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PATENTED DEC. 29, 1903.

J. H. BYERS.
FLUSHING APPARATUS.
APPLICATION FILED MAR. 2, 1903.

NO MODEL.

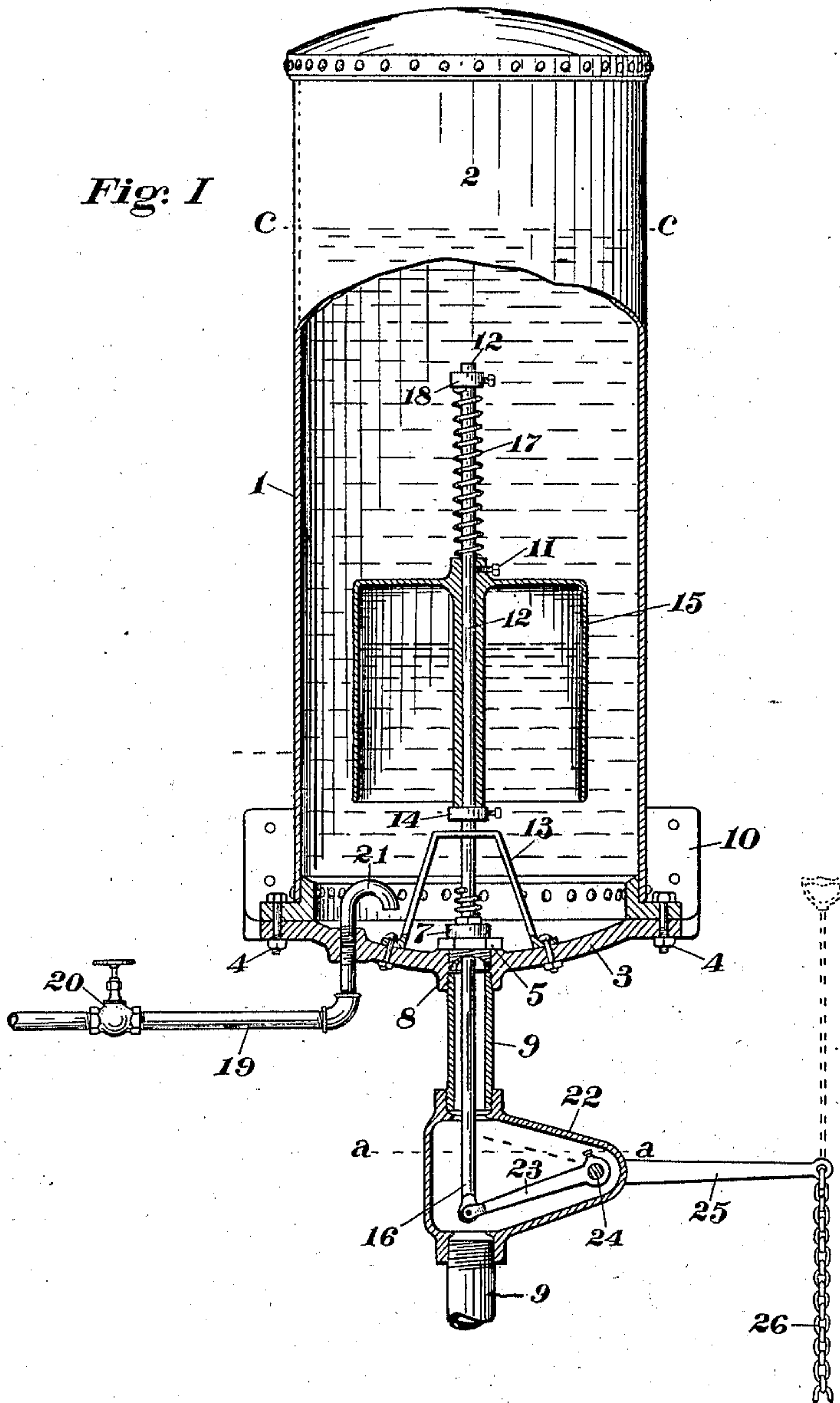
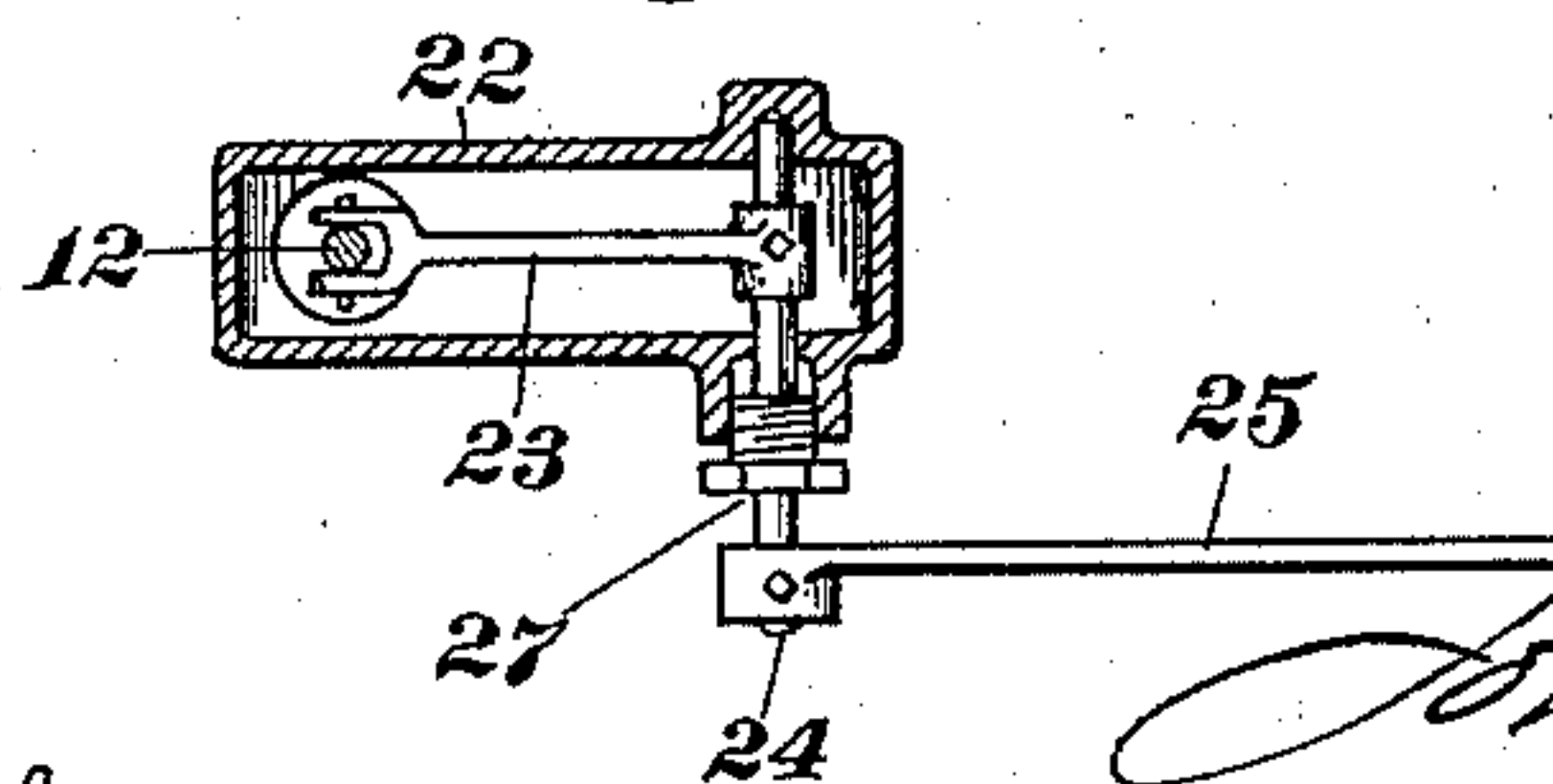


