H. BROUSSEAU.

PACKING.

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974,949. Patented Nov. 8, 1910.

Fig. 1.

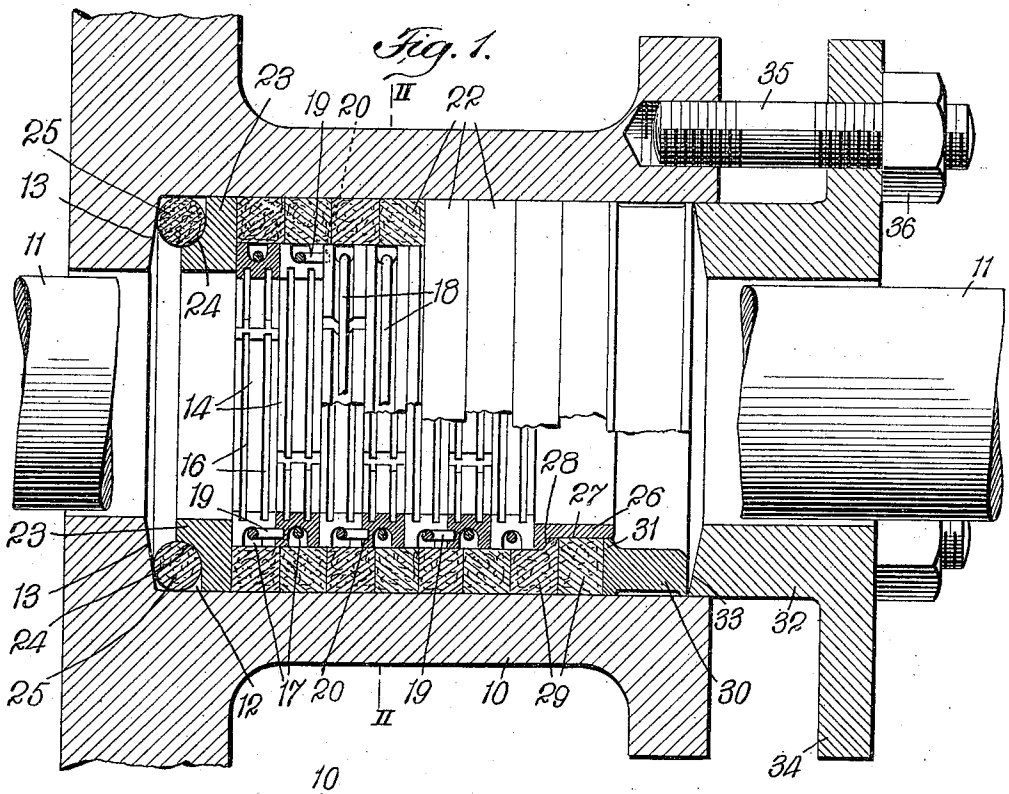

Fig. 2.

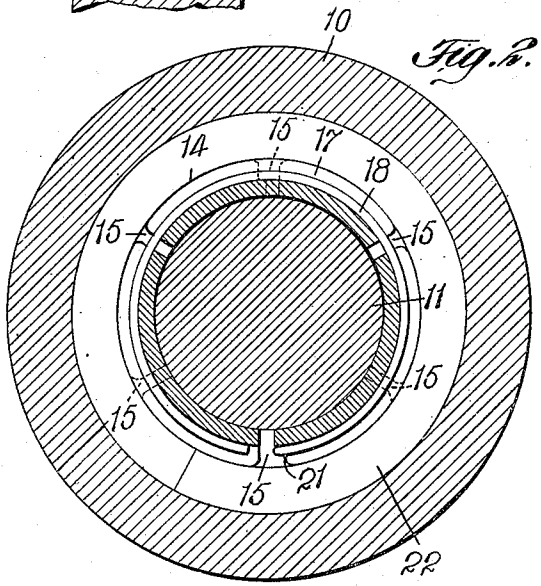

Fig. 3ª

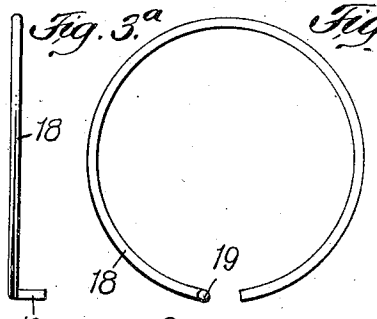

Fig. 3.

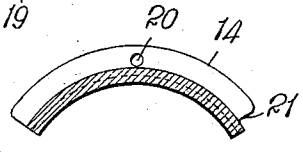

Fig. 4.

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PACKING.

974,949. Specification of Letters Patent. Patented Nov. 8, 1910.

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To all whom it may concern:

Be it known that I, HARRY BROUSSEAU, a citizen of the United States, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Packings, of which the following is a full, clear, and exact description.

This invention relates more particularly to metallic packings adapted for use in connection with piston rods of steam engines.

