2 Sheets—Sheet 1.

A. EDWARDS.

Seal-Joints for Water-Closets, &c.

No. 222,578. **Patented Dec. 16, 1879.**

Fig. 1

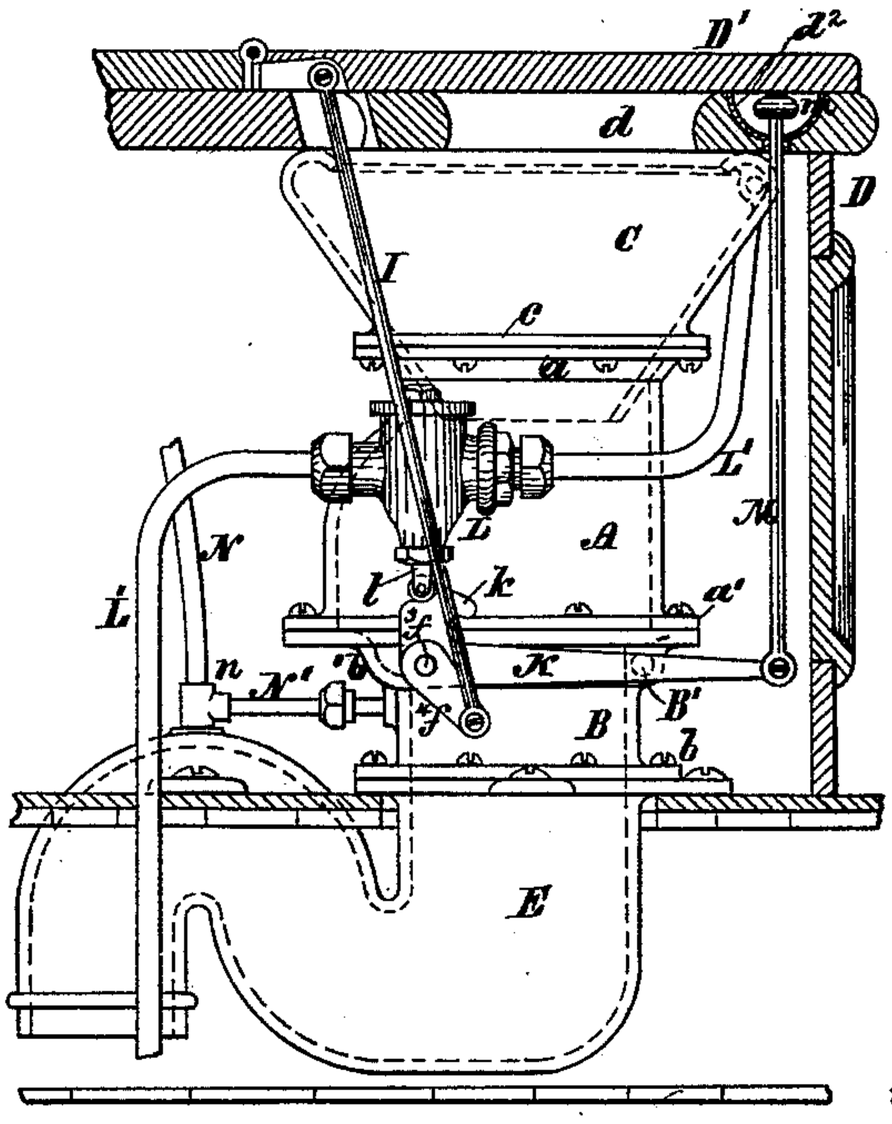
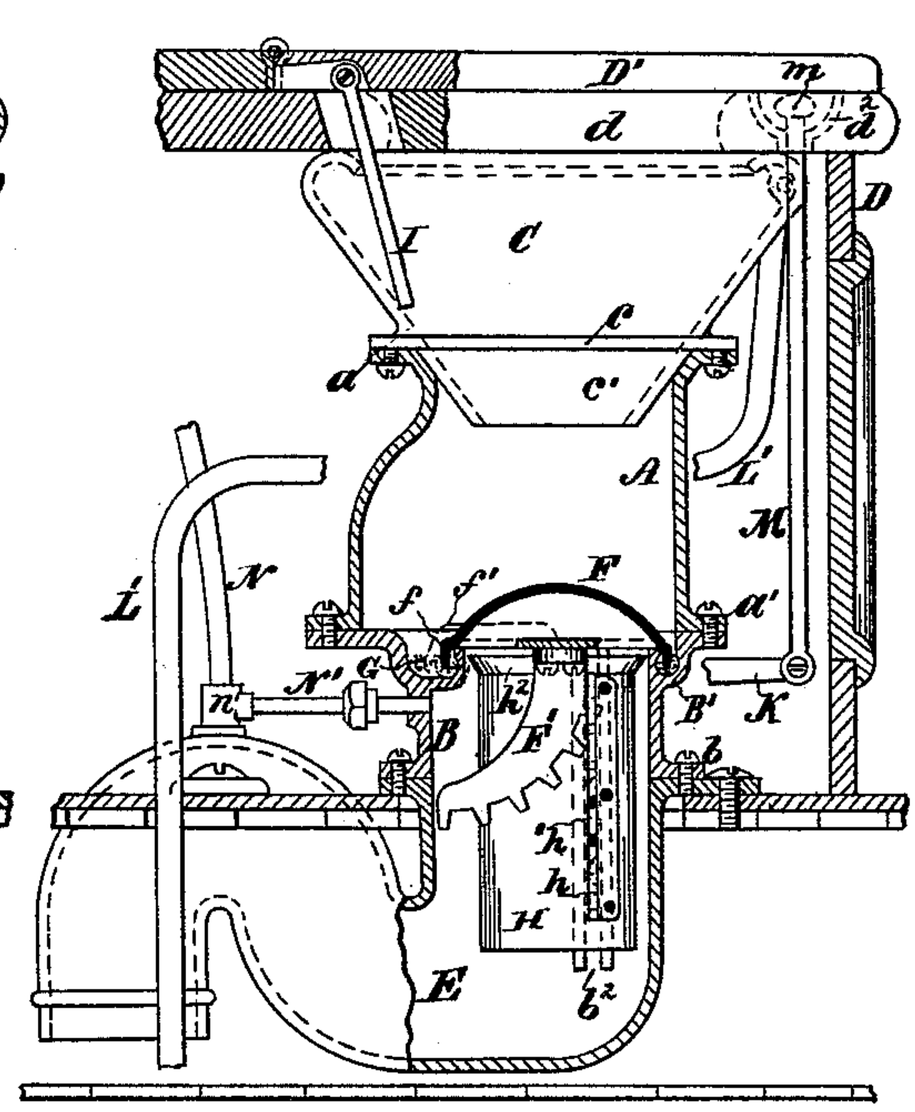


