2 Sheets--Sheet 1.

C. E. FRAZIER.

Nightsoil and Sewage Apparatus.

No. 168,473. Patented Oct. 5, 1875.

Fig. 1

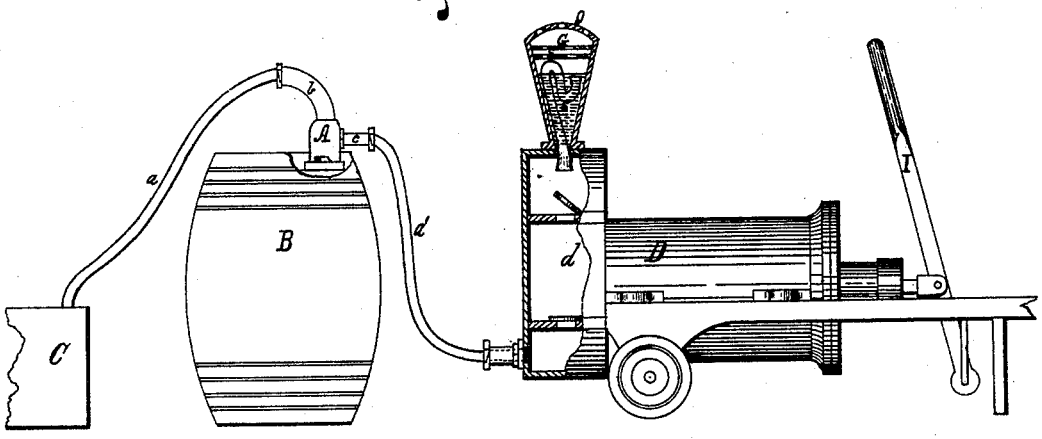


Fig. 3

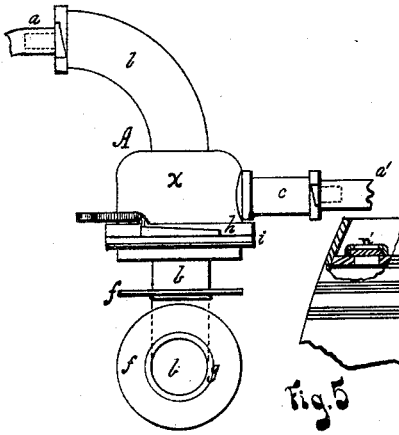


Fig. 2

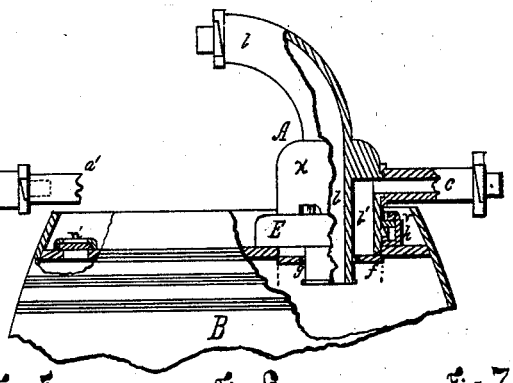


Fig. 4

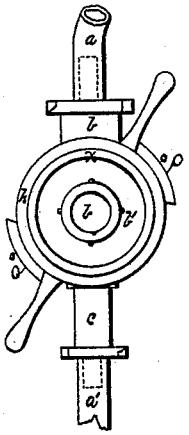


Fig. 5

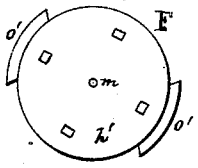


Fig. 6

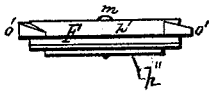
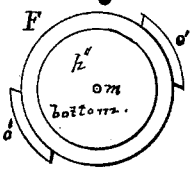


Fig. 7



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Nightsoil and Sewage Apparatus.

