(No Model.)

E. VANGEZELL & H. STETSER.

FOUR WAY VALVE AND BRANCH PIPE.

No. 337,718. Patented Mar. 9, 1886.

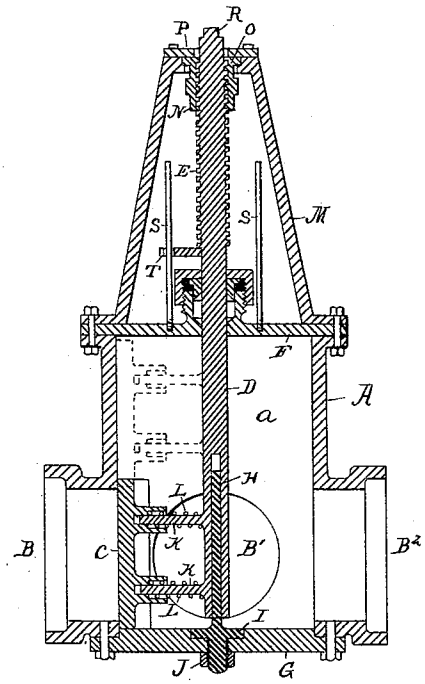


Fig. 1.

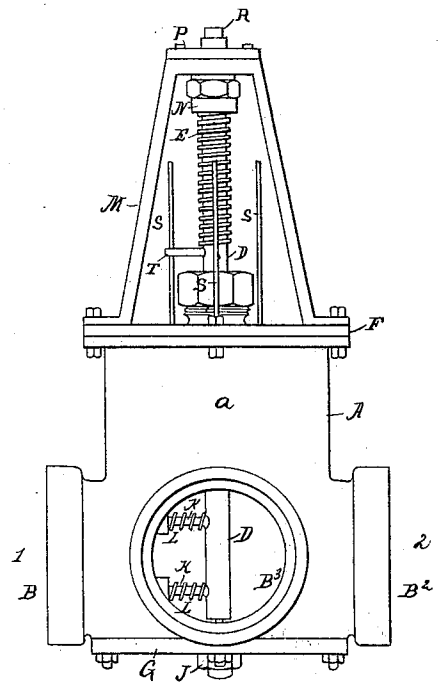


Fig. 2.

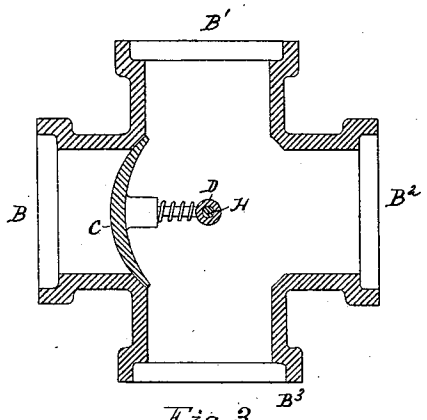


Fig. 3.

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UNITED STATES PATENT OFFICE.

EZEKIEL VANGEZELL AND HENRY STETSER, OF CAMDEN, NEW JERSEY.

FOUR-WAY VALVE AND BRANCH PIPE.

SPECIFICATION forming part of Letters Patent No. 337,718, dated March 9, 1886.

Application filed July 17, 1885. Serial No. 171,865. (No model.)

To all whom it may concern:

Be it known that we, EZEKIEL VANGEZELL and HENRY STETSER, citizens of the United States, and residents of the city and county of Camden and State of New Jersey, have invented a new and useful Four-Way Valve and Branch Pipe, of which the following is a specification.

The object of our invention is to furnish a valve for controlling the flow of liquids through four pipes; and our invention is particularly intended to be applied at the intersection of street water-mains, so that the water may be shut off from one main while it is allowed to flow freely through the other three.

Our invention consists of a cylindrical shell in which the valve is placed, the lower part of this shell forming a four-way branch, to which the several water-mains are secured in the usual manner. The valve is capable of a vertical movement in order to close or open the mains, and is also capable of a rotary movement in order that the one valve may be used to close any one of the four mains.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a vertical central section of our valve; Fig. 2, a side elevation, and Fig. 3 a section of Fig. 2 on line 1 2.

A is a casting, the upper part of which is cylindrical and the lower part of which forms a four-way branch, B B' B^2 B^3 being the several arms of the branch.

C is the valve shown in Figs. 1 and 3 as closing the branch B.

D is the valve-spindle, which is furnished with a thread, E.

F and G are the upper and lower heads of the valve-casing, the former being furnished with a stuffing-box, through which the valve-spindle passes.

H is a guide for the valve-spindle, the lower part of the spindle being bored out to receive it.

I is a collar on this guide, which fits in a corresponding depression in the lower head, G, to insure rigidity on the part of this guide.

J is a nut by means of which A is secured to G.

K K are pins welded onto the valve-spindle D, which carry and guide the valve C.

L L are springs surrounding K K, one end of which bears against the spindle D, and the other against the valve C, to insure the valve coming to its seat.

M is a gallows-frame bolted to the head F; N, a threaded sleeve through which D passes, and by means of which D is raised or lowered; O, a collar on this sleeve, resting in a corresponding depression in the top of the gallows, frame; P, a plate on the top of and bolted to M, to prevent N from rising; R, a shoulder on the top of D, by means of which D may be turned in any direction; S, studs or guides projecting upwardly from the head F; T, an arm welded or otherwise secured to D, and furnished with a hole, through which S passes to prevent D from turning when N is turned to raise or lower the valve C.

In Fig. 1 the dotted lines indicate the position of the valve when raised. These lines show the valve in the upper or cylindrical part, *a*, of the valve-chamber. If, now, an accident necessitating the shutting off of the water from the main, which enters A at B, should happen, the valve-spindle is turned by placing a wrench on the shoulder R until the valve is opposite this branch, and the stud S passes through the hole in the arm T. The sleeve N is now turned and lowers the spindle D and valve C, closing the branch B, and prevents any water from passing from A to B. The operator now goes to the next valve on the main, which enters B, and closes the valve at this point, and all passage of water is prevented between these two points. By this arrangement only that small part of the main which is between the two valves is shut off, and hence only those persons who have connections with this part of the main are cut off from water.

In the old system, where gate-valves are used, it is not unusual for a large section of a city to be deprived of water to enable repairs to be made to a few feet of the water-mains, for where gate-valves are used it would be necessary to have four valves at each intersection of the mains, in order to accomplish what our one valve will do. In practice there is generally only one gate-valve at each intersection.

It will be readily seen that our invention may be modified to a three-way branch and valve, the construction, with the exception

that there are three instead of four branches, being the same.

We have described our invention as applied to water-mains; but it will be understood that it may be used for any other liquid and in many other cases.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. In a four-way valve and branch pipe, the combination of the cylindrical chamber A, above the branch pipes, in which the valve is placed in order to shift its position from one branch pipe to another, valve C, and branch pipes B B′ B^2 B^3, all arranged and operating substantially as and for the purposes set forth.

2. In a four-way valve and branch pipe, the combination of the valve-chamber A, valve C, threaded valve-spindle D, with pins K, springs L, guide H, threaded sleeve N, with collar O, studs S, and arms T, all substantially as and for the purposes set forth.

3. As a device for holding and guiding the valve-spindle D and valve C while they are being raised or lowered, and in combination with D and C, the studs S and arm T, substantially as set forth.

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