

B. KRALL.
DRAFT COCK.
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999,041.

Patented July 25, 1911.

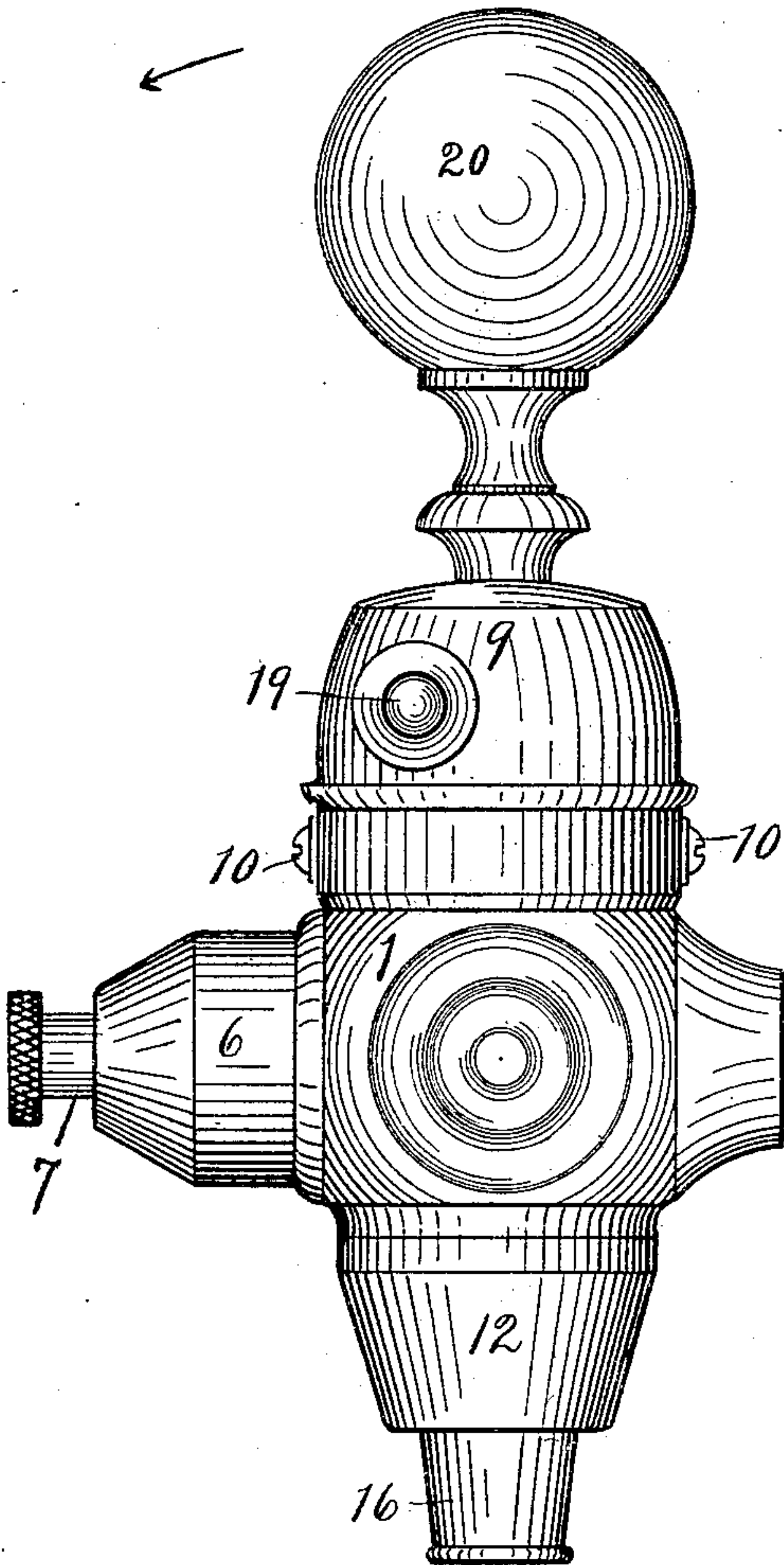


FIG. 1.

