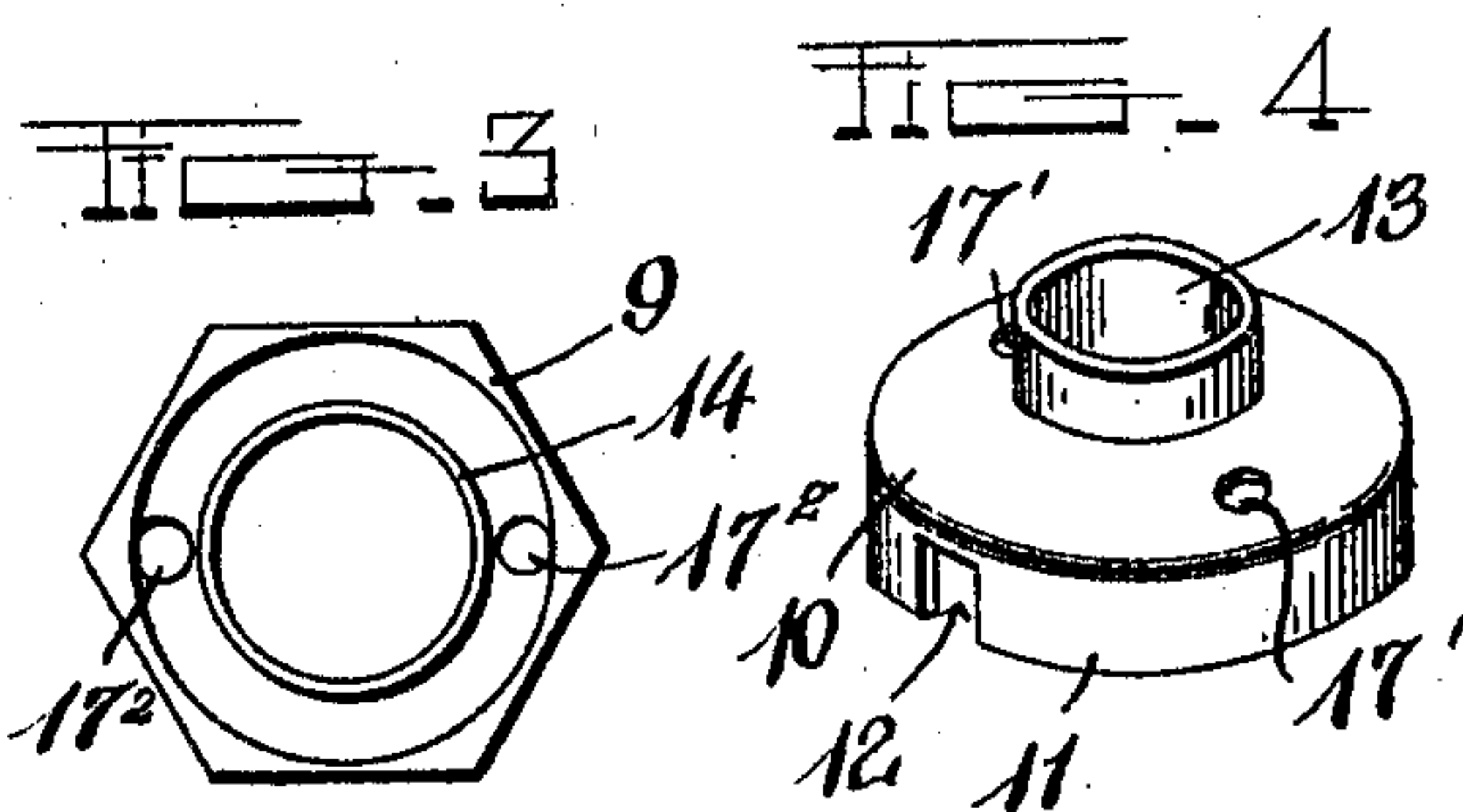
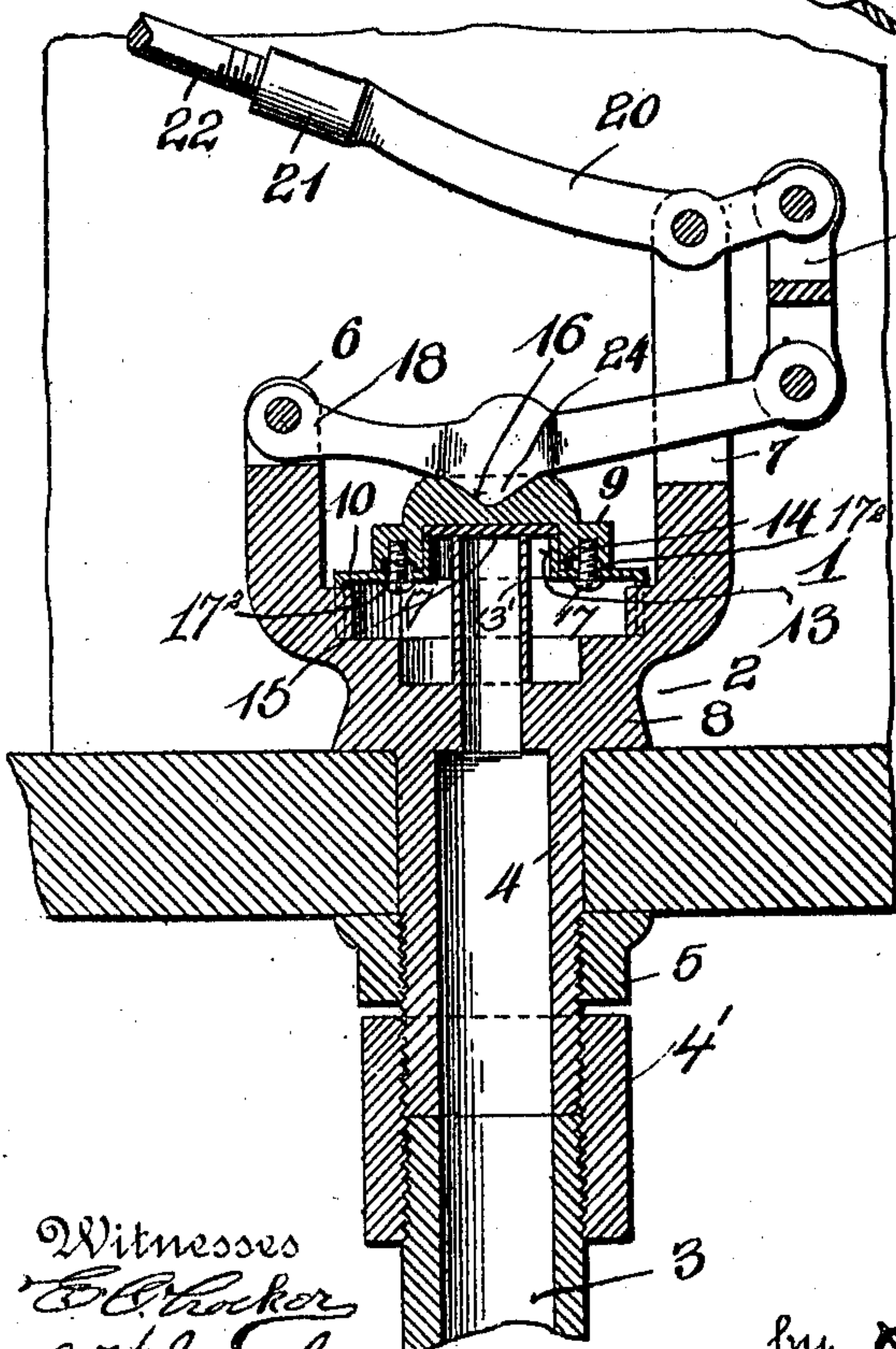
