

L. G. McCORRY.

VALVE.

APPLICATION FILED JAN. 12, 1909.

935,044.

Patented Sept. 28, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

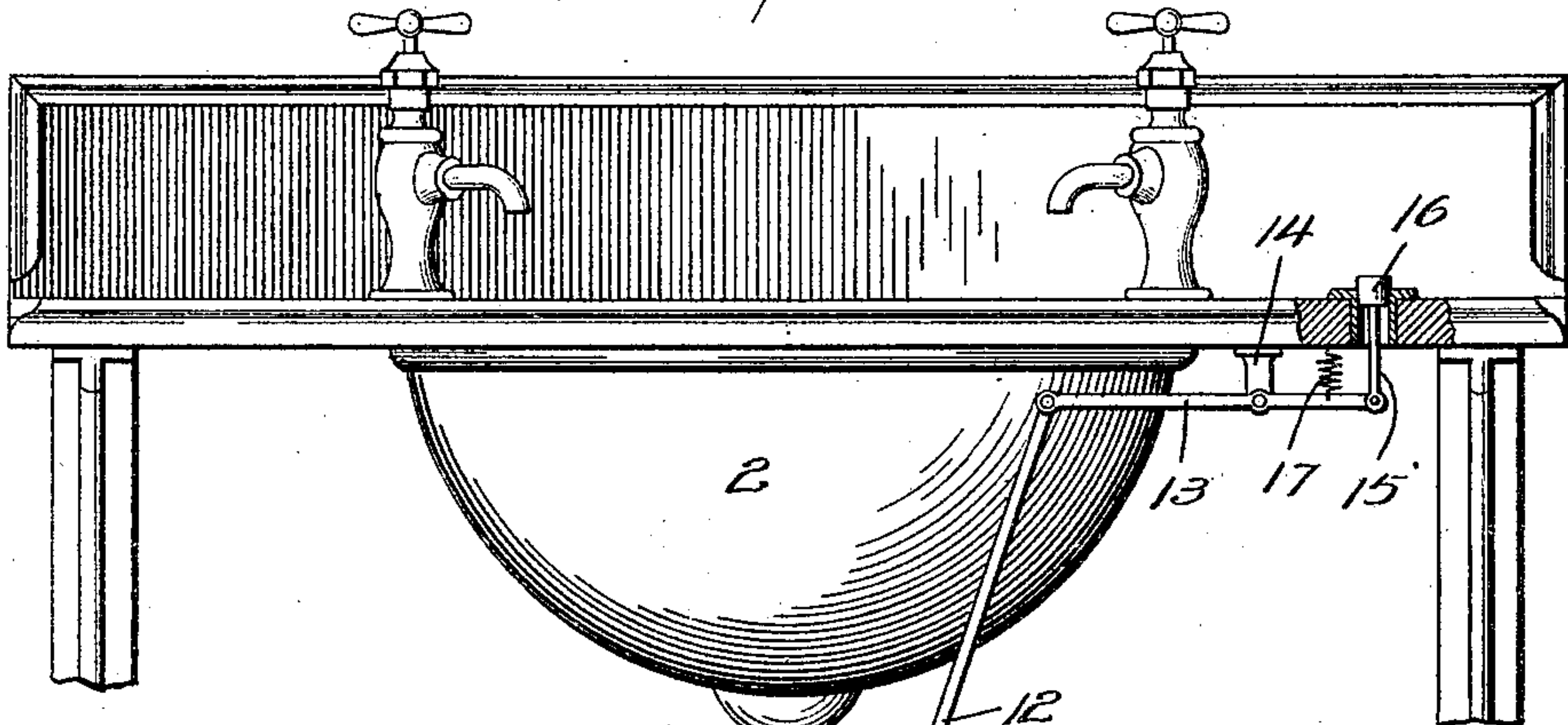


Fig. 2.

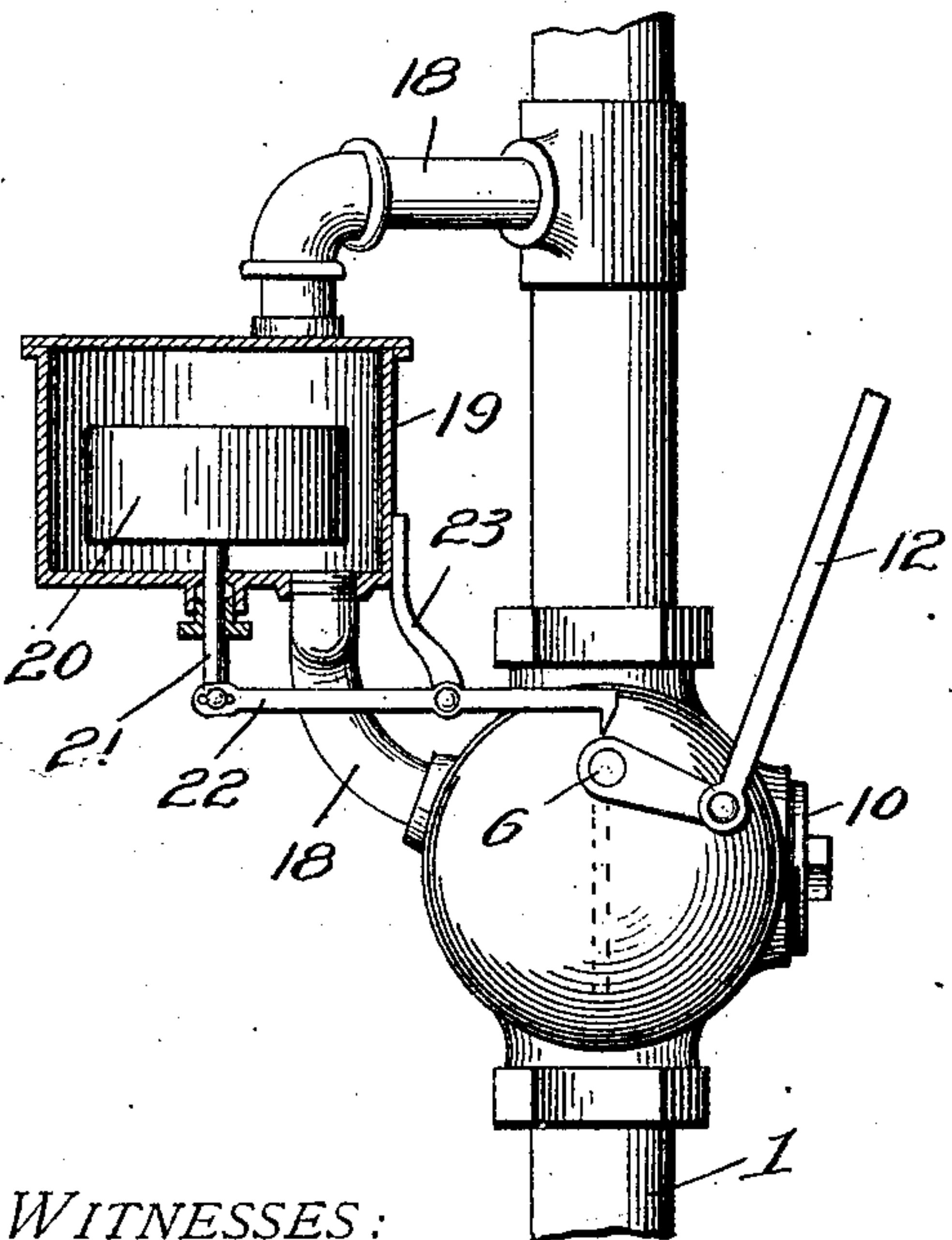


Fig. 3.

