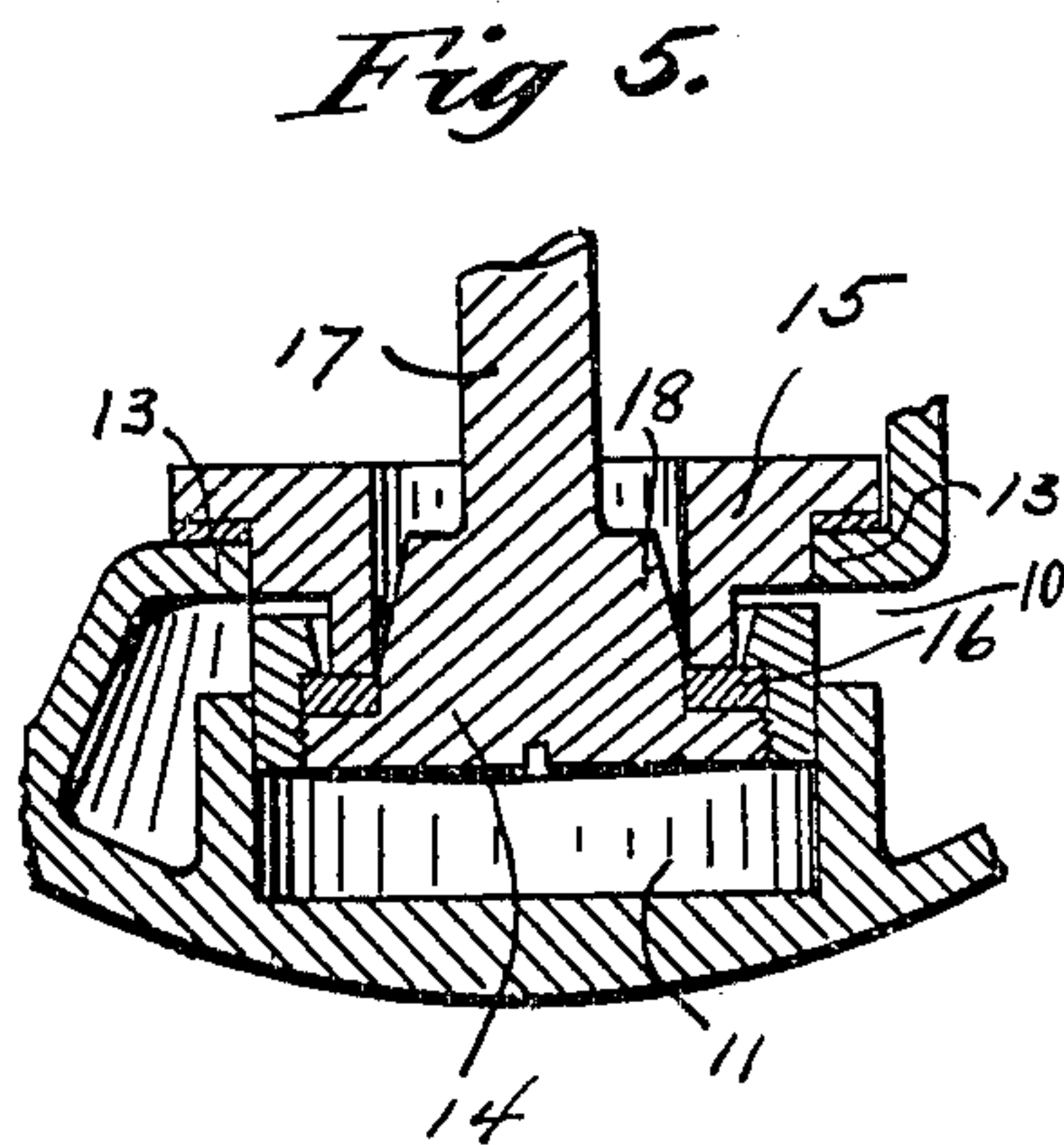
