(No Model.)

Z. LATSHAW.

WATER SEAL AND VALVE TRAP.

No. 602,685. Patented Apr. 19, 1898.

Fig. 6.

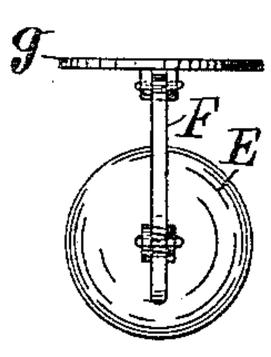


Fig. 1.

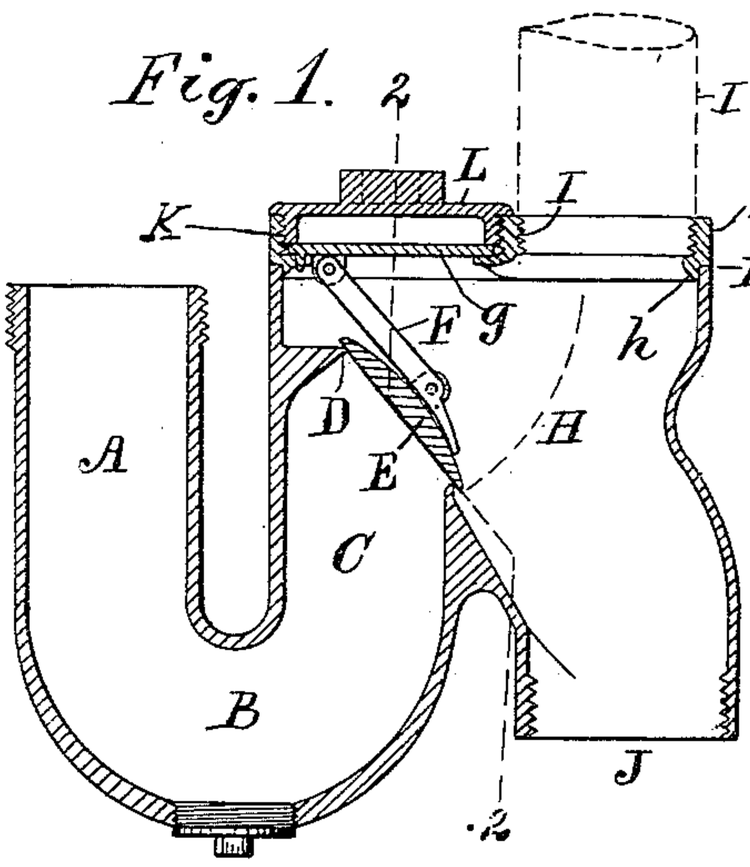


Fig. 2.

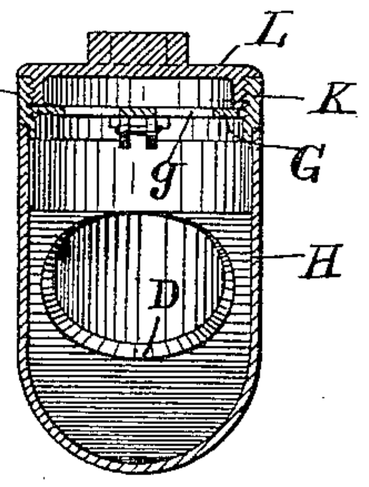


Fig. 7.

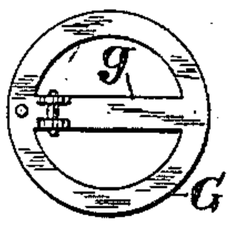


Fig. 3.

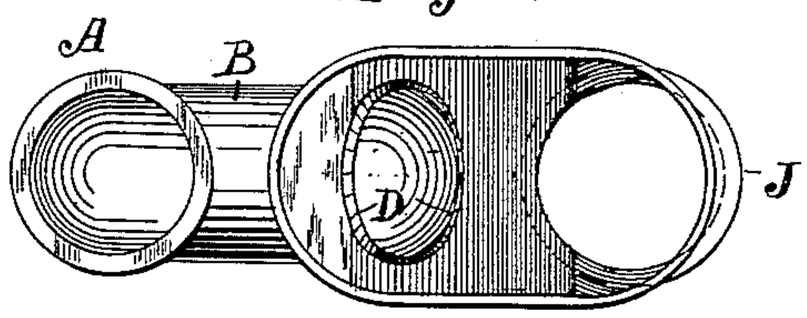


Fig. 4.

