

No. 654,600.

Patented July 31, 1900.

W. BUNTING, JR.
WASTE VALVE OPERATING MEANS.

(Application filed Apr. 18, 1899.)

(No Model.)

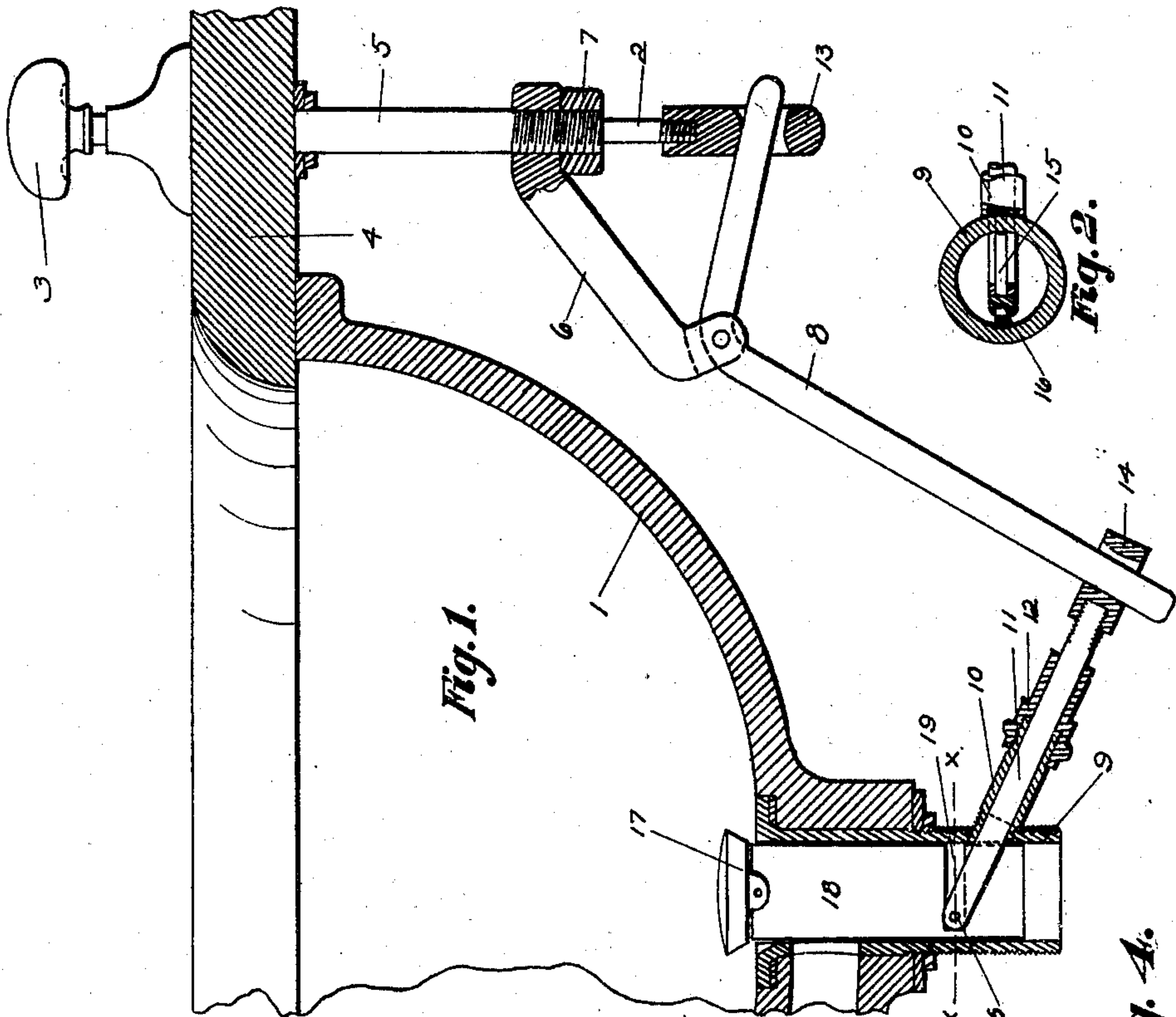


Fig. 1.

Fig. 2.

