

W. A. SHAW & C. C. TRACY.

Water-Traps.

No. 139,739.

Patented June 10, 1873.

Fig. 1.

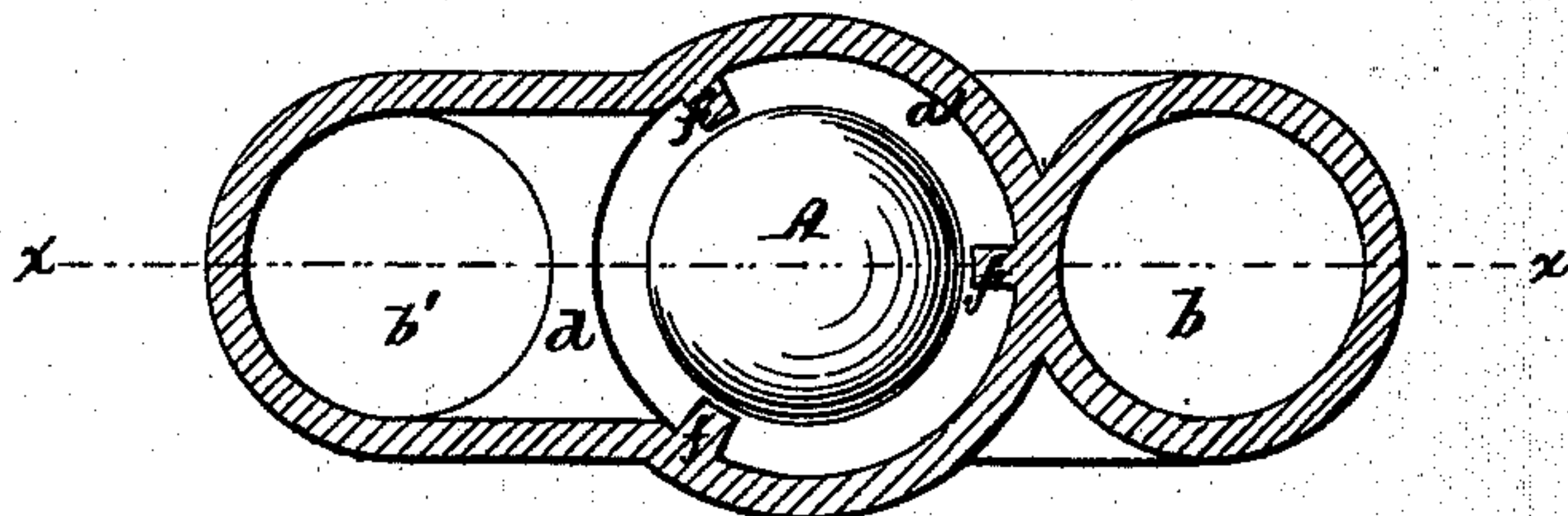


Fig. 2.

