

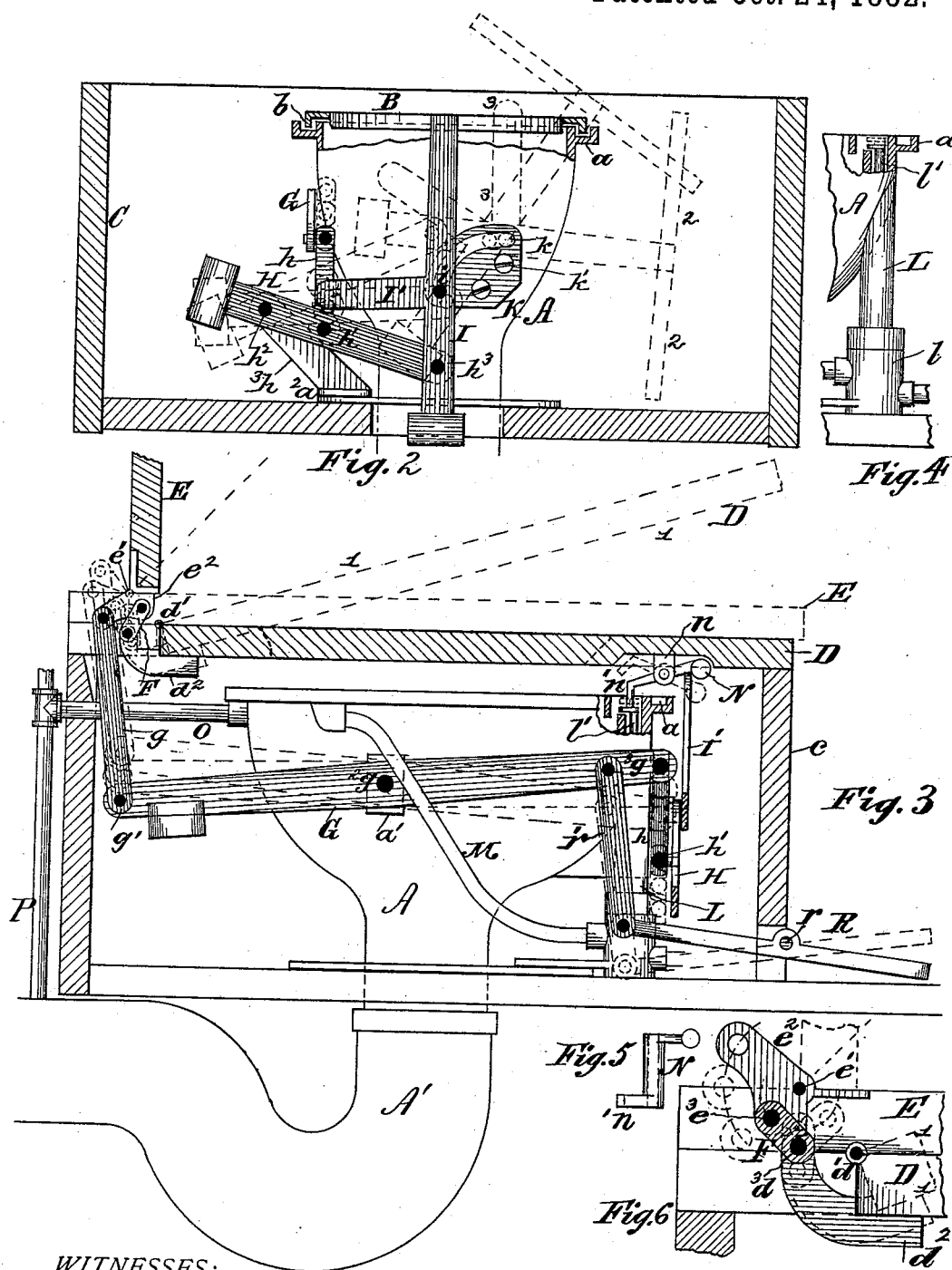
(Model.)

3 Sheets—Sheet 2.

C. F. PIKE.
WATER CLOSET.

No. 266,309.