Fig. II



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN H. BYERS, OF SAN FRANCISCO, CALIFORNIA.

FLUSHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 748,046, dated December 29, 1903.

Application filed March 2, 1903. Serial No. 145,715. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. BYERS, a citizen of the United States, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Flushing Apparatus; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to flushing devices for water-closets and like purposes and to certain improvements therein, as hereinafter described, and illustrated by drawings forming a part of this specification.

My improvement consists in a vessel or receiver connected to a pressure water-service and adapted to hold a flushing charge of water, also a quantity of air entrapped therein; at the bottom of this vessel a flushing or discharge valve operated by a rod or stem that passes downward into the flushing or discharge way from the main valve. This main valve is connected to a float in the main vessel, which latter by its buoyancy holds the valve open when raised and by its gravity assists in closing the valve when the charge of water escapes down through the flushing-pipe.

It also consists in the manner of operating the flushing-valve, rendering it automatic, and in other features hereinafter described in connection with the drawings.

The objects of my invention are to provide a flushing device wholly inclosed, without adjustments, and secure from being tampered with, one that can be set above or below the receptacle to be flushed, discharging by the service-pressure without siphoning action by means of a valve operated from the flushing or discharge way below the main vessel; also avoids the use of a separate inlet or supply valve with its attendant mechanism; also has other objects hereinafter explained. To these ends I apply devices as illustrated in the drawings herewith.

Figure I is an elevation, mainly in section, showing the operating parts of a flushing device made according to my invention; and Fig. II a transverse section on the line *a a* in Fig. I.

The supply-tank 1 is made to hold the required quantity of water, exclusive of an air-

space 2 above the dotted line *c c*, that varies with the pressure and is closed at the bottom by being attached to a base-plate 3 by screw-bolts 4, as shown in Fig. I. In this base-plate 3 is inserted a valve-seat 5, closed by the flushing-valve 7, opposite which is a nipple 8 to receive the flushing-pipe 9, and at the back of this plate is an angular flange 10 for attaching the structure against a wall or other support in the usual manner.

The valve 7 is rigidly attached to a rod or stem 12, that passes through a guiding-bracket 13, an adjustable collar 14, and a float 15, fastened to the stem 12 by a screw 11. Above the float is placed a yielding spring 17, the tension of which is regulated by a movable collar 18 for purposes hereinafter explained.

A supply-pipe 19 connects to the service-pipes or other source under water-pressure and is provided with a valve 20, by which the rate of flow or the time of filling the vessel 1 can be regulated. The inner end of this pipe 10 is arranged to discharge downward, as shown at 21.

A stem 16 extends from the valve 7 down through the flushing-pipe 9 to a chamber 22 and is there connected to an inclosed lever 23, attached to an oscillating shaft 24, on the outer end of which is fastened the operating-lever 25, moved by a chain 26 or push-rod in the usual manner.

The chamber 22 forms a section or part of the flushing-pipe 9 and is provided with a gland 27 around the shaft 24, so the water-ways of the whole structure are sealed against leaking water or gas.

In operating, service-water under pressure is admitted to the vessel 1 through the valve 20 and pipe 19 at a rate that will charge the vessel in from two to ten minutes or accordingly as the frequency of flushing. The weight of the stem 12 and its connected parts, together with the pressure in the vessel 1, holds the valve 7 shut against the buoyancy of the float 15 while the vessel 1 is filling. As the vessel 1 is filled through the pipe 19 the air therein is compressed by the water-pressure into a space more or less in volume, accordingly as the service-pressure.

To operate the device, the lever 25 is depressed, raising the valve 7, so the water in the vessel 1 is forcibly discharged down the

flushing-pipe 9 until the float 15 descends and closes the valve 7, when the pressure is sufficiently relieved.

5 It will be understood that as soon as the valve 7 is lifted from its seat the buoyancy of the float 15 is sufficient to hold it open during the discharge independent of the lever 25, so a definite amount of water escapes automatically at each operation.

10 In the case of automatic intermittent service, as in the case of urinals and the like, the float 15 and valve 7 are so proportioned that the float will open the latter by its buoyancy, the hand-operating devices are detached, and 15 the screw 11 is loosened so the float 15 will slide on the stem 12.

The spring 17 is so set that the float 15 will admit the required amount of water before opening the valve 7 and will then descend 20 and close the valve, the operation going on automatically at periods determined by the rate at which supply-water is admitted by the cock 20. In this manner it will be seen that the various devices when once set require no 25 adjustment, can be placed at any convenient

point above or below the receptacle or place to be flushed or on the same level; that the whole is incased and no separate water-supply apparatus is required; also that the force of the flushing-water is greatest at first and is graduated to meet the requirements. 30

Having thus explained the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a flushing device, a main vessel or receiver, a discharge-valve therefor, a float in the receiver connected to this valve by a stem 35 on which the float may slide and a spring above the float to regulate its range whereby an automatic intermittent discharge of flushing-water is obtained, in the manner and for 40 the purposes specified.

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

JOHN H. BYERS.

Witnesses:

P. W. J. LANDER,
JOSEPH R. OLDHAM.