Aug. 21, 1928. 1,681,597

H. W. SANFORD

FAUCET

Filed Feb. 9, 1926 2 Sheets-Sheet 1

Fig. 2.

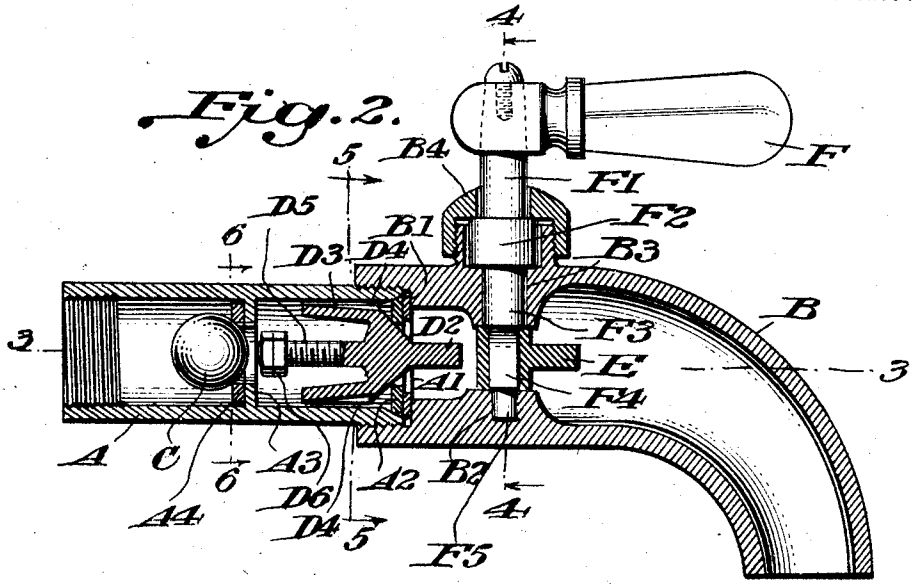
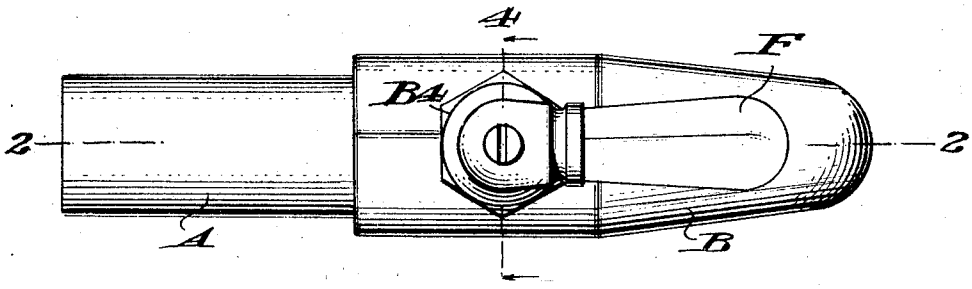


Fig. 1.



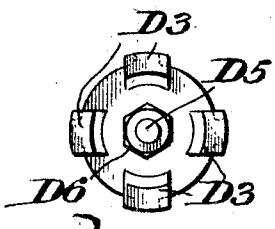


Fig. 8.

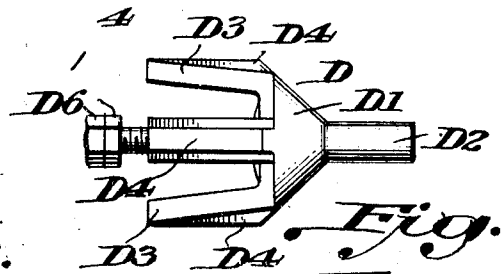


Fig. 7.

Inventor;

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Aug. 21, 1928.

1,681,597

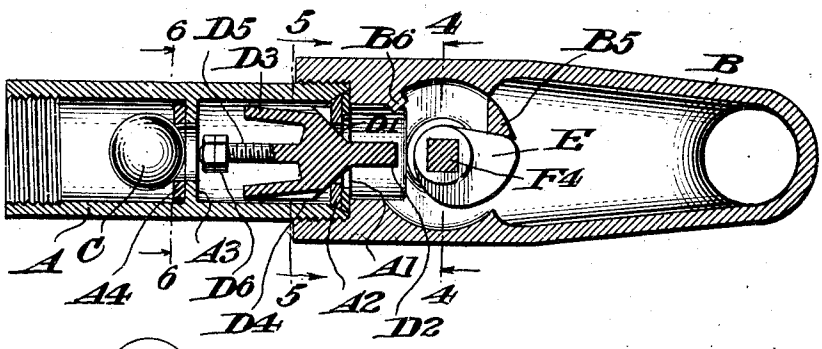
H. W. SANFORD

FAUCET

Filed Feb. 9, 1926

2 Sheets-Sheet 2

Fig. 3.