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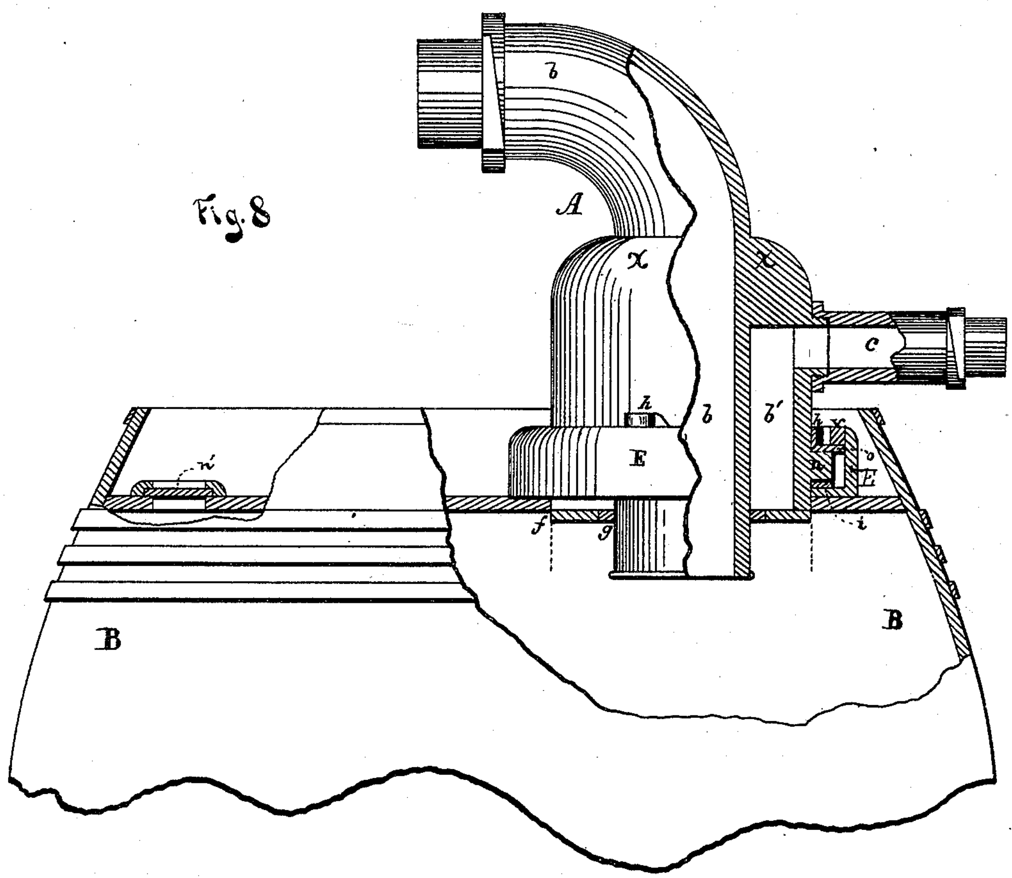
Fig. 8



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UNITED STATES PATENT OFFICE.

CHARLES E. FRAZIER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN NIGHT-SOIL AND SEWAGE APPARATUS.

Specification forming part of Letters Patent No. **168,473**, dated October 5, 1875; application filed August 5, 1875.

To all whom it may concern:

Be it known that I, CHARLES E. FRAZIER, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and valuable Improvement in Night-Soil and Sewage Apparatus; 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 is a representation of a side elevation of my apparatus, showing the manner in which its parts are connected. Fig. 2 is a detail view of the middle coupling and the glass disk, showing the arrangement of parts and the connections. Fig. 3 is a detail of the middle coupling, showing the locking device and the float-valve. Fig. 4 is a bottom view of the same, showing the locking device and the ingress and egress passages. Figs. 5, 6, and 7 are details of the interchangeable stopper, showing the top, side view, and bottom of the same. Fig. 8 is an enlarged view, partly in section, of the view shown by Fig. 2.

My invention is an apparatus for cleansing privy-vaults; and consists in the novel construction, arrangement, and operation of the same, embracing the following elemental features: a middle coupling, connecting a portable receiving-vessel by two separate lengths of hose or flexible pipe, by one with the said vault, cesspool, or privy-box, and by the other with an air-pump, said coupling being divided into separate, distinct, and concentric passages, the one conducting into, and the other out of, said receiving-vessel; an automatic stop-valve working in said coupling, said coupling securable within the neck of the main opening into said receiver by a handled collar, which locks, when rotated, its inclined lugs underneath corresponding lugs on the inner side of said neck; and, finally, a peculiarly-constructed deodorizing-vessel, suitably and immediately secured to the top of said air-pump, all of which and their purposes are hereinafter more fully described and illustrated by the accompanying drawings, in which the same letters designate identical parts of my apparatus in the different figures, respectively.

