

CHAS. L. MERRILL.

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VALVE.

PATENTED FEB 14 1871

Fig. 1.

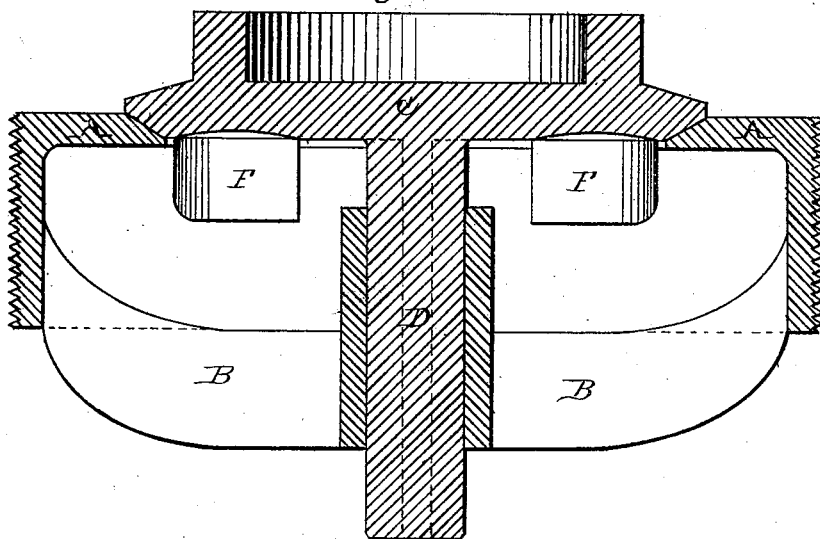
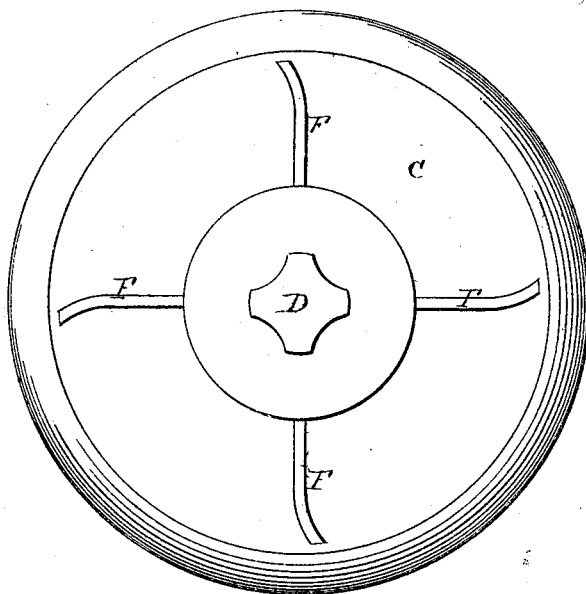


Fig. 2.



Witnesses:
Benjamin F. Lehmann

Inventor:
Charles L. Merrill

United States Patent Office.

CHARLES L. MERRILL, OF WATERTOWN, NEW YORK.

Letters Patent No. 111,763, dated February 14, 1871; antedated February 13, 1871.

IMPROVEMENT IN PUMP-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES L. MERRILL, of Watertown, State of New York, have invented certain new and useful Improvements in Valves for Pumps; and I hereby declare this to be a full, true, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in the construction of a pump-valve, which is provided with downwardly-projecting curved arms or flanges, against which the water strikes at each upward lift of the valve, thus causing it to revolve slowly upon its seat, so as to wear equally at every point at the same time.

Figure 1 is a section view of my valve and valve-seat.

Figure 2 is a bottom view of the valve alone.

Letter A represents the valve-seat, which may be formed of any suitable material, and which has a screw-thread cut around its outer surface, so that it can be screwed into the pump-barrel.

Extending from the inner surface of the seat A there is a number of supports B, which form a hub in the middle, in which the valve-stem works.

O represents the valve, which is provided with a stem, D, on its under side, by means of which it is guided up and down and held upon its seat.

Arranged around the stem, on the outer part of the valve, there is a number of downwardly-projecting arms or flanges, F, having a spiral curve at their outer ends.

At each upward lift of the valve the water strikes against these curved arms, and causes the valve to make a partial revolution at each lift, so that in every twelve to twenty lifts it turns completely around on its seat.

In using the ordinary valves, where no provision is made for them to revolve, whenever pieces of gravel, dirt, or sediment of any kind happen to rest upon the valve-seat, the valve, in lifting up and down, soon hammers it into the seat, causing the valve to leak so badly that the whole arrangement must be removed, so as to be reground.

By making provision for the constant revolution, as soon as any foreign substance gets upon the seat, the valve, in turning around soon dislodges it; instead of merely driving it into the seat, or of injuring it in one place only, so as to cause leakage.

Several attempts have been made to cause the valves to revolve; but, as the reaction of the water has never been taken into consideration, the valves, instead of revolving, have merely raised and fallen, like those in common use, and failed to answer the purpose. In order to provide for this reaction, the arms are placed around the outer edge of the valve, leaving a water-way or passage between them and the valve-stem, as shown in fig. 2, so that the water can act on the arms in one direction only.

The valve-stem D has a number of grooves or channels cut in its sides, so that sand or dirt contained in the water may be washed freely through the hub without causing the valve to stick.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

A valve provided with downwardly-projecting curved arms, arranged around its outer surface, leaving a water-way or passage between their rear ends and the valve-stem, substantially as set forth and described.

Witnesses:

CHARLES L. MERRILL.
BENJ. LONG,
F. LEHMANN.