

J. C. FURNESS.
Metallic Packing for Piston-Rods, &c.
 No. 138,627. Patented May 6, 1873.

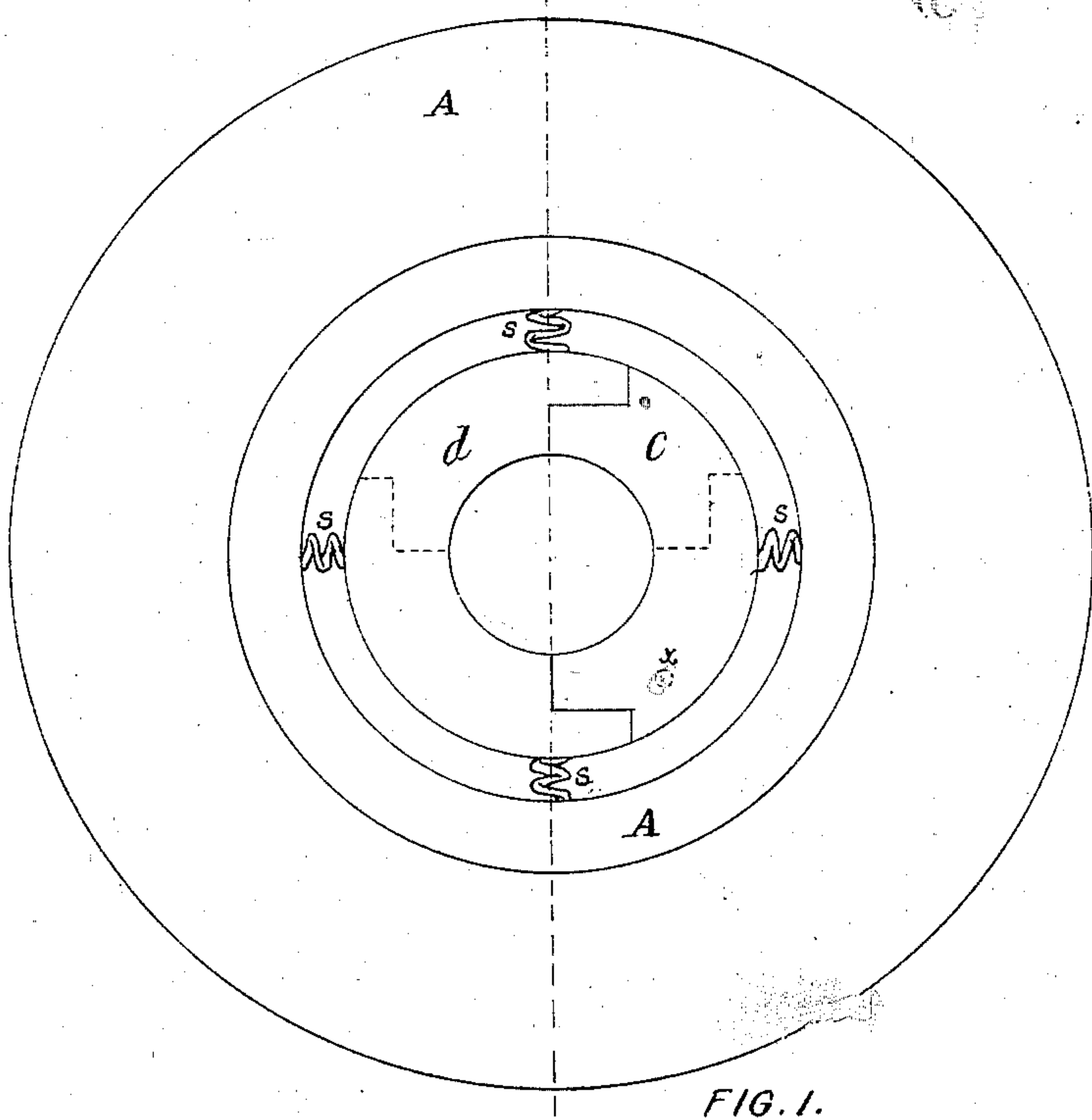


FIG. 1.

