No. 669,649. Patented Mar. 12, 1901.

H. C. MEYER, JR.

VALVE MECHANISM.

(Application filed Mar. 20, 1900.)

(No Model.)

Fig. 1.

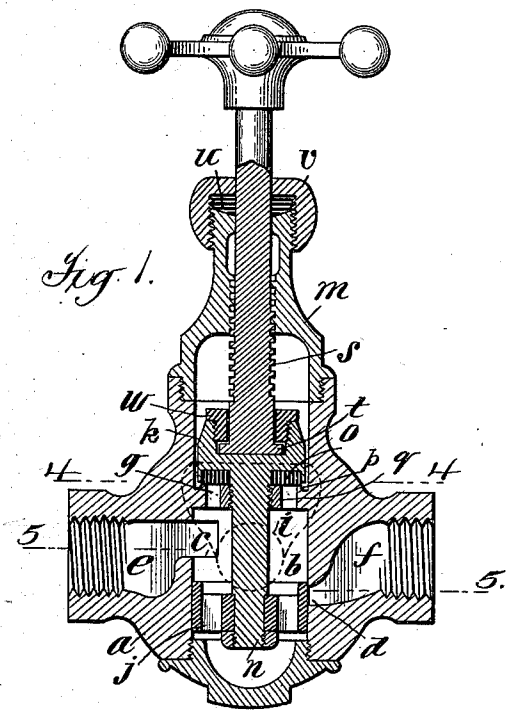


Fig. 2.

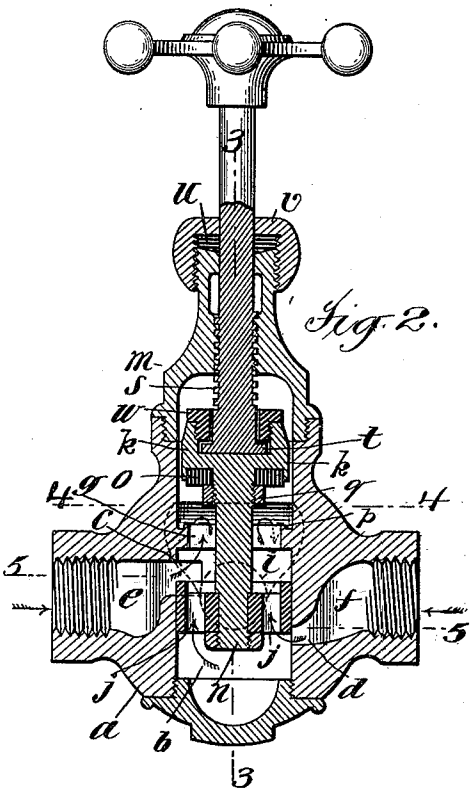


Fig. 4.

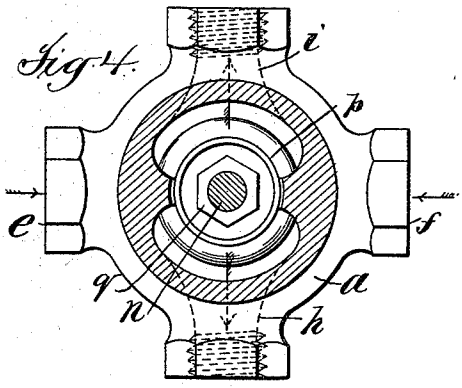


Fig. 5.

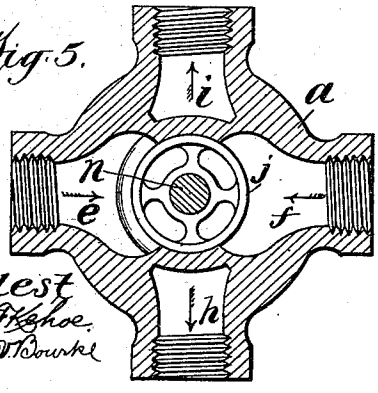
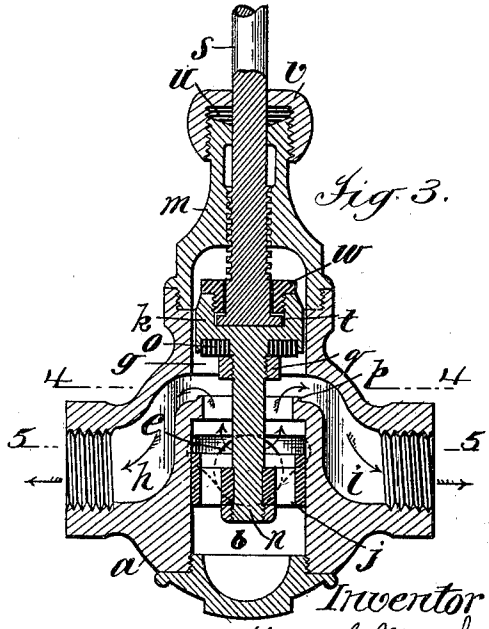


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY C. MEYER, JR., OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO THE MEYER-SNIFFEN COMPANY, LIMITED, OF NEW YORK, N. Y.

