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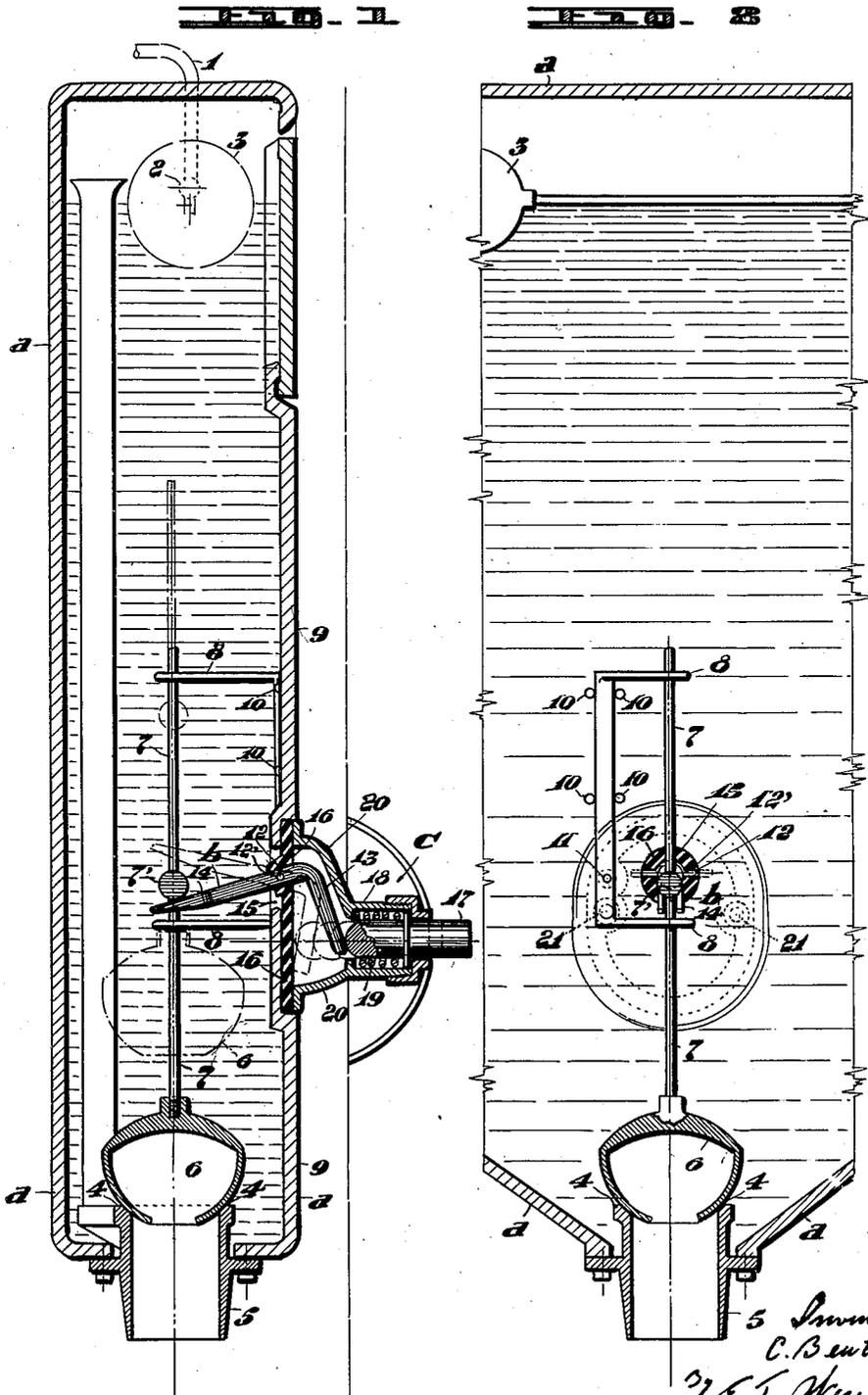
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DISCHARGE APPARATUS FOR WASHING WATER CLOSETS