The primary object of the invention is to provide a packing which can be readily constructed and in which the soft compressible members coöperating with the metallic members may be made from regular stock, and which are so arranged that they can be easily adjusted to last until the metallic rings are practically worn out before any repairs or renewals are necessary to the metallic parts.

Another object of the invention is to provide a packing in which the soft compressible members may form a backing for the metallic members and so arranged that they will not come in contact with the rod and will serve as a means for adjusting the metallic members as the latter become worn while in use.

A further object of the invention is to provide a packing which may be used for various purposes, and to provide simple means whereby the parts of the metallic members may be held together.

A still further object of the invention is to provide simple means whereby the metallic members may be held in close contact to prevent leakage past the same, and the said parts of the packing members simultaneously adjusted into contact with the rod or other element.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is an enlarged section, partly in elevation and partly broken away, of one form of packing embodying my invention. Fig. 2 is an enlarged sectional view, taken on the line II—II of Fig. 1. Fig. 3 is a detail view of one form of device for holding the members of each packing ring together and to another located adjacent thereto. Fig. 3ª is a side elevation of the device shown in Fig. 3; and Fig. 4 is a detail sectional view of one of the parts of one of the metallic packing rings or members.

The box 10 may be of the usual or of any preferred construction through which may pass the piston rod 11 in the usual or in any preferred way. This box 10 is provided with a chamber 12, the inner end of which may be beveled, as at 13, to form a seat in the usual way, and arranged within the chamber 12 so as to fit about the piston rod are a plurality of metallic members or rings 14. These rings 14 may comprise a plurality of parts as usual to adapt said parts to be adjusted as the members wear in use, and to permit proper adjustment of the parts of each ring radially, the said parts are separated by a space, as 15, so that said parts may move radially for proper adjustment about the rod. The spaces 15 between the parts of each ring are so arranged with respect to the rings next adjacent thereto, that the said spaces will be opposite a solid part in order that no leakage may occur, and each ring may be provided with internal grooves, as 16, to reduce the extent of wearing surface against the rod, and on the outside may be provided with a peripheral groove, as 17, in which may be placed a lubricant, as graphite, if desired.

A ring, device or element 18 of wire is adapted to fit in the grooves 17 of each ring or member 14, and this device may be of spring material, as wire, to adapt it to be forced over the parts of each member 14 into the groove 17, and is of such a size as will permit adjustment of the parts. The device 18 serves to hold the parts of each ring together, and each ring or element 18 has an end 19 which is adapted to extend transversely of the ring through one of the spaces 15 so as to enter an opening, as 20, in one part of the ring or member next adjacent thereto. The opening 20 does not extend all the way through to the groove 17 thus no leakage will occur at this point, and said inturned part 19 is adapted to lie in a cut-away portion 21 of the space 15 in order that proper adjustment of the parts of each ring with respect to the rod may be secured.

A plurality of rings 22 of soft material is

arranged within the chamber 12 on the outside of the metallic members or rings 14 and these elements or members 22 are of soft or compressible material and may be the usual stock packing cut so as to readily fit about the metallic members within the chamber 12 of the packing box 10, and these rings or soft compressible members 22 when placing the packing in position for use about the piston rod may extend throughout the entire series of rings so that when said rings are compressed, as will be presently described, the parts of the metallic members 14 will be forced into close contact with the piston rod 11 and at the same time will force some of the graphite through the openings or passages 15 to properly lubricate said rod. These rings or soft members 22 have their joints alternating to prevent leakage past the same, and the inner packing ring or member 22 rests against a ring or element 23. This ring or element may be of any suitable construction and may be made in two or more parts to fit about the piston rod, and said ring may be provided with a peripheral seat 24 formed by cutting away a part of said element 23, and adapted to rest against the seat is a circular or other packing 25 which is adapted to form a seal between the ring and the seat 13 of the box 10.

It is desirable that the metallic packing members 14 be held in close contact with each other and also to be simultaneously adjusted in order to prevent leakage, and to secure this, I may provide a ring, element or member 26. This ring or member 26 is somewhat larger in internal diameter than the piston rod and the same is true of the ring or element 24, so that neither of said rings will come in contact with the piston rod, and said rings serve to confine the metallic packing rings or members between the same. The ring 26 may be made of any suitable number of parts or may be made in a single piece, and said ring 26 has a somewhat less external diameter than the diameter of the metallic rings or members 14 for a greater part of its length so as to provide a larger space at 27 than occurs between the periphery of the metallic rings and the chamber 12 or interior surface of the stuffing box.