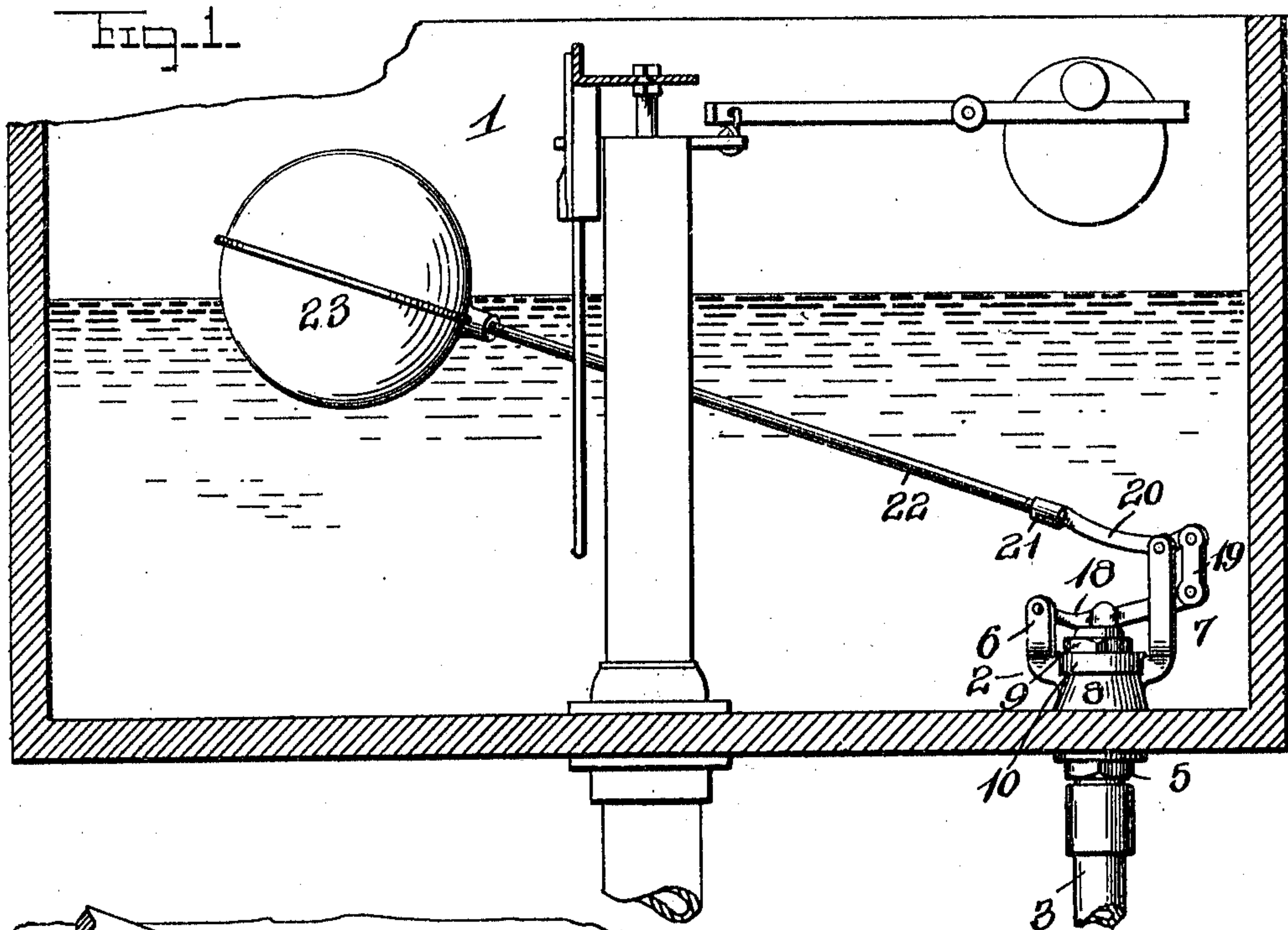