Fig. 2



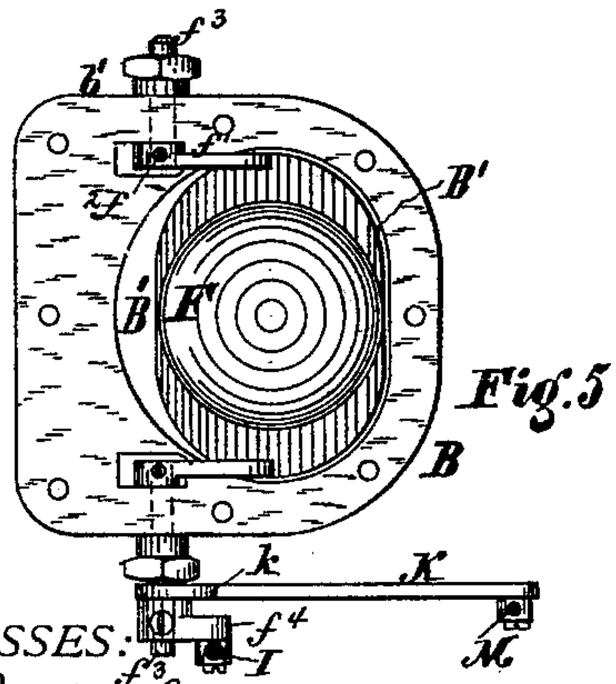


Fig. 5

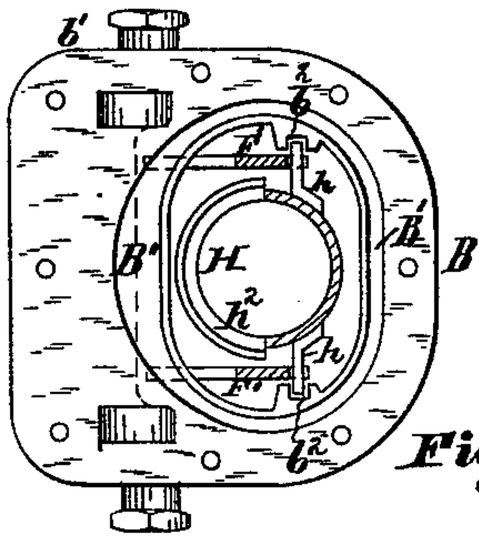


Fig. 6

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2 Sheets—Sheet 2.

