Nov. 18, 1924.

T. HUGHES

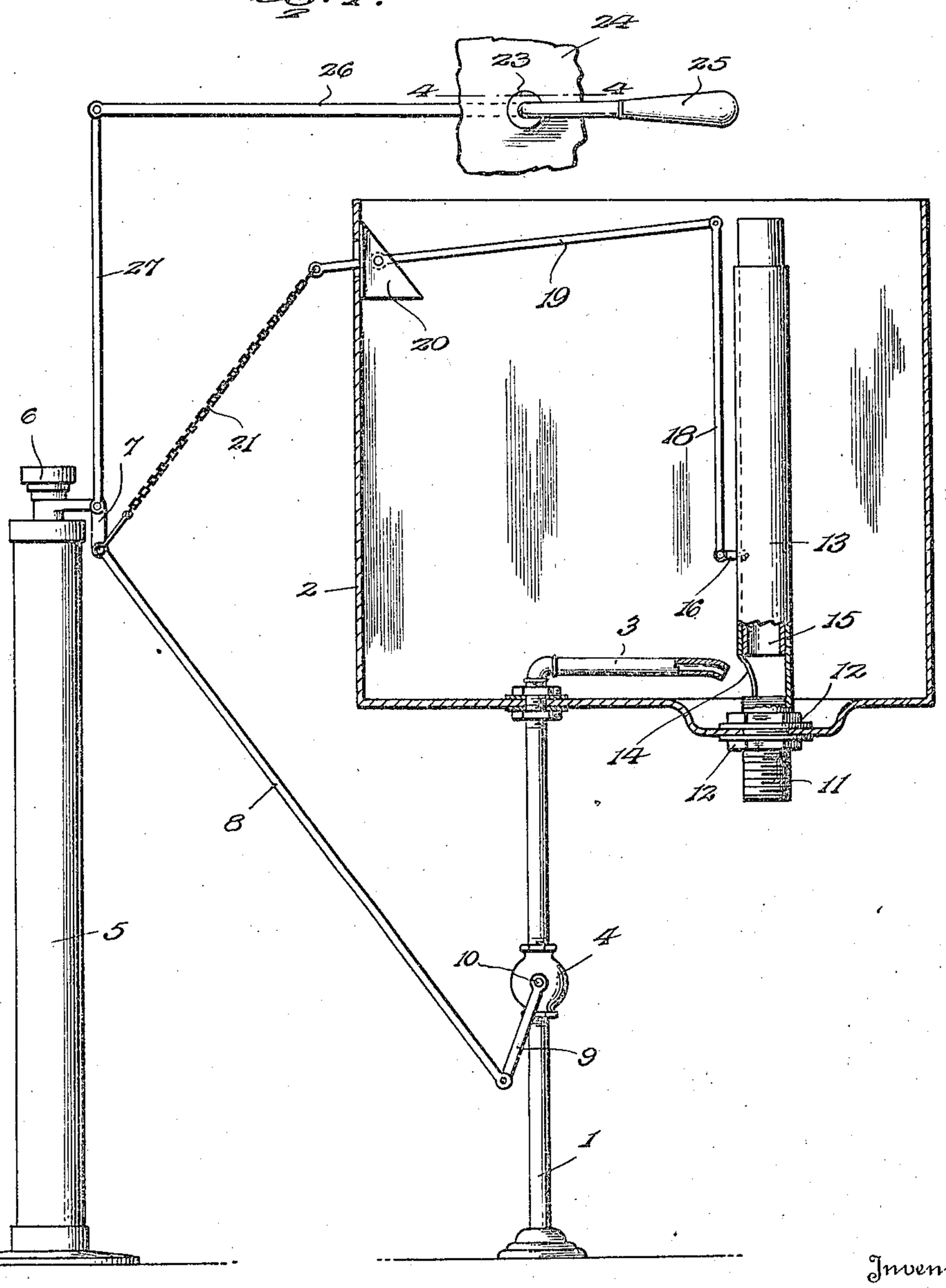
FLUSHING MECHANISM

Filed Oct. 24, 1923

1,516,043

2 Sheets-Sheet 1

Fig. 1.



Inventor

Thomas Hughes.

By Lacey, Lacey, Attorneys

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Fig. 2.