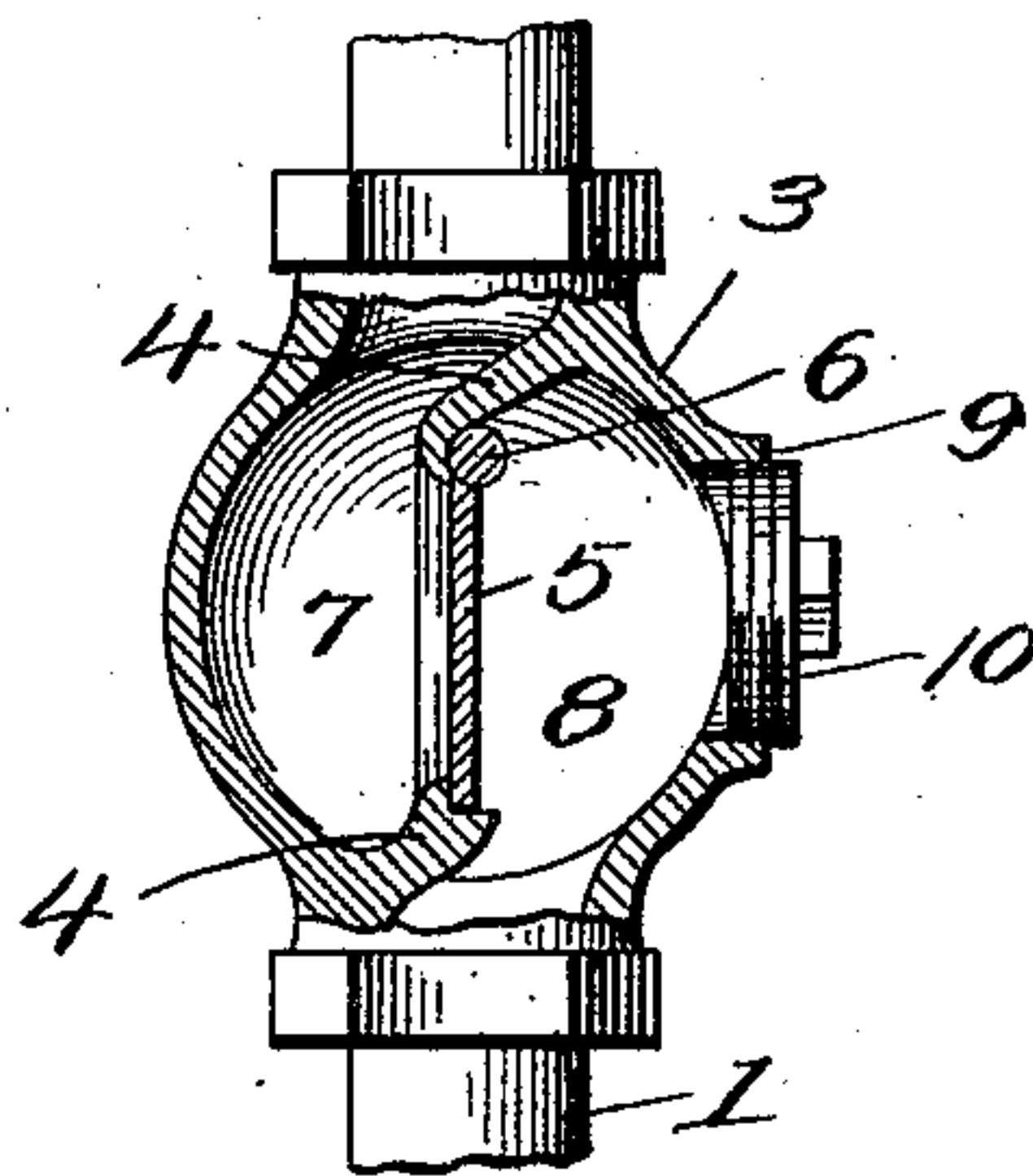
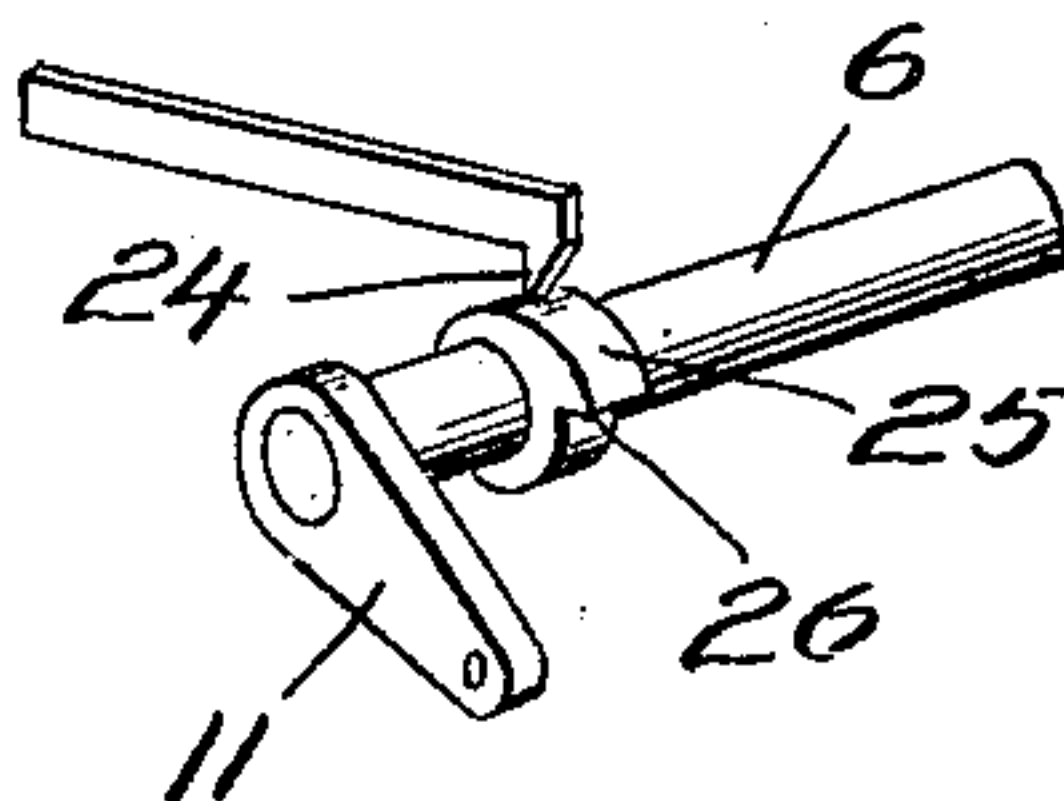


Fig. 4.



