

No. 615,386.

Patented Dec. 6, 1898.

T. R. GLEASON.
BALL COCK.

(Application filed May 3, 1897.)

(No Model.)

Fig. 1.

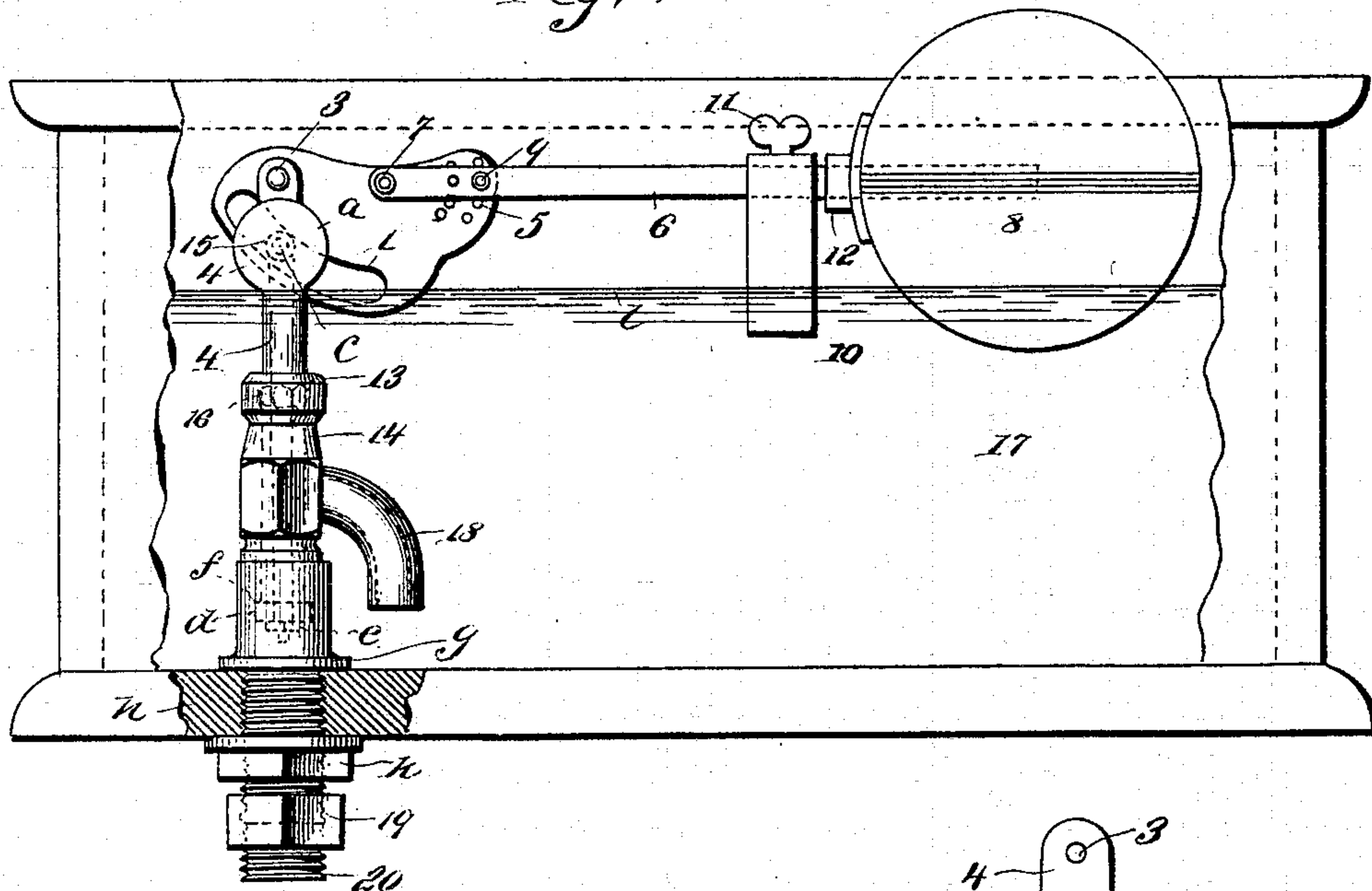
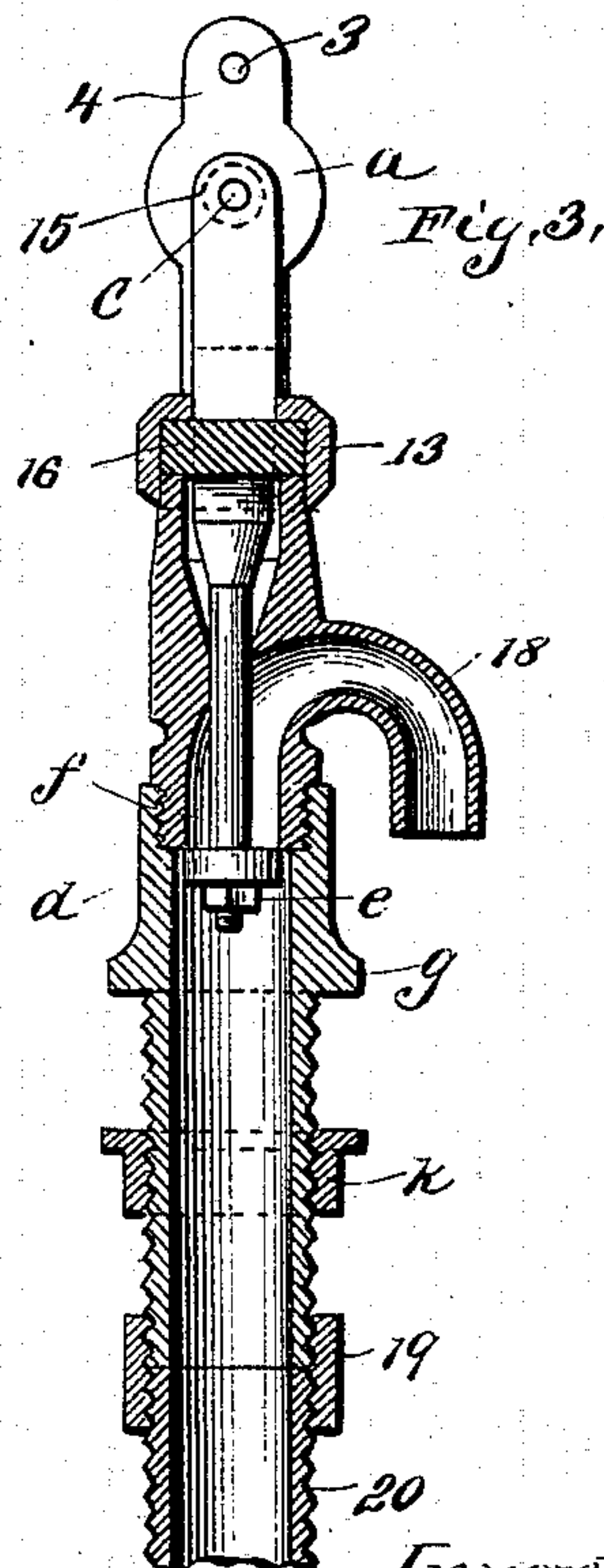
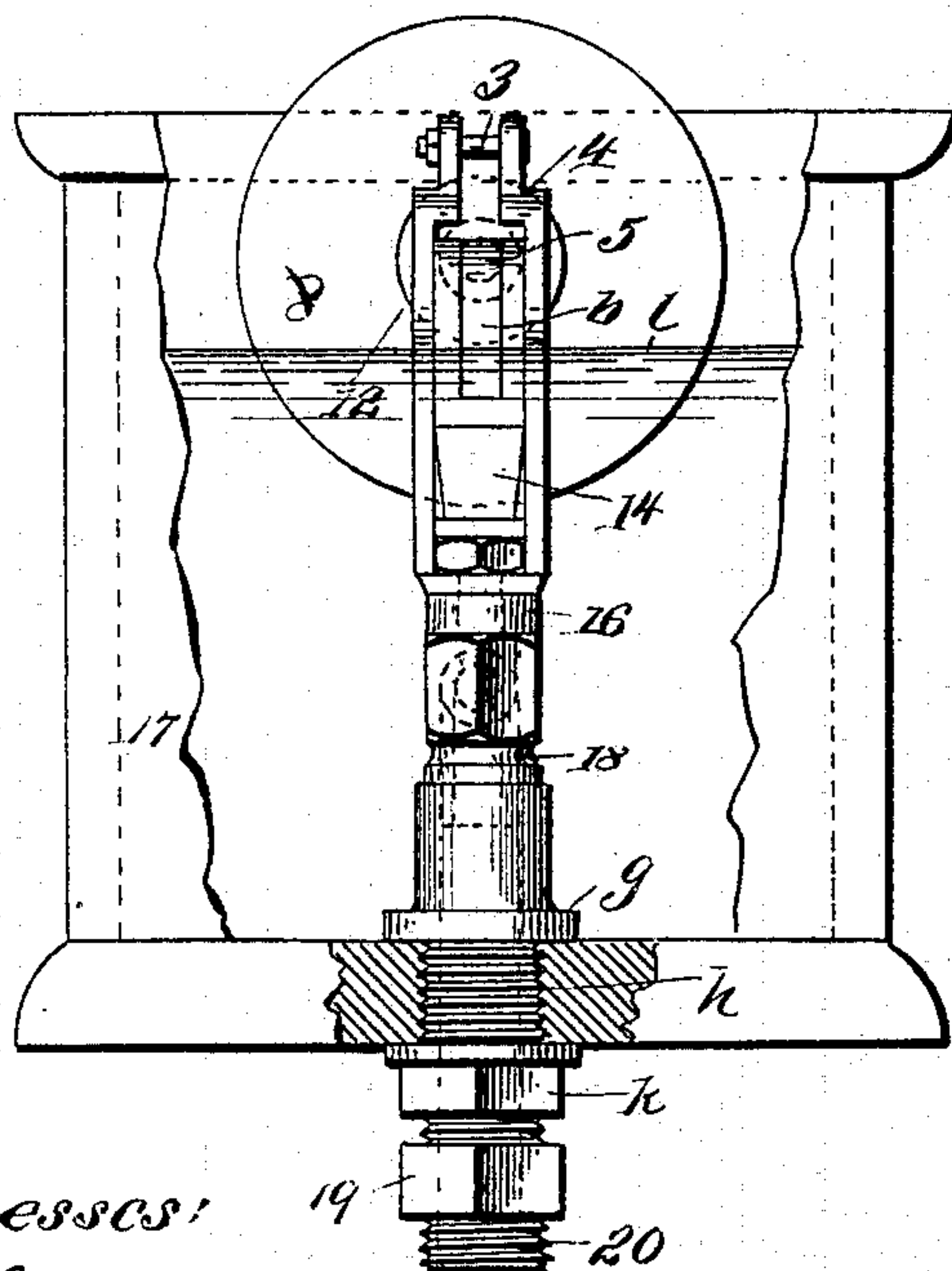


