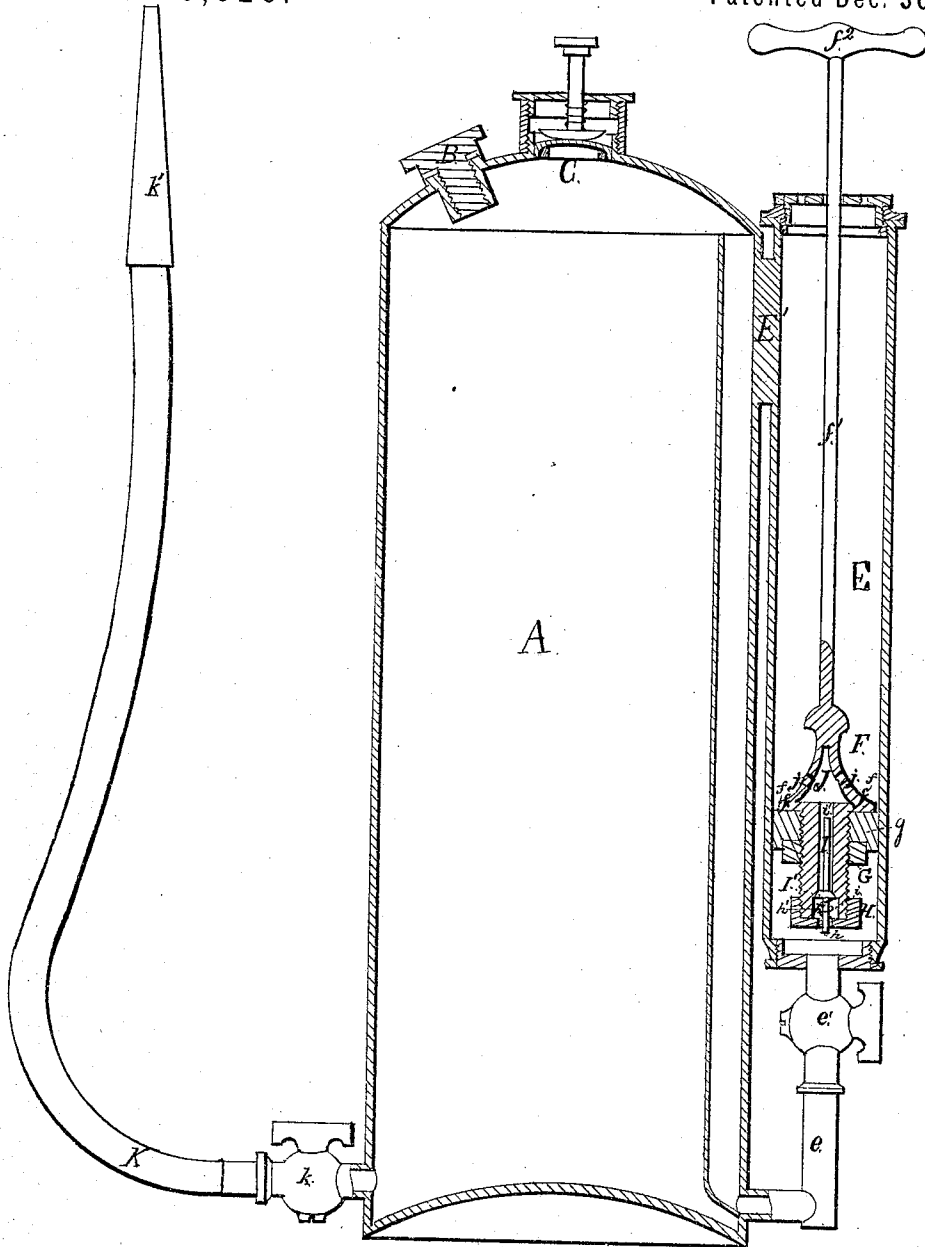


G. E. BARKER & S. F. MACK.

Air-Pumps.

