2 Sheets—Sheet 1.

# J. H. KEYSER.

## WATER-CLOSET.

No. 182,677. Patented Sept. 26, 1876.

Fig 1.

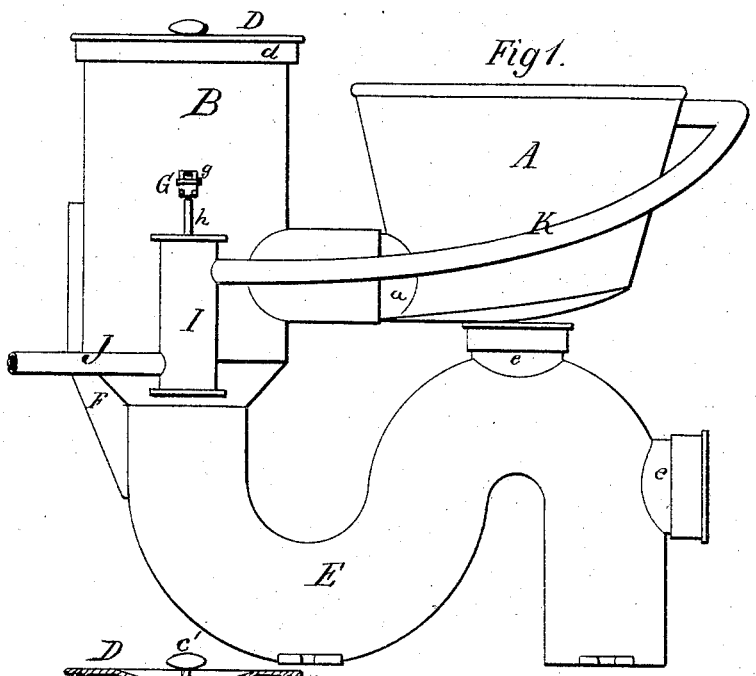
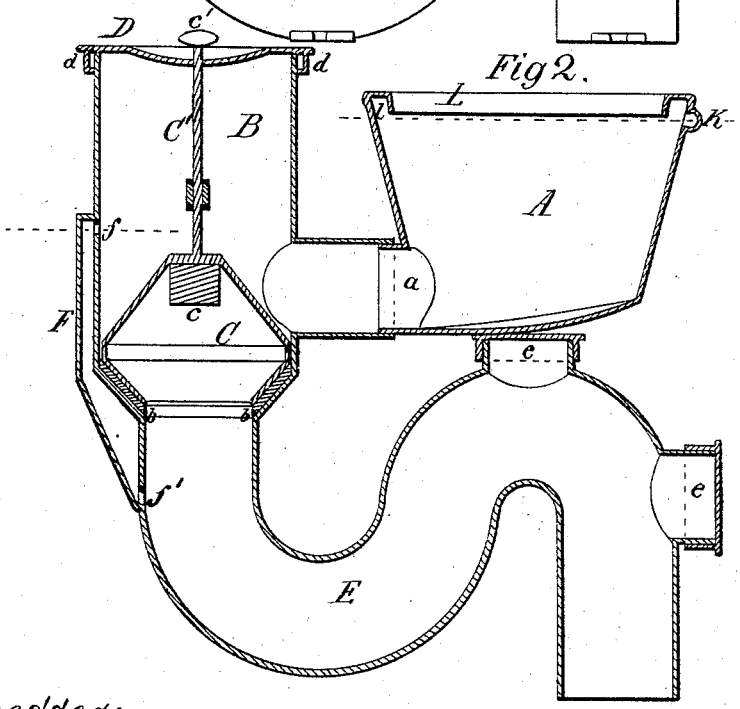



Fig 2.




Witnesses:
J. P. Theodor Lang
J. S. Slater

Inventor
John H. Keyser
by
Mason Fenwick & Lawrence

2 Sheets—Sheet 2.

# J. H. KEYSER.

## WATER-CLOSET.

No. 182,677. Patented Sept. 26, 1876.

