2 Sheets—Sheet 1.

J. H. MACKIE.

SINK AND SEWER TRAP.

No. 188,652. Patented March 20, 1877.

Fig. 1.

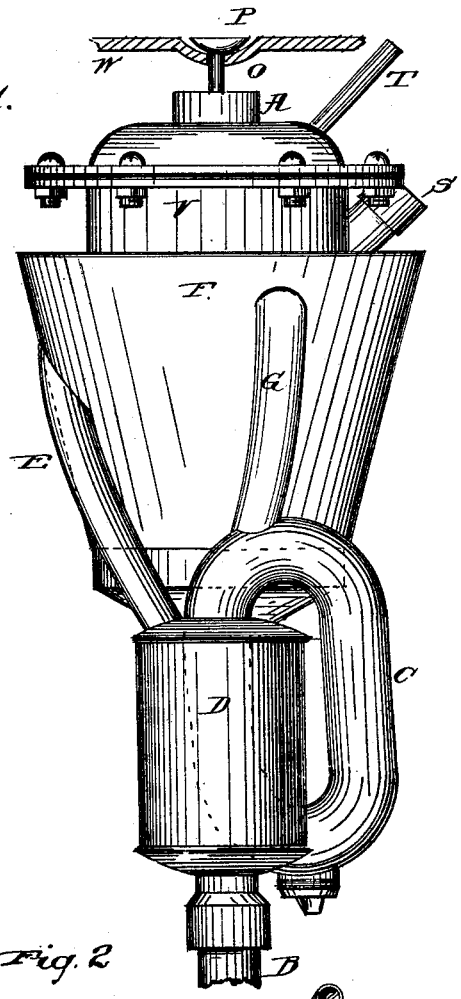
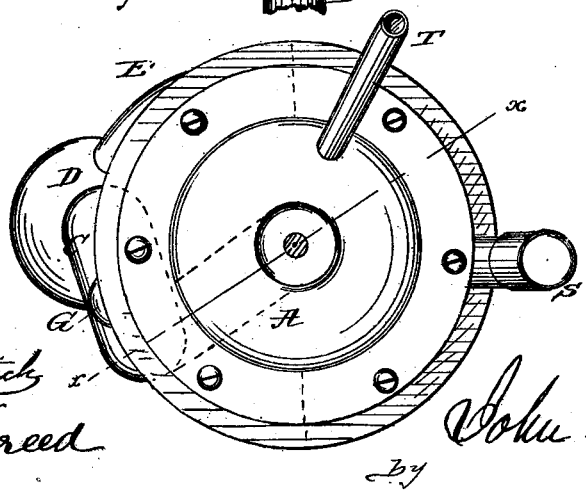


Fig. 2



Witnesses
Daniel Breed

Inventor.
John H. Mackie
by
atty

2 Sheets—Sheet 2.

J. H. MACKIE.

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Fig. 3.