Patented Oct. 24, 1882.



WITNESSES:
James Martin
Albert Lytton

INVENTOR,

Charles F. Pike

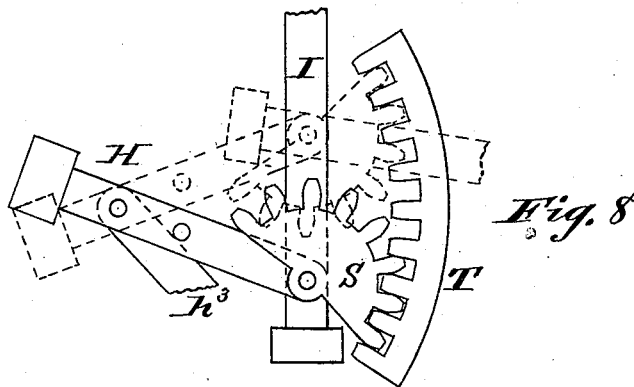
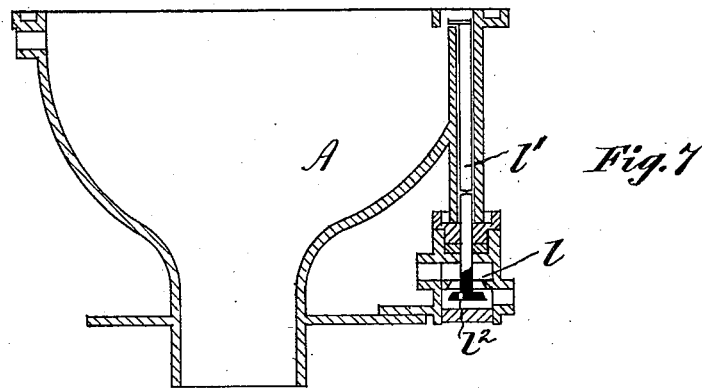
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UNITED STATES PATENT OFFICE.

CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE NATIONAL ANTI SEWER GAS COM-
PANY, OF NEW JERSEY.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 266,309, dated October 24, 1882.

Application filed April 12, 1881. Renewed March 23, 1882. (Model.)

To all whom it may concern:

Be it known that I, CHARLES F. PIKE, a citizen of the United States, and a resident of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Water-Closets, of which the following is a specification, reference being had to the accompanying drawings, wherein—

10 Figure 1 is a broken perspective, partly in section, of a water-closet embodying my improvements. Fig. 2 shows a front elevation of the closet, illustrating by the different positions of the sealing-cap the path of the lat-
15 er when it is moved to unseal and seal the water-closet bowl, the casing for the same being sectioned and the seat and seat-lid removed. Fig. 3 is a side elevation of the water-closet and a section of the casing, the closet being
20 represented as unsealed and uncovered. Fig. 4 is a detail elevation, partly in section, of the water-cock for the water-closet bowl. Fig. 5 is a plan of the weighted tripping-lever for the water-cock stem. Fig. 6 is a detail view
25 of the link-motion for the seat and seat-lid. Fig. 7 is a section of the water-closet bowl through the water-cock attachment. Fig. 8 is an elevation of a modification of a part of the mechanism for operating the sealing-cap.

30 My invention has relation to that class of water-closets which are provided with a mercury seal for preventing sewer-gases and other foul and deleterious odors entering into the apartment wherein such water-closets may be
35 located, and has especial reference to that style of such water-closets wherein the sealing-cap is placed on the top of the water-closet bowl, the edge of the latter having formed thereon, or is surrounded with, a trough containing mer-
40 cury, into which said cap dips to form the seal.

