

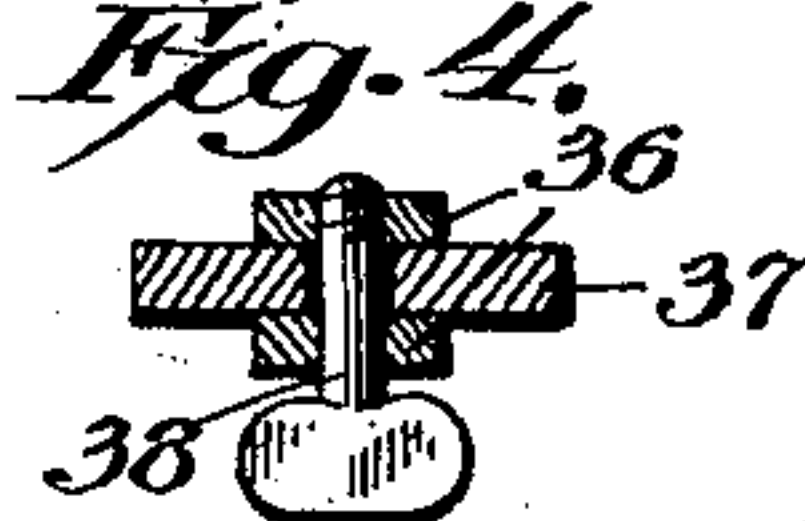
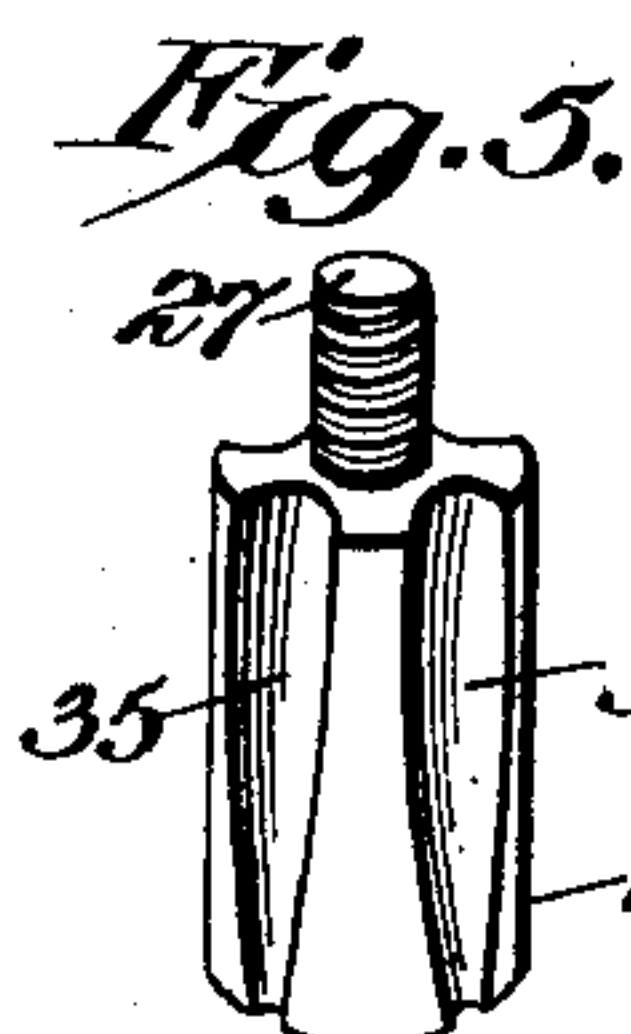