The letter A represents said middle coupling, securable to the top of said receiving-vessel B, and connecting said vessel by one piece of suitable hose, *a*, with said vault C, and by another separate piece of hose, *a'*, with the valve-chamber *d* of said air-pump D. Said coupling consists, essentially, of a metallic main shell, *x*, and pipe *b*, as shown, dividing it into two separate passages, the one, *b*, being the inner and curved neck pipe, which couples with said hose *a*, and, together with it, conducts the fecal matter from said vault into said receiver B, and the other passage, *b'*, being an annular one encircling said pipe *b*, and between it and the said shell *x* to conduct the foul air from said receiver through the extended coupler *c* into said hose *a'*, and on through said hole, air-pump, and deodorizer, as shown. Said curved pipe *b* may be of one piece or casting with the said main shell, as shown, or may be suitably fastened within it to serve the purpose. Encircling the lower end of said pipe *b*, or the said passage therein, is a float-valve, *f*, consisting of an annular disk of wood, provided with a metallic collar, *g*, fastened upon its inner circle, and which forms a fitting sleeve around said pipe. Said valve slides up the periphery of said pipe when the receiver B becomes so filled with the fecal contents as to float said valve upward, thereby automatically closing the said egress-passage *b'*, and preventing any of said fecal matter from thus escaping from the said receiver. Said float or stop valve is kept from falling off said pipe by rounded screw-heads, the shanks of which are inserted at the lower end of the pipe, as shown. Said coupling A is also provided with a handled metallic collar, *h*, of suitable dimensions, and made to easily fit around the base of said shell *x* and upon its basal flange *n*, as shown. Said collar has two lugs, *o*, projecting at suitable intervals beyond its periphery, and which have their upper surfaces formed into inclined planes, as shown. A thin gasket, *i*, of any elastic material, closely encircles the base of said shell immediately underneath its said flange, as shown. Within the neck E, surrounding the main opening into

said receiver B, are also formed two lugs, *v*, one opposite to the other, underneath which slide the inclined planes of the said lugs of the aforesaid collar *h*, which, when rotated, thus locks said coupler A securely and tightly over said main opening, as shown.

When said coupling A is detached from said receiver B an interchangeable stopper, F, is substituted therefor, said stopper consisting of two suitably and equally sized disks, *h'* and *h''*, of any suitable material, which rotate one over the other upon a clinching axial pin, *m*, passed through their mutual centers. By means of lugs *o*, similar to those of the rotating collar *h*, formed upon the periphery of the upper disk *h'*, and a gasket similar to the one, *i*, encircling the lower disk, said stopper is substituted, as aforesaid, and tightly locked over said opening into the receiver B, thereby preventing any stench from escaping while said filled receiver is being carried away to be emptied. Suitably attached directly upon the top of the valve-chamber *d* of the said air-pump D, as shown, is the deodorizing-vessel G, which consists essentially of a metallic funnel-shaped cylinder, of any suitable size, which tightly embraces at its foot the pipe *s*, rebent, as shown, so as to suitably conduct the foul air—forced into it from the said valve-chamber below by the action of the air-pump D—through any deodorizing-liquid, such as benzine or its equivalent, placed within said vessel G, as shown, or any other disinfectant, such as burning charcoal or its equivalent, placed between suitable gratings *z*, as shown, within the upper portion of said deodorizing-vessel. The top or cover of said vessel is perforated with holes, of suitable size and number, to readily carry off the deodorized air coming through said vessel.

Having thus fully described the construction and arrangement of the essential portions of my apparatus, I describe its operation as follows: The receiver B is placed suitably near to the vault or box C, so that the hose *a* will suitably reach into said vault when coupled with the said middle coupling A, adjusted as aforesaid, and also so that the receiver B and the air-pump D may be connected together by the hose *a'*, as aforesaid. The deodorizing-vessel G is then filled sufficiently with any suitable disinfectant, as aforesaid, and adjusted, as aforesaid, to the top of the air-pump D, and whenever the lever I of said pump is put in motion, the air is sucked from the vault C through the hose *a* and the curved pipe *b*, carrying along with it the said fecal matter into and filling the receiver B, while the foul air is alone drawn through the said air-passage *b'* and the hose *a'* into the valve-chamber *d* of the said air-pump D, from whence it is forcibly ejected into the open air through the said deodorizing-vessel G, as aforesaid. Therefore,

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

1. The coupling A, provided with the outer shell *x*, the inserted pipe *b*, and the extended coupler *c*, substantially as and for the purposes specified.

2. In said coupling A, the combination of the float-valve *f* with the outer shell *x* and the pipe *b*, substantially as and for the purposes specified.

3. The deodorizing-vessel G, provided with the rebent pipe *s* and the perforated gratings *z*, in combination with the pump D, substantially as and for the purposes specified.

4. The combination of the coupling A, provided with the outer shell *x*, the inserted pipe *b*, the coupler *c*, the float-valve *f*, and the locking-collar *h*, also provided with the inclined lugs *o*, with the receiver B, provided with the neck E and the lugs *v*, also with the flexible tubes *a* and *a'*, the pump D, and the deodorizing-vessel G, substantially as and for the purposes specified.

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

CHARLES E. FRAZIER.

Witnesses:
A. V. MILHOLLAND,
GEO. W. C. BELL.