W. JAGGER.

Packing for Stuffing-Boxes.

No. 208,244. **Patented Sept. 24, 1878.**

Fig. 1.

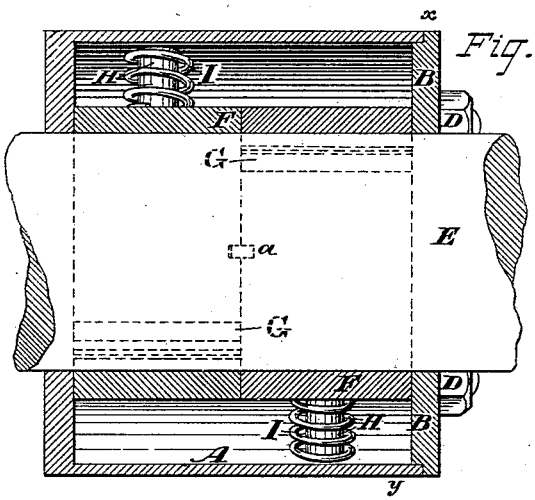

Fig. 2.

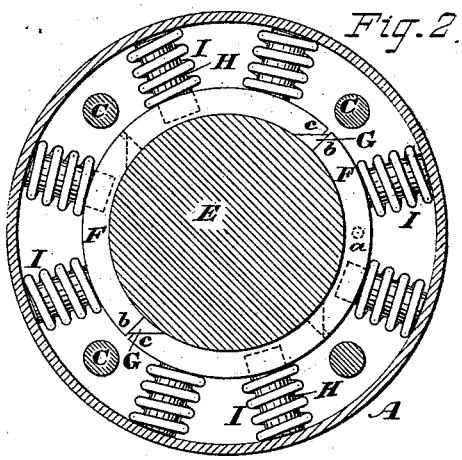

Fig. 3.

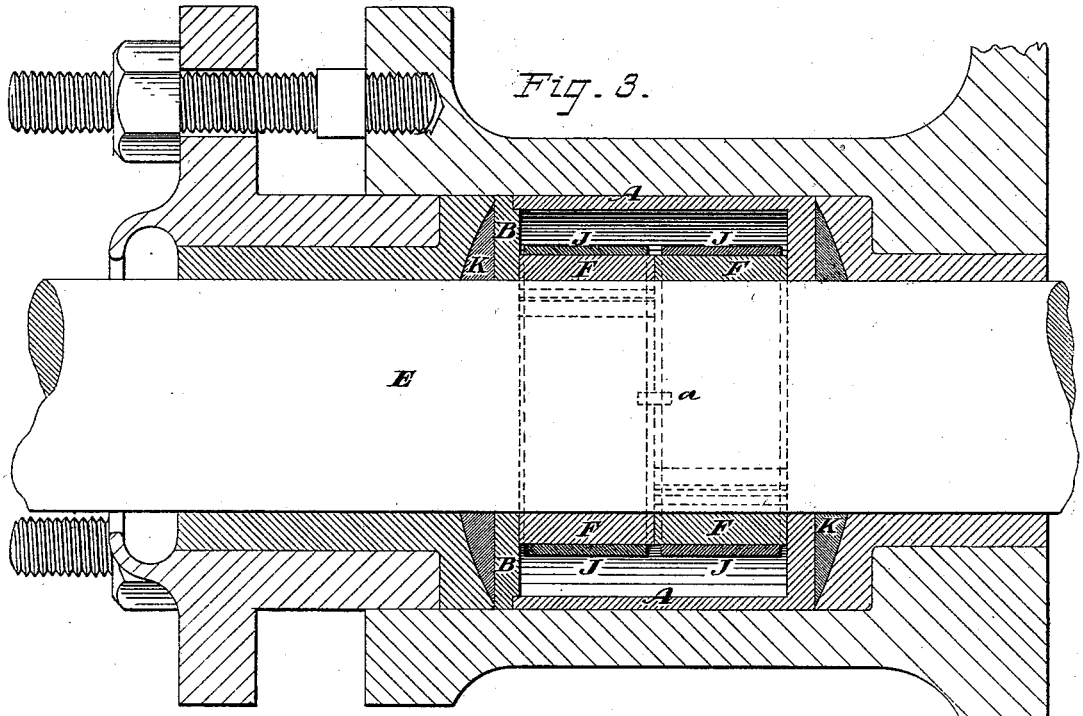

Fig. 4.

ATTEST:

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WILLIAM JAGGER, OF HORSFORTH, NEAR LEEDS, ENGLAND.

IMPROVEMENT IN PACKING FOR STUFFING-BOXES.

Specification forming part of Letters Patent No. **208,244**, dated September 24, 1878; application filed July 30, 1878; patented in England, September 5, 1877.

