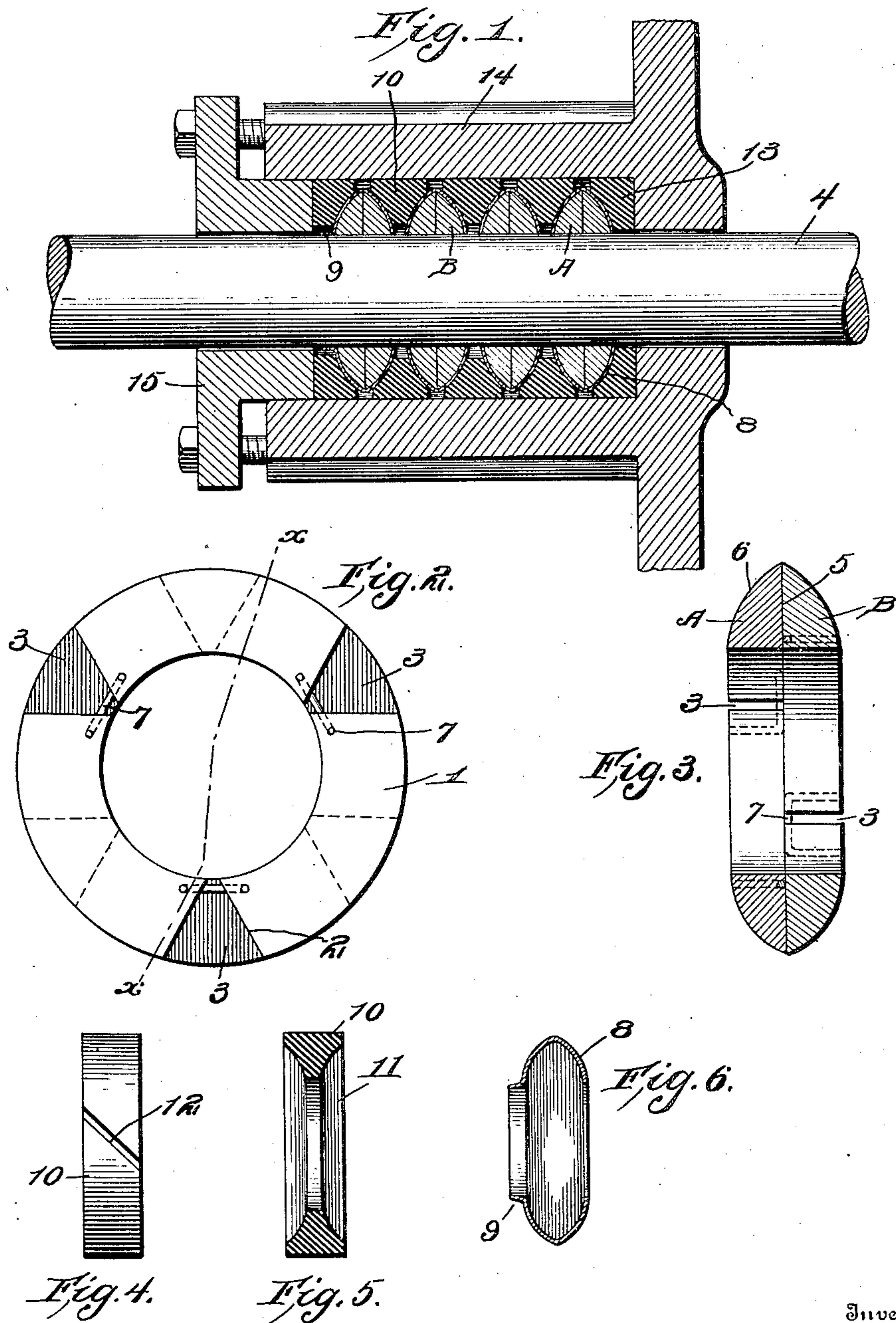


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S. T. HIATT.
METALLIC PACKING.
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METALLIC PACKING.

No. 824,692.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, STEPHEN T. HIATT, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Metallic Packing; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to packing for piston-rods and the like; and its object is to provide a device of this character having the portions thereof which contact with the rod formed of metal and so disposed in relation to each other as to fit evenly upon the rod and prevent the escape of steam, &c., through the packing.

Another object is to provide sectional metallic packing-rings which can be placed upon the rod without disconnecting either of its ends, said ring-sections being so formed as to automatically compensate for wear thereon.