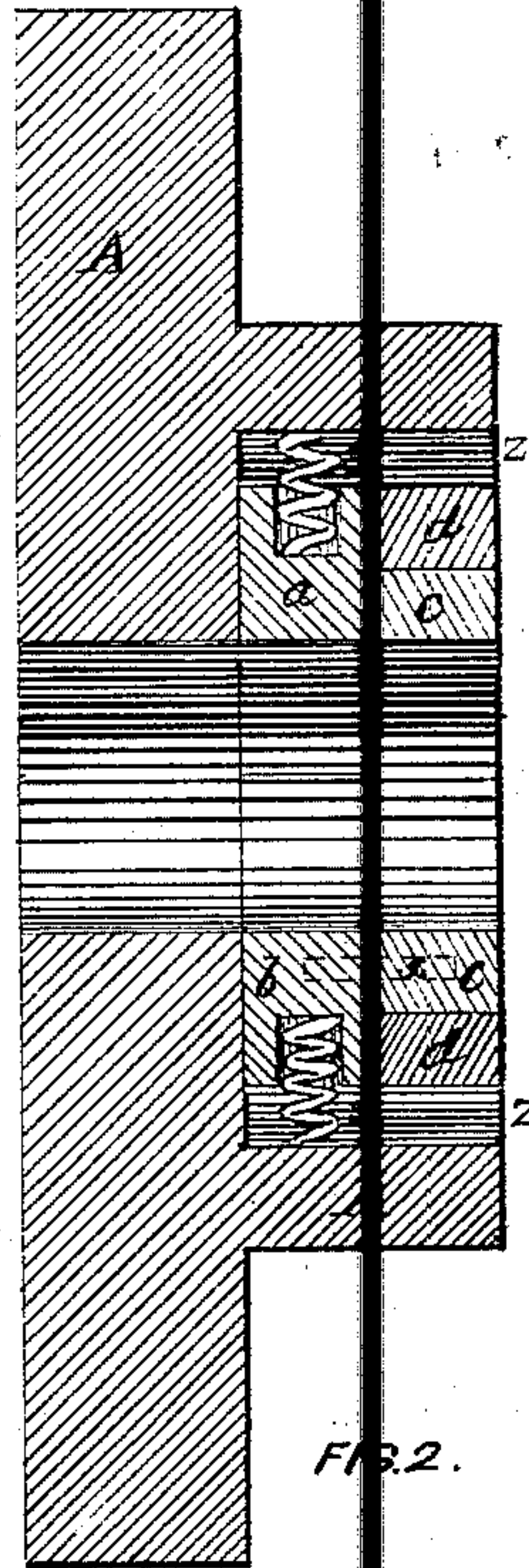


FIG. 2.