The ring 26 is provided with a shoulder 28 and fitting into the enlarged space between the part 27 and the internal surface of the stuffing box are the soft packing or compressible members 29. These packing members may be somewhat larger than the packing members 22 so that when the same are forced inward, the said packing members 29 will be forced past the shoulder 28 and in doing so will cause the ring or member 26 to force the abutting surfaces of all of the metallic members 14 into close contact, and as the packing rings 29 pass into the smaller space about the metallic rings or members 14 occupied by the smaller packing rings or members 22, the latter will be sufficiently compressed to cause a radial movement of the parts of the metallic members and will thereby force the same in close contact with the piston rod. As the packing rings wear new compressible members 29 are placed in the enlarged space around the ring 26, and these are forced inward by a gland ring or element 30. This element 30 may be cut away so as not to bear throughout its entire surface against the inner surface of the packing, and said ring is enlarged at its innner edge, as at 31, to fit the space between the ring 26 and the inner surface of the box, so that the packing members 29 will be forced inward when the gland or element 30 is forced inward, and said enlarged end 31 serves to position the ring 26 centrally and hold the same in this position about the piston rod 11. By this means the ring 26 is always held centrally with respect to the rod and without coming in contact therewith, and by providing the shoulder 28, the packing rings 13 will have their abutting surfaces forced into close contact, and as the soft packing members 29 and 22 are forced inward and compressed, the metallic members will be simultaneously adjusted inward into close contact with the piston rod.

The ring 30 may be forced inward in any desired way. As shown the usual packing gland 32 is provided, one edge of which, as 33, engages the outer surface of the gland ring 30 and said gland 32 has a flange 34 through which passes the bolts 35 on the ends of which are the nuts 36 to adapt the gland to be forced inward by tightening the nuts 36 as is common in stuffing boxes of various kinds.

From the foregoing, it will be seen that simple and efficient means are provided whereby metallic wearing members may be simultaneously adjusted and held in close contact with each other to prevent leakage; that simple means is provided for adjusting said metallic members; and that by constructing the packing in the manner disclosed the usual stock as compressible packing may be utilized.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A packing comprising metallic and compressible members, and two relatively movable ring members one adapted to slide on the other and serving to compress the compressible members and adjust the metallic members.

2. A packing comprising compressible and non-compressible members, a ring member adapted to force the non-compressible mem-

bers toward each other, and an independent annular member movable along the ring member and forcing the compressible packing inward and simultaneously moving the ring member to force the non-compressible members into close contact.

3. A packing comprising metallic and compressible members, and independent relatively movable members serving to force the metallic members lengthwise into close contact and the compressible members inward to adjust laterally the non-compressible members.

4. A packing of the character described, comprising a plurality of metallic members formed of a plurality of parts and adapted to fit about a piston rod, a plurality of compressible soft members arranged around the periphery of said metallic members and forming a seat therefor, an element arranged on one side of the metallic and compressible members and forming an abutment therefor, a ring element engaging the face of the outer metallic member and formed with a shoulder against which certain of the soft packing members may engage, and means for forcing the compressible members along said element so as to engage the shoulder to force the ring inward and at the same time compress the soft members to adjust the metallic members.

5. A packing of the character described, comprising a plurality of metallic and compressible members, a ring member of less exterior diameter for the greater part of its length than said metallic members and forming an enlarged chamber about the same, and an adjustable element serving to center the ring member and to compress the soft members.

6. A packing of the character described, comprising a plurality of metallic and compressible members, a ring member adapted to engage said metallic members and constructed to provide an enlarged chamber about the same within the box, and an adjustable element serving to center the ring element and to compress the soft members.

7. A packing of the character described, comprising a plurality of metallic and peripherally arranged compressible members, a follower ring member forming a chamber within the box relatively larger than that around the metallic members, and means whereby certain of the compressible members may be made to force the ring member inward to adjust the metallic members radially and lengthwise of the rod.

8. In a packing, the combination with a box having a packing chamber for the passage of a rod therethrough, of a packing arranged within said chamber and comprising a plurality of metallic members, a plurality of soft members peripherally arranged about the metallic members, an adjustable ring member provided with a shoulder and adapted to engage the face of one of the metallic members, a gland ring for centering said member, and means whereby the gland ring may be forced inward to compress the soft members and adjust the metallic members.

9. The combination with a box having a packing chamber, of a packing comprising a plurality of metallic members, a plurality of soft compressible members arranged about the metallic members, a follower element forming an enlarged space about the same for the soft members, and an annular element for forcing the soft members inward.

10. A packing comprising a plurality of metallic members, a plurality of soft compressible members arranged about the same, a follower element having a shoulder at one end and engaging one of the metallic members, a gland member having an enlarged edge fitting about the follower member and adapted to hold the same centrally, and means for adjusting said latter member.

11. A packing of the character described, comprising a plurality of soft packing members, a plurality of metallic members each comprising a plurality of parts arranged within the soft members, each member being provided with a peripheral groove and with an opening on one of its faces, and a plurality of devices one for each ring adapted to fit into the peripheral groove, and having an end adapted to enter the opening in the member adjacent thereto whereby the parts of each metallic member may be held together and one member held to the next member on one side thereof.

12. A packing of the character described, comprising a plurality of soft packing members, a plurality of metallic members each comprising a plurality of spaced parts, each member being provided with a peripheral groove, and a plurality of devices one for each ring adapted to fit into the peripheral groove and having means adapted to engage the member adjacent thereto whereby the parts of the metallic members may be held together and one member held to the member on one side thereof.

This specification signed and witnessed this 20th day of September A. D. 1909.

HARRY BROUSSEAU.

Witnesses:
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