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G. A. HARDER & J. LA RIVIERE.

PISTON ROD PACKING.

APPLICATION FILED SEPT. 27, 1902.

NO MODEL.

Fig. 1.

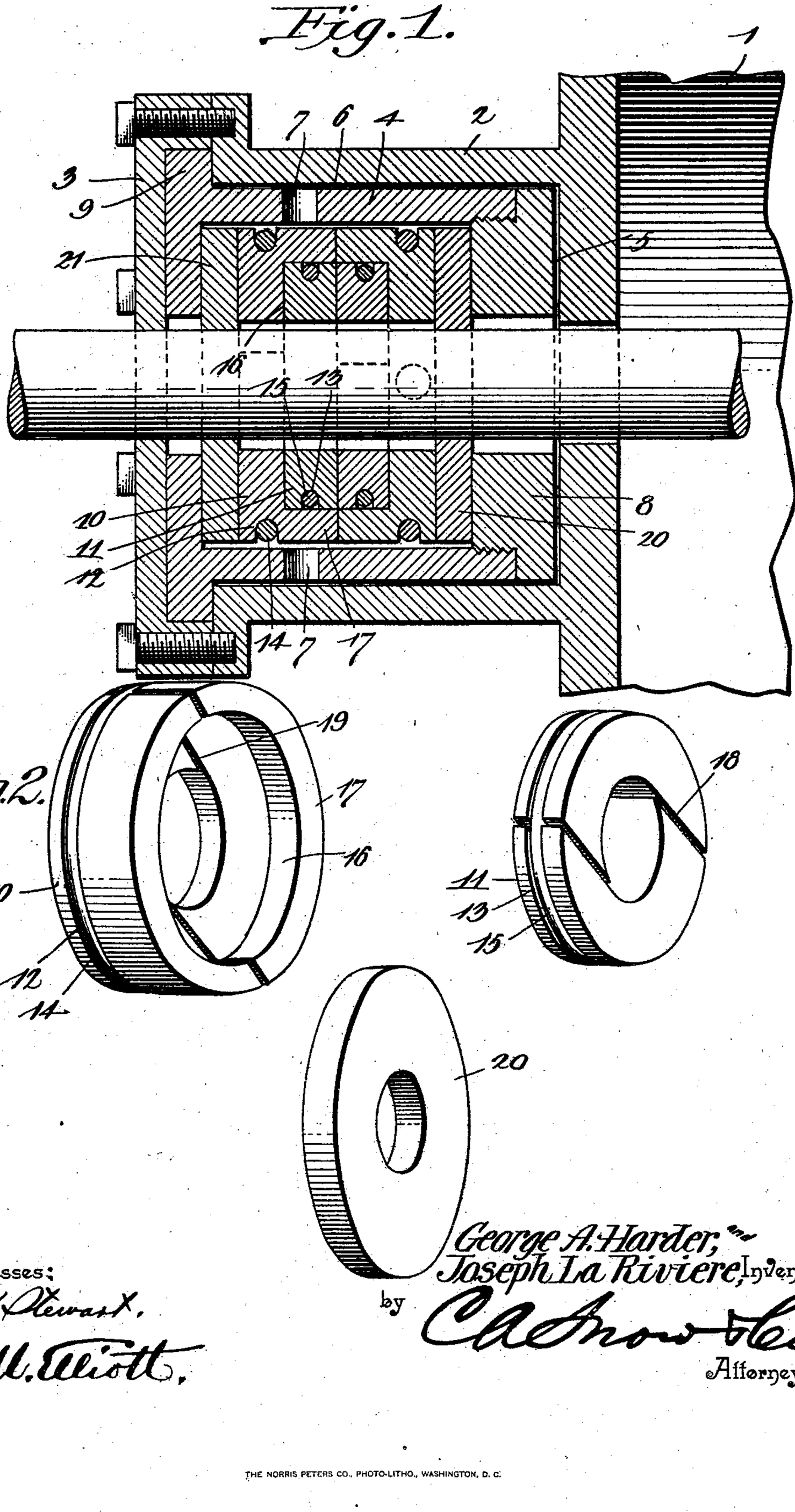

Fig. 2.

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UNITED STATES PATENT OFFICE.

GEORGE A. HARDER AND JOSEPH LA RIVIERE, OF GREENRIVER, WYOMING.

PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 724,698, dated April 7, 1903.

Application filed September 27, 1902. Serial No. 125,112. (No model.)

To all whom it may concern:

Be it known that we, GEORGE A. HARDER and JOSEPH LA RIVIERE, citizens of the United States, residing at Greenriver, in the county of Sweetwater and State of Wyoming, have invented a new and useful Piston-Rod Packing, of which the following is a specification.

This invention relates to metallic packing to be used in connection with piston-rods or valve-stems.