VALVE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 669,649, dated March 12, 1901.

Application filed March 20, 1900. Serial No. 9,365. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. MEYER, JR., a citizen of the United States, residing at Montclair, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Valve Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in valve mechanism designed especially for use in connection with bathing apparatus, and particularly to valve mechanism consisting of a casing containing cold and hot water inlet ports, an outlet port or ports, and suitably-actuated valves for controlling communication between said inlet-ports and the outlet port or ports and regulating the supply of cold and hot water to the latter.

Some features of the present invention reside in a valve mechanism in which the valves are actuated by means of a threaded spindle mounted in the valve-casing and in which the inlet-ports and said valves are so constructed and arranged relatively to each other that in the normal position of said valves communication is cut off between said ports and the discharge side and outlet port or ports of the casing, the valve-actuating spindle and its support being preferably located on the discharge side of the casing, so that in the normal position of the valves such spindle and support are not exposed to the pressure of the water-supply, thus avoiding liability of damage to the packing and consequent leakage between the spindle and its support and between the latter and the casing.

The invention also embodies other features, which will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of a valve mechanism of the class referred to embodying the present invention, the valves being shown in their normal position. Fig. 2 is a similar view showing the valves in their open position. Fig. 3 is a sectional elevation taken on the line 3 3 of Fig. 2. Fig. 4 is a horizontal section on the line 4 4 of Figs. 1, 2, and 3, and Fig. 5 is a horizontal section on the irregular line 5 5 of Figs. 1 and 2.

Referring to said drawings, *a* represents the valve-casing proper, in which is formed, by suitable interior partitions, a mixing-chamber *b*, with which communicate, through side openings *c d*, a pair of inlet-ports *e f*, threaded at their outer ends for rigidly connecting cold and hot water supply piping with the casing, said mixing-chamber in turn communicating through an end opening *g* with the discharge side of the valve-casing, in which are fixed the usual outlet-ports *h i*, threaded at their outer ends for rigidly connecting discharge-pipes to the casing, such discharge-pipes leading to bathing apparatus of different kinds—as, for example, one to a shower and another to a shampoo apparatus. Communication between the hot-water and cold-water inlets *e f* and the mixing-chamber *b* is controlled by a slide-valve *j*, movable endwise in said chamber, said valve being preferably cylindrical and provided with longitudinal openings for the passage of the water, while communication between the mixing-chamber *b* and the discharge side of the valve-casing is controlled by a disk valve *k* and located and movable endwise in a valve-chamber formed partly in the body of the valve-casing and partly in a support *m*, threaded in said casing, said support *m* being preferably located, as shown, on the discharge side of the valve-casing. Valves *j k* are rigidly secured together, so as to move simultaneously, by means of a rod *n*, and the inner face of said valve *k* is provided with a recess containing a gasket *o*, of rubber or other suitable packing material, adapted to rest against a valve-seat *p*, formed at the opening *g* between the mixing-chamber *b* and the discharge side of the valve-casing, said gasket being held in position against the valve *k* by a threaded nut *q* upon the rod *n*, the purpose of this packing or gasket being to prevent leakage of water past the valve *k* in the closed position of the latter.

The valves *j k* are actuated by means of a screw-threaded spindle *s*, mounted in the support *m* and swiveled at its lower end to the disk valve *k* by means of a flange *t* at the lower end of the spindle resting in a recess formed in the upper face of the valve *k* and which is engaged and held in said recess by a threaded nut or plug *w*, fitted in said recess

and through which the valve-spindle *s* passes. The spindle *s* is provided with packing *u* of any suitable character in the stuffing-box or packing-chamber formed by the cap *v*. The discharge or outlet port or ports *h i* are independent of this threaded spindle and the threaded support in which the spindle moves, so that the discharge port or ports are stationary with the casing and not affected by the movement of the spindle.

In the normal position of the valves *j k*—that is, the position in which they are illustrated in Fig. 1—communication is open between the cold-water-inlet port *e* and the mixing-chamber *b*, but is closed between the hot-water-inlet port *f* and said chamber by the valve *j*, while communication between said mixing-chamber and both of said ports and the discharge side of the valve-casing and outlet-ports *h i* is shut off by the valve *k*. With communication thus cut off between the mixing-chamber and the discharge side of the valve-casing the joints on that side of the casing, including those between the spindle *s* and its support *m* and between the latter and the casing are in the normal position of the valves relieved of the pressure of the water-supply, and thus all danger of destruction or wear of the packing and consequent leakage at these joints resulting from such pressure is avoided.

Upon the movement of the valve-spindle *s* from normal position valve *k* is first unseated, thereby opening communication between the mixing-chamber *b* and the discharge side of the casing and permitting cold water to be supplied from the inlet *e* by way of said mixing-chamber to the outlets *h i* and thence to the particular bathing apparatus in which the supply of water is required. Should the bather desire to temper the cold water, he may do so by further moving the valve-spindle *s*, so as to cause the cylinder-valve *j* to partially or wholly uncover the hot-water-inlet opening *d*. As the hot-water inlet is thus uncovered the water issuing therefrom will enter the mixing-chamber, where it will mingle with the cold water entering from inlet-opening *c* and pass with it through the opening *g* into the discharge side of the valve-casing.

