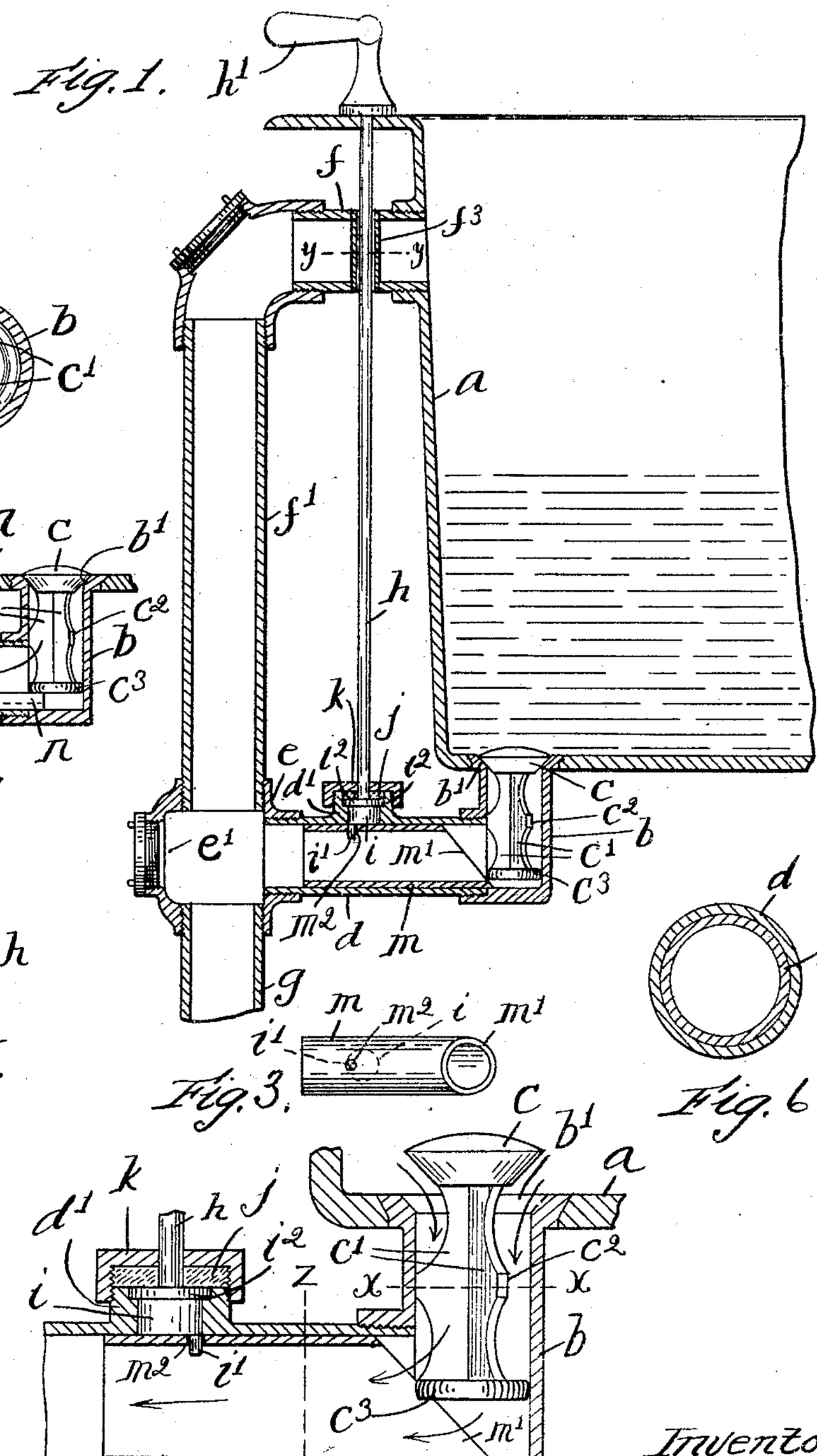
No. 765,697. PATENTED JULY 26, 1904.

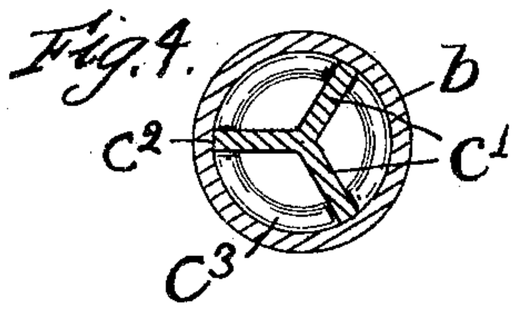
W. BUNTING, JR.