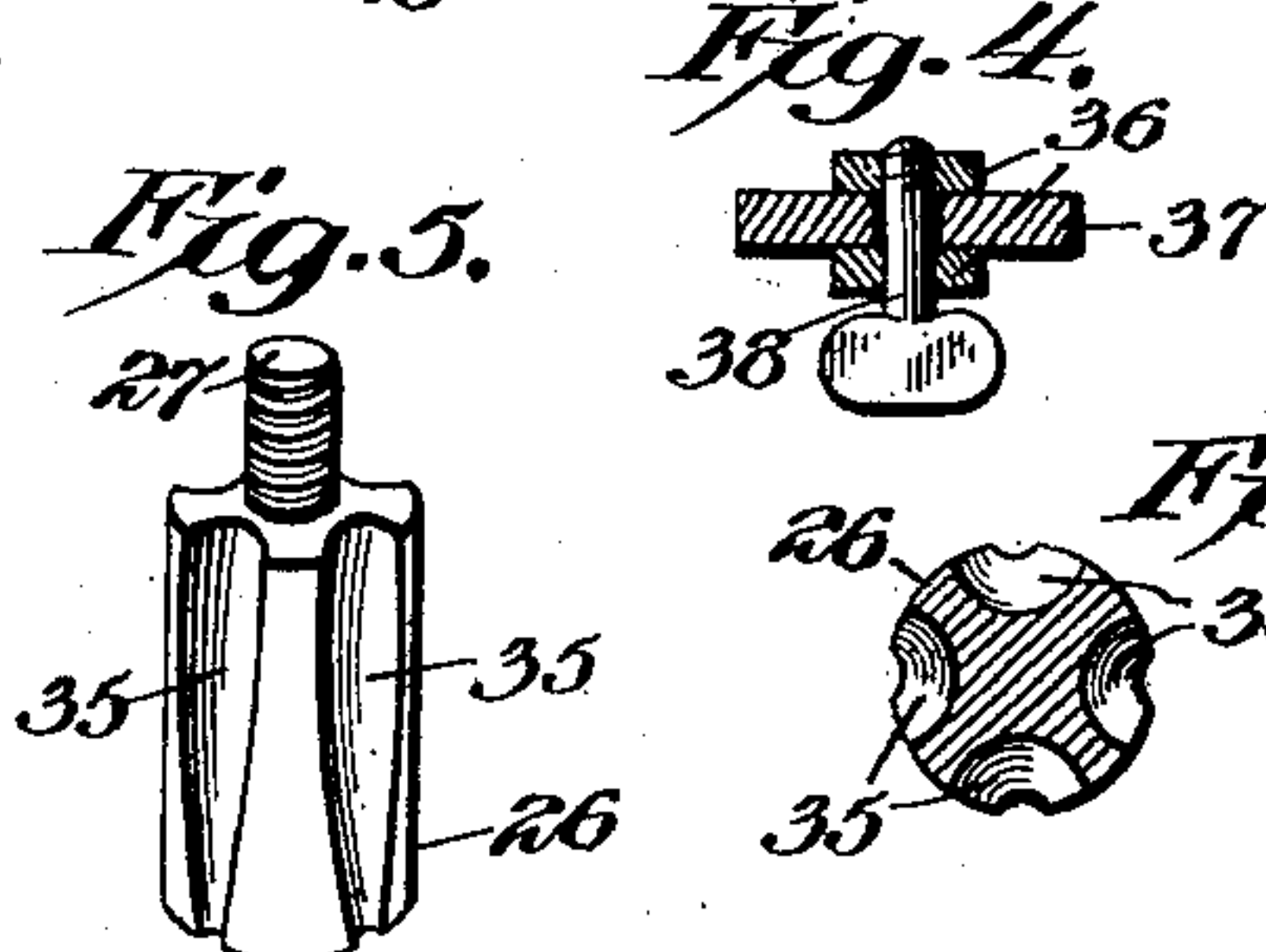
