

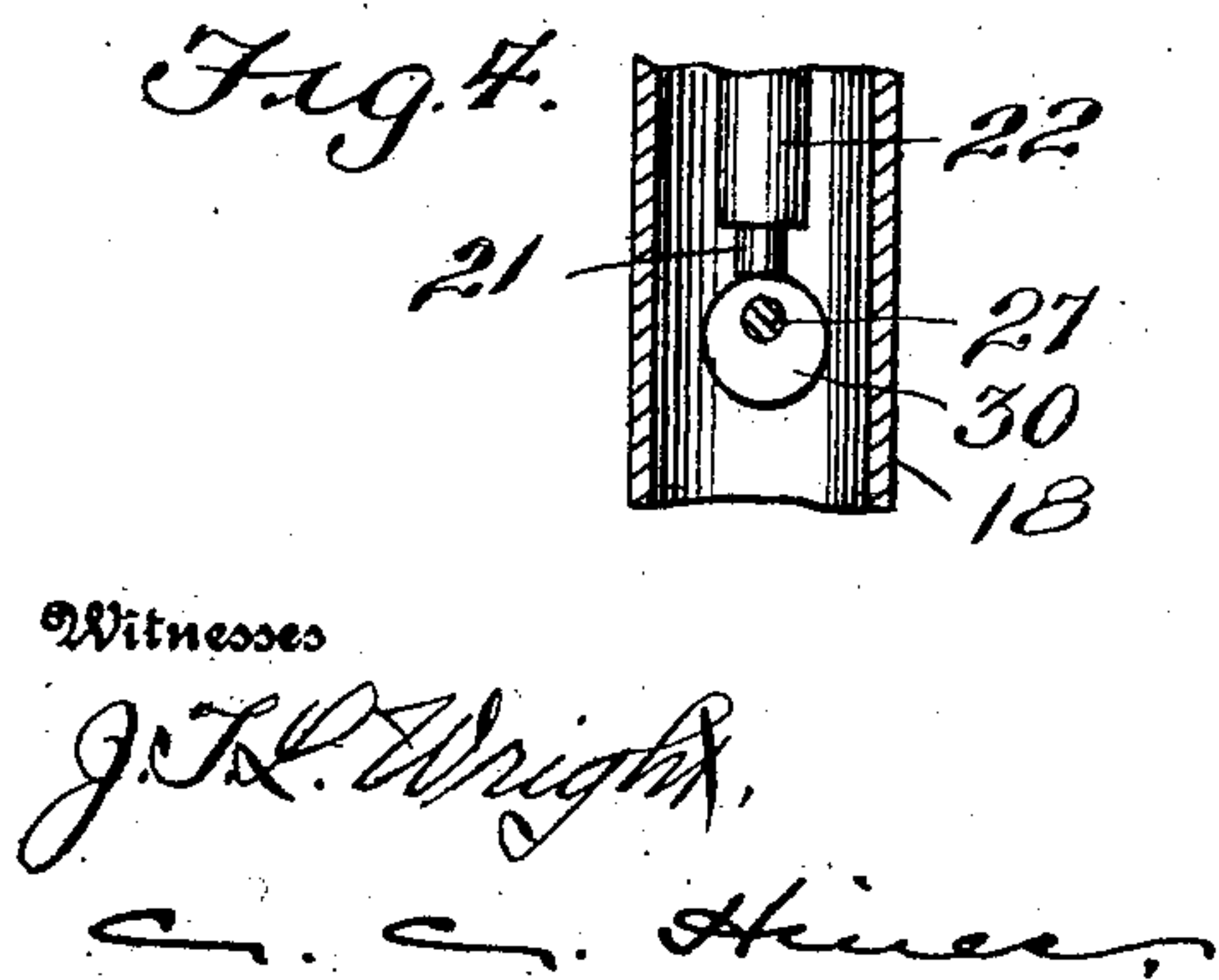
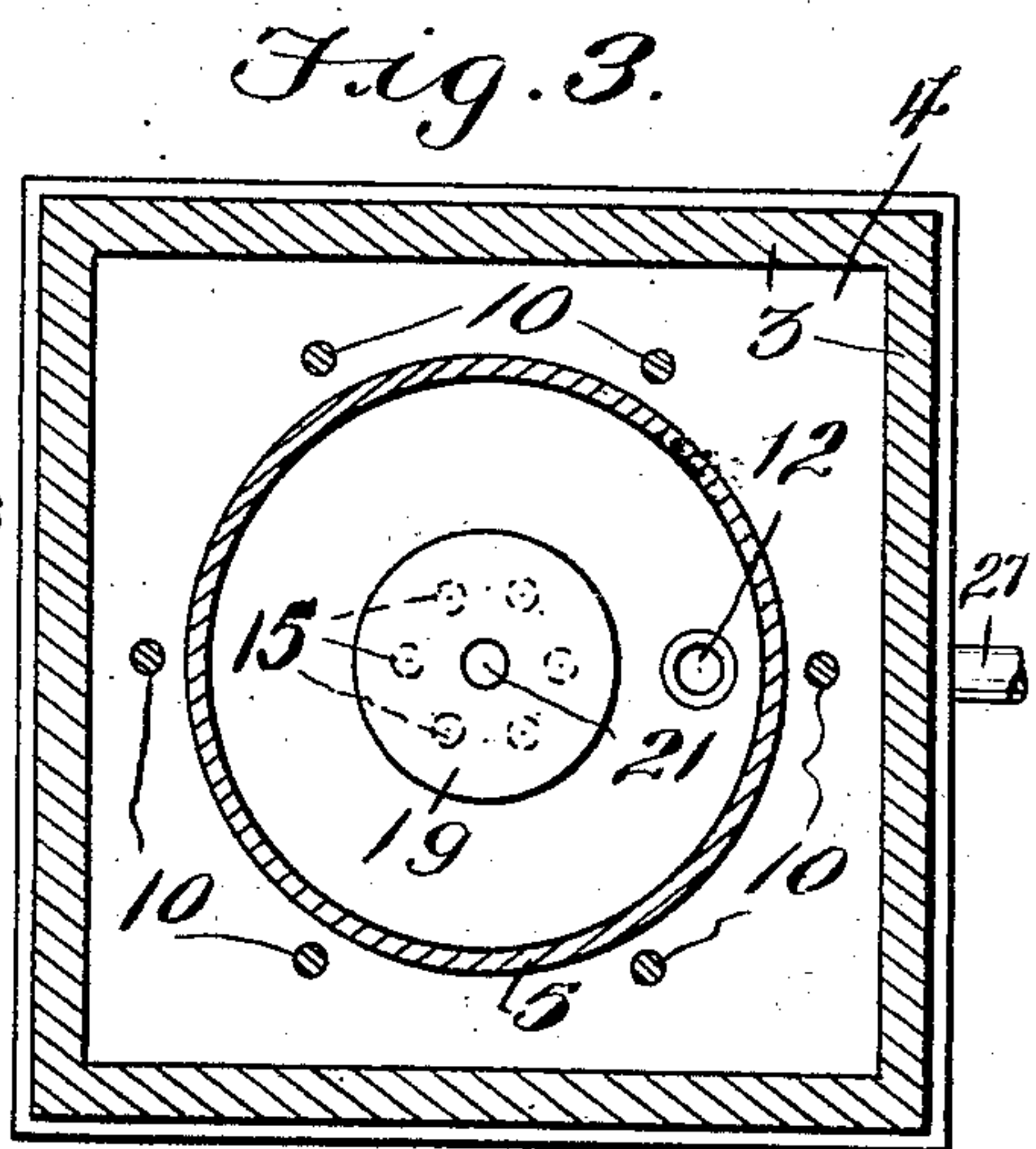