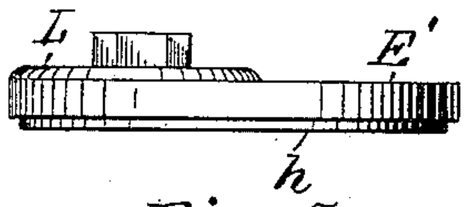


Fig. 5.

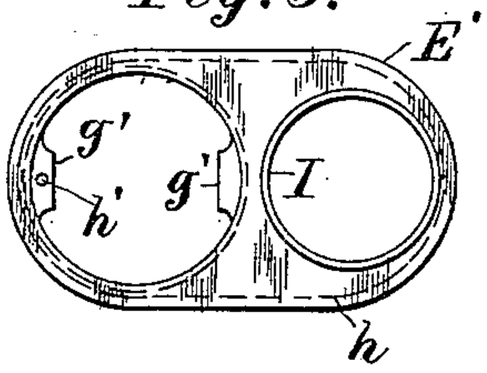


Fig. 8.

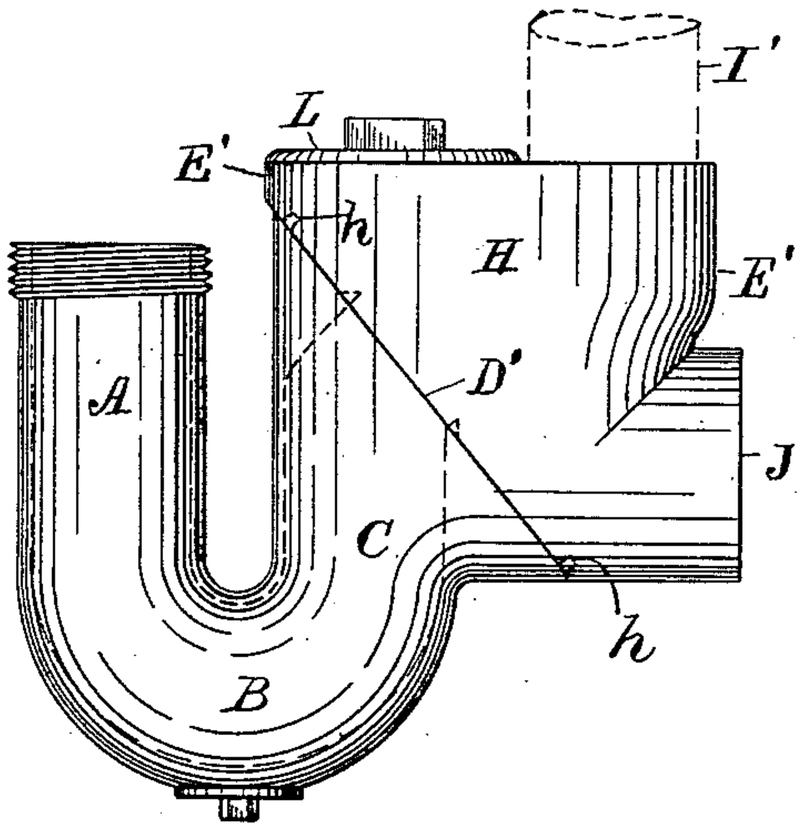
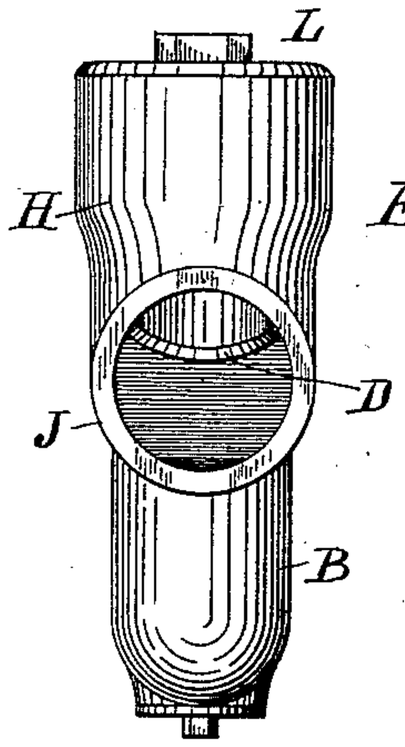


Fig. 9.