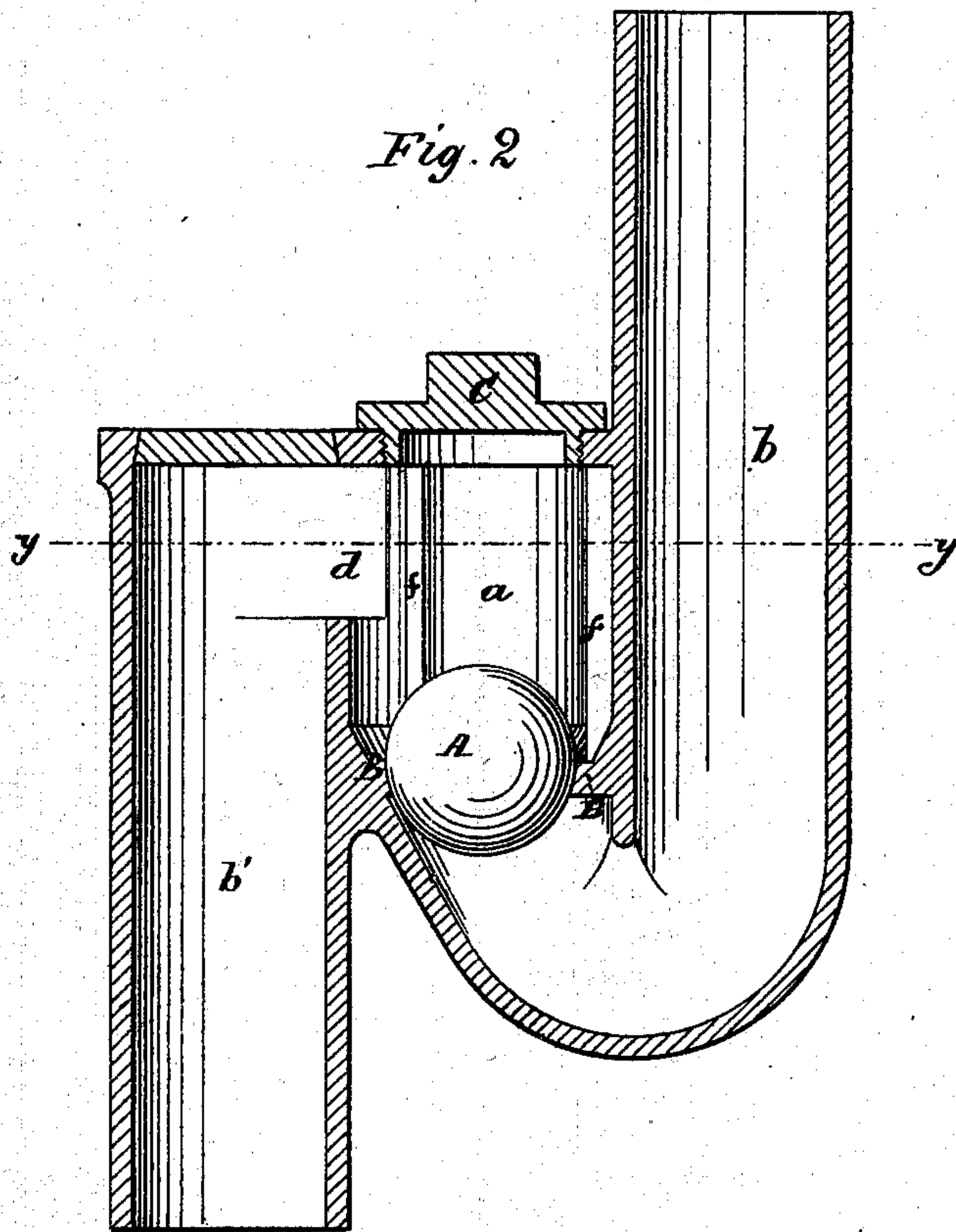