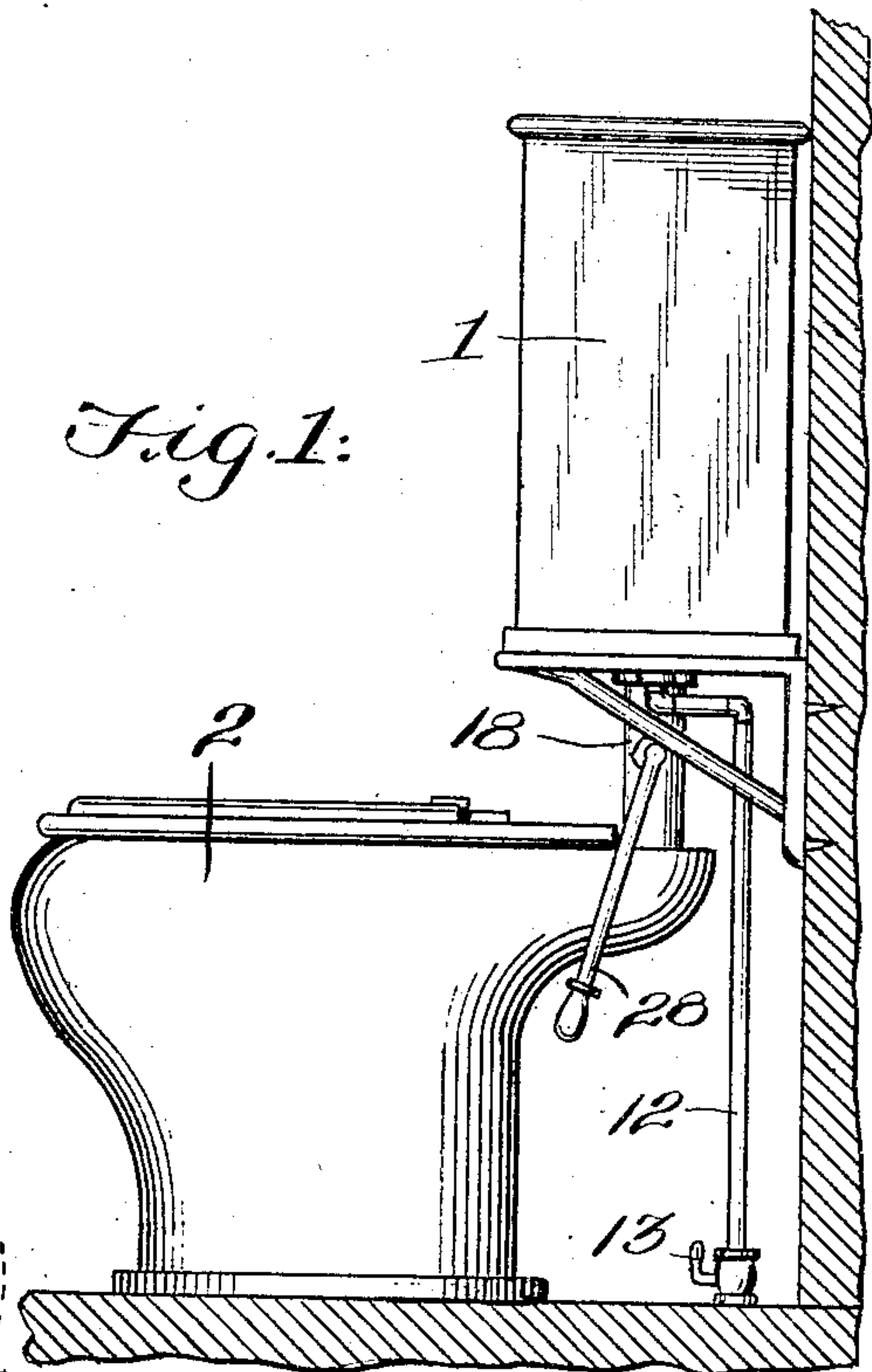
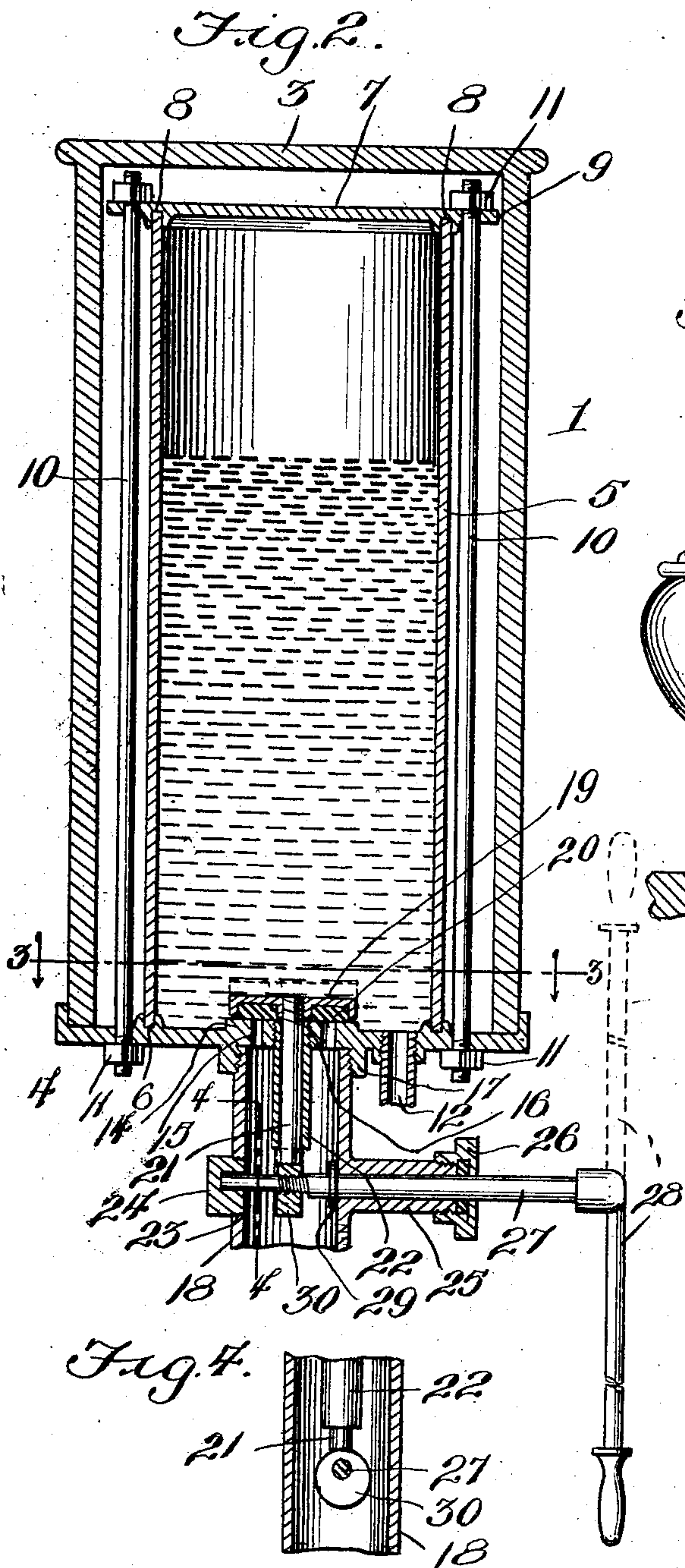
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FLUSHING APPARATUS.