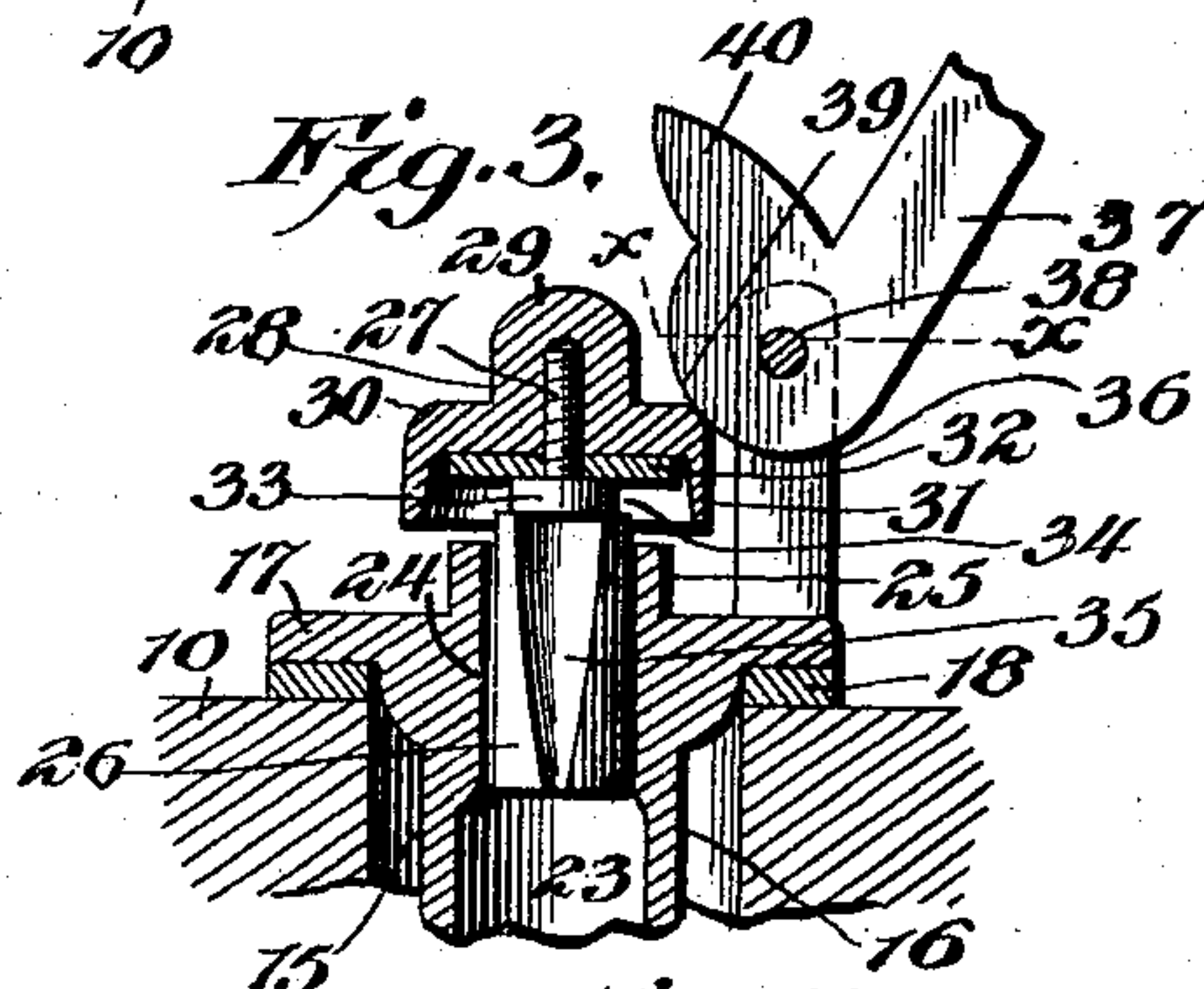
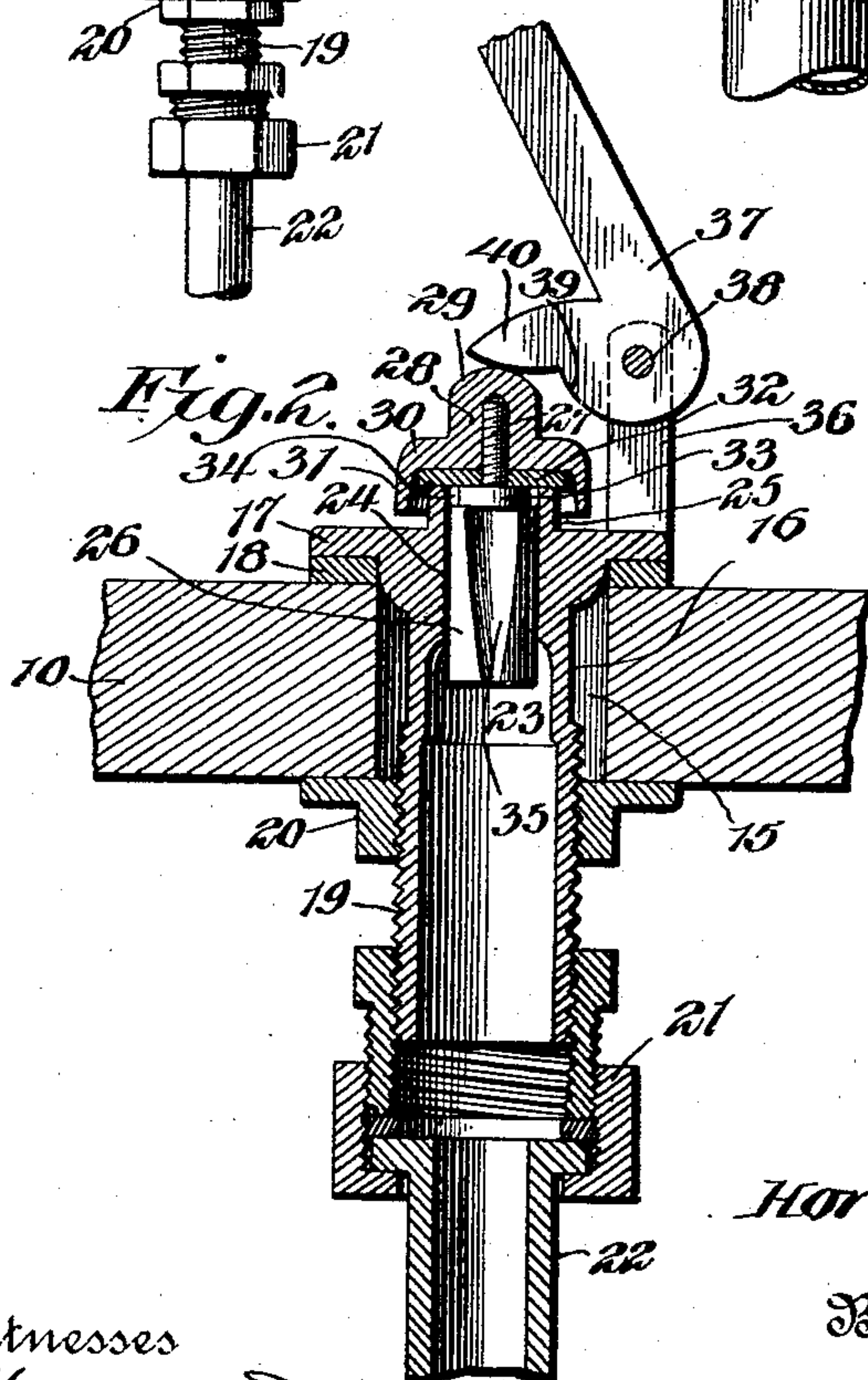