A still further object is to provide a metallic packing-ring the parts of which are held together by a metallic packing-cap, which serves to hold said parts against displacement in relation to each other.

Another object is to provide flexible means for filling between the metallic rings and which are adapted to hold the rings normally pressed evenly upon the surface of the rod extending therethrough.

With the above and other objects in view the invention consists of a metallic packing-ring formed of two oppositely-disposed contacting portions each of which is circular in form and is produced from a plurality of similar sections having flexible metallic connections. These ring members are of a peculiar contour and are covered by a soft-metal cap adapted to be pressed into the interstices within the ring members so as to prevent individual rotation of said members. Filling-rings of rubber or other suitable material are adapted to be seated within a stuffing-box and between the metallic rings and are so shaped and disposed in relation to the rings as to cause the rings to clamp tightly about the piston-rod or other object within the gland and form a tight contact therewith.

The invention also consists of the further novel features of construction and combination of parts hereinafter more clearly set forth, and pointed out in the claims.

In the accompanying drawings I have shown the preferred form of my invention.

In said drawings, Figure 1 is a longitudinal section through a stuffing-box containing my improved packing. Fig. 2 is an end elevation of one of the improved packing-rings with its cap removed. Fig. 3 is a section on line *x x*, Fig. 2. Fig. 4 is an edge view of one of the rubber filling-rings. Fig. 5 is a section therethrough, and Fig. 6 is a section through the metallic cap of one of the metallic packing-rings.

Referring to the drawings by letters and numerals of reference, A and B are oppositely-disposed similar members constituting my improved metallic packing-ring. Each of these members is circular in form and is formed of a plurality of similar segments 1, the ends of which are beveled, as shown at 2, so that V-shaped recesses 3 are produced between the adjoining ends of said segments. The segments of the two members A and B alternate, so that the recesses formed between the segments of members A are closed by the segments of the members B. The concave walls of the segments 1 are straight from end to end, so as to lie flat upon the piston-rod 4 or other element adapted to be surrounded by the packing, and the contacting walls of the segments are also flat, as shown at 5, so that a tight joint is produced thereby. The outer walls of the segments are convex, as shown at 6. The several segments of each member A and B are connected at their ends by soft-metal wires 7, the ends of which are seated in apertures adjacent the ends of the segments. These wires extend across the ends of the recesses 3 and serve to hold the segments in proper relation to one another. Soft-metal caps 8 are adapted to be placed over the packing-rings, and the contour of each cap is similar to the contour of the ring surrounded thereby. Each of these caps may be provided with a tapered flange 9, extending from one edge thereof, if so desired, or where several packing-rings are employed only one of the caps may be provided with this flange.

The third element constituting my improved packing is a filling-ring 10, adapted to be interposed between any two adjoining packing-rings. This filling-ring may be formed of felt, rubber, asbestos, or other desired material and has its faces concave, as shown at 11, so as to receive the cap 8. The

ring 10 is split, as shown at 12, to facilitate its being placed upon the element 4. Where the filling-ring has to be placed in contact with only one metallic packing-ring, it is not
 5 necessary to recess both faces, but instead only one face need be recessed. This form of ring has been shown at 13, Fig. 1.

When it is desired to place my improved packing within the box 14 and about the rod
 10 4, which extends through the box, the cap 15 of the box is first removed, after which a split filling-ring 13 is opened and slipped over the rod 4 and then inserted in the box with its flat face against the inner wall thereof. One
 15 of the soft-metal connecting-wires 7 of the member B is then cut and the segments constituting said member are swung open, this movement being permitted because of the beveled ends of the segments. Said member
 20 B is then slipped around the rod 4 and member A is similarly cut and also placed upon the rod 4. The two members are then disposed in relation to each other so that their respective recesses 3 will not register, and a soft-
 25 metal cap is then placed over the two members, and the entire packing-ring is then slipped into the box and into contact with the recessed face of the filling-ring 13. A filling-ring 10 is then slipped upon the rod so
 30 that one of its concave faces will bear against the packing-ring, and the above operation can be continued until the desired number of filling-rings have been placed within the box.