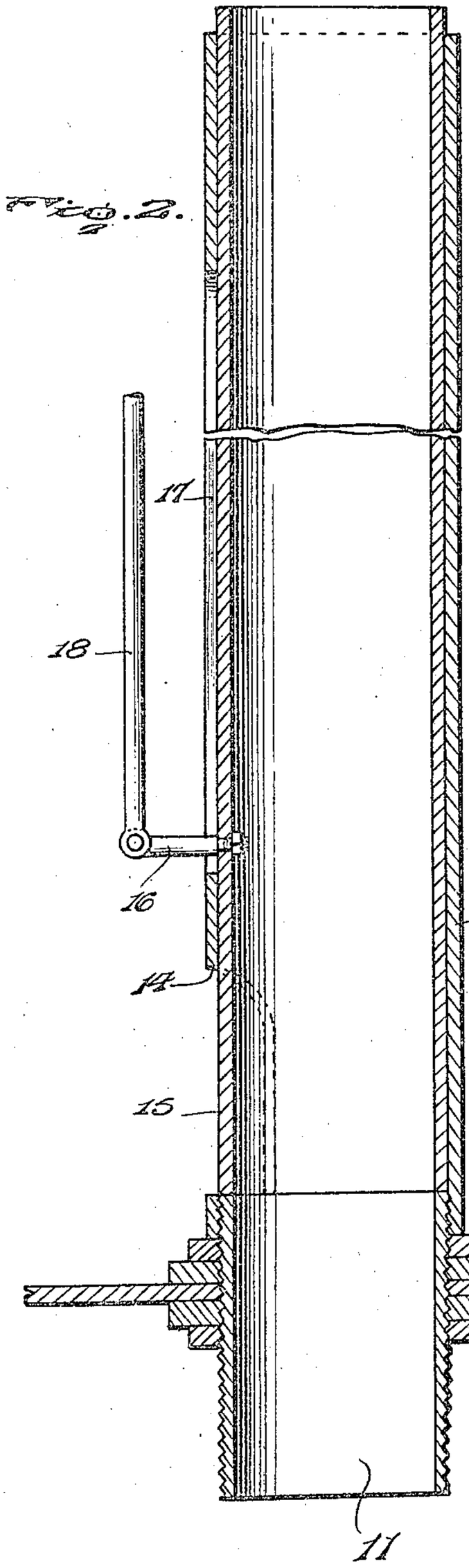


Fig. 3.