In the majority of rooms now furnished with water-closets the space allotted to the latter is somewhat limited. Hence it is highly necessary and desirable in water-closets having the
45 above-described seals that the caps thereof should be operated by mechanism which will move said cap off from and onto the bowls in the most confined path of travel obtainable. To accomplish this result is the object of the

first part of my invention; and to this end I 50 provide the sealing-cap with mechanism operated through the medium of the seat-lid, whereby said cap is oscillated from a horizontal to a vertical position and lowered beneath the framing or casing, whereupon the water-closet 55 bowl is unsealed and uncovered, and is in a condition suitable for use, said cap being reversely oscillated to seal the bowl when the closet is not occupied. To permit of such oscillation and lowering or raising of said cap, 60 the water-closet seat is so connected to the seat-lid that said seat will be partially raised and return to its normal position during each oscillation. Again, in the employment of such water-closets it is extremely important that 65 the water-cock should be so arranged and connected to the water-closet bowl that any leakage or drip from said cock may be conducted into the bowl without permitting the escape therefrom of any sewer or other gases. To 70 provide for this contingency is the object of the second part of my invention, and which consists in forming the bowl of the water-closet with a projecting tube or conduit, to the end of which is attached the water-cock, so arranged that any leakage therefrom will flow 75 up through said conduit and be conducted into the water-closet bowl without permitting the escape therefrom of any sewer-gas or other effluvia when said water-closet bowl is sealed 80 and not in use.

My invention further consists in the novel construction, combination, and arrangement of parts hereinafter more fully set forth.

Referring to the accompanying drawings, A 85 represents the water-closet bowl, in the upper edge of which or surrounding the same is a trough, *a*, designed to contain mercury or other suitable sealing compound. B is the cap, shaped to conform to the outline of said trough, and 90 is provided with a flange, *b*, which dips into said mercury to form a seal-joint for preventing the escape from said bowl of sewer-gas or other noxious vapors.

C is the framing or casing, having a seat, D, 95 hinged thereto at *d d'*, and when said seat is in its normal position its forward end rests upon the front wall, *e*, of the casing, as shown.

E is the seat-lid, hinged at e' to the casing. The hinges d' and e' are each provided with projecting lugs d^2 and e^2 , and F is a link pivoted to said lugs at d^3 and e^3 , respectively, the effect of which is that when the lid E is raised the link F so moves that it causes the seat D to be partially lifted on its hinges and then returned to its normal position, said movement of the link and the partial raising of the seat being plainly shown by dotted lines 1 1, Figs. 3 and 6.

To the projection e^2 of hinge e' is attached a link, g , the opposite end of the latter being secured at g' to a lever, G, pivoted at g^2 to a boss, a' , formed on the bowl A. To the end g^3 of lever G is affixed a link, h , which is in turn secured at h' to lever H, pivoted at h^2 in a bracket, h^3 , projecting from or secured to one of the flanges of the bowl A, as shown at a^2 . Said lever H is jointed at its end h^3 to a bar, I, which is provided with a stud, i , projecting into a curved slot, k , formed in a bracket, K, attached by screws k' to bowl A.

To the upper end of bar I is secured the sealing-cap B, either by riveting the same thereto, as shown at b' , or in any other suitable manner.

The operation is as follows: Said parts being arranged substantially as shown in Fig. 1, the cap B being over the bowl to seal the same, and it is desired to use the closet, the seat-lid E is lifted or thrown back on its hinged connections. As said lid is raised the projection e^2 of hinge e' is lowered, thereby depressing link g and causing it to vibrate lever G on its pivot g^2 , the forward end of said lever rising, and through the medium of link h the lever H is thereby moved to elevate its forward end, h^3 , and carrying with it the bar I, the cap B is thereby lifted out of the mercury-trough a . As said bar I continues its upward movement its stud i , traveling in the curved slot k , causes said bar to be oscillated in addition to being lifted, and the cap B is thereby gradually moved from a horizontal to a vertical position and lowered down alongside of bowl A, exteriorly thereto. As soon as the cap B begins to oscillate the link F, connecting hinges e' and d' , commences to move seat D, and the latter is lifted to provide ample space for such oscillation of cap B as soon as the latter descends into the casing. The link F, having then passed to the opposite side of its center of motion, causes said seat to lower, and when the lid E is fully raised the seat D has returned to its normal position and the sealing-cap B is down within the casing, as represented by dotted lines 2 2, Fig. 2. By lowering the lid E said cap B is restored to its position on the bowl A, the seat D being again lifted and lowered to permit said cap to so return. It will thus be seen that every time the lid E is raised and lowered the seat D is also partially lifted and then returned to its normal position, such lifting of the seat allowing the cap B to be oscillated off from and onto the water-closet bowl. Hence the path of travel for said cap is exceedingly restricted and requires but a small amount

