A. AMES, Jr.

APPARATUS FOR EXCAVATING PRIVY-VAULTS.

No. 192,212. Patented June 19, 1877.

Fig. 1.

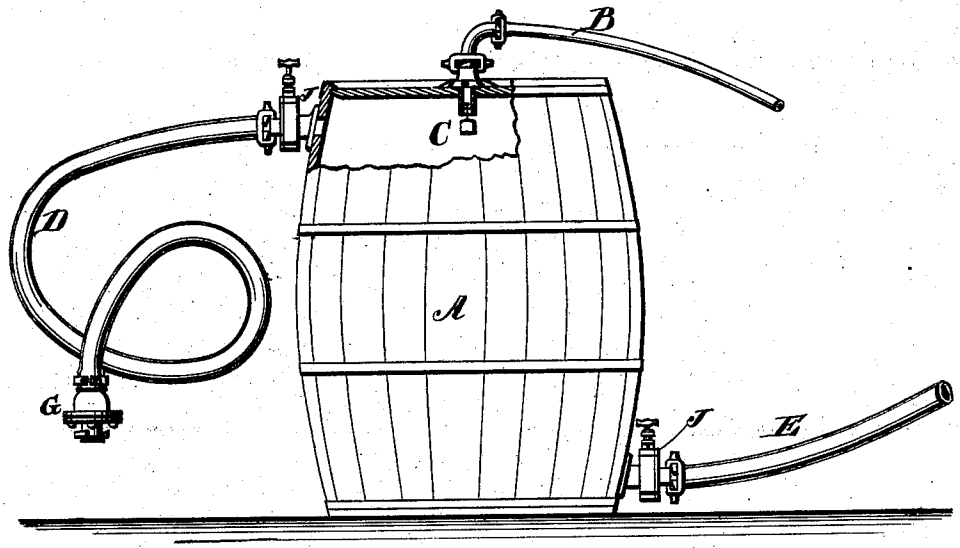



Fig. 7.

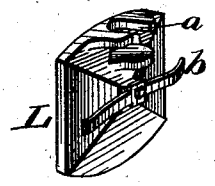



Fig. 6.

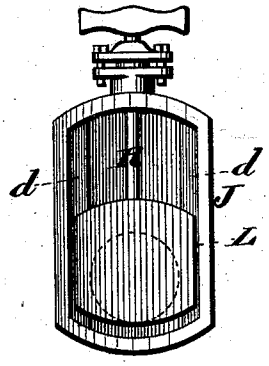



Fig. 5.

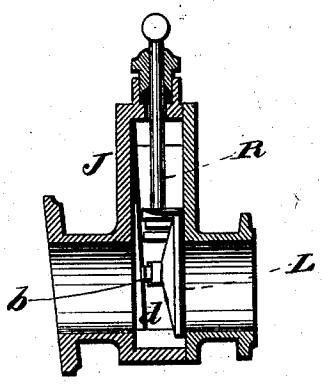



Fig. 4.

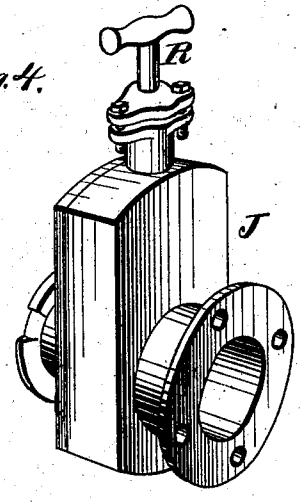



Fig. 2

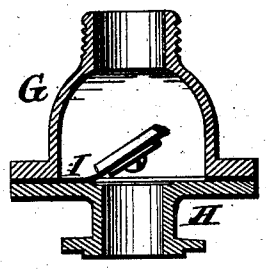
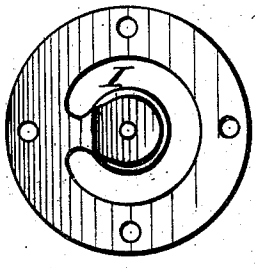



Fig. 3




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# UNITED STATES PATENT OFFICE.

AZEL AMES, JR., OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN APPARATUS FOR EXCAVATING PRIVY-VAULTS.

Specification forming part of Letters Patent No. **192,212**, dated June 19, 1877; application filed April 14, 1877.