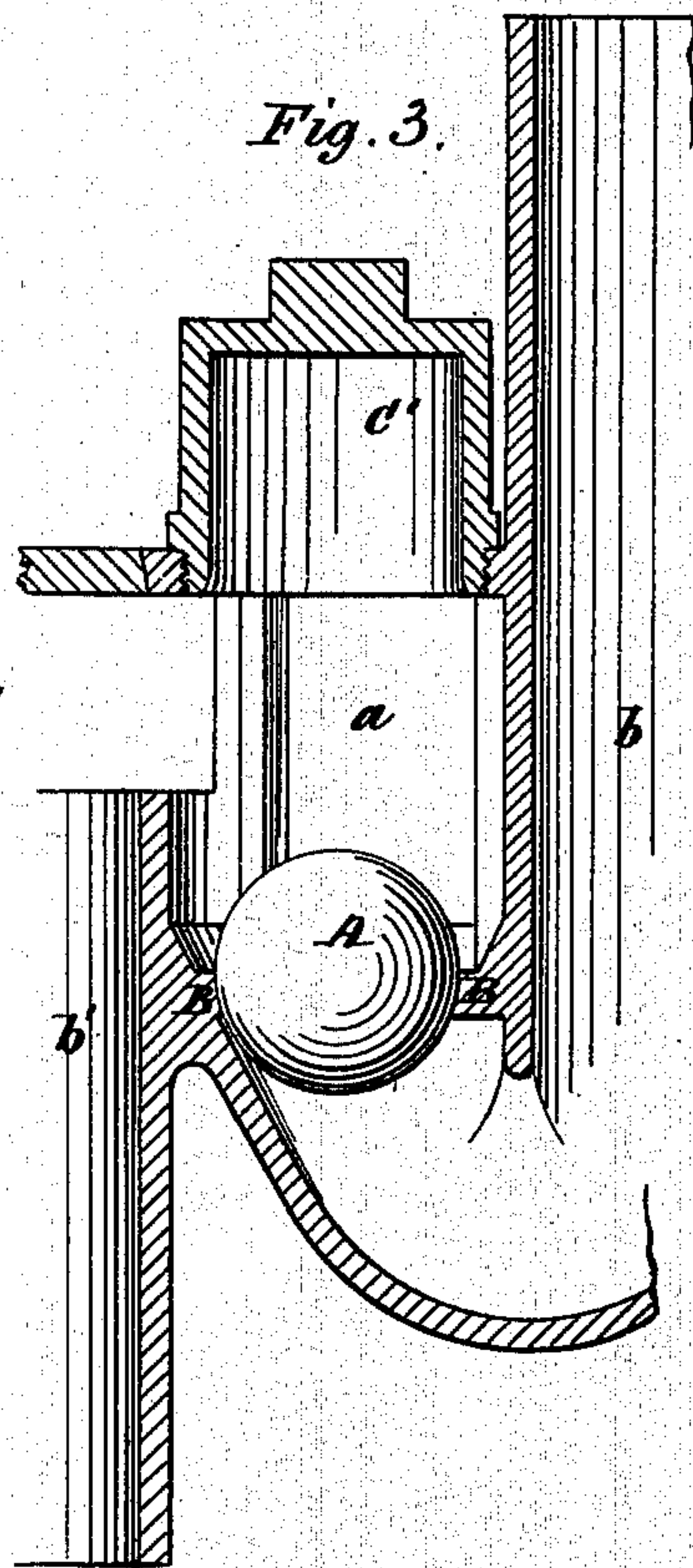