A. EDWARDS.

Seal-Joints for Water-Closets, &c.

No. 222,578. Patented Dec. 16, 1879.

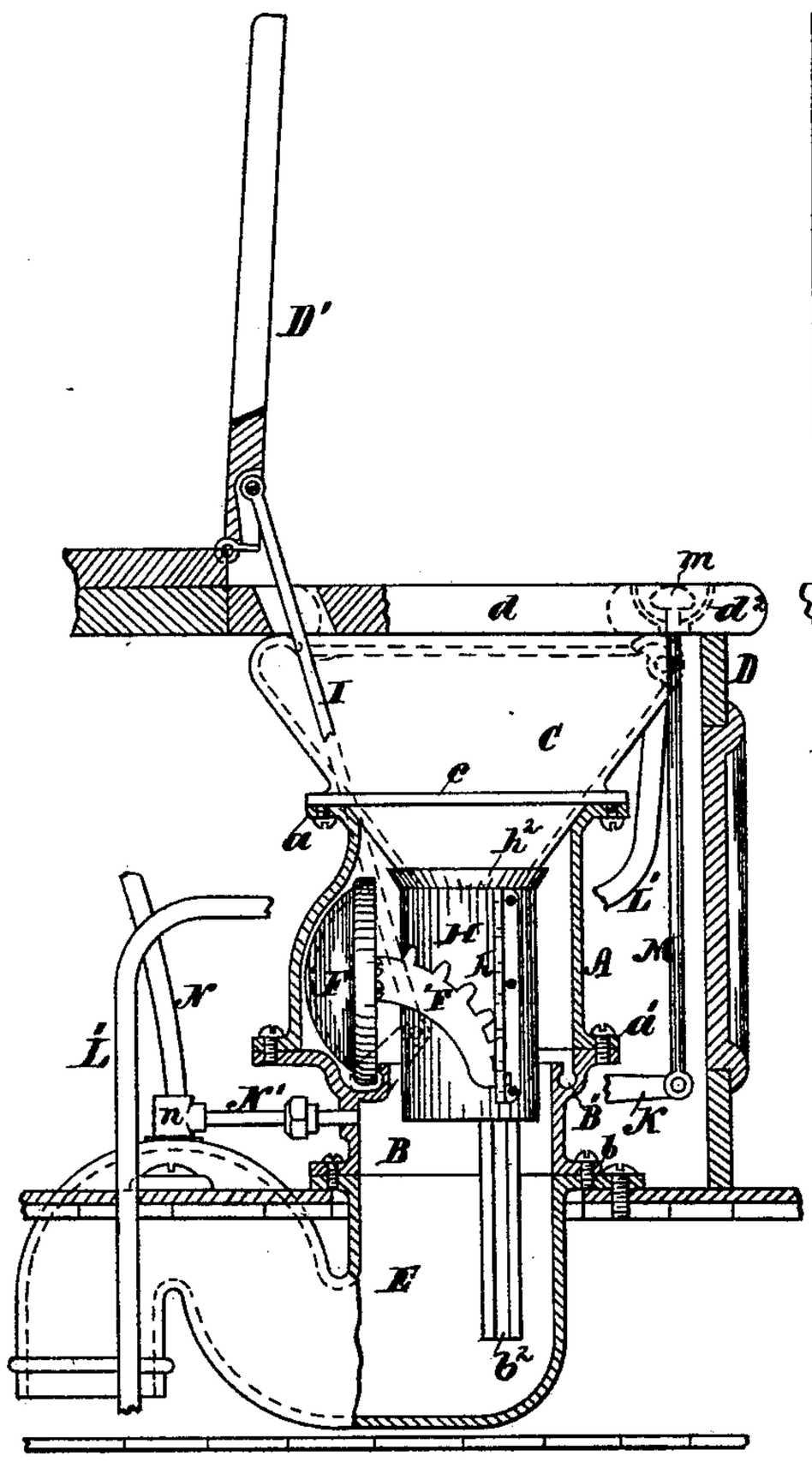

Fig. 3