of space, so that said improvements are adapted for the smallest water-closet space heretofore provided. The hinging of the seat D not only provides for the obtaining of the necessary space to permit said cap to oscillate, as described, but it affords an easy means for gaining access to the interior of the closet to inspect its condition, ascertain the amount of mercury in the sealing-trough, and to renew the same when necessary to do so.

To provide for flushing the bowl when the latter is in use, I employ the following means: The bowl A is formed with a tube or conduit, L, projecting downwardly from its forward end; or said conduit may be located in any other suitable position on said bowl. To the end of conduit L is secured a water-cock, l , constructed substantially as shown, and arranged so that when downward pressure is applied thereto it will be opened to allow the water-supply to pass therethrough to pipe M to flush the bowl. The stem of said cock may be prolonged to form a rod, l' , or the latter may be separate from said stem, as shown. Said rod or valve-stem l' is located in said conduit, and is of such length that its upper end terminates just below the edge of the bowl A when said cock is closed. Hence when the cap B is in sealing position on the bowl said rod and water-cock are beneath said cap, and are therefore sealed with said bowl. Hence any water leaking or dripping from said cock will pass up through the conduit L or flushing-pipe M into bowl A, and thence into the trap below. It will thus be seen that no sewer-gas escapes through the water-cock connections or its drip-conduit to enter the apartment wherein said closet is located when the bowl is sealed or not in use. Said cock during the occupancy of the closet is depressed or operated to let on the water in the following manner:

The bar I is formed with a finger, I' , so arranged that when bar I is fully oscillated said finger will be in an upright position, as shown by dotted lines 3 3, Fig. 2, and by full lines in Fig. 3. When said finger assumes said position it meets a weighted lever, N, pivoted in brackets n , attached to the under side of the seat D, as shown in Fig. 3. Said lever is then tilted, its end n' striking against and resting upon the valve stem or rod l' , and when the person intending to occupy the said seat sits down on the latter the weight of such occupant causes said lever N to depress stem l' and open valve l to turn on the water to flush bowl A, and the water continues to run as long as the closet is in use. When such use ceases and cap B is returned to its sealing position the finger I' , moving with bar I, is swung out of line with said tripping-lever, and the weighted end of the latter causes its end n' to ascend and be out of the way of cap B, so as not to come in contact therewith when said cap is returned to the bowl. It will thus be seen that a mercury or other similar seal water-closet is obtained wherein the path of travel of the sealing-cap is restricted to the most

confined limits obtainable, and the water-cock is so arranged that its drip or leakage will pass into the bowl without permitting the escape of noxious odors when such closet is not in use. Hence water-closets so constructed may be placed in apartments wherein only a limited space is allowed therefor. If desired, pipes O P may be employed for ventilating the bowl A and its trap A', said pipes being carried into a chimney or other flue; or they may be run up to the top of the building wherein they are used, or otherwise suitably disposed of, as circumstances may dictate. So, too, the operation of moving cap B off from and onto the bowl A may be accomplished, if desired, by using a treadle, R, placed on the floor in front of casing-wall c, and pivoted to the latter at r, and having a link-connection, r', with lever G, so that when a person approaches the closet and steps upon the treadle the latter will be tilted and lever G operated to cause said parts to move, as above described.