Fig. 3.



Witnesses

John D. Querey  
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Inventors

William A. Shaw &  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. SHAW AND CHRISTOPHER C. TRACY, OF NEW YORK, N. Y., AS-  
SIGNORS TO THEMSELVES AND CHARLES F. HERVÉ, OF SAME PLACE.

## IMPROVEMENT IN WASTE-TRAPS.

Specification forming part of Letters Patent No. **139,739**, dated June 10, 1873; application filed  
May 8, 1873.

*To all whom it may concern:*

Be it known that we, WILLIAM A. SHAW and CHRISTOPHER C. TRACY, both of the city, county, and State of New York, have invented certain new and useful Improvements in Plumbers' Waste-Traps, of which the following is a specification:

This invention relates to plumbers' waste-traps provided with self-acting valves to prevent the escape through the traps of gases or poisonous exhalations from sewers, &c.

It frequently happens that by evaporation or a siphon action the waste-traps are frequently emptied of the water intended to seal them, thus leaving a free passage for the gases from the sewer. There is also at times sufficient back-pressure of gas or foul air from the sewer to force the said gas or air back through the traps. This has been remedied before our invention by means of self-acting valves, arranged to close the traps when the back-pressure becomes excessive or the water-seal happens to be evaporated or siphoned away.

Our invention has reference principally to the construction of the bend of the trap to fit it to receive a floating-ball valve and a seat in such manner that, while said valve will be guided accurately in its movements, and held at all times in proper place vertically over its seat, it will also be so arranged as to afford free and unobstructed passage for the waste-water, and without any liability of the ball-valve becoming jammed in or filling the neck of the bend through which the waste-water passes to the lower branch of the trap.

We also make the bend of the trap perpendicular, by which it can be brought close to the branches, this formation being valuable, not only because it insures the successful action of the ball-valve and economizes space, but also because it requires less weight of metal for a trap for a given size than would be required under the old forms.

The nature of our invention, and the manner in which the same is or may be carried into effect, will be understood by reference to the accompanying drawing, in which—

Figure 1 is a horizontal section of our improved trap on the line *x x* Fig. 2. Fig. 2 is a vertical section of the same on the line *y y*

Fig. 1. Fig. 3 is a vertical section of a modification of the trap, the modification being in the formation of the upper part of the bend or in the screw-plug which covers the same. The trap shown in the drawing is the same in principle as the **S** trap, *a* being the bend and *b b'* the upper and lower branches. In the bend is placed a ball-valve, **A**, which is of such weight that it will readily be lifted by the flow of water or sewage, and fall back in its seat when the water or sewage has passed through. The valve may be made of vulcanized rubber combined with plumbago and other suitable materials to give the proper weight, and to enable it to resist the action of hot water, &c.; or it may be of glass, wood, metal, or other suitable materials, hollow or otherwise. Below the valve, and in the lower part of the bend, is located the valve-seat **B**, which is cast with, or otherwise suitably formed and attached to, the trap. A screw-plug is preferably provided at the top of the bend to enable the same to be opened for the purpose of cleaning the trap if desired. The ball-valve is considerably less in diameter than the bend *a*, as shown in Fig. 1, and is steadied and guided and prevented from closing or becoming jammed in the neck of the bend at *d* by means of vertical ribs or guides *f*, three or more in number, formed on the interior of the bend, and extending from the valve-seat to the top of the bend, or, at any rate, far enough in both directions to hold the valve perfectly secure in any position it may assume. These ribs are radial from the axis of the bend, and their inner faces are equidistant from said axis, lying in a circle of which the axis is the center, and of a diameter slightly greater than the diameter of the ball-valve, so that the latter may move up and down between these guides freely and without danger of being cramped. The arrangement of the guides and the valve is shown clearly in the drawings, and it will be seen that while the valve has perfect freedom of movement vertically, it allows the water to pass all around it, affords unobstructed passage for the water through the trap, and is so held as to be prevented from moving laterally into or toward the neck *d* of the bend. It may



be found desirable to allow the ball to float entirely above the opening *d*, and to this end the top of the bend or the hollow screw-plug closing the same may be extended some distance above the opening *d*, as shown at *C'*, Fig. 3, in which event a valve-receptacle will be formed into which the ball, when occasion requires it, will float entirely above and out of the path of the opening *d*. The ball-valve, guides, and seat can be combined with ordinary **S** or half-**S**, **N**, or running traps. But we much prefer, for the reasons stated in the opening portion of this specification, to construct the bend perpendicular, making its wall, for a portion of its contour, in one piece with the walls of the upper and lower branches, as shown in Figs. 1 and 2. The advantages of this construction have been above stated and need not be here repeated. The traps may be made by any ordinary or suitable process, either cast in one piece or made in sec-

tions, united by either burning or soldering, or constructed by any other well-known means and of suitable material.

What we claim, and desire to secure by Letters Patent, is—

A plumbers' waste-trap, provided, in the bend between the two branches, with a ball-valve held and guided between vertical ribs formed on the interior surface of the bend between the valve seat and the top of the bend, said parts being constructed and arranged for operation substantially as and for the purposes herein shown and set forth.

In testimony whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WM. A. SHAW.

CHRISTOPHER C. TRACY.

Witnesses:

WILLIAM F. T. CHAPMAN,  
JOHN S. WALKER.