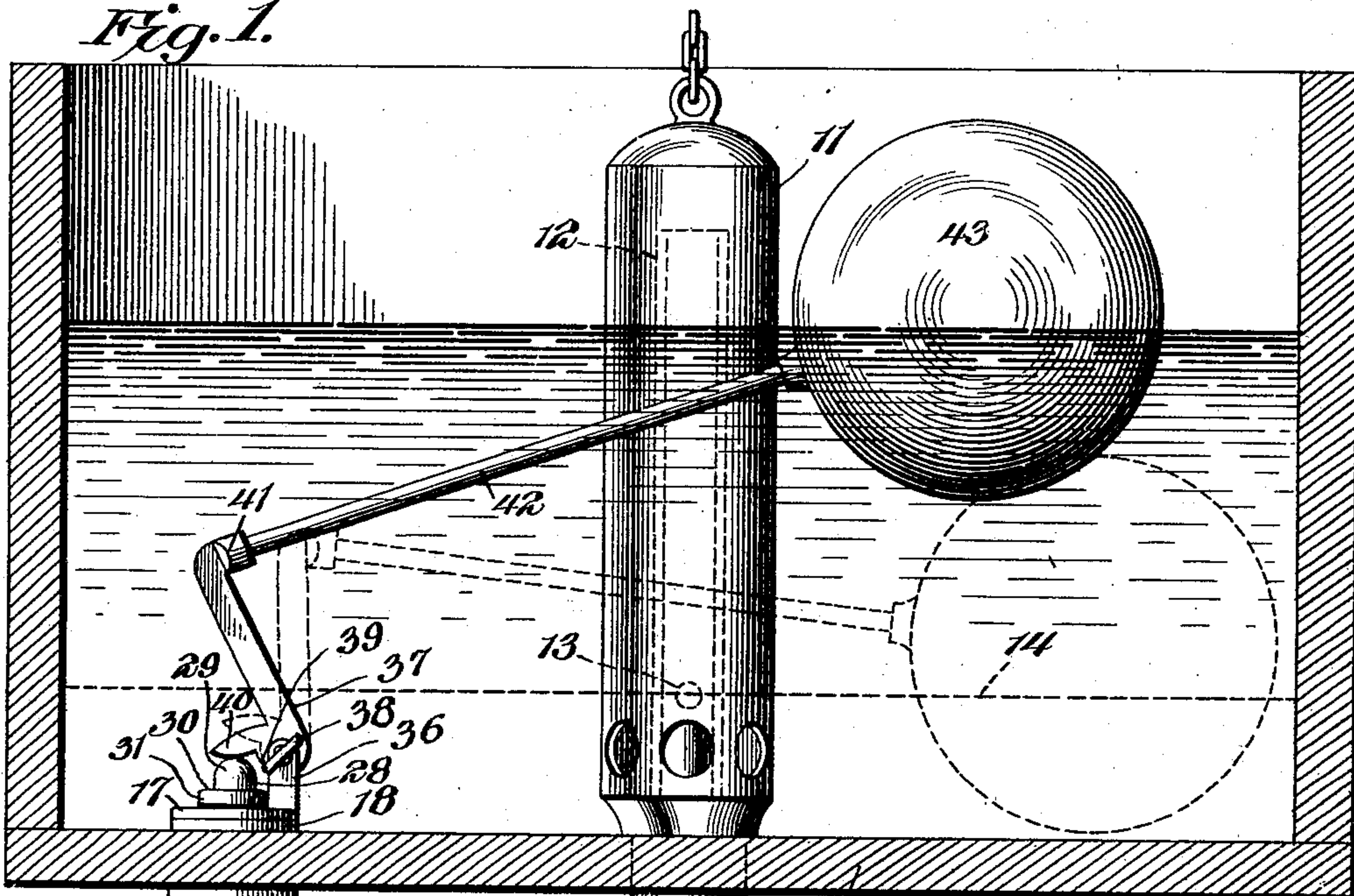
No. 732,776.

