

N. S. BEAN.
PUMP-VALVE.

No. 192,633.

Patented July 3, 1877.

Fig. 1.

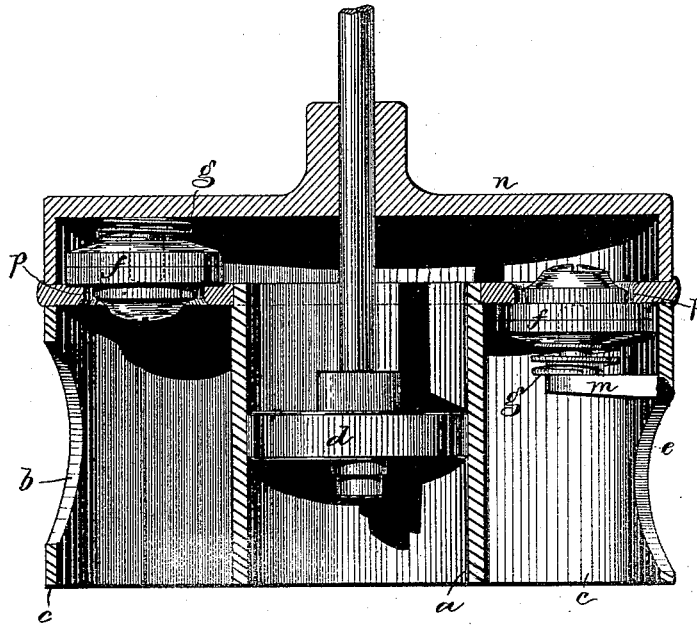
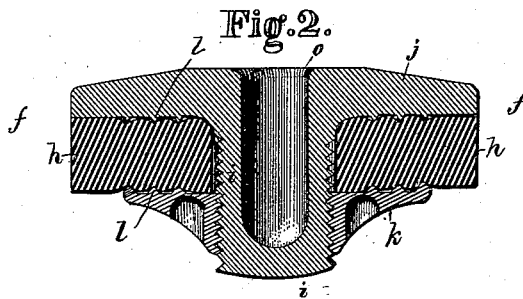


Fig. 2.



Witnesses.

W. G. Pratt.
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UNITED STATES PATENT OFFICE.

NEHEMIAH S. BEAN, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN PUMP-VALVES.

Specification forming part of Letters Patent No. 192,633, dated July 3, 1877; application filed June 6, 1877.

To all whom it may concern:

Be it known that I, NEHEMIAH S. BEAN, of Manchester, county of Hillsborough, State of New Hampshire, have invented an Improvement in Pumps, of which the following is a specification:

This invention has reference to pumps, and specially to the construction of the valves, and is an improvement upon the pump described in Letters Patent No. 28,644, granted to me on the 12th of June, 1860, to which reference may be had.

In that pump the india-rubber valves reciprocated on spindles passing through them, and the valve-seats had cross-bars to support the valves.

These cross-bars obstructed the flow of the water; but they were necessary, as the central portions of the valves had no other support.

In this my present improvement, the india-rubber blocks are supported between metal plates, those at one side being substantially of the same diameter as the india-rubber blocks. These plates and india-rubber blocks, guided by suitable pins, constitute the valves.

The cross-bars heretofore used to sustain the valves are done away with, thereby enlarging the water-space.

The plates between which the india-rubber blocks are held compressed are provided with annular projections to enter the india-rubber, and hold it firmly, without expanding or warping it out of true, as would be the case if the inner faces of the plates in contact with the india-rubber blocks were plane surfaces.

Figure 1 represents in section sufficient portions of a pump to delineate my invention, and Fig. 2 a section taken through one of the valves.

In the drawing, the pump-cylinder *a* and casing *c* are substantially as shown in my patent referred to.

The casing will receive water at *b*, and, by the operation of the piston *d*, will discharge it at *e*, and the valves *f* will be opened and

closed by the action of the water and springs *g*, all substantially as in such patent.

The india-rubber block *h* is passed over a central hollow pin, *i*, projecting from a plate, *j*, where it is held clamped between such plate and a plate, *k*, screwed upon the hollow pin.

The inner faces of these plates are provided with annular projections *l*, one or more, that as the plates are made to compress the block enter and depress a portion of its surface, but do not enlarge the block unevenly and warp it, as would be case if the plates were plane surfaces.

Pins, shown in dotted lines, Fig. 1, extended from the support *m* or head *n*, enter the holes *o* in the pins *i*, to guide the valves, suitable springs about such pins assisting, as usual, to seat the valves quickly.

As shown in the drawing, the plates *k* and the ends of the pins *i* extend through the seats *p*, to be covered by the valves, such seats being unobstructed by cross-bars.

A valve constructed as shown and described in my present plan, besides admitting more water, finds its seat more truly, and is more durable and efficient in operation.

The valve may be applied with good results to other pumps than that herein described.

I claim—

1. The valve, composed of the plates *j k*, provided with projections *l*, and of an india-rubber block *h*, all combined to operate substantially as described.

2. The valves, composed of india-rubber blocks, and plates, and pins, disconnected from the valve-seats to guide the valves, in combination with the unobstructed valve-seats, to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NEHEMIAH S. BEAN.

Witnesses:

C. L. RICHARDSON,
M. B. HALL.