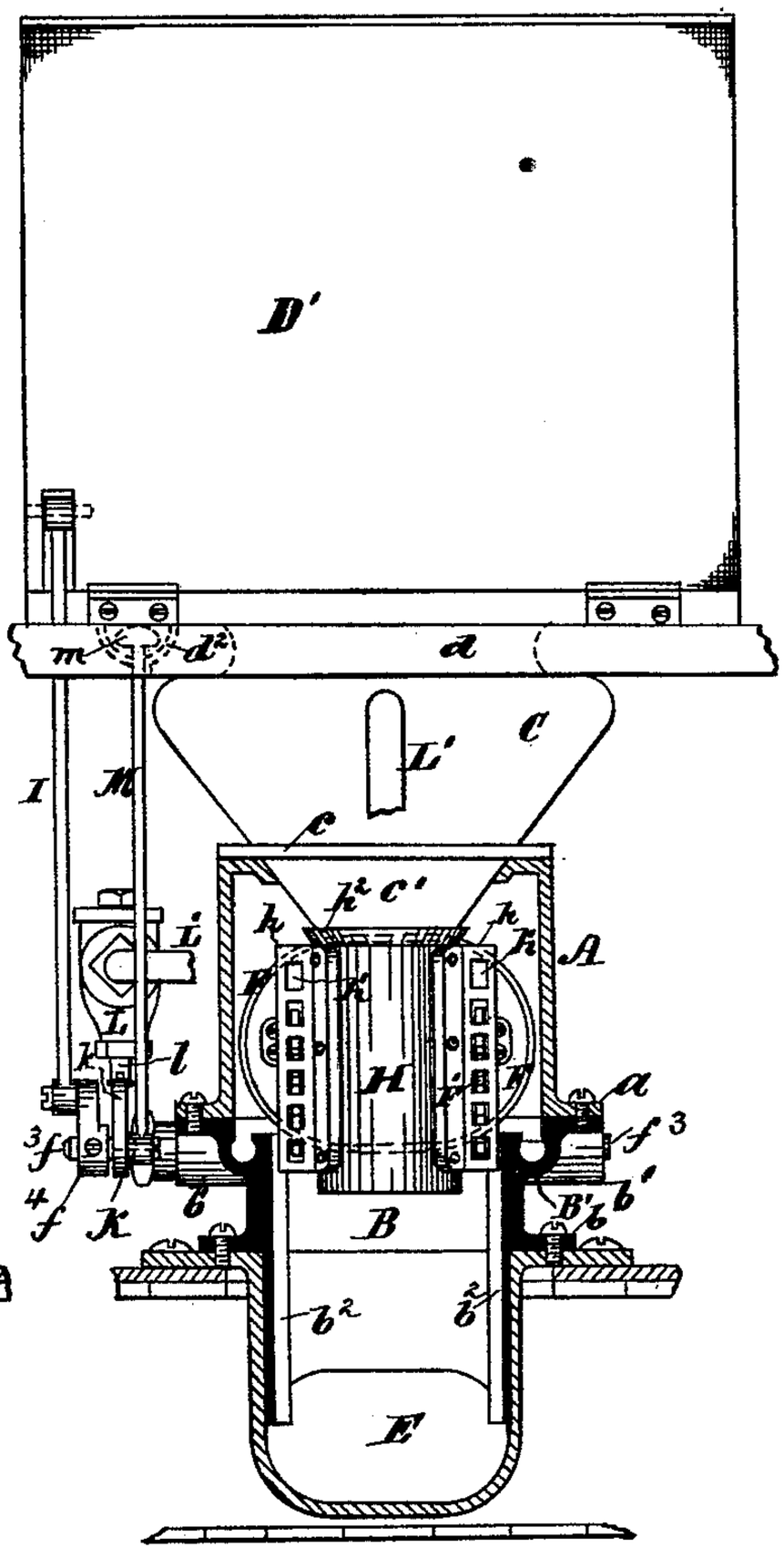

Fig. 4

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UNITED STATES PATENT OFFICE.