No. 145,926.

Patented Dec. 30, 1873.



WITNESSES

Moritz Kirkheim
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UNITED STATES PATENT OFFICE

GEORGE E. BARKER AND STEPHEN F. MACK, OF WAVERLY, NEW YORK.

IMPROVEMENT IN AIR-PUMPS.

Specification forming part of Letters Patent No. **145,926**, dated December 30, 1873; application filed May 26, 1873.

To all whom it may concern:

Be it known that we, GEORGE E. BARKER and STEPHEN F. MACK, of Waverly, in the county of Tioga and State of New York, have invented certain Improvements in Air-Pumps of Fire-Extinguishers, of which the following is a specification:

Our invention relates to improvements in the air-pumps of that class of fire-extinguishers in which a reservoir is employed to contain the liquid to be thrown upon a fire, the liquid being ejected from such chamber, when required, by atmospheric pressure, through a pipe or tube and nozzle, regulated by a cock or tap; and our invention consists in the peculiar arrangement and construction of the hollow piston and parts connected therewith, as hereinafter fully described.

In the drawing hereunto annexed, which forms part of this specification, A represents the liquid-chamber of a fire-extinguisher; B, a plug for charging the same with liquid; C, a valve for indicating the pressure of air therein; K, the discharge-pipe, and *h'* the nozzle thereof. E represents our improved air-pump, the casing *e'* of which is firmly connected at *E'* to the chamber A. The air-pump E is provided with a piston, F, which is formed at the upper end with a hollow conical chamber, J, to the center of the upper part of the wall of which the piston-rod *f*¹ is connected, the under side of this chamber J being formed by a flange, *f*, cast in the same piece with the wall thereof, and which, on its under side, is provided with a cylindrical portion, *j'*, which is tapped to receive a nut, G, for retaining the leather packing *g* in position, and also a cap, H, in the center of which is formed a small outlet, *h*, through which the lower portion of the shank I of a valve, I', passes, and which also serves as a foot-bearing for the valve I'. *h'* is the valve-chamber, (formed in the lower end of the cylindrical portion *j'*,) in which a spring, *i*, is arranged to bear upon the valve I', to keep it up to its seat and assist its operation. The valve-chamber *h'* is formed considerably larger in diameter than the valve I', to allow of the passage of air between the periphery of the

valve I' and the sides of the chamber *h'*. The upper portion of the valve-shank I is also formed smaller in diameter than the passage *i'* above the valve-seat, (which connects the conical chamber J with the valve-chamber *h'*,) to allow of the free passage of the air. *j j* are passages formed in the wall of the conical chamber J for the passage of air to the chamber J from the upper side of the piston F.

The operation of the pump is as follows: The piston F being raised from the position shown in the drawing by means of the handle *f*² and piston-rod *f*¹, the air contained in the chamber E will be forced through the passages *j* into the chamber J; it then passes down the passage *i'* and depresses the valve I'; it then enters the chamber *h'*, and passes out by means of the opening *h* to the under side of the piston F. On the direction of motion of the piston F being reversed, the valve I' is immediately pressed against its seat, thereby shutting off all connection between the upper and under sides of the piston F, and the air contained in the chamber E beneath the piston F is consequently forced through the stop-cock *e'* and pipe *e* into the interior of the chamber A, and so on continuously.

Having thus described our invention, we would have it understood that we lay no claim to the indicator C, nor to the chamber A and parts connected therewith; but

What we do claim, and desire to secure by Letters Patent, is—

In combination with the chamber E, the hollow piston F, constructed with a chamber, J, passages *j*, passage *i'*, valve I', shank I, valve-chamber *h'*, spring *i*, and cap H, all arranged, constructed, and operating substantially as shown and described.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

GEORGE E. BARKER.
STEPHEN F. MACK.

Witnesses:

STEPHEN H. DEXTER,
J. NEWTON DEXTER.