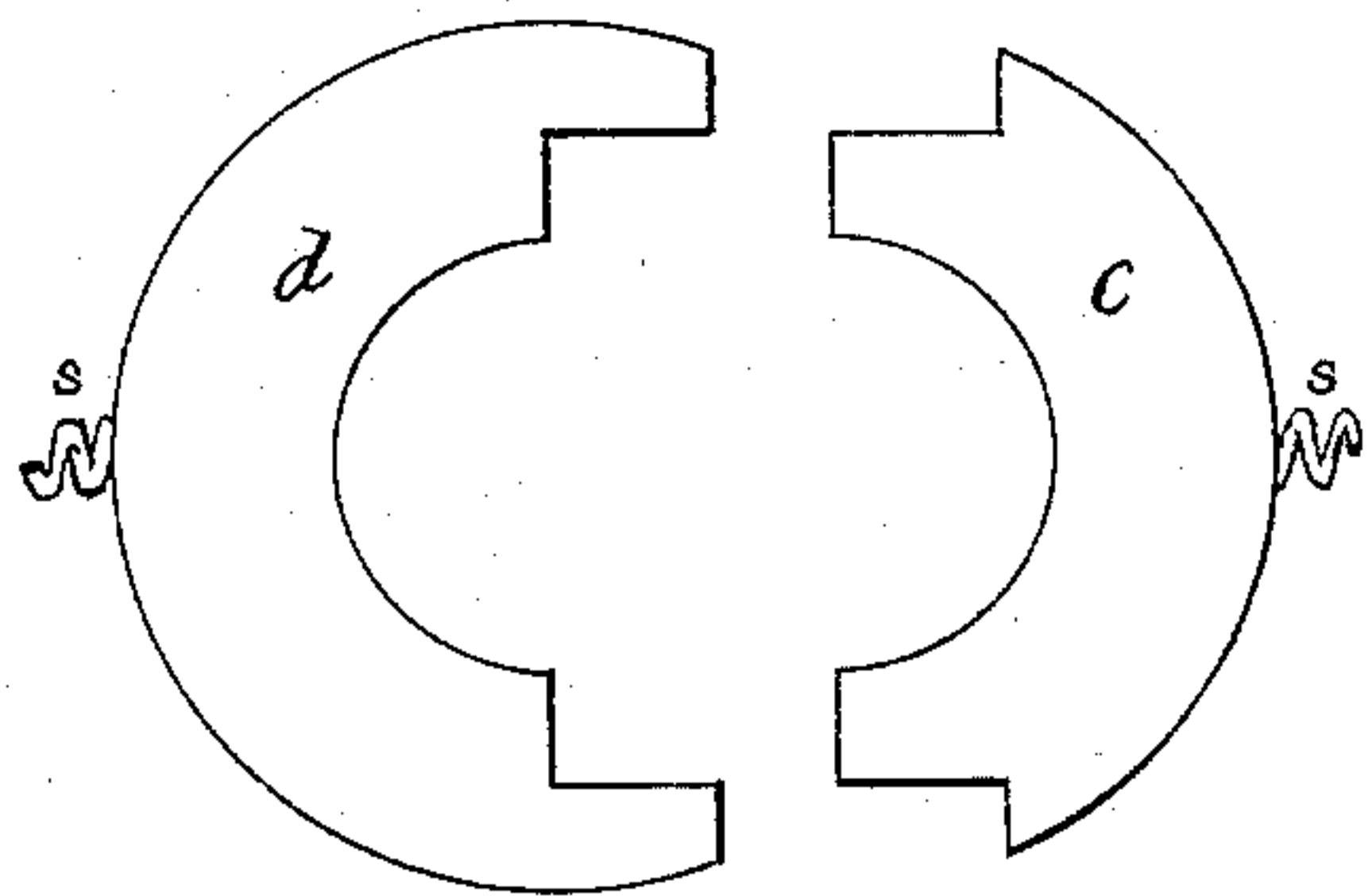


FIG. 3.



FIG. 4.



FIG. 5.