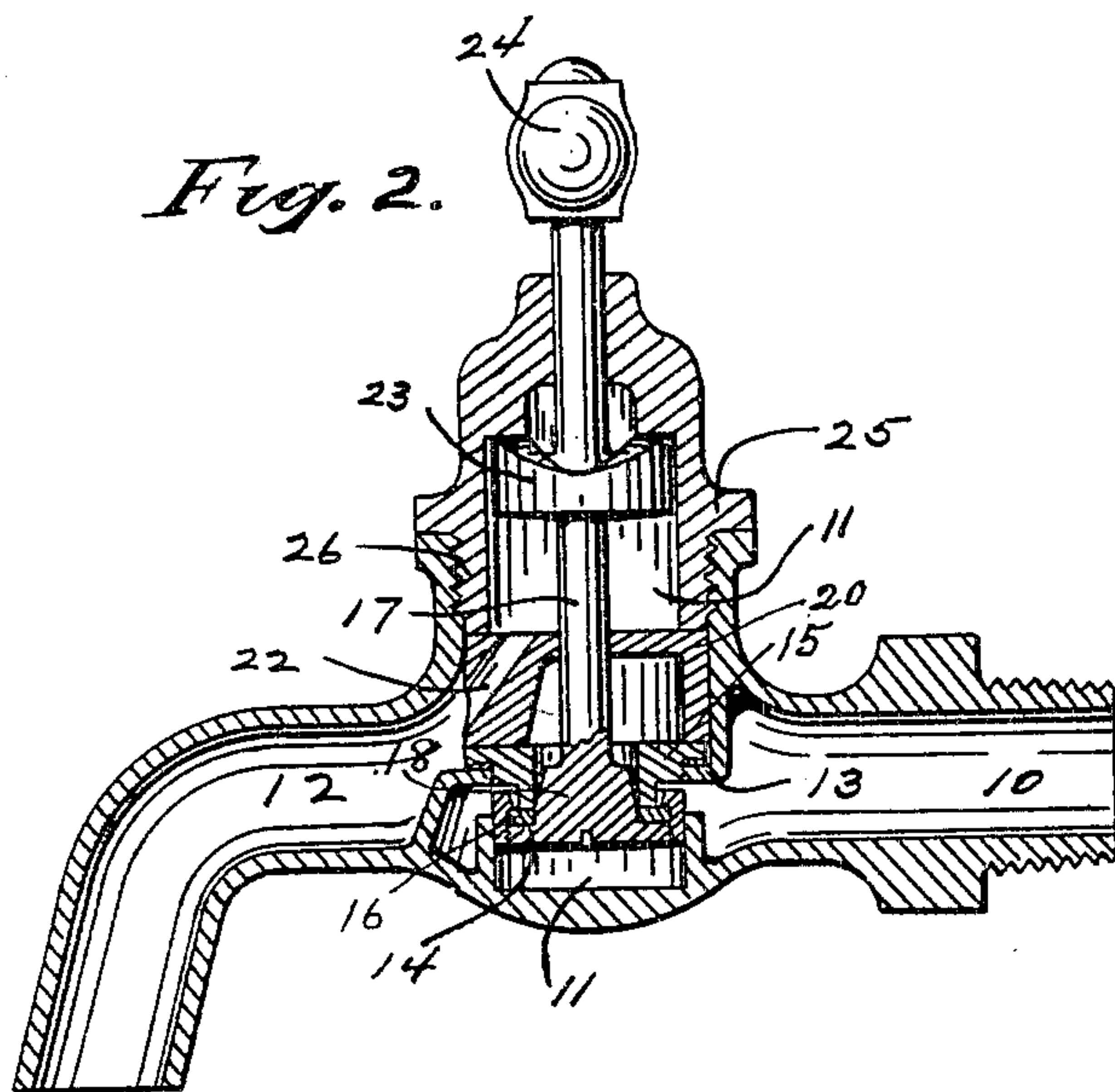
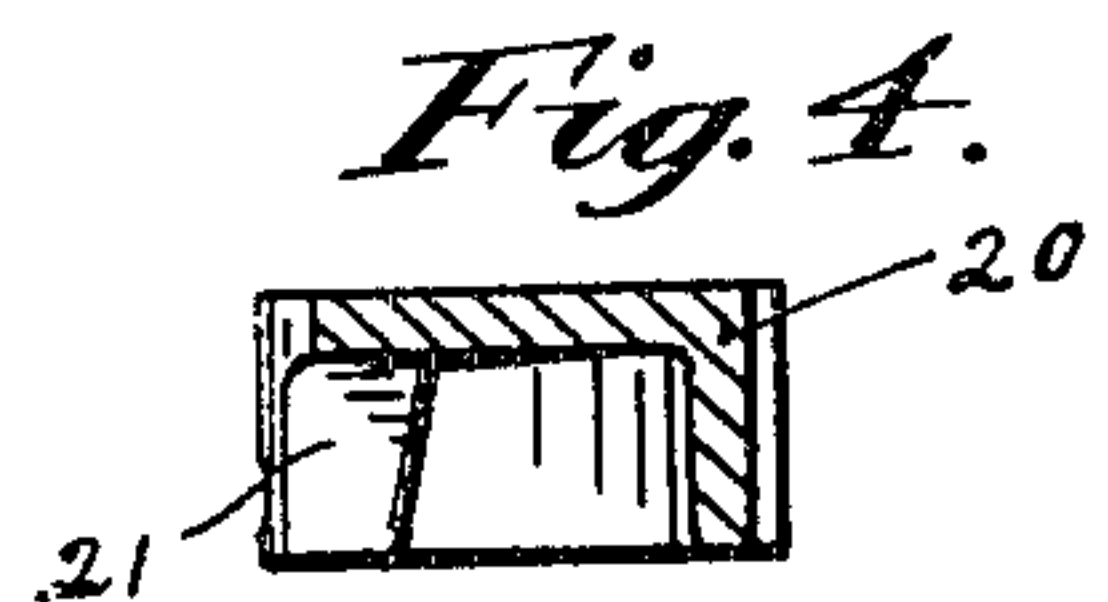
