

W. F. WALSH.  
 GLOBE VALVE.  
 APPLICATION FILED SEPT. 3, 1918.

1,326,430.

Patented Dec. 30, 1919.

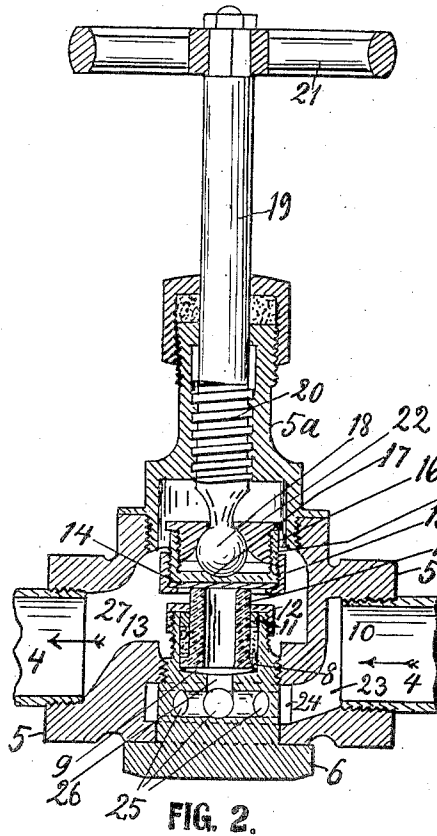


FIG. 2.

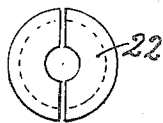


FIG. 3.

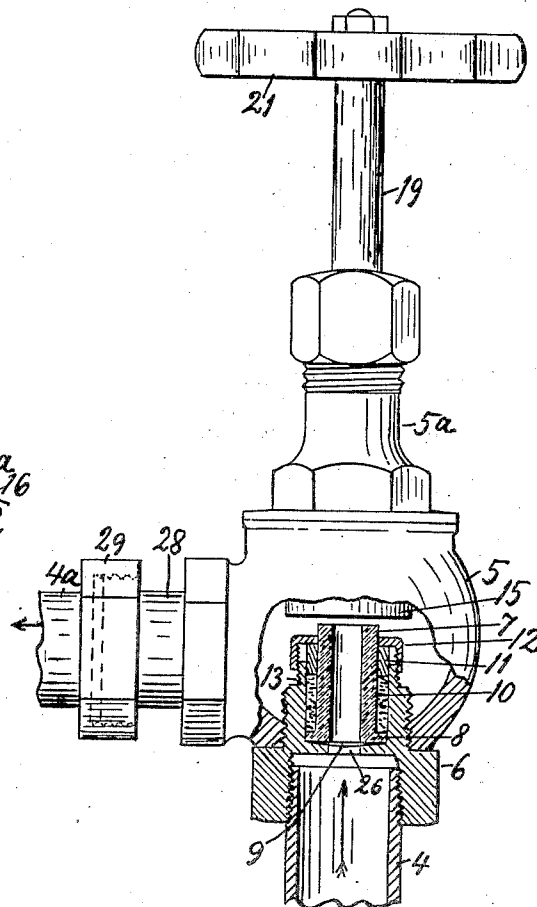


FIG. 1.

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# UNITED STATES PATENT OFFICE.

WILLIAM F. WALSH, OF ST. PAUL, MINNESOTA.

## GLOBE-VALVE.

1,326,430.

Specification of Letters Patent.

Patented Dec. 30, 1919.

Application filed September 3, 1918. Serial No. 252,430.

*To all whom it may concern:*

Be it known that I, WILLIAM F. WALSH, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Globe-Valve, of which the following is a specification.

My invention relates to improvements in globe-valves, and the main object is to provide a globe valve with a valve seat which may readily be taken out of the valve shell for grinding or other repairs. Another object is to provide a valve with a seat which when it can no longer be repaired may be removed and a new one substituted. These and other objects I attain by the novel construction and arrangements of parts illustrated in the accompanying drawing, in which—

Figure 1 is a partly sectional side elevation of my improved valve shown as connecting two pipes at right angles to each other. Fig. 2 is a vertical, central, longitudinal section of a globe valve embodying my improvements and so modified that it connects two pipes in linear position. Fig. 3 is a detail top view of the split collar 22 in Fig. 2.