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3 SHEETS—SHEET 2.

Fig. 5.

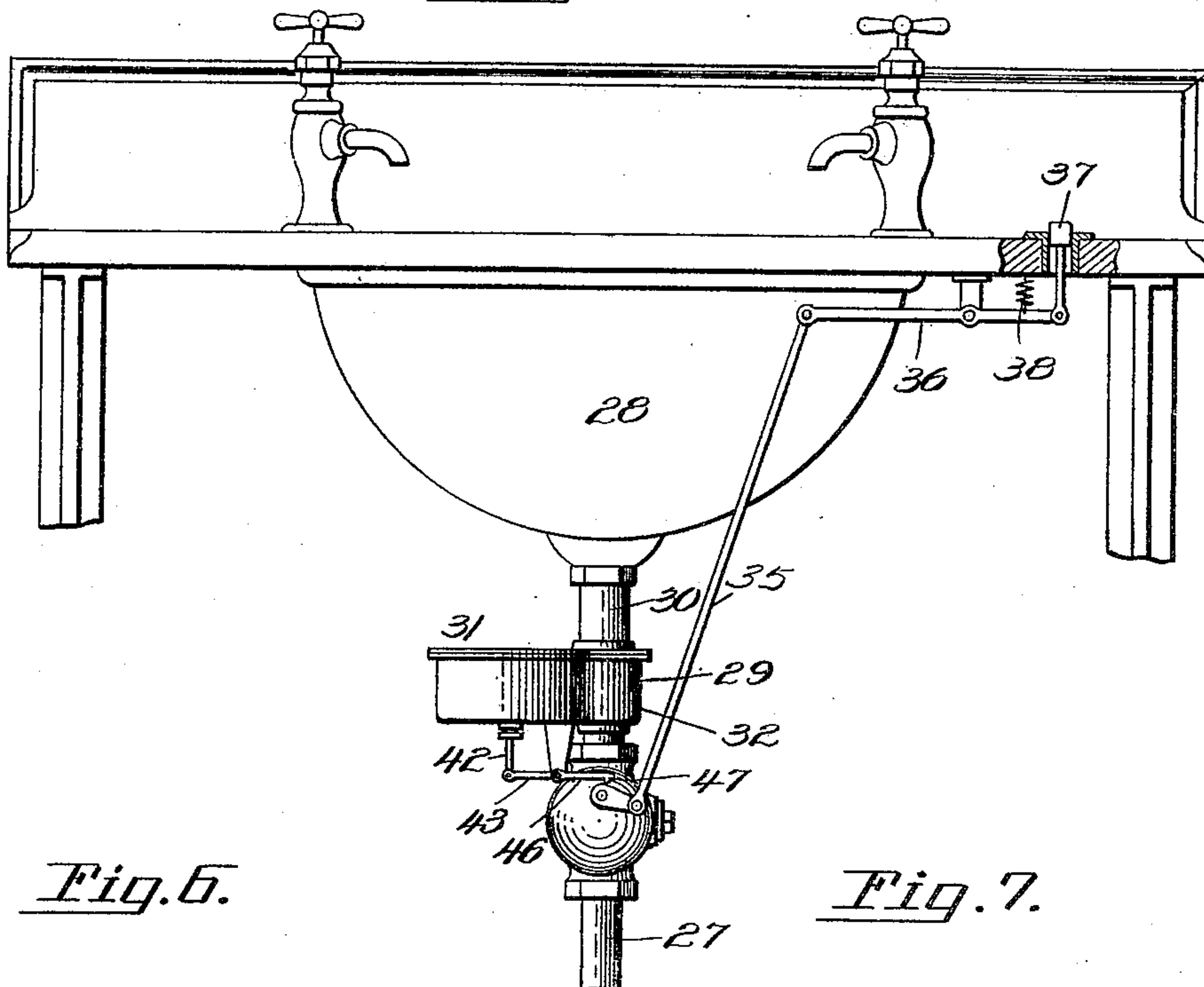


Fig. 6.