*Fig 3.*

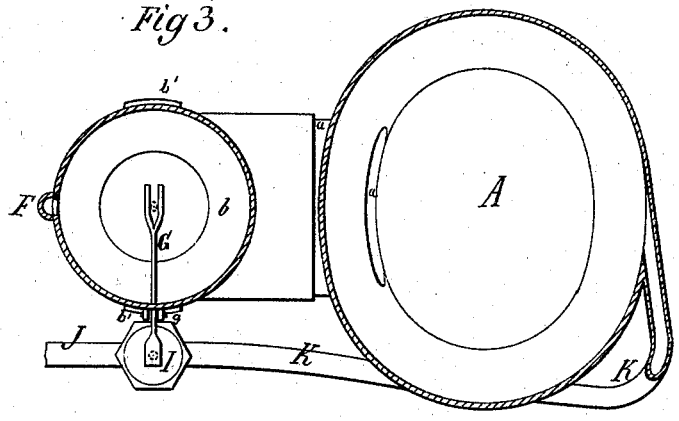



*Fig 4.*

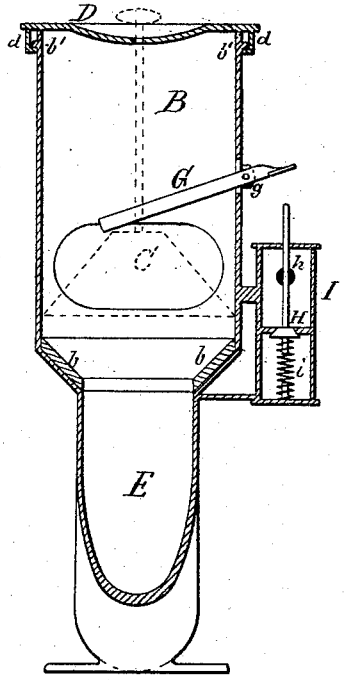



*Fig 5.*

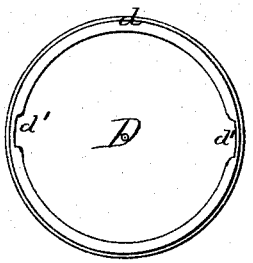
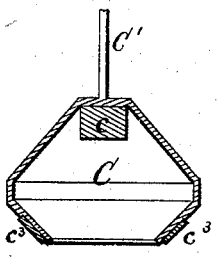



*Fig 6.*




*Witnesses:*

J. P. Theodore Lang

J. S. Slater

*Inventor.*

John H. Keyser

by

Mason Fenwick & Lawrence

# UNITED STATES PATENT OFFICE.

JOHN H. KEYSER, OF NEW YORK, N. Y.

## IMPROVEMENT IN WATER-CLOSETS.

Specification forming part of Letters Patent No. **182,677**, dated September 26, 1876; application filed February 5, 1876.

*To all whom it may concern:*

Be it known that I, JOHN H. KEYSER, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Water-Closets, which improvement is set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved water-closet. Fig. 2 is a longitudinal vertical section of the same. Figure 3 is a horizontal section with the trap-valve removed. Fig. 4 is a transverse vertical section of the cylinder connected with the trap. Fig. 5 is an inverted view of the flanged cap of the cylinder of the trap. Fig. 6 is a modification of the plunger-valve.

The nature of my invention consists, first, in a water-closet, having an imperforated tightly-fitting foul-air plunger-valve and a siphon-trap combined. It consists, second, in the combination of a pan, an upright cylinder, a foul-air trap, a water-supply valve, an overflow-passage, and an imperforated and tightly-fitting foul-air valve, said overflow-passage having its outlet above the plunger-valve, which fits upon the seat of the upright cylinder and the foul-air trap, and leading below the valve into the foul-air trap. By this combination the foul air is shut off completely from the cylinder and pan while the closet is being used, and after it has been opened and the valve again closed; and yet any overflow of water, accidentally occurring, has freedom to pass off without passing through the valve-stem or valve. It consists, third, in the water-valve chamber formed on the rear or side of the upright cylinder of the closet, and supported by brackets of said cylinder. By this construction the valve-chamber has a firm support and is located at a place where it is not in the way, while the cost of constructing and uniting the cylinder and water-valve chamber is greatly lessened. It consists, fourth, in a tappet-lever passed partly into the upright cylinder of the closet and pivoted thereto, and having two prongs at one end for passing alongside the plunger-valve rod, and a broad flattened head at the other end for striking upon the upper end of the rod of the water-supply valve, whereby simplicity of construction is secured and some expense avoided in fitting the lever for operating the water-valve when the plunger is raised. It consists, fifth, in a pivoted tappet-lever, for operating a water-supply valve of a water-closet. It consists, sixth, in a pivoted tappet-lever, with one of its ends interposed loosely between the plunger-valve and the top of the upright cylinder, and its other end arranged above and free from the end of the water-supply valve, whereby all possibility of casual movement of the water-supply valve before the plunger-valve is fully opened is avoided. Seventh, it consists in a seat for the plunger-valve, formed of a ground-off metal annulus, and which is chilled and united to the cast metal of the closet in the operation of casting the closet. By this construction the inconvenience of grinding off the seat while it is within and a part of the cylinder, so as to make a tight fit between it and the plunger-valve, is avoided, and the inconvenience of fitting the annulus to the seat after the cylinder is cast, and of having crevices existing between the seat and cylinder, is avoided. It consists, eighth, in a plunger-valve, made with a groove in its periphery, and provided with a rubber packing-ring, which is held in place by expanding it and allowing it to contract upon the plunger-valve and seat itself in the said groove. It consists, ninth, in a cap for the upright cylinder of the closet, formed with a vertical flange-clasp, in which are recesses, in combination with the cylinder, on which are inclined lugs. By this construction the cylinder is sealed tight without the use of bolts, and an obstructing-flange around the edge and a little below the top of the cylinder is provided for preventing the escape of foul gases.

