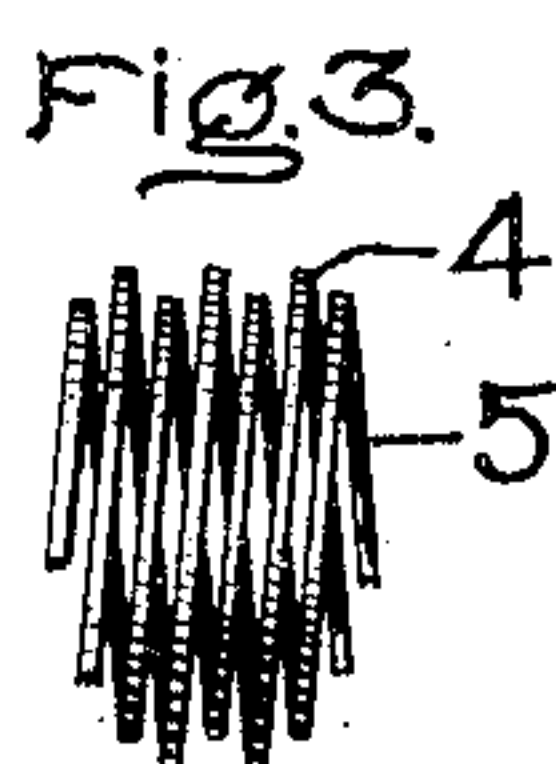
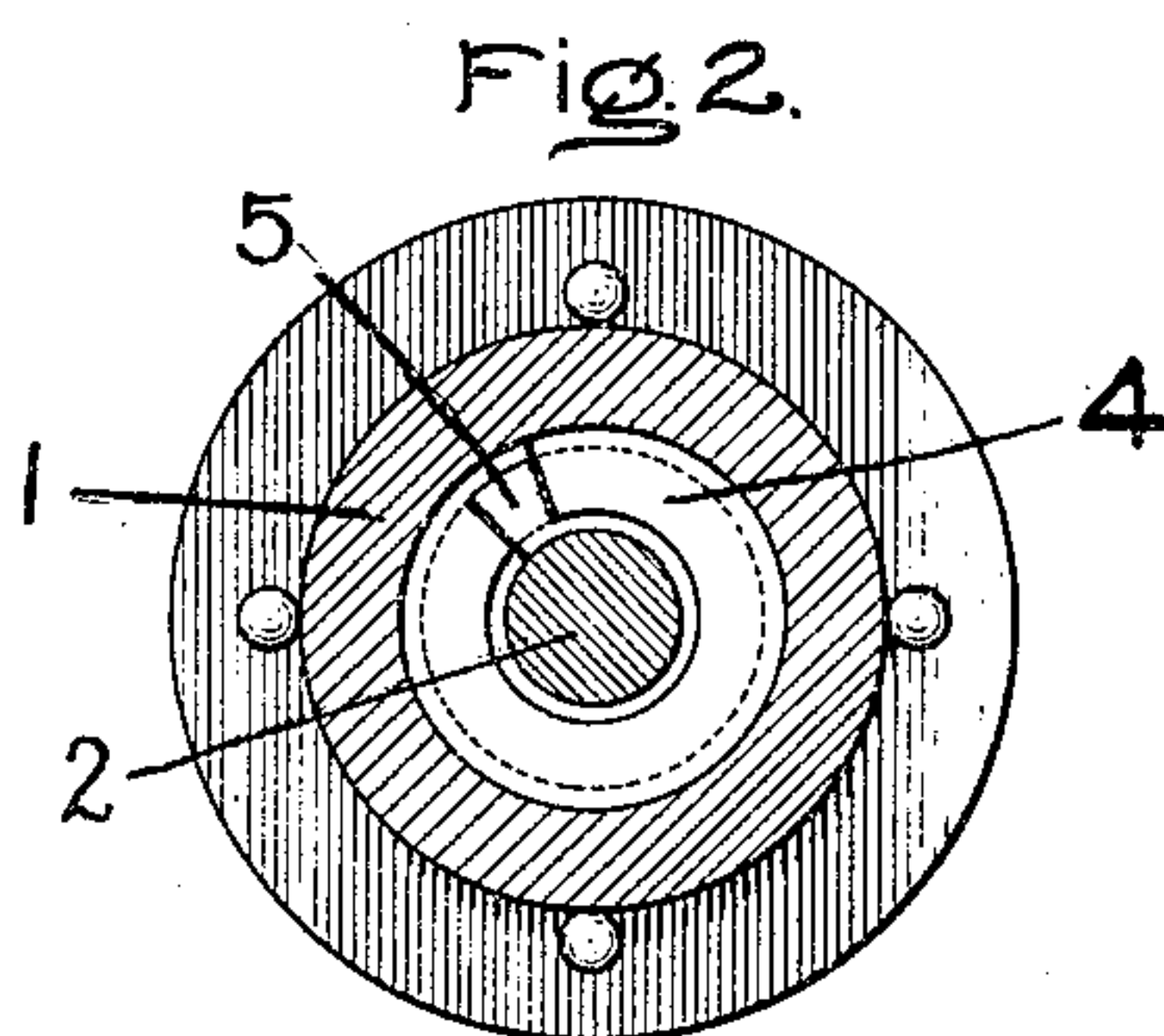