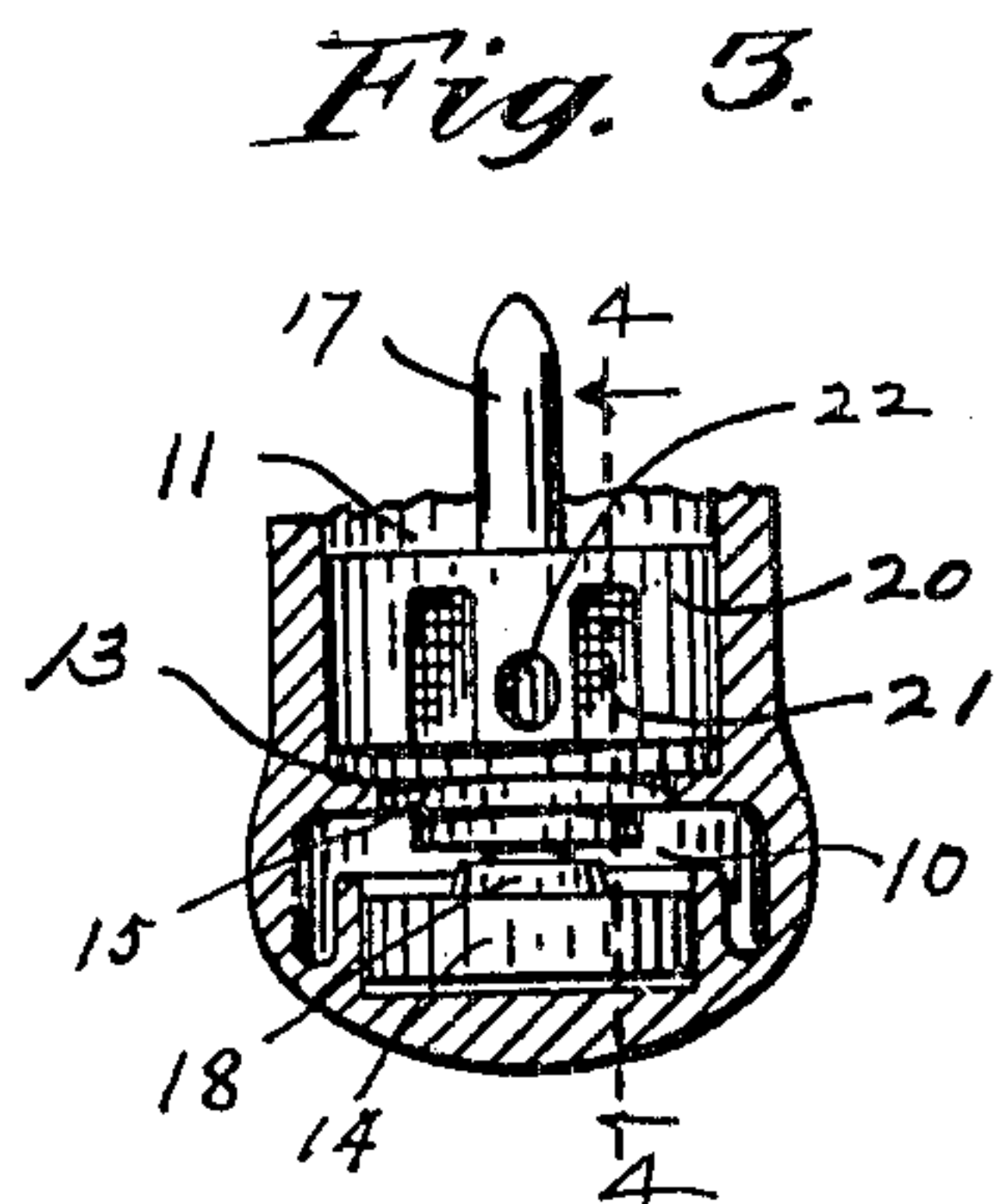