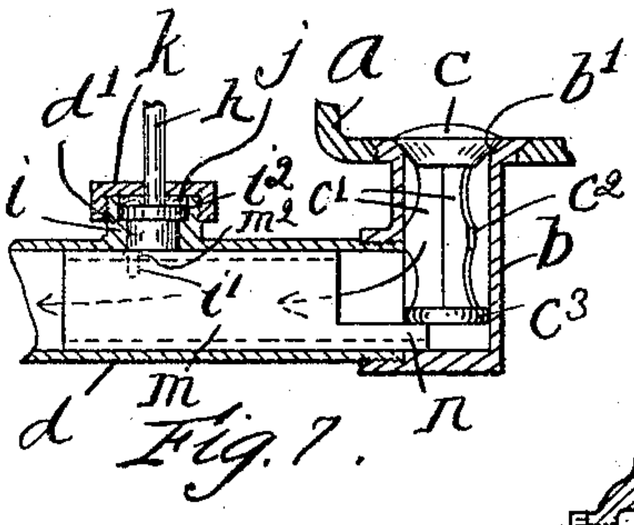
BATH OR BASIN WASTE APPARATUS.

APPLICATION FILED SEPT. 23, 1903.

NO MODEL.







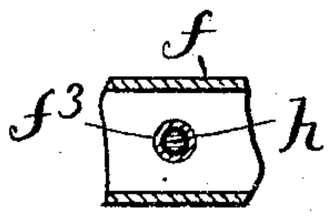


Fig. 5.

Fig. 6.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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BATH OR BASIN WASTE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 765,697, dated July 26, 1904.

Application filed September 23, 1903. Serial No. 174,285. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BUNTING, Jr., of Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Bath or Basin Waste Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

In the waste apparatus of bath-tubs and basins it is particularly desirable that fouling of the pipes may be prevented to as great an extent as possible and that the parts may be readily cleaned when necessary. For this reason it has been found desirable to employ a plug or stopper and an overflow-pipe in lieu of the well-known combined overflow-pipe and waste-valve. It is very desirable, however, to provide some convenient mechanical means for lifting the waste-stopper, and various devices of this character have been devised; but many of these devices are too complicated to be practical and are likely to become clogged or to get out of order, so that they fail to operate or operate only with difficulty.

The object of my invention is to provide a simple mechanical means for lifting the waste-plug of a bath or basin which may be easily operated by a hand-lever and which is unlikely to become clogged or to get out of order. I accomplish this object by the means hereinafter described, and disclosed in the accompanying drawings, in which—

Figure 1 is a central vertical section of a bath-tub or basin provided with my plug-operating means. Fig. 2 is a similar view, on a larger scale, showing a portion thereof. Fig. 3 is a detail plan view of the lifting-tube. Fig. 4 is a cross-section on the line $x\ x$ of Fig. 2. Fig. 5 is a section on the line $y\ y$ of Fig. 1, and Fig. 6 is a cross-section on the line $z\ z$ of Fig. 2. Fig. 7 is a detail view of a modified form of lifting-tube.

In the drawings, a indicates a bath-tub, basin, or similar receptacle having a waste-pipe b leading from the bottom thereof at one end. The pipe b extends vertically, is provided with a seat b' at its upper end, and a plug or stopper c is adapted to engage said seat and close the passage through said pipe. Said plug is provided with a stem which consists of three radially-arranged vertical wings or guides c', integrally connected at their inner edges, each being provided on their outer edges with a straight portion c^2, which engages the inner surface of the waste-pipe and serves to hold the plug in position at all times. A ring c^3 is arranged at the lower ends of said wings c' and is cast integral therewith, the outer diameter of said ring being substantially the same as the internal diameter of the waste-pipe b and coacting with said wings in guiding the plug as it is moved vertically. The pipe b extends at right angles, so that its bottom is a short distance below the position of ring c^3 when the plug is resting on its seat, and a horizontally-extending pipe d is connected to pipe b at one end, its opposite end being connected to a three-way coupling e.

A horizontally-extending overflow-pipe f is connected to the side of the receptacle a at one end, its opposite end being connected by an elbow to a vertical pipe f', which is in turn connected to the coupling e. A soil-pipe g is also connected to coupling e in line with pipe f'.

A rod h passes through the rim of the receptacle and is provided with a handle h' at its upper end. A tube f^3 extends diametrically through the pipe f and a water-tight connection is provided between the walls of said pipe f and the ends of said tubes, said rod h passing through said tube, so that the latter serves as a guide for said rod h. The lower end of said rod is provided with a head i, having a crank-pin i' at its lower end arranged eccentrically of the rod h. Said head is provided with a flange i^2, which is seated in a boss d', formed on the upper side of the pipe d. A packing-washer j rests on said flange and is held in place by the ring k, which is threaded on said boss d'. An open-ended lifting-tube m is loosely fitted in said horizontal pipe d, the end of said tube adjacent the plug-stem being cut obliquely to provide an obliquely-formed or wedge-shaped portion or projection m', the surface of which extends from

the lowest point in the pipe d and beneath ring c^3 upwardly from said ring, as shown in Figs. 1, 2, and 3. A slightly elongated or elliptical aperture m^2 is provided in the upper side of said tube m, and said crank-pin i' passes through said aperture.