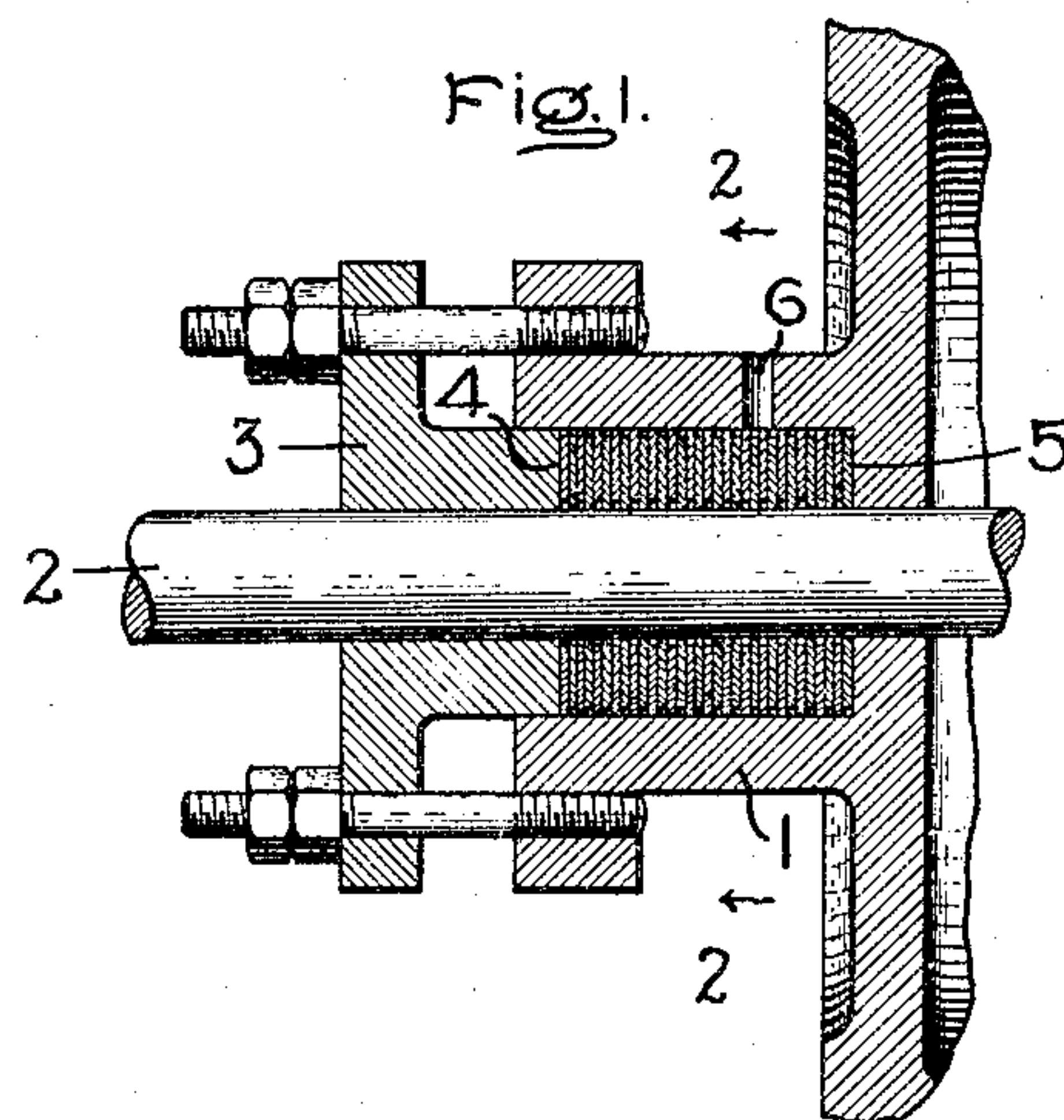