PATENTED JULY 7, 1903.

H. F. NEUMEYER.
FLUSHING APPARATUS.
APPLICATION FILED NOV. 6, 1902.

NO MODEL.

Fig. 1.



Horace F. Neumeyer, Inventor,

By

E. G. Sigg

Attorney

Witnesses

Howard W. Orr

B. G. Foster

UNITED STATES PATENT OFFICE.

HORACE FALK NEUMEYER, OF MACUNGIE, PENNSYLVANIA.

FLUSHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 732,776, dated July 7, 1903.

Application filed November 6, 1902. Serial No. 130,337. (No model.)

To all whom it may concern:

Be it known that I, HORACE FALK NEUMEYER, a citizen of the United States, residing at Macungie, in the county of Lehigh and State of Pennsylvania, have invented a new and useful Flushing Apparatus, of which the following is a specification.

This invention relates to that class of apparatus for flushing which includes a tank or reservoir from which water is siphoned, the supply of said water to the reservoir being controlled by a float-valve.

One of the objects of the invention is to provide novel means for decreasing the water-supply to the tank when the level of the water therein is lowered to the line of breaking the siphon during the discharging operation, so that said break will be insured, the cessation of discharge will be instantaneous, and as the tank again refills the supply thereto will increase in volume.

A further object is to provide a supply that will be noiseless by having it beneath the lowest level of the water and discharging downwardly into the tank.

A still further object is to provide a structure that is very simple, having no delicately-adjusted parts liable to derangement and all the elements being so related and assembled that they may be readily reached for the purpose of repair or renewal.

The preferred embodiment of the invention is illustrated in the accompanying drawings and is described in the following specification. This embodiment, however, is open to various changes and modifications, as will be evident by referring to the appended claims.

In said drawings, Figure 1 is a sectional view through a flushing-tank, showing the apparatus in place therein. Fig. 2 is a sectional view, on an enlarged scale, through the valve mechanism, illustrating the relation of the parts when the valve is closed. Fig. 3 is a similar section showing the valve open. Fig. 4 is a horizontal sectional view taken on the line xx of Fig. 3. Fig. 5 is a detail perspective view of the valve-stem, and Fig. 6 is a cross-section through the same.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

In the embodiment shown the usual reser-

voir or tank 10 is employed, having a siphon-discharge mechanism, of which 11 designates the hood within which is located the usual siphon-pipe 12, having a vent 13 contiguous to its lower end, the siphon-breakage line being shown at 14. These various elements being well known in the art need no further description and in themselves form no part of the present invention, which relates more particularly to the water-supplying mechanism. This mechanism is preferably constructed as follows: An opening 15 is formed in the bottom of the tank, and through the same is passed a conduit-body 16, having at its upper end an outstanding head 17, which bears upon a washer 18, interposed between said head and the floor or bottom of the tank. The lower end of the body is threaded, as shown at 19, and a flanged clamping-nut 20 is screwed thereon and bears against the under face of the bottom. A suitable coupling 21 is also screwed upon the lower end of the body and constitutes a connection for the spur 22, to which is fastened the water-supply pipe. The body 16 has an enlarged bore in the form of a chamber 23, the upper end thereof being contracted, as shown at 24, and an annular upstanding shoulder 25 projects above the upper face of the head 17 and surrounds the contracted bore.