J. S. WELBORN.
 FLOAT OPERATED VALVE.
 APPLICATION FILED MAY 27, 1909.

945,254.

Patented Jan. 4, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN S. WELBORN, OF HIGH POINT, NORTH CAROLINA.

FLOAT-OPERATED VALVE.

945,254.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed May 27, 1909. Serial No. 498,599.

To all whom it may concern:

Be it known that I, JOHN S. WELBORN, a citizen of the United States, residing at High Point, in the county of Guilford and State of North Carolina, have invented certain new and useful Improvements in Float-Operated Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in supply valves or ball cocks of flush tanks.

One object of the invention is to provide an improved valve of this character which may be easily removed from and replaced in a tank and having its parts so arranged that they may be readily separated and assembled to permit the renewal of the washer.

Another object is to provide a float operated valve which will be simple and durable in construction, efficient and reliable in operation and not apt to get out of order.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a tank showing in side elevation, my improved float operated valve arranged therein; Fig. 2 is an enlarged vertical sectional view of the valve and upper end of the tank supply pipe; Fig. 3 is a reverse plan view of the outer section of the valve; and Fig. 4 is a detail perspective view of the inner section thereof.

Referring more particularly to the drawings, 1 denotes a flush tank and 2 denotes the flush valve arranged therein. To the tank 1 is connected the usual water supply pipe 3, the upper end of which is connected with the tubular depending extension 4 of the coupling 8 by the coupling sleeve 4', the jam nut 5 screwing on said extension 4 against the bottom of the tank to hold the casting in position. On the casting 8 in the tank are formed upwardly projecting bearing brackets 6 and 7.

Adapted to be engaged with the inner end of the water supply pipe is my improved valve, which is formed in outer and inner separable sections 9 and 10, said inner section comprising a plate or disk having on its

outer edge a downwardly projecting annular flange 11 having formed therein oppositely disposed notches 12 which are adapted to engage the lower portion of the brackets 6 and 7, said brackets thereby forming guides for the valve. In the disk portion of the inner section of the valve is formed a centrally disposed aperture surrounded by an upwardly projecting annular flange 13 and through said flanged aperture is adapted to project the tubular extension 13', forming an inlet for the water.

