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The drawing consists of two parts: a cross-sectional view on the left and a side view on the right. The cross-section shows a central shaft (14) with a crank (15) and a connecting rod (16) attached to a piston (17). The piston is housed within a cylinder (18). The side view shows the overall structure, including a base (1) and a top cover (2). The shaft (14) is supported by bearings (3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20). The drawing is labeled with numbers 1 through 20, corresponding to the legend.

Number	Description
1	Base
2	Top cover
3	Bearing
4	Bearing
5	Bearing
6	Bearing
7	Bearing
8	Bearing
9	Bearing
10	Bearing
11	Bearing
12	Bearing
13	Bearing
14	Shaft
15	Crank
16	Connecting rod
17	Piston
18	Cylinder
19	Valve
20	Valve

Fig. 1.

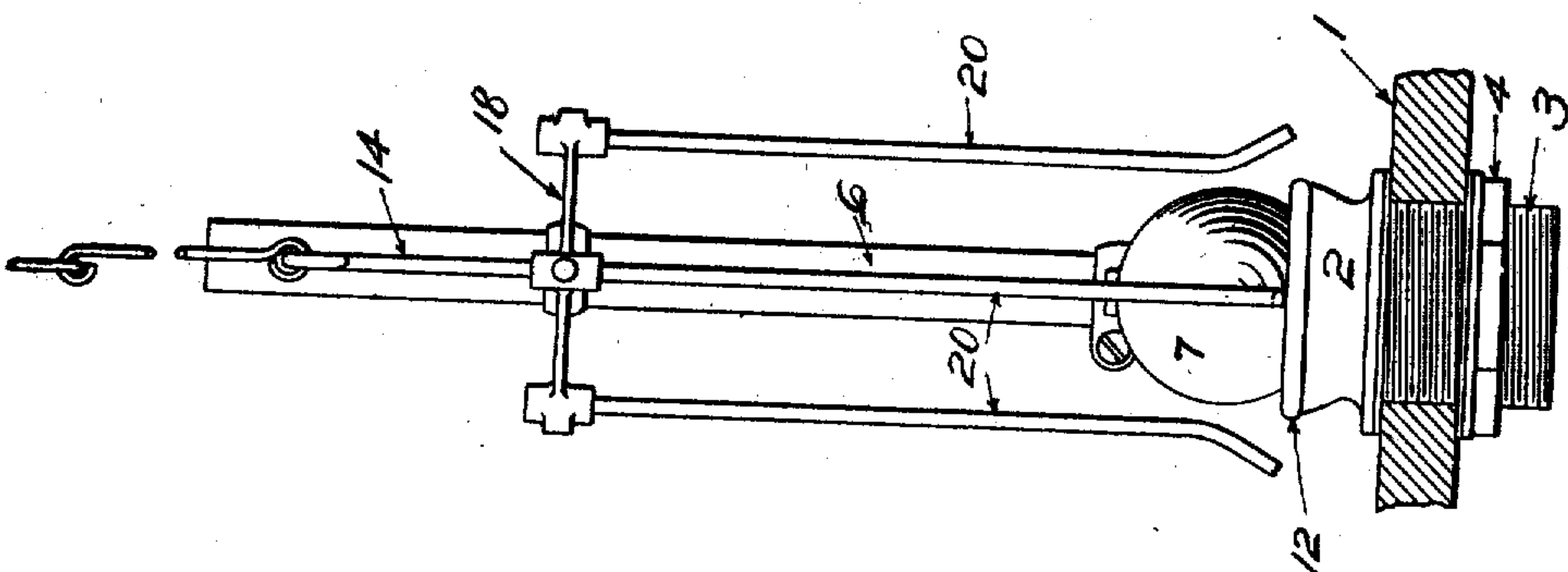


Fig. 2.

