No. 675,791. Patented June 4, 1901.

E. RANDOLPH.

FLOAT OPERATED FAUCET.

(Application filed May 24, 1900.)

(No Model.)

Fig. 1.

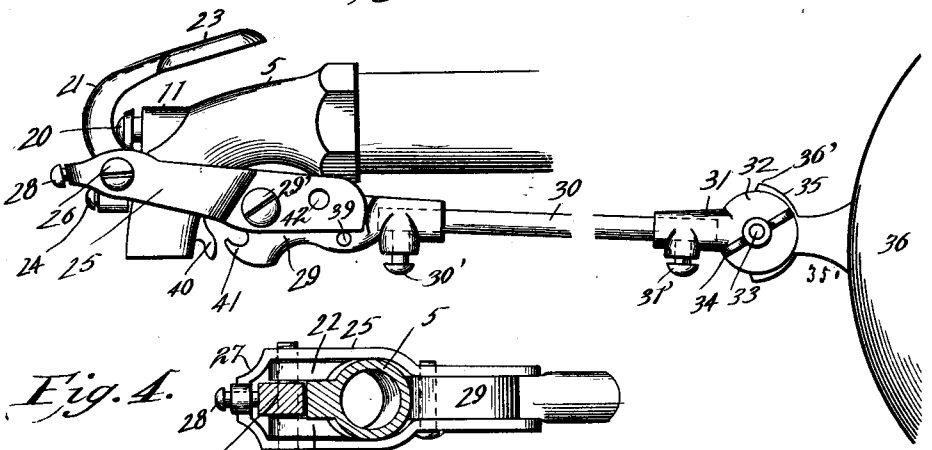


Fig. 4.

Fig. 2.

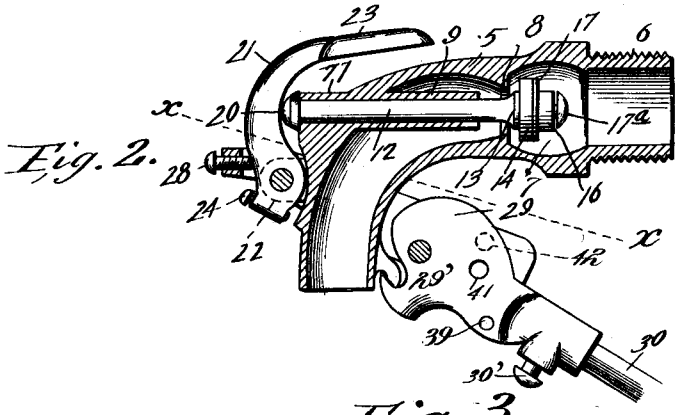
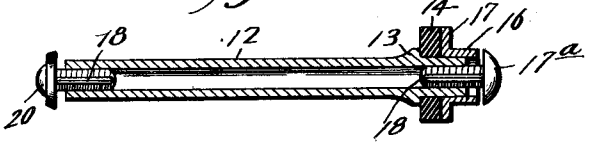


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDMUND RANDOLPH, OF JACKSONVILLE, FLORIDA.

FLOAT-OPERATED FAUCET.

SPECIFICATION forming part of Letters Patent No. 675,791, dated June 4, 1901.

Application filed May 24, 1900. Serial No. 17,867. (No model.)

To all whom it may concern:

Be it known that I, EDMUND RANDOLPH, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Float-Operated Faucet, of which the following is a specification.

This invention relates to faucets in general, and more particularly to that class employed in connection with water-closet tanks, wherein the faucet when open is closed by the operation of a float, one object of the invention being to provide a faucet which may be operated to draw water in the usual manner, and which when released will automatically close, and which, moreover, when desired for filling a tank may be opened and locked in an open position, the unlocking of the faucet to permit it to close being accomplished by the action of a float operatively connected with the lock or latch.

A further object is to provide means to prevent freezing by the formation of a by-pass which may be thrown into and out of operation at will.