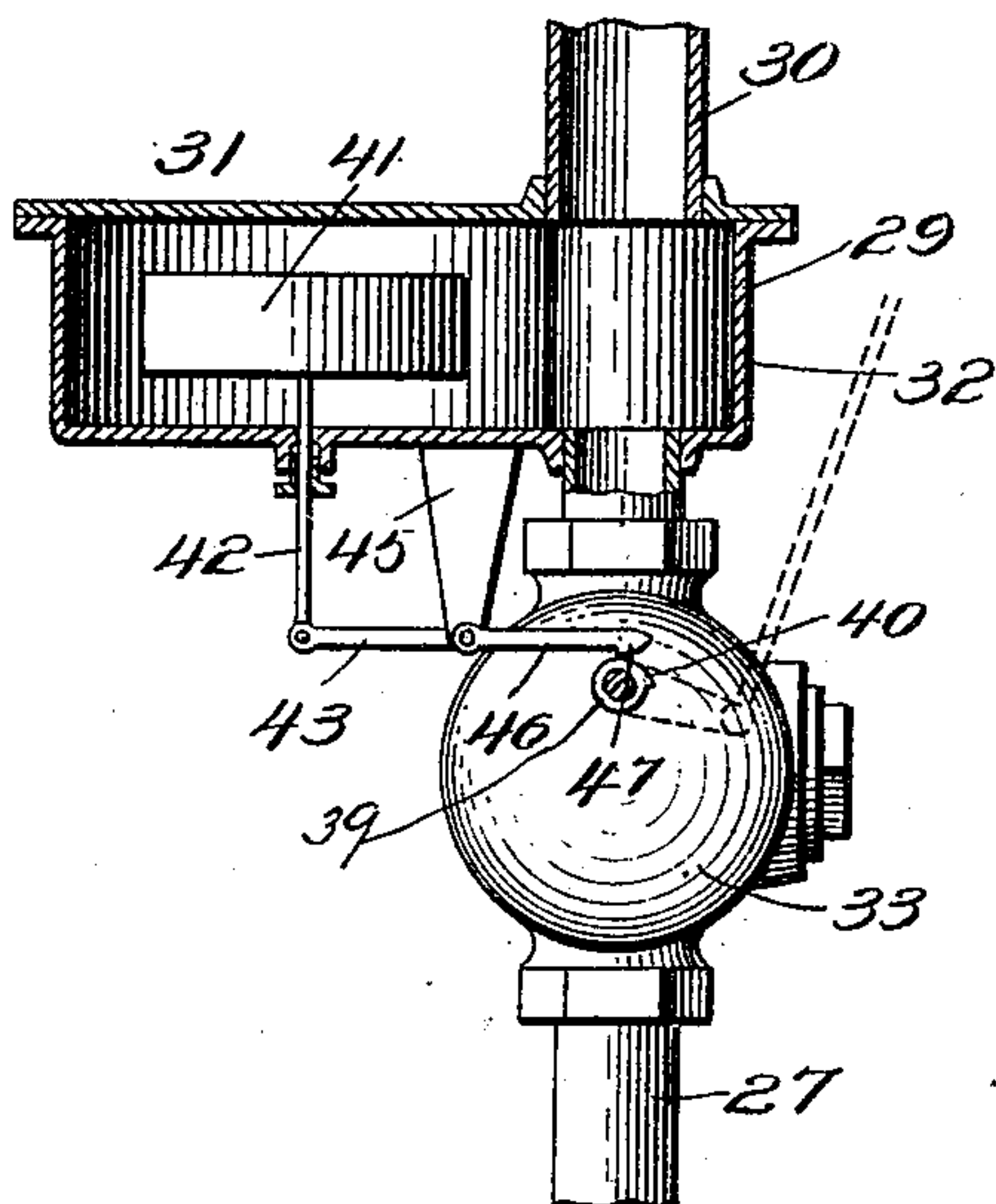
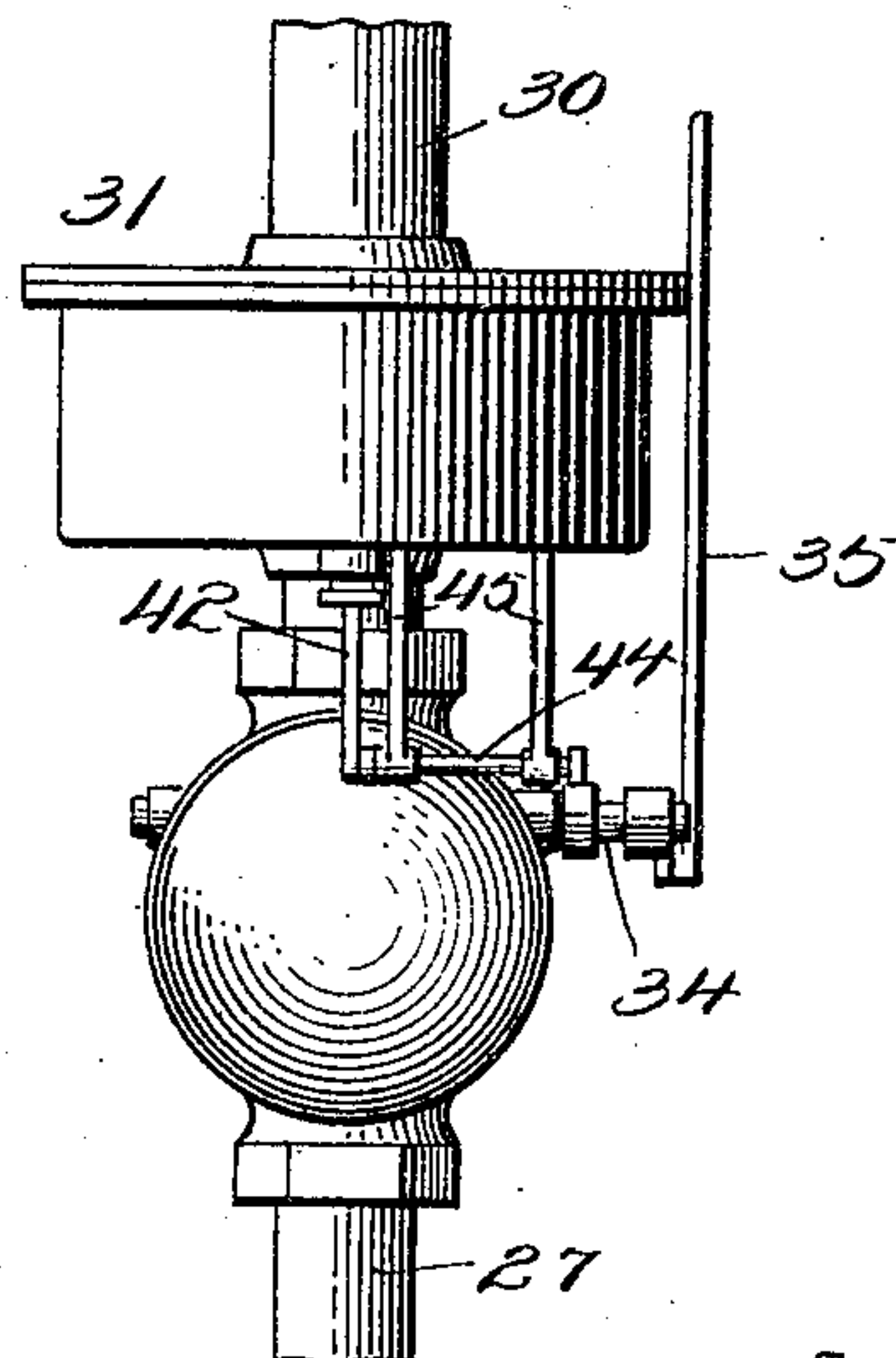


Fig. 7.



Witnesses

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3 SHEETS—SHEET 3.

Fig. 8.

