J. L. TURNER.
Waste-Pipe Trap.

No. 197,301. Patented Nov. 20, 1877.

Fig. 1

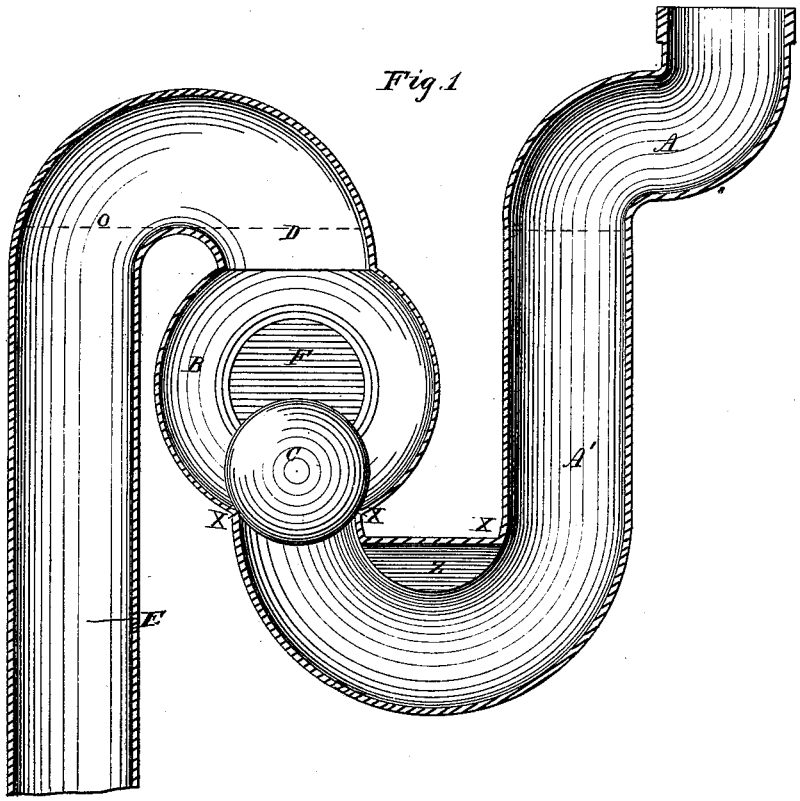


Fig. 3.

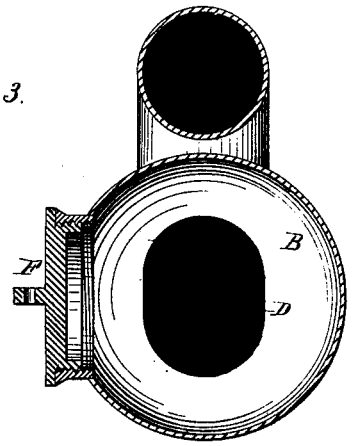
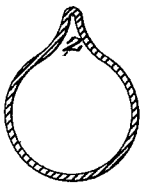


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES L. TURNER, OF NEW YORK, N. Y.

IMPROVEMENT IN WASTE-PIPE TRAPS.

Specification forming part of Letters Patent No. **197,301**, dated November 20, 1877; application filed April 16, 1877.

To all whom it may concern:

Be it known that I, JAMES LAWRENCE TURNER, of New York city, in the county of New York and State of New York, have invented a new and useful Improvement in Waste-Pipe Traps, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to allow the free and easy passage for proper substances to the sewers, and to afford absolute protection against the ascent and diffusion of deleterious gases into the buildings through which the waste-pipes pass.

Figure 1 is a vertical section of the trap, which is divided into two chambers. The upper part of the first chamber A, to connect with the waste-pipe above it, has a bend near the water-line. A′ is the lower portion of the same chamber, with the furrowed curve Z.

Fig. 2 is a perpendicular cross-section of the same and outlet connecting with the second chamber B. This chamber is nearly upright, and lengthened.

Fig. 3 is a horizontal section of chamber B, enlarged or bulbous in form, holding considerably more than chamber A′ below water-line. In the most dependent part of this chamber is a narrow socket, X, in which the sinking ball C rests, dividing the two chambers. The outlet D is a free oblong opening, through which the ball C can neither pass nor close.

F is the hand-hole for removing the ball C or exploring the two chambers. E is the connecting part of the trap, with waste-pipe communicating with the street-sewer.

The improvements herein offered are substantial and the advantages great:

First, the bend in chamber A serves as a point of resistance against the direct force of a rapidly-descending volume of solids and fluids into the trap from a long upright pipe.

Second, this trap cannot be siphoned, as all the ordinary **S** form of traps allow, as about one-half of the contents fall back, forming a water-seal beside the ball C, which resumes its place upon socket X.

The ball C is of hollow metal, only heavy enough to sink into its place when the contents of the trap are still. Any quantity of water or other substances of greater volume and weight than the ball itself submerged, added to the contents of chamber A′, will cause it to move upward, allowing the excess to pass outlet D. Thus the quantities of the two chambers nearly equalize. Substantially, the ball C, offers no obstruction to the downward and outward flow of fluids. The object of the ball C, in its position in chamber B, is to prevent strong currents of gas from the street-sewer forcing its way through the trap and pipes into buildings, as pressure from the sewer upon water-line O at D only holds the ball C firmer in its seat X, thereby rendering it impossible for any gas, by diffusion through the water, (as is well known occurs,) to get into chamber A′ or the pipes above. Also, in event of loss of the water-seal by evaporation of the fluid contents of the trap, by disuse of it a short time, the ball resting in its seat effectively closes the communication of the two chambers at that point, thereby affording protection against inefficiency from that cause. No accretions upon the sides of chamber B or the ball can take place, as the attrition of the water and ball upon the sides of the chamber will keep them free, and there is no place for sediment to accumulate.

Thirdly, the short arm of curve Z is furrowed, thus allowing currents a less obstructive turn, and a quicker escape of air from chamber A′ after siphoning has commenced, thereby aiding in breaking its continuity.

Fourthly, the length and diameter of chamber B is considerably greater than this portion of the ordinary **S** form between the curves, and roomy enough for the free movement of the ball and passage of substances going through, and by its shape is instrumental in preventing the siphoning of the trap.

I claim as my invention—

The combination, in waste-pipe traps, substantially as described, of the bend in chamber A, the furrowed curve Z, the elongated and enlarged or bulbous-shaped chamber B, and the sinking ball C, as herein applied, for the purposes specified.

JAMES LAWRENCE TURNER.

Witnesses:

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