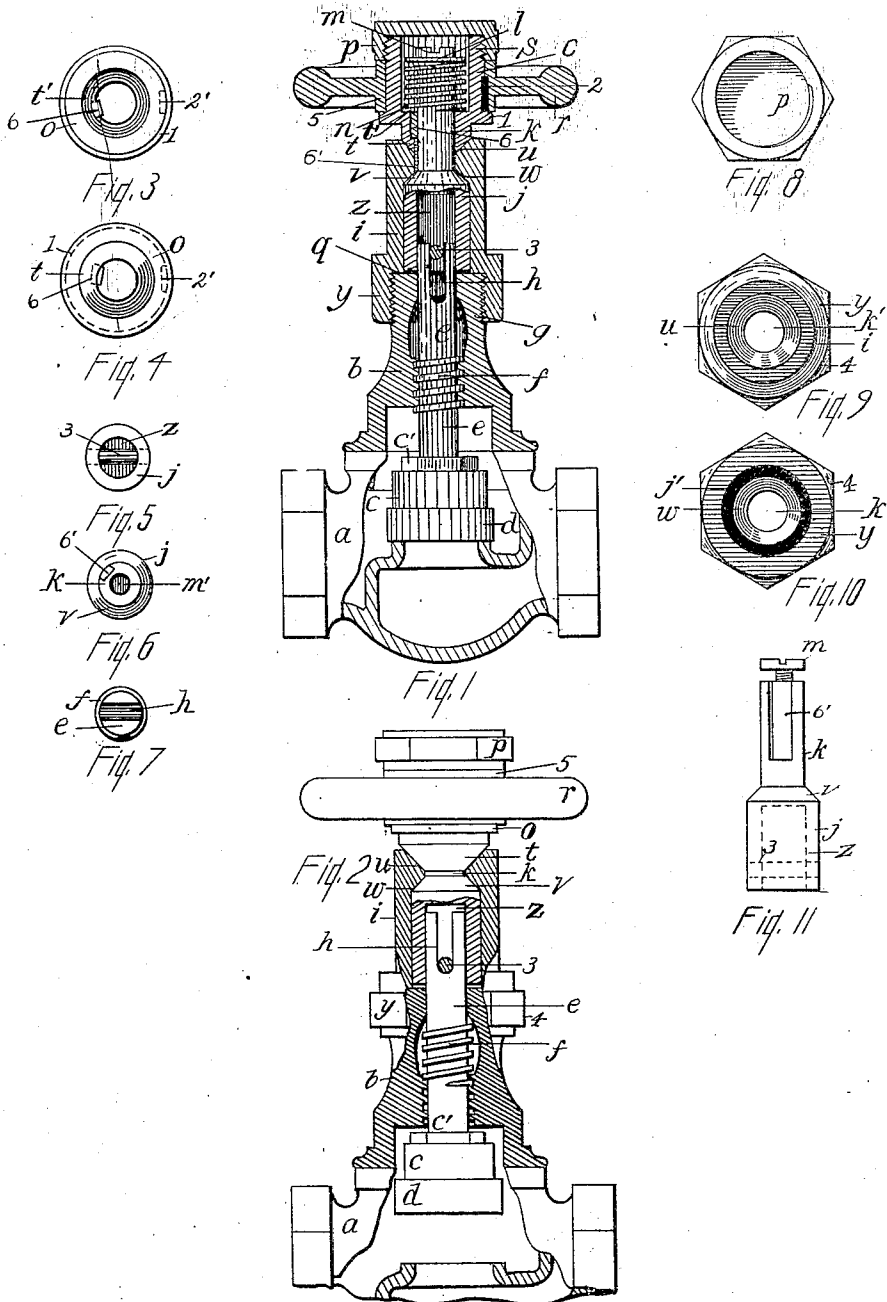


C. E. FISHER.
GLOBE VALVE.
APPLICATION FILED MAR. 9, 1908.

935,360.

Patented Sept. 28, 1909.



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CHARLES E. FISHER, OF VERPLANCK, NEW YORK.

GLOBE-VALVE.

935,360.

Specification of Letters Patent.

Patented Sept. 28, 1909.

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To all whom it may concern:

Be it known that I, CHARLES E. FISHER, a citizen of the United States, and resident of Verplanck, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Globe-Valves, of which the following is a specification.

This invention relates to globe valves, and has for its object a globe valve that will require no packing around the valve stem. The object is attained by the means set forth in these specifications and the accompanying drawings, in which like letters and digits refer to similar parts throughout the several views.

