

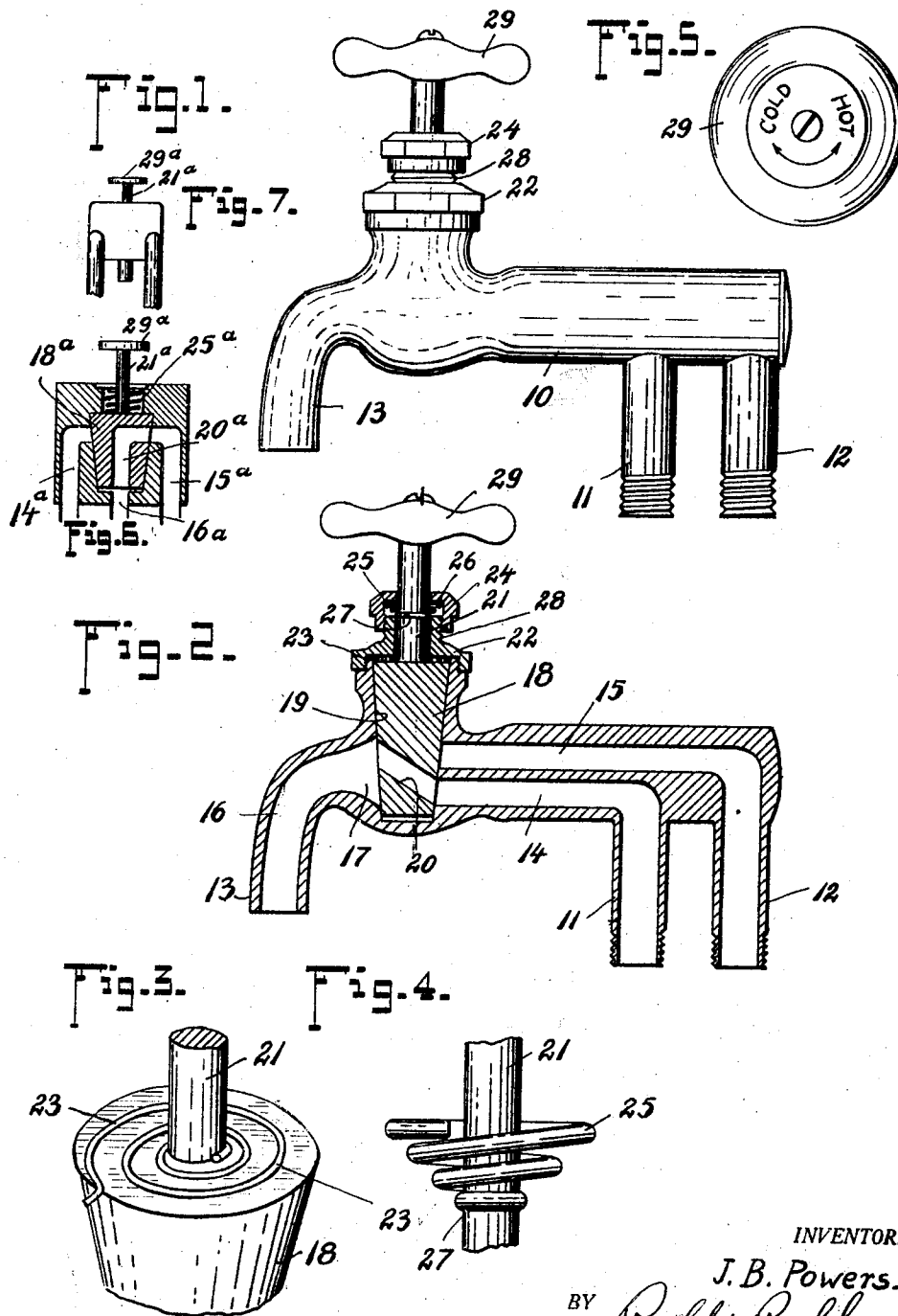
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VALVE

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## UNITED STATES PATENT OFFICE

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## VALVE

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This invention relates to the construction of a faucet and the valve related thereto.

The invention provides for the control of both the hot and cold water passages in 5 faucets for use in lavatories or the like, by the manipulation of a single valve of novel construction. This result is attained in the present embodiment by the provision within the body of the faucet of passages for both 10 the hot and cold water, and of a valve having a single passageway therethrough, which may be brought selectively into registration with either of the passages of the body by 15 turning of the valve through the handle secured thereto, in opposite directions from its normally closed position. To prevent leakage, the valve is held in its seat by means of a compression spring and is held yieldably 20 closed by a second spring, which in my preferred embodiment, is of a spiral nature. The advantages of this construction will be apparent from the following description.

In the drawings:

Figure 1 is an elevation of a faucet constructed in accordance with my invention.

Figure 2 is a longitudinal section through the faucet showing the relation of the passages therethrough to each other and to the controlling valve.

Figure 3 is a fragmentary view of the valve on an enlarged scale compared with Figures 1 and 2, and showing the relation of one of the controlling springs thereto.

Figure 4 is a fragmentary view of the valve stem showing another controlling spring in relation thereto.

Figure 5 is a plan view of a modification of the valve handle showing the directions in which the valve should be turned for connecting the various inlet passages to the outlet passage.

