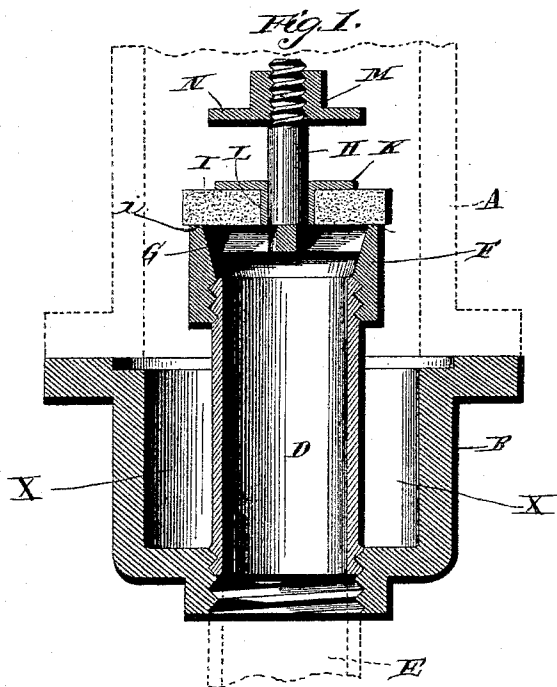
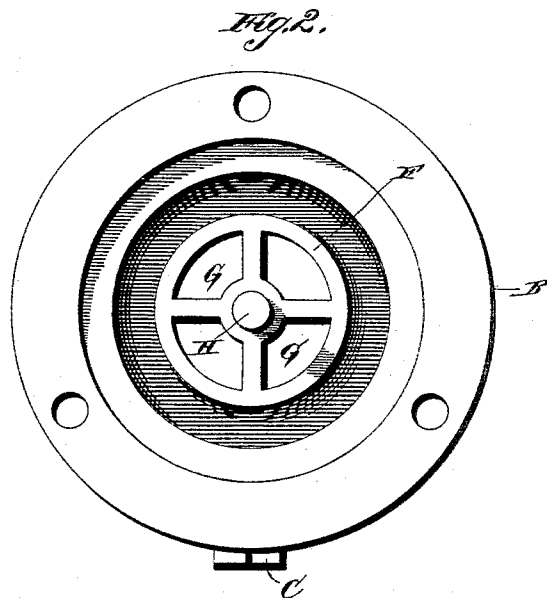


(No Model.)

J. A. HOFFMAN.
WORKING VALVE FOR PUMPS.

No. 388,871.

Patented Sept. 4, 1888.



Witnesses.

W. Taylor,
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By his Attorneys

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UNITED STATES PATENT OFFICE.

JOSIAH A. HOFFMAN, OF ADDISON, NEW YORK.

WORKING-VALVE FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 388,871, dated September 4, 1888.

Application filed April 27, 1888. Serial No. 272,050. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH A. HOFFMAN, a citizen of the United States, residing at Addison, in the county of Steuben and State of New York, have invented a new and useful Improvement in Working-Valves for Pumps, of which the following is a specification.

My invention relates to an improvement in working-valves for pumps; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a portion of a pump-barrel provided with the valve embodying my improvement. Fig. 2 is a top plan view of my improved valve.

A represents the pump-cylinder, which is of the usual construction, and to the lower end of which is secured the cup-shaped coupling-piece B, which is provided on one side with a threaded opening, in which is fitted a screw-plug, C.

D represents a vertical tube, which projects upward from the bottom of the coupling-piece and has its lower end communicating with the threaded opening in the bottom of the coupling-piece, to which opening is attached the usual suction-pipe, E.

To the upper end of the tube D is screwed a spider or cap, F, having a series of openings, G, and from the center of the said spider projects a vertical stem, H, the upper end of which is screw-threaded.

The coupling-piece B is cup-shaped, and forms a sediment or dead-water chamber, X, around the tube D, from which chamber the water can be drawn off and the chamber cleaned after removing the screw-plug C. The said chamber X aids in purifying the water that flows upward through the tube D, at the upper end of which is the spider G, which constitutes the valve-seat. All the water that passes the valve must flow through the tube D, and any sediment in the water will settle in the chamber X.

I represents a valve or disk, which is circular in shape, and is made of vulcanized rubber, and is provided with a central opening. A circular plate, K, bears on the upper side of

the valve I, and is provided with a depending sleeve, L, which extends downward through a central opening in the valve-disk, and is thereby secured to the latter. The bore or opening in the said sleeve is of sufficient diameter to admit the stem H, so that the valve may be guided on said stem. The valve rests upon the upper surface, i, of the spider, which forms a seat therefor.

M represents a nut, which is screwed to the upper threaded end of the stem and has a circular disk or flange, N, formed on its lower side. The function of the said nut is to limit the upward movement of the valve and to secure the latter against displacement from the valve-stem and enable the valve to be removed when the same becomes worn and it is necessary to replace it with a new one.

In the pump-cylinder is the usual piston or plunger, (not shown,) which is adapted to reciprocate, so as to cause water to enter through the tube D on its upstroke and to force water from the cylinder on its downstroke. On the upstroke of the piston or plunger the valve-disk rises, so as to entirely uncover the upper end of the tube D, and thereby permit the water to flow freely into the cylinder; and on the downstroke of the piston or plunger the valve-disk descends, so as to tightly close the upper end of the said tube.

A valve thus constructed is particularly adapted for use in a pump used in an oil or Artesian well in which the fluid is mixed with sand. Inasmuch as the valve rises so as to entirely uncover the upper end of the tube D on upstroke of the piston, the fluid or water mixed with sand is enabled to pass freely under the valve into the cylinder, so as to prevent the sand from cutting and wearing the valve. By this means the valve is rendered very much more durable than those now in common use in this class of pumps.

Having thus described my invention, I claim—

1. The combination of the cup-shaped coupling-piece B, having a discharge-opening in its side stopped by a screw-plug, and a threaded central opening in its floor to couple to the barrel E, the tube D, threaded externally at its ends and screwing into the upper part of said threaded opening, and forming with the coup-

- ling-piece the sediment-chamber X, the removable spider G, screwed to the top of the tube D, and an upwardly-opening valve seated on said spider, substantially as specified.
- 5 2. The herein-described pump-valve mechanism, comprising the seat or casting B, having a threaded opening in its floor and provided with a screw-plug that enters a threaded opening in its side, the vertical tube D, engaged
10 at its lower end in the threaded opening in the floor of said casting, the spider forming a valve-seat and screwed upon the upper end of the tube D, the stem H, projecting vertically from the center of said spider, the perforated valve-disk I, the bearing and wear plate K, and the
15 limiting-nut M, engaged on the threaded end of the stem H, substantially as specified.
- In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.
- JOSIAH A. HOFFMAN.
- Witnesses:
EUGENE WADE,
G. H. BREWSTER.