

No. 684,991.

Patented Oct. 22, 1901.

P. F. LEARY.  
METALLIC PACKING.

(Application filed Apr. 4, 1900.)

(No Model.)

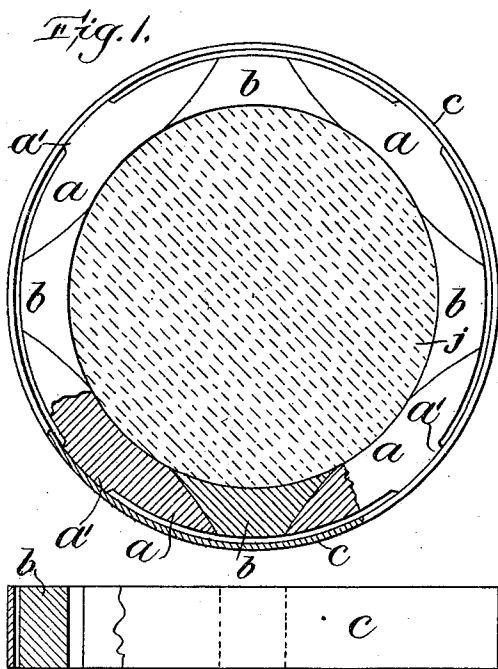
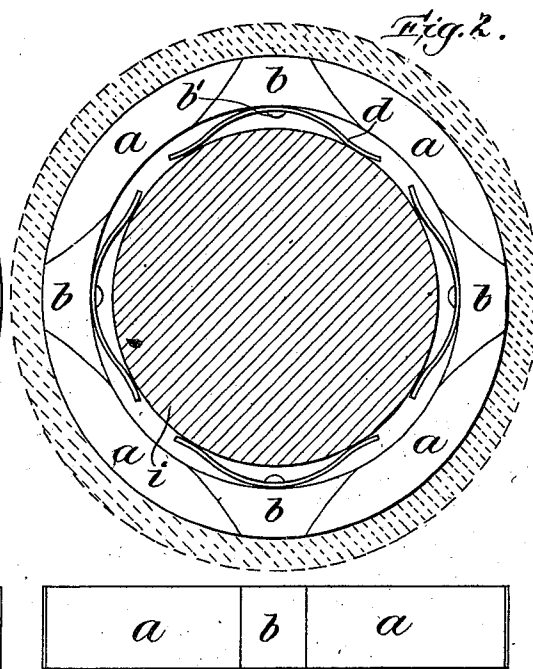
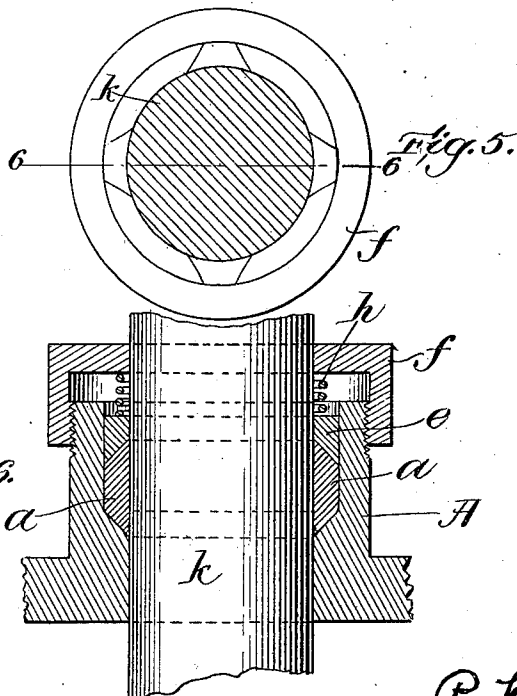


*Fig. 3.*

*Fig. 4.*



Witnesses:

Arthur C. Russell.  
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P. F. Leary  
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Attorney.

# UNITED STATES PATENT OFFICE.

PHILIP F. LEARY, OF FALL RIVER, MASSACHUSETTS.

## METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 684,991, dated October 22, 1901.

Application filed April 4, 1900. Serial No. 11,422. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP F. LEARY, a citizen of the United States, and a resident of Fall River, county of Bristol, Massachusetts, have invented certain new and useful Improvements in Metallic Packings, of which the following is a specification.

My invention relates to metallic packings for steam or other joints, and comprises certain improvements therein intended to secure the more perfect equalization of wear and a more complete adaptation to irregularities in the surface of the rod or other surface to be packed.

To these ends it comprises a sectional ring intersected at intervals from the inner to the outer face, all of which intersections are formed on a curve, preferably the arc of a circle. The number of pieces or sections may be varied for different sizes of rings; but the underlying principle of forming all the intersecting cuts from the inner to the outer surface on a curve will remain the same. By referring to my former patent, No. 588,681, it will be seen that I there made a partial application of this principle; but it will be noticed that the working of the parts on their curved joints may sometimes have a tendency to open up or disturb the straight joint sufficiently to permit a slight leakage. The packing made according to my present invention completely overcomes such a tendency.

