E. W. MEYER.

Service-Box and Valve for Closet-Cisterns.

No. 213,230. Patented Mar. 11, 1879.

Fig. 1.

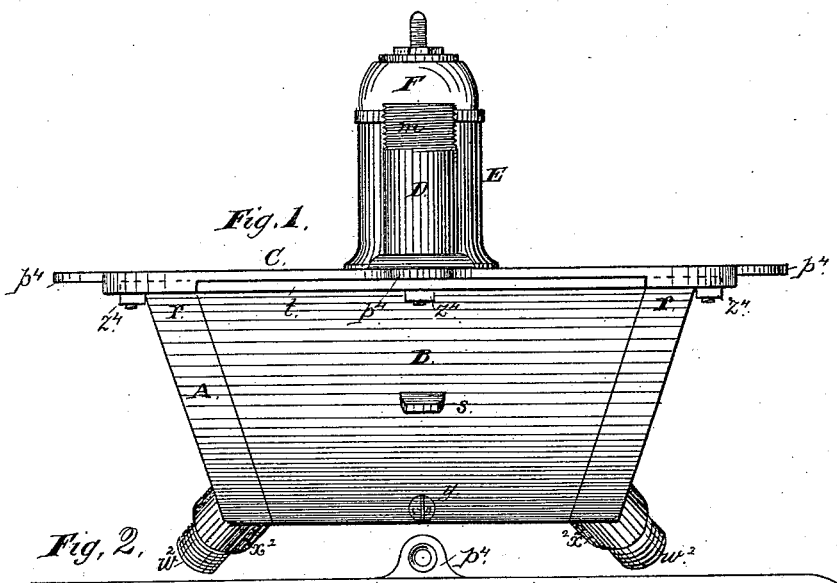


Fig. 2.

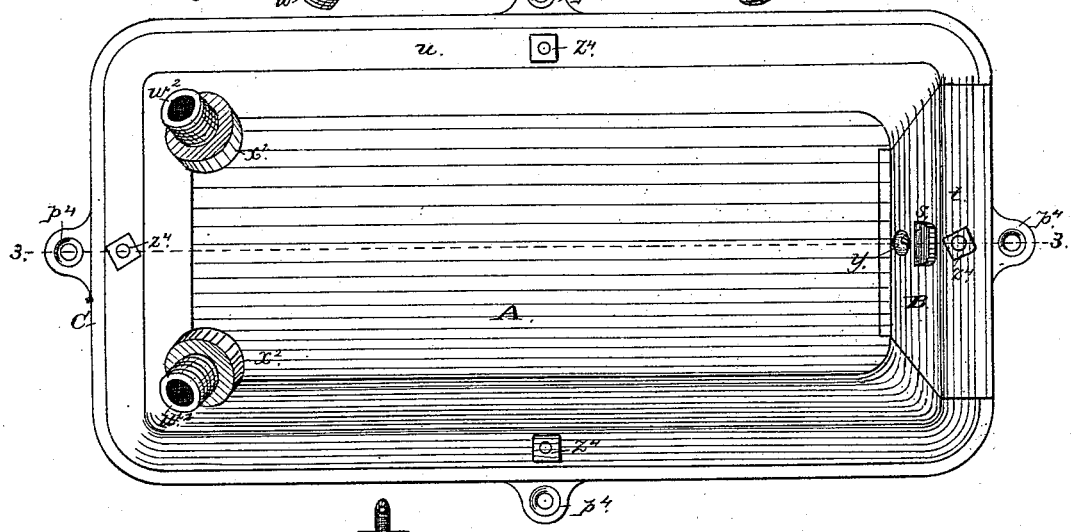
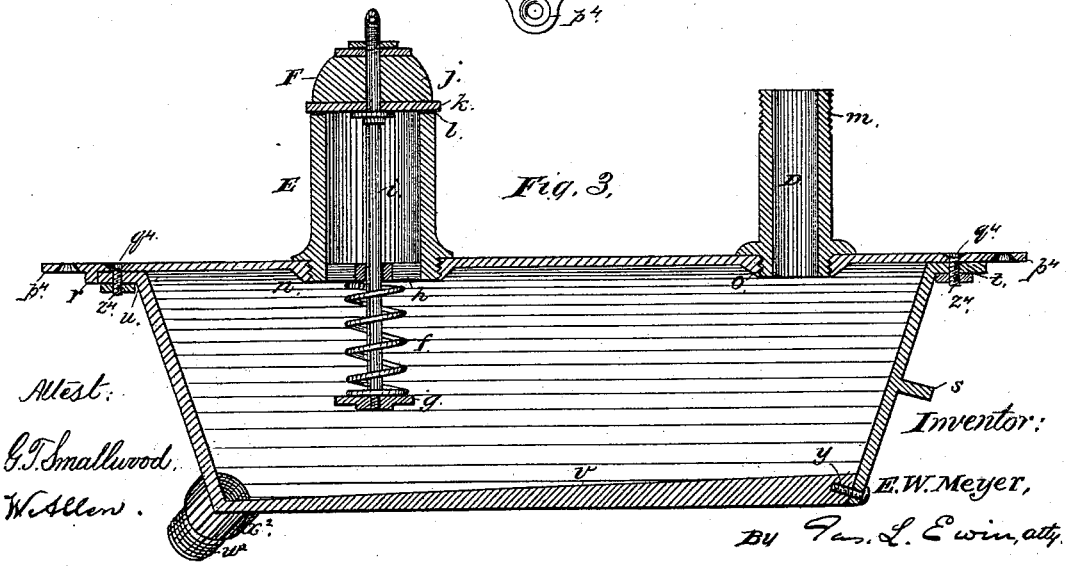