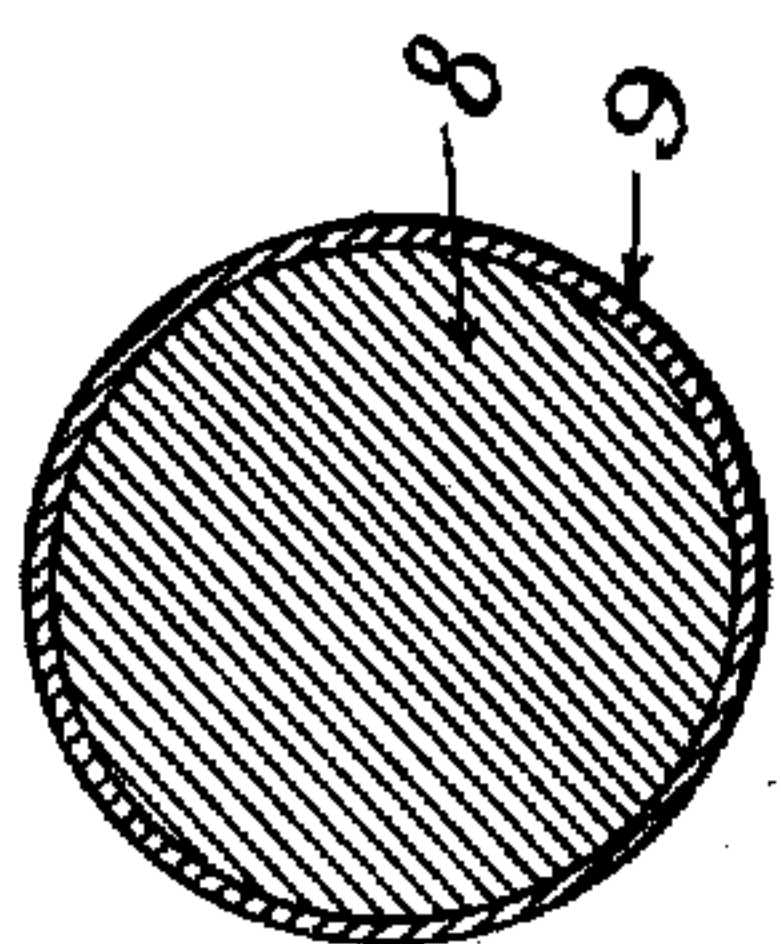


Fig. 4.