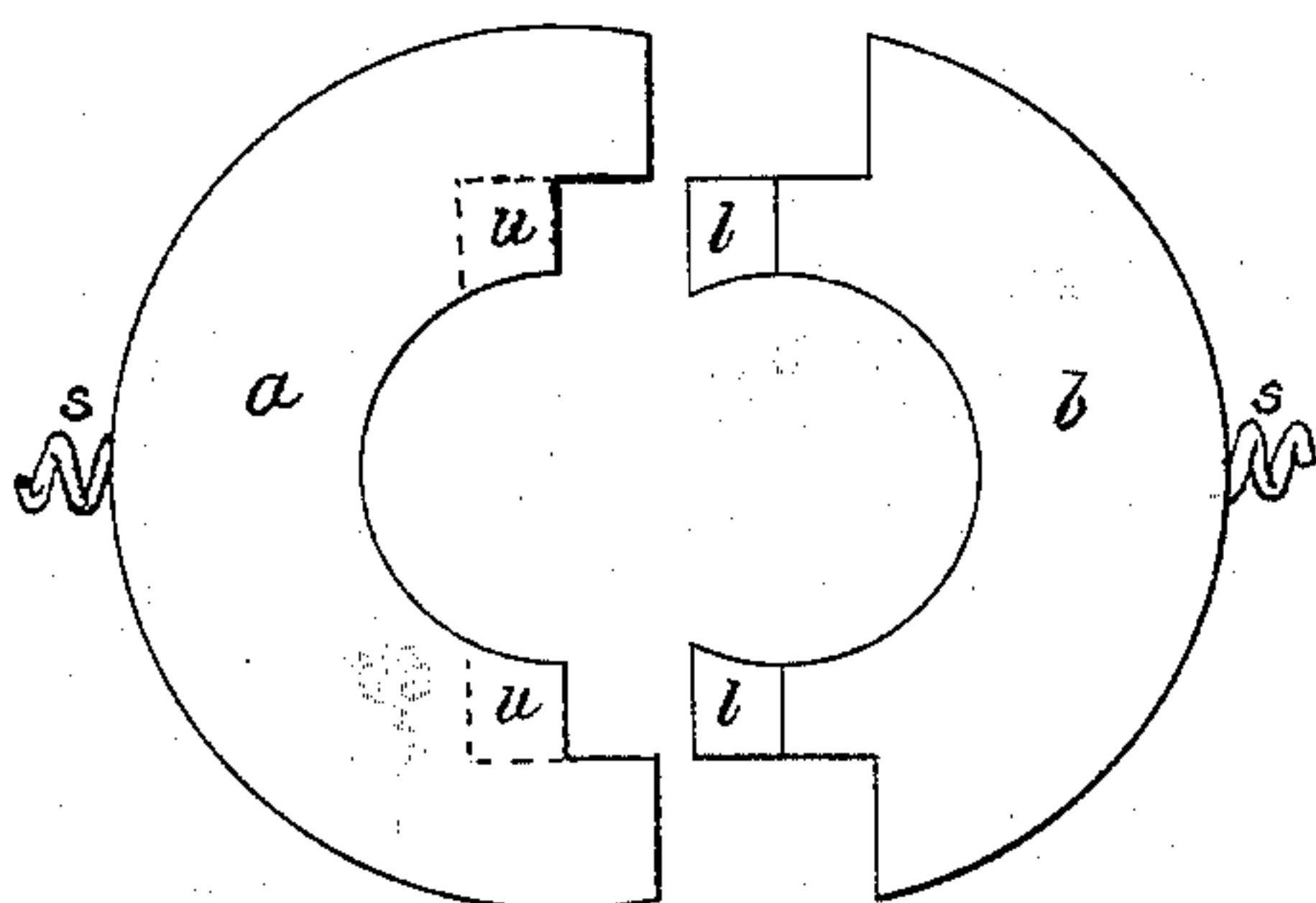


FIG. 6.

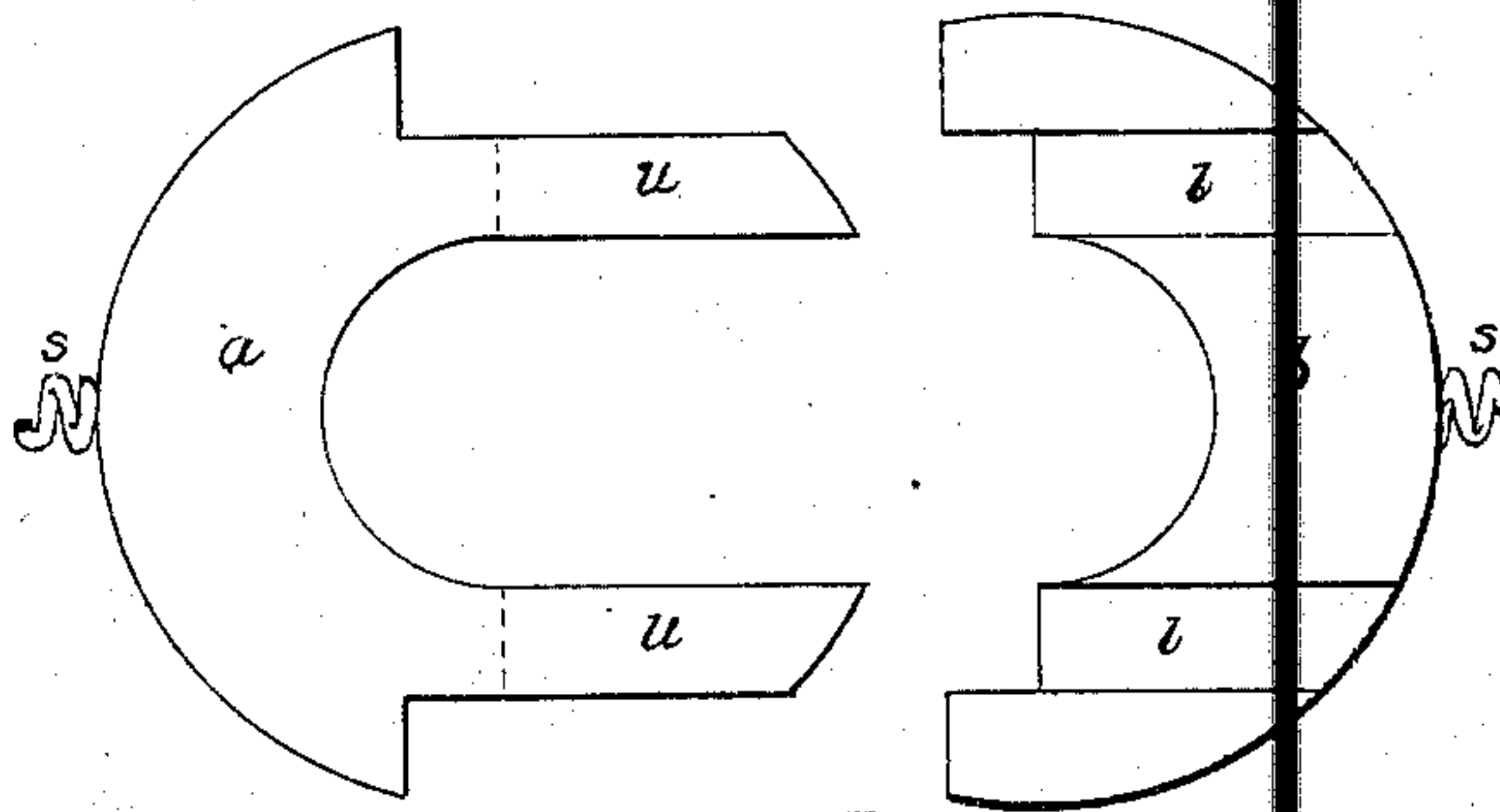


FIG. 7.

