No. 864,996. PATENTED SEPT. 3, 1907.

J. L. SACKETT.

PACKING.

APPLICATION FILED MAY 19, 1905.

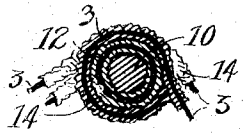


Fig. 2.

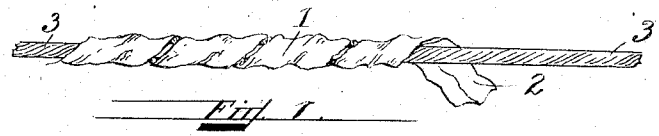


Fig. 1.

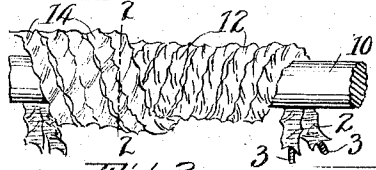


Fig. 3

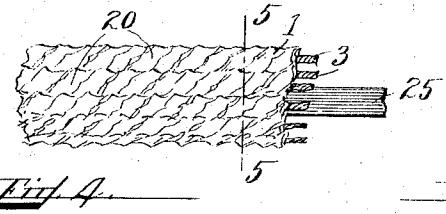


Fig. 4.

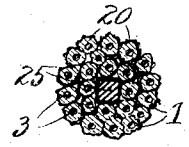


Fig. 5.