Fig. 3.



Attest:

G. T. Smallwood.

W. Allen.

Inventor:

E. W. Meyer,

By Jas. L. Ewin, atty.

UNITED STATES PATENT OFFICE.

EDWARD W. MEYER, OF NEW YORK, N. Y.

IMPROVEMENT IN SERVICE-BOXES AND VALVES FOR CLOSET-CISTERNS.

Specification forming part of Letters Patent No. **213,230**, dated March 11, 1879; application filed January 31, 1879.

To all whom it may concern:

Be it known that I, EDWARD W. MEYER, of the city and county of New York, and State of New York, have invented certain new and useful Improvements in Service-Boxes and Valves for Closet-Cisterns; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which my said invention appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

In the specification of my Patent No. 201,814, dated March 26, 1878, I describe a certain cast service-box to be used by plumbers for attachment to the bottom of an ordinary lead-lined wooden cistern for flushing the bowl of a pan water-closet and filling the pan, said box having corner spuds by which to attach a discharge-pipe on either side of the closet, and so that said pipe could be readily taken down without breaking any solder-joints, and also a hand-hole covered by a cap-plate or door to provide for readily cleaning out the box.

My present invention consists in an improved service-box constructed and operating on the same principles as said patented box, as regards the features above named, but adapted to be more cheaply manufactured of cast-iron, and to drain itself more perfectly, and to be readily detached for repeated use when a cistern becomes worn out.

This invention consists, secondly, in the combination of a service-box of galvanized iron, and brass connections for an air-pipe, and a valve screwed into the top of said box, said brass connections serving to facilitate making tight solder-joints around the openings in the lead lining of the cistern.

This invention consists, thirdly, in a simple and effective weighted valve, in combination with said valve-connection, the same being protected against injury or displacement by any sudden or too violent jerk of the flushing-knob, as hereinafter more fully described.

Figure 1 of the accompanying drawings is a front view of my said improved service-box and valve. Fig. 2 is a bottom view; and Fig. 3 is a vertical longitudinal section on the line 3 3, Fig. 2.

Like letters of reference indicate corresponding parts in the several figures.

The present service-box is composed of three iron castings, A B C, of simple form, adapted to be readily molded in sand, and united by screw-bolts z^4 and a supplemental screw, y, with packings of putty, rubber, or the like interposed to form water-tight joints.

The casting A is the body of the box, which, separately considered, is open at its front end and at top. This part is constructed with a pair of discharge-necks, x^2, at its lower rear corners, said necks being drilled and tapped and provided with screw-spuds w^2 of brass, which project to receive, respectively, a coupling-sleeve on the discharge-pipe leading to the bowl and a screw-cap by which the unused spuds will be closed. This provides for arranging the pipe to the bowl on either side of the box, and for taking down the discharge-pipe at will by simply breaking the putty-joint between it and the bowl. The angle of the spuds obviates the use of a bent coupling or offset. The screw-spuds, it will be observed, are not cast into this box.

Extending forward from said discharge-necks the bottom of the box is made of increasing thickness, so as to form an incline, v, Fig. 3, which insures the drainage of the box, so as to prevent freezing, and tends to prevent any escape of water through the hand-hole, while the thick end of the bottom accommodates the screw y, by which the lower edge of the door B is secured.

The casting A has a drilled horizontal flange, u, at top to receive the bolts z^4 at the back and sides of the box, and the door B has a similar drilled flange, t, to receive the front bolt. A thumb-lug, s, provides for handling the door B. The lateral edges of the door are seated on internal flanges at the front of the casting A. (See Fig. 3.)