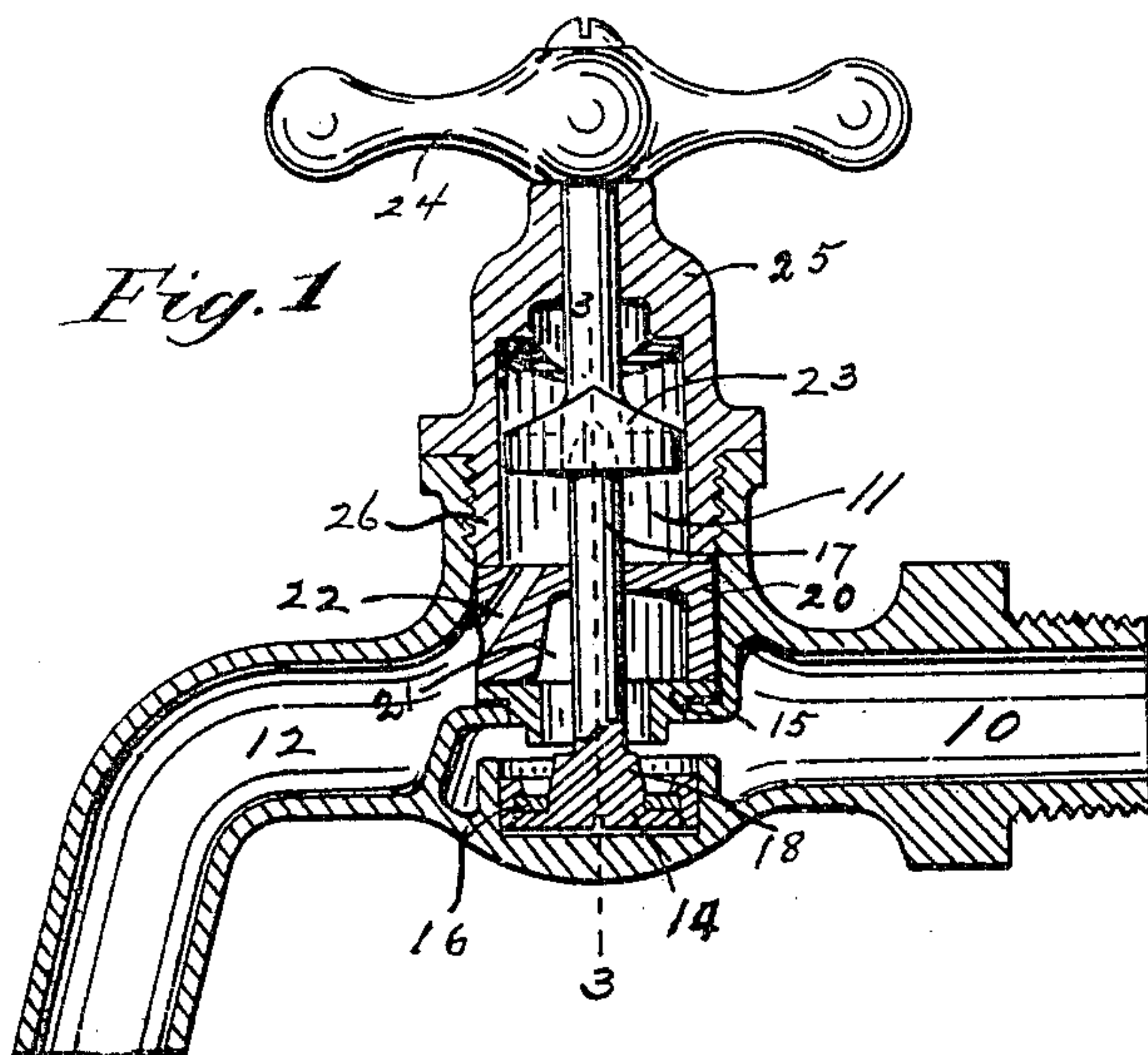