Attest:
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Edw. F. Kinsley.

Inventor.
Zachariah Latshaw.
per Thomas S. Crane, Atty.

UNITED STATES PATENT OFFICE.

ZACHARIAH LATSHAW, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES R. HIGGINS, OF SAME PLACE.

WATER SEAL AND VALVE-TRAP.

SPECIFICATION forming part of Letters Patent No. 602,685, dated April 19, 1898.

Application filed November 19, 1897. Serial No. 659,093. (No model.)

To all whom it may concern:

Be it known that I, ZACHARIAH LATSHAW, a citizen of the United States, residing at New York, county of New York, State of New York, have invented certain new and useful Improvements in Water Seals and Valve-Traps, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The present invention comprises a trap having the usual bottom elbow to form a water seal and provided upon its outlet branch with an inclined valve-seat having a valve fitted thereon to prevent the backflow and evaporation of the water in the trap.

In the present invention I provide a special construction for hinging the valve upon its seat and also for exposing the seat to the operation of finishing-tools in the process of manufacture.

To accomplish the latter object, I form a chamber adjacent to the valve-seat, with a cover having a detachable cap to insert and remove the valve or to clean out the passage when required. The chamber is made of suitable size to give free access to the valve-seat for the tools used in turning or facing off the same, and when the valve-seat is completed such cover is permanently secured upon the chamber by sweating thereon with solder. The chamber may be made in the same casting with the elbow of the trap and open entirely upon the top, where a flat cover would be secured, or the joint for the chamber may be made on a line with the valve-seat and the chamber formed in the same piece with the cover. In either case the cover is provided with a removable cap and with a support (which is held in place by the cap) for the link which sustains the valve.

In the annexed drawings, Figure 1 is a longitudinal section of the trap with chamber cast upon the elbow. Fig. 2 is a transverse section on line 2 2 in Fig. 1, showing the suspension-link, but omitting the valve. Fig. 3 is a plan of the trap with the cover removed. Fig. 4 is an edge view, and Fig. 5 a plan, of the cover for such trap; and Fig. 6 is an elevation of the valve and its support removed from the trap. Fig. 7 shows the under side of the support for the valve. Fig. 8 is a side view of a trap having a joint parallel with the valve-seat and the valve-chamber cast upon the cover. Fig. 9 is an end elevation of the same.

In Fig. 1 the connection for the waste-pipe is shown turned downwardly, and in Fig. 9 extended from the side of the valve-chamber.

In Figs. 1 to 5, A designates the inlet branch, B the elbow, and C the outlet branch, of the trap.

D designates the valve-seat, which is shown formed with a circular knife-edge adapted to make a close joint with a flap-valve E.

H designates the valve-chamber upon the outer side of the seat, from which the vent-pipe socket I and waste-pipe connection J are extended. The chamber is shown with a flat joint H′ at the top a little above the upper edge of the valve-seat, and the cover E′ (shown in Figs. 4 and 5) is made flat to rest upon such joint and provided with a downwardly-projecting rib *h* to fit within the margin of the joint.

A threaded socket K is shown in the cover over the valve-seat to receive the cap L, and a valve-support is secured in the bottom of the socket by the cap. Such valve-support, as shown in Fig. 7, is formed of a ring G, having a bridge or cross-bar *g*, provided with lugs, to which a link F is pivoted. The valve is also jointed to the link, and the lower end of the link is extended beyond the joint over the back of the valve, which holds the valve nearly parallel with the seat, while it leaves the valve free to adjust itself thereon.

The valve is preferably made of type-metal, and the joint of the link upon the cross-bar *g* is arranged at the upper side of the valve-seat center, so that the weight of the valve tends to press it upon the seat, while the softness of the material enables the knife-edge of the seat to make a close joint therewith.

The cover is provided with a vent-pipe socket I, the vent-pipe being indicated merely by the dotted lines I′.

The trap is shown without the cover in Fig. 3 to illustrate the complete exposure of the valve-seat for finishing with suitable rotary tools to produce the circular knife-edge, while Fig. 1 shows the cover secured upon the top of the chamber, with the cap and bridge G in suitable relation to the valve.

