W. PAINTER.

Discharge-Gate for Night-Soil Tanks.

No. 160,702. Patented March 9, 1875.

Fig. 1.

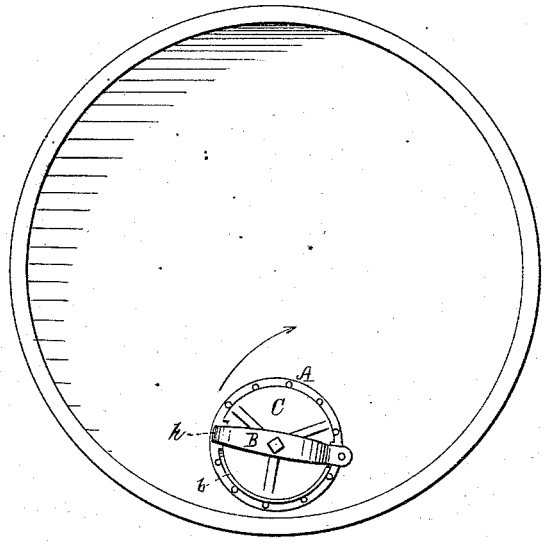


Fig. 2.

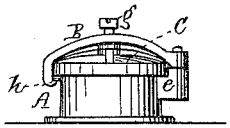


Fig. 3.

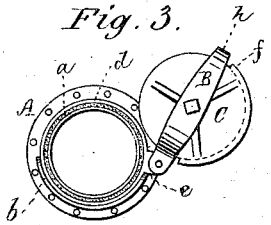
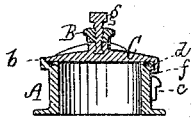


Fig. 4.



Witnesses.
Philip F. Garner
A. B. Cauldwell

Inventor.
William Painter.
By Wm. C. Wood
Attorney.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN DISCHARGE-GATES FOR NIGHT-SOIL TANKS.

Specification forming part of Letters Patent No. **160,702**, dated March 9, 1875; application filed December 22, 1874.

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 a certain new and useful Improvement in Discharge-Gates for Night-Soil Tanks; 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 accurate description thereof.

In discharging matter from night-soil tanks it is essential that the opening be of great capacity, in order that a rapid discharge may be effected, and permit the introduction of hoes or scrapers for removing such solid matters as are liable to remain in the tank after the fluids are discharged.

It will be obvious that it is important during the initial opening movement of the gate that the offensive contents of the tank be under such control as will prevent them from flying in all directions while rushing out of the partially-opened aperture; and also that it is of great importance that the opening be so guarded by the gate as to prevent dripping therefrom during transit.

Clamping devices have been employed in various ways in connection with man-hole plates of steam-boilers, retorts, &c.; but I know of none adapted to convenient usage in this connection.

My invention consists in a novel combination, with the gate collar or flange, of a gate and screw-clamp; and also in certain details connected therewith, hereafter fully described.

Referring to the drawings, Figure 1 represents the head of a tank with my improved gate attached. Fig. 2 represents the same detached in side elevation. Fig. 3 represents the same in front view, with the gate swung away from the opening. Fig. 4 represents the same in sectional view.

The flanged neck A is secured to the head of the tank with screws or bolts, and is so located that the lower side of the opening is on a line with the bottom of the tank. In the front edge of the neck is an annular recess, which contains an elastic packing-ring, as at *a*. The lower outer edge of the neck is provided with a semi-annular projecting lip, as at *b*. A hook, *c*, is provided at the upper side of the neck for engaging with the supporting bail or chain of conducting-chute usually employed in the discharging operation. The neck is also provided at its outer end with an annular flange, as at *d*. On one side of the neck is a hinge-lug, *e*, cast with the neck. The clamp B is pivoted to the hinge-lug, so as to allow it to swing across and from the discharge-opening. The gate C is a circular plate, provided with strengthening-ribs on its outer surface, and a perfectly true inner face for contact with the edge of the neck. For the purpose of completely controlling the outflowing stream during the initial opening movement of the gate, it is mounted, after the manner of a hinge-joint, on a pintle, which is essentially in a line at right angles to the plane of the opening, whereby the gate is capable of being moved downward and upward across the mouth of the neck in closing and opening. It is also provided with a semi-annular flange, *f*, on one side, and it is secured to the clamp B by a central screw, *g*, which is mounted in the center of the clamp, and arranged to revolve independently of the gate. The screw *g* is fitted to a threaded hole in the clamp. The swinging clamp, at its free end, is provided with a hook at *h*, which engages with the rear surface of the flange *d* of the neck. When closed, the hook of the clamp, and the pivot by which the hinged end is secured, afford points of resistance, whereby, when the screw *g* is turned inward, the gate is forced against the packing in the front edge of the neck, and so secures a tight joint.

When the gate of a filled tank is loosened by the partial withdrawal of the screw, there is a tendency for the fluid matter to escape at all points at its periphery, and this discharge is prevented from objectionably flying away from the neck by means of the lip *b* below the plate on the neck, and the inward projecting semi-annular flange *f* on the upper side of the gate. Until the gate has been materially opened the pressure of the matter therein continues, and, therefore, the hook *h* on the clamp is made with sufficient bearing-surface to retain its hold upon the flange *d* during a portion of the opening movement. The strain on the gate is all borne at its center at the point where the pressure-screw op-

erates, and, having slight play thereon, is, therefore, in a measure free to adjust itself to the elastic packing, and uniformly secure a tight joint.

The gate, as described, is readily opened and closed, and, in practice, operates in every way satisfactorily.

I am aware that gas-retorts have been heretofore provided with gates which were hinged on pintles, which occupied lines parallel with the plane of the valve-opening, whereby said gates were capable of being swung outward and away from the opening after the manner of a hinged door, and also that such gates have been provided with screw-clamps for securing them with a gas-tight joint when closed. A gate for night-soil tanks, if mounted on hinges like those last referred to, would possess no practical value, because at the initial opening movement the fluid contents would be discharged in a fan-like jet in all directions, while with my gate a small clearly-defined stream is first permitted to flow, which may gradually be enlarged by farther opening the gate as the pressure of fluid decreases. I am also aware that molasses-gates have been long in use, in which a sliding gate was moved across the opening by means of a lever, and that adjusting-screws have been employed in connection with the lever and gate, to compensate for the wear of the coincident faces of the gate and the discharge-aperture, and I therefore make no claim, broadly, to the gate; but

I claim as new—

The combination, with a flanged neck, of a gate-plate hinged thereto on a pintle, which is in a line at right angles to the plane of the opening at the mouth of the neck, a swinging-hook clamp, and a clamping-screw, substantially as described.

WILLIAM PAINTER.

Witnesses:

JAMES L. MURRILL,

JOHN F. GROUND.