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS RICHARD GLEASON, OF DULUTH, MINNESOTA.

BALL-COCK.

SPECIFICATION forming part of Letters Patent No. 615,386, dated December 6, 1898.

Application filed May 3, 1897. Serial No. 634,974. (No model.)

To all whom it may concern:

Be it known that I, THOMAS RICHARD GLEASON, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain Improvements in Ball-Cocks; 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, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to ball-cocks; and it consists of a valve opened against the current of the outflowing water by means of the downward motion of the float-ball lever, aided by an adjusted weight suitable to open the valve under varying pressure of water by means of a positive and powerful reciprocating motion given to the valve-stem by the action of an eccentric circular slot properly found and located in the headpiece of the float-ball lever; and my object is to provide a simple, cheaply-constructed, and durable valve closing with the outflow of the water, sure, safe, and noiseless in its operation, thus avoiding great annoyance from the noise and spray attending the action of other ball-cocks closing against the great pressure of the water, causing almost constant leakage, noise, siphonage, overflow, damage, and often repeated and expensive repairs.

I am aware that heretofore ball-cocks have been devised for opening against the outflow of the water; also, that cams have been used on ordinary valves for opening and closing the same by hand; but I am not aware that there has been any ball-cock devised or made that has the new, valuable, and distinctive features herein set forth as my invention.

Of the drawings, Figure 1 is a side elevation of my ball-cock in position, with the front wall of the tank partly broken away. Fig. 2 is an end elevation of Fig. 1, and Fig. 3 is a vertical section of my ball-cock.

The same characters of reference refer to the same parts in the several figures of the drawings.