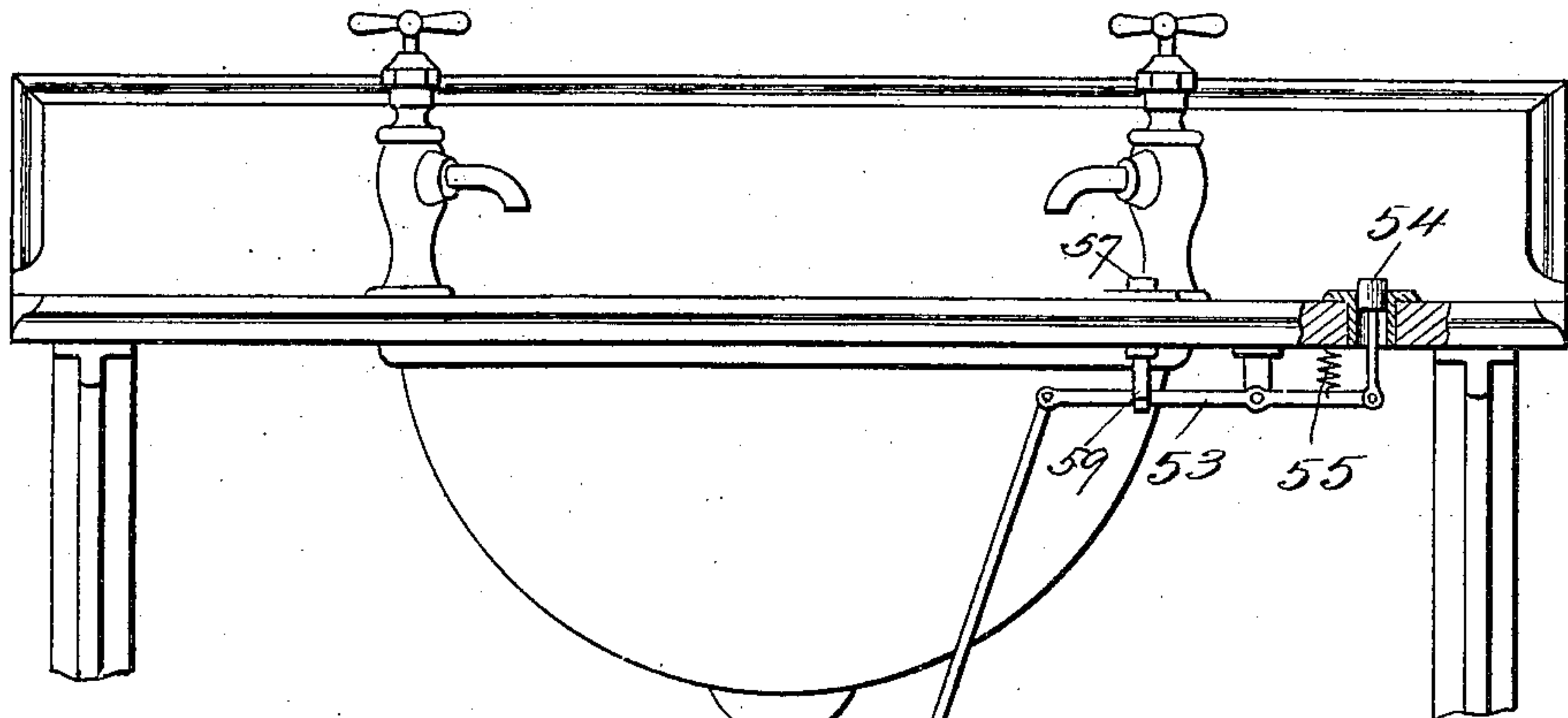


Fig. 10.

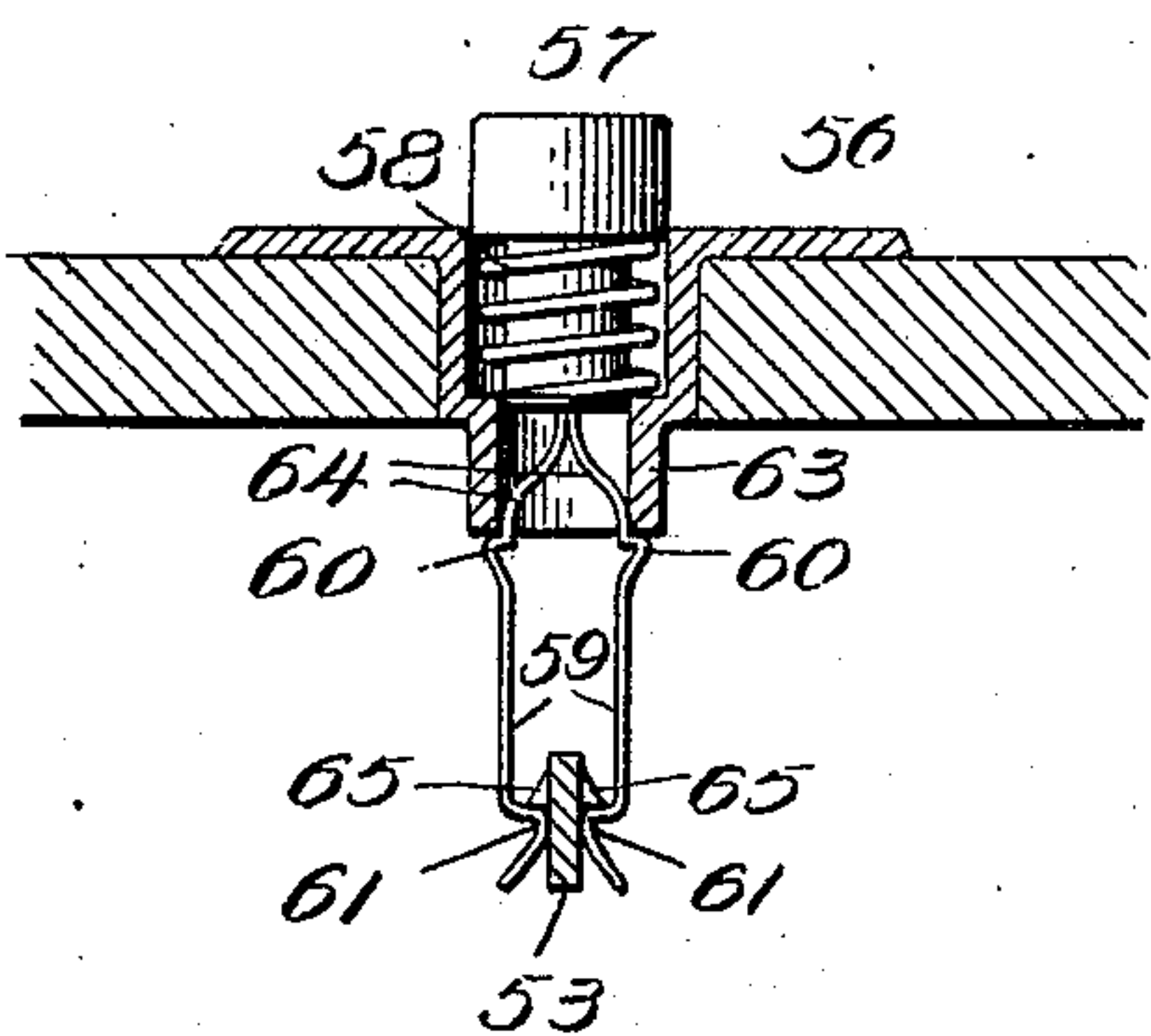


Fig. 11.