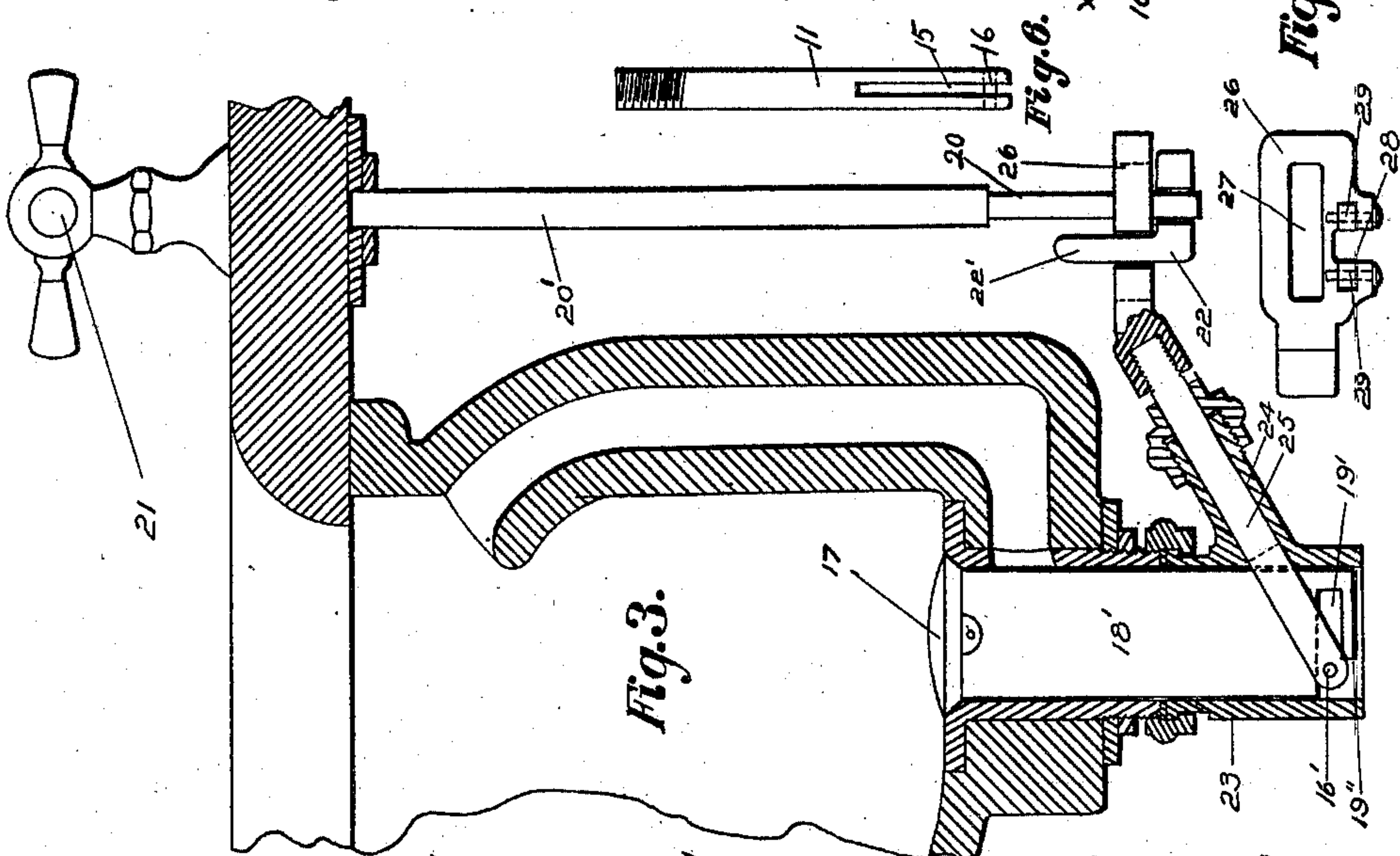


Fig. 3.

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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WASTE-VALVE-OPERATING MEANS.

SPECIFICATION forming part of Letters Patent No. 654,600, dated July 31, 1900.

Application filed April 18, 1899. Serial No. 713,436. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BUNTING, Jr., a citizen of the United States, and a resident of New York, (Flushing,) in the county of Queens and State of New York, have invented certain new and useful Improvements in Waste-Valve-Operating Means, of which the following is a specification.

This invention relates to an improved operating device for the waste-plug of a basin or bath, which is simple and cheaply made and yet very effective for the purpose intended.

Numerous prior devices of this nature have been constructed in which a horizontal reciprocating rod bears against a projection having an inclined surface, so that when the rod is forced inwardly the plug is raised and when the rod is withdrawn the plug falls to its seat. These devices have been found unsatisfactory and objectionable for several reasons, among the most important of which is the liability of the failure of the stopper to drop after it has been raised and also the necessity in some cases of providing the sides of the spud with longitudinal guide-grooves for the depending guide of the stopper. These guide-grooves in the spud are particularly necessary when the stem of the waste-valve consists of a flat guide or feather, the width of which is approximately the same as the diameter of the spud. This form of guide is very desirable, as it does not obstruct the waste-passage to any material extent and is strong and very cheaply made. It has been found in practice that these guide-grooves are objectionable because in use they become badly clogged, so that the plug cannot be raised or lowered, and, moreover, as these grooves must be cast in the spud they must be left rough, as they can only be smoothed up slightly with a file, it being impracticable to plane them out by a machine. In order that this guiding stem or feather may work in any way satisfactorily, it has been necessary to make the feather fit very loosely in the guide-grooves of the spud, with the result that the stopper is very imperfectly guided.

