PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Self-closing Cock

We, SUNDARAMS PRIVATE LIMITED, a Company incorporated in India, of T.V.S. Building, West Veli Street, Madurai, Madras State, South India, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to self-closing taps or cocks for controlling the flow of fluids. The invention particularly refers to taps employing spring controlled valves. In such taps it is well known to provide an axially displaceable valve adapted to be opened against spring pressure by interacting cam-like surfaces formed respectively on the head of the valve stem and on a handle or the like so that on operation of the handle to valve open position, the spring is compressed enabling the valve to open and on releasing the handle the spring forces the valve stem to close the valve.

The principal object of this invention is to propose such a construction of the tap or cock that very little force is required in operating the same and in the valve closed position leakage is avoided. It is further the object of this invention that water hammer action should be eliminated.

According to the invention there is provided a self-closing tap comprising a valve body, an axially displaceable valve adapted to be opened against spring pressure and a lever housing attached to the valve body to accommodate the head of the valve stem, the spring and an operating cam or lever to actuate the valve wherein the valve body has an extension which is housed in the collecting end of the water supply mains, and said extension has orifices through which the water enters the valve body when the valve is axially displaced against the force of the spring, the water being discharged through an outlet provided in the valve body, said extension having a cap or the like at its end which permits the valve to move therein when said valve is operated to open position.

Within the housing attached to the valve body may be fitted a shaft which at its end externally of the housing carries the operating handle while within the housing there is mounted on the said shaft an operating lever which can act on the head of the valve stem.

The invention will now be more fully described with reference to the accompanying drawings in which:

Fig. 1 shows sectional elevation of the tap or cock in the valve closed position.

Fig. 2 shows sectional elevation of the tap in valve open position.

Fig. 3 shows only the valve body.

Fig. 4 shows the cap.

Fig. 5 shows the shaft of the operating handle.

Referring to the drawings 7 shows the valve body having an axially displaceable valve 5 carried at the end of a valve stem 4 and slidably passing through two co-axial passages 4C and 4D in the valve body. The stem 4 has a collar 4A against which are fitted the valve 5, a metal washer 8 and a locknut 9. The valve stem 4 has a head 4B and a rubber washer 4E. The spring 6 is held between the head 4B and the shoulder 7A of the stepped valve body 7.

The valve body has an extension 10 which is shown integral with the body. In this extension are formed orifices 12 for the entry of water into the valve body chamber 7E. 2 shows the water carrying mains screwed on to the valve body at 7B. At the end of the extension 10 is fitted a cap 11 which has a hole 16.

13 shows the discharge spout attached to or integral with the valve body as shown.

3 shows a lever housing screwed onto the valve body at 7C. In this housing is fitted a shaft 14 and externally of the housing the shaft 14 carries an operating handle 15. Within the lever housing and mounted on

[*Price 3s. 6d.*]

the shaft is an operating lever 1 which acts on the head 4B, and when the said lever presses against the head the valve stem 4 is caused to slide within the body 7 against the action of spring 6. The valve 5 moves away from the valve seat 10A and proceeds beyond the orifice enabling the water to enter through said orifices into the valve body shown by arrows in Fig. 2, the movement of the valve being limited by the engagement of washer 4E with the valve body.

The cap 11 provides a chamber which holds water and which also serves to receive the head of the valve when the latter is operated.

The object of the cap 11 is as follows:—

1. The water is deflected towards the orifices as indicated by arrows.
2. The water in the cap 11 acts as a water cushion for the reverse flow induced by the closing of the valve and serves to deaden the percussion.
3. Water hammer action is avoided when the valve moves to closed position.

Referring to the operation of the tap it will be seen that the water from the supply main 2 surrounds the extension 10 but cannot flow into the valve body unless the valve is operated to open position. The operating position of the handle is shown by dotted lines in Fig. 2. The lever 1 acts on the head 4B to move the valve 5 from the valve seat and beyond the orifices thereby allowing the water to enter the valve body and discharge from the spout 13. As soon as the handle is released the spring 6 pushes back the valve stem 4 to the position shown in Fig. 1 resulting in stoppage of the flow of water. The valve 5 can be in the form of a disc of leather or rubber and it sits tight against the valve seat preventing leakage of water in the valve closed position.

There are no stuffing box and gland in the tap so that leakage is avoided in the closed position of the valve.

Experiments have shown that it is very easy to operate the valve.

WHAT WE CLAIM IS:—

1. A self-closing tap comprising a valve body and an axially displaceable valve adapted to be opened against spring pressure and a lever housing attached to the valve body to accommodate the head of the valve stem, the spring and an operating cam or lever to actuate the valve, wherein the valve body has an extension which is housed in the collecting end of a water supply mains, and said extension has orifices through which the water enters the valve body when the valve is axially displaced against the force of the spring, the water being discharged through an outlet provided in the valve body, said extension having a cap or the like at its end which permits the valve to move therein when said valve is operated to open position.

2. A self-closing tap as claimed in Claim 1 in which within the housing attached to the valve body is fitted a shaft which at its end externally of the housing carries the operating handle, while within the housing there is mounted on the said shaft an operating lever which can act on the head of the valve stem.

3. A self-closing tap as claimed in Claim 1 in which the cap has a hole to communicate with the water supply mains.

4. A self-closing tap substantially as described and illustrated.

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