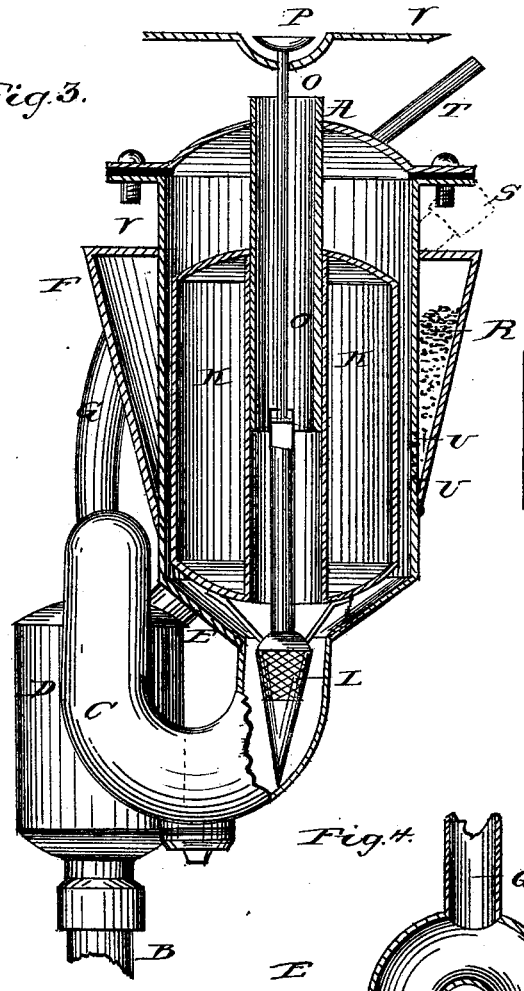


Fig. 5

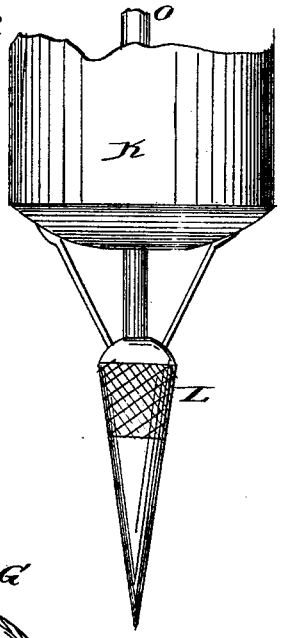
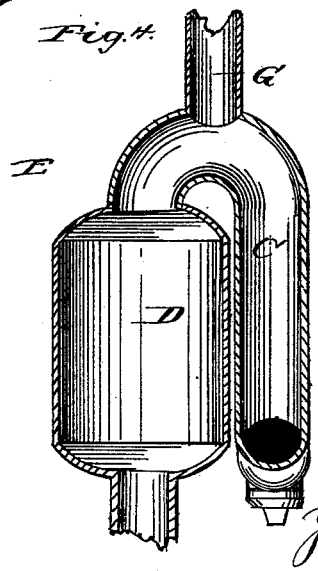


Fig. 4.



Witnesses
Fred'k. Dieterich
Augustus Watson.

Inventor
John H. Mackie
By Daniel Breed
atty.

UNITED STATES PATENT OFFICE.

JOHN H. MACKIE, OF OAKLAND, CALIFORNIA.

IMPROVEMENT IN SINK AND SEWER TRAPS.

Specification forming part of Letters Patent No. **188,652**, dated March 20, 1877; application filed March 16, 1877.

To all whom it may concern:

Be it known that I, JOHN H. MACKIE, of Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Sink and Sewer Traps; 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 it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

It is well known that the ordinary siphon-traps for sinks, sewers, wash-basins, baths of houses, and other purposes are liable frequently to siphon out, and thus allow offensive gases to rise through the trap; and the S or hand traps, which are placed lower down, and sometimes immediately under the basement of houses, are likely to act as barriers to the outflow of gases into the sewer, and, what is worse, soon become partly filled with putrefying matter, and thus form small cess-pools, which generate offensive gases to rise through the upper siphon into the house.

The dangerous practice of ventilating sewers has been sometimes recommended; but, after many experiments, I have completed the following invention, the object of which is to remedy all of the difficulties mentioned by driving the gases down into the sewer to escape at the mouth thereof. My improvements have been practically and successfully tested in California.

My invention relates to sink-traps or sewer-traps; and consists, chiefly, in placing an air-chamber above the arch of a siphon-trap, and connecting the air-chamber and arch by means of a tube, and also in placing another air-chamber below the arch or crown of the siphon, and connecting the same with the discharge-leg or sewer-leg of the siphon, and also with the upper air-chamber; and, further, in the combination of a cylinder or chamber, and a disinfecting-chamber, buoy, and cork, with the induction-pipe of the trap, all of which will be fully understood by the accompanying description.

In the accompanying drawings, Figure 1 is a front view of my sink and sewer trap. Fig. 2 is a top view of the same. Figs. 3, 4, and 5 are partial or detached views.

