Oct. 25, 1927. 1,646,575

E. H. CARDER

COMBINATION HOT AND COLD WATER FAUCET

Filed Sept. 22, 1926

Fig. 1.

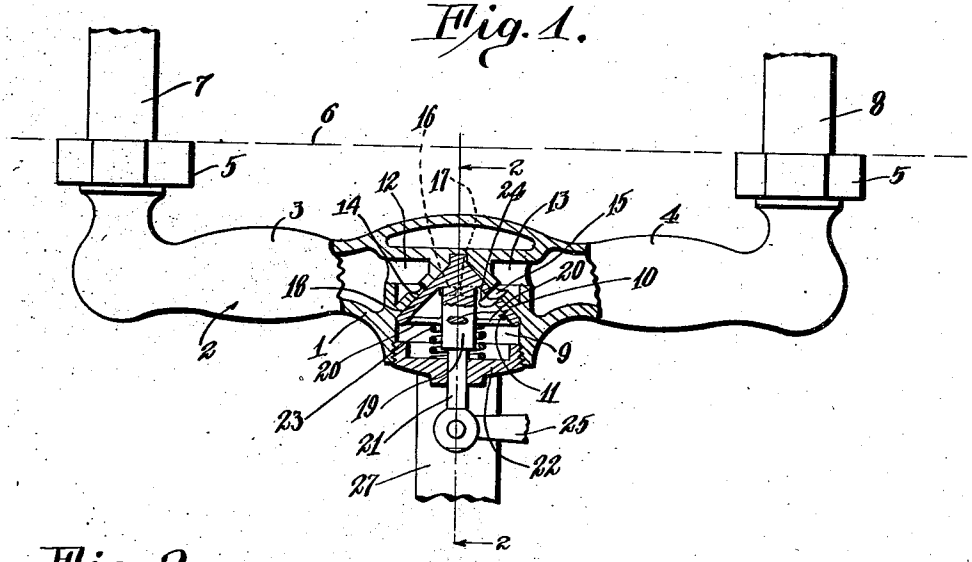


Fig. 3.

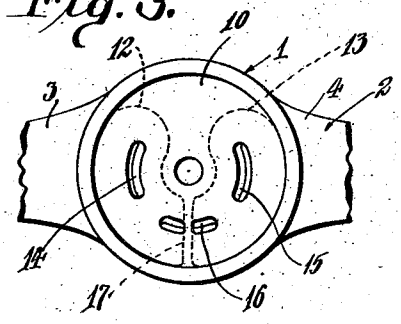


Fig. 2.

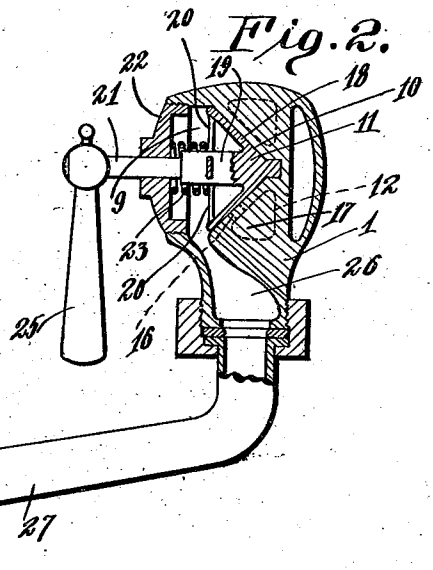
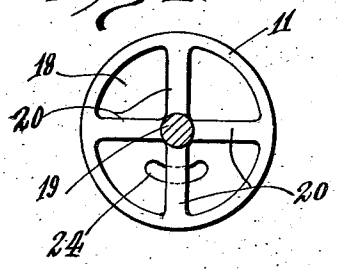


Fig. 4.



Inventor

Earle H. Carder

By Lyon & Lyon

Attorneys

Patented Oct. 25, 1927. 1,646,575

UNITED STATES PATENT OFFICE.