Filed June 29, 1939

2 Sheets-Sheet 1



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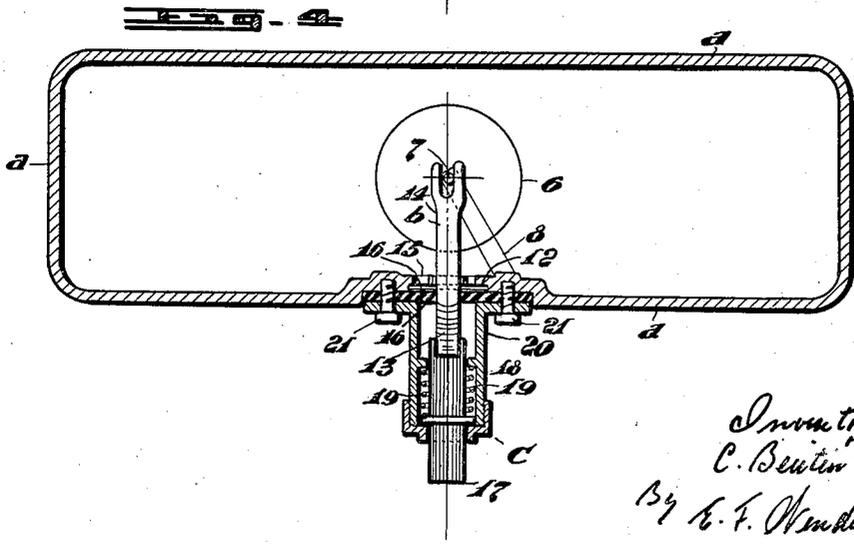
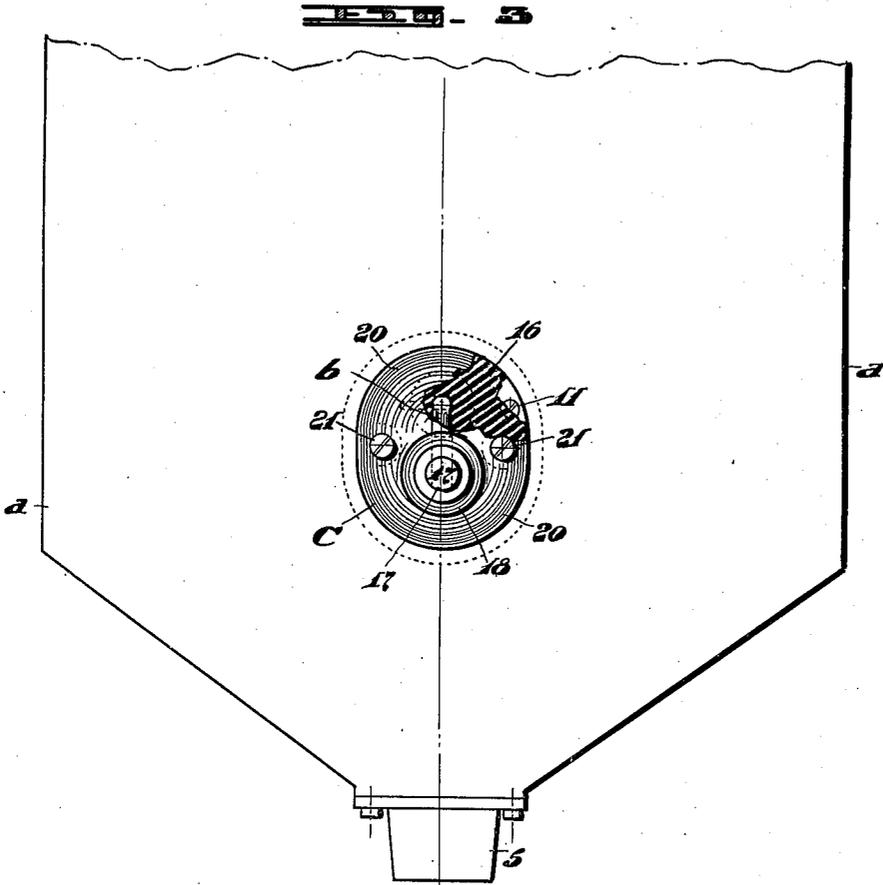
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UNITED STATES PATENT OFFICE

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DISCHARGE APPARATUS FOR WASHING WATER CLOSETS

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3 Claims. (Cl. 4-67)

This application relates to a new water discharge apparatus for washing water closets, which, due to the special features thereof and the results obtained in testing same, offer important advantages over all types of devices known and used heretofore for the same purpose.