I have shown and described the pipe M as being the flushing-pipe for bowl A; but said pipe may be dispensed with, and the conduit L may be used for that purpose. In that case it would then subserve for the double use of a pipe and a drip-conduit. In water-closets generally, and in those above described, there is always more or less gas and odor generated by the fecal matter lying in the bowl or its trap, which gas, unless subjected to pressure from the main, the most perfect devised system of ventilation will not carry off. Hence when the sealing-cap is lifted off from the bowl said gas or odor escapes therefrom and passes into the buildings wherein such water-closets are placed. To prevent such generation of gases, as well as to absorb any sewer-gas that may find its way into the water-closet bowl and is not conducted away by the ventilation-pipes, I perforate the cock l at l², so that a small stream or flow of water will always flow through said cock when the closet is sealed. Said water, passing into the bowl, soon causes its trap to empty itself of any collection of fecal matter held therein; and said water, running constantly and being fresh, will continuously absorb the said gases or odors in said bowl and be carried off through the trap A' to the main. Thus the water-closet will be nearly devoid of smell, and but an infinitesimal amount of gas or odor will escape from the bowls of water-closets so constructed and arranged.

So much of the foregoing as relates to the perforation of the valve in the water-cock for obtaining a continuous flow of water to the bowl of the closet I hereby reserve for the subject of a separate application.

Instead of using the slotted bracket K to effect the oscillation of cap B, a pinion, S, and segmental rack T may be substituted therefor, said pinion being journaled to the bar I and the rack rigidly secured to the bowl A, as shown in Fig. 8, the operation in either case being the same—viz., the oscillation of cap B. So, too, if desired, the levers G and H and bar

I may be weighted or counterbalanced, as shown, so that the seat-lid E may be raised with ease.

What I claim as my invention is—

1. In a water-closet, the combination of bowl A, having sealing-trough a and cap B, the seat D and seat-lid E, hinged to casing C and connected to each other, and mechanism interposed between said cap seat and seat-lid, adapted to be operated by the movement of said lid, to effect the removal and replacement of said cap from and to said bowl, said seat being partially lifted and returned to its normal position during each such movement of said cap.

2. A water-closet provided with a bowl having a sealing-trough and cap, a seat and seat-lid, and mechanism interposed between said cap seat and seat-lid, whereby when the lid is raised or lowered said cap will be moved off from and onto said bowl, and the seat raised and lowered during each such movement of the cap, substantially as set forth.

3. The combination, with a water-closet bowl having a trough surrounding its upper edge, of a cap or valve adapted to seat in said trough, a seat and seat-lid for such bowl, and mechanism interposed between said cap seat lid and seat, whereby when the seat-lid is raised or lowered said cap will be oscillated off from and onto said bowl, and said seat will, during such movement of the cap, be partially raised and then returned to its normal position, substantially as set forth.

4. In a water-closet, the combination of a bowl formed with a trough on or around its upper edge, adapted to hold mercury or packing to form a seal, a valve or cap therefor, a seat, seat-lid, and mechanism interposed between said cap seat and seat-lid, constructed substantially as shown and described, and adapted to oscillate said cap off from and lower it down alongside of said bowl beneath the casing, said seat rising during such oscillation to permit such movement of said cap, and returning to its normal position when the said movement of the cap is completed.

5. The combination of a water-closet bowl, A, having trough a, cap B, the movable seat D, lid E, and mechanism interposed between said cap, seat, and seat-lid, substantially as shown and described.

6. The combination, with bowl A, of a hinged seat, D, and seat-lid E, connected to each other by link mechanism F, whereby when said seat-lid is lifted or lowered said seat will be partially raised and returned to its normal position, substantially as shown, and for the purpose set forth.

7. The combination, with bowl A, having trough a and cap B, of a movable seat, D, and seat-lid E, levers G H, links g h, bar I, having stud i, and connected to cap B, and slotted bracket K, said parts being arranged substantially as shown and described.

8. A water-closet bowl provided with a projecting conduit, to which is secured a valve, l, substantially as shown and described, whereby

any leakage or drip from said valve will pass into said conduit and then be conducted into said bowl, substantially as set forth.

9. The combination of bowl A, having trough
5 a, cap B, and water-cock I, the seat D and lid E, bar I, having finger I', weighted tripping-lever N, and mechanism interposed between said lid and bar, said parts being arranged sub-

stantially as shown and described, and for the purpose set forth.

In testimony whereof I have hereunto set my hand. 10

CHAS. F. PIKE.

Witnesses:

CHAS. F. VAN HORN,
JAS. H. RICHARD.