EARLE H. CARDER, OF HOLLYWOOD, CALIFORNIA.

COMBINATION HOT AND COLD WATER FAUCET.

Application filed September 22, 1926. Serial No. 137,008.

This invention relates to water valves or faucets, and while features of the invention may be used in the construction of valves for any purpose whatever, the invention is intended to be especially useful when used in the construction of faucets used in households or hotels.

Such faucets have been provided heretofore with a single lever that controls the flow of hot and cold water, and also enables a mixture of hot and cold water to flow through the faucet.

The general object of this invention is to produce a faucet having these capabilities and which is at the same time of very simple construction and of few parts; also to provide such a faucet with a valve of simple construction, having large wearing surfaces and not likely to get out of order.

Further objects of the invention will appear hereinafter.

The invention consists in the novel parts and combination of parts to be described hereinafter, all of which contribute to produce an efficient combination hot and cold water faucet.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims.

In the drawing:

Figure 1 is a plan of my improved faucet with its middle portion broken away and shown in section.

Figure 2 is a vertical section through the faucet taken about on the line 2—2 of Fig. 1 and showing the delivery spout of the faucet partially in elevation and partially in section.

Figure 3 is a front elevation showing the valve seat with portions of the body of the faucet broken away.

Figure 4 is a front elevation of the valve with the stem of the valve shown in cross section.

In practicing the invention, I provide a valve casing 1 which may be formed, if desired, at the middle point of a bar 2, said bar having two tubular arms 3 and 4 which are formed at their ends into feet 5, for attachment to the face of a wall 6, at which points they are connected to the hot water pipe 7 and a cold water pipe 8.

The valve casing 1 is formed with a valve chamber 9 having a substantially conical seat 10 upon which is received a substantially conical valve 11. On one side of the vertical plane passing through the axis of the valve and seat, a hot water chamber 12 is formed and on the other side a cold water chamber 13 is formed, and these chambers receive water from their corresponding pipes.

The valve-seat 10 is provided with a hot water port 14 communicating with the hot water chamber 12, and on the opposite side, a similar port 15 is provided for cold water communicating with the cold water chamber 13. These ports 14 and 15 are preferably disposed diametrically opposite to each other and are of arcuate form, that is to say, they are formed circumferentially about the axis of rotation and pass through the wall which forms the valve seat. In addition to this, I provide a mixing port 16 (see Fig. 3) which communicates with both the hot water chamber and the cold water chamber, and this port is divided into two equal parts by a web 17, which also separates the hot water chamber and the cold water chamber from each other.

The valve comprises a substantially conical body 18 having a central stem or hub 19 connected by radial arms 20 to the outer edge of the cone. The stem 19 has a reduced extension or spindle 21 rotatably mounted in a cap 22 which closes the valve chamber on its forward side.

Suitable means is provided for pressing the valve 18 onto its seat, and for this purpose I may employ a short coil spring 23, the inner end of which thrusts against the arms 20, which of course, form an open frame or spider. The outer end of the spring presses against the inner face of the cap 22. This cap 22 may be secured in position by threads in the outer end of the valve chamber. The port 16 is the same distance from the central axis of the valve 18 as the ports 14 and 15 to insure their registering properly with the port of the valve; that is to say, these ports are in the same plane of rotation with respect to the valve's axis.

The valve 20 is provided with a single port 24 which is of arcuate form (see Fig. 4), and this port is formed through the conical wall of the valve so that it may register with any one of the ports 14, 15 and 16. In the position shown in Fig. 1, the handle 25 of the valve is thrown to the right, and this enables the port 24 to communicate with the port 15; thus admitting cold water into the

valve chamber so that it can flow down the delivery duct 26 and through the swiveled spout 27. In the opposite position of the handle 25, the port 24 will communicate with the port 14 and deliver hot water from the faucet. The port 24 is preferably of sufficient length to substantially cover the entire length of port 16.