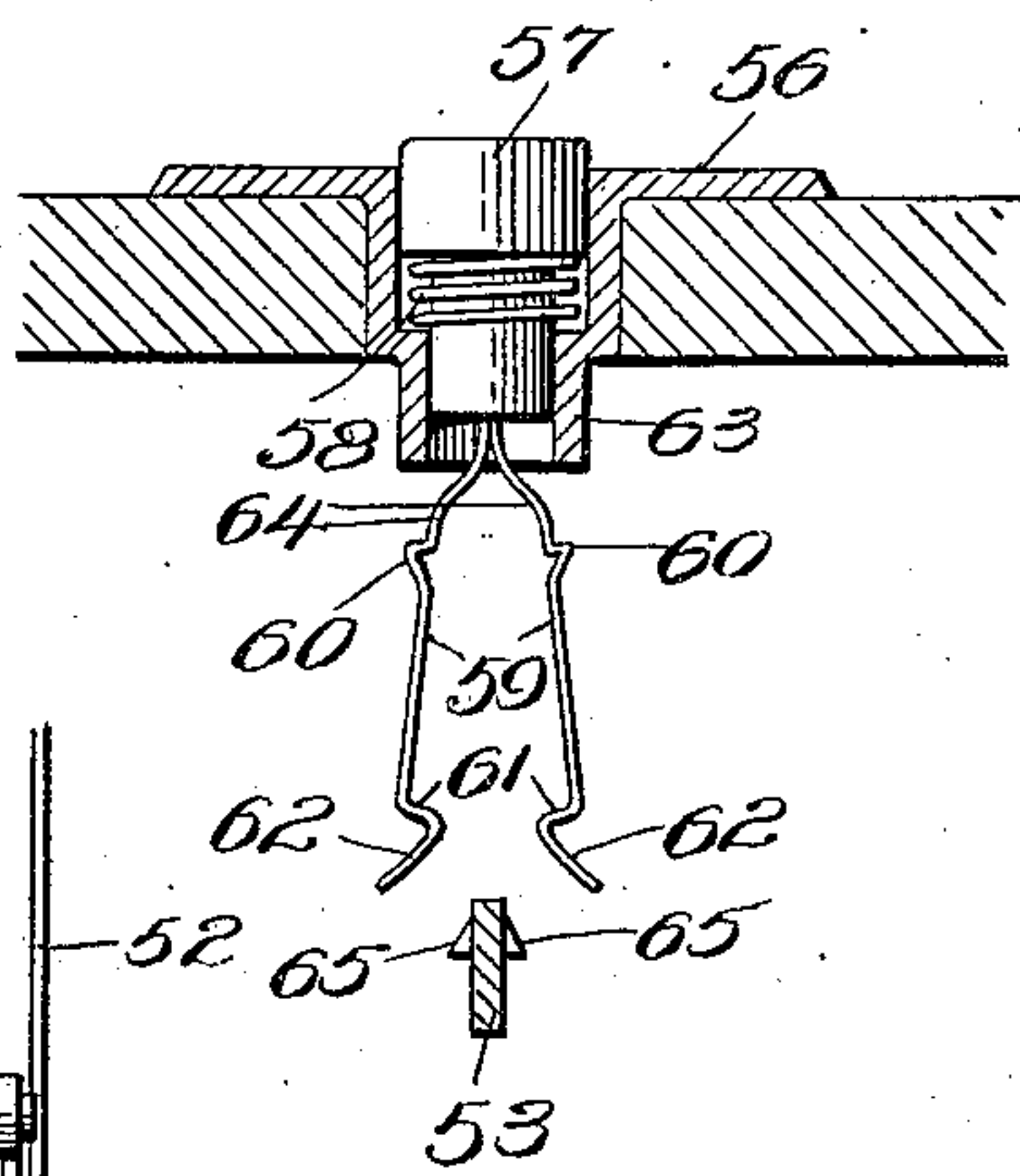
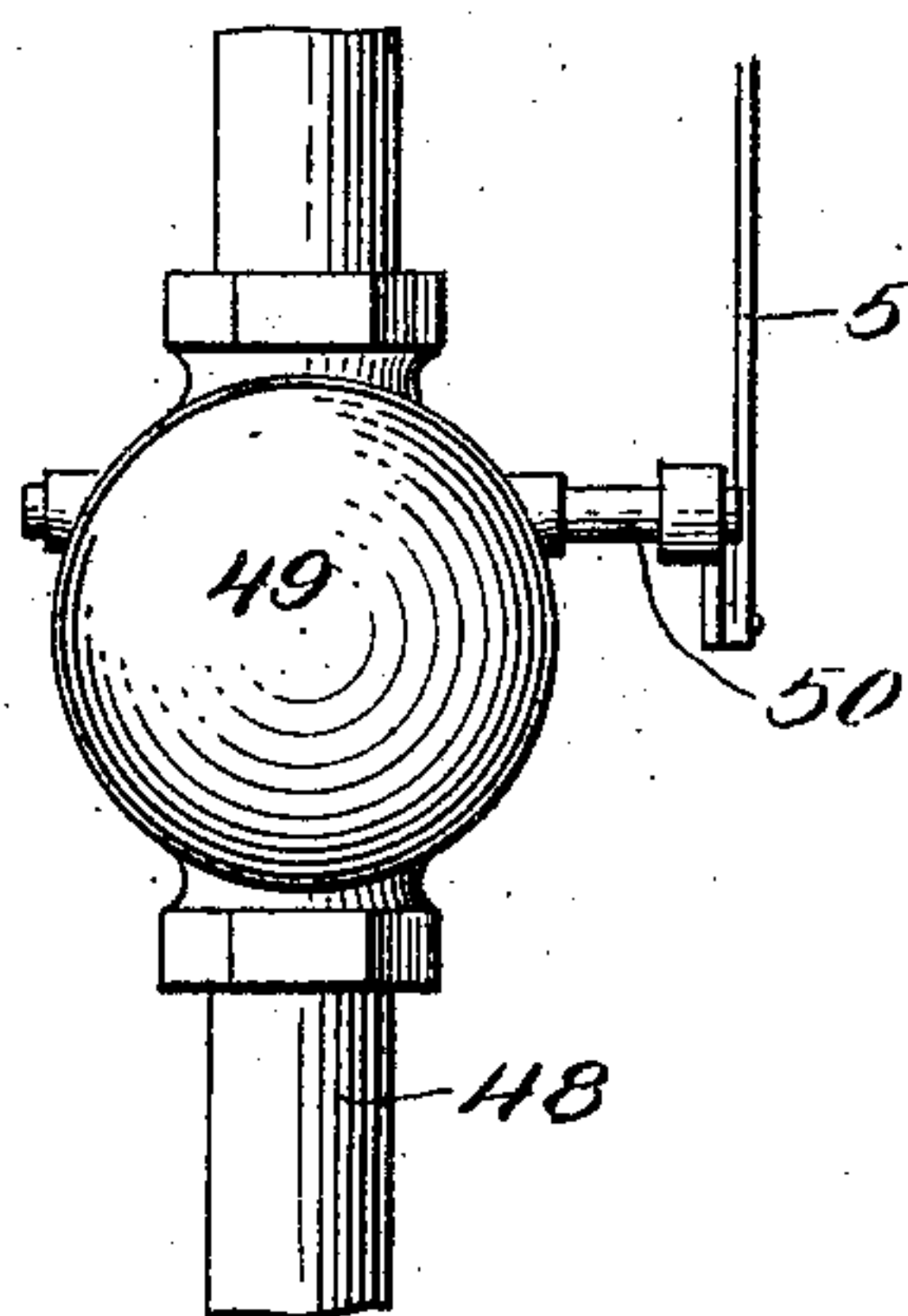