To all whom it may concern:

Be it known that I, WILLIAM JAGGER, of Horsforth, near Leeds, in the county of York, England, have invented certain new and useful Improvements in Metallic Packing, of which the following is a specification:

This invention relates most particularly to a self-acting packing for the rods of steam, gas, and other engines, and for pumps and similar apparatus having moving parts about which the joints should be steam, gas, or water tight; and it consists, essentially, in tubular segments or parts, peculiarly constructed and arranged to be kept normally in elastic contact with the rod or other moving part by means of springs, all as will be hereinafter more fully set forth.

In the drawings, Figure 1 is a vertical longitudinal section, illustrating the application of my packing to a piston-rod. Fig. 2 is a cross-section of the same. Fig. 3 is a longitudinal section, showing a modification of the same. Fig. 4 is a detail view of one of the wedge-pieces.

A represents a box or casing, which may rest in the recess or cavity in the cylinder-cover that forms the gland, or it may represent the wall of the recess itself. B represents a faced cover, arranged to fit steam or gas tight on the box A. This may be attached by means of stud-bolts C C, provided with nuts D D, or in any other convenient way.

E represents a piston-rod or other moving part, which in the present instance is shown as cylindrical. This rod passes through the center or axis of the box A and is surrounded by the packing.

The packing consists, in the first place, of two or more tubular segments, F F, of brass or anti-friction metal by preference, and, in the second place, of intervening self-adjusting wedge-pieces G G, arranged alternately with the parts F F, so as to wholly embrace the rod E. The segments and pieces F G are preferably arranged in two or more sets or series on the rod, so that the joints in one series may break with those of the other, as indicated in Fig. 1—that is, the wedge-pieces G in one set may abut against the segment F in the other set. To prevent slipping, the sets may be connected by means of dowel-pins and sockets *a*. In the present instance I have shown semicircular segments arranged in two sets; but it is obvious that the number of sets and number of segments in each set may be varied to suit the size of the rod and the circumstances of the case.

It will be seen that the edges or lesser faces of the segment differ in this respect, that one face is cut in the plane of the radius of the rod, as at *b*, while the other end is beveled or undercut, as at *c*. The segments are so arranged with respect to each other that the dissimilar faces are contiguous or adjacent, and this leaves openings, into which fit the wedge-pieces G.

To the exterior surface of each segment F is attached a stud or studs, H H. These serve as guides and supports for spiral springs I I, whose outer ends abut against the wall of the box or casing A, while the other ends rest upon the segments F F. Thus they serve to keep the segments pressed normally or habitually against the rod or moving part.

What little there is worn off the frictional faces of the segments will be compensated for by the wedge-pieces G, which are kept pressed inward upon the rod by the overlapping segments. The joints are thus kept steam-tight automatically by the constant pressure of the springs.

There should be a little space between contiguous ends of the segments F, as shown, and this space should be taken up by the wedge-pieces G, so as to admit of sufficient vertical or radial movement of the segments, made necessary by wear or abrasion.

The construction shown in Figs. 1 and 2, which includes the box or casing A and its cap B, is adapted to be fitted into stuffing-boxes of ordinary construction, the packing-sections being neatly embraced between the cover B and the bottom of the box; but I may fit the sections into the cavity of the stuffing-box without the intervention of the box A and its cover. In this case the springs I would abut directly against the wall of the stuffing-box, and the gland be run down upon, or nearly upon, the packing-sections, so as to keep them in place.

In Fig. 3, I have shown a modification of

the above-described device, in which the sections are grasped and wholly embraced by band-springs J J. These are made of ribbon-steel, sprung onto the sections, and their tendency to gripe or contract keeps the sections pressed closely to the rod. Any form or kind of spring may be used with this packing, provided it is adapted to the purpose, and I do not limit myself to any special kind, either as to form or material.

My packing may, as before suggested, be used in stuffing-boxes of the common, as well as special, forms; but where the bottom of the recess or its bush is hollowed or beveled, and does not present a level face, I may insert a ring or rings, K, as shown in Fig. 3, and this ring may be faced with an india-rubber or other yielding ring or washer, to prevent the escape of steam.

I claim as my invention—

1. The combination of the tubular, or partly-tubular, segments F, having one radially-cut and one undercut edge or face, with the wedge-pieces G, having correspondingly cut faces, and arranged to alternate with the segments, substantially as and for the purposes set forth.

2. The combination of the tubular, or partly-tubular, segments F, each having one undercut and one radially-cut face or edge, the triangular wedge-pieces G, having curved bases to fit the rod or moving part, and faces to fit and correspond with the faces of the segments, as shown, and suitable springs arranged to keep the parts of the packing normally pressed against the moving part, substantially as set forth.

3. Metallic packing for piston-rods and similar parts, consisting of alternately-arranged segments F and intermediate wedge-pieces G, the joints between the parts being alternately radial and beveled, the segments overlapping upon the smaller pieces, substantially as set forth.

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Witnesses:

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