

(No Model.)

N. PELLETIER.

VALVE FOR PUMPS.

No. 366,244.

Patented July 12, 1887.

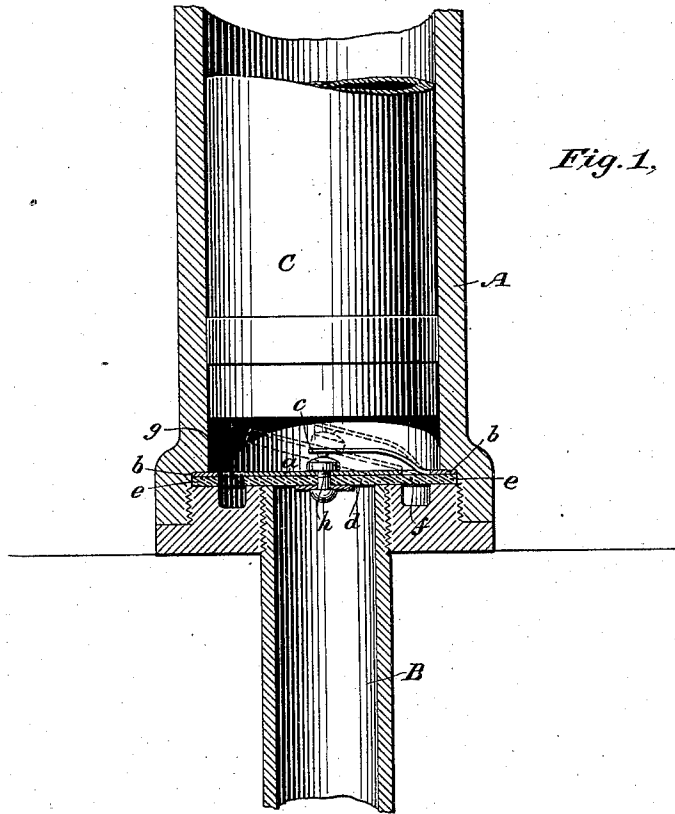


Fig. 1,

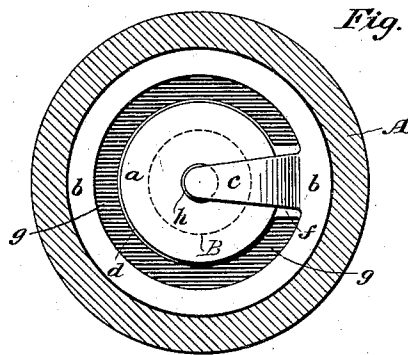


Fig. 2,

Witnesses

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VALVE FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 366,244, dated July 12, 1887.

Application filed February 7, 1887. Serial No. 226,741. (No model.)

To all whom it may concern:

Be it known that I, NAPOLEON PELLETIER, of the Dominion of Canada, a subject of the Queen of Great Britain, residing at Woodhaven, county of Queens, and State of New York, have invented certain new and useful Improvements in Valves for Pumps, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates more particularly to an improvement in the valve located between the pipe that dips into the water and the cylinder or barrel of the pump, and specifically to means for holding said valve firmly to its seat, so as to make it water-tight when closed, and also for increasing the efficiency of its parts. Heretofore it has been customary to make these valves, which are usually made of rubber, leather, or some flexible or elastic material, close by means of a weight superimposed upon the flap of the valve. This is the valve generally in use to-day, and is open to a serious objection, in that the weighted valve is not water-tight and operates indifferently in other respects, so that where the pump has been left standing for a while the water above the valve leaks through it, and before the pump can be operated several pailfuls of water must be poured down the same to make the valve air-tight, whereas by the improvement I have designed this trouble is obviated, the valve remains water-tight, and keeps the water above it, so as to make the valve air-tight, so that the pump responds, however long left standing, for it is always water-tight, and consequently made air-tight by the water kept above it. Pumps supplied with my improvement have been left as long as three months, and responded at once without pouring water down them.

My invention consists in a spring which is adapted to be used with the ordinary valve of flexible material used in pumps between the water-supply pipe and cylinder, the novel features of which invention will be pointed out in the claims appended hereto, and will now be described in detail, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a sectional elevation showing my improvement, and Fig. 2 represents a sectional plan of the same.

A represents the cylinder of any pump, which may be a suction, lift, or force pump, having a piston or plunger, C, working therein, or within a chamber connected therewith.

