P. MUELLER.

FULLER BIB WITH ELASTIC STEM.

APPLICATION FILED OCT. 29, 1919.

1,359,521. **Patented Nov. 23, 1920.**

Fig. 1.

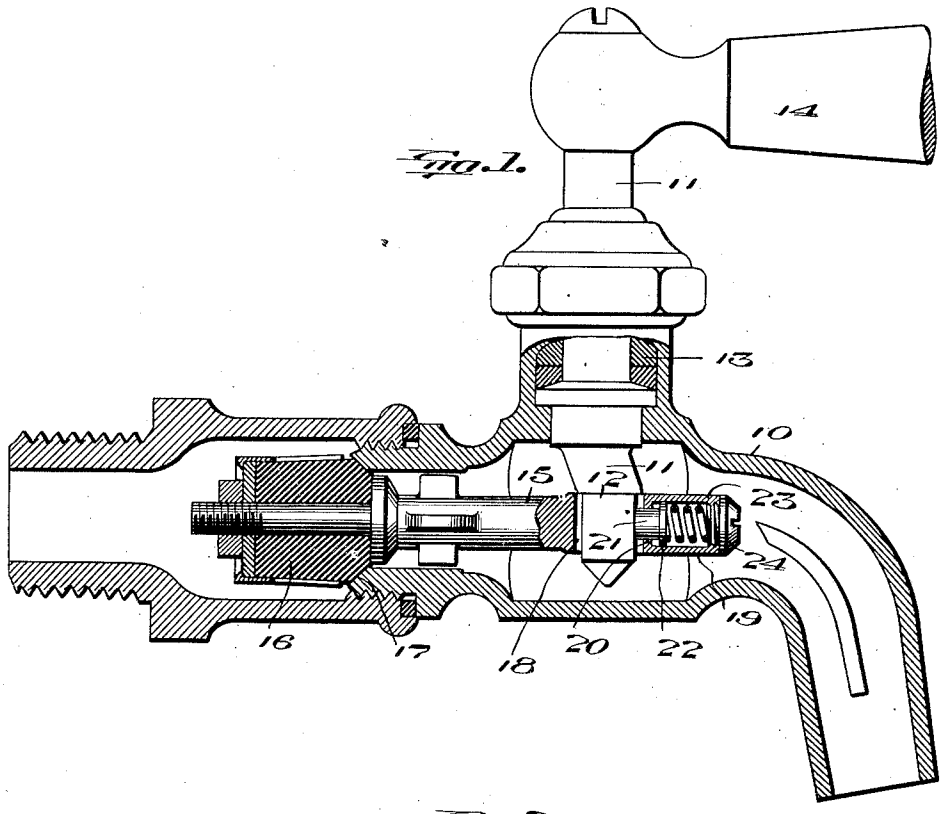
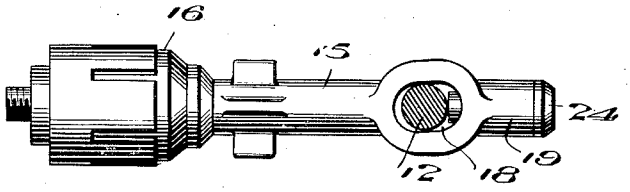


Fig. 2.



Witnesses

Philip E. Barnes

Inventor

Philip Mueller

By Lyon, Lyon, Simmons & Rea

Attorney

UNITED STATES PATENT OFFICE.

PHILIP MUELLER, OF DECATUR, ILLINOIS, ASSIGNOR TO ADOLF MUELLER, TRUSTEE, OF DECATUR, ILLINOIS.

FULLER BIBB WITH ELASTIC STEM.

1,359,521. Specification of Letters Patent. Patented Nov. 23, 1920.

Application filed October 29, 1919. Serial No. 334,122.

To all whom it may concern:

Be it known that I, PHILIP MUELLER, a citizen of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Fuller Bibbs with Elastic Stems, of which the following is a specification.

This invention relates to faucets of the type wherein the valve stem, carrying the valve head is operated or reciprocated by means of a rotatable eccentric stem.

It is the purpose of this invention to provide an improved connection between the eccentric end of the operating stem and the valve stem, so that the valve head, when brought to its seat, will not be subjected to excessive pressure and thus crushing or breaking down of the elastic body of the head is guarded against.

Further objects of the invention are to provide means adapted to take up or compensate for wear of the parts so that the valve head, although it has been in use for some time, will properly engage its seat to effectively shut off the flow of water; to prevent excessive wear at the connection between the eccentric stem and valve stem; to gradually force the valve head against its seat so that the head is partially relieved of the shock to which it would otherwise be subjected; and, generally, to prolong the term of usefulness of the valve head, and increase the efficiency of the faucet.

The above and other objects of my invention are obtained in the structure illustrated in the accompanying drawings, wherein,

Figure 1 is a longitudinal sectional view taken through a cock or bibb to which my improvement is applied, parts of the faucet being shown in elevation.

Fig. 2 is a plan view of the valve stem having at one end thereof a Fuller ball, the inner end or eccentric end of the operating stem of the cock being shown in cross-section.

Referring to the drawings wherein like numerals represent like parts in the several views, 10 designates a cock or bibb of the type having an eccentric stem 11 provided at its inner end with an eccentric or crank portion 12. The stem passes through a suitable packing 13 in the neck portion of the cock and carries at its outer end an operating handle 14 whereby the eccentric stem 11 may be rotated when opening and closing the faucet. Connected to the eccentric portion 12 of the stem 11 is a valve stem 15 carrying at its free end a Fuller ball 16 adapted to be reciprocated to and from its seat 17 on the shank portion of the cock 10 when the eccentric stem 11 is rotated.