No. 804,673.

PATENTED NOV. 14, 1905.

L. J. RICE.
SELF CLOSING FAUCET.
APPLICATION FILED MAY 31, 1904.



Witnesses

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LEWIS J. RICE, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO
FREANEY BROTHERS, OF INDIANAPOLIS, INDIANA, A COPARTNERSHIP.

SELF-CLOSING FAUCET.

No. 804,673.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed May 31, 1904. Serial No. 210,435.

To all whom it may concern:

Be it known that I, LEWIS J. RICE, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Self-Closing Faucet; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to improve the construction of faucets.

One feature of this invention consists in the means for cushioning the valve by water passing through, so that it will close without the thud or the pounding common to faucets used in connection with fluid under pressure. Here this result is accomplished by deflecting a portion of the incoming water against the valve-seat during the closing of the valve, so that said deflected water will cushion the valve.

Another feature consists of the use of an ejector above the valve-seat instead of packing, said ejector withdrawing all the water that may pass into the upper part of the chamber in which the various parts of the device are mounted. The suction created by this ejector prevents the water escaping upward out of said chamber.

The foregoing and the other features of the invention will be more clearly apparent from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a vertical longitudinal central section through the faucet while the valve is open, and Fig. 2 while the valve is closed. Fig. 3 is a vertical transverse section on the line 3 3 of Fig. 1, showing the ejector, valve-seat, and valve in elevation. Fig. 4 is a vertical section of the ejector on the line 4 of Fig. 3. Fig. 5 is a central vertical section of the lower part of the valve mechanism, on an enlarged scale.

The faucet has an inlet 10, which leads to a vertical chamber 11, and an outlet 12 leads from said vertical chamber. In said vertical chamber an annular rib 13 is located immediately above the inlet and below the outlet, and the portion of the chamber below said annular rib is reduced in diameter and turned true to form a cylinder for the piston-valve 14, that fits snugly but loosely therein, so the water will exert an equal pressure on the valve at all points, thus maintaining it bal-

anced. The depth of the cylinder is greater than the thickness of the valve, so that it has considerable vertical movement. The valve-seat 15 rests upon said rib 13 loosely and consists of a downwardly-extending central portion that forms the valve-seat proper and engages the packing 16 in an annular depression in the top of the valve. The valve-seat has a central opening larger than the valve-stem 17, that passes centrally therethrough. A cone 18 is located about the lower end of the valve-stem and at its junction with the valve. The diameter of the lower and largest part of this cone does not exceed the diameter of the hole through the seat 15, but is substantially the same. The inclination of this cone is such as to cause the incoming water as the valve is closing to be partially deflected against the seat, and such deflected water constitutes a water cushion between the seat and the valve that causes the valve to close gradually, and therefore the thumping common to faucets when used with water under pressure is prevented.

An ejector 20 is placed upon the valve-seat 15 and held down by a threaded sleeve 26 from the cap 25. It is a disk hollow on the under side and centrally, and it has two outlet-openings 21 leading from below and one outlet-opening 22 from above and midway between the former two outlet-openings.

The stem 17 is tapered at its upper end and fits loosely in a central recess in the under side of a head 23, connected with the handle 24, as seen by the dotted lines in Fig. 1. Said head has on it cams that, as shown in Figs. 1 and 2, are engaged by cams on the cap 25, that closes the vertical chamber 12.

