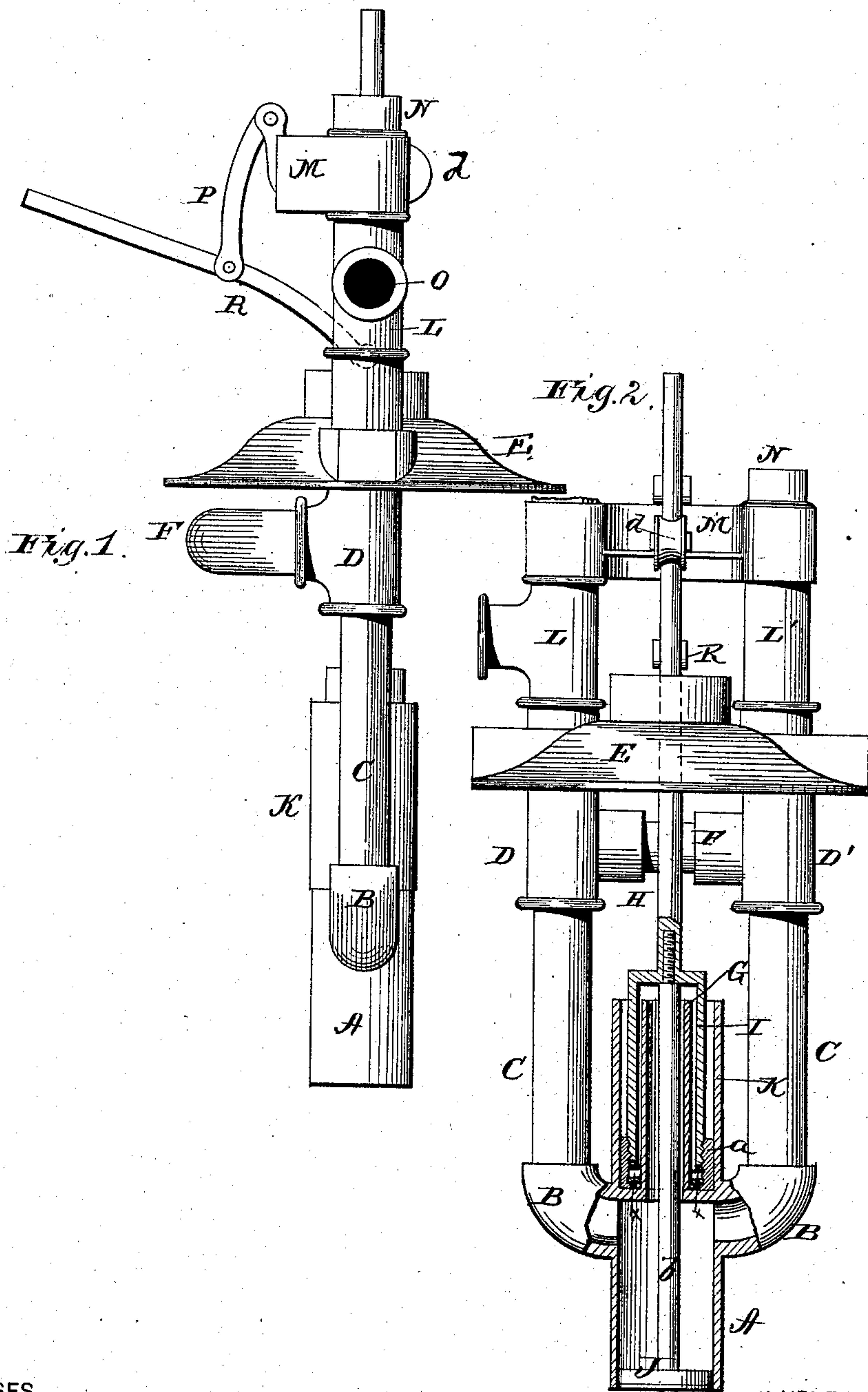


J. BEAN & E. H. ALDRICH.
Pump.

No. 221,891.

Patented Nov. 18, 1879.