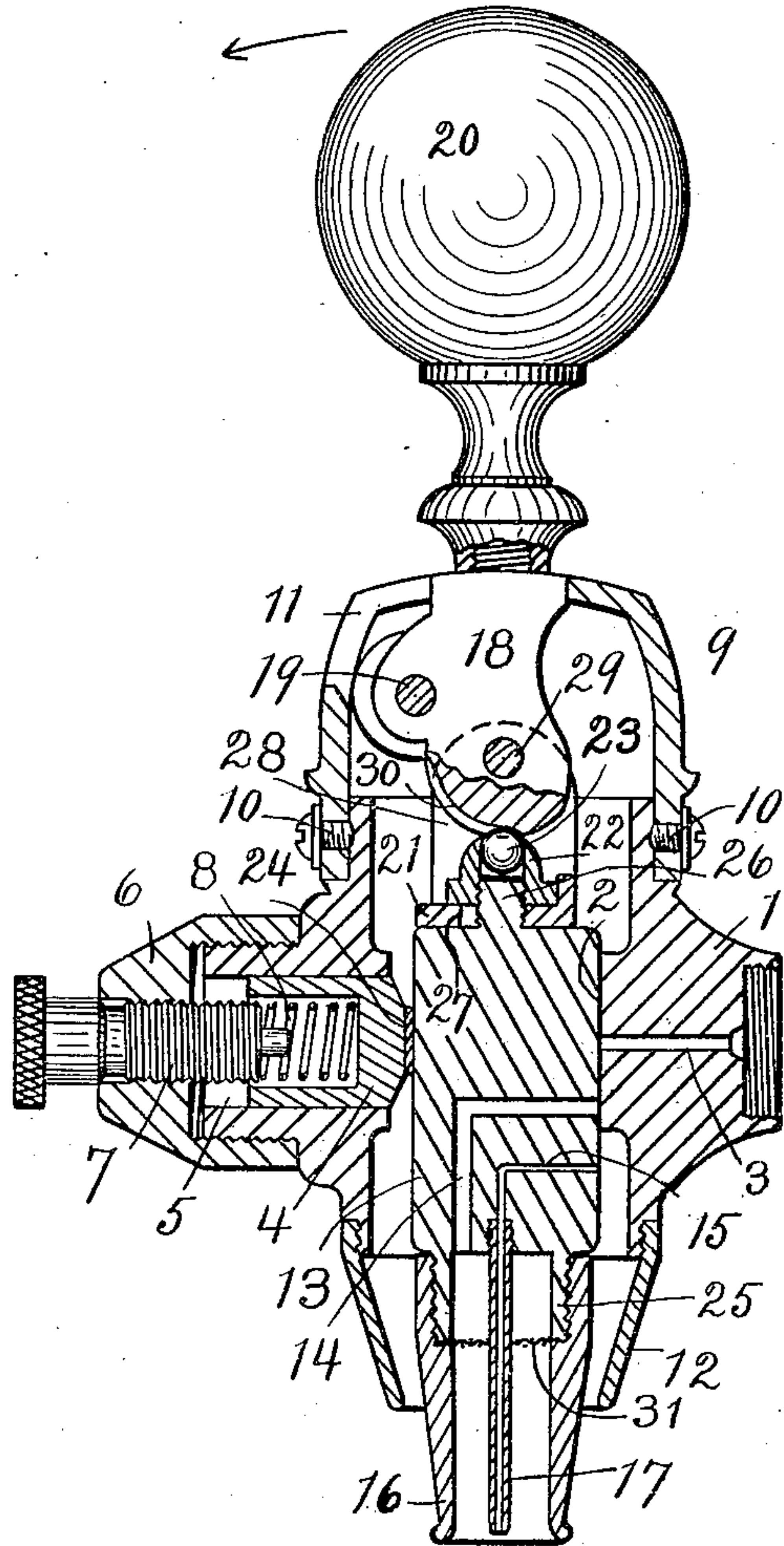


FIG. 2.