It will be observed that as cold water is first supplied upon the operation of the valve-spindle all danger of scalding the bather is avoided, and, furthermore, that the inlet-ports and the valves for controlling the same, with the means for actuating the latter, are so constructed and arranged relatively to each other that the hot and cold water supply can be nicely regulated, so as to secure water of any desired temperature, the supply of one being decreased as the other is increased, and vice versa. It will also be observed that the valve *j*, controlling the cold and hot water openings *c d*, is adapted not only to contract the opening *c* as it is moved to uncover the opening *d*, but also to entirely close said opening *c*, and thus entirely shut off the supply of cold water should the bather desire water at its highest temperature.

What I claim is—

1. The combination in a suitable casing, of a chamber formed within said casing, cold and hot water inlet ports communicating one above the other within said chamber, an endwise-movable spindle mounted in a threaded support in said casing and projecting into said chamber, and a single valve member, as *j*, secured to said spindle and common to and movable between said ports, said valve member being so arranged relatively to said ports that in its normal position the cold-water-inlet port is opened, and the hot-water-inlet port is closed thereby and when moved from such position the hot-water-inlet port is opened, and the cold-water-inlet port closed thereby, substantially as described.

2. The combination in a suitable casing of cold and hot water inlet ports, a mixing-chamber with which the said ports communicate and which communicates with the discharge side of the casing, valve mechanism normally cutting off communication between the hot-water-inlet port and said mixing-chamber and between the latter and the discharge side of the casing, an exteriorly-threaded actuating-spindle for said valve mechanism, an interiorly-threaded support therefor in the valve-casing, and an outlet port or ports on the discharge side of the casing and independent of said spindle and threaded support, substantially as described.

3. The combination in a suitable casing of cold and hot water inlet ports, a mixing-chamber with which the said ports communicate and which communicates with the discharge side of the casing, valve mechanism normally cutting off communication between the hot-water-inlet port and said mixing-chamber and between the latter and the discharge side of the casing and adapted when moved to first open communication between the mixing-chamber and discharge side of the casing and then to open the hot-water port and finally to entirely close the cold-water port, an exteriorly-threaded actuating-spindle for said valve mechanism, an interiorly-threaded support therefor in the valve-casing, and an outlet port or ports on the discharge side of the casing and independent of said spindle and threaded support, substantially as described.

4. The combination in a suitable casing of cold and hot water inlet ports, a mixing-chamber with which the said ports communicate and which communicates with the discharge side of the casing, valve mechanism normally cutting off communication between the hot-water-inlet port and said mixing-chamber and between the latter and the discharge side of the casing, an exteriorly-threaded actuating-spindle for said valve mechanism, an interiorly-threaded support therefor in the delivery side of the valve-casing, and an outlet

port or ports on the discharge side of the casing and independent of said spindle and threaded support, substantially as described.

5. The combination in a suitable casing, of cold and hot water inlet ports, a mixing-chamber with which said ports communicate and which communicates with the discharge side of the casing, a slide-valve controlling both of said ports and adapted when in normal position to close the hot-water-inlet port and when moved therefrom to open the latter and correspondingly close the cold-water-inlet port, and vice versa, a valve normally closing communication between the mixing-chamber and the discharge side of the casing, an exteriorly-threaded actuating-spindle for said valves, an interiorly-threaded support therefor in the valve-casing, and an outlet port or ports on the discharge side of the casing and independent of said spindle and threaded support, substantially as described.

6. In a valve mechanism, the combination in a suitable casing provided with hot and cold water inlet ports *e f* and with outlet-ports *h i*, of a mixing-chamber *b* provided with inlet-openings *c d* and discharge-opening *g*, cylinder-valve *j*, valve *k* and a suitably-mounted actuating-spindle for said valves, substantially as described.

7. In a valve mechanism, the combination in a suitable casing provided with hot and cold water inlet ports *e f* and with outlet-ports *h i*, of mixing-chamber *b* provided with inlet-openings *c d* and discharge-opening *g*; cylinder-valve *j*, valve *k* and spindle *s* for actuating said valves, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY C. MEYER, JR.

Witnesses:
C. J. SAWYER,
A. A. V. BOURKE.

Correction in Letters Patent No. 669,649.

It is hereby certified that in Letters Patent No. 669,649, granted March 12, 1901, upon the application of Henry C. Meyer, Jr., of Montclair, New Jersey, for an improvement in "Valve Mechanism," an error appears in the printed specification requiring correction, as follows: In line 74, page 2, the word "within" should read *with;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 2d day of April, A. D., 1901.

[SEAL.]

F. L. CAMPBELL,
Assistant Secretary of the Interior.

Countersigned:

F. I. ALLEN,
Commissioner of Patents.