ABRAHAM EDWARDS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SEAL-JOINTS FOR WATER-CLOSETS, &c.

Specification forming part of Letters Patent No. **222,578**, dated December 16, 1879; application filed September 24, 1879.

To all whom it may concern:

Be it known that I, ABRAHAM EDWARDS, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Seal-Joints for Excluding Sewer and other Gases and Smells from Water-Closets and other fixtures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a side elevation of my invention. Figs. 2, 3, and 4 are vertical sections of the same, and Figs. 5 and 6 are detail plans.

My invention has for its object to provide means whereby sewer and other noisome or offensive gases or effluvia may be prevented from entering dwelling-houses, stores, and apartments generally through the waste or outlet pipes of wash stands or basins, bath and wash tubs, urinals, water-closets, or other fixtures through which water or other fluid is permitted to flow, or wherein water is used for flooding or cleaning purposes.

My invention consists, primarily, in the combination, with a seal composed of a movable cap or lid and a trough designed and adapted to contain mercury, into which said lid dips, of a sliding pipe which, when said cap is raised, forms a close conduit between the pipe whereon said cap seats and the outlet of the fixture connected therewith, and which, when said cap is lowered, rests in said last-mentioned pipe below said cap. The principal object of this sliding pipe is to prevent the lodgment of fecal, excrementitious, or other matter in or about the mercury-trough or inside of the seal-cap when the latter is raised.

My invention consists, further, in the combination of certain parts, whereby, when the seal-cap is being raised, the sliding pipe will be drawn up and brought into position to form the connection between the outlet of the fixture, and when said cap is being lowered said sliding pipe will be moved down before and beneath it into the pipe on which said cap rests.

My invention further consists in certain details of construction and combination hereinafter set forth.

Referring to the accompanying drawings, A indicates a box or case, which is designed to be connected in any suitable and appropriate manner with the outlet of a wash stand or basin, bath or wash tub, urinal, or water-closet, and to rest upon and be secured in any suitable manner to a waste-pipe, B, which conveys the discharge from such stand, basin, tub, urinal, or closet to a sewer, well, or other receptacle. In the drawings I have shown the case formed with a flange, *a*, whereby it is bolted to a flange, *c*, of a water-closet basin, C, and with another flange, *a'*, whereby it is bolted to the pipe B, said basin projecting downwardly into the case A and resting within a frame-work, D, provided with a seat, *d*, and hinged cover D', and said pipe B being flange-bolted at *b*, or otherwise secured to a trap, E, of the usual or any suitable construction.

F represents a metallic cap or lid, having a depending flange or lip, *f*, extending all the way around said lid to form an annulus or cordon, and adapted to enter a trough or channel, B', formed on the upper end of the pipe B, and designed to contain mercury, which latter is indicated at G. Said cap F is also formed with arms f' f', hinged or fulcrumed at f^2 f^2 on pintles f^3 f^3, which have bearings on the flange b' of the pipe B, and has depending cogged segments F' F'.

H represents the sliding pipe, which normally rests in the pipe B, dipping into the trap E, and which, when raised, forms a close conduit between said pipe B and the outlet of the basin C or other fixture. Said pipe H is formed with ribs *h h*, having openings or teeth h' h', with which the cogs of the segments F' F' mesh.

I represents a rod, connecting with the hinged cover D', and with a winch, f^4, on one of the pintles f^3, to which the cap F is made fast, whereby, when said cover D' is raised to permit access to the seat, the cap F will be raised and the pipe H, through the medium of the cogged segments F' F', be drawn up and caused to form connection with the neck c' of the basin C, or with the equivalent outlet of any other fixture to which the improvements herein described may be applied, and

when said lid is turned down the cap will be lowered and the sliding pipe passed down into the waste-pipe.

To insure accuracy and directness of movement, the ribs *h h* travel in grooves or guides b^2 b^2 formed in the inside of pipe B; and to prevent contact of cap C and end of sliding pipe H, said cap is made dome-shaped or concave, as shown.

K is an arm, loosely swiveled on one of the pintles f^3, and formed with a cam-head, *k*, whereby a stem, *l*, of a valve, L, in a water-pipe, L′, may be actuated to open said valve and flush the basin C.

