No. 852,714. PATENTED MAY 7, 1907.

O. J. GARLOCK.

ROD PACKING.

APPLICATION FILED DEC. 24, 1906.

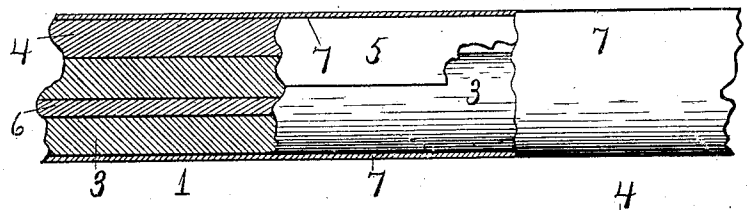

Fig. 1.

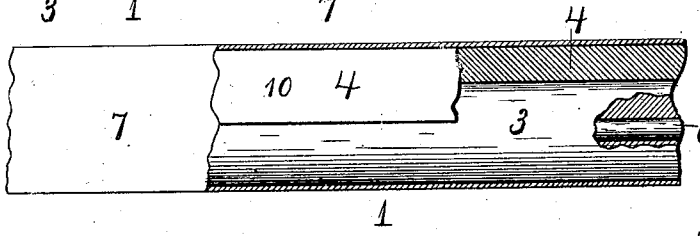

Fig. 2.

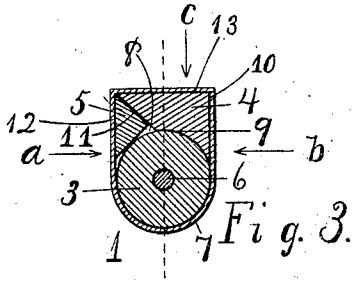

Fig. 3.