Fig. 9.



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935,044.

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Application filed January 12, 1909. Serial No. 471,953.

To all whom it may concern:

Be it known that I, LENN G. McCORRY, a citizen of the United States, residing at Carbon Center, in the county of Butler and State of Pennsylvania, have invented new and useful Improvements in Valves, of which the following is a specification.

The invention relates to an improvement in valves designed for use as outlet valves from stationary wash-basins, being particularly directed to means for automatic control of the valve.

The main object of the present invention is the provision of an outlet valve arranged to be manually operated to open the valve, a mechanical device being arranged for co-operation with the valve whereby to permit automatic closing of the valve when the waste product has entirely cleared the basin or other receptacle.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in elevation illustrating the application of my improvement. Fig. 2 is a broken enlarged elevation of the valve and controlling means, the latter being shown partly in section. Fig. 3 is a broken sectional view partly in elevation of the valve proper. Fig. 4 is a perspective detail illustrating the operation of the float controlled trip. Fig. 5 is a view in elevation illustrating a slightly modified form of the improvement. Fig. 6 is an enlarged broken elevation, illustrating the arrangement of the float casing and connected parts of the modified form. Fig. 7 is an elevation viewed at right angles to the view shown in Fig. 6. Fig. 8 is an elevation of a stationary wash basin, showing the device arranged for manual control in both locking the valve open and release of the lock. Fig. 9 is an enlarged broken elevation, showing the valve casing and lever connections, the view being taken at right angles to that shown in Fig. 8. Fig. 10 is an enlarged sectional view partly in elevation, showing the lever locked in position to hold the valve open. Fig. 11 is a similar view, showing the parts in position to release the lever.

Referring particularly to the accompanying drawings, the improved valve structure is designed for use with a waste pipe 1 forming an outlet from a basin 2, which parts, aside from the details hereinafter

noted, may be of any usual or preferred construction. The waste pipe at a suitable point below the basin is arranged to include a section of hemispherical type to form a valve casing 3. The wall of the casing is interiorly provided with diametrically opposed flanges 4, the space between the free edges of which is bridged by a valve 5. The valve is of the flap type pivotally mounted on a rod 6 arranged at the free edge of the upper partition and projecting through a wall of the casing, the lower or free edge of the valve being arranged to co-operate with the seat formed in the lower flange 4, as shown. The flanges and valves divide the casing into two chambers 7 and 8, the former of which is in direct communication with the waste pipe between the valve casing and basin, while the latter is in direct communication with the waste pipe beyond the valve. The casing is preferably formed with an opening 9 closed by a removable tap 10 whereby access may be had to the interior for cleaning or repair. On one end of the pivot rod 6 beyond the casing is fixed an arm 11 connected through the medium of a rod 12 with one end of a lever 13, which is pivotally mounted intermediate its ends on a bracket 14 fixed to the underside of the plate for supporting the basin, the opposite end of the lever being connected to a stem 15 arranged to project through an opening in the basin plate and carrying a terminal button 16 for convenience in operation. A spring 17 is arranged between the lever and basin plate to normally hold the button-carrying end of the lever elevated, in which position the valve 5 is held closed. In other words the valve 5 is normally closed by the tension of the spring 17, but may be readily opened to permit the escape of water from the basin to the waste pipe by pressing the button 16, as will be obvious.

In conjunction with the valve described I have devised a means whereby the valve after being manually opened is automatically closed after the water has completely escaped from the basin, whereby the possibility of the escape of gases through the basin outlet is prevented and the basin is normally closed against the escape of water, permitting it to be used for ordinary purposes without the necessity of adjusting the valve.

With the above objects in view I provide

a by-pass in the escape pipe formed by pipe sections 18 of less interior diameter than that of the escape pipe and in open communication with the latter, the upper end of the by-pass communicating with the waste pipe above the valve casing and the lower end communicating directly with the chamber 7 of the valve casing. Included in the by-pass and in open communication with the respective pipe sections is a cylindrical closed body 19 forming what may be termed a float casing. Within the casing is mounted a float 20 having a stem 21 projecting through a properly packed opening in the bottom of the casing and connected below the same to one end of the lever 22, which lever is pivoted intermediate its ends upon an arm 23 depending from the casing. The opposing or free end of the lever terminates immediately adjacent that portion of the valve rod 6 projecting beyond the valve casing 4, and is formed with a depending pawl end 24. Secured upon the rod 6 in position to be engaged by the pawl is a collar 25 having a notch or shouldered offset 26. The parts are so arranged that when the valve is fully opened in the manner described the shoulder 26 will be in position to be engaged by the pawl end 24 and the lever 22.

In operation when desired to discharge the contents of the basin into the waste pipe, the button 16 is pressed to open the valve 5. The water from the basin immediately fills the waste pipe and also the by-pass and float casing, elevating the float. This movement of the float causes the pawl end 24 of the lever 22 to engage the shoulder 26 on the valve rod 6. The valve is thus locked in open position, and will be so held independent of manual control so long as water remains in the float casing. As soon, however, as the level of water has fallen to permit a corresponding fall of the float 20, the latter elevates the pawl end 24 of the lever to release the valve rod 6, thereby permitting the spring 17 aided by the weight of the connected parts, to close the valve 5 against further escape of the water.