APPLICATION FILED APR. 3, 1908.

908,277.

Patented Dec. 29, 1908.



Witnesses

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UNITED STATES PATENT OFFICE.

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FLUSHING APPARATUS.

No. 908,277.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed April 3, 1908. Serial No. 424,991.

To all whom it may concern.

Be it known that we, ANSON S. KLINE and PHARES S. HELLER, citizens of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented new and useful Improvements in Flushing Apparatus, of which the following is a specification.

This invention relates to improvements in flushing apparatus for closet bowls and the like, the object of the invention being to provide a comparatively simple and inexpensive construction of apparatus of this character in which provision is made for the supply of water to the storage tank through a relatively small feed pipe and for the compression of air in the upper portion of the tank in an efficient manner for the discharge of the water with the required force; and a further object is to provide a novel manner of connecting the parts by which they are adapted to be readily and conveniently assembled and disassembled, and to provide a simple and efficient type of discharge valve mechanism and means for operating the same.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawing, in which:—

Figure 1 is a side elevation of the flushing apparatus as applied for use. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a horizontal section on the line 3—3 of Fig. 2. Fig. 4 is a detail vertical section on the line 4—4 of Fig. 2.

Referring to the drawing, the numeral 1 designates the inclosing casing of the apparatus, which is suitably supported above the rear end of the bowl 2 and is closed at its top by a fixed head 3 and at its bottom by a removable head 4.

Disposed within the casing, which is preferably of rectangular form, is the storage tank 5, which preferably comprises a cylinder open at each end, the lower end of said cylinder being closed by the head 4 which is formed with a groove 6 in which the lower end of the cylinder fits. The upper end of the cylinder is closed by a removable head 7 having an annular groove 8 receiving the same, said head being of greater diameter than the cylinder to provide an annular laterally projecting flange 9. Extending through this flange and the bottom head 4

is a series of tie-bolts 10 threaded at their upper and lower ends for the reception of clamping and retaining nuts 11, bearing upon the outer faces of the respective heads to clamp the same in position. It will be observed that the head 4 closes the lower end of both the casing and cylinder, and that upon disconnecting the bolts 10 the aforesaid parts may be quickly and conveniently disassembled for repairs or other purposes.

