

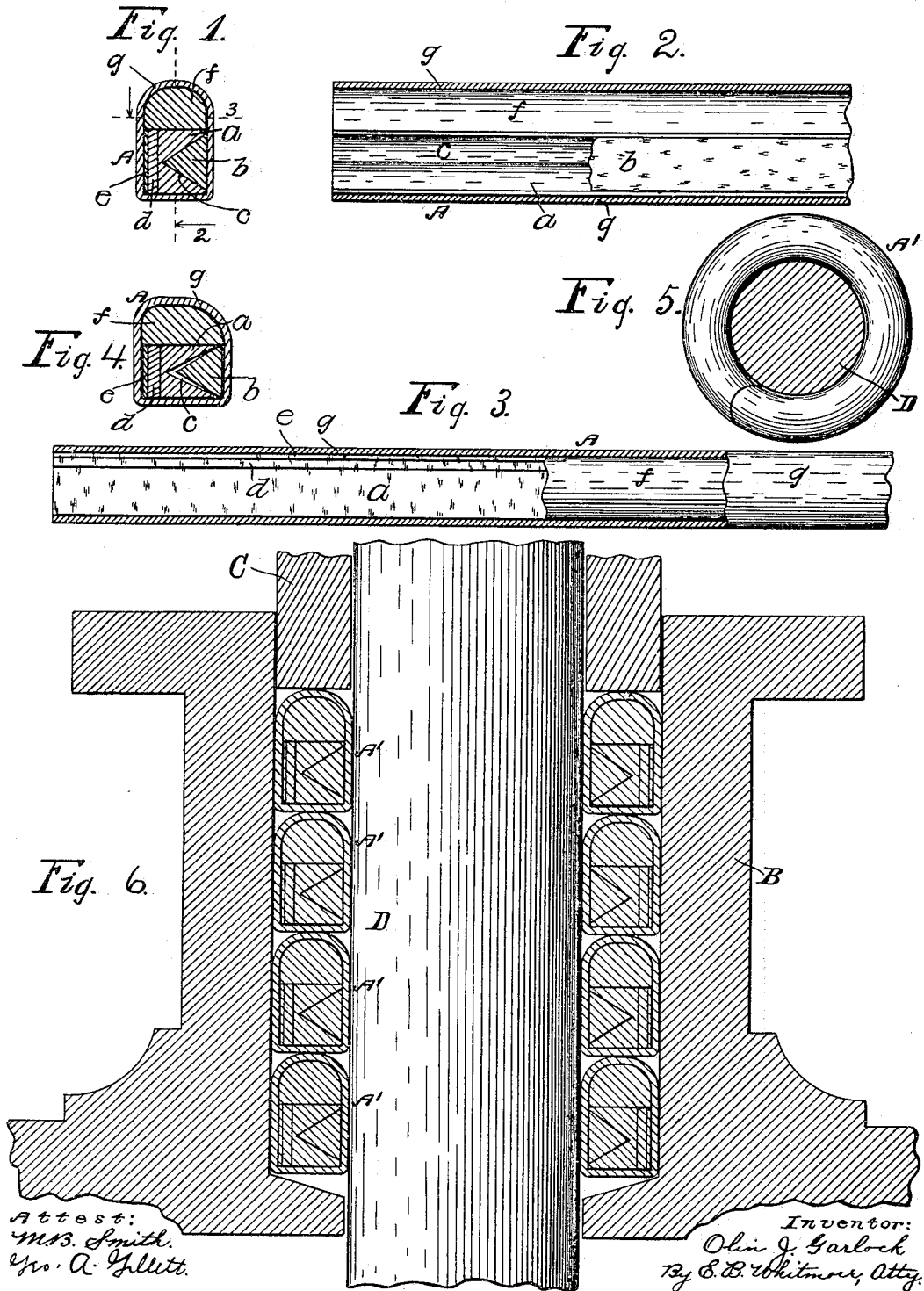
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O. J. GARLOCK.
ROD PACKING.

APPLICATION FILED JUNE 8, 1904.

NO MODEL.