When the parts are in the full-line position shown in Fig. 1, the plug will be seated, closing the waste-opening. If it is desired to lift the plug, the rod h is rotated by its handle, throwing the crank-pin i'' forwardly. This causes the lifting-tube to be moved forwardly, so that the inclined or obliquely disposed surface of projection m' engages the under side of the ring c^3. As the tube m is moved forwardly it will act as a wedge or cam and force the ring and plug upwardly to the position shown in Fig. 2, permitting the water in the receptacle to run down through the pipe b and tube m into the soil-pipe. As the tube m is forced forwardly it will also be rotated to some extent, the elongated opening m^2 permitting such movement, so that the tube has a direct lifting action on the ring during the first quarter-turn, as well as the wedging or cam action above referred to. When the handle is thrown in the opposite direction, the tube will be withdrawn from beneath the ring, permitting the plug to drop to its seat. The parts are so arranged that by the time the ring has been moved up opposite the middle of the tube m the plug will have been lifted the necessary distance and crank-pin i' will have been moved to its extreme forward position. It will be observed that it is immaterial which way the handle is thrown to lift the plug, and when the plug is lifted to its limit it is immaterial which way the handle is thrown to lower it, so that the operating-rod may be completely rotated in either direction. All liability of the parts being damaged by improper manipulation is thus avoided. If necessary, the tube m may be removed through the clean-out opening e' in the coupling e after first disconnecting the rod h.

If it is desired that the plug be lifted directly by the lifting-tube and not partly or wholly by the wedging action thereof, I may provide the front end of the tube with a straight finger or projection n, (see Fig. 7,) which extends beneath the ring c^3 in all positions of the crank-pin i'' and tubes. By this means the plug may be lifted to an extent approximately equal the diameter of the tube, and for some reasons I consider this construction preferable to the one before described.

The particular means for operating the lifting-tube described is not wholly essential, although it is much preferable, and other means may be provided which are within the spirit and scope of my invention.

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

1. A bath or basin fitting comprising the waste-pipe, a plug or stopper for closing said pipe, a guiding-stem therefor adapted to reciprocate in said pipe, an open-ended lifting-tube below said plug fitted to rotate in said pipe independently of said stem, and having an obliquely-disposed stem-engaging portion at its end next the plug, and means for rotating said tube, substantially as described.

2. A bath and basin fitting comprising the waste-pipe, having two sections at an angle to each other, a plug or stopper for closing said pipe, a guiding-stem therefor adapted to reciprocate in one of said pipe-sections, an open-ended lifting-tube fitted in the other pipe-section and having an obliquely-disposed end portion adjacent said stem and means for operating said tube to cause the same to engage said stem and lift the plug, substantially as described.

3. A bath or basin fitting comprising the waste-pipe having a vertically and horizontally extending portion, a plug or stopper for closing said pipe having a guiding-stem movable in said vertical portion, a lifting-tube fitted in said horizontal portion, said tube being open at both ends, and having an obliquely-disposed surface at one end, adapted to engage said stem and means for operating said tube, to lift the plug, substantially as described.

4. A bath and basin fitting comprising the waste-pipe, a plug for closing the same, an open-ended lifting-tube fitted to rotate in said pipe, a rotatable operating-rod having an eccentrically-arranged pin at one end located in an aperture formed in said tube, said tube having a projecting portion at one end, passing beneath said plug and acting to lift the same upon rotation of said rod, substantially as described.

5. A bath and basin fitting comprising the waste-pipe, a plug for closing the same, an open-ended lifting-tube fitted to slide and rotate in said pipe, a rotatable operating-rod having an eccentrically-arranged pin at one end located in an aperture formed in said tube, said tube having a wedge-shaped projecting portion at one end passing beneath said plug and acting to lift the same upon rotation of said rod, substantially as described.

6. A bath and basin fitting comprising the waste-pipe, a plug for closing the same having a depending guiding-stem arranged in said pipe, a ring connected to the lower end of said stem and arranged transversely thereof, a lifting-tube fitted in said pipe and extending at an angle to said stem, said tube having a wedge-shaped projecting portion at one end extending beneath said ring and means for moving said tube longitudinally in said pipe, substantially as described.

7. A bath and basin fitting comprising the waste-pipe, a plug for closing the same, an open-ended lifting-tube fitted to rotate in said pipe having a projecting portion at one end, passing beneath said plug, and means for rotating said tube to cause it to lift the plug, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM BUNTING, JR.

Witnesses:

LOUIS H. HARRIMAN,

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