Further objects and advantages will be evident from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation showing the complete valve and illustrating a portion of the operating-float and the connecting-rod between the float and the valve of the faucet. Fig. 2 is a central longitudinal section through the casing of the faucet and showing the valve mechanism in elevation. Fig. 3 is a detail longitudinal section of the valve-rod. Fig. 4 is a section on line $x\ x$ of Fig. 2 looking downwardly.

Referring now to the drawings, the faucet comprises a casing 5, the rear end of which is provided with exterior threads for engagement with the water-supply pipe, which threads are shown at 6, and within the casing and adjacent its rear end is formed a valve-chamber 7, at the forward end of which is an inwardly-directed flange 8, the rear face of which forms a valve-seat.

Within the casing 5, in axial alinement with the valve-chamber, is a tubular guide 9, formed integral with the casing and continued through the front wall thereof, where it terminates in a tubular projecting lug 11. This guide receives slidably a tubular valve-stem 12, at the rear or inner end of which are formed interior threads, for a purpose to be presently explained, and which stem has an annular outwardly-directed flange 13 at a point slightly in advance of the inner end of the stem, and against the flange 13 is disposed a valve-washer 14. Slidably disposed upon the valve-stem in the rear of the washer 14 is a collar 16, having a flange 17, which lies against the valve-washer, said collar projecting beyond the end of the stem for engagement by the head of the screw 17^a, which is engaged with the interior threads of the stem, the valve-washer being thus held in its proper operative position. The outer end of the stem 12, which projects through the front of the casing, is interiorly threaded and has a screw 20 engaged therewith, this screw 20 having a washer disposed thereon between the head of the screw and the end of the valve-stem, so that when the screw is turned up a water-tight joint will be formed between the head of the screw and the end of the stem.

The screws 17^a and 20 have longitudinal slots 18 formed in one side thereof, so that when the screws are adjusted rearwardly to move their heads from the normally-engaged surfaces the slots will be exposed and communication will be formed through the hollow valve-stem from the exterior of the casing 5 to the valve-chamber 7. In practice the water-pressure upon the flange 17 holds the collar 16 advanced, so as to permit of an interspace between the head of screw 17^a and the rear end of the collar. Hence when the screw is in its rearward position there is formed a by-pass around the screw and water may waste into the hollow valve-stem, from which it may pass when screw 20 is adjusted rearwardly. When the screw 17^a is screwed up, the head thereof lies against the rear end of the collar 16 and prevents leakage through the stem. It will be noted that water-pressure will at all times hold the valve against the shoulder 13 on the stem, so that when the screw 17^a is adjusted rearwardly its head will lie spaced from the portion 16 for passage of water into the valve-stem, for the reason that at such times the screw 20 is likewise adjusted outwardly, so that it rests against lever 21, and the valve-stem is prevented from be-

ing forced through the portion 16 to bring the head of the screw 17ª thereagainst. The use of the screw at the inner end of the valve-stem is primarily to hold the valve thereon, and in order that the water may pass into the stem it is preferred to groove the screw, as shown. Where the faucet is to be used indoors, the screw 17ª may be screwed up. The reason for using the screw 20 at the outer end of the stem in addition to the screw at the inner end is in order that the opening through the stem may be opened and closed at will and without requiring the faucet to be taken apart.

In order to open the valve, it is only necessary to press the valve-stem rearwardly, and for this purpose a lever 21 is provided. This lever 21 is pivoted between ears 22 on the front wall of the faucet-casing and below the valve-stem, said lever being curved outwardly and upwardly and then rearwardly over the end of the valve-stem, and has a knob or finger-piece 23 at its upper end, which lies above the faucet-casing. Thus when the lever is depressed it engages the screw in the outer end of the valve-stem and moves the stem, and therewith the valve, to open the faucet. When the lever is released, the force of the water in the faucet acts to close the valve. The lower end of the lever 21 is continued below the ears 22 and is provided with a set-screw 24, which may be projected through the lever to different degrees to vary the length of the path of movement of the lever as may be desired. By means of this screw 24 the movement of the lever may be limited to such a point where it will act as a stop for the valve-stem, so that the water-pressure against the flange 17 will move the collar 16 along the stem to engage the washer 14 with the valve-seat, this movement of the collar acting to draw it away from the head of the screw 17ª and expose the groove therein, thus permitting the groove to form a passage connecting the interior of the stem with the casing.