The downwardly-projecting rib *h* performs

a double function in the present invention, as it not only serves to center the cover, but it furnishes an angular joint and an additional area of contact, (between the cover and the body of the trap at the top of the chamber,) in which the solder can be sweated when securing the cover upon such body.

It will be noticed by reference to the letter H′ near the top of the body in Fig. 1 that the angular joint is formed by the horizontal surface upon the top of the body and the vertical surface where the rib projects inside the body. This angular space extends around the entire lower edge of the cover and upper edge of the body and is especially favorable to form a strong connection by means of soft solder between the cover and the body, as any strains which would tend to break the solder in one direction would produce very little effect in the other direction. The angular joint also retains the solder during the sweating process much more perfectly than a joint which lies all in one plane.

With the trap shown in Fig. 8 the joint of the cover with the trap is made upon the line D′ parallel with the valve-seat D, the chamber H being formed in such cover, and the socket K for the cap being integral with the cover. The vent-pipe socket I and waste-pipe connection J are also formed integral with the cover in this construction. The angular joint is secured in this construction by the same means as with that shown in Fig. 1, the rib *h* being projected from the body of the trap on the plane of the valve-seat, and the cover H (which in this case contains the chamber H) being constructed to fit around such rib and thus form the sweat-joint therewith. It will be clearly observed in Figs. 2 and 3 that the chamber H is of greater width than the outlet branch C or the bore of the valve-seat to let the valve swing freely in such chamber, and as the cap in the cover is made large enough to withdraw the valve after the cover is sweated upon the body of the trap it is obvious that the sweat-joint is wider than the said branch. The joint-flange *h* may be said in either construction to surround the valve-seat, as it does so, obviously, in the construction shown in Fig. 8, while it does so at a higher plane with the construction shown in Fig. 1 and appears distinctly extended around the seat in Fig. 3, which is a plan of the parts shown in Fig. 1. The bridge *g* to which the link F is pivoted may obviously be secured in the cover by any suitable means, but must be detachable, so as to insert the valve after the cover is secured by sweating. The bridge may be made without the ring G; but such ring is preferable as the cap is fitted to a circular opening, and the ring may be readily fitted to such opening and supported by lugs *g′*. (Shown in Fig. 5.) A pinhole *h′* is shown in one of the lugs, and a corresponding pin is shown upon the ring in Figs. 1 and 7 to hold the bridge-lugs in the proper relation to the link of the valve.

The removable cover offers a special advantage in a trap having an inclined seat upon the outlet branch for conveniently finishing up the seat by means of finishing-tools, and having shown in Figs. 1 and 8 two different forms for such cover I do not limit myself to the precise construction shown herein.

Having thus set forth the nature of the invention, what is claimed herein is—

1. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined valve-seat upon the outlet branch, a joint-flange surrounding such seat, a cover secured permanently upon such joint and provided with the threaded socket K and cap L, as set forth, a bridge secured within the socket by the cap, and a valve fitted to the seat and jointed to the bridge by link F, as and for the purpose set forth.

2. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined valve-seat upon the outlet branch, a cover secured over the valve-seat and containing the vent-pipe socket and a socket for a removable cap over the valve-seat, and a valve fitted to the seat with link having support held in place by such cap.

3. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined valve-seat upon the outlet branch, a joint-flange surrounding such seat, a cover secured upon such joint and containing the vent-pipe socket and a socket for a removable cap over the valve-seat, and a valve fitted to the seat with link to support it movably, substantially as herein set forth.

4. In a water seal and valve-trap, the combination, with the trap-elbow, of an inclined seat upon the outlet branch with the same diameter as the trap-passage, a chamber of greater diameter outside of said seat, with a valve fitted to said seat and movable within the chamber, and a cover secured over the valve-seat and containing the vent-pipe socket and a socket for a removable cap above the seat, such cap-socket being adapted to insert and remove the valve, substantially as herein set forth.

5. In a water seal and valve-trap, the combination, with the trap-elbow, of an outlet branch provided with an inclined valve-seat, a cover secured over the valve-seat and containing a socket with a removable cap above the valve-seat, the ring G secured within such socket and provided with the bridge or cross-bar *g* having suitable lugs, and a valve fitted to the seat with link pivoted to such lugs, substantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ZACHARIAH LATSHAW.

Witnesses:
W. H. VAN STEINBERGH,
JACOB MARX.