The mechanism of the novel apparatus subject of the present invention may be said to constitute a single element so arranged that, without requiring auxiliary intermediary means, it reflects the external action inwardly, and the corresponding displacement does not cause disturbances in the point of admission to the reservoir. Also, it is possible to keep the apparatus water-tight by means of a simple packing, thus avoiding water leakage and insuring the perfect operation of the apparatus.

For this purpose, the apparatus subject of the present invention, comprising a reservoir having its discharge pipe closed by a float obturator, is provided with an actuating element constituted by a lever arranged so that the power arm thereof is located outside the reservoir so as to be manually operated, while the resistance arm of said lever is located within the reservoir for connection with the float obturator. Thus, the fulcrum of said lever is on the wall of the reservoir itself, that is to say, the dead point of the lever, where there it has practically no movement, is on the reservoir wall. This makes it possible to readily render the opening for the passage of the lever water-tight and to keep same sealed, through any suitable packing or the like.

The invention also provides a simple way for combining the means for assembling the actuating mechanism. This only requires a simple set of wedges or the like, so that the fulcrum of the lever will lie on the edge of the opening in the wall, and a packing is adapted on the fulcrum. The tightening of said packing will be sufficient to render the opening water-tight, as at said dead point of the lever there is no substantial movement involved. Also there is the additional advantage that there is no resistance and therefore the mechanism is light and may be actuated by means of a button or directly through the power arm.

In order that the invention may be more clearly understood and readily carried into practice, same has been illustrated by way of example and in a preferred embodiment in the accompanying drawings, wherein:

Figure 1 is a side sectional view of the apparatus, showing the simple mechanism constituted by the lever having its power lever located

outside the reservoir and its resistance arm within said reservoir, so that the dead point is located exactly on the apertured wall thereof provided with a corresponding packing. In this figure, the full lines show the mechanism in inoperative position, while the dotted lines show same in operative position for discharging the water.

Figure 2 is a rear sectional view of the apparatus, showing the manner in which the resistance arm enters the reservoir for connection with the obturator rod. This rod is guidedly mounted by means of a simple screw adapted from the outside and made water-tight by means of the same packing as used for the lever.

Figure 3 is a front view showing the box of the control button which is preferably connected to the power arm of the lever; and

Figure 4 is a plan view of the apparatus, showing the fulcrum on the reservoir wall, with the corresponding sealing packing; said fulcrum is not subject to movement as it is located on the dead point of the lever.

The same reference characters indicate like or corresponding parts or elements throughout the different views.

With reference to the drawings, *a* is the reservoir to which water is supplied through pipe 1 as admitted by valve 2, controlled float-valve 3, the latter being arranged so as to close said float-valve upon the water reaching a certain full-charge level in the reservoir.

As is common in apparatus of this type, the bottom of the reservoir *a* has an outlet provided with a seat 4 corresponding to the starting point of the discharge pipe 5 leading to the water-closet. An obturator 6 is seated on said seat 4, said obturator being floatable since it is made lighter than water, and in order to provide an effective closure, said obturator 6 is open at the bottom. The upper portion of said obturator is joined to a rod 7 guided in two points of a guide 8, the latter forming a single unit and being adapted against the front wall 9 of reservoir *a*, where said guide 8, fitted between buttons 10, is secured by means of a screw 11 passing through said wall 9 so as to be movable from the outside of the reservoir.

As the obturator 6 must be raised to cause the discharge of the water contained in the reservoir, this is done through a lever *b*, the novel structure and arrangement of which constitute the basis of the present invention. This lever has its fulcrum 12 on the wall 9 of reservoir *a*, with the particularity that as it passes through an opening in said wall, this lever *b*, which is of the first class,

has its power arm 13 on the outside of the wall 9, while the resistance arm 14 thereof operates in the interior of the reservoir, as clearly shown in Figures 1, 2 and 4.

5 The opening through which the lever *b* passes is indicated at 15, and as may be seen in the drawings, near said opening are the bearings or other suitable means forming, together with a shaft 12', the fulcrum 12 of said lever. As the
10 lever *b* passes into the reservoir at a point near the obturator 6, in order to avoid leakage of water said opening 15 is provided with a packing 16 of rubber or other suitable material, adapted over the fulcrum 12 so as to serve as a joint on the
15 dead point of the lever. A mere tightening of said packing will be sufficient to provide a water-tight seal, as the lever at that point has practically no movement capable of disturbing the seal, and also for this reason the packing will not
20 affect the action of the lever, which is light due to the little resistance offered thereby.