The parts above described are of well-known construction and are shown in the present instance by way of illustration only, it being understood that these parts may be varied as desired, and that other kinds of valve members than that disclosed may be employed.

The present invention resides in the connection between the eccentric stem 11 and the valve stem 15. Adjacent the forward end of the valve stem which, at this point, is slightly enlarged, is a bearing or opening 18 adapted to receive the crank portion 12 of the eccentric stem 11. The bearing 18 is somewhat elongated as shown in Fig. 2, so that the crank portion 12 may have a slight movement lengthwise of the valve stem 15.

The end of the valve stem extending forwardly of the bearing 18 is centrally bored, so as to provide a cylindrical chamber 19 which opens into the bearing 18, the inner end of the chamber 19 being of reduced diameter, so as to provide a shoulder 20. Mounted within the chamber 19 is a plunger or pin 21 extending through the reduced portion of the chamber and protruding into the bearing 18 of the valve stem so as to engage at its outer end against the crank portion 12 of the eccentric stem. The plunger 21 has an enlarged end or head 22 for engagement against the shoulder 20 to prevent the plunger from dropping out of the bore or chamber when the eccentric stem is withdrawn from the bearing or opening 18. Within the chamber 19 and bearing against the head 22 of the plunger 21 is a coil spring 23. The outer end of the bore or chamber 19 is internally threaded so as to receive a screw plug 24. The screw 24 is capable of adjustment by screwing it in or out of its seat in chamber 19, so as to vary the tension of the spring 23.

It will be seen from the above description that when the faucet is open so as to admit of a flow of fluid therethrough, the crank portion 12 of the eccentric stem 11 engages in that end of the bearing or opening 18 which is nearest the Fuller ball, the

parts taking this position due to the fact that the spring 23 forces the plunger pin 21 against the eccentric stem. When the eccentric stem is rotated to shut off the flow of water, the parts will maintain the relative positions just described until the valve seat end of the Fuller ball 16 is brought into engagement with its seat.

After the Fuller ball is initially brought to its seat, and upon further rotation of the eccentric stem 11, the eccentric portion 12 forces the plunger 21 into the chamber 19, the spring 23 is placed under compression, and the valve head is resiliently forced against its seat. The Fuller ball is not placed under compression with a shock, as is the case when the valve stem is not provided with resilient means, and, therefore, crushing of the ball is eliminated. The ball, by means of the spring 23, is resiliently held to its seat, with sufficient pressure to shut off the flow of water and prevent leakage. Furthermore, the spring 23 will take up any wear which might occur between the bearing 18 and the eccentric portion 12 so that the head will seat properly at all times.

This invention is susceptible of various other modifications and changes which would be within the spirit of my invention without departing from the scope of the following claims.

What I claim is:—

1. In a faucet, a valve stem, a valve head thereon, a rotatable eccentric operating stem connected to said valve stem, and resilient means carried by said valve stem and engaging said eccentric stem to permit said head to be brought resiliently to its seat.

2. In a faucet, a reciprocating valve stem, a valve head thereon, a rotatably mounted eccentric operating stem engaging said valve stem, and a spring-pressed plunger carried by one of said stems and engaging against the other of said stems to permit the valve head to be brought resiliently to its seat.

3. In a faucet, a valve stem having a bearing therein, a valve head on said stem, a rotatable eccentric operating stem extending into and adapted to move within said bearing, and resilient means extending into said bearing and between said stems to permit the head to be brought resiliently to its seat.

4. In a faucet, a valve stem having a bearing, a valve head on the stem, a rotatable operating stem provided with a crank portion engaging and adapted for rectilinear movement within said bearing, a plunger carried by one of said stems and extending into said bearing, and a spring for normally urging said plunger against the other of said stems.

5. In a faucet, a valve stem having an elongated opening or bearing, an operating stem having an eccentric portion extending into said bearing, a plunger carried by said valve stem adapted to protrude into said bearing and engage the crank portion of said eccentric stem, and means for resiliently urging said plunger into said bearing.

6. In a faucet, a valve stem having a bearing and a chamber opening into said bearing, a rotatable stem extending into and adapted for rectilinear movement within said bearing, a plunger in said chamber and adapted to extend into said bearing, and a spring for normally urging said plunger out of said chamber and against said rotatable stem.

7. In a faucet, a valve stem having a valve at one end and an elongated bearing adjacent its other end, an operating stem having an eccentric crank portion engaging in said bearing, and means mounted in the elongated bearing of said valve stem on the end opposite said valve and adapted to resiliently engage said eccentric stem.

8. In a faucet, a valve stem having a valve at one end, a chamber at its opposite end, an elongated bearing into which said chamber opens, an eccentric stem having a crank portion extending into said bearing, a plunger in said chamber adapted to extend into said bearing and engage the crank portion of said eccentric stem, a spring in said chamber for urging said plunger against said eccentric stem, and means for retaining said spring and plunger in said chamber.

9. In a faucet of the Fuller ball type, a valve stem having a Fuller ball member at one end and a bearing for the operating stem at the other end, an operating stem to engage in the bearing in said valve stem, and resilient means interposed between said operating stem and said valve stem to receive the thrust of the operating stem in seating the valve and prevent undue compression of the Fuller ball.

In testimony whereof I have hereunto set my hand.

PHILIP MUELLER.