Figure 1 is a vertical longitudinal section of a globe valve with the improvement attached. Fig. 2 is a like view of the globe valve only partly in section. Fig. 3 is a top view of the compression cap *o*, Fig. 1. Fig. 4 is a bottom view of the compression cap. Fig. 5 is a bottom end view of the wrench-stem *j k*. Fig. 6 is a top end view of the wrench-stem. Fig. 7 is an end view of the slotted end of the valve stem. Fig. 8 is a bottom view of the cover *p*. Fig. 9 is a top end view of the bonnet *i y*. Fig. 10 is a bottom end view of the bonnet *i y*, and Fig. 11 is an elevation of the wrench-stem.

My improvement consists of parts that may be attached to globe valves that are already in use, as well as applied to new products.

In Fig. 1 the valve body *a*, the bonnet *b*, the valve parts *e d c c'* represent parts of an ordinary globe valve, the usual stuffing-box being removed from the part *g* of the bonnet *b*, and the valve stem *e* is shown as cut off and notched, as at *h*, for a short length above the bonnet *b*. A bonnet *i y* is screwed on the bonnet *b* in place of the displaced stuffing-box having an enlarged part *y* to adapt it for the internal screw-thread, and hexagon sides as at 4, Figs. 9 10 for the application of a wrench. Its union with the bonnet *b* is with a tight joint at *q*, Fig. 1. The body *i* is chambered to receive the enlarged part of a wrench-stem *j k* that passes through this bonnet. The top of the chamber is countersunk as at *w* to coincide with a conical part *v* of the wrench-stem, the cone and the countersink constituting a valve and valve seat. The outer end of the bore through the bonnet is also made steam tight as shown at *u*.

The wrench-stem *j k* is bored out in its larger part *j* to receive the end of the valve stem *e*, and a pin 3, Figs. 1 2 5 11 through the bore at right angles thereto engages with the notch *h*, Figs. 1 2 7 in the valve stem, so that turning the wrench-stem will turn the valve stem. A steam-tight joint is made at *v w*. The reduced end *k* of the wrench-stem extends into the compression cap *o*, 65 Fig. 1, where it is provided with a screw and spring.

The compression cap *o* has its lower end *z* fitted to the seat *u* in the upper end of the bonnet *i y* as in Figs. 1 2. The cap is cham- 70 bered, as in Figs. 1 and 3, to make room for the spring *n* on the end of the wrench-stem. In the end of the wrench-stem is a screw *m* and a washer *l* for compressing and regulating the pressure of the spring, the spring 75 impinging against the bottom *t'* of the chamber. The compression cap has a lateral movement on the stem *k*, but is prevented from turning thereon by a spline 6 acting in a slot 6' in the stem, the slot being shown in 80 Figs. 1 6 11, and the spline 6 in Figs. 1 3 4. The cap has a hand-wheel *r* secured to it, keyed as at 2, Fig. 1, against the rim 1. On its upper end this cap is threaded at *s* and provided with a cover *p*, shown in Figs. 1 2 85 8. The action of the spring *n* is to draw the compression cap down upon the wrench-stem, causing the two faces *t v* to approach each other. To give greater steadiness to the parts on the end of the stem *k*, and a 90 larger bearing-surface, the faces *t v* may be given larger areas than as shown in Fig. 1, and more like the surfaces *t u*, Fig. 2.

When there is pressure within the globe valve the wrench-stem will be forced against 95 the seat *w*, Figs. 1 2, which, being a steam-tight joint, will prevent leakage. In case of wear of this closure compression may be put upon the spring *n* sufficient to equalize the internal pressure, so that the joint formed at 100 *t u* will prevent leakage. By adjusting the spring to the internal pressure the wear on both seats *u w* may be equalized and their wearing qualities will be prolonged.

The action of the valve is shown in Figs. 105 1 and 2. It is shown closed in Fig. 1. Turning the hand-wheel to the left turns the wrench stem which, by means of the pin 3 in the stem and the slot *h* in the valve stem, causes the valve stem to turn, and the 110 thread *f* on the valve stem causes the valve stem to lift, its slotted end telescoping with

the wrench-stem in the chamber 2, as shown in Fig. 2, and the steam tight bearings around the wrench-stem prevent any leakage around said stem.

5 Having described my invention, what I claim and desire to secure by Letters Patent is,—

10 The combination in a packless valve of a shortened valve stem, a supplementary bonnet, a wrench stem in the supplementary bonnet chambered to receive the end of the valve stem, the end of the valve stem telescoping within the said chamber and turn-
15 able by the wrench stem, the wrench stem seated in the end of the bonnet, a compression cap with a hand wheel on the outer end

of the wrench stem and seated in the outer end of the bonnet and movable longitudinally on the wrench stem but adapted to turn the wrench stem, a spring chamber in the compression cap, a spring in said chamber on the end of the wrench stem, a spring adjusting screw in the end of the stem, and a cover on the compression cap.

Signed at Verplanck in the county of Westchester and State of New York this eleventh day of Feb. A. D. 1908.

CHARLES E. FISHER.

Witnesses:

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