In order that the faucet may be used for filling a tank and may be automatically closed when the water in the tank has reached a predetermined height, a loop 25 is provided, which loop is passed over the discharge end of the faucet and incloses the ears 22 and the adjacent portion of the lever 21, which latter projects through the loop, as shown, the loop being pivotally held in position by means of the pivot-screw 26 of the lever 21 and which screw is engaged with perforations formed through the sides of the loop. In the bight 27 of the loop 25 is engaged a set-screw 28, which when the loop is pivotally moved to drop its opposite end rises and engages the outwardly-curved portion of the lever 21 and moves said lever to press the valve-stem and open the valve of the faucet. The ends of the loop are continued rearwardly of the faucet, and pivoted between them upon a screw 29′ is a block 29, having a perforation with which is engaged a rod 30, held in place by a set-screw 30′, the rear end of which rod is engaged with a perforation in a second block 31 and held therein by a set-screw 31′. The block 31 has a circular bifurcated head 32, having a transverse perforation, and between the bifurcations of the head is disposed a disk-shaped ear 35, the stem 35′ of which is held firmly secured to a hollow ball or other form of float 36. The ear 35 is perforated and is held in proper relation to the head 32 by a bolt 33, which is passed through the perforations of the head and ear, this bolt having a thumb-nut 34, through the medium of which the bifurcations of the head 32 may be clamped against the ear 35 to hold the latter, and therewith the float, at different heights with respect to rod 30. The pivotal movement of the ear 35 upon the bolt 33 is limited by stops 36′, formed upon the ear 35 and disposed for engagement with the block 31.

From the above description it will be seen that the block 29 is pivoted to the loop, and in order that the block may have operative engagement with the loop after a predetermined degree of lost motion a pin 39 is engaged with the block and projects at both sides thereof, so that as the block is raised on its pivot this pin will strike the legs of the loop and will move the loop pivotally to draw the screw 28 from engagement with the lever 21 and permit the valve to seat.

A lug or keeper 40 is formed upon the rear face of the faucet, and this lug is adapted for engagement by a finger 41 upon the block 29 to hold the loop lowered and in position to hold the valve open. Normally when a tank into which water is to be drawn is empty the finger 41 rests upon the lug or keeper 40 and the float is in its lowered position. If it is desired to draw a quantity of water into the tank or into a bucket for any purpose, excepting when the tank is to be filled, the lever 21 is depressed and the faucet is opened and water flows. When a sufficient quantity of water has been drawn, the lever 21 is released and the faucet closes. If it is desired to fill the tank without necessitating manually holding the lever 21 depressed and to insure closing of the faucet when the tank is filled, the float 36 is raised to draw the finger 41 from the lug or keeper 40 and is then lowered to engage the finger under the lug or keeper, this engagement of the finger with the lug or keeper acting to hold the lever 21 in position to hold the faucet open. The water will then run from the faucet until the level of the water is such as to raise the float to a height sufficient to draw the finger from engagement with the lug or keeper 40, when the float rises and operates the lever 30 to move screw 28 from lever 21, permitting the latter to move outwardly and release the valve, so that the latter may close the faucet. After the water is drawn from the tank the finger 41 rests upon the top of lug or keeper 40 and water may be drawn by operation of

the faucet-lever. It will thus be seen that the present apparatus does not automatically open the faucet, but instead latches it in an open position after it has been manually opened and then automatically releases the faucet-lever to permit the valve to close when the water in the tank has reached the desired height. It is thus essentially a faucet for filling tanks and cutting off the supply when the tank is full, at the same time permitting the faucet to be manually operated for the usual purposes when the tank is not to be filled.