M is a rod, connected to the outer end of the arm K, and extending upwardly through the seat *d*, having a knob, *m*, which normally rests in a recess or cup, d^2, in said seat.

When the lid or cover D′ is raised and the seal-cap and sliding pipe elevated, leaving the way to the waste-pipe B clear, the rod M may be drawn up, opening the valve L and flushing the basin with water; but when said cover D′ is down it prevents the rod M from being lifted, thereby preventing unnecessary waste of water.

N and N′ represent pipes, coupled at *n*, and designed to carry off gases and smells from the trap E, or which may arise through the waste-pipe below said trap.

The operation is as follows: The cover D′ being down on the seat *d*, the seal-joint is made, the flange of the cap F being submerged in the mercury in trough B′, the sliding pipe H being beneath said cap, resting in the waste-pipe B and dipping into the water held in the trap E, and the water-valve L closed. On turning up or back the seat-cover D′ the pintles f^3 are revolved by reason of the connecting-rod I, thereby throwing up the cap F, which latter, as it is raised, elevates, by means of the cogged segments F′ F′, the sliding pipe H until the upper flaring end, h^2, of the latter encircles the neck *c′* of the basin C, the lower end of said pipe being then below the top of the pipe B. The way to the trap is now clear and the closet open for use.

After or during use, and while the cover D′ is yet raised, the basin may be flushed or flooded by drawing up the rod M. After use the lid or cover D′ is lowered, thereby turning down the seal-cap until its flange becomes submerged in the mercury, the sliding pipe H at the same time moving down below said cap.

The gases generated in or smells proceeding from fecal or other matter detained in trap will, with other gases and smells from cellar-trap, pass off through pipes N and N′.

To prevent the mercury from being spilled by the sudden descent of the cap F, the walls of the trough B′ should spread as they descend, as shown in the drawings.

I have shown the seal-cap connected with the seat-cover, so as to be raised when the latter is lifted; but the connection for actuating said seal-cap may be made with a hinged seat, and the joint or seal opened by one in sitting down on said seat; or a handle may be used, and the seal-cap raised by a pull or push thereon. So, too, other means of lifting the sliding pipe than the cogged segments F′ F′ may be employed.

I have shown and described mercury as the sealing medium in the trough B′; but india-rubber may be substituted therefor, the flange *f* in such case indenting the rubber and forming a perfectly tight joint.

What I claim as my invention is—

1. In combination with the neck *c′* or outlet of a basin, bowl, tub, or other fixture, and a waste or discharge pipe, B, a sliding pipe, H, adapted to be moved down into said waste-pipe and to form a close conduit between it and said neck or outlet when raised, substantially as shown and described.

2. The combination of waste-pipe B, having mercury-trough B′, cap F, and sliding pipe H, adapted to fit in said waste-pipe when said cap is lowered and sealed, and to be elevated when said cap is raised or opened, substantially as shown and described.

3. The combination, with neck or outlet *c′*, waste or discharge pipe B, cap F, and sliding pipe H, of intermediate mechanism, substantially as described, for drawing up said pipe when said cap is lifted.

4. The combination, with cap F, of pintles f^3 f^3, winch f^4, and rod I, said cap being arranged and adapted to clear the pipe and leave it unobstructed when raised, substantially as shown and described.

5. In combination with pipe B, the mercury-trough B′, having walls which spread apart or flare as they descend, substantially as described, to prevent spilling of the mercury contained therein.

6. The cap F, having depending cogged segments F′ F′, in combination with sliding pipe H, having ribs *h h*, with teeth or openings *h′ h′*, substantially as shown and described.

7. The combination, with case A, of basin C, flange-bolted thereto, waste-pipe B, and sliding pipe H, arranged and operating to form, when raised, a connection with said basin, and a direct close conduit therefrom to said waste-pipe B, substantially as shown and described.

8. The combination of case A, waste-pipe B, having mercury-trough B′, basin or receptacle C, having outlet *c′*, hinged cap F, having arms *f′ f′*, pintles f^3, and depending cogged segments F′ F′, sliding pipe H, having ribs *h h*, with teeth or openings *h′ h′*, and rod I, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of September, 1879.

ABRAHAM EDWARDS.

Witnesses:

SAML. J. VAN STAVOREN,

CHAS. F. VAN HORN.