W. PAINTER.

VALVE.

No. 175,144. Patented March 21, 1876.

Fig. 1.

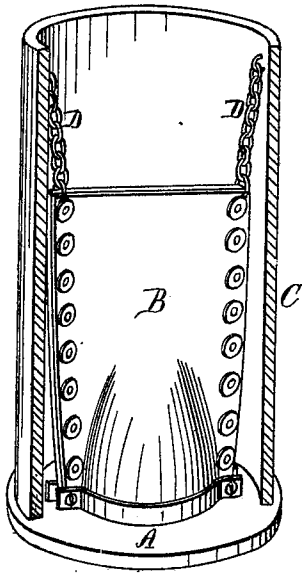


Fig. 2.

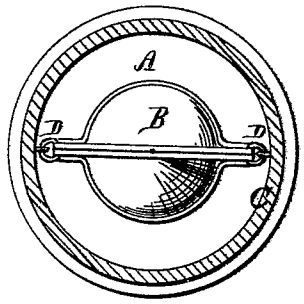


Fig. 3.

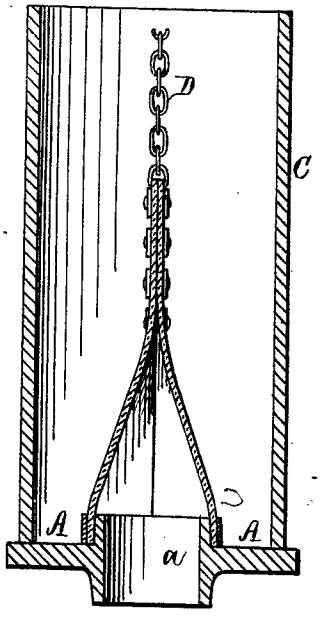
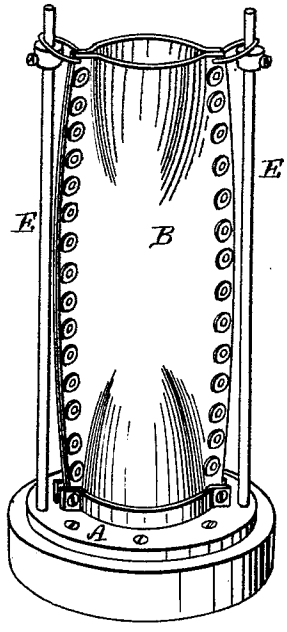


Fig. 4.



Witnesses:
Philip F. Larner
A. B. Cauldwell

Inventor:
William Painter,
By Munn & Co
Attorneys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN VALVES.

Specification forming part of Letters Patent No. **175,144**, dated March 21, 1876; application filed October 6, 1875.

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, of the city and county of Baltimore in the State of Maryland, have invented certain new and useful Improvements in Valves; and I do hereby declare that the following specification, taken in connection with the drawings furnished, and forming a part of the same, is a clear, true, and complete description thereof.

My improved valves are intended for use in connection with apparatus for removing the contents of privy-vaults, cess-pools, &c.; and my invention consists in the combination of a flexible tube, which is normally partially open and partially closed, with independent longitudinal supporters, whereby, although said tube is wholly flexible, it is maintained in a longitudinally-extended condition, and prevented from being forced backward through the valve-opening.

Referring to the drawings, Figure I represents in side elevation one of my improved valves located within and combined with a pump-barrel. Fig. 2 represents the same in top view. Fig. 3 represents the same in vertical section. Fig. 4 represents in perspective one of my valves mounted on a piston, and in combination with the piston-rods of a pump.

In each instance A denotes the valve-plate, which is provided with a port or opening, as at *a*, which is usually of large area, to admit free passage of more or less solid matters. The plate is also, in practice, provided with bolt holes or flanges, whereby it may be secured to a pump, pipe, or other device with which it is to be employed. On its upper surface, surrounding the valve-opening, is a flange to which, by means of a band-clamp, the lower and normally open end of the tube B is secured. The tube B is essentially composed of flexible material.

In practice, the lower portion, which is normally open, should be flexible, and constructed in part of heavy canvas or fine wire-cloth incorporated in vulcanized caoutchouc, in a manner well known.

That portion of the tube which is normally closed may be elastic or simply flexible. In other words, the closed portion may be composed wholly of vulcanized gum compound, or in part of textile fabric.

In the valve shown in Figs. 1, 2, and 3, the walls of the pump-barrel, as at C, constitute the independent longitudinal supporters essential with this form of valve, for preventing the tube from being drawn backward through the valve-opening. The chains at D are connected at their ends, respectively, to the edges of the upper end of the tube, and the interior of the pump-barrel.

It will be seen that the chains admit of the free opening of the upper portion of the tube by reason of their flexibility, they swinging freely to and from the sides of the pump-barrel whenever the edges of the valve approach each other, as is incident to the wide opening of the tube.

In Fig. 4, I show my valve as if mounted on a piston. Although the piston may be provided with a tubular structure for containing the valve, I prefer to dispense therewith, and cause the piston-rods to perform the function of independent longitudinal supporters for the tube. The piston-rods, as at E, are located on each side of the valve, near its outer edge.

For connecting the upper end of the tube to the rods, chains may be employed, as shown in Fig. 1, or a rigid connection may be used, as shown in Fig. 4.

In this valve the upper end of the tube is also normally open, and kept distended by means of a metallic ring, having two lateral arms, one on each side, which are connected, respectively, to the piston-rods, as shown. In this form of valve the tube should be made somewhat longer than when the chains are employed, as an extensive area of contact is desirable between the inner sides or faces of that portion of the tube which is normally closed, in order that valve contact may be attained upon and around solid matters temporarily retained in the valve when closed, and also because it is necessary to counterbalance with exterior pressure directed against

the flattened portion of the tube, that interior pressure which would occur at the open upper end of the tube when the piston was driven upward.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

A valve composed of a valve-plate and the flattened flexible tube, the base of which is normally open, and a portion of which is normally closed, in combination with independent longitudinal supporters, substantially as described, whereby said tube, although wholly flexible, is kept longitudinally extended, as set forth.

WILLIAM PAINTER.

Witnesses:
WM. C. WOOD,
PHILIP F. LARNER.