Slidably mounted in the contracted bore 24 is a valve-stem 26, having a reduced threaded shank 27 projecting from its upper end. A cap 28 is screwed upon the shank and comprises a crown 29, upon the base of which is arranged an outstanding flange 30, carrying a depending annular rim 31. A bearing-washer 32, of leather or other suitable material, is arranged upon the shank and fits within the rim 31, the lower edge of said rim extending below the plane of the lower face of said washer. A metallic washer 33 is also arranged upon the shank below the bearing-washer 32, being interposed between the same and the upper end of the stem 26, said washer 33 being of less diameter than the stem, whereby an annular groove 34 is formed between the washer 32 and the upper end of the stem 26. The stem 26 is long enough to extend through the contracted bore 24 and project into the chamber 23 when the valve is closed, as shown in Fig. 2, and said stem is

provided with longitudinal outlet-channels 35, that taper in width and depth toward their lower ends.

The outstanding head 17 of the conduit-body carries upwardly-extending ears 36, between and to the upper ends of which is pivoted a lever-arm 37 by means of a thumb-screw 38, passed through the ears and lever and threaded into one of said ears, as shown in Fig. 4. This lever has an enlarged circular portion 39 arranged concentric to the pivot 38 and disposed in the path of movement of the flange 30 of the cap. It is also provided with a cam-finger 40, which is arranged to bear upon the top of the crown 29 of said cap, as illustrated in Fig. 2. The main arm of the lever 37 is provided at its upper or free end with a socket 41, in which is fitted one end of the float-rod 42, the other end being secured to the usual float 43.

The operation of the apparatus is substantially as follows: Assuming the tank filled, as shown in Fig. 1, it will be evident that when the hood 11 is raised and reseated the siphon will be brought into action and the water thus withdrawn. As the level thereof lowers the float will of course sink, thus raising the cam-finger 40 from the cap of the valve. The pressure of water will thereupon immediately raise the valve and said water will pass through the outlet-channels 35 of the stem and flow into the tank. As the level of the water continues to lower, the valve-stem will be elevated more and more, so that the smaller ends of the channels 35 will finally be brought into the contracted bore 24, thereby decreasing the supply of water and reducing it to the minimum just as the line of siphon breakage is reached. This decrease will therefore insure a greater outflow of water than influx, and the break will consequently be made certain. The siphon having been broken and the discharge instantly stopped, the tank will begin to refill slowly, and as the float rises the larger portions of the channels will be gradually alined with the chamber 23, so that an increased volume of supply will be provided until the valve is again closed. This is an extremely important feature of the invention and is especially noteworthy because of the simplicity of the parts employed in obtaining the desired result. It will also be noted by reference to Fig. 1 that the valve is arranged below the lowest level of the water, and because of the depending rim 31, which extends below the lower bearing-face of the washer 32, the discharge of water will be directed downwardly, so that the inrush will be noiseless. This noiseless movement is enhanced by the provision of the annular groove 34, arranged at the outlet ends of the channels 35, for a freely-opened space of sufficient magnitude is thus provided to receive the water flowing through the channels. The arrangement of the parts upon the open upper end of the conduit-body is also advantageous. The lever-arm 37 is held in place by

a thumb-screw, which therefore can be readily removed when desired. This arm serves to hold the valve in place and yet permits its necessary movement. To remove said valve, it is therefore only necessary to detach the lever-arm, and the valve is so constructed that it may be readily taken apart, so that the bearing-washer when worn can be quickly replaced without the necessity of an expert plumber. Actual experience has proven that the apparatus will work equally well under varying pressures.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In flushing apparatus, the combination with a supply-conduit having a passage-way therethrough, of a controlling-valve normally closing the passage-way and having a stem fitted therein, said stem being provided with an outlet-channel having cross-sectional areas of different sizes, the smaller portions of the channel being located farthest from the valve and arranged to restrict the passage of water when said valve is opened.