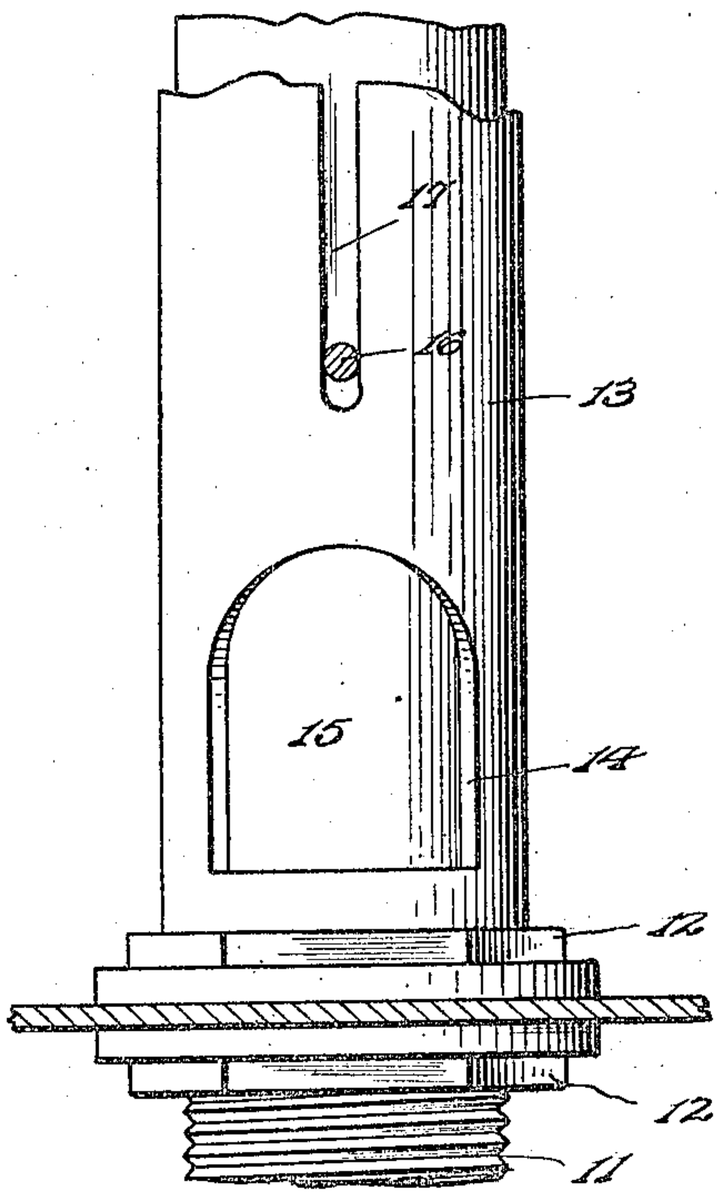
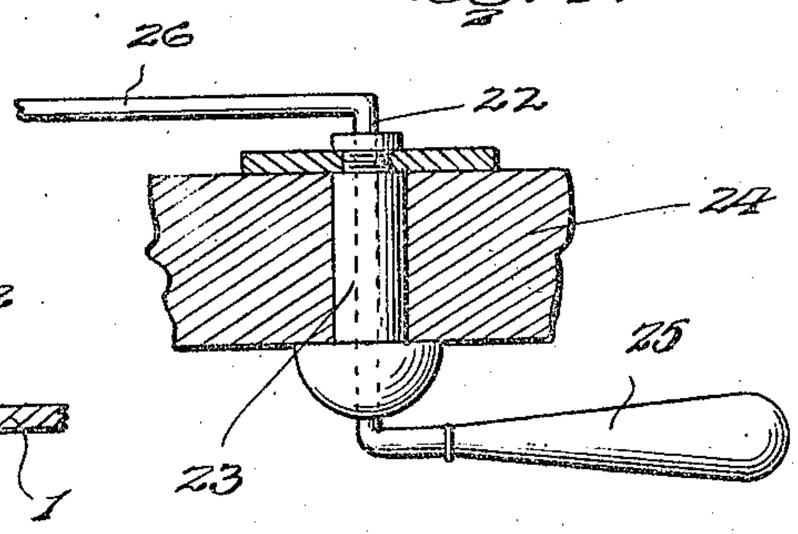


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS HUGHES, OF AURORA, ILLINOIS.

FLUSHING MECHANISM.

Application filed October 24, 1923. Serial No. 670,530.

To all whom it may concern:

Be it known that I, THOMAS HUGHES, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Flushing Mechanism, of which the following is a specification.

My present invention relates to flushing mechanism and has for its object the provision of means whereby the part to be flushed will receive a supply of water under sufficient pressure to effectually perform the flushing operation, and another object of the invention is to provide an apparatus in which the tank will be normally empty so that freezing will be avoided, and another object of the invention is to provide simple and efficient mechanism whereby a predetermined quantity of water sufficient for effectual flushing will be supplied to the part to be flushed at each operation. The invention is illustrated in the accompanying drawings and will be hereinafter fully set forth.

In the drawings:

Figure 1 is a view, partly in section and partly in elevation, of an apparatus embodying my present improvements;

Fig. 2 is an enlarged vertical section through the flushing pipe and the cut-off controlling the flow therethrough;

Fig. 3 is a front elevation of the parts shown in Fig. 2, and

Fig. 4 is an enlarged detail section on the line 4—4 of Fig. 1.

In the drawings, the reference numeral 1 indicates the service pipe which is connected in the usual manner with the city main or other source of supply whereby to receive water under pressure. This pipe leads into a tank 2 and within the tank is coupled to a lateral branch 3, the end of which is open and is disposed immediately adjacent the flush pipe. The service pipe is equipped with a cut-off valve 4 and at one side of the pipe and the tank I provide a dashpot 5, the piston rod of which projects through the upper end of the dashpot and is equipped with a knob or handle 6. A bracket or lateral arm 7 is secured firmly about the piston below the head or handle 6, and this bracket is connected by a link 8 and a lever arm 9 with the stem 10 of the cut-off valve whereby, if the piston be raised, the valve will be opened and the water permitted to flow through the service pipe. The flushing pipe is connected with a coupling sleeve 11 which extends through the bottom of the tank and is secured firmly therein by the collars 12, as shown and as will be readily understood. Threaded onto the upper end of the coupling sleeve 11 is a cylindrical casing 13 which extends upwardly within the tank to a point adjacent the top thereof and is provided at its lower end and in the side presented to the branch 3 of the service pipe with an opening 14 through which the water flows during the flushing operation. The opening 14 is normally covered by a cut-off tube or tubular valve 15 which fits closely but slidably within the casing with its lower end resting upon the upper end of the coupling sleeve 11, as clearly shown in Fig. 2. This cut-off member has secured thereto a short arm 16 which projects laterally therefrom through a vertical slot 17 in the casing 13 and to the outer end of the said arm 16 is pivoted the lower end of a link 18. The upper end of the link 18 is pivoted to a lever 19 which is fulcrumed upon a bracket 20 secured within the tank adjacent the upper end thereof, and a chain or other flexible connection 21 extends between and is secured to the outer end of the lever and the bracket 17 upon the piston of the dashpot.