*To all whom it may concern:*

Be it known that I, AZEL AMES, Jr., of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and valuable Improvement in Apparatus for Excavating Privy-Vaults; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings represents my improvements complete as applied to the receiving-tank of an excavating apparatus. Fig. 2 shows a section of the flap-valve, and Fig. 3 gives a bottom view of the same. Fig. 4 is a perspective view of the slide-valve gate, and Figs. 5 and 6 are sectional views thereof. Fig. 7 is a sectional detail view of the same.

My invention relates to apparatus for excavating privy-vaults; and it consists in a flap-valved foot-pipe at the vault end of the suction-hose; also, in slide-valve gates at the sides of the pump-receiver, at top and bottom, and in the construction and combination of parts, as will be hereinafter more fully set forth.

In the annexed drawings, A represents the ordinary pump-receiver, with hose B leading from the pump into the top thereof. In the end of the hose B, within the receiver A, is a float-valve, C, which rises with the fluid in the receiver and closes the air-pipe. D is the hose leading from the receiver to the vault to be emptied, and E is the hose leading from the receiver to the tank or barrels for carrying off the contents of the vault.

At the vault end of the pipe or hose D is secured a cast-iron foot-pipe, G, having a cap, H, fastened to its lower end in any suitable manner. On the inner surface of said cap is hinged a leather valve, I, opening upward, and weighted so as to fall by its own weight.

The receiver end of the hose D is connected to the side of the receiver at the top by a connection formed of a valve-box, J, having suitable collars or couplings on both sides, one to be fastened to the receiver, and the hose to be coupled to the other.

Within the valve-box J is a slide-valve, L, provided with lugs *a*, as shown in Fig. 7, for the connection of the swivel-rod R, which passes up through the top of the valve-box, and by means of which the valve is raised and lowered, as required. On the back of the valve L is secured a spring, *b*, the ends of which bear against inclines *d d* within the valve-box, said inclines being so arranged that the pressure of the spring will gradually increase in closing the valve, and have its greatest tension when the valve is entirely closed.

The pipe or hose E is connected to the side of the receiver at the bottom, and has a similar valve-box and slide-valve at the junction. In practice these two valves will be so located that the operator can manipulate them at the same time, and not on opposite sides of the receiver, as represented in Fig. 1.

The air being exhausted from the receiver through the air-pipe B, and the slide-valve in the pipe E closed, the material from the vault flows into the receiver through the suction-pipe D, and when the receiver is full the material lifts the float-valve C up, so as to shut off the pump. The upper valve L is then shut down and the lower valve opened, and compressed air forced into the top of the barrel through the air-pipe B, whereby the material is forced out through the lower opening and the hose E into the tank or barrels.

The weight of the material being added to the force of the compressed air, the rapidity and facility of the passage of the material are greatly aided.

The attachment of the plain gate-valve to the side of the pump-receiver at the top removes all danger of clogging, as it leaves a straight run in from the vault. The attachment of a similar gate-valve at the bottom of the pump-receiver not only removes danger of clogging, but also enables the material to pass out directly, avoiding the use of a siphon-tube and direct perpendicular lift, as in apparatus now in use, and the weight of the material aiding the expelling force of the compressed air, and in the same direction with it. It enables any article no larger than the inner caliber of the suction-hose and no longer than the inner diameter of the pump-receiver to pass through the hose from the vault into the receiver.

The addition of the valved foot-pipe G to

the vault end of the suction-hose secures a great saving of labor, time, and expense; as heretofore, when the pump-receiver was filled and the vacuum cut off, the contents of the suction-hose, of course, immediately ran back to the vault, and each repeated filling of the pump-receiver necessitated the recreation of a vacuum, not only in the receiver, but also in the hose to the vault, and the hoseful had to be lifted even as many times as the receiver was filled. The flap-valve I retains the contents of the hose, and a vacuum is therefore required only in the receiver. A great increase of speed, economy, and ease in the accomplishment of the work is effected.

The slide-valve boxes J, instead of being attached directly and permanently to the side of the pump-receiver, may be attached by means of a coupling, one part of which is then permanently secured to the pump-receiver, and the other portion forming a projection on the valve-box.

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

1. In an apparatus for cleaning privy-vaults, &c., a foot-pipe provided with a flap-valve, and attached to the vault end of the suction-hose, for the purpose hereinbefore set forth.

2. In an apparatus for cleaning privy-vaults, &c., a pump-receiver having the pump-hose B at the top thereof, the suction-hose D connected to the side of the receiver at the top, and the tank-hose E attached to the side of the receiver at the bottom, substantially as shown, and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

AZEL AMES, JR.

Witnesses:
C. H. MCEWEN,
EUGENE W. JOHNSON.