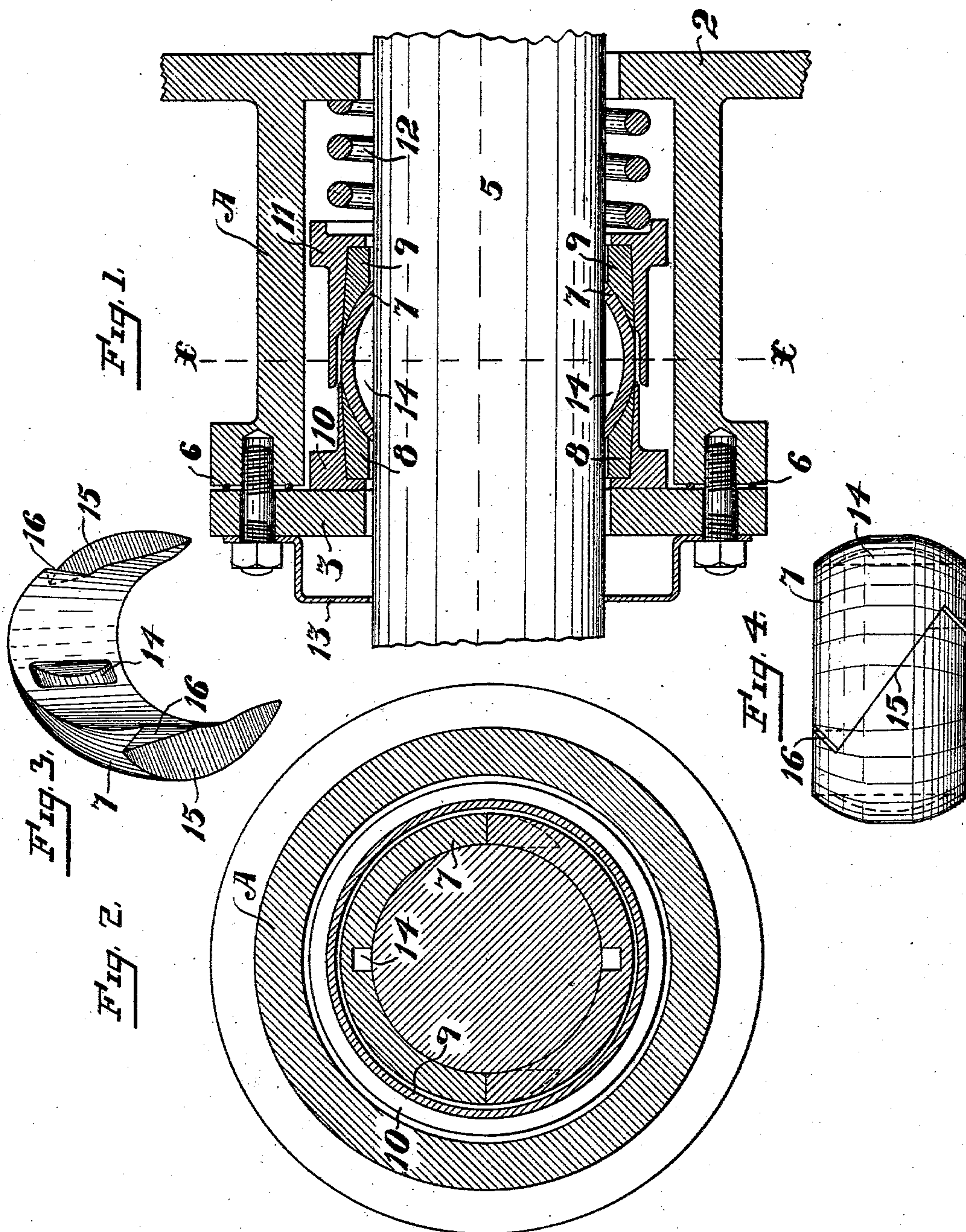


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PATENTED NOV. 10, 1903.

C. P. FOGH.
PISTON ROD PACKING.
APPLICATION FILED JUNE 29, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

CHRISTIAN P. FOGH, OF WADSWORTH, NEVADA.

PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 743,705, dated November 10, 1903.

Application filed June 29, 1903. Serial No. 163,547. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN P. FOGH, a citizen of the United States, residing at Wadsworth, county of Washoe, State of Nevada, have invented an Improvement in Piston-Rod Packing; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved metallic packing for piston-rods and the like. Its object is to provide a simple durable self-adjusting packing by which a tight joint can always be maintained.

It consists of the parts and the construction and combination of parts hereinafter more fully described, having reference to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical central section of my invention. Fig. 2 is a transverse section on line *xx*, Fig. 1. Fig. 3 is a perspective view of half of soft metallic ring, showing method of cutting. Fig. 4 is a side elevation of soft metallic ring.

A represents a stuffing-box on the head of a cylinder 2 and having a gland or follower 3 secured to its outer end by the usual bolts and nuts, as 4. Through this gland and the stuffing-box passes the piston-rod 5.

Between gland 3 and the end of the stuffing-box is a copper or other soft-metal wire ring 6, which is compressed to form a tight joint when the gland is screwed down to place. Inclosed in the stuffing-box is the packing and take-up mechanism, which constitute the essential parts of my invention.

