W. L. CRAWLEY.

Leather Flap-Valve.

No. 217,201. Patented July 8, 1879.

Fig. 1.

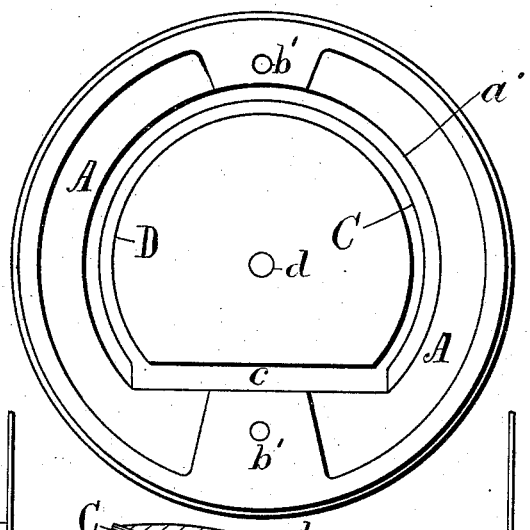


Fig. 2.

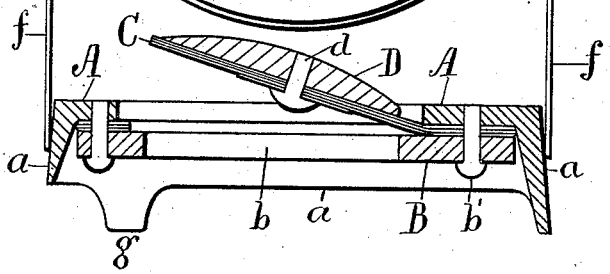
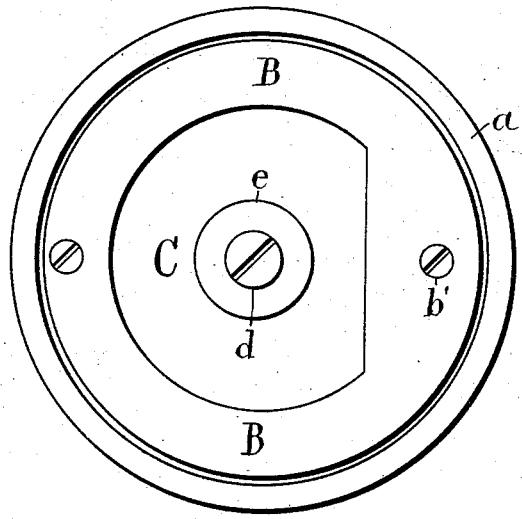


Fig. 3.



Attest:

Wm. L. Fish.

Wm. L. Breath.

Inventor.

Wm. L. Crawley, per

Thos. S. Crane, Atty.

UNITED STATES PATENT OFFICE.

WILLIAM L. CRAWLEY, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF HIS RIGHT TO THEODORE F. LEMASSENA.

IMPROVEMENT IN LEATHER FLAP-VALVES.

Specification forming part of Letters Patent No. **217,201**, dated July 8, 1879; application filed May 15, 1879.

To all whom it may concern:

Be it known that I, WILLIAM L. CRAWLEY, of the city of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Leather Flap-Valves, which improvement is fully described in the following specification.

My invention relates to an improvement in leather flap-valves; and consists in a novel arrangement of the valve upon a removable metallic seat, and in the combination of the said seat with a clamping-ring, and with a lifting-pump secured to the said ring in the manner described.

Figure 1 of the drawings shows the upper side of the clamping-ring with the valve held thereby. Fig. 2 is a transverse section on line *x x*, Fig. 1, the valve being partially opened; and Fig. 3 is a view of the lower side of the valve, showing the removable valve-seat.

A is the clamping-ring, formed with a depending flange, *a*, for attaching the valve to a tube or pump, and having an aperture, *a'*, through its center for the passage of liquids. B is the removable valve-seat, of similar shape to ring A, so that when a circular piece of leather is placed between the two it can be securely clamped by screws *b'*, inserted at opposite sides of the valve C, and passed through the seat into the ring A, with the heads on the seat B, so as to be accessible for removing the seat when the leather needs renewal. *b* is the aperture through the seat B, and is made smaller than the aperture *a'*, to afford an annular seat for the leather to resist fluid-pressure on the side toward A, the leather valve being cut loose from the part clamped between the seat and ring A, with the exception of a portion at one side, *c*, to serve as a hinge for the valve. The valve is supplied with a weight, D, riveted or screwed to the same by the aid of a washer, *e*, and screw or rivet *d*.

At *f* is shown a portion of a tube, secured to the flange *a* by soldering, to show the ordinary mode of connecting such valves to a pump or pipe. When used as the foot-valve for a pump, the flange *a* is provided with feet *g*, or projections on its lower edge, to raise the valve from the bottom of the boat or barrel, &c., in which it may be used.

It having been hitherto customary to form the valve-seat on the upper side of the ring A, which is commonly soldered to the bottom of such pumps, and to clamp the valve to the upper surface of the seat inside the pump by a ring similar to that shown at B, it is evident that the valve could not be removed to replace a new leather without unsoldering the ring from the bottom of the pump—an operation which frequently required the pump to be laid aside until a suitable mechanic could be found.

By the method of construction I have shown and described herein this difficulty is entirely obviated, as the valve-seat is the removable part, and the clamping-ring is the part attached to the bottom of the pump, the smaller aperture *b* being made in the loose or removable piece B, which thereby resists the pressure transmitted through the larger aperture *a'* in the tight piece A, which may thus be permanently secured to the pump, or in any situation where its action may be desired.

The removal of the screws *b'*, which can be done by any person capable of renewing or replacing the valve C, enables the seat B to be removed and the valve repaired or examined at pleasure. This change in construction is of great importance upon canal-boats, ships, and other places where the valve is subjected to rough usage, and frequently requires a new valve in locations remote from a tinsmith.

I therefore claim my invention as follows:

The combination of the valve C with the removable seat B, provided with aperture *b*, smaller than the valve, and with the ring A, having an aperture, *a'*, larger than the valve, to permit its rise and fall upon its seat, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereto set my hand this 12th day of May, 1879.

WM. L. CRAWLEY.

Witnesses:

WM. L. BREATH,

EDWARD F. WHELAN.