The object of the invention is in a simple, ready, thoroughly efficient, and practical manner to obviate wear of the packing when no steam is on the cylinder, to provide for proper adjustment of the packing to cause it always to occupy a position at right angles to the rod or stem, to facilitate adjustment of the packing to the rod or stem to compensate for wear, and generally to improve that class of metallic packings which are applied to a rod or stem by steam-pressure and released from contact therewith when steam-pressure is removed.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a metallic packing, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood in practice that various changes as to shape, proportion, and exact assemblage of the parts may be resorted to without departing from the spirit thereof, and in these drawings—

Figure 1 is a view in sectional elevation, exhibiting the packing of the present invention as applied to the stuffing-box of a cylinder. Figure 2 is a collective detail view in perspective of the different parts of the packing.

Referring to the drawings, 1 designates a portion of a steam-cylinder provided with the usual cup-like projection 2 to constitute a stuffing-box, the end of which is closed by a cap or plate 3. Within the stuffing-box is arranged a casing 4, housing the metallic packing constituting the gist of the present invention. The casing is of less diameter and length than the stuffing-box to present passage-ways 5 and 6, through which steam from the cylinder escapes and passes through openings 7 in the casing to within the same. The inner end of the casing carries an adjusting-nut 8, which has a threaded connection with the casing, and the outer end is provided with a flange 9 to bear against the end of the stuffing-box and is held in position by means of the cap-plate 3.

The packing-ring, of which there are two shown in this instance, comprises each an outer ring 10 and an inner ring 11, both of which are provided with a peripheral groove 12 and 13, respectively, in which is fitted a clamping wire or band 14 and 15, respectively, these bands being provided for the purpose of holding the sections of the rings assembled, but not to cause them to bind upon the piston-rod or valve-stem with which they coact. The outer ring 10 is chambered at 16 to receive the inner ring 11, which latter, as shown in Fig. 1, lies flush with the outer face of the flange 17, formed by the chamber. Both of the rings are split, the meeting edges of the sections being disposed obliquely or substantially tangential to the walls of the piston-rod or valve-stem opening, as shown at 18 and 19, and by this arrangement as the rings wear down they will be permitted to approach each other under the slight pressing action of the rings or bands, and thus automatically adjust themselves to the part on which they work. When the ring 11 is seated within the chamber of the ring 10, the joints of the two rings are arranged in break-joint order, thereby to prevent escape of steam when the same is on the cylinder.

Interposed between the outer faces of the two rings 17 and the ends of the casing are two disks 20 and 21, which neatly fit the piston-rod or valve-stem and are ground to fit closely against the said ends of the casing in order to present a steam-tight joint, the function of these disks being to hold the rings true with relation to the rod or stem, thus to prevent uneven wear. Lateral looseness of the rings with relation to each other is taken up

by these disks being forced thereagainst by the adjusting-nut 5. It is to be understood, of course, that the packing-rings are never to be clamped so tightly together by the adjusting-nut as to interfere with their instant response to steam-pressure, so that there will be no loss of steam when first admitted to the cylinder or the like.

Under normal conditions—that is to say, when there is no steam on the cylinder, as when running down steep grades—there is practically no frictional contact between the rings and the piston, so that wear of the parts is thus precluded; but as soon as steam is applied to the cylinder the rings are caused to impinge the piston-rod with a pressure varying with the steam-pressure on the cylinder, so that a steam-tight juncture between the rings and the piston will always be assured.

The double or two-part packing-ring herein described is adapted for heavy work; but for light work the outer ring may be dispensed with and will be found to perform the functions required in a thoroughly satisfactory manner.

The manner in which the ring-casing is held in position with the stuffing-box is one of many ways in which this can be accomplished, and for this reason it is to be understood that the invention is not to be limited to the precise arrangement shown.

What we claim is—

1. A metallic packing comprising a casing provided with steam-inlet openings, and with an adjusting-nut, a plurality of split rings housed within the casing and adapted to fit loosely upon the part with which they coact, and disks interposed between the ends of the casing and fitted snugly upon the part with which they coact, the said disks through the agency of the adjusting-nut operating to hold the rings in proper operative position.

2. A metallic packing comprising a casing adapted to be positioned in the stuffing-box of a cylinder or the like and provided with steam-inlet openings, a plurality of split rings disposed within the casing and having their joints disposed tangentially to their rod-openings, means for holding the ring-sections loosely assembled, disks disposed on the outer sides of the rings, and an adjusting-nut carried by the casing and adapted by contact with one of the disks to hold the rings in proper operative relation to the object with which they coact.

3. A metallic packing comprising a casing provided with steam-inlet openings and with an adjusting-nut, outer sectional packing-rings each provided with a chamber, inner sectional packing-rings fitting within the chambers and lying flush with one side of the outer packing-rings, means for holding the ring-sections loosely assembled, and disks disposed on the outer sides of the outer rings and adapted, through the agency of the adjusting-nut to hold the rings in proper operative relation to the part with which they coact.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of witnesses.

GEORGE A. HARDER.
JOSEPH LA RIVIERE.

Witnesses as to George A. Harder:
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