The packing consists of two interlocking but separable complementary half rings, as 7, of Babbitt or other suitable metal, embracing the rod and having a spherical outer surface. Segmental rings 8 9, of brass and of slightly greater diameter than ring 7, with interiors corresponding to the outer surface of ring 7, fit over the opposite ends of the latter and are incased in respective cups or collars 10 11, collar 10 being adapted to telescope within collar 11. Collar 10 rests against gland 3, with which it has a snug steam-tight fit, and has an interior projection adapted to bear against the end of the separable parts of ring 8. Collar 11 likewise has an interior projecting flange bearing against the separable ring 9. Between collar 11 and the back

end of the stuffing-box is a spring 12, which tends always to press the two collars toward each other to compress the packing-ring 7 upon the piston-rod and maintain a tight joint therewith and take up all the wear which may occur on the packing-ring. Spring 12 also coöperates with the steam-pressure to hold collar 10 to its seat against the gland, and the constant pressure of the spring against collar 11 prevents the latter from being carried back by the rod. It is to be observed that the only part in contact with the rod is the soft Babbitt ring. The adjoining ends of the parts of rings 8 9 are provided with suitable recesses and corresponding dowels or other equivalent interlocking means to keep the parts of each ring united and in place.

13 is a swab-cup.

The convexity of the Babbitt ring and the correspondingly - concaved rings 8 9 allows the collar 10, or "vibrating cup," as it is called, to have a direct sliding movement on the gland 3 or for the cup to have a swivel movement in relation to the Babbitt ring, or both movements may combine in adjustment of the packing to the strain on the piston-rod. The swivel movement of the parts aids the Babbitt ring to close in around the rod as wear takes place. By having the Babbitt and end rings segmental it enables them to be slipped onto the rod and be replaced quickly at any time without disconnecting the rod.

The two segments of the packing-ring are symmetrical, making it impossible to set up the packing wrong, while the joints between the two segments are irregular to prevent escape of steam. The segments are each transversely recessed, as at 14, for the purpose of lessening the resistance and aiding them to shrink and close in on the rod as the packing is worn.

The telescoping cup or collar 11, with its concaved ring 9, forms a case over the Babbitt ring to keep the latter from expanding, as it might have a tendency otherwise to do.

With this packing arrangement the entire frictional contact of the piston-rod is with the Babbitt ring, and with this one joint the chance of loss of steam is reduced to a minimum.

The feature of the invention to be particularly emphasized is that of the ball-joint at each end of the packing-ring 7, the two inclosing cups with conical inner bearing-sur-
 5 faces corresponding to the tapers of the ring exerting a pressure on the packing more nearly at right angles to the axis of the piston-rod to hold the packing tighter to the rod, and, moreover, the ring always has a full bear-
 10 ing on the rod.

As shown in Figs. 3 and 4, the ends of a segment of packing-ring 7 have the surfaces 15 disposed in a plane inclined relative to the axis of the ring and the reëntrant sur-
 15 faces 16 at right angles to surfaces 15, which are substantially parallel with each other and to the axis of the ring and substantially tangential to the inner periphery of the ring.

Having thus described my invention, what
 20 I claim, and desire to secure by Letters Patent, is—

1. A piston-rod packing comprising in combination with a suitable stuffing-box, a sectional contractible metallic packing-annulus,
 25 and opposed telescoping collars or cups extending over and inclosing the circumference of said annulus, and means by which said cups are pressed toward each other to circumferentially compress the annulus.

30 2. A piston-rod packing comprising in combination with a suitable stuffing-box and gland, a sectional packing-ring having a tapered external surface and telescoping cups having correspondingly - tapered interiors,
 35 said cup extending over the circumference of the ring and bearing upon the same to exert a pressure substantially at right angles to the axis of the piston-rod, one of said cups seating against the gland and spring-pressed
 40 means by which the opposite cup is continually forced toward the first cup.

3. The combination with a stuffing-box and a piston-rod or equivalent reciprocable there-

through, of a metallic packing embracing said rod, said packing comprising conjoined sep- 45 arable sections essentially convexed in cross-section, and spring-pressed telescoping parts engaging the circumference of said tapered surfaces and out of contact with said rod, and exerting a pressure on the packing substan- 50 tially at right angles to the axis of the piston-rod.

4. The combination of a stuffing-box, a perforated gland-plate, rings of soft compressible metal interposed between the end of the gland 55 and said plate to form a steam-tight joint between said parts when the plate is fastened in place, a sectional packing-ring inclosed in the stuffing-box and adapted to embrace the piston-rod, said ring substantially convexed 60 in cross-section, sectional rings of slightly greater diameter than, and having interior surfaces corresponding to the exterior surface and engaging and inclosing the circum- 65 ference of said packing-ring, and exerting a pressure thereon substantially at right angles to the axis of the piston-rod, and telescoping spring-pressed inclosing parts for said several rings, one of said parts having a sliding seat against one of the end walls of the stuffing- 70 box.

5. In a metallic packing, a packing-ring comprising two complementary conjoinable segments whose abutting ends lie partly in a plane inclined relative to the axis of the ring 75 and partly in two other planes intersecting the first and which are substantially parallel to the axis of the ring and substantially tangential to the inner periphery of the ring.

In witness whereof I have hereunto set my 80 hand.

CHRISTIAN P. FOGH.

Witnesses:

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 G. A. LEAVITT.