I obviate these and other defects by my invention, which consists, broadly, in placing the reciprocating rod at an angle to the hori-

zontal and providing the plug with a horizontal surface on which the rod operates.

My invention further consists in providing the end of the operating-rod with a slot through which the feather or stem passes, so that the said stem will be nicely guided without the necessity of other guiding means being provided.

For a more complete understanding of my invention attention is called to the accompanying drawings, in which—

Figure 1 is an elevation, partly in cross-section, showing one form of my device applied to a basin. Fig. 2 is a cross-section on the line $x x$ of Fig. 1. Fig. 3 is an elevation, partly in cross-section, showing a second form of my device. Figs. 4, 5, and 6 are detail views.

Referring to the form of my device shown in Fig. 1, the bowl 1 is of any well-known form. A vertical push-rod 2, having a handle 3, passes through the slab 4 and the sleeve 5, the latter being secured to the slab in any well-known manner. A bracket 6 is screwed onto the lower end of said sleeve and is locked in place by the nut 7. A lever 8 is provided in the end of said bracket. The spud 9 of the basin is provided with a tubular projection 10, which inclines downwardly from the spud. A roll 11 is nicely fitted in said projection 10, and a nut 12, which screws onto the end of said projection, clamps a packing-washer between itself and the end of said projection, so that there is no danger of leakage about the rod 11. The lower ends of rods 2 and 11 are each provided with a stirrup 13 14, through which the opposite ends of lever 8 pass. The inner end of rod 11 is split by a slot 15, as shown in Figs. 2 and 6, and a pin 16 passes through the rod near the end thereof and across the slot 15.

The waste-plug 17 is provided with an elongated flat feather 18, which extends down into the spud 9. The thickness of this feather is slightly less than the width of the slot 15 and is provided with a horizontal slot 19, which extends from one side thereof to within a short distance of the other side. Said slot is of slightly-greater width than the diameter of pin 16, so that the latter may work readily therein.

To place the plug in its proper position with respect to rod 11, the handle 3 is pulled up to its fullest extent, so that the rod 11 will be withdrawn to such an extent that the pin 16 is slightly beyond the edge of feather 18. The plug is dropped into the waste-hole at such a position that the edge of the feather passes into the end of the slot 15 of the rod 11, the pin 16 being set far enough back from the end thereof to permit a positive engagement of the split end of the rod with the feather of the plug at all times when the plug is in position, so that when it is once placed in position it cannot be turned or get out of place unless it is displaced by lifting it up. The operation of this arrangement will be apparent. When it is desired to close the waste-outlet, the handle 3 is lifted, drawing the rod 11 outwardly and downwardly, the pin 16, bearing on the under side of slot 19, drawing plug 17 to its seat. When it is desired to lift the plug, the handle will be pressed down.

In the modification shown in Fig. 3 I provide an arrangement of parts which is for certain reasons somewhat more desirable than that above described. In this figure the rotatable shaft 20 is suitably journaled in the sleeve 20', and the slab is provided with a handle 21 at its upper end and at its lower end with an arm having an upwardly-projecting finger 22'. The spud 23 is provided with a tubular projection 24, which is inclined upwardly from the spud and has the rod 25 located therein. This rod 25 is almost identically the same in construction as rod 11, it being provided with a slot and pin at the inner end, as previously described. Secured to the outer end of rod 25 is a shaft-guide 26, having the elongated opening 27 therein in line with the rod 25. This opening is of sufficient width to permit the shaft 20 to pass therethrough and of sufficient length to permit the desired lateral movement of said rod 25. Said guide is also provided with a notch 28 at one side thereof, said notch having friction-rollers 29 journaled in each side. The finger 22' is located in said notch, so that when the shaft 20 is rotated it bears against said rollers, drawing the rod 25 outwardly or forcing it inwardly. Obviously the motion of the guide will be both upward and lateral, the length of arm 22 being sufficient to cause the necessary lateral movement and the length of the finger 22' sufficient to permit the necessary upward movement. The plug 17' and its feather 18' are of the same form as that shown in Fig. 1, with the exception that the notch 19 is made near the bottom of the feather and is cut away at one side, as shown at 19''. When the plug is to be inserted, the rod 20 is rotated so that the rod 25 will be forced in as far as possible. The plug is then dropped in place, care being taken that the feather passes into the slot in the end of the rod and that the outer end of slot 19' in the feather is turned away from the side which the rod enters, so that pin 16' passes through