When it is desired that the valve shall be opened and closed automatically by operation of the float, a pin is engaged with perforations 41 and 42 in the block and legs of the loop, respectively.

In practice various modifications of the construction shown may be made and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A faucet comprising a casing having a valve-seat, a valve adapted for movement by water-pressure in the faucet to enter the seat and close the faucet, a hollow stem for the valve passed outwardly of the casing and opening inwardly through the valve to the pressure side thereof, an adjustable closure for each end of the valve-stem to regulate flow of water therethrough, and means for moving the stem against pressure in the faucet to open the valve.

2. A faucet comprising a casing having a valve-seat therein, a tubular valve-stem passed through the seat and projecting forwardly through the casing, said stem having a shoulder, a valve disposed upon the stem against the shoulder, a screw engaged with the stem and having its head disposed to prevent displacement of the valve from the stem, said screw having a longitudinal slot leading from the inclosure of the stem to the casing in the rear of the valve, and means for moving the stem to open the valve.

3. A faucet comprising a casing having a regulating-valve for closure by pressure in the faucet, a pivoted member having connections for opening the faucet when moved in one direction, a float having a lever pivoted to the pivoted member, a keeper, and a latch carried by the lever for engagement with the keeper when moved to open the faucet against the buoyant tendency of the float.

4. A faucet comprising a casing having a valve-seat and a guideway, a valve for engagement with the seat, a stem for the valve slidably engaged with the guideway, a by-pass formed through the valve and the stem, a headed screw engaged with each end of the by-pass and having a longitudinal groove in its stem communicating with the by-pass, whereby when the screws are moved inwardly the grooves will be covered to close the by-pass, and a lever pivoted to the casing for engagement with the outermost screw for operating the valve.

5. A faucet comprising a casing having a regulating-valve, a float-lever having connections with the valve for opening it and for releasing it to permit it to close, a keeper, and a latch-finger carried by the float-lever and adapted for engagement with the keeper to hold the lever in position to hold the valve open, said lever having initial lost motion with respect to the valve to disengage the finger from the keeper to permit continued upward movement of the lever under the influence of the float to release the valve.

6. A faucet comprising a casing, a valve-seat in the casing and having a valve for engagement therewith, a stem for the valve projecting outwardly of the casing, ears upon the casing, a lever pivoted to the ears for engagement with the stem to open the valve, a loop inclosing a portion of the casing and pivoted concentric with the lever and having its web disposed for engagement with the lever for operating it, a block pivoted between the sides of the loop and having a finger, a lug upon the faucet for engagement by the finger, a float connected with the block, said block having lost motion with respect to the loop, and means for holding the block against pivotal movement with respect to the loop.

7. A faucet comprising a casing having a valve therein for opening and closing the faucet and adapted to stand normally closed, a float-lever having connections for opening the valve and for releasing it to permit it to close, and a latch mechanism for holding the float-lever in position to hold the valve open, said latch mechanism being operable by the buoyant action of the float to release the lever and permit it to move to release the valve.

8. The combination with a faucet and the valve thereof, of a float-lever adapted to open the valve and to release the valve to permit it to close, and a latch for holding the lever in position to hold the faucet open, said latch being adapted to release the valve when operated by the buoyant action of the float, and the valve being operable independently of the float when the latter is in its unlatched position.

9. The combination with a faucet having a manually-operable valve, of a float-lever for holding the valve open and a latch for holding the float-lever against the buoyant action of the float to hold the valve open and adapted to release the lever when the buoyant action has reached a predetermined point, said valve being operable independently of the float-lever when the latter is unlatched.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDMUND RANDOLPH.

Witnesses:
THOMAS H. BLENUS,
SAML. W. FOX.