In Fig. 1, A represents the induction-pipe, which may be connected with the sink in the usual manner, and B represents the discharge-pipe passing to the sewer, which, in my plan, is not provided with the usual lower trap, but has a free circulation of air from the trap to the mouth thereof. The pipe C, Fig. 1, represents the common siphon-pipe provided with a screw-tap for the purpose of cleaning, if necessary.

Above the crown of the siphon C is an air-chamber, F, connected with the siphon by air-tube G; and below said crown is another air-chamber, D, connected with the air-chamber F by means of the air-pipe E, and also connected with the discharge-pipe B. By means of this arrangement there is a free circulation of air between the two air-chambers, and also through the crown of the siphon C; and it is therefore impossible to drive all of the air or gas from my trap, or to so fill the tube B with water as to get siphon action, and thus empty the pipe C at its lower curve, in connection with atmospheric pressure just below the sink, as is often the case with some other traps. If air or gas rises from the sewer in pipe B, the air-chamber D gives room for the bubbles to burst or escape from the water, which passes on toward the sewer, while the air rises into chamber F; and as soon as water flows over the arch of siphon C, bubbles of air or gas will be caught and carried down into chamber D, from which they may rise again through pipe E, or be carried off through pipe B, and so pass into the sewer, which has no obstruction, as already mentioned.

In connection with these air-chambers F and D, I employ a central cylindrical water-chamber, V, having a central tube, A, and containing a buoy, K, which is rigidly connected to a cork, L. When water flows into the central chamber V the buoy lifts the cork, and when the water ceases to flow the cork closes the tube C, while some water yet remains in chamber V to prevent the buoy from sinking too low, and thus also to prevent the cork from being forced too tightly home by atmospheric pressure. The water from the sink passes down the tube A,

through the center of the buoy K, thus lifting the cork L as long as the water flows, but closing the same when the flow of water ceases or is turned off. When the cork L closes about two inches of water covers the same, and I employ about sixteen inches of water below this cork, thus giving a column of eighteen inches of water to prevent the upflow of gases or air.

The wire O is intended to lift the buoy and cork in case they get foul and require cleaning, and the button P at the top of this wire is fitted to the strainer in the sink W, Fig. 3.

On one side of the cylindrical chamber V is a semicircular chamber, F, already described, and on the other side is another semicircular chamber, R, communicating with the chamber V by means of perforations U, Fig. 3. This chamber R is to be filled through tube S (dotted lines) with some suitable disinfectant, as copperas, carbolic crystals, in time of epidemic, or with common salt in winter, to prevent freezing. When the buoy floats the water rises and passes through perforations U, and thus dissolves a supply of disinfectant or salt, one filling of which will last two or three weeks.

My improvements are applicable to sinks, wash-basins, bath-tubs, sewer catch-basins at street-corners, and other similar purposes. My trap completely breaks siphonage, thus making it impossible for the trap to siphon out, and also preventing the necessity of ventilating sewers. Without the air-chambers the cork L would be drawn in so tight that the buoy would not float again, and without the buoy and cork or stopper the trap would siphon out.

I do not limit myself to the above-described form and arrangement of parts, but may vary these to adapt my trap to different places and purposes, so long as the same objects are accomplished; and in this application I do not, broadly, claim the receptacle or cylinder V for the waste-water, in combination with the float and cork or plug suspended therefrom and acting automatically therewith, as I have made a separate application for a patent for these devices, dated February 24, 1877.

Having described my invention, I claim—

1. A siphon-trap having an air-chamber above or communicating with the arch of the siphon, for the purpose of preventing the discharge branch of the siphon from completely filling with water, substantially as set forth.

2. In a siphon-trap, an air-chamber connected with the discharge branch of the trap, to allow the bubbles of air or gas to burst, and thus escape from the outflowing water, substantially in the manner and for the purposes set forth.

3. The central cylinder, provided with the disinfecting-chamber R, in combination with the buoy K, having the cork L rigidly attached thereto, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN H. MACKIE.

Witnesses:
THOMAS C. CONNOLLY,
DANIEL BREED.