WITNESSES

F. L. Curand
J. J. McCarthy

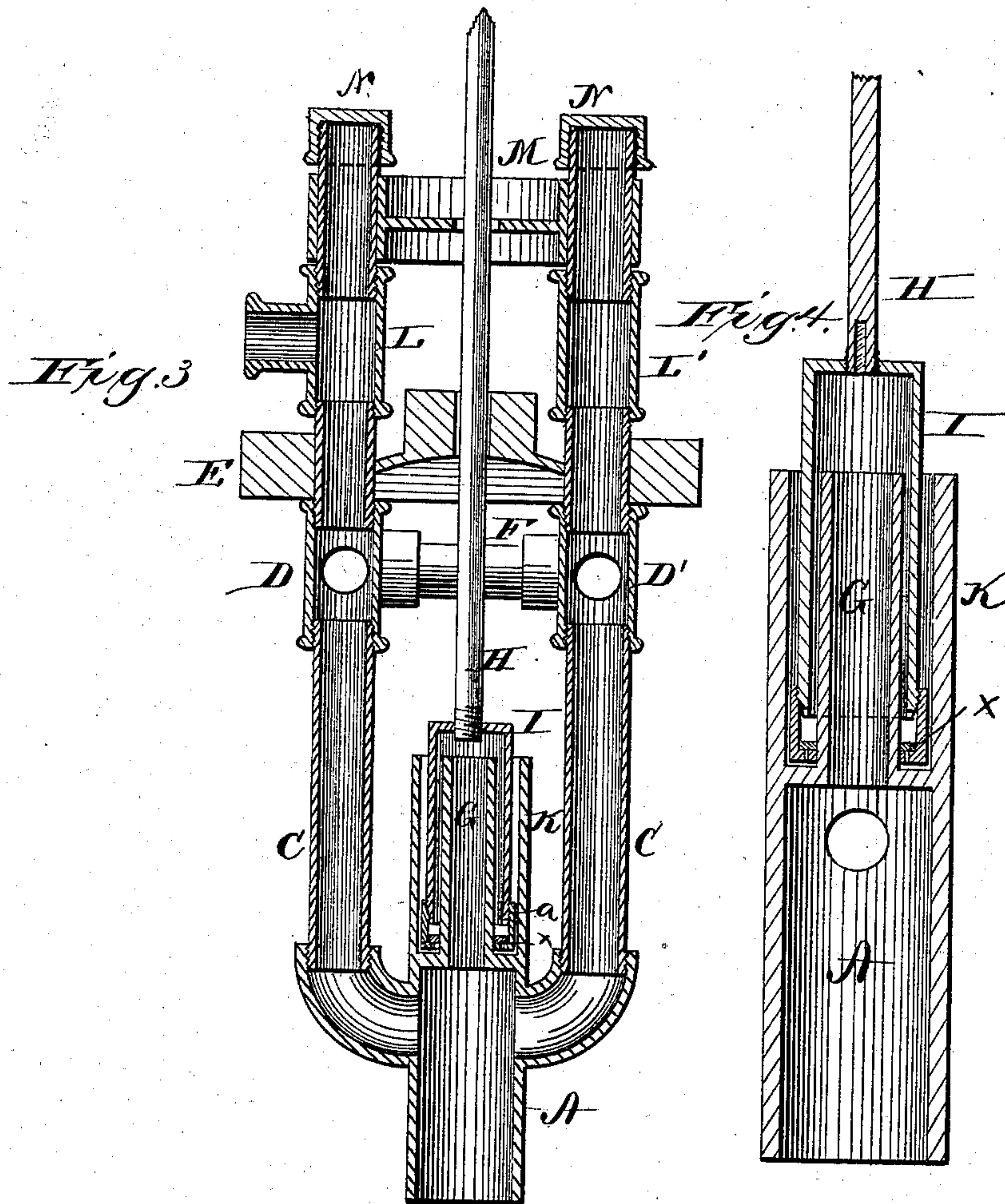
INVENTOR

John Bean
Edward H. Aldrich
Alexander T. Mason ATTORNEYS

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UNITED STATES PATENT OFFICE

JOHN BEAN AND EDWARD H. ALDRICH, OF HUDSON, MICHIGAN; SAID
ALDRICH ASSIGNOR TO SAID BEAN.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **221,891**, dated November 18, 1879; application filed
July 17, 1879.

To all whom it may concern:

Be it known that we, JOHN BEAN and EDWARD H. ALDRICH, of Hudson, in the county of Lenawee, and in the State of Michigan, have invented certain new and useful Improvements in Pumps; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

Our invention relates to pumps; and it consists in certain peculiarities of construction, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of a pump embodying our invention. Fig. 2 is a front elevation, partly in section, of the same. Fig. 3 is a vertical section through the entire pump. Fig. 4 is an enlarged detailed section of the pump.

A represents the pump-cylinder, provided with two elbows, B B, on opposite sides, which are connected by pipes C C with larger pipes D D' in the platform E. We thus use two pipes for conveying the water from the cylinder, and the same pipes answer as supports to the cylinder below the platform, whereby we are enabled to use small pipes for this purpose.

