2 Sheets—Sheet 1.

J. HARMAN.

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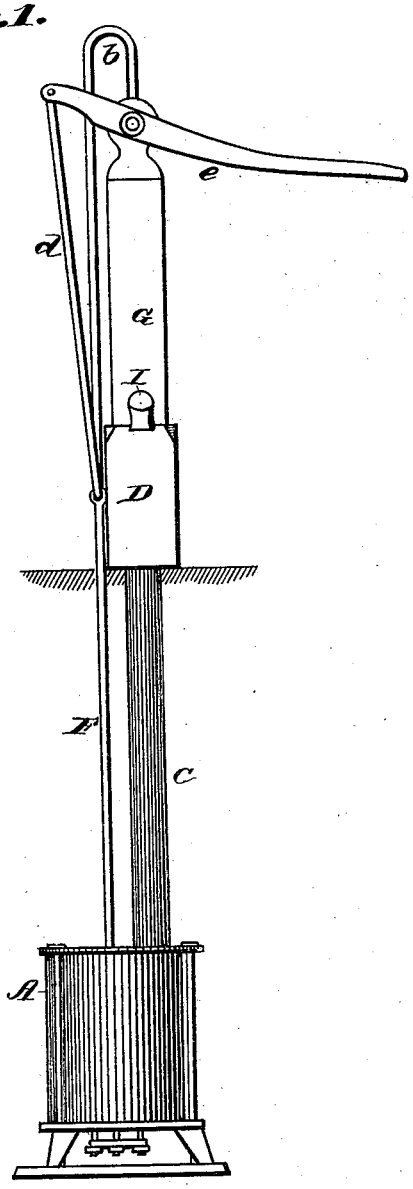
No. 187,009 Patented Feb. 6, 1877.

Fig. 1.



WITNESSES:

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2 Sheets—Sheet 2.

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Fig. 2.

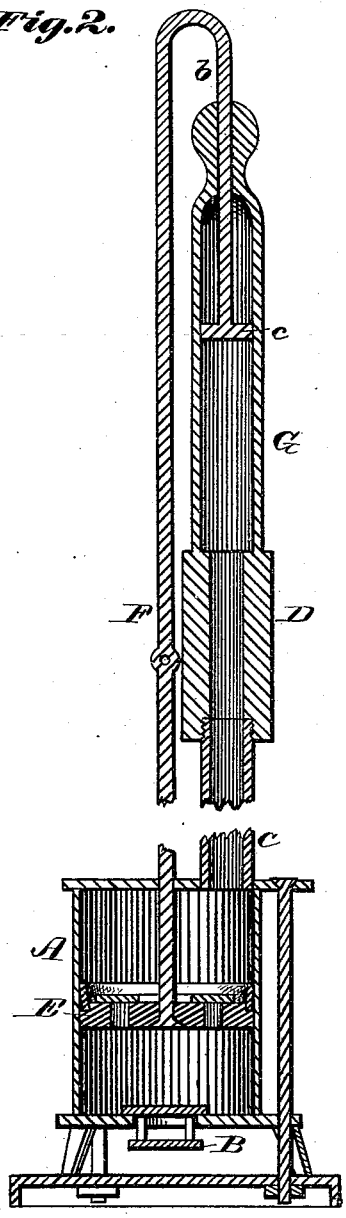


Fig. 3.

Fig. 4.

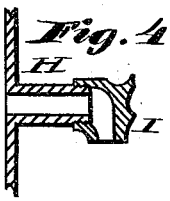
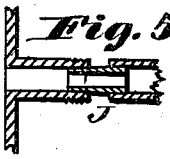


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH HARMAN, OF CHAMPLAIN, NEW YORK.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **187,009**, dated February 6, 1877; application filed October 28, 1876.

To all whom it may concern:

Be it known that I, JOSEPH HARMAN, of Champlain, in the county of Clinton and State of New York, have invented certain new and useful Improvements in Combined Force-Pump and Ram; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation, Fig. 2 a central longitudinal section, Fig. 3 a top plan view, of the piston and its valves; Fig. 4, a longitudinal sectional view of the the nozzle, and Fig 5 is a similar view, with the bend of the nozzle removed and a hose-coupling attached.

A represents the cylinder of the pump; B, its inlet-valve; C, the outlet-tube conducting to the pump-barrel D. E is the piston working in the cylinder A, and having, by preference, four flap-valves, *a a a a*. F is the piston-stem. This may extend up to the head of the pump-barrel, and formed or connected with it is a stem, *b*, on the end whereof a piston, *c*, is secured that works in a cylinder, G, in the head of the pump barrel or stock. This cylinder and piston constitute a ram in connection with the force-pump, as will hereinafter more fully appear. *d* is a pitman attached to a handle, *e*, which is secured by a suitable fulcrum-pin to the pump-stock cap. This pitman is connected at its lower end to the stem F.

I make the nozzle of my pump of two parts, H and I, which may be screwed together. The bend I is removable, so that when it is desired to attach hose to the pump it is only necessary to unscrew the said bend, and apply a coupling, J, to the straight portion H of the nozzle, as shown in Fig. 5. The object in removing the bend I is to obtain a straight outlet from the pump to the hose.

The operation of this pump will be readily understood. The water forced up by the piston E is impelled through the nozzle by the action of the ram, and does not simply flow out, but is forced out, so that the pump can be used to great advantage in throwing a stream from hose.

The cylinder A may be made of galvanized iron with suitable cap and bottom, and the ram-cylinder also may be lined with the same material. A single or double handle may be used as desired.

What I claim is—

1. The combination of the cylinder A, piston E, stem F, and ram *b c* G with a pump-barrel or stock and nozzle, substantially as shown and described.

2. The handle *e* and pitman *d* attached to the stem F at any suitable point above the piston E, in combination with the piston-stem F, having piston E, and the stem *b*, having piston *c*, substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOSEPH HARMAN.

Witnesses:

SILAS P. HUBBELL,

J. GOULDING SMITH.