Attest:
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UNITED STATES PATENT OFFICE.

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ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 769,684, dated September 6, 1904.

Application filed June 8, 1904. Serial No. 211,637. (No model.)

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

My invention relates generally to packing for machinery, but more particularly to the class known and understood as "rod-packing," and as constructed this new packing is primarily made in the form of a lengthened strip or cable adapted to be used either in lengths or to be coiled and cut into rings, as may be found necessary and convenient.

One object of my invention is to produce a strip or cable of packing of indefinite length formed of straight longitudinal strands or members combined, each integral part or strand and the strip or cable as a whole being of uniform cross-section throughout their lengths.

Another object of the invention is to so form and construct the adjacent and coacting strands or members that the strip or body of packing will readily and easily expand or extend laterally in one direction when subjected to a lateral pressure in another direction.

A further object of my invention is to construct the component strands or members of different materials, all yielding and elastic, so the body of the packing as a whole shall be limber and pliable and such as to readily assume different dimensions and shapes as to cross-section when subjected to lateral pressure.

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

Figure 1 is a cross-section of my improved packing strip or cable, showing the elements or strands in their normal relations. Fig. 2 is a side elevation of a part of the packing-

strip, seen as indicated by arrow 2 in Fig. 1, parts being broken away and the casing or wrapper longitudinally sectioned on the dotted line at the point of the arrow. Fig. 3 is a plan of the packing-strip with parts broken away, the casing being horizontally sectioned as on the dotted line 3 in Fig. 1. Fig. 4 is a cross-section showing a form the packing tends to assume when pressed by the follower in the stuffing-box. Fig. 5 shows a packing-ring formed from the strip or cable of packing. Fig. 6 shows the application of the packing to a stuffing-box.

My improved strip packing consists of integral longitudinal parts or strands formed and arranged in a compact elongated cable or body A, as clearly shown in Figs. 1, 2, and 3, there being preferably six independent parts or strands combined. The various strands are straight and without turn or twist, unequal in size, and each of uniform cross-section through its length, and in assembling the strands to form the cable or body A some are rigidly joined by cementing their adjacent surfaces together, while the adjacent surfaces of others are lubricated, so as to readily move laterally upon each other. The strand *a* has the form in cross-section of a rectangle with a reëntrant angle at one side forming when considering the dimension of length for the strip an angular or V-shape channel or groove *c*, Figs. 1, 2, and 4, occupied and wholly filled by a strand *b*, triangular in cross-section, which two parts *a* and *b* together constitute a prismatic body rectangular in cross-section. Back of the grooved strand *a* are two thin strands *d e*, having common vertical widths or dimensions equal with that of the stand *a*. The strands *a d e* are cemented together and act as a single body, and above and resting upon these three strands jointly is a large strand *f*, constituting a cushion for the packing-strip, said strand *f* having a horizontal width equal to the combined horizontal widths of said three strands *a d e*, the five combined strands *a b d e f* being incased in a wrapper *g*, as shown.

In constructing the integral parts or strands of the packing-strip A the grooved or chan-

neled strand *a*, the triangular strand *b*, and the thin back strand *c* are commonly made of cotton threads or woven duck embedded in or alternated with india-rubber, the back strand or "backing" *d* for the grooved strand being wholly india-rubber. The cushion *f* is commonly made of some soft elastic fiber, as flax or cotton. The surfaces of the two parts *a* and *b* in contact are inclined planes and lubricated by being covered with graphite or similar antifriction substance, so said parts may easily slip or slide laterally one upon the other, and the parts being assembled, as shown in Fig. 1, the whole is wrapped closely about or incased in a sheet *g* of braided asbestos or other suitable substance, as ordinary packing material of india-rubber and cloth.