Figure 6 is a sectional view on a reduced scale showing variation in the construction of the valve and its relation to the various 45 passages.

Figure 7 is an elevation of the construction shown in Figure 6 on a still further reduced scale.

Referring to the drawings in detail by 50 reference numerals, 10 designates a faucet

having inlet pipes 11 and 12, and a nozzle 13 connected therewith. The pipes 11 and 12 are connected with passageways 14 and 15 preferably lying in parallelism in superposed planes, and extending through a portion of 55 the faucet body. The nozzle is provided with a passage 16 which is enlarged as at 17 at the end thereof adjacent the ends of the passages 14 and 15; the enlargement 17 being of such diameter that a portion thereof will 60 lie opposite each of the passages 14 and 15. Lying between the inlet pipes 14 and 15, and outlet passage 16, is a valve 18 which, in the present form, is frusto-conical in shape and is fitted within a similarly shaped seat 19. 65 The valve is provided with a passageway 20, which, as shown in Figure 2, is inclined so that the opposite ends thereof may each be brought into registration with a single one of the two passages 14 and 15; the lower end 70 of the passageway 20 being registerable with the passage 14, and the upper end of the passageway being registerable with the passage-way 15.

It will be clear from an examination of 75 Figure 2 that only the lower end of the passageway can be brought into registration with the passage 14, and only the upper end thereof, with the passage 15, while both ends of the passageway are registerable with the 80 enlarged end 17 of the passage 16. It will also be clear from this figure that either of the passages 14 and 15 may be connected with the passage 16 by the proper positioning of the valve in its seat. The valve is provided with a stem 21, extending upwardly 85 therefrom, and through an aperture in a cap 22, threaded in the usual manner to the upper end of the valve casing. The valve is held normally in its closed position by means 90 of a helical spring 23, one end of which is secured to the valve stem 21 and the opposite end to the wall of the valve casing. The cap 22 is provided with an upwardly extending 95 nipple 28, which surrounds the valve stem, and a second cap 24 is threaded thereto, said second cap being provided with a recess for the housing of a spiral spring 25, one end of which abuts against the top 26 of the cap 100

24, the other end being secured in an annular groove 27 formed in the stem 21.

The spring 25 is in the nature of a compression spring and the tension upon the spring may be adjusted through the threaded connection between the cap 24 and the nipple 28. The upper end of the stem 21 may be provided with the usual knob or handle 29 for turning the valve to its various positions.

It will appear from the above description that I have provided in a single faucet substantially all the advantages of separate faucets, and have accomplished the purposes of a faucet by a unique and novel construction.

As a variation of the principle involved herein, the construction as illustrated in Figures 6 and 7 may be employed. In this construction, the passageways, instead of lying in parallelism within a horizontal frame, connect with the valve seat from opposite sides as at 14<sup>a</sup> and 15<sup>a</sup>, the valve 18<sup>a</sup> is provided with an L shaped passageway 20<sup>a</sup>, one end of which is in constant registration with the outlet passage 16<sup>a</sup> and the other end adapted to be brought into registration with either of the passages 14<sup>a</sup> or 15<sup>a</sup>, as may be desired. The valve may also be held firmly within its seat against displacement, by a single compression spring 25<sup>a</sup> which surrounds the stem 21<sup>a</sup> carrying the head or handle 29<sup>a</sup>.

Referring again to the embodiment illustrated in Figures 1 to 5 inclusive, it will appear from the foregoing description thereof, that the valve 18 is normally held by the spring 23 in a neutral position, in which both of the passages 14 and 15 are closed, and that the valve may be turned either to the right or to the left against the influence of the spring 23 to connect one of the ends of the passageway 20 with its respective passage 14 and 15, and that with the large end of the passageway 16 in opposition to both of these passageways when the respective end of the passageway 20 is in registration as described above, with one of the passageways 14 and 15, a connection will be made between the said respective passageway and passageway 16.

What I claim is:

1. A valve device of the class described comprising a valve casing, a valve member seated therein, a stem for said valve, a cap connected to the casing through which said stem projects, a spring for holding the valve member seated, and means on the cap and surrounding the stem and spring for adjustably holding the spring whereby to transmit pressure to the valve member through the stem.

2. A valve device of the class described comprising a valve casing, a valve member seated therein, a stem for said valve, a cap connected to the casing through which said

stem projects, a spring for holding the valve member seated, and a second cap adjustably connected to the first cap for holding the spring under compression whereby to transmit pressure to the valve member through the stem.

3. A valve device of the class described comprising a valve casing, a valve member seated therein, a stem for said valve, a cap through which said stem projects, means under the said cap for rotating the valve, a second cap, and means between the first and second caps for holding the valve seated whereby to transmit pressure to the valve member through the stem.

4. A valve device of the class described comprising a valve casing having independent inlet passages and a common outlet passage, a valve plug seated in said casing and having a passage therethrough arranged to register with either of said inlet passages and with the outlet passage during such registrations, a cap member for holding the plug seated, a spring intermediate the cap and the plug, a spring for imparting rotation to said plug, and adjustable compression means mounted on said cap and cooperating with the stem for holding the plug seated.

In testimony whereof I affix my signature.

JOSEPH BLAIR POWERS.