2. In flushing apparatus, the combination with a supply-conduit having a passage-way therethrough, of a controlling-valve normally closing the passage-way and having a stem fitted therein, said stem being provided with an outlet-channel that tapers toward its inner end and away from the valve, whereby the flow is more and more restricted as the valve is opened.

3. In flushing apparatus, the combination with a supply-conduit having a passage-way therethrough, of a controlling-valve normally closing the passage-way and having a stem slidably fitted therein, said stem being provided with a plurality of longitudinally-disposed channels that taper away from the valve, whereby the flow is more and more restricted as the valve is opened.

4. In flushing apparatus, the combination with a supply-conduit having a passage-way therethrough, of a controlling-valve for the passage-way comprising a cap that fits upon the discharge end of the conduit, and a stem slidably mounted in said conduit and having an outlet-channel, said channel being provided with an enlarged portion arranged contiguous to the cap.

5. In flushing apparatus, the combination with a supply-conduit having a passage-way therethrough, of a controlling-valve for the passage-way comprising a cap that fits upon the discharge end of the conduit and a stem

slidably mounted in said conduit and having a plurality of longitudinally-disposed tapering channels, the larger ends of which are located contiguous to the cap, the smaller ends being movable into the ends of the conduit when the valve is opened to restrict the flow of water therethrough.

6. In flushing apparatus, the combination with a supply-conduit having a chamber therein and a contracted bore, of a valve comprising a cap that fits upon the discharge end of the conduit and over the contracted bore, and a stem slidably mounted in the contracted bore and projecting into the chamber, said stem having an outlet-channel that is enlarged contiguous to the cap.

7. In flushing apparatus, the combination with a supply-conduit having a passage-way therethrough, of a valve comprising a cap that fits upon the discharge end of the conduit and a stem slidably fitted in the passage-way and having an annular groove contiguous to the cap, said stem also having a plurality of channels that lead to the groove.

8. In flushing apparatus, the combination with a supply-conduit having a passage-way therethrough, of a valve comprising a stem slidably mounted in the passage-way and having a longitudinally-disposed outlet-channel, a threaded shank projecting from the outer end of the same, a cap threaded upon the shank, a packing-washer arranged upon the shank and a holding-washer also fitted upon the shank and of less diameter than the stem.

9. In flushing apparatus, the combination with a supply-conduit having an upstanding discharge end, of a stem slidably mounted in one end of the conduit and having a longitudinally-disposed outlet-channel and a cap secured to the upper end of the stem and having a bearing-face arranged to abut against the discharge end of the conduit and close the same, said cap having an annular depending rim that extends below the plane of the bearing-face and is arranged to direct downwardly the water discharging from the conduit.

10. In flushing apparatus, the combination with a supply-conduit having an upstanding

discharge end, of a stem slidably mounted in one end of the conduit and having a longitudinally-disposed outlet-channel, said stem being furthermore provided with an upstanding threaded shank, a washer arranged upon the shank and adapted to bear upon the discharge end of the conduit to close the same, and a cap screwed upon the shank and having an annular depending rim that extends below the plane of the bearing-face of the washer and is arranged to direct downwardly the water discharging from the conduit.

11. In flushing apparatus, the combination with a conduit having its upper end open, of a stem slidably mounted in said end, a cap carried by the stem and fitting upon the end of the conduit, said cap comprising a crown having an outstanding flange, a float-controlled lever pivoted above the cap and detached therefrom, said lever having a portion arranged in the path of movement of the flange and constituting a stop to limit the movement of the valve, and a cam-finger carried by the lever and arranged to bear upon the crown.

12. In flushing apparatus, the combination with a conduit-body having its upper end open and provided with an outstanding bearing-head having an annular shoulder surrounding the open end, of a stem slidably mounted in said end, a cap carried by the stem and bearing upon the shoulder of the conduit-body, said cap comprising a crown having an outstanding flange that is provided with a depending rim, a float-controlled lever pivoted above the cap and detached therefrom, said lever having a portion arranged in the path of movement of the flange, and constituting a stop to limit the movement of the valve, and a cam-finger carried by the lever and arranged to rest upon the crown.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HORACE FALK NEUMEYER.

Witnesses:

D. J. NAGLE,
JOHN P. BOYER.