Referring to the drawing by reference numerals, 4 designates piping in which the valve shell 5 is connected, the arrows indicating the direction in which water, gas, compressed air, &c., are supposed to move.

Threaded upwardly into the bottom of the valve shell is a hollow base plug 6, the top of which may form the valve seat 7 in a direct manner. In this the simplest form of the invention the plug 6 may simply be removed from the shell each time the valve seat needs grinding. But as it is a well known fact that an ordinary valve seat after being ground a few times can not be further repaired but must be replaced by a new one, I further improve the valve seat by making it separable from the plug 6, so it may be removed and replaced by a new one whenever so required.

To accomplish the latter purpose I make the seat in the form of a tube 7 having about its lower end a fixed collar 8, which collar fits snugly in a cylindrical cavity 9 in the plug 6, and is retained therein by packing 10, a movable collar 11, and a cap 12, the latter threaded upon the reduced portion 13 of the plug and having a central aperture for the seat-tube 7 to project upward through.

By this arrangement it is obvious that whenever the tubular member 7 becomes too much worn down or otherwise damaged, it may be removed and replaced by a new one. Said tubular valve seat member is preferably made of glass, so as to be cheap and to resist corrosion.

Arranged to close the top of the valve seat is a valve member composed of a soft disk 14, of leather or rubber, or similar material. Said disk is held between a centrally open inverted cap 15, which is threaded upon a thimble 16, and the bottom of said thimble; said bottom is provided in its upward side with a cavity 17 in which is placed a part of the ball-shaped portion 18 of the valve stem 19; the latter being threaded at 20 in the upper member 5<sup>a</sup> of the shell 5 and provided with a suitable handle wheel 21.

The ball 18 is retained in the thimble 16 by a diametrically split collar 22, which is threaded into the thimble. In ordinary valves the thimble 16 is so shallow that there is no chance to get a hold of it and unscrew it from the member 15; to remedy this defect I make the thimble with an unthreaded extension 16<sup>a</sup> which may be grasped by a pair of pipe-tongs or other tool so as to force the thimble loose when it is stuck in the member 15.

In Fig. 2 the water passes through the duct 23 and a circular recess 24 in the shell and through apertures 25 in the base plug, and thence through a central aperture 26 and up into the tube 7 of the valve seat, and when the valve plug is raised the water will flow out of the top of the seat and out at the duct 27. In Fig. 1 the apertures 25, shown in Fig. 2, are dispensed with, as the water passes from the lower pipe 4 directly up through the aperture 26 and the tube 7. In Fig. 1 the pipe 4<sup>a</sup> is connected with the valve shell by a nipple 28 and a union 29; said union enables the shell to be detached from the pipe 4<sup>a</sup> and unscrewed from the base plug 6, so as to reach the seat 7 for repair or exchange, as already explained, only that in Fig. 1 the separation of the shell and its base plug involves a little more work than in Fig. 2, where the base plug is simply unscrewed and removed downwardly.

What I claim is:

1. In a globe valve having a valve stem with a ball formed at its inner end, a valve member attached to said ball and composed of an inverted centrally apertured cap and

a disk of soft material held in said cap and adapted to engage the seat of the valve through said aperture; and a thimble closed at one end and threaded into the cap and  
5 having an internal central cavity in its closed end for a portion of the ball of the valve stem; a diametrically divided collar threaded into the thimble and arranged to retain the ball of the stem therein; said  
10 thimble having an externally unthreaded portion projecting above the edges of the inverted cap which holds the soft disk.

2. In a globe valve, the combination with a valve shell having an aperture in its lower  
15 side, of a hollow plug threaded upwardly

into said aperture and a valve seat detachably secured in the upper end of said plug; said hollow plug having its upper portion reduced as to the outside diameter and threaded, and the inner end of the passage  
20 therethrough enlarged in diameter, and said valve seat consisting of a tubular body having its lower end provided with an external fixed collar resting in the lower end of said enlargement, packing inserted upon said col-  
25 lar, a packing collar threaded upon the upper portion of the hollow plug and having an inward flange bearing upon the packing.

In testimony whereof I affix my signature.  
WILLIAM F. WALSH.