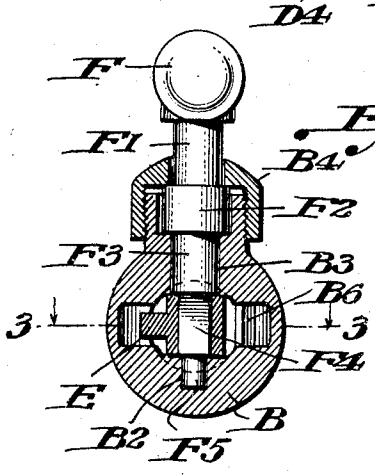


Fig. 4.

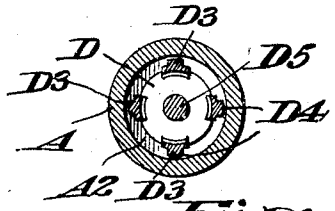


Fig. 5.

Fig. 9.

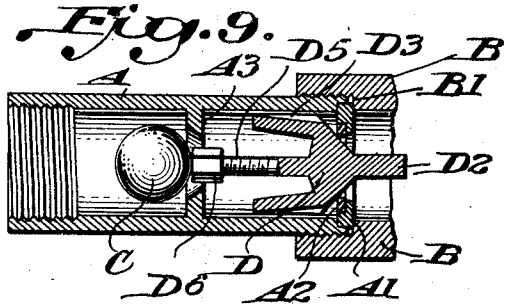
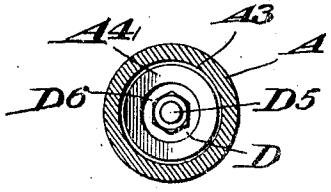


Fig. 6.



Inventor;

Hugh W. Sanford

By Cyrus Keller Atty.

Patented Aug. 21, 1928. 1,681,597

UNITED STATES PATENT OFFICE.

HUGH W. SANFORD, OF KNOXVILLE, TENNESSEE.

FAUCET.

Application filed February 9, 1926. Serial No. 87,078.

This invention relates particularly to valve mechanism for faucets and similar purposes.

The object of the invention is to provide such a faucet or similar structure with an effective and durable valve mechanism adapted to seat automatically by water pressure and to be unseated manually.

In the accompanying drawings,

Fig. 1 is a plan of a faucet structure embodying my improvement;

Fig. 2 is an upright section on the line, 2—2, of Fig. 1;

Fig. 3 is a horizontal section on the line, 3—3, of Figs. 2 and 4;

Fig. 4 is an upright transverse section on the line, 4—4, of Figs. 1, 2 and 3, looking toward the left;

Fig. 5 is a transverse section on the line, 5—5, of Figs. 2 and 3, looking toward the right;

Fig. 6 is an upright transverse section on the line, 6—6, of Figs. 2 and 3, looking toward the right;

Fig. 7 is a side elevation of the forward valve member;

Fig. 8 is a rear elevation of the same member;

Fig. 9 illustrates another form.

Referring to said drawings, A is a valve pipe or tube, the rear end of which is to be threaded to a liquid delivery pipe (not shown). B is the nozzle, the rear end of which is threaded around the forward end of the tube, A. A washer, A^1, rests on a shoulder, B^1, formed on the nozzle, B, in front of the tube, A. An annular valve seat, A^2, is placed against the washer, A^1, at the rear side of the latter and is held in that position by engagement with the forward end of the tube, A. Approximately midway between the ends of the tube, A, is a centrally apertured upright cross partition, A^3. Against the rear face of that partition rests a metal ring-form valve seat, A^4, held by frictional engagement of its periphery with the pipe, A, and against which normally rests a ball valve, C, which is preferably formed of metal.

The valve member, D, has a conical body, D^1, which normally bears against the valve seat, A^2. A stem, D^2, extends forward from the body, D^1, in position to be engaged and pushed rearward by the cam to be described further on. From the body, D^1, four arms, D^3, extend rearward. On the outer face of each such arm is a rib, D^4, which is parallel to the tube axis and bears loosely against the inner face of the tube. These arms and ribs serve to hold the entire member, D, to movement parallel to the tube axis. On the axial line of the tube is a threaded stem, D^5, which extends rearward toward the ball, C. On said stem are a pair of nuts, D^6, small enough to extend through the opening in the cross partition, A^3, and in the valve seat, A^4. These nuts permit adjustment to vary the distance between them and the ball, C, when said ball and the member, D, are seated. When the two valves are to be unseated to permit flow of liquid through the tube, A, the member, D, is to be pushed rearward until the stem, D^5, either directly or through the nuts, D^6, pushes the ball, C, rearward away from its seat.