When flushing is to be effected, the knob or handle 6 is grasped and raised to the limit of its movement, thereby slackening the chain or cable 21 so that the lever 19 may rock upon its fulcrum and the cut-off 15 will be permitted to seat itself upon the sleeve 11 and prevent flow to the flushing pipe. When the piston is raised, as stated, the valve 4 is opened and the flow of water through the service pipe and the branch 3 established. Inasmuch as the cut-off 15 is in its lowest position, however, the water cannot pass into the flushing pipe but will accumulate within the tank 2. The piston of the dashpot is released as soon as it reaches the upper limit of its movement and will thereupon immediately commence to descend. By the time the tank is filled, the piston will have descended sufficiently to bring the connection 21 into a taut condition so that the further descent of the piston will rock the lever 19 and lift the cut-off member 15, whereupon the water in the tank will at once pass out to and through the flushing pipe. The flow of water through the service pipe, however, will continue and the pressure of this water will augment the flow

so that the part to be flushed will receive water under a greater pressure than is the case with the flushing apparatus now most generally employed. The cut-off valve 4 will, of course, start to close as the piston of the dashpot descends but the closing movement will be slow and will not be completed until the piston reaches its lowest point.

To accommodate the location of the mechanism so far described behind a partition or within the studding of a wall, I provide an additional operating means consisting of a rock shaft 22 journaled in a bearing 23 fitted through the wall or partition, indicated at 24, the forward end of the said rock shaft being equipped with a crank or other form of handle 25. The rear or inner end of the rock shaft may be secured to or formed integral with a lever arm 26 which extends toward the dashpot and is connected by a link 27 with the bracket 7, as shown in Fig. 1. Rocking of the handle 25 will, of course, swing the free end of the lever 26 upwardly so that the piston of the dashpot will be raised and the operation of the flushing mechanism will then proceed as above described.

It will be readily noted from the foregoing description, taken in connection with the accompanying drawings, that I have provided a very simple and compact mechanism whereby the flushing operation will be effectually performed and whereby I avoid the accumulation of an inert supply of water which is apt to freeze in exceedingly cold weather. In my apparatus, the tank is normally empty but when the flushing action becomes necessary or is desired, the tank fills and then immediately discharges and at the close of the flushing action the supply of water is automatically cut-off.

Having thus described the invention, what is claimed as new is:

1. In a flushing mechanism, the combination of a tank, an outlet in the bottom of the tank, a casing within the tank communicating with the outlet and provided with an opening at the outlet, a service pipe leading into the tank and terminating immediately adjacent said opening, a cut-off valve mounted within said casing and normally above the opening therein, a cut-off valve in the service pipe, a dashpot, connections between the dashpot and the said valve whereby to open the valve, and connections between the dashpot and the cut-off in the casing whereby to lower the cut-off in the casing when the cut-off valve in the service pipe is opened.

2. In a flushing mechanism, the combination of a tank, an outlet in the bottom of the tank, a casing within the tank connected with said outlet and provided with an opening in its side at the outlet, said casing being provided with a vertical slot above the said opening, a cut-off member slidably fitted within the casing adapted to extend across the opening therein but normally above the opening, an arm secured to said cut-off member and extending through the slot in the casing, a lever fulcrumed within the tank near the top of the same, a link connecting said lever with the said arm, a service pipe extending into the tank and terminating adjacent the opening in the said casing, a controlling valve in the service pipe, a dashpot having a vertically movable piston, operative connections between the said piston and the controlling valve in the service pipe, and a flexible connection between the said piston and the said lever.

In testimony whereof I affix my signature.

THOMAS HUGHES. [L. S.]