B is the water-supply pipe, which dips into the water below, and is connected with the cylinder A by means of a screw-threaded cap-piece, D. The pipe B is usually of a smaller diameter than the cylinder or barrel A, but may be made of any size desired. Between these two is located a valve, which is usually made of some flexible material, such as leather, rubber, &c. This valve is cut out of a circular piece of leather, with an annular shaped slot, *g*, in the same, leaving a neck portion, *f*, a flap-piece, *d*, and a circular part, *e*, the flap portion closing the orifice of the pipe B. This valve as now used is weighted by placing a mass of metal on top of it, which causes its flap to operate with the objections heretofore noted.

My improvement relates to means for superseding this weight and accomplishing functions which it does not attain, and it consists in a ring of metal, *b*, having a spring-arm extending therefrom, (denoted by the letter *c* in the drawings,) which spring-arm bears upon a rivet, *h*, which passes through the flap of the valve and secures to it an overlying disk, *a*, which hides the flap of the valve from view, as shown in Fig. 2. The neck portion of the same is also partially hidden from view in Fig. 2 by the overlying spring-arm *c*, and the ring portion *e* by the ring part *b*, of metal. The barrel A is enlarged or made with a shoulder where it receives the cap-piece D, which holds the valve and spring securely in place against the shoulder. The spring-arm and ring of metal for holding it in place may be struck up from a single piece of metal. The rivet *h* serves the double purpose of attaching the metallic plate *a* to the flap of the valve, and also bringing the pressure of the spring-arm *c* upon the middle of the disk and taking up the wear that would otherwise be thrown upon this disk. The disk *a* serves the purpose of distributing the pressure upon the flap of the valve, and also keeping the edges of the flexible material around the periphery of the flap from becoming turned up.

The invention is, as will be seen, simple in construction, durable, and cheap to manufacture, and at the same time accomplishes the additional functions noted in the foregoing, and is therefore an improvement on the weighted valve referred to, for in the old construction the valve was not water-tight, but let the water pass through the same, so that in course of time the leather of the valve, by reason of becoming dry, would shrink, and thus make it necessary to pour a great deal of water down the pump before the pump could be made to respond, and causing it also to operate indifferently.

In my construction I secure not only a better and improved result, but additional results over and above the ordinary weighted suction-valve now in general use. By my improved valve, also, the water is not only kept above the valve for any length of time, (until it becomes evaporated,) but a column of water is maintained in the pipe B, so that the pump will respond at once. Therefore I not only secure a pump which obviates the necessity of pouring water down the same before it will operate, but in other respects have made the pump prompt in action. It may be mentioned, also, that sand or dirt of any kind does not interfere with the action of my spring-pressed valve, as it would with the ordinary weighted valve of flexible material. I have experimented in this direction by pouring several pailfuls of sand down a pump having my improvement thereon without affecting its operation in the slightest.

My improvement might be used with a valve located at any other place in a pump without departing from the spirit of my invention.

Having now set forth my invention and stated its operation and advantages, I wish to have it understood that I do not limit myself to the exact construction shown, as the same may be varied in many ways without departing from the spirit of my invention, and I reserve the right in practice to make any changes

I see fit which fall within the scope of what I desire to claim and secure by Letters Patent, which is—

1. As an article of manufacture, a metallic ring, *b*, with a spring-arm, *c*, extending therefrom, and a plate, *a*, upon which said arm rests, to be used as a spring in a pump with a valve of flexible material between the water-supply pipe and the cylinder.

2. An article of manufacture to be used with a valve of flexible material in a pump, consisting of a ring, *b*, with an arm, *c*, extending therefrom, struck up from a single piece of metal, constituting a spring for said valve.

3. The combination, in a pump, of a valve for closing the orifice between the water-supply pipe B and the cylinder A, consisting of a piece, *d e f*, of rubber or other flexible and elastic material, the portion *d* closing said orifice, a plate, as *a*, resting upon said portion *d*, a ring of metal, as *b*, superimposed upon the portion *e*, with an arm, as *c*, extending therefrom, bearing upon said plate *a*, constituting a spring for forcing said valve back to its seat and holding it firmly to the same.

4. The combination, in a pump, of a cylinder, as A, having a piston or plunger working therein, a water-supply pipe, B, opening into said cylinder, a valve, *d e f*, of flexible or elastic material, covering said opening, a ring of metal, *b*, resting upon said flexible or elastic material, a plate, *a*, superimposed upon and fastened to the part *d*, of flexible material, a spring-arm extending from said ring, bearing upon said plate, and a screw-threaded cap-piece, as D, joining the water-supply pipe and cylinder together and holding the valve and its spring securely between the two.

In testimony whereof I have hereunto set my hand and seal, this 3d day of February, 1887, in the presence of two subscribing witnesses.

NAPOLÉON PELLETIER. [L. S.]

Witnesses:

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A. C. FOWLER.