The free end of the resistance arm 14 of lever *b* is provided with a fork surrounding rod 7 and coinciding with a stop 7', so that upon actuating
25 the lever *b* (as clearly shown in Figure 1) said arm will act against stop 7' and cause the lifting of obturator 6 and the latter, after leaving the seat 4 thereof, will float to the position indicated in dotted lines in Figure 1.

30 The externally located power arm 13 of the lever is connected to the stem of button 17 which, acting in a box or body 18 and pressed by a spring 19, constitutes the manual control or actuating element *c*. As may be seen from the drawings, said box or body 18 extends forming a casing 20
35 flanged so as to be adapted against the packing 16, and the latter extends so as to serve as a joint and seat for the entire mount of the device *c*.

Said casing 20 encloses the power arm 13 of
40 lever *b* and provides sufficient space to enable the displacement of said arm upon being actuated by button 17, for the purpose of raising the obturator through the resistance arm of lever *b*, as described above.

45 As shown in Figures 3 and 4, said casing 20, acting as a socket for the device *c*, is secured to wall 9 of reservoir *a* by means of screws, in such a manner that said casing presses said packing 16 so as to obtain a water-tight seal.

50 As shown in Figure 2, screw 11 engaging guide 8, has the head thereof outside of the reservoir but is screwed until level with the outer surface of the reservoir wall, in such a manner that the same packing 16 will also seal the orifice through which said screw 11 is passed. Therefore, pack-
55 ing 16 seals the entire control or actuating mechanism as a unit.

60 Due to the fact that the only actuating element is constituted by the lever *b*, the operation of the apparatus above-described is very simple. Upon moving said lever, through the control button 17, from the position shown in full lines in Figure 1, same is displaced to the position shown in dotted lines, thereby causing the resistance
65 arm of lever *b* to act against stop 7' of rod 7 and lifting obturator 6 sufficiently to make the latter leave the seat 4 and move upwardly by flotation to the position shown in dotted lines, thus allowing the discharge of the water contained in
70 the reservoir.

After the discharge of water has been completed, upon releasing the button 17 the latter will return to the position shown in full lines by virtue of spring 19, and due to the weight of obturator 6 returning to the seat 4, or through
5 the action of a weight or spring, lever *b* will return to the position shown in full lines, ready to cause a further discharge of water after the latter has again filled the reservoir up to the corresponding level.

10 From the above, it may be seen that the main feature of the apparatus subject of the present invention is the lever *b* which does away with the necessity of an elaborate transmission, as by arranging said lever with the power arm located
15 outside of the reservoir and the resistance arm within same, it received and produces in a direct manner the effect necessary to actuate the obturator 6, without affecting the water-tight joint formed, as stated above, by a packing on the
20 fulcrum equivalent to the dead point of lever *b*.

Instead of the button 17, the control may comprise a crank formed with the power arm 13 itself.

25 It is evident that several changes in construction and detail may be carried out by those skilled in the art without departing from the scope of the present invention as clearly set forth in the appended claims.

What I claim is:

30 1. A water discharge apparatus for flushing water closets comprising a reservoir having a discharge outlet, a guided float obturator in said reservoir for closing said discharge outlet, a control element for actuating said float obturator,
35 said reservoir being provided with an opening in the front wall thereof, a resilient packing member constituting a sealing closure for said opening, said packing member being provided with a passageway therethrough, an angular lever extend-
40 ing through said passageway in sealed relationship to said packing member, means for pivotally journalling said lever at said passageway, said angular lever being so constructed and arranged
45 as to provide a power arm and a resistance arm, said power arm being externally located relative to said reservoir and defining an acute angle with the plane of the front wall of the latter, said control element being mounted on said front
50 wall and being substantially perpendicularly disposed relative to the latter, said power arm being operatively connected to said control elements, and said resistance arm being internally located relative to the reservoir and being operatively
55 connected to said obturator.

2. A water discharge apparatus as defined in claim 1, casing means on said front wall providing a guiding support for said control element, and said packing simultaneously constituting
60 sealing means for said casing means.

3. A water discharge apparatus as defined in claim 1, casing means on said front wall providing a guiding support for said control element, said packing simultaneously constituting sealing
65 means for said casing means, and means for normally urging said control element away from said power arm, said power arm being forked at its inner end.

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