J. T. HAYDEN.

VALVE STEM.

APPLICATION FILED SEPT. 23, 1903.

900,534. Patented Oct. 6, 1908.

Fig. 5

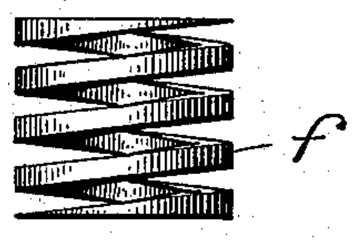


Fig. 1.

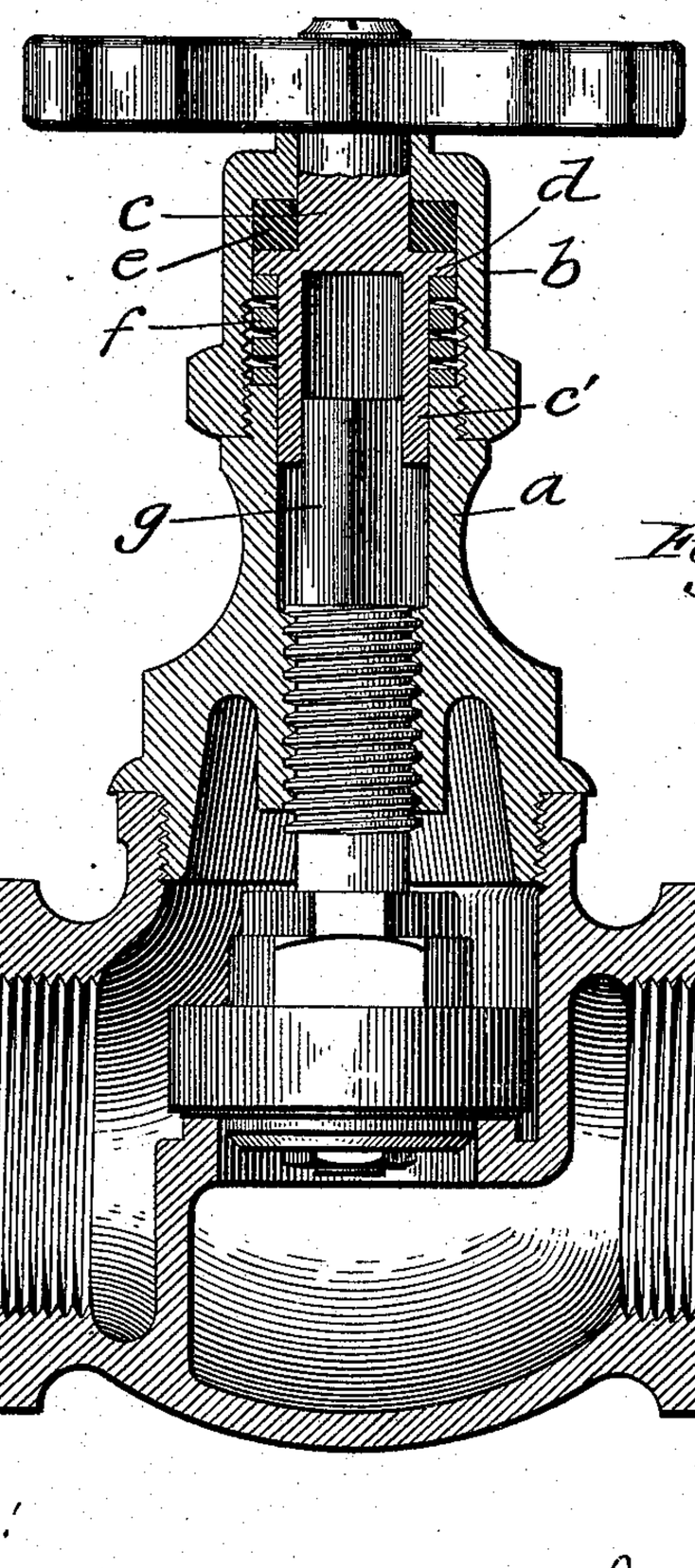


Fig. 2.

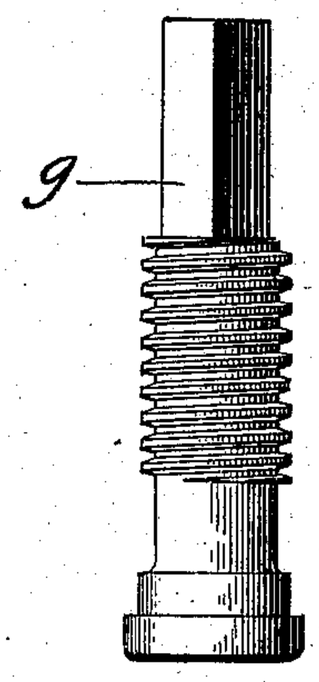


Fig. 3.