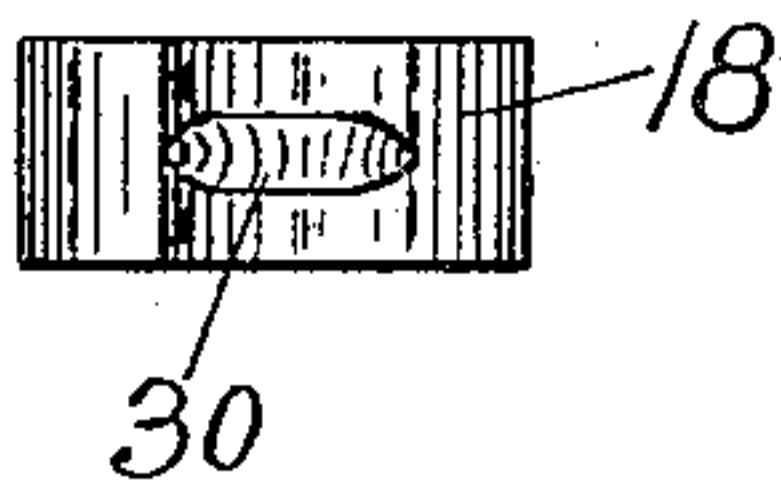


FIG. 3.

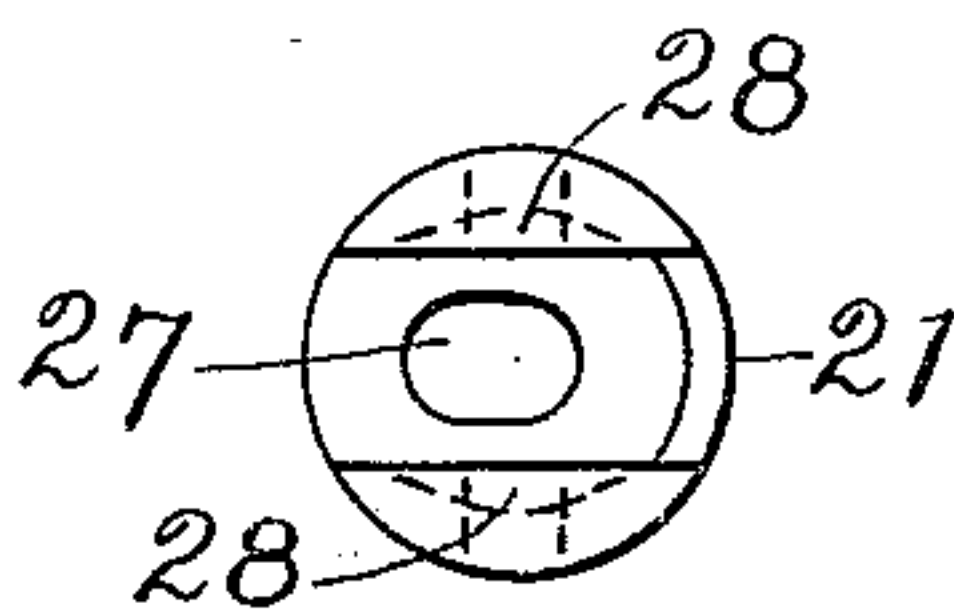


FIG. 4.

WITNESSES:

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DRAFT-COCK.

999,041.

Specification of Letters Patent.

Patented July 25, 1911.

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To all whom it may concern:

Be it known that I, BARTOLOMEY KRALL, a citizen of the United States of America, residing at Chelsea, in the county of Suffolk and State of Massachusetts, have invented a new and useful Draft-Cock, of which the following is a specification.

