

The present invention relates to a mixer tap of a type described and illustrated in French patent No. 2 459 930 filed on 26th June 1979 in the name of the applicant, more particularly a tap comprising notably a drive head mobile both rotatably and axially, rotation being used to regulate mixing and axial displacement being used to open the valve carried by a limiting piston, with a casing, a delay chamber linked with the arriving water mixed via intermediate calibrated hole.

Such a tap has two joining pieces provided on the body to which are connected the hot water and cold water pipes, each of said joining pieces having a non-return valve and a filter.

Access to these two pieces used to necessitate interrupting the arrival of the water and dismantling the pipes along with all the inconvenience this involved each time the tap had to be serviced.

Generally, all aspects of servicing the tap, such as adjusting the flow, changing the valve etc, required interruption of the general supply.

The present invention, which remedies these problems is remarkable in that the unit comprises a casing provided with a base enclosing, in addition to the tap valve and the delay mechanism, the non-return valves and filters, and in that the hot and cold water supply pipes are joined to the tap via ball valves held against their seats in the closed position by the water pressure, said ball valves being arranged in the body of the tap and the openings of said valves being though the cartridge being put in place.

In the known way the above cartridge is held in the body by means of an ordinary shoulder nut.

The invention will be better understood through the following description which refers to the attached drawings, which are examples only.

Fig. 1 shows a longitudinal section of a mixer tap according to the invention.

Fig. 2 shows a view similar to Fig. 1 showing the body of the tap alone.

Fig. 3 is a cross section along line III-III in Fig. 1.

Fig. 4 is a partial view on a larger scale, showing the right-hand section of Fig. 1.

Fig. 5 is a cross section along line V-V in Fig. 4.

Fig. 6 is a partially exploded view showing a detail of the embodiment.

With reference to the drawings, it can be seen that the body of the tap is formed of cylindrical case 1 at base of which 2 are connected pipes 3 and 4, respectively for the hot and cold water supplies.

According to the invention, pipes 3 and 4 each emerge into a chamber 5 which is normally closed off by means of ball 6.

Each ball is forced against its seat by the pressure of water and by spring 7 arranged in chamber 5.

In order for the water to enter the body of the tap, the balls 6 have to be pushed towards the pipes. This is achieved by positioning the active elements of the tap, which form a cartridge comprising a casing 8 provided with a base section 9 and sealed with a cap 10, said casing enclosing valve 11 on piston 12 which can be moved in a cylinder 13 forming, along with said piston, a delay chamber 14 joined to the water supply via a calibrated hole 15.

According to another feature of the invention, the water arriving from pipes 3 and 4 reaches the casing 8 by passing through filters 16 and non-return valves 17 with cross-shaped guide elements arranged in base 9 of the casing.

According to one embodiment, the base of casing 9 has two borings each with two collars respectively 18 and 19 (figure 4).

The first collar serves as a support for the retaining ring 20 of spring 21 of non-return valve 17 whereas the second collar limits the movement into the base 9 of a second retaining ring 22 of filter 16 which is forced against said ring by means of spring 23. In practice ring 20 is formed by the association of the two rings forming a casing in which are enclosed valve 17 and spring 21 as can be seen in figure 4 especially.

When screw 24 for fixing the cartridge in the body is unscrewed, rings 22 are kept at the base 9 by the friction caused by the sealing joint 25 which is greater than the force of springs 23.

Each ring 22 has a slit tubular extension 26 which can penetrate into receptacle 5 of the base of the body pushing back the ball 6.

According to another characteristic of the invention, ends 27 (figure 4) of the rings 20 enter into casing 8 forming a window against which is applied an eccentric boss 28 arranged at the exterior of the base of container 13 which can pivot around its axis.

As shown in figure 5 the form and arrangement of boss 28 are such that by rotating container 13 said boss can cover one or the other of the openings in rings 20, or both of them partially.

It is therefore clear that according to the invention, the container, in addition to its known function in the delay chamber, also regulates the temperature of the mixture by limiting the output of each of the water pipes.

The manoeuvrable head 29 which allows valve 11 to be opened can cause a tubular sleeve 30 to rotate which is provided with head 31 on which container 13 having a drive tip 32 (figure 6) is engaged, slightly under pressure.

The mixed water arrives at valve 11 by passing into container 13 via notches 33 in the latter.

A threaded ring 34 mounted on head 31 allows the notch section 33 to be regulated and therefore also the flow of mixed water.

Of course, the present invention is not limited to the embodiment described and illustrated above but extends to all variations of shape and dimensions.

Thus the positioning of casing 8 in body 1 is assured by a finger 35 at the back of said body which engages with a groove 36 on the base of said casing (figure 3).



Claims

1. Mixer tap of a type comprising non-return valves (17) and filters (16) at the hot water and cold water pipes (3 and 4), with the valve (11) of the tap and delay mechanism located in a cartridge (8,9,10), characterised in that the above cartridge comprises a casing (8) provided with a base (9) and incorporating, in addition to valve (11) of the tap and delay mechanism, non-return valves (17) and filters (16) and in that the hot and cold water pipes (3 and 4) are connected to the tap via ball valves (6) pressed against their seats in the closed position by water pressure, said ball valves being arranged in the body (1) of the tap and the opening of said ball valves being implemented by positioning of the cartridge (8,9,10).
2. Mixer tap according to claim 1 characterised in that the base of the casing has two borings each having two shoulders (18, 19), the first shoulder serving as a support for a retaining ring (20) for the spring (21) of the non-return valve whereas the second shoulder limits the penetration into said base of a second retaining ring (22) of the filter which is applied against said ring by means of a spring (23).
3. Mixer tap according to claim 2 of a type in which the cartridge has tubular extensions for forcing back the ball valves (6), characterised in that each tubular slit extension (26) is supported by a retaining ring (22) of the corresponding filter.
4. Mixer tap according to one of claims 1 to 3 characterised in that a container (13) forming a mixing delay chamber is used to regulate the temperature of the mixed water.
5. Mixer tap according to claim 4 characterised in that the container is rotated from the manouevering button and has, on the exterior of its base, a boss (28) which can totally or partially cover the openings in the retaining rings of the non-return valve springs.