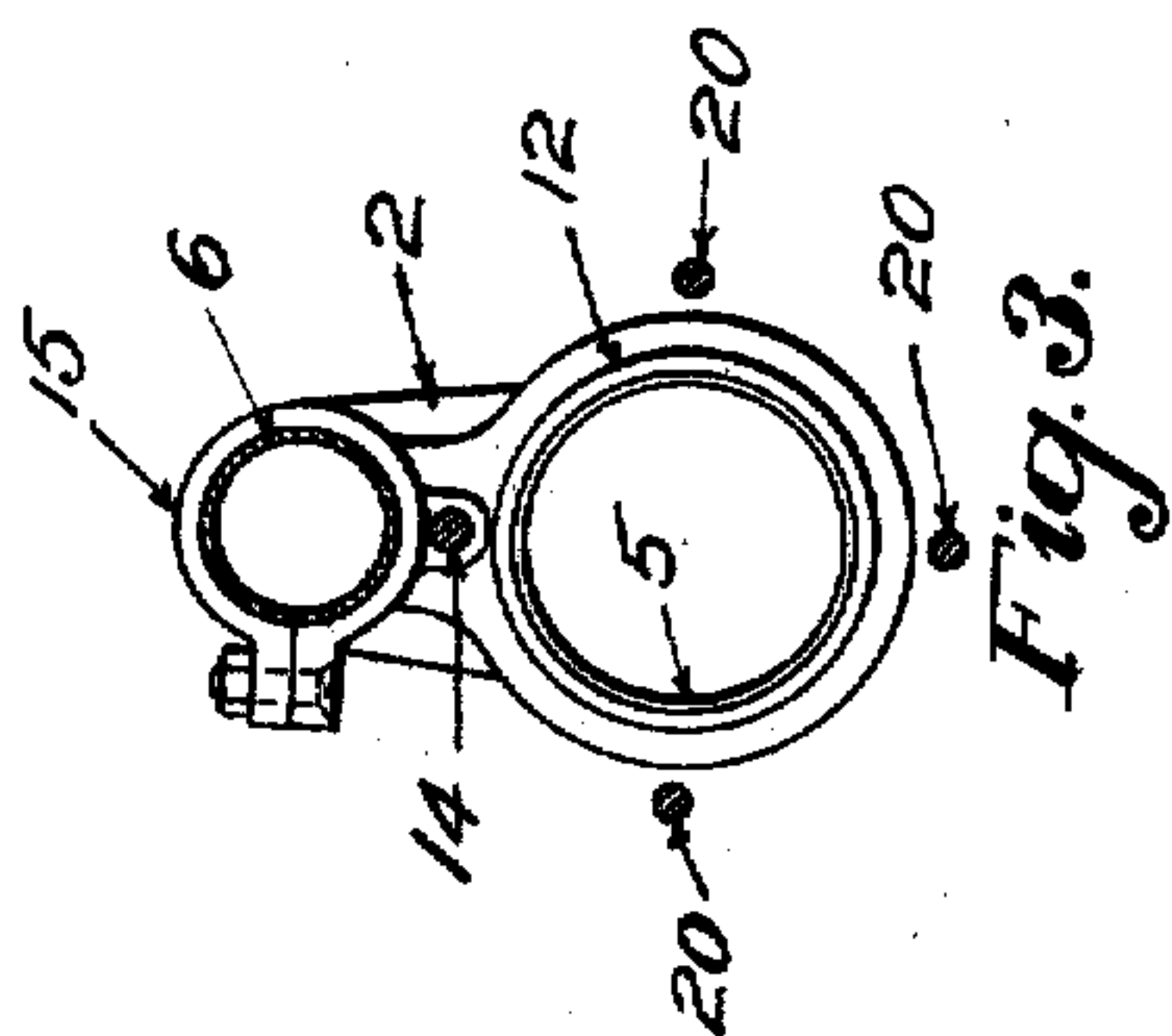


Fig. 3.

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FLUSH-VALVE MECHANISM.

999,619.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed June 20, 1910. Serial No. 567,880.

To all whom it may concern:

Be it known that I, JAMES M. YOUNG, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Flush-Valve Mechanism, of which the following is a specification.

This invention relates to flushing valves for tanks of water closets and similar devices.

The object of the invention is to provide a flushing valve of simple construction, but which is effective in operation and cannot readily get out of order.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawing Figure 1 is a side elevation partly in vertical section showing a portion of a flushing tank and flushing valve constructed according to this invention; Fig. 2 is a front elevation of the same; Fig. 3 is a horizontal section on the line 3-3, Fig. 1, showing the valve lifting ring in its lowermost position and with the ball valve omitted; and Fig. 4 is a sectional view through the ball valve.

In the drawings 1 represents a portion of the bottom of a flushing tank having therein an opening for receiving the fitting 2 of the flushing valve. This fitting has an externally threaded portion 3 extending through the opening in the bottom of the tank and receiving the clamping nut 4. The upper face of the fitting is provided with a seat 5 for the valve. Extending upwardly from the fitting is the usual column or overflow pipe 6.

The valve 7 may be of any suitable buoyant construction. Preferably it is spherical in shape, so that it will properly engage the seat irrespective of the position it is in when it descends. The ball valve shown is of special construction to form a tight closure, comprising an interior filling or body 8 of some suitable light, solid material which is buoyant, such as cord, and which is covered by an impervious and imperforate covering 9, such as a thin covering of soft rubber. A ball of this character is exceedingly buoyant, and is also cheap to manufacture on account of the small quantity of rubber which need be used, and is more durable than a hollow rubber ball as it is

not so liable to collapse under the pressure of the water.