My invention relates to improvements in draft cocks for soda-fountains and like apparatus which deliver liquid under pressure and from which two distinct kinds of delivery are required, and said invention resides in certain peculiar valve-presser means and in certain peculiar valve-operating means, all as hereinafter set forth. In a device of this kind, wherein a single continuous movement of the handle and the valve connected therewith delivers liquid under pressure first to the jet-nozzle and next to the spray-nozzle, and by a reverse movement of said handle and valve closes both, there is liable to be a leakage between the valve and its seat, if the valve, which is of the slide variety, be loose enough to operate freely, and the connection between the valve and handle is very liable to stick or bind or else to become so loose when worn as to impair the usefulness of the device and interfere with the precision with which the valve should operate, and the objects of my invention are to obviate such difficulties at these points in the valve structure, and to do so in a practical manner and without having recourse to an expensive and complicated construction.

When a slide-valve is depended on, as in the present case, to cut off pressure, either the valve is quite likely if the fit of the same be sufficiently loose to permit it to move readily, to leak, as above noted, or said valve, if it fit tight, is liable to bind for a time or until worn by use to the slack fit which permits leakage. The present construction prevents leakage, on the one hand, and insures a free sliding fit between valve and seat, on the other hand, and said construction further provides for a strong, positive and durable connection through the medium of which the valve is actuated with the minimum amount of friction and wear.

Other objects will appear in the course of the following description.

I attain the objects and secure the advantages above referred to by the means illus-

trated in the accompanying drawings, in which—

Figure 1 is a side elevation of a draft cock which embodies a practical form of my invention; Fig. 2, a central vertical section through such cock; Fig. 3, a bottom view of the valve-operating member or rocker, and, Fig. 4, a top plan of the valve coupling.

Similar figures refer to similar parts throughout the several views.

As disclosed in the drawings, my device comprises a valve-case 1 having a vertical valve-seat 2 therein, leading to which seat is a horizontal inlet passage 3 for the soda-water, a recessed presser-plug 4 slidably mounted opposite said seat in a horizontal passage 5, a cap 6 screwed on to said case over the outer end of said passage 5, an adjusting screw 7 tapped into and through said cap, a spring 8 in the recess in said plug interposed between the plug and the adjacent end of said screw, a dome 9 over the open upper end of said case and entering into the casing construction, held in place by means of screws 10—10 tapped into and through said dome at the base and engaging the case 1, said dome having a slot 11 in the top and one side thereof, a nozzle 12 screwed on to the base of the valve-case, a vertically-movable gate or valve 13 between said seat and plug and having an angular jet-port 14 and an angular spray-port 15 therein, a jet-nozzle 16 screwed on to the base of said valve, a spray-nozzle 17 also attached to and depending from said base, a rocker 18 pivoted at 19 to said dome and provided at the top with a handle 20, said rocker operating in said slot 11, a coupling 21, a ball-case 22, and a ball 23.

The valve-case 1 may be of any suitable construction, as may the other casing members; in fact, I do not desire or intend to be restricted in matters of detail which affect the size, shape, and even the construction of the several external and internal parts of this apparatus to what is herein specifically shown and described, since numerous alterations may be made therein without departing from the nature of my invention.

The connection with the inlet passage 3 from the source of supply is omitted.

An anti-friction plate or disk 24, of mica or other suitable material, is attached to the inner end of the presser-plug 4, and this disk

bears directly on the valve 13. The spring 8 forces the presser-plug 4 with its disk 24 against the valve 13, with a pressure that may be increased or decreased as deemed
 5 necessary by simply turning the adjusting screw 7 in or out to compress said spring more or less accordingly, and so forces said valve tightly against its seat 2, yet not so
 10 tightly that said valve cannot be reciprocated with comparative ease. Thus provision is made for a tight joint which cannot leak between the valve and its seat, without the liability of the valve sticking or binding, and for taking up wear between the rubbing
 15 surfaces. Without the spring-pressed plug 4, the valve 13, if sufficiently loose to slide up and down easily, would be very liable to leak at the joint formed by it with the valve-seat 2, when said valve is closed, as shown
 20 in Fig. 2, the liquid running down from the passage 3 into the open space around said valve in the case 1, and from there out through the nozzle 12, thus wasting, and wetting whatever may be situated below said
 25 nozzle.