Opening at its upper end into the bottom of the supply tank through the head 4 is a water supply pipe 12 through which water from the service system is automatically fed to the tank, said pipe being provided with a controlling valve 13 by which the flow of water may be regulated or cut off whenever desired. As the tank 5 is entirely closed against the discharge of air, it will be understood that the column of water contained therein will compress the confined air into the upper portion thereof, so as to provide for the discharge of the water with a desired degree of force into the bowl 2. This construction permits of the use of a feed pipe 12 of comparatively small diameter without impairing the effectiveness of the feed supply.

The bottom head 4 is formed upon its upper face with a boss 14 serving as a valve seat, and is provided with a series of discharge openings 15 extending through said seat and grouped around a central threaded opening 16. On the underside of the head is also formed an internally threaded flange 17 forming a coupling receiving the upper externally threaded end of the discharge pipe 18 leading to the bowl. The outlets 15 are controlled by an upwardly opening disk valve 19 carrying a packing washer 20 of rubber or other suitable material to rest snugly against the seat 14 when the valve is closed. From the valve depends a rod or stem 21 projecting downward into the discharge pipe through a guide tube or sleeve 22 threaded at its upper end in the opening 16.

The discharge pipe is formed at one side below the tube 22 with a threaded opening 23 closed by a bearing plug or stopper 24, and from the opposite side of the pipe projects a bearing sleeve 25 provided at its outer end with a packing cap 26. A shaft 27 is journaled in the sleeve 25 and provided at its outer end with an operating handle or lever 28, the inner end of said shaft be-

ing reduced and extending across the interior of the discharge pipe and journaled in the plug 24. The body portion of the shaft is provided with a stop collar or head 29 bearing against the side of the pipe adjacent the sleeve to hold the shaft from longitudinal movement in that direction, reverse movement of said shaft being prevented by the plug 24. The reduced end of the shaft is threaded to receive an eccentric or cam disk 30 which is arranged below the lower end of the stem 21. In practice, it will be understood that the discharge valve 19 will be automatically closed by the pressure of the column of water thereon, and by turning the shaft 27 through the medium of the lever 28 the cam 30 will be rotated to lift the stem and thereby open the valve for the outflow of water to and through the discharge pipe to the bowl. When the lever 28 is released, it will return to normal position by its own gravity, thus retracting the cam disk and permitting the valve to be closed by the pressure of the water.

From the foregoing description, the operation of the apparatus will be readily understood, and it will be seen that a simple and effective type of apparatus of this character is provided for flushing the bowl 2 with the desired force and automatically cutting off the flow of water as soon as the operating lever is released. The mode in which the valve may be removed will be apparent from the description of the construction of the cooperating parts of the apparatus, and it will be seen that upon the removal of the plug 24 and detachment of the lever 28, which may be secured in any preferred manner to the outer end of the shaft 27, said shaft together with the cam may be slid longitudinally through the opening 23 and thus removed in a convenient manner.

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

I. In a flushing apparatus, the combina-

tion of a casing open at its lower end, a storage tank within the casing open at both ends, a head closing the upper end of the storage tank, a head closing the lower ends of both the casing and tank, bolts detachably connecting said heads, and supply and discharge mechanism connected with the lower head.

2. In a flushing apparatus, a storage tank provided in its bottom with a threaded opening and a group of outlets surrounding the same, a discharge pipe communicating with the outlets, a guide tube fitted at its upper end in said threaded opening and depending into the discharge pipe, an upwardly opening valve within the tank controlling said outlets, said valve being provided with a stem projecting downwardly through said guide tube, a transverse shaft supported by the discharge pipe, and a cam disk carried by said shaft to engage the stem, whereby upward opening movement may be imparted to the valve.

3. In a flushing apparatus, a storage tank provided with an outlet, a discharge pipe communicating therewith, said pipe being provided at one side with a bearing sleeve and at its opposite side with an opening, a bearing plug closing said opening, a valve controlling the outlet and having a stem extending into the discharge pipe, a transverse shaft journaled in the bearing sleeve and plug and provided with a stop limiting its movement in the direction of said sleeve, and a cam disk on said shaft bearing against the lower end of the valve stem, said shaft and applied parts being removable longitudinally through said opening upon the disconnection of the bearing plug.

In testimony whereof we affix our signatures in presence of two witnesses.

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PHARES S. HELLER.

Witnesses:

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