Referring to the drawings, Figure 1 is a face view of my packing applied to a rod. Fig. 2 is a similar view applied to packing a cylinder or other inside surface. Fig. 3 is a side elevation showing my packing as it appears edgewise with the spanner-spring. Fig. 4 is a similar view of the internal packing of Fig. 2 without the spanner-spring. Fig. 5 is a face view of the packing as it would be applied for use with a cone-ring where the gland is too small for a spanner. Fig. 6 is a central section of the gland-packing and cone-ring with the rod.

As herein shown, the packing-ring comprises a series of approximately wedge-shaped pieces *b*, whose inner or wear faces are concaved to fit the rod and whose ends or joint-forming surfaces are formed on the arcs of circles intersecting the inner and outer faces of the ring. It will be observed that the in-

ner face of the piece *b* is the wide face and that the piece tapers down to the outside face like a wedge. The pieces *a* are arranged intermediate of the wedge-shaped pieces and are formed with concave inner wear-faces and curved ends which, as shown in this instance, form arcs of the same circle. The adjacent ends of sections *a* and *b* are ground on the arcs of equal circles, one being convex and the other concave to form a perfect joint.

Of course in the rod-packing the precise lines of the outside surfaces are not important; but I have shown this outer surface as circular and concentric with the inner or wear surface, which is the most convenient form.

When a spanner-spring is used, I may form little shoulders or projections on the outside surface, as at *a'*, to form a bearing-point for the spanner-spring *c*.

It will be observed that the ring is made up of a series of sections having curved wear-surfaces (concave in Fig. 1 and convex in Fig. 2) and concave ends alternating with sections having similar wear-surfaces and convex ends.

In cases where the gland is too small in diameter to accommodate the spanner-spring and packing of the desired size I may bevel the lateral faces of the sectional ring and employ a cone-ring *e*, which, as will be understood by those skilled in the art, by the action of a spring *h*, thrusting against the cap of the gland, operates to force all parts of the packing equally toward the rod *k*.

In Figs. 3 and 4 I have shown how precisely the same packing may be used as an internal packing, the parts in this case being thrust outwardly against the inner surface of a cylinder or the like by springs *d*, interposed between the parts *b* and the piston or head *i*, said springs being held in position by studs *b'*.

I prefer for convenience to so lay out and construct my rod-packing that the inner face of part *b* will be a little longer than the inner face of part *a*. By doing so as the inner faces become worn they will tend to become equal, since the more the wedge-shaped piece *b* wears down the shorter its inner face becomes, while the inner face *a* increases in length as it wears down.

It will be noticed that both the outer and the inner faces of the wedge-shaped sections,

as well as the intermediate sections, present a curved surface which coincides with the outer and inner circles, respectively, upon which the packing-ring as a whole is constructed. This construction permits this packing to be used both as an outside and inside packing.

Without attempting to indicate all the changes in form or arrangement of which my invention is capable or all the modes of its use, what I claim is—

1. A sectional packing-ring comprising a plurality of sections having a wear-face and concave ends, arranged in alternation with sections having a similar wear-face and convex ends, whereby the sections are permitted to freely adapt themselves to inequalities in the surface to be packed without disturbing the joints between the sections substantially as described.
2. A metallic packing comprising a sectional ring, all the joints between its sections being formed in the arcs of circles that intersect both the outer and the inner surface of the packing, whereby the most complete accommodation of the individual parts to unevenness in wear, is secured, without disturbing the joints between the sections substantially as described.
3. A metallic packing comprising a sectional

ring containing a plurality of approximately wedge-shaped sections whose wear-surfaces and whose ends are formed on the arcs of circles, and intermediate sections, whose wear-surfaces and whose ends are formed on the arcs of circles corresponding to those of the first-named sections, the wear-surfaces of the wedge-sections being somewhat longer in extent than the wear-surfaces of the intermediate sections so that as the ring becomes worn, the surfaces of two adjacent sections tend to become equal, substantially as described.

4. A sectional packing-ring comprising a series of approximately wedge-shaped sections, whose outside faces are of relatively less length than the inside faces, both of said faces having the same curvature respectively as the outside and the inside surfaces of the ring itself, and a series of intermediate sections whose ends form joints with the first-named sections on curves intersecting the outer and inner faces of the whole ring, substantially as described.

In witness whereof I have hereunto set my hand this 24th day of February, A. D. 1900.

PHILIP F. LEARY.

In presence of—

ARBA N. LINCOLN,  
GEORGE M. HOOD.