No. 791,073.

PATENTED MAY 30, 1905.

J. G. CALLAN.
METALLIC PACKING.
APPLICATION FILED NOV. 9, 1903.



Witnesses

Erving R. Kurney.
Allen A. Ford

Inventor

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By *Allen A. Ford*
Att'y.

UNITED STATES PATENT OFFICE.

JOHN G. CALLAN, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 791,073, dated May 30, 1905.

Application filed November 9, 1903. Serial No. 180,344.

To all whom it may concern:

Be it known that I, JOHN G. CALLAN, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have
5 invented certain new and useful Improvements in Metallic Packings, of which the following is a specification.

This invention relates to metallic packing for piston-rods, valve-stems, shafts, pistons,
10 and the like; and its object is to avoid the financial and mechanical objections to which many of the rod-packings heretofore proposed are open. Soft packings of hemp, asbestos, or the like are very liable to be unevenly ar-
15 ranged around the rod, so that when the gland is seated in the stuffing-box it causes one portion of the packing to bulge and press harder on one side of the rod than the other portions. This tends to distort the rod and produces
20 excessive friction and wear. Soft packings, moreover, are unsuitable for use at high temperature. Metallic packings are far more satisfactory, but are quite expensive.

My invention aims to provide a packing of
25 the metallic type having durability, simplicity, and cheapness. It takes up its own wear. It does not crowd the rod and cause it to wear an elliptical opening in the gland. It accommodates itself to irregularities in the rod. It
30 requires practically no attention. It improves with use. It is simple and easily applied.

In the accompanying drawings, Figure 1 is a longitudinal section of a rod, stuffing-box, and packing. Fig. 2 is a cross-section on the
35 line 2 2, Fig. 1; and Fig. 3 is a piece of the packing.

The interior of the stuffing-box 1 or other receiver is preferably cylindrical and concentric with the rod 2 or other body to be packed.
40 The bottom of the box is perpendicular to its axis, as is also the end of the gland 3. The packing is composed of two thin helices of metallic ribbon, preferably phosphor-bronze, wound edgewise and interlaced. One helix,
45 4, is of greater diameter than the other and is given a snug fit in the stuffing-box. The other helix, 5, is smaller in diameter and makes a close fit with the rod. The inner edge of the outer helix thus overlaps the outer edge of

the inner helix, while the outer edge of the
50 outer helix extends beyond the outer edge of the inner helix, and the inner edge of the latter extends beyond the inner edge of the outer. The ends of the helices have a long thin taper, so as to present a flat surface to the ends of
55 the box and gland. The gland is forced in moderately tight, so that the surfaces of the interlacing coils are kept in close contact and any leaking fluid has to traverse the long small helical passages between the edges of
60 the coils and the surfaces of the stuffing-box and rod. These offer considerable resistance to the flow of fluid through them and in time will become more or less clogged with dirt and oil, provision for oiling being afforded by
65 the oil-hole 6. Moreover, with use the edges of the coils next the rod become blurred over, which still further restricts the passage for fluid. The helices are preferably sprung into
70 place so that the outer one constantly presses against the box and effects a tight joint along its edges and the inner one hugs the rod and makes a tight joint therewith. As the edges of the inner helix wear away its resilience
75 causes it to take up the wear.

In accordance with the patent statutes I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it under-
80 stood that the apparatus shown is only illustrative and that the invention can be carried out by other means.

What I claim as new, and desire to secure by Letters Patent of the United States, is—
85

1. A metallic packing comprising interlaced helices of different diameters, the said helices being made of thin edgewise-wound ribbons the side walls of which engage each other for a greater portion of their radial dimension.
90

2. A metallic packing comprising interlaced helices of different diameters, each of the said helices being made of thin edgewise-wound ribbon having flat parallel sides which engage with the flat sides of the adjacent ribbon and
95 at the same time form long open passages of small cross-section.

3. The combination of a stuffing-box and

movable shaft or rod, with a metallic packing comprising interlaced helices of thin, flat edge-wise-wound ribbons of different diameters which form long thin helical open passages
5 between the edges of the helices and the surfaces of the stuffing-box and the shaft or rod.

4. Metallic packing comprising interlaced helices of flat edgewise-wound ribbons of different diameters, the adjacent edges of the
10 helices overlapping a considerable extent and the other edge of each extending beyond the edge of the other helix.

5. The combination, with an inclosing cylinder, of an inner body concentric therewith,
15 and a metallic packing occupying the annular space between them, said packing comprising interlaced helices of thin flat edgewise-wound ribbons, the outer edges of the coils of one
20 helix being in spring-contact with said cylinder, while the inner edges of the coils of the

helix are in spring-contact with said body, the said edges and sides of the ribbons forming long thin helical passages adjacent to the cylinder and body.

6. The combination with a stuffing-box having
25 a cylindrical interior, of a rod or shaft passing through the same, and a metallic packing comprising interlaced helices, one having a diameter slightly larger than that of the box
30 so as to be retained therein by its own resiliency, the other originally having an inner diameter slightly smaller than that of the rod or shaft which it surrounds.

In witness whereof I have hereunto set my hand this 4th day of November, 1903.

JOHN G. CALLAN.

Witnesses:

DUGALD McK. McKILLOP,
ROBERT SHAND.