The casting C is a flat top plate having a depending marginal flange, r, to embrace the flange u of the casting A, countersunk perforations q^4 to accommodate the heads of the bolts z^4, and perforated marginal lugs p^4 to receive attaching-screws driven upward into the wooden bottom of the cistern. By providing square depressions at the perforations q^4, and employing bolts with square heads,

the nuts of the bolts z^4 may be made removable from beneath, so that the castings A and B may be taken away for any purpose without disturbing said top plate, C. I propose casting a second flange, like *r*, on the bottom of the top plate to confine the packing on the inside.

A drilled and tapped orifice, *o*, in the top plate, C, near its front end, accommodates a vertical air-pipe connection, D, of brass, which is flanged to provide for packing it above the box like the parts of the latter. A similar orifice, *n*, near the rear end, accommodates a flanged valve-connection, E, also of brass.

The connections D E are made of sufficient length to extend through the thickest cistern-bottom, so as to be soldered to the lead lining of the cistern.

The iron castings A B C are galvanized, to protect them against rust, and any mere projection on the top plate would require the same protection.

In attempting to solder to galvanized iron, the zinc separates from the iron and mingles with the solder, changing the essential proportions of the latter, and rendering it inefficient. With the said connections the solder joints are between brass and lead, and the requisite tight joints, through which water will not sweat, are readily formed.

The connection D terminates in a screw-threaded end, *m*, so as to be extended by a lead or iron pipe to the requisite height, to provide a vent and overflow-passage.

The upper end of the connection E is made to form a seat, *l*, for a valve, F, and may be ground to form a tight joint without packing, if preferred.

The valve F has been constructed with a leather facing, *k*, and a lead weight, *j*, held between a fixed flange and a nut on an axial stem, *i*, the upper end of which is perforated for the attachment of the lifting-wire. The lower end of this stem is extended through a bridge, *h*, at the lower end of the connection E, and is provided, below said bridge, with a stop-nut, *g*, and an interposed spiral spring, *f*. The latter breaks the force of any too violent movements of the valve, and tends to return the valve properly to its seat, thus rendering a light weight sufficient, while the stop-nut precludes any material displacement of the valve. Without any such provision, the common weighted valves now in use are frequently displaced, causing the water to waste through the closet until the damage is repaired.

The top plate may be cast with necks, like x^2, to receive the connections D E, which, in this case, would be similar to the spuds w^2, the bridge *h* to be cast within the larger iron neck.

The connections, of either form, may be made with running screw-threads, so that the box can be connected to cisterns not lined with lead, by using jam-nuts and rubber gaskets.

The external shape of the improved box and like details may be varied without materially affecting its manufacture or operation; and, in inferior modifications, the box may be cast, by the aid of cores, in less than three parts, and provided with only one discharge-neck.

Some of the advantages of an iron service-box over one of lead are as follows: It is difficult to take down a lead box from an old cistern, so that it can be used again, whereas my iron box can be taken down repeatedly without injury, and is designed to be so used. Carpenters, in putting wood-work around the cisterns, often drive nails into lead boxes, and render repairs necessary. This is impossible with iron boxes. Service-boxes made of lead, when used with water containing lime, become corroded, and soon the lime eats through and forms leaks. Galvanized iron is not so affected.

I do not claim herein anything shown or described in my Patent No. 201,814 aforesaid, nor the mere idea of making a service-box of cast-iron or of galvanized iron instead of lead. Neither do I claim the inclined bottom of the improved service-box in itself considered, the same being old in sinks. I also disclaim the said weighted valve and its spring as old, separately considered.

The following is what I claim as new and of my present invention, namely:

1. The three-part cast-iron service-box herein described, consisting of a flat top plate having inlet and vent orifices for attachment to the wooden bottom of an ordinary closet-cistern, a body attached to said top plate and constructed with a hand-hole at its front end, a discharge spud or spuds at its rear end, and a bottom inclined to insure drainage, with a hand-hole cap or door attached to said top plate and body, all substantially as shown, for the purposes set forth.

2. The combination of a galvanized-iron service-box having a flat top plate containing tapped inlet and vent orifices, and adapted to be attached to the wooden bottom of an ordinary closet-cistern, and the brass connections D E, herein specified, the latter being screwed into said orifices, and constructed, respectively, with a coupling-screw, *m*, to receive an air-pipe, and a valve-seat, *l*, to receive a weighted valve, while they together, in connection with solder, are adapted to connect the said galvanized box to the lead lining of the cistern, in the manner herein set forth.

3. The combined service-box and valve for lead-lined wooden closet-cisterns, consisting of the galvanized-iron castings A B C, the brass connections D E, and the weighted valve F, with its stop-nut *g* and spring *f*, all as herein shown and described, for the purpose stated.

EDWARD W. MEYER.

Witnesses:
JOHN F. MEYER,
EDWIN STONE.