The base of the valve 13 is in the form of an annular flange 25, to which the jet-nozzle 16 is attached and into the space within which the vertical branch of the jet-port 14
 30 opens at the bottom. The horizontal branch of the jet-port opens outward through the valve-seat side of the valve 13, and is so located that it can be brought into alinement with the inlet-passage 3 when said valve is
 35 raised or opened. The vertical branch of the spray-port 15 opens at the bottom into the spray-nozzle 17, which nozzle extends downwardly inside of the flange 25 and the jet-nozzle 16 in the center of the same. The
 40 horizontal branch of the spray-port 15 opens outward, like the corresponding branch of the jet-port 14, through the valve-seat side of the valve 13, and, like the aforesaid jet-nozzle branch, is situated so that it can be
 45 brought into alinement with the inlet-passage 3, upon the opening of said valve. The horizontal branch of the port 15 is below the horizontal branch of the port 14. The jet-port 14 is larger than the spray-port 15, of
 50 course. It will now be seen that, when the valve 13 is raised to connect the jet-port 14 with the inlet-passage 3, the soda-water from such passage will flow freely and in considerable volume through such port, the base of
 55 said valve and the jet-nozzle 16 into a glass placed beneath; and, when the valve is raised still higher to connect the spray-port 15 with said inlet-passage, a spray or fine stream, commonly called a "flat" stream,
 60 will escape forcibly through said last-mentioned port and the spray-nozzle 17, the passage through which latter is no larger in diameter than the connecting port, into the glass.

65 Rising from the center of the valve 13, at

the top, is a screw-threaded stud or post 26. The coupling 21 rests on the top of the valve 13, and has a slot 27 in the base thereof to receive the post 25, which slot permits said
 10 coupling to move to the extent required and as presently will be explained. Lugs 28 rise from opposite sides of and form parts of the coupling 21, and the rocker 18 is pivoted at
 29 to said lugs, the base or heel of such rocker being received between said lugs. 75
 The ball-case 22, with the ball 23 therein, is screwed on to the post 26 above the base of the coupling 21, and so holds said coupling in place on the valve 13, and said ball on top
 80 of said post, but without binding either of the members thus held, that is to say, without preventing the coupling from sliding or the ball from revolving freely. The heel
 85 of the rocker 18 has a groove 30 in the underside thereof to receive that part of the ball which protrudes from the ball-case 22, such groove being concentric with the pivot 29.

When the handle 20 is erect, as in Figs. 1 and 2, the bottom end of the groove 30
 90 bears against the ball 23, the right-hand or rear end of the slot 27 bears against the post 26, and, owing to the wedging of the heel of the rocker 18 between said bottom end of the groove and said pivot, said handle cannot
 95 be moved excepting in the direction of the arrow in either of said views. While the handle 20 and the rocker 18 are thus disposed the valve 13 is retained in its low or closed position, with both ports 14 and 15
 100 below the passage 3.

To open the valve 13, move the handle 20 and the rocker 18 on the pivot 19, in the direction of the arrow above alluded to, and
 105 thus elevate said valve until the horizontal branch of the jet-port 14 is in alinement with the passage 3, when a strong stream of soda-water flows through said port and out of the jet-nozzle 16. Now hold the handle stationary while the required amount of
 110 soda-water is being drawn. Then, after the aforesaid amount has been drawn, move the handle 20 still farther in the same direction as before, and so raise the valve 13 until the horizontal branch of the spray-port 15 is in
 115 line with the passage 3, when a small "flat" stream flows through said port and out through the spray-nozzle 17. The handle is held in the last position long enough to permit the required discharge of spray to take
 120 place, and then said handle is quickly returned to its upright position and the valve is thrust downward and closed, since the ports 14 and 15 are carried below the passage 3 and the supply from such passage is
 125 cut off by said valve. The rocker 18 operates freely in the slot 11 during the manipulation of said rocker by the handle.