In Figs. 5, 6, and 7 I have shown a modified form of the preferred construction in which the outlet pipe 27 is in connection with the basin 28 through a float casing 29, the pipe connections of the pipe section 30 from the basin to the casing 29 and the waste pipe 27 to said casing being adjacent the peripheral edge of the casing or if preferred, as shown in Fig. 5, the casing 29 may include a cylindrical portion 31 and an offset cylindrical portion 32 in open communication with each other, the latter being of materially less diameter than the former and serving to provide for the connection of the pipes 27 and 30 thereto. A valve casing 33 is connected in the pipe 27 below the float casing in which is mounted a valve,

not shown, similar to the valve 5 in the preferred form, the shaft 34 on which the valve is fixed being connected by a rod 35 to a lever 36 operated by a push button 37 and held in normal position by a spring 38, exactly as in the preferred form. A collar 39 formed with an offset shoulder 40 similar to the collar 25 of the preferred form is fixed upon the shaft 34. In the larger cylindrical portion 31 of the float casing there is mounted a float 41 from which depends a stem 42 through a packed opening in the bottom of the casing, the lower end of the stem being connected to an arm 43 which is in turn secured upon a rod 44 mounted in brackets 45 depending from the casing, that end of the rod opposite the end connected to the arm 43 being provided with a lever 46 having a latch nose 47 to engage the shoulder 40 in the collar 39. The operation of this form of the device will be fully apparent from the description in connection with the preferred form, the advantage of the modified form being a simplicity of construction and connections and avoiding the by-pass of the preferred form. The modified form is thus best adapted for connection in those types of basins which are designed for public use, as the straight flow of the water to the waste pipe is less liable to accumulate refuse than is the preferred form with its bends in the by-pass. The valve is thus adapted for manual operation to open the same, but when open is automatically maintained in such open position until the water from the basin is exhausted, at which time the valve is automatically released and closed.

In Figs. 8, 9, 10, and 11 I have shown another form of the device which is adapted for manual control in both locking the valve in position and releasing the same. In this instance the waste pipe 48 is provided with a valve casing 49 containing a valve, not shown, similar in all respects to that in both forms previously described. The shaft 50 on which the valve is mounted is connected by a relatively fixed arm 51 and a rod 52 to an operating lever 53 designed to be actuated by a push button 54 in one direction against the tension of a spring 55 similar in all respects to these features in the other forms described. In this particular form it is designed to provide a means whereby the valve after being set in open position may be manually released, and to this end I mount in the basin plate a socket bearing 56 in which is mounted a push button 57 normally spring pressed in the upward direction through the medium of a spring 58, the socket bearing being formed with an offset or shoulder to provide a stop for the lower end of the spring in operation. To the lower end of the push button are secured spring arms 59, which, adjacent their upper

ends, are formed with outwardly projecting shoulders 60 and adjacent their lower ends with inwardly projecting shoulders 61, being below the latter shoulders inclined outwardly, as at 62, to provide a flaring entrance for the operating lever. The socket bearing is provided with a sleeve-like extension 63 which extends below the basin plate and the spring arms 59 from their connection with the push button are inclined outwardly at 64, the construction being such that when the push button is in elevated or normal position under the influence of the spring 58 the inclined portion 64 of the spring arms will, through engagement with the wall of the sleeve 63, force said arms to closed position. In this position the flaring entrance between the arms is of such size as to just permit the passage of the operating lever 53 therethrough. The operating lever is provided at that point engaged by the spring arms and on opposite sides with triangular projections 65, and the parts are so positioned that when the lever rides between the spring arms in the operation of said lever under the influence of the push button 54 the projections 65 on said lever will engage the shoulder 61 of the arms, thereby holding the lever in elevated position. Pressure upon the button 57 moves the inclined portion 64 of the spring arms below the lower edge of the spring 63, permitting the inherent resiliency of said arms to spread the same and thereby release the lever 53.

From the above construction it is obvious by pressure upon the push button 54 the lever 53 may be operated to move the valve within the casing 59 to open position, and by the automatic engagement of the lever 53 with the spring arms 59, as previously described, the valve will be locked in open position. When it is desired to close the valve the push button 57 is operated to release the lever, and the valve closes by gravity, as in the other forms.

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

1. A valve operating means including a valve and a conduit in which the valve is arranged, and means controlled by the level of the liquid in the conduit for locking the valve in open position.

2. A valve operating means including a valve and a conduit in which the valve is arranged, and means controlled by the level of the liquid in the conduit for locking the valve in open position, said means operating to automatically release the valve when the liquid in the conduit has reached a predetermined level.

3. The combination with a wash-basin, and an outlet pipe leading therefrom, of a normally closed valve arranged in the pipe, manually operable means for moving the valve to open position, and means controlled

by the level of the liquid in the pipe for automatically locking the valve in open position.

4. The combination with a wash-basin and an outlet pipe leading therefrom, of a normally closed valve arranged in the pipe, manually operable means for moving the valve to open position, and means controlled by the level of the liquid in the pipe for automatically locking the valve in open position, said means being adapted in the predetermined fall of the level of the liquid to operate the valve locking means to release the valve.

5. The combination with a wash-basin and an outlet pipe leading therefrom, of a valve controlling the flow of liquid through said pipe, means for operating the valve, a float arranged to be influenced by the flow of liquid through the pipe, and means operated by the float to engage or disengage the valve in accordance with the level of the liquid influencing the float.

6. The combination with a wash-basin, of an outlet pipe leading therefrom, a normally closed valve controlling said pipe, means for operating the valve, a float arranged to be influenced by the flow of liquid through the pipe, and means operated by the float to engage or disengage the valve in accordance with the level of the liquid influencing the float.

7. The combination with a wash-basin and an outlet pipe leading therefrom, of a normally closed valve for controlling the flow of liquid in said pipe, a shaft on which the valve is supported, manually operable means for engaging and controlling the shaft, a float adapted to be influenced by the water in the outlet pipe, a lever operated by the float, and a projection carried by the shaft within the path of movement of the lever.

8. The combination with a receptacle, of an outlet valve therefor normally arranged to gravitate to closed position, means for operating the valve to move it to open position, automatically actuated means for locking the valve in open position, and means for operating the locking means to release the valve.

9. The combination with a receptacle, of an outlet valve therefor arranged to gravitate to closed position, means for operating the valve to force the same to open position, automatically actuated pressure controlled means for locking the valve in open position, and means for operating the pressure controlled means to release the valve for gravitation to closed position.

In testimony whereof I affix my signature in presence of two witnesses.

LENN G. McCORRY.

Witnesses:

WILLIAM P. BROWN,
JACOB KEEP.