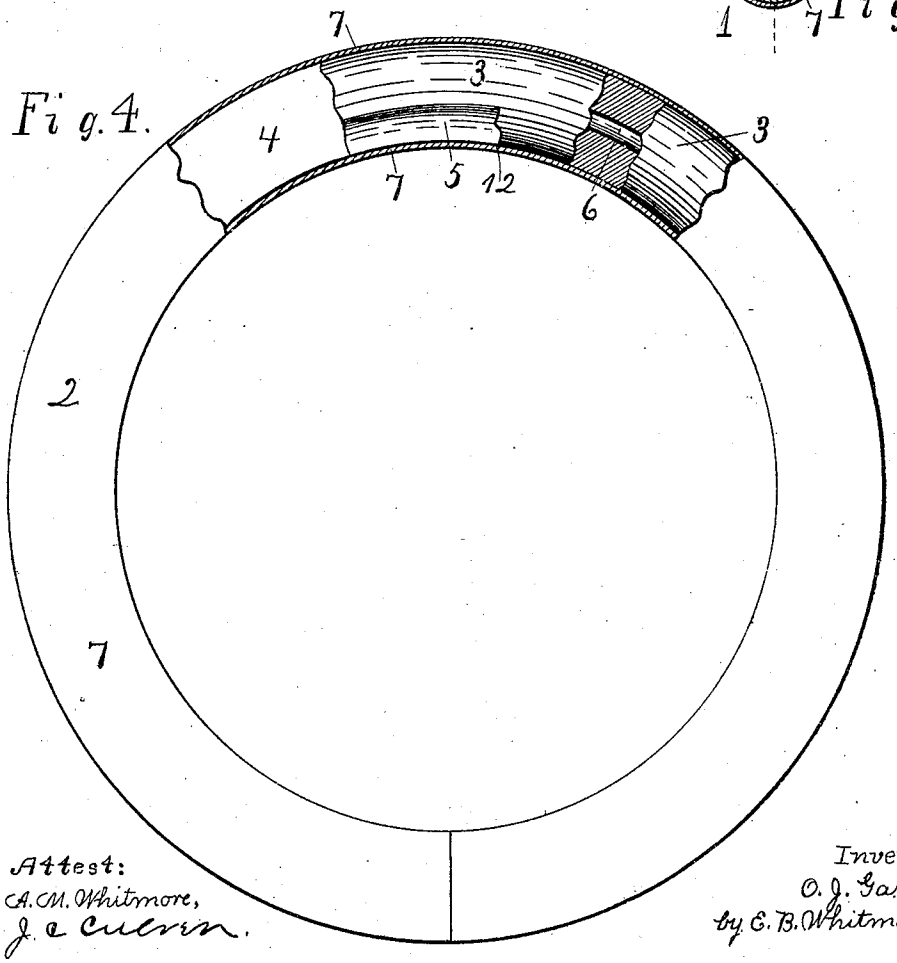

Fig. 4.

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THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OLIN J. GARLOCK, OF PALMYRA, NEW YORK.

ROD-PACKING.

No. 852,714. Specification of Letters Patent. Patented May 7, 1907.

Application filed December 24, 1906. Serial No. 349,226.

To all whom it may concern:

Be it known that I, OLIN J. GARLOCK, of Palmyra, in the county of Wayne and State of New York, have invented a new and useful Improvement in Rod-Packings, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

This invention relates to machinery packing generally, it being a packing-ring of improved construction for use in stuffing boxes, and designed for packing slow-moving piston rods of large diameters, as for pumps, or for other similar rods having rectilinear reciprocal motions through stuffing boxes. Such rods, of large diameters, are not smooth and with continuous surfaces like smaller rods for similar use, the surfaces of the large rods being scored or scratched, which roughness acts to wear away and soon destroy the ordinary packing material in the stuffing box as the rod slides through it.

To produce an improved construction and make-up of packing for this use is the object of my present invention; and in forming this packing I employ hard and soft integral parts or strands so arranged that the hard and durable material only shall be in contact with and subjected to the rub and abrasion of the rough surface of the rod, the soft and more yielding strands serving to give the packing rings elasticity and compressibility.

The objects and advantages of this invention will be clearly brought out and made to appear in the following description, and the construction particularly pointed out in the appended claims, reference being had to the accompanying drawings which, with the reference characters marked thereon, form a part of this specification.

Figure 1 is a side elevation of a portion of a cable or rope of the packing seen as indicated by arrow *a* in Fig. 3, parts being broken away and centrally longitudinally sectioned. Fig. 2 is an elevation of the rope or cable seen as indicated by arrow *b* in Fig. 3, parts being broken away and centrally longitudinally sectioned. Fig. 3 is a transverse section of the rope or cable. Fig. 4 shows in plan a ring constructed from the rope of packing, parts being broken away and centrally longitudinally sectioned.

Referring to the parts as shown, the rope or cable 1 from which the packing-rings, 2, are made is rectangular in cross section, with parallel sides and semi-circular end, and it consists of four continuous strands, 3, 4, 5 and 6, of different degrees of hardness, and an inclosing wrapper 7, all clearly shown in cross section in Fig. 3. The strand 3 is cylindrical, or circular in cross section, and made of firm fiber, as hard cotton cloth, and constitutes the main part or body of the cable, the diameter of this strand being equal to the width or thickness of the cable exclusive of the thin wrapper 7. The strand 4 is preferably of rubber-faced fiber, as cotton, or india-rubber with cotton fiber or threads embedded therein said threads or cloth being commonly in layers alternated with the india-rubber. This strand 4 is formed with a concave side or face 9 to meet and cover substantially one-fourth of the convex surface of the cylindrical strand 3, said strand 4 having a horizontal width equal to the diameter of the main strand 3 and of the cable, as clearly appears in Fig. 3.

The prismatic strand 4 is further formed with a plain face or side 10 in a plane tangent with the cylindrical strand 3, said plain face 10 forming a right angle with the upper plain face 13 of the strand 4 opposite the strand 3. The side of the strand 4 opposite the side 10 overhangs the round strand 3 and is formed with an inclined face 11 forming, with said round strand, a longitudinal V-shape channel 8 in which is placed a prismatic strand 5 of soft metal, as lead. The strand 5 is triangular in cross section with its broadest vertical face 12 turned outward and in a plane tangent with the round strand 3 opposite to and parallel with the plane of the said face 10 of the strand 4, the two faces 10 and 12 constituting substantially the two opposite sides of the cable 1.