In operation the handle 24 is turned so that the cams force the valve-stem and valve downward, moving the latter away from its seat, as seen in Fig. 1, so that water passes from the inlet-opening 10 into the lower part of the vertical chamber and between the valve and valve-seat and out through the central opening of the valve and through the outlet-openings 21 in the ejector 20 and thence through the faucet-outlet 12. All water that leaks or is forced into the upper part 11 of the vertical chamber above the ejector by following up the valve-stem through the slight space between the valve-stem and the surrounding disk or ejector 20 is drawn out through the outlet-opening 22 by the suction created by the flow of

water through the two outlet-openings 21. Hence packing above is needless. When the valve is released, it immediately rises and closes, and this movement is thought to be due to the suction arising from the flow of water through the valve, for the valve is balanced in its cylinder or chamber, and it moves up to its seat with the same readiness as if actuated by a spring, and the force of its upward movement is such as to cause a considerable thumping when the water is under pressure, as is common in most faucets, excepting for the means provided herein to prevent that result. As stated above, during the closing movement of the valve the water is partially deflected by the cone against the valve-seat above, and thus a water-cushion is provided which prevents the final closing act of the valve being so sudden as to make a noise. The same suction effect also draws any water that might rise into the upper part of the chamber out from the opening 22, and a faucet is provided without any spring and with a few simple parts herein specified which acts with positiveness and yet is free from noise at closing when under considerable water-pressure. Furthermore, the parts are readily removable, and the faucet will open automatically and let air into the pipes when the water-pressure is removed and the stop and waste of the pipes is closed, whereby the pipes are allowed to drain.

One important consequence of the construction herein for preventing the thud in the operation of the faucet with fluid under pressure is that when the valve is released suddenly there is no vibratory movement of the pipes connected with the faucet or any back action whatever thereon.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a faucet, a vertical chamber with a suitable inlet and outlet, one being slightly above the other, an annular rib in said chamber between said openings, a disk mounted on said rib and with a central opening through it and a downwardly-extending annular flange to form the valve-seat, a cylinder in the lower portion of said chamber, a piston-like valve operating in said cylinder with a stem extending up through the opening in said valve-seat and of smaller diameter than said opening, a cone formed about the valve-stem adjacent the valve so that the diameter of no part of said cone shall exceed the diameter of the opening through the valve-seat, and means for depressing the valve.

2. In a faucet, a vertical chamber with a suitable inlet and outlet, one being slightly above the other, an annular rib in said chamber between said openings, a disk mounted on said rib and with a central opening through it and a downwardly-extending annular flange to form the valve-seat, a cylinder in the lower part of said chamber, a piston-like valve operating in said cylinder with a stem extending

up through the opening in said valve-seat and of smaller diameter than said opening, said valve-stem having a cone formed about it adjacent the valve with an inclined surface adapted to deflect a portion of the incoming water against the valve-seat.

3. A faucet having a chamber with a suitable inlet and outlet, a disk in said chamber above said inlet and outlet with an outlet-opening in it for the passage of fluid from below, a valve below said disk for controlling the passage of the fluid with the stem extending above said disk, means above said disk for controlling said valve, and a passage-way in said disk leading from above the disk and issuing near said outlet-opening in the disk, whereby the movement of the fluid through said outlet-opening will withdraw the fluid from above said disk.

4. A faucet having a chamber with a suitable inlet and outlet, a valve for controlling the passage of fluid therethrough, means mounted in connection with said chamber for opening the valve, an ejector through which the fluid passes through the faucet for drawing the fluid from said chamber, said ejector having two outlet-openings side by side for the passage of the fluid, and a passage-way issuing between said two outlet-openings and leading from said chamber in the faucet into which the fluid is liable to be diverted.

5. In a faucet, a chamber with an inlet and outlet, and an ejector in the form of a disk mounted in said chamber to one side of the inlet and registering with the outlet, said disk having two outlet-openings leading from the inlet end of the chamber to the outlet and an ejector-opening leading from the other end of the chamber through said disk and issuing between said outlet-openings.

6. A faucet having a vertical chamber with an inlet and outlet port, one on a higher level than the other, an annular rib in said chamber between the inlet and outlet, a disk resting upon said rib with a downwardly-extending flange to form a valve-seat, said seat-disk having a central opening, a valve in the lower part of said chamber with a stem extending upward through a hole in said seat-disk and of smaller diameter than said opening, an ejector in the form of a disk resting upon said seat-disk hollow centrally on its under side and with two outlets therefrom and also a passage-way leading from above said disk out between said two outlet-openings, means for holding said ejector in place, and means for depressing the valve-stem.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

LEWIS J. RICE.

Witnesses:

V. H. LOCKWOOD,
N. ALLEMONG.