In making up this body of strip packing it is not wholly necessary that the minor strand *e* should be of the same material as that of the parts *a b*, as stated, and I do not wish to confine myself to its use in forming the body of the packing. This strand may be omitted entirely without departing from the spirit of my invention or sacrificing any of its advantages. It may be desirable in some cases in forming these packing-strips to omit the strand *e* and fill the space it occupies with the india-rubber strand *d*, made thicker laterally. This construction of the packing by using a thickened india-rubber backing *d* for the relatively movable and coacting parts *a b* will usually well answer the purposes for which the packing is intended; but generally I prefer to insert a thin strand of some firmer material than india-rubber as a protector for the softer strand *d*, as shown in the various figures. In constructing the mutually-movable strands *a b* they are preferably made so that the sheets or layers of duck cloth are horizontal and parallel with the flat sides of the strand *a* or in planes at right angles with the axis of the piston-rod when used in a stuffing-box; but the strand *e* when used is formed so that the layers of duck therein are upon edge or in planes at right angles with the sheets of duck in the strands *a b*. In this relative position of the woven duck sheets in the strand *e* said sheets more readily yield or buckle when subjected to pressure exerted in a direction edge-wise of said strand.

The application of packing-rings *A'* made from the strips of packing to use is shown in Figs. 5 and 6. *B* is an ordinary stuffing-box for a piston-rod *D*, the follower *D* being in place in the stuffing-box. The latter is filled with the ring *A'*, and when pressed by the follower these rings tend to take the form shown exaggerated in Fig. 4. The pressing of the grooved strands *a* of the various rings into narrower bodies, measured vertically, tends to push the various strands *b* laterally outward, as shown, and so cause the packing-rings to closely press the rod and prevent leaking, the parts *a* and *b* being readily mov-

able upon each other on account of the lubricant employed, as stated. Furthermore, the strand of india-rubber-backing *d* for the strand *a* acts constantly to press the parts *a* and *b* of each ring *A'* in a direction toward the rod with an elastic or yielding pressure. The yielding nature of the fibrous cushion *f* permits it to readily assume new forms under pressure, and the cushion also causes the pressure of the follower to act more mildly and evenly against the strands *a* when forced together in the stuffing-box.

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

1. A strip of rod-packing consisting of straight longitudinal strands or members each of uniform cross-section throughout its length, and a casing for the strands one of said strands having a channel to receive the other strand, and the engaging surfaces of various strands being adapted to slip laterally upon each other.

2. A strip of rod-packing comprising a series or bunch of straight longitudinal strands or parts of equal length, each being of uniform cross-section and shape throughout its length, and one having a longitudinal channel to receive the other and a casing for the strands, said casing and the strands being compressible and the engaging surfaces of two adjacent strands being inclined and the said two strands being adapted to move apart when under pressure.

3. A strip of packing for machinery, as rod-packing, consisting of a series of unequal straight strands or members each of uniform cross-section, said strands being in part rigidly joined and in part laterally movable upon and away from each other, and a casing for all of said strands.

4. A strip of packing for machinery, as rod-packing, consisting of straight longitudinal strands or members each of uniform cross-section throughout its length, and a casing for the strands, one of said strands having a longitudinal groove, and a strand occupying said groove, said two strands being adapted to move laterally away from each other when pressed.

5. Packing for piston-rods, consisting of rings formed from a strip of packing material consisting of a series of straight strands each of uniform cross-section, and all incased in a wrapper, some of said strands being rigidly joined and others when pressed movable upon and away from each other.

6. A rod-packing comprising straight longitudinal strands or members each of uniform cross-section throughout its length, one of said strands having a longitudinal channel and a strand occupying said channel, said strands being adapted to move laterally away from each other when pressed, strands back of the grooved strand opposite the apex of the channel therein, and a casing for said strands.

7. A rod-packing comprising straight longitudinal strands or members of uniform cross-section throughout its length, one of said strands having a longitudinal groove and a
5 strand occupying said groove, said strands being adapted to move laterally away from each other when pressed, strands back of the grooved strand opposite the apex of its groove, a large strand resting upon the said grooved
10 strand and the strands back of the same and

serving as a cushion, and a casing for said strands.

In witness whereof I have hereunto set my hand, this 4th day of June, 1904, in the presence of two subscribing witnesses.

OLIN J. GARLOCK.

Witnesses:

V. C. FOSTER,
OLIVER DUFFEE.