

UNITED STATES PATENT OFFICE.

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ROD-PACKING.

No. 883,534.

Specification of Letters Patent.

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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
5 Improvement in Rod-Packing, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

This invention relates to certain new and
10 useful improvements in rod packing, and it pertains more particularly to heavy ring packing for piston rods designed more especially for use in heavy hydraulic work, as in
15 packing the large slow-moving, tubular piston rods of massive pumps employed in extensive water-supply systems of large or populous cities. These piston rods are anywhere from twenty-four to forty-eight inches more
20 or less in diameter, and the packing is used in the ordinary stuffing box around the rod, the packing being saturated with a suitable lubricant before being put in place.

The present invention has for its objects among others to provide a simple and improved yet efficient packing embodying two
25 adjacent members, one of which is of lead or analogous material and the other of a compound or stratified strand, the adjacent faces of which are oppositely inclined, the natural
30 tendency of the latter being to press outwardly against the inner wall of the stuffing box, while the normal tendency of the leaden member is to press against the piston rod, these two members tending to move in opposite
35 directions. Interposed between the parallel faces of the above mentioned members is a braided member of strands of flax having numerous interstitial spaces which hold oil as a lubricant for the whole body of the packing.

A further object is to provide a construction in which the parts of the lead member are a little less than semicircles leaving spaces between them so that as they wear away by the
40 action of the rod they will compress into similar external diameters and so constantly be in contact with and wear against the rod. If the ends of these parts of the lead member abutted when first put in the box, such contraction could not take place.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the
55 accompanying drawings, which, with the

numerals of reference marked thereon, form a part of this specification, and in which

Figure 1 is a plan of the flax member of the packing with parts broken away and longitudinally sectioned along successive parts
60 through parallel lines indicated by the dotted lines *a, b, c* in Fig. 3 so as to show the inner longitudinal strands. Fig. 2 is a side elevation of the flax member as indicated by the
65 arrow in Fig. 1, parts being broken away and longitudinally sectioned successively through planes indicated by dotted lines *d, e, f* in Fig. 3. Fig. 3 is a central longitudinal section of a portion of a stuffing box and cross section of the contained packing, with an adjacent
70 portion of the tubular piston rod in elevation, some parts being broken away. Fig. 4 is a side elevation of short portions of the metal and compound members of the packing, relatively placed as in use, with parts broken
75 away. Fig. 5 is a cross section, on a reduced scale, of the rod, showing a packing ring in plan around said rod, parts being broken away and the stuffing box omitted.

Like numerals of reference indicate corresponding parts throughout the several
80 views.

Referring to the drawings 1 designates a tubular piston rod and 2 a portion of an ordinary stuffing box in connection with which
85 my improved packing is designed to be used.

The packing is made into rings and not coils, it consisting of three principal members 3, 4 and 5. The member 3 is of lead or analogous material practically triangular in cross
90 section, the section being a right angled triangle with the sharp angle slightly clipped, as seen at 6 in Fig. 3, the opposite or broader side 7 of the lead bearing against the rod 1, as seen in said figure.

The member 4 is composed of alternated layers of cotton duck and rubber, it being formed with an inclined or slant face 8, as
95 seen in Fig. 3, to meet the inclined or slant face 9 of the lead member, so that the two taken together form a rectangle, as clearly shown in Fig. 3, it being evident that the broad side 10 of the member 4 bears against the inner wall of the stuffing box while the narrow side 11 thereof bears against the
100 outer face of the piston rod. When thus put together, the tendency of the lead member 3 is to slide inward toward and thus be constantly in contact with the rod, the firm, hard strand 4 of the cotton and rubber con- 110

stituting a sliding base for said lead member. The remaining member 5 consists of five longitudinal strands, 12, 13, 14, 15 and 16 of flax woven into the member, as shown in Figs. 1, 2 and 3, the strand 16 being in the center with the twin strands 12 and 13 above and the similar strands 14 and 15 below. All of these strands together with the wrapping or inclosing strands 17 are of course flax and porous or with numerous interstitial spaces which serve to hold the oil as a lubricant for the whole body of packing; these little spaces are not especially formed but result from the coarse nature of the flax fiber and the manner of braiding the same.

The fibrous members 4 and 5 are made in long strands or ropes originally, and cut into lengths for the diameter of the rod to be packed in any given case, the same with the lead member except that in use the latter is formed in two semicircular pieces, as seen in Fig. 5, the two parts of which lead member being purposely made a little short of semicircles, as clearly seen in Fig. 5, leaving spaces 18 between their adjacent ends so that as they wear away by the action of the rod, they will compress into similar external diameters and so constantly be in contact with and wear against the rod. If their ends abutted when first put into the box, this contraction could not take place; but the spaces 18 permit of such action. Usually in filling the stuffing box with my improved packing, and particularly when used in connection with rods of large diameter, say three or four feet, the three members of my packing are put into the box separately. The stratified strand 4 of cotton or rubber is laid in at the bottom 19 of the box in a single ring with its ends closely abutting, with its inclined face uppermost, as seen clearly in Fig. 3. Then the lead member 3 is put in in two semicircular pieces, as seen in Fig. 5, with their inclined faces against the member 4, as shown in Fig. 3. Then a ring of the flax member 5 is put in place on top of the lead member, this member 5 like the member 4 being a single ring with its ends abutting, as shown at the division line 20 in Fig. 5. The box is filled from bottom to top with these members in the order shown in Fig. 3, all being compressed by the ordinary gland used in stuffing boxes. In placing these rings or members in the stuffing box not much regard need be had as to where the joints between the ends of the rings come, only that these end joints do not come together.

The lead member being much heavier than the others causes it to automatically seek the

lowest plane so that it constantly presses against the outer face of the piston rod. Sometimes, as where the piston rods are comparatively small in diameter, the members of the packing are formed and put together and bound or covered by a thin casing or wrapper, as of cheap cotton cloth, into a single ring, the half circular lead pieces being between the other two members as when laid in the stuffing box, as above set forth. This is merely for convenience in handling, the cotton casing or wrapper being only for temporary use and wearing away quickly when rubbed or abraded by the piston rod, allowing the pieces of lead to come into contact with the rod as above described.

It will be understood that in use the three members of the packing are free and disconnected from each other so as to have independent movement.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is:—

1. A rod packing comprising a plurality of independent members free for movement with relation to each other, one of which is of heavier material than the other of like nature throughout and divided diametrically with each section of a single integral piece, said heavier member being constructed to gravitate toward the piston rod which it surrounds, a braided absorbent member resting on the heavier member to receive the less heavy member of the next upper packing ring and a fibrous wrapping around said braided member.

2. A rod packing comprising a sectional ring of lead with an inclined face, a ring of alternate layers of cotton duck and rubber with an inclined face, said inclined faces being opposed to each other whereby the lead member will automatically gravitate toward the piston rod, said rings having enlarged bearings against the rod and a member of braided strands resting on said lead member to receive the cotton duck and rubber member next above adapted to absorb a lubricant said braided member having a wrapping of absorbent material.

In witness whereof, I have hereunto set my hand this 23rd day of November 1907, in the presence of two subscribing witnesses.

OLIN J. GARLOCK.

Witnesses:

J. H. L. GALLAGHER,
FRANK P. HEINEMAN.