It is desirable that the cap 8 of the metallic
 35 packing-ring nearest the outer or inner end of the stuffing-box be provided with a flange 9, which contacts with the rod 4 and prevents solid particles from working along the rod and into the packing. After the parts have
 40 been thus assembled cap 15 is inserted and secured tightly in place. The filling-rings will be caused to clamp tightly upon the packing-rings and will force the soft-metal caps into the interstices within the members
 45 of the various packing-rings, and the segments will therefore be locked against individual rotation, and the two members of each ring will maintain their proper relation to each other at all times and in spite of the ro-
 50 tation or oscillation of element 4. Moreover, as the outer faces of the metallic packing-rings are convex and fit within concavities in the filling-rings 10 and 13 it will be seen that said filling-rings 10 will press the metallic rings against the element 4, so as to
 55 cause all portions of the bearing-surface of the metallic packing-rings to contact with the element 4. The metallic packing-rings are smaller in diameter than the interior of
 60 box 14, and therefore should the element 4 have an irregular movement in rotation, such as would be produced if the same were bent or slightly off center, these metallic rings are permitted to move laterally within the stuff-
 65 ing-box with the element 4, such movement

being permitted because of the elastic filling-rings which are utilized.

By beveling the ends of the segments 1 it is impossible for the segments to wear away to such a degree as to cause said ends to come
 70 in contact and prevent the segments from clamping upon the element 4. Moreover, the pressure of the filling-rings upon said beveled ends will tend to force the ends in
 75 against the element 4, and further insure a smooth bearing between said element and the packing-rings.

Having thus described my invention, what I claim as new, and desire to secure by Let-
 80 ters Patent, is—

1. A segmental, metallic packing-ring, the segments of said ring being connected by separate flexible devices.

2. A metallic packing-ring formed of segments having beveled ends and separate flexi-
 85 ble connections between the segments.

3. A metallic packing-ring formed of segments having beveled ends, and soft-metal connecting devices permanently secured to and connecting the ends of the segments.

4. A metallic packing-ring formed of oppositely-disposed, similar contacting members, each member being formed of segments having their ends spaced apart, and flexible connections between said segments.

5. A metallic packing-ring formed of oppositely-disposed, similar contacting members, each member being formed of segments having their ends spaced apart, flexible connections between said segments, and means for
 100 holding the segment ends of one member out of register with the segment ends of the other member.

6. A metallic packing-ring formed of oppositely-disposed, similar contacting members, each member being formed of segments having their ends spaced apart, flexible connections between said segments and a metallic cap surrounding the members and holding them in contact.

7. A metallic packing-ring formed of oppositely-disposed, similar contacting members, each member being formed of segments having their ends spaced apart, flexible connections between said segments, and a soft-
 115 metal cap surrounding the members and holding them together, said cap projecting between the segments of the members.

8. A metallic packing-ring formed of oppositely-disposed, similar, contacting members
 120 having convex outer faces, each member consisting of a plurality of segments having beveled ends, and soft-metal connections between the adjoining segments and immovably connected thereto.

9. The herein-described packing comprising a metallic ring formed of oppositely-disposed, similar members having convex outer faces, each member formed of a plurality of similar segments having beveled ends, and a
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soft-metal connection between the segments, a soft-metal cap surrounding the packing-ring and holding the members thereof together and flexible filling-rings at opposite sides of the packing-rings and bearing upon and adapted to receive the convex faces thereof and the cap thereon.

10. The combination with a stuffing-box having a movable element therein, of flexible filling-rings seated within the box and surrounding the element, said rings having their faces concaved, and a metallic packing-ring seated within the concavities and surrounding the element, said ring comprising oppositely-disposed, similar contacting members having convex outer faces, each member comprising similar segments having beveled ends spaced apart, soft-metal connecting devices permanently secured to the ends of the adjoining segments, and a soft-metal cap surrounding and fitting snugly upon the metallic packing-rings, said cap being seated within the cavities in the filling-rings.

11. The combination with a stuffing-box

having a movable element therein, of flexible filling-rings seated within the box and surrounding the element, said rings having their faces concaved, a metallic packing-ring seated within the concavities and surrounding the element, said ring comprising oppositely-disposed, similar contacting members having convex outer faces, each member comprising similar segments having beveled ends spaced apart, soft-metal connecting devices permanently secured to the ends of adjoining segments, a soft-metal cap surrounding and fitting snugly upon the metallic packing-rings, said cap being seated within the cavities in the filling-rings, a cap projecting into the box, and means for forcing said cap into the box for compressing the filling-rings.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STEPHEN T. HIATT.

Witnesses:

E. W. STUART,
F. H. STUART.