The object of my invention is to avoid the filling with and flowing of water in the closet for washing the pan while a person is seated upon the closet; to have the trap-valve behind or at the side of the pan, where it is not annoying to the occupant of the seat; to have a trap-valve with a very large and effective valve-surface; to prevent any supply of water passing the water-valves as long as the trap-valve is not fully open; and to avoid the

flooding of the apparatus and the premises where it is located, and at the same time decrease the cost of construction of water-closets.

In the drawings, A represents a pan, having a lateral connection at the bottom, with an upright cylinder, B, and a siphon-trap, E, by means of a pipe, *a*. The said cylinder B is provided at its foot with a ground-off chilled-metal annulus, *b*, which is embedded into the metal of the cast cylinder, and chilled by inserting it into the mold of the cylinder and then pouring the molten metal into the mold around the annulus. This chilled valve-seat has, by preference, the shape of a conical ring, as seen in Figs. 2, 3, and 4.

The plunger-valve C, which rests on the valve-seat, fits loosely in the cylinder B, but snugly, and it is imperforated and either solid, or hollow, or chambered; and, if hollow or chambered, may be weighted, as at *c*, so as to be made to fit firmly. And this valve is packed with a rubber ring, $c^3$, which is slipped over the valve, as shown in Fig. 6.

A stem or rod, C′, with a handle or button, $c^1$, serves as the means for lifting the said valve. The cylinder B has a cover, D, with a flange-clasp, *d*, which is recessed, as at *d′*, whereby it may be slipped over spiral or inclined lugs or tenons *b′* on the cylinder, for the purpose of fastening or unfastening the cap, as occasion may require. The valve-rod C′ is passed through the said cover, and fits snugly, so as to prevent the escape of air or gases; and the cylinder B is provided with a gas-trap, E, which is cast together with it, and has one or more covered or closed outlets, *e*, for the purpose of cleaning.

At a level not much above the bottom of the pan A an outlet, *f*, is made in the cylinder, and opening into a pipe or closed passage, F, leading to an inlet, *f′*, in the trap E. A forked lever, G, pivoted to lugs *g* of the cylinder B, rests with its forked end upon the upper part of the valve C, and extends with its other end outside the said cylinder and above a valve-stem, *h*, of a water-valve, H, which is inclosed in a cylinder, I, and kept closed by a spring, *i*, therein. Below the said water-valve the cylinder I is connected with a supply-pipe, J, and above the said valve a pipe, K, connects the cylinder I with the pan A in a tangential direction.

To prevent the water from being forced above the pan a concentric rim, L, forming an inverted annular groove, *l*, is formed thereon, and in this the ascending part of the stream is entrapped and conducted downward.

The raising of the valve C causes the outer end of the lever G to be lowered until it comes in contact with the valve-stem *h*, which is finally forced down, and thereby caused to open the valve H. The water now flows into the upper chamber of the cylinder I, and thence through the pipe K into the pan A, washing the same by its gyrations, and flowing off into the cylinder B and through the open trap-valve into the trap below.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a pan, an upright cylinder, a foul-air trap, a water-supply valve and chamber, as described, an overflow-passage, and an imperforated tightly-fitting foul-air valve, substantially as and for the purpose described.

2. The water-valve chamber, formed in relief from, and at the rear or one side of, the the upright cylinder and the foul-air trap of the closet, and supported by brackets of said cylinder and trap, substantially as and for the purpose described.

3. The tappet-lever, passed partly into the upright cylinder of the closet and pivoted thereto, and having two prongs at one end for passing alongside the plunger-valve rod, and a broad flattened head at the other end for striking the upper end of the water-valve stem, substantially as described.

4. A pivoted tappet-lever with one of its ends interposed loosely between the plunger-valve and the top of the upright cylinder, and its other end arranged above and free from the end of the water-supply valve, substantially as and for the purpose described.

5. A water-supply valve of a water-closet, operated by a tappet-lever, substantially as and for the purpose set forth.

6. A seat for a plunger-valve of a water-closet, formed of a ground-off metal annulus and chilled, and united to the cast metal of the cylinder of the closet in the operation of casting, substantially as and for the purpose described.

7. A conical plunger-valve for a water-closet, made with a conical groove in its periphery, and provided with a rubber packing-ring, which is held in place by expanding it and allowing it to contract upon the plunger-valve, and thereby seat itself in the said groove, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I hereto subscribe my name in presence of two witnesses.

JOHN H. KEYSER.

Witnesses:
F. MICHEL,
WM. B. MOORE.