In forming the packing rings 2 the cable 1 is bent sidewise so as to bring the leaden strip or strand 5 on the inside and next the piston rod, as clearly shown in Fig. 4, the rounded side of the cable, that is to say, the strand 3 being toward the bottom of the stuffing box. The pressure of the gland of the stuffing box in the direction of the arrow seen in Fig. 3 tends to increase the width of the cable in the rings and so force the lead strand 5 and the side of the hard cotton strand 3 against the rod to sustain the wear, the particles of lead removed by abrasion by the reciprocating rod serving to fill the furrows or imperfections in the surface of the rod. When pressed by the gland the compound or duplex strand 4 acts with the hard

strand 3 against the respective inclined faces of the metal strand 5 to press the latter laterally against the rod.

The main strand 3 is hollow, as appears in Fig. 3, the axial cavity being occupied by a firm indiarubber cord 6, which construction serves to give the strand 3 both elasticity and flexibility.

The wrapper 7 is thin and of comparatively frail material and of only temporary use, it quickly tearing and giving away under the abrasive action of the rough rod and allowing the metal strand 5 and the hard cotton strand 3 to come in direct contact with the rod.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A packing for piston rods, consisting of rings formed from a cable having integral strands of different degrees of hardness, two hard strands to meet the piston rod, and two softer strands coacting with the hard strands, and an inclosing wrapper for the strands.

2. A packing for piston rods, consisting of rings formed of a cable made up of continuous strands, a metal strand and a hard fiber strand to meet the piston rod, a soft strand coacting with the hard fiber strand to control the metal strand, and an inclosing case for the strands.

3. A packing for piston rods, consisting of rings formed from a cable comprising a lead strand and a hard cotton strand to meet the rod, a compound strand of cotton and indiarubber in contact with said hard cotton strand to control the lead strand, and means for confining the strands.

4. Rod packing consisting of rings formed from a cable having a main cylindrical strand of firm fiber, and a yielding strand with concave face to meet said cylindrical strand and having an overhanging inclined face forming, with the opposing surface of the cylindrical strand, a V-shape channel, and a prismatic strand of metal occupying said channel, and means for inclosing the whole.

5. A ring for packing piston rods, having a main hollow strand of firm fiber circular in cross section, an indiarubber filling for said hollow strand, and a prismatic strand of soft material having a concave face in contact with the main strand, a plain face in a plane tangent with said main strand, and an inclined face overhanging the main strand, and a metallic strand between said overhanging face and the main strand, and means for inclosing the strands.

6. Rod packing in the form of rings made from a cable consisting of strands and an inclosing wrapper, the cable being rectangular in cross section with semicircular end, the main strand being circular in cross section with diameter common with the width of the cable, a strand having two faces in planes at right angles with each other one being tangent with the main strand, and a strand with face in a plane tangent with the opposite side of the main strand.

7. A packing for piston rods consisting of rings formed from a cable having integral strands of different hardness, two hard strands, one of which is circular in cross section, forming the entire bearing face to meet the piston rod, and two softer strands coacting with the hard strands and out of contact with the piston rod.

8. A packing for piston rods consisting of rings formed from a cable having integral strands of different hardness, two hard strands, one of which is a metal, and the other circular in cross section, forming the entire bearing face to meet the piston rod, and two softer strands coacting with the hard strands and out of contact with the piston rod, one of said softer strands being coaxially confined within one of the harder strands.

In witness whereof, I have hereunto set my hand this 19th day of December, 1906, in the presence of two subscribing witnesses.

OLIN J. GARLOCK.

Witnesses:

J. H. L. GALLAGHER,

FRANK P. HEINEMAN.