As will be readily perceived, either port can be returned to alinement with the pas- 130

sage 3 without completing the stroke of the valve in either direction, an operation required with some frequency in drawing the right amount of spray, and with less frequency in drawing the proper quantity of soda-water in the first instance.

The raising or opening of the valve 13, when the handle 20 is rocked to the left or forward and downward, is accomplished through the medium of the rocker 18 and the connection between said valve and said rocker, the ball 23 assisting in the accomplishment by materially lessening the friction between said rocker and said connections. As the rocker 18 turns on its pivot 19 to elevate the valve 13, the pivot 29 is carried upwardly, taking with it the coupling 21, and said valve as well, because said coupling is held to said valve by the ball-case 22. Inasmuch as the pivot 29 at this time describes an arc of a circle, while the valve 13 moves in a vertical plane, it is necessary that lost motion be provided between the two, and this has been done by slotting the coupling 21 at 27 so as to enable said coupling to move to the right or rearwardly during the opening operation, and to move forward again during the closing operation, said pivot then describing the same arc inversely. The ball 23 rolls in the groove 30 whenever the rocker 18 is actuated. The construction which includes this ball is stiffened without the addition of parts which would create undue friction and wear out quickly; moreover, said ball receives the thrust from the rocker in closing the valve and so relieves the pivot 29 to a considerable extent. In closing, the rocker simply forces the coupling, by means of the pivot 29, downward, and with it the valve, said coupling sliding forward, as explained, and, at the same time, said rocker acts on the ball and the latter on the post 26 to depress said valve.

The presser-plug 4, in addition to insuring a tight joint, creates sufficient frictional resistance to hold the valve at any point, regardless of the position of the valve-operating members when free, although as a rule the handle is grasped throughout the opening or drawing and closing operations, as hereinbefore intimated.

This device is very stable both in construction and operation.

At 31 is represented a strainer in the jet-nozzle.

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

1. The combination, in a draft cock, with a suitable valve-case having a valve-seat therein, and a slide-valve in such case, of a presser-plug slidably mounted in said case and arranged to bear against said valve on the side thereof which is opposite the valve-seat-engaging side, an adjusting screw, and a spring interposed between said plug and screw.

2. The combination, in a draft cock, with a suitable valve-case having a valve-seat therein and a supply passage therethrough, and a slide-valve in such case, such valve having two ports both opening through one side and the base of said valve and arranged to be brought consecutively into operative relation with said passage, of a spring-pressed presser-plug mounted in said case to bear against said valve and force the same against said seat.

3. The combination, in a draft cock, with a suitable casing having a valve-seat therein, a slide-valve in said casing, and means to hold said valve against said seat, of a rocker pivotally mounted in said casing, and a movable coupling connection between said rocker and said valve, such connection being mounted on said valve and pivotally attached to said rocker.

4. The combination, in a draft cock, with a suitable casing having a valve-seat therein, a slide-valve in said casing, and means to hold said valve against said seat, of a rocker pivotally mounted in said casing and arranged to bear on said valve, and a movable coupling member mounted on said valve and pivotally connected with said rocker.

5. The combination, in a draft cock, with a suitable casing having a valve-seat therein, a slide-valve in said casing and provided with a post, and means to hold said valve against said seat, of a rocker pivotally mounted in said casing, a slotted coupling pivotally connected with said rocker and mounted on said valve with said post in the slot in said coupling, a ball-case attached to said post over said coupling, and a ball in said case between said post and said rocker.

BARTOLOMEY KRALL.

Witnesses:

HARRY F. DANIELS,
JAMES F. WARD.