The upper or outer section 9 of the valve comprises a plate having formed in its inner side a centrally disposed circular recess 14 in which is arranged a washer 15 which may be formed of rubber, leather or other suitable material and which when the valve is in closed position will engage the upper end of the extension 13' of the casting, thus closing the same and cutting off the supply of water to the tank.

In the outer side of the outer section 9 of the valve is formed a recess or depression 16, the purpose of which will be hereinafter described.

The outer and inner sections 9 and 10 of the valve are detachably secured together by screws or other suitable fastening means 17 which screw through the threaded apertures 17' in the inner section of the valve into the socket 17² in the bottom of the outer section thereof and when so engaged and secured the flange 13 of the inner section 10 of the valve will fit into the recess 14 of the outer section and engage the washer 15 thus securing the latter in place in said recess.

The valve 8 is held in closed engagement with the outer end of the extension 3' of the casting 8 by means of a valve operating arm 18 which is pivotally mounted at one end in the bracket 6, the opposite end of which projects between the bifurcated upper portion of the bracket 7 and is pivotally connected by a link 19 with a valve operating lever 20 which is pivotally mounted in the upper end of the bracket 7 above the arm 18 and is provided on its free end with a threaded socket 21 in which is detachably secured the stem 22 of a ball float 23. The arm 18 is provided on its lower edge with a stud or projection 24 which is adapted to engage and fit into the recess 16 in the top of the outer section of the valve.

In the operation of the valve, as the water enters the tank through the pipe 3, the pres-

sure of the water will raise the valve out of engagement with the upper end of the extension 13', thus permitting the water to flow into the tank and as the tank fills the float will rise therein, thus swinging the outer end of the lever 20 upwardly, thus forcing the inner end downwardly, which movement will also force the float operating arm 18 downwardly through the link connection 19, thus engaging the stud 24 with the upper side of the valve and thereby forcing said valve into fluid tight engagement with the upper end of the extension 13' thus cutting off the flow of water to the tank. As the water is drawn from the tank, the float will lower thereby actuating the lever 20 in the opposite direction which will lift the valve operating arm 18 out of engagement with the valve, thus permitting the water to flow into the tank.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a float operated valve, the combination with the discharge end of a supply pipe, of a valve closing said end of the pipe and adapted to be opened by the pressure of water passing through the pipe, said valve consisting of upper and lower sections, said lower section comprising a plate having on its outer edge a downwardly projecting flange and having a centrally disposed aperture to receive the upper end of said pipe, with an upwardly projecting flange formed around said aperture, and said upper section comprising a plate having formed therein a centrally disposed recess to receive the upwardly projecting flange of said lower section, a washer arranged in said recess and held in position by said flange, means to detachably secure said sections of the valve together, a pivotally mounted valve operating arm adapted to engage said valve and to hold the same in closed engagement with the end of said pipe, and a float actuated lever operatively connected to said arm.

2. In a device of the class described, a tank, a water supply pipe, a casting having

a depending hollow extension and an upright hollow extension forming continuations of the supply pipe, combined bearing and guide brackets arranged on said casting, a valve adapted to close the upper end of the upright extension of the casting and to be opened by the pressure of water passing through the same, said valve having formed therein guide notches adapted to engage said brackets, whereby said valve is held in operative position, a valve operating arm pivotally mounted in one of said brackets and slidably engaged with the opposite bracket, means on said arm to engage said valve, a valve operating lever pivotally mounted in one of said brackets, a link to connect one end of said lever with the free end of said valve operating arm, and a float connected to the free end of said lever whereby the latter is actuated to cause said arm to close the valve when the tank is filled.

3. In a device of the class described, a tank, a water supply pipe, a casting having a depending hollow extension and an upright hollow extension forming continuations of the supply pipe, combined bearing and guide brackets arranged on said casting, a valve adapted to close the upper end of the upright extension of the casting and to be opened by the pressure of water passing through the same, said valve having formed therein guide notches adapted to engage said brackets, whereby said valve is held in operative position, a pivotally mounted valve operating arm adapted to engage said valve and to hold the same closed, and a float actuated lever operatively connected to said arm.

4. In a device of the class described, a tank, a water supply pipe, a casting having depending and upright hollow extensions forming continuations of the supply pipe, brackets arranged on said casting, a valve having formed therein guide notches adapted to engage said brackets, whereby said valve is held in operative position, a washer in the valve to close the upper end of the upright extension of the casting, a pivotally mounted valve operating arm adapted to engage and hold said valve in closed position, and a float actuated lever operatively connected to said arm.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN S. WELBORN.

Witnesses:

W. C. IDOL,
W. L. SMITH.