The water is united just below the platform by a pipe, F, connecting the pipes D D'. By this means we save weight of pump with less friction. One column balances the other, and the pump works easier, it having free discharge.

The cylinder A is formed with a tube, G, projecting up from the top, the outside of which is one-half the size of the inside of the cylinder, for the piston-bucket to run in.

Upon the lower end of the center moving pipe or piston-rod, H, is placed a cylinder or tube, I, which covers the outside of the projecting pipe or tube G, forming an air-chamber with piston-rod H. A packing-box, *a*, is screwed or otherwise fastened on the outside of the pipe G at its lower end. Thus, when

the rod or pipe H, with the air-chamber I, moves up or down, it equally divides the water, and, in connection with the piston-bucket J, throws a constant stream of water out of the spout, making a good force-pump for fire purposes. The bucket J is by a rod, *b*, connected with the rod or pipe H, as shown in Fig. 2.

It is, of course, understood that in a full-sized pump there will be the usual valve or valves in the pump-cylinder below the piston or bucket.

On the outside of the air-chamber I, above the cylinder and attached thereto, is a tube or shell, K, water-tight at its bottom, forming a space around the outside of the center tube, G, which the air-chamber covers. The outside shell, K, fills with water through valves *x*, arranged in the packing-box *a*, as shown in Fig. 4. Now, when the air-chamber is lowered this water is forced up through the valves *x* in the packing-box *a* at the lower end of the air-chamber around the tube G, and when the air-chamber is raised this water is carried up with it and inside of the air-chamber and emptied through the tube G into the cylinder, thus priming the pump, provided it leaks its priming, always having the water in reserve for the purpose of priming the pump, if needed.

The top above the platform is provided with two pipes or tubes, L L', fastened, respectively, on the pipes D D', which are fast in the platform, as above stated. On top of the pipes L L' is fastened, by means of caps N N, the handle-piece M, said caps being screwed on, thus holding the pipes and handle-piece firm to the flange-plate E at the base. By this means I can readily change the sides of the handle-piece or the spout from right to left hand pump, or left to right, by taking off the caps without moving the pump from the well if set up. The spout is to be inserted at O in the pipe L. The pipes or tubes L L' above the platform are used as air-chambers.

To the handle-piece M is pivoted a vibratory arm, P, which suspends the handle R, said handle being pivoted in the lower end of the arm, and then connected directly to the rod or pipe H. This pump, by changing the arm P and handle R, takes the place of three different pumps in the pump trade now in use. There is made one pump for power use with

the center piston pipe or rod to move in a slot up and down without any vibratory motion, as in the common hand-pump; another pump (for hand-pump) with the piston-rod attached to the handle, and direct to the handle-standard, having a vibratory motion with the curve of the end of the handle; another pump (for deep wells) for hand use with large tops. The handle needs to be higher up, so as to take hold of the handle lower down and get more purchase on the handle.

Thus, by putting the handle R in our pump up in place of the vibratory arm P in the handle-standard M, and by taking out the friction-roller *d*, we have a deep-well hand-pump.

For power-pump the power may be attached on the top of the piston-pipe H, and with the friction-roller *d* in front of the pipe or rod H, in connection with the vibratory arm and handle, as shown, we have a hand-pump for cisterns and wells.

The friction-roller *d* in front of the piston-rod is to prevent friction by swinging out of center of the vibratory handle-arm. When used by hand it presses the piston-rod forward with the downstroke of the handle and causes friction without this wheel.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a pump, two pipes for supporting and connecting the lower and upper parts of the pump, and both forming water-conductors, in combination with a cross-pipe or union connecting the two pipes, substantially as set forth.

2. In combination with a pump-cylinder, a pipe or tube projecting upward from the same, and an air chamber or box operating with the piston on the outside of said pipe or tube, for the purposes set forth.

3. The combination of the outside shell or tube, K, inside pipe, G, and the packing-box *a* with the valves *x* of the air chamber or piston, for the purposes set forth.

4. A pump-top made of two pipes, connected by the handle-piece, and provided with caps on their upper ends, as and for the purposes set forth.

5. In a pump, the combination of the cross-pipe and two pipes used as air-chambers and support for the handle-piece, substantially as herein set forth.

6. The combination of the handle-supporting cross-piece, the vibratory supporting-arm, and the handle, when arranged so that the handle can be used in place of the vibratory link or arm, as described.

7. In combination with the vibratory handle-arm, the handle and friction-roller, as described, with the piston-rod, substantially as and for the purposes set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 14th day of June, 1879.

JOHN BEAN.
EDWARD H. ALDRICH.

Witnesses:

JAMES B. THORN,
T. W. TOLCHARD.