(No Model.)

L. GRANNAN.

PACKING FOR VALVE STEMS, &c.

No. 275,193. Patented Apr. 3, 1883.

FIG. 1.

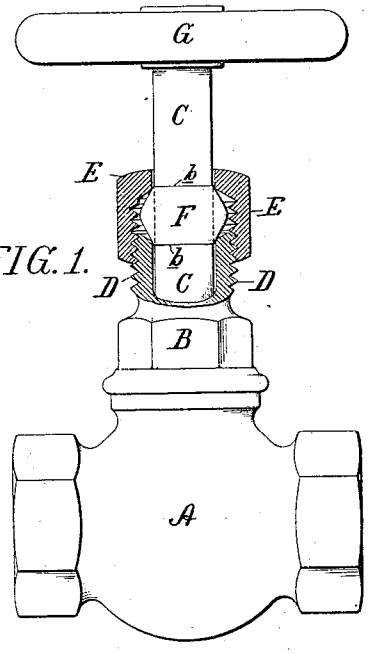


FIG. 2.

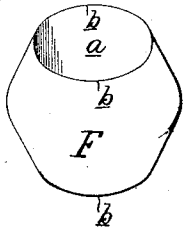
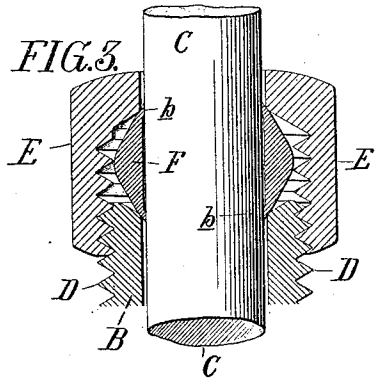


FIG. 3.



Witnesses,

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UNITED STATES PATENT OFFICE.

LOUIS GRANNAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO JOHN K. RUPERTUS, OF SAME PLACE.

PACKING FOR VALVE-STEMS, &c.

SPECIFICATION forming part of Letters Patent No. 275,193, dated April 3, 1883.

Application filed January 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, LOUIS GRANNAN, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Packing for Valve-Stems, &c., of which the following is a specification.

The object of my invention is to provide a packing for valve-stems, &c., that can be readily applied, and that will be durable, and therefore cheap, by making the packing of a soft malleable metal, formed for adaptation to the valve-stem, as is too well hereinafter described to need preliminary description, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a valve, the upper portion of the valve surrounding the valve-stem being represented as in section, and showing my improved packing applied. Fig. 2 is a perspective view of my improved packing; and Fig. 3 is a sectional view of the upper portion of a valve somewhat enlarged, designed more particularly to illustrate the application and operation of my improved packing.

A is the ball or globe of a valve having the upwardly-extending portion B erected upon it for the reception of the valve-stem C. Said upright portion B is supplied, as to its upper extremity, with the screw-threads D, which engage with an internally-screw-threaded cap, E, also embracing the valve-stem C, and adapted, as to its external shape, to be operated on with a wrench. The upper extremity of the portion B within the cap E, and also the interior of the cap E, have formed within them conical recesses, so as to present a blunt edge around the stem C. G is a hand-wheel, with which to operate the valve. All of the above-described parts are common to an ordinary valve of that class shown in Fig. 1.

It will be found on reference to the drawings that by screwing the cap E onto the upper portion, B, an inclosed annular recess or cavity is formed around the valve-stem C, into which the usual gum or cotton packing is inserted and compressed about the stem. Into this recess I insert, in place of the usual packing, the conical soft-metal ring F, which is shown detached in the perspective view, Fig. 2. The said ring F is of such a shape in the present instance as if the bases of two cones were placed together and a central hole, *a*, were drilled or formed through the same on a line from the point of one to the point of the other. The hole *a* is of a diameter large enough to allow of the ring sliding over the valve-stem to which it is to be applied. By thus tapering the outside of the ring F from the center to each end of the same, a comparatively thin edge, *b*, is made thereon at each end, that will fit around the valve-stem.

To apply my improved packing-ring to the valve, it is placed over the stem, the cap E and hand-wheel G being understood as removed until the lower tapering side of the ring rests upon the blunt edge made by the conical recessing of the upwardly-extending portion B, when the lower thin edge *b* of the ring will project into the space between the valve-stem C and the upright portion B. The cap E is then placed over the stem C, and screwed upon the upright portion B until the blunt edge within the cap E, made by the conical recessing of the same, rests upon the upper tapering side of the ring F. The upper thin edge *b* of the ring will project into the space between the valve-stem C and the cap E. If the cap E be still further screwed down upon the upright portion B, the blunt edges of both the cap and upright portion will force or swage the upper and lower thin edges, *b*, of the ring tightly in around the stem C, (see Fig. 3,) and prevent any leakage from the valve around the stem, which operation I find is not necessary as often with my improved packing as is the case where the usual gum or cotton packing is used.

It may be desirable to make the diameter of the hole in both the cap and upright portion B somewhat larger than that of the stem C for the reception of the thin edges *b* of the ring F; but I have found in applying my improved packing to valves in use, and as they are bought, that the diameter of the holes in the same is large enough to allow of the entering of the thin edges of the packing-ring in the manner above described.

Although I have shown and described my

improved packing-ring as applied to a valve as usually made, as regards the inside of the cap E and the upper extremity of the upright portion B bearing against the ring, the same could be so shaped as to conform more closely about the outside of the ring at the thin edges of the same to secure a greater bearing of the cap and upright portion about the ring, in order to prevent the possibility of any leakage between the above-mentioned parts.

Instead of tapering both ends of the ring F to the thin edges *b*, as described above, the ring could in some instances be made with but one end so tapered to be compressed in about the valve-stem C, while the other end could be of such a shape as to abut against the inside of the cap E without projecting within the space between said cap and valve-stem.

Although any soft malleable metal—such as lead, for instance—might be used of which to make my improved packing-ring, I prefer to make the same of soft brass, as best adapted to resist the corrosive action of steam upon the ring.

It will be evident that my above-described packing can be cheaply manufactured and sold, and that it can be readily applied to a valve-stem, and that it is durable and efficient.

What I claim as my invention is—

The combination, with the valve-stem C, upright portion B, and cap E, of the soft-metal packing-ring F, reduced to a thin edge, *b*, adapted to project into the space between the valve-stem C and upright portion B, or into the space between the valve-stem C and cap E, or both, for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS GRANNAN.

Witnesses:
D. S. LINDSAY,
S. M. LINDSAY.