the opening 19'' in the slot 19'. The feather 18' by passing through the slot in the end of the rod is securely held against rotation, so that it cannot become misplaced, and as the slotted portion of the rod is arranged in a diagonal position with respect to said stem it engages said stem throughout a considerable portion of its length, so that the rod will securely hold the same in a vertical position when the valve is lifted from its seat. As the stem is thus perfectly guided by the rod, it is unnecessary to form guides for the same in the side of the spud. The operation of the modification needs little explanation. When the handle 21 is turned so that the rod 25 is drawn outwardly and upwardly, the plug will be lifted and will again be lowered when the handle is turned in the opposite direction. The construction shown in this figure is somewhat more desirable than that shown in Fig. 1, for the reason that the plug is guided somewhat better and because it has the tubular projection 24 inclined upwardly instead of downwardly, whereby all danger of leakage around the rod 25 is avoided. By having the operating-rod inclined upwardly from the waste-pipe I can also arrange the operating means very compactly. The most important advantage resulting from the arrangement of the operating-rod diagonally of the valve-stem is that it provides a perfect guiding means therefor, so that it is unnecessary to provide the spud with internal guides such as have before been necessary. I am thus enabled to bore out the spud after it is cast, leaving the passage perfectly smooth, so that there is no danger of threads, hair, and other matter catching therein.

It will thus be seen that I have provided a waste-valve-operating means which is simple and durable and unlikely to get out of order.

My invention may be applied to the valve of a bath-tub or sink, as will be obvious.

Having described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. A water-receptacle having a waste-outlet, a waste-pipe connected thereto, a waste-stopper therefor, a stem secured to the under side of said stopper, said stem being flat and of substantially the same width as the internal diameter of the waste-pipe for a portion of its length, and having a laterally-arranged lower edge, a rod which passes downwardly into said waste-pipe, in a diagonal direction, a longitudinal slot in said rod, which is of substantially the same width as the thickness of the flattened portion of the stem and extends from the lower end of the rod upwardly, so that the sides of the slot will, in all positions of the rod, engage the sides of the stem throughout a portion of the length of the stem which is greater than the width of the sides of the slot, a bar which crosses said slot at or near its lower end and is adapted to engage said laterally-arranged edge,

and means for reciprocating said rod so that said stopper will be simultaneously lifted and guided thereby.

2. A water-receptacle having a waste-outlet, a waste-pipe connected thereto, a waste-stopper therefor, a stem secured to the under side of said stopper, said stem being flat, and of substantially the same width as the internal diameter of the waste-pipe, a slot cut in said stem which extends from one side of said stem to a point near the opposite side thereof, and having the upper side thereof substantially horizontal, an inclined rod which is bifurcated at its lower end, and which passes diagonally on each side of said stem and engages each side thereof, a pin in the end of said rod which is arranged to engage the upper side of the slot in said stem, and an operating-handle connected to said rod for drawing the same upwardly.

3. A water-receptacle having a waste-outlet, a waste-stopper therefor, a guiding-stem secured to the under side of said stopper, said stem being flat for a portion of its length, and having a laterally-arranged lower edge, a rod having a slot in the end thereof, a bar in the end of said rod which crosses said slot and is adapted to engage said lower edge, said flattened portion of said stem being fitted in said slot and the slotted end portion of said rod being arranged diagonally of said stem, and means for drawing said rod outwardly from said pipe, whereby said stem may be simultaneously lifted and guided.

4. A water-receptacle having a waste-outlet, a waste-pipe connected thereto, a waste-stopper therefor, a stem secured to the under side thereof, said stem being flat and of substantially the same width as said waste-pipe

for a portion of its length and having a substantially-horizontal edge, an inclined rod which passes through said waste-pipe and has its lower end bifurcated and passing diagonally on each side of said stem and engages each side thereof, a pin in the extreme lower end of said rod which crosses the bifurcation thereof and which is arranged to engage said horizontal edge.

5. A water-receptacle having a waste-outlet, a waste-pipe connected thereto, a waste-stopper therefor, a stem secured to the under side of said stopper, said stem being flat, and of substantially the same width as the internal diameter of the waste-pipe for a portion of its length, an arm which extends laterally from one side of said stem for a portion of the width of said pipe, thereby forming a laterally-extending slot between said stem and said arm, an operating-rod which enters said pipe at a point adjacent the side of said stem from which said arm extends, said rod being provided with a bifurcated end which is arranged diagonally of said stem, and closely engages the opposite sides thereof, a bar in said rod which crosses said bifurcation and is adapted to engage the upper edge of said slot, and means for reciprocating said rod at an angle to said slot, whereby said stopper may be simultaneously lifted and guided and be locked against removal when it is lifted from its seat.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM BUNTING, JR.

Witnesses:

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HENRIETTA J. HARRIMAN.