The lever-head 1 is preferably formed of brass about a quarter of an inch thick, and it is constructed with the circular slot 2, which is located eccentrically in relation to the ful-

crum-pin 3, which passes through the stirrups 4 and retains the lever-head in its proper working position. The lever-head is also constructed with the series of holes 5, the ball-lever 6 is attached to the lever-head by means of the trunnion-pin 7, and the relative position of the float-ball 8 can readily be adjusted by placing the adjusting-pin 9 in any one of the series of holes 5.

The weight 10 is constructed to slide freely upon the ball-lever 6 and is retained in any desired position by means of the thumb-screw 11. The float-ball 8 is of the usual form, and the threaded thimble 12 is preferably riveted to the ball for the purpose of connecting it with the lever 6.

The stirrups 4 are formed with or rigidly attached to the packing-box nut 13 and are enlarged at *a* to give suitable guide-bearing to the lever-head 1.

The valve-stem 14 is provided with the vertical slot *b*, in which to receive the anti-friction-roller 15, which is retained in its position by the pin *c*. The ordinary packing-box 16 is to prevent any spray escaping while the tank 17 is being filled with water, and below the packing-box the valve-stem is preferably reduced in size to present less resistance to the flowing water, and the valve *d* is held in position upon the stem by the nut *e*, and rests, when closed, upon its seat *f*.

The water is delivered in a downward course upon the bottom of the tank by the curved nozzle 18, and the wall of the cock has the flange *g*, the threaded section *h*, and is provided with the flange-nut *k* for removably attaching the ball-cock to the floor of the tank, and the thimble-coupling 19 attaches the ball-cock to the water-supply pipe 20.

Operation: The tank 17 being filled with water to the line *l*, the flush-valve is tripped by the operator and the water-line descends with the float-ball 8, aided by the adjustable weight 10. As the weight descends the ball-lever *c* operates the lever-head 1, which, by means of the eccentrically-located circular slot 2, carries the valve-stem 14 downward by a positive motion by the action of the anti-friction-roller 15, attached to the upper end of the stem, operating in the eccentric slot 2, thus forcing the valve *d* open against the current-pressure of the water coming in from

the supply-pipe 20 with a positive motion, governed and corresponding with the sinking motion of the ball. When the low level of the water is reached, the valve *d* is full open
5 and the water comes in rapidly, freely, and noiselessly, and when the water-level has raised the ball nearly to a position to close the valve the slot 2 in the lever-head, in connection with the close-fitting freely-working
10 antifriction-roller 15, prevents the great force of the water from closing the valve suddenly, and thus avoids the violent pulsations, great noise, splashing of water, and injury and breaking of the ball-cock and bursting of
15 the pipe, as is so very frequently the case in all other ball-cocks closing with the current of the water.

The varying pressure of the water in the supply-pipe can be compensated readily by
20 adjusting the weight 10 in such a position on the lever 6 as will assure the opening of the valve, and the vexatious bending and consequent breaking of the ball-lever is avoided by adjusting the lever in a proper relative
25 position with the lever-head 1 by means of the adjusting-pin 9, the trunnion-pin 7, and the series of holes 5, located in the lever-head.

The heavy pounding which is so common
30 in the ordinary ball-cock is entirely avoided by the center-line position of the valve-stem with the trunnion-pin of the lever-head, and

this center-line position is maintained at all times of rest or action of the ball-cock. This feature adds greatly to the value and dura- 35 bility of my invention and enables me to construct a valuable ball-cock, avoiding all former objections to the ball-cock closing with the flow of the water, which is by far preferable to those closing with the same, avoiding 40 the almost constant leaking, noisy siphonage, and expensive repairs attending their use.

What I claim as new, and for which I desire to secure Letters Patent, is—

In a ball-cock the stirrups 4, the lever-head 45 1, which is attached to stirrups 4 by means of the pin 3, and provided with the eccentrically-located circular slot 2, and the series of holes 5, in combination with the lever 6 provided with the float-ball 8, and adjustable 50 weight 10, which is adjustably attached to the lever-head 2, by means of the pin and series of holes 5, and the valve-stem 14, provided with the valve *d*, said valve opening against the outflowing current of the water and clos- 55 ing with the same, as and for the purposes substantially as set forth.

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

THOMAS RICHARD GLEASON.

Witnesses:

W. N. SEVERANCE,
M. J. SAINDON.