If the handle 25 is moved down into a substantially vertical position, the port 24 can be made to register more or less with the port 16. When in exact alignment with this port, an equal quantity of hot and cold water will flow through the valve. By moving the handle 25 into a position slightly toward the right, a reduced quantity of hot water will pass through the valve, and vice versa. With a valve constructed as described, it will be evident that this faucet can be used to supply hot water, cold water, or a mixture of the same of a desired temperature in which either the hot water, or the cold water predominates. When the water is flowing through the valve, it will be evident that the arms 20 do not offer any substantial resistance to the flow of the water, so that for all intents and purposes the outer side of the valve is open to the valve chamber.

It is understood that the embodiment of the invention described herein is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, now in the claims, to the particular embodiment set forth.

What I claim is:—

1. In a combination hot and cold water faucet, the combination of a valve casing having a valve-chamber with a substantially conical seat, and having a hot water chamber at one side and a cold water chamber at the other side, said seat having a mixing port communicating with both said chambers and having a transverse web separating the hot and cold water chambers from each other, said seat further having a cold water port leading from the cold water chamber and a hot water port leading from the hot water chamber, all of said ports being located substantially in the same plane of rotation with respect to the valve's axis, and at the same distance from the axis of the conical seat, and a substantially conical valve mounted on said seat having a single port to register with any one of the said ports, said casing having an outlet leading from the valve-chamber to lead off the water passing through the valve.

2. In a combination hot and cold water faucet, the combination of a valve-casing having a valve-chamber on its forward side with a substantially conical seat, and having a hot water chamber at one side of the same and a cold water chamber at the other side, said seat having a port communicating with the hot water chamber and the cold water chamber, said port having a transverse web separating the hot and cold water chambers from each other, said seat having a cold water port communicating with the cold water chamber and having a hot water port communicating with the hot water chamber, a substantially conical valve received on said valve seat and having a single port which may register with the first named port to admit a mixture of hot and cold water to the valve chamber, and which may register with either the hot or cold water port to admit hot or cold water to the valve chamber, a cap on the forward side of the valve casing to close the water chamber, a valve stem located on the axis of said valve for rotating the same and passing through said cap, a spring between the cap and the valve for holding the same upon its seat, said valve casing having a duct for leading the water from the valve chamber, and a handle on said stem for rotating the valve on its seat.

3. In a combination hot and cold water faucet, the combination of a valve casing having a valve-chamber with a substantially conical seat, and having a hot water chamber at one side and a cold water chamber at the other side, said seat having a mixing port communicating with both said chambers and having a transverse web separating the hot and cold water chambers from each other, said seat further having a cold water port leading from the cold water chamber and a hot water port leading from the hot water chamber, all of said ports being located substantially in the same plane of rotation with respect to the valve's axis, and at the same distance from the axis of the conical seat, and a substantially conical valve mounted on said seat having a single port of a length sufficient to substantially cover the entire length of the mixing port, and operating to register with any one of the said ports, said casing having an outlet leading from the valve-chamber to lead off the water passing through the valve.

4. In a combination hot and cold water faucet, the combination of a valve casing having a valve-chamber with a substantially conical seat and having a hot water chamber at one side and a cold water chamber at the other side, said seat having a mixing port communicating with the hot water chamber and the cold water chamber, and having a transverse web separating the hot and cold water chambers from each other, a substantially conical valve in the valve-chamber received on said seat, and having a single port of a length sufficient to substantially cover the entire length of the mixing port, and operating to register with the mixing port to admit hot and cold water to the valve-chamber, said conical seat having a hot water port communicating with the hot

water chamber and also a cold water port communicating with the cold water chamber, said hot and cold water ports being in the same plane of rotation with respect to the valve's axis, and in the plane with the port of said valve and cooperating therewith to admit either hot or cold water to the water chamber, said valve-casing having a duct for leading the water from the valve-chamber.

Signed at Los Angeles, California, this 17 day of Sept., 1926.

EARLE H. CARDER.