WITNESSES.
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IMPROVEMENT IN METALLIC PACKINGS FOR PISTON-RODS, &c.

Specification forming part of Letters Patent No. **138,627**, dated May 6, 1873; application filed November 11, 1872.

To all whom it may concern:

Be it known that I, JAMES C. FURNESS, of Boston, in the State of Massachusetts, have invented certain Improvements in Metallic Packing for Piston-Rods, &c.; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a plan of a packing-box containing metallic packing shaped and placed in the box according to my invention. Fig. 2 is a sectional elevation of the same. Fig. 3 is a plan of two pieces of Babbitt metal forming a layer of packing. Fig. 4 is a sectional elevation of two entire rings which may be used together for a packing. Fig. 5 is a sectional elevation of one of four rings which may be used together for a packing. Figs. 6 and 7 are plans of single rings, each of which is so broken that it may be used by itself as a perfect packing.

A is the packing-box, to be secured to the steam cylinder or pump in the ordinary manner. *a* and *b* and *c* and *d* are pieces of Babbitt metal forming two packing-rings. Each ring is broken, as shown in Fig. 3, and the two rings are placed within the box, as shown, so as to break joints, the dowel-pin *x* preserving this arrangement. The two pieces for each ring are considerably open or apart, to allow for wear in the cylindrical spaces as they press against the piston-rod; but the peculiar manner in which each ring is broken, in combination with the other ring, forms at each break a perfect steam-joint.

The several pieces forming the two rings are made to press against the piston-rod by means of steam, which fills the space *z* back of the pieces of metal and forces them inward against the piston-rod. The steam enters the space *z* through small holes in the ring-plate, (not shown,) which separates the interior of the packing-box from the interior of the steam-cylinder. The steam also exerts its force against the lower or nearer surface of the ring, which is nearer to the apertures for the entrance of the steam, as in the packing-box de-

scribed in my application for a patent now pending before the Patent Office.

When steam is not up the several pieces of metal are kept from getting out of place by springs *s*, as shown; and this is true of all the rings and pieces of metal herein described.

Two entire rings may be used, without breaking, to form a perfect packing, as shown in Fig. 4, each ring being thicker at one side than at the other, as shown. They are placed within the packing-box so as to have the relative positions shown in Fig. 4; and the steam in the space *z*, acting upon the thick part of the rings with more force than upon the narrow part—that is, having a larger surface upon which to exert itself—causes the corresponding interior part of each ring to press against the piston-rod.

Instead, however, of having both rings of a varying thickness, as shown in Fig. 4, one of them may be of the same thickness throughout, like the ring shown in Fig. 5, the flat side of the unequal ring being in contact with the uniform ring.

As before stated, Figs. 6 and 7 are rings, each of which is broken so as to form perfect steam-joints at the breaks. In each ring the part *u* fits over the part marked *l*. In each of these single rings the two pieces are a little apart when new, and are pressed against the rod, as they wear away, by steam admitted behind them in the space *z*.

Strong springs might be used instead of steam, with all the rings described herein; and such strong springs might occupy the places of the light springs, which, in all cases, I have represented as being used to keep the pieces of Babbitt metal in place. When such strong springs are used, a good packing may be made of four rings, like the one shown in Fig. 5.

I claim—

1. The metallic packing, herebefore described, formed of the two rings *a b* and *c d*, made of Babbitt metal, as stated, each ring being broken, and said rings being arranged within the packing-box A so as to break joint,

as shown in Figs. 1, 2, and 3, and remain steam-tight, the entire packing being rendered effective by steam-pressure, substantially as described.

2. A metallic packing formed of two unbroken rings, made by dividing a cylinder on a plane oblique to its axis, as shown in Fig. 4, so that each of said rings shall have a thin and a thick side, as shown, against the latter of which sides the steam can act, as and for the purpose set forth.

3. The springs z in packing-boxes in which the Babbitt metal is to be made effective by steam to keep the pieces of metal substantially in place when not in operation.

The above specification of my said invention signed and witnessed at Boston.

JAMES C. FURNESS.

Witnesses:

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