The means for actuating the valve comprises a ring 12 of such size that when in its lowermost position it surrounds the valve seat 5 and is entirely out of contact with the ball 7, but when lifted engages said ball below its largest diameter and lifts the same from its seat. This ring may be actuated in any suitable way. As shown, it has connected thereto an extension 13 provided with an opening which surrounds the pipe or column 6 and is guided thereby. Connected to said ring is the lifting rod 14 which passes through suitable guides 15 and 16 on the pipe or column 6, and is provided at its upper end with an eye 17 or similar means for the attachment of a lever or other operating mechanism. The ring 12 is guided thereby in a right line vertically, so that when it drops it always surrounds the valve seat.

The valve 7 is normally held to its seat by the pressure of the water in the tank but as soon as lifted from the seat so as to relieve such pressure said valve immediately rises due to its buoyancy. To guide said valve and prevent its escape when lifted I provide a suitable skeleton frame comprising a bracket 18, which is an extension of the guide 16, and which has connected thereto a plurality of vertically depending wires or small rods 20. Three such wires or rods are shown and form a three-sided cage which prevents the ball valve from escaping through either side or toward the front, that is, away from the column 6. The column 6, or more strictly speaking, the valve actuating rod 14 forms a guide for the ball at the rear and prevents it from escaping in that direction. When the ball rises on account of its buoyancy it passes upwardly in the space inclosed by the three rods 20 and the actuating rod 14, and gradually drops as the water empties out of the tank. When the tank is empty the ball drops naturally onto the valve seat, and on account of its spherical shape forms a tight closure. It remains in this position, due to the water pressure on the same, until again lifted by the ring 12.

The flushing arrangement described is of simple construction, is effective and efficient in operation, and cannot readily get out of

order. The valve itself is of such construction that a tight closure is formed, and said valve is not liable to collapse or otherwise get out of shape so as to allow water to leak past the same.

What I claim is:

1. A flushing valve comprising a fitting having valve seat surrounding an outlet opening, an overflow pipe extending upwardly from said fitting, a buoyant valve adapted to fit said seat and close the outlet opening, a lifting member surrounding the seat and having a portion slidably embracing and therefore guided on the overflow pipe to reciprocate vertically, said lifting means arranged to engage the buoyant valve and lift the same from its seat, and a stationary skeleton frame arranged to guide and confine said buoyant valve.
2. A flushing valve comprising a fitting having a valve seat surrounding an outlet opening, an overflow pipe extending upwardly from said fitting, a buoyant ball forming a valve cooperating with said seat and arranged to close the outlet opening, a lifting member surrounding the seat and guided by the overflow pipe to reciprocate vertically and arranged to engage the valve and lift the same from its seat, a bracket projecting from the overflow pipe, and a skeleton frame or cage supported by said bracket and arranged to guide and confine said valve.
3. A flushing valve comprising a fitting having a valve seat surrounding an outlet

opening, an overflow pipe extending upwardly from said fitting, a buoyant valve cooperating with said seat and arranged to close the outlet opening, a bracket secured to the overflow pipe, a skeleton frame supported by said bracket and extending into proximity to the valve seat, a lifting member surrounding the seat and lying below the lower end of said skeleton frame and being guided by the overflow pipe to reciprocate vertically, and a lifting rod secured to said lifting member.

4. A flushing valve comprising a fitting having a valve seat surrounding an outlet opening, an overflow pipe extending upwardly from said fitting, and a buoyant valve cooperating with said seat and arranged to close the outlet opening, a bracket secured to the overflow pipe, depending rods carried by said bracket and projecting into proximity to the valve seat, a lifting member surrounding the valve seat and guided by the overflow pipe to reciprocate vertically and arranged to engage the valve and lift the same from its seat, and a lifting rod secured to said lifting member and guided by said bracket and cooperating with the depending rods to form a skeleton frame for confining and guiding the buoyant valve.

In testimony whereof, I have hereunto set my hand.

JAMES M. YOUNG.

Witnesses:

JAS. L. WELDON,
MARY E. COHOON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."