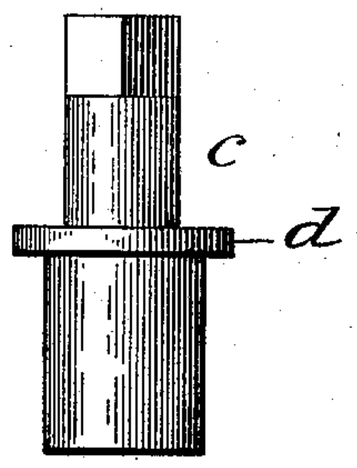
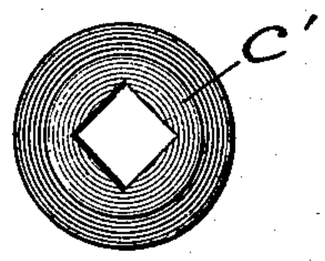


Fig. 4.



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UNITED STATES PATENT OFFICE.

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VALVE-STEM.

No. 900,534. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed September 23, 1903. Serial No. 174,374.

To all whom it may concern:

Be it known that I, JAMES T. HAYDEN, a citizen of the United States, residing at Chicago, in the State of Illinois, have invented certain new and useful Improvements in Valve-Stems, of which the following is a specification.

My invention relates to the form of valve in which the valve stem is moved to and from its place to actuate the valve by means of a screw thread and the stem extending through the casing in order to be operated from outside by means of a hand wheel or the like; and particularly to the means for packing the stem of the valve in place in the casing. The objects of the invention are, to provide for a perfect packing of the stem without undue pressure thereon; to provide for a constant pressure upon the packing of the stem; to provide a two-part valve stem consisting of one portion which revolves in a stationary plane and is provided with means for packing in place and another portion which both revolves and advances to close the valve; and to generally improve the structure and operation of valve stems.

To illustrate the construction and operation of the structure by which the objects of my invention are attained I have shown a globe valve with a reciprocating stem in the accompanying drawings, wherein—

Figure 1 is a central vertical section through the valve casing and a portion of the valve stem;

Figures 2 and 3 are side elevations respectively of the two parts of the valve stem;

Figure 4 is an under plan view of the hollow portion of the stem shown in Figure 3, and

Figure 5 is a side elevation of a convenient form of spring used to induce pressure upon the packing.

In the usual globe valve of the form illustrated in the drawing, the stem is required to reciprocate through a packing provided in the casing in order to advance the valve against its seat, at the same time that it is revolved in order to operate the screw threads for this purpose. In my improvement I place on top of the casing *a* a cap *b* within which is placed a section *c* of the valve stem, provided with an annular flange *d* which is seated against a packing *e* and is held tightly against the same under constant pressure by means of the coil spring *f*. The lower end of this upper section of the stem, *c'*, is hollow and is provided with an internally angular opening as will be seen from Figure 4, and the lower section of the valve stem, *g*, is provided with a corresponding angular shank to extend within the sleeve or opening, so that when the upper part *c* is revolved in place it will also revolve the lower portion *g* and this by means of the screw threads will advance the valve against its seat, as will be clearly understood.

The upper end of the valve stem *c*, above the flange *d* is of the same diameter throughout its entire length, in order to permit of the removal and replacement of the packing ring *e* and cap *b*, as illustrated in Figures 1 and 3.

By this arrangement it will be seen that the part of the stem which moves in the packing moves in a constant plane of revolution and the packing is subjected to practically a constant pressure by means of the coil spring, while there is no pressure upon the screw threads except the water pressure. This results in a much easier operating valve in the first place, and makes an extremely efficient joint around the stem to avoid leakage. Other advantages of the device will readily appear to those familiar with the use of valves.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is the following:

In a valve, the combination with a valve bonnet, of an angularly headed valve stem threaded therein, a supplemental valve stem slidably engaging said valve stem and provided with a radially projecting flange, a cap engaging the bonnet and partially inclosing the supplemental valve stem, a compressible packing ring interposed between the cap and radial flange, the portion of the supplemental valve stem projecting through the packing and cap being of the same diameter throughout its entire length, together with a coil spring interposed between the flange and the top of the bonnet for holding the packing under compression.

In testimony whereof I have hereunder signed my name in the presence of the two subscribed witnesses.

JAMES T. HAYDEN.

Witnesses:
PAUL CARPENTER,
EDWARD C. BURNS.