The member, D, is pressed rearward by the turning of the cam, E. That cam is controlled by the handle, F. The cam surrounds the four sided part, F^4, of the upright shaft, F^1, on the upper end of which the handle, F, is immovably secured. Below the cam said shaft extends into a bearing, B^2. Above the cam the shaft rests in a bearing, B^3. Above that bearing is a packing member, B^4, threaded around said bearing.

When the cam is turned forward, as shown in Figs. 2 and 3, the valve member, D, is free to seat in response to the forward pressure of the liquid. When said member moves forward, the stem, D^5, moves away from the ball, C, and allows it to seat in response to the forward pressure of the liquid. The two valve members, the member, D, and the ball, C, remain thus seated until the handle, F, and the shaft, F^1, are turned by an attendant to turn the cam, E, rearward into engagement with the stem, D^2, of the valve member, D, whereby the entire valve member, D, is forced rearward, whereby the stem, D^5, is made to engage and push the ball, C, rearward away from its seat. Both valves are now unseated or open and liquid flows and continues to flow through the faucet until the cam, E, is again turned to bring it out of engagement with the stem, D^2, of the valve member, D, whereupon forward pressure of the liquid in the tube, A, presses both valve members against their seats. A stop, B^5, is placed in the nozzle, B, in position to limit the movement of the cam, E, contra-clockwise as viewed in Fig. 3; and a stop, B^6, also formed in the nozzle, B, serves to limit the movement of the cam when it is moved clockwise as viewed in Fig. 3.

In Fig. 9, the washer, A^1, is recessed and the annular valve seat, A^2, small enough to be pressed into the recess and be held frictionally to the washer, A^1, instead of being engaged between the washer, A^1, and the tube, A. In the same figure, the ring-form valve seat, A^4, is omitted and the partition, A^3, is used for a seat for the ball valve C. Furthermore, the several parts are so proportioned as to cause the member, D, to hold the valve, C, away from its seat when the member, D, is seated and the nozzle, B, is screwed into working position on the tube, A. Under this arrangement the valve, C, seats only when the nozzle, B, is removed from the tube, A, whereby the washer, A^1, and the valve member, D, are made free, the nozzle being removed for the purpose of adjusting or repairing parts of the nozzle or the member, D, or the seat, A^1, for that member. In that case the seating of the valve, C, will prevent outward flow of water. By this means it is made unnecessary to cut off the flow of water between this valve structure and the main pipe.

It will now be observed that all the parts of this faucet are made of durable material and are in form for strength and durability and all the parts are adapted to easy manufacturing and easy assembling and dismantling. No spring nor other parts which are subject to wear or derangement are used.

It will also be observed that this faucet will drain automatically when the main valve on a system of house water pipes is set for draining. In that case the forward pressure on the two valve members of my structure ceases, and then those members are free to move away from their seats and admit air, whereby the water behind those members is released for backward or forward flow, according to whether the faucet is approached by a pipe leading upward or downward. When faucets do not thus release and drain automatically, all of them must be opened manually when it is desired to drain to prevent freezing of water in the pipes or for any other purpose.

I claim as my invention,

1. In a structure of the kind described, the combination of two valve seats directed toward the source of liquid flow, a cam forward of the forward valve seat, means for turning the cam, a valve member at the rear of the rear valve seat and adapted to seat thereon by forward pressure of liquid, a forward valve member adapted to seat on the forward valve seat by forward pressure of the liquid and extending through said seat into the path of said cam and said valve member having guiding arms and having a stem extending rearward and adapted to engage and dislodge the rear valve member when the forward valve member is pressed rearward by said cam, substantially as described.

2. In a structure of the kind described, the combination of two valve seats directed toward the source of liquid flow, a cam forward of the forward valve seat, means for turning the cam, a valve member at the rear of the rear valve seat and adapted to seat thereon by forward pressure of liquid, a forward valve member adapted to seat on the forward valve seat by forward pressure of the liquid and extending through said seat into the path of said cam and said valve member having an adjustable stem extending rearward and adapted to engage and dislodge the rear valve member when the forward valve member is pressed rearward by said cam, substantially as described.

In testimony whereof I have signed my name, this 12th day of January, in the year one thousand nine hundred and twenty-six.

HUGH W. SANFORD.