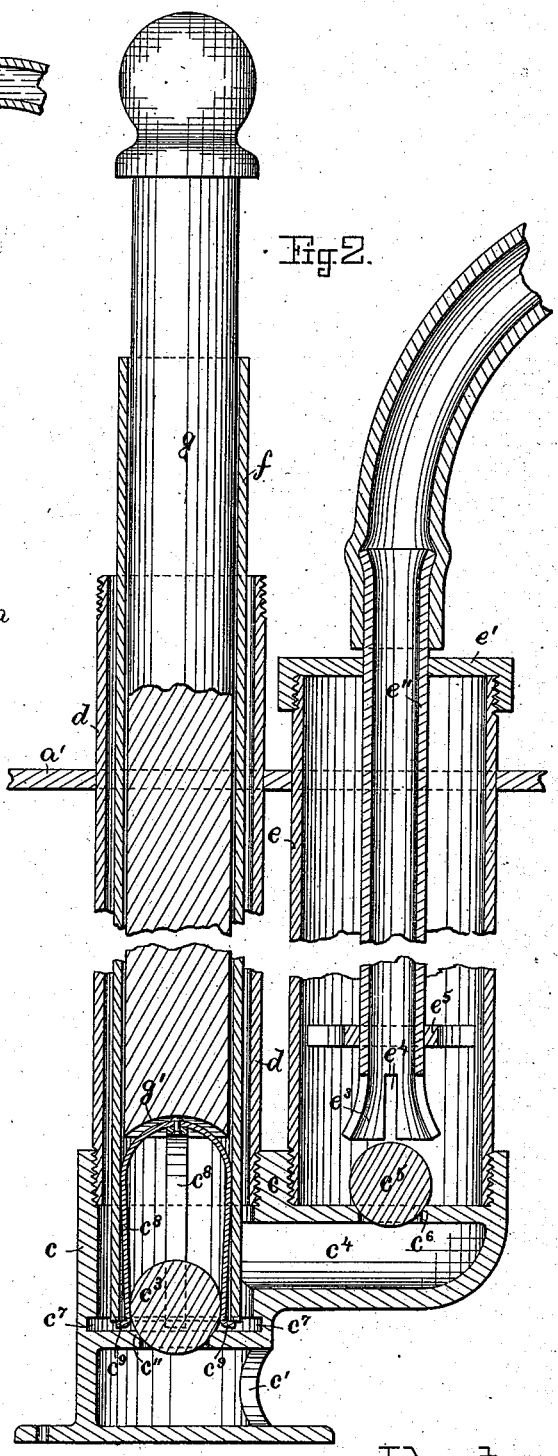
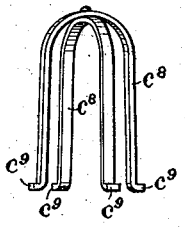


Fig. 3.



Witnesses.
Henry Chadbourn.
Charles H. Fyg.

Inventor.
Edward K. Parker.
by Albert Andrews.
his atty.

UNITED STATES PATENT OFFICE.

EDWARD K. PARKER, OF RANDOLPH, MASSACHUSETTS.

PORTABLE FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 381,276, dated April 17, 1888.

Application filed June 9, 1887. Serial No. 240,741. (No model.)

To all whom it may concern:

Be it known that I, EDWARD K. PARKER, a citizen of the United States, and a resident of Randolph, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Portable Fire-Extinguishers, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in portable fire-extinguishers, and particularly to an improved valve-cage for limiting the upward motion of the ball suction-valve in the valve-case, as will hereinafter be more fully shown and described, reference being had to the accompanying drawings, wherein—

Figure 1 represents a vertical longitudinal section of the fire-extinguisher provided with my improvement, and Fig. 2 represents a detail sectional view of the pump-cylinder and mechanism for removing and replacing the valve-cage and valve. Fig. 3 is a detail perspective view of the improved valve-cage.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a is the tank with its cover *a'*, provided with filling-tube *b* and its removable cover *b'*.

c is the valve-case secured to bottom of tank *a*, and having inlet-opening *c'*, valve-seat *c''*, suction ball-valve c^3, chambered passage c^4, delivery ball-valve c^5, and valve-seat c^6, as is common in apparatus of this kind.

d is the pump-cylinder, as usual, secured in its lower end to the upper end of the valve-case *c*, its upper end passing through a perforation in the cover *a'*, where it is soldered tightly to said cover, and provided in its upper end with a removable cap, *d'*, in the ordinary way.

d'' is the piston-rod, as usual, guided in a central perforation in pump-cover *d'*, and having handle d^3 in its upper end and piston or plunger d^4 in its lower end, in the usual manner, as shown in Fig. 1.

e is the air-chamber, its lower end being secured to the valve-case *c*, and its upper end projecting through a perforation in the cover *a'*, where it is soldered to the latter, said air-chamber being provided in its upper end with a removable cover, *e'*, to which is attached the delivery-pipe *e''*, that extends downward within the air-chamber *e*, as shown in Fig. 1, and has in its lower end a slitted bell-shaped mouth, e^3 e^4, and near its lower end a centering-disk, e^5, as fully shown and described in my application for improvements in portable fire-extinguishers, filed November 3, 1886, Serial No. 217,855; and I wish to state that the construction and arrangements of the parts hereinabove described form no part of my present invention.

Above the valve-seat *c''* for the suction-valve c^3, I make in the interior of the valve-case *c* an annular groove, c^7, which is adapted to retain in position the improved suction-valve cage shown in detail in Fig. 3. Said improved valve-cage consists of two or more arched spring-bails, c^8 c^8, riveted or otherwise secured together in their upper ends, and having in their lower ends outwardly-projecting lips c^9 c^9, adapted to spring into the annular groove c^7 in the valve-case *c* when said valve-cage is pressed downward in position, as shown in Fig. 1, by which arrangement said valve-cage is held in position within the case *c* without the need of rivets or soldering, as heretofore done; and by this arrangement said valve-cage may be instantly detached from the case *c* whenever the suction ball-valve c^3 is worn or abraded so as not to perform its proper function of closing the opening in the valve-seat *c''* during the downward stroke of the piston d^4.

When it is desired to remove the valve-cage c^8 c^9 and the suction-valve c^3 from the valve-shell *c*, I remove the pump-cylinder cap *d'* and the piston-rod *d''*, with its piston d^4 and handle d^3, from the cylinder *d*, and I introduce within the latter the tube *f*, and by pressing it downward over the arched spring portions c^8 c^8 of the suction-valve cage I cause said valve-cage to be contracted sufficiently to cause its lips c^9 c^9 to be disengaged from the annular groove c^7 in valve-shell *c*, as shown in Fig. 2, and the lower ends of the spring portions c^8 c^8 caused to bear against the ball-valve c^3, after which I withdraw the tube *f* from the pump-cylinder *d*, and with it the spring-cage c^8 c^9 and ball-valve c^3, without the need of the removal of the pump-cylinder *d*. After the valve-cage

and valve have been removed, as above set forth, I remove the valve from its cage and replace it with a new one, and introduce the tube *f* and the spring-cage and suction ball-valve held in its lower end within the cylinder *d* until the lips c^9 c^9 of the valve-cage rest on the valve-seat *c''*. I then introduce within the tube *f* the cylindrical follower *g*, the lower end, *g'*, of which is preferably made concave, as shown in Fig. 2, until the lower end of said follower is made to rest on top of the valve-cage, and I hold it in such position while I move the tube *f* upward, thus allowing the now-liberated spring-bails c^8 c^8 to expand and causing their lips c^9 c^9 to enter the annular groove c^7 in the valve-case *c*. The cylinder *f* and its follower *g* are then removed from within the cylinder *d*, and the piston-rod *d''*, piston d^4, and cap *d'* placed in position, as shown in Fig. 1. This is a great improvement in pumps, as without it it would be very inconvenient and laborious to remove the valve-cage and its suction ball-valve without removing the pump-cylinder from the tank, and this cannot very well be done on account of the said cylinder being soldered to the cover of the tank *a*.

What I wish to secure by Letters Patent and claim is—

In a pump or fire-extinguisher, the valve-case *c*, having the internal annular groove, c^7, in combination with the improved removable valve-cage composed of two or more arched spring-bails, c^8 c^8, secured together in their upper ends, and having outwardly-projecting lips c^9 c^9 in their lower ends adapted to enter and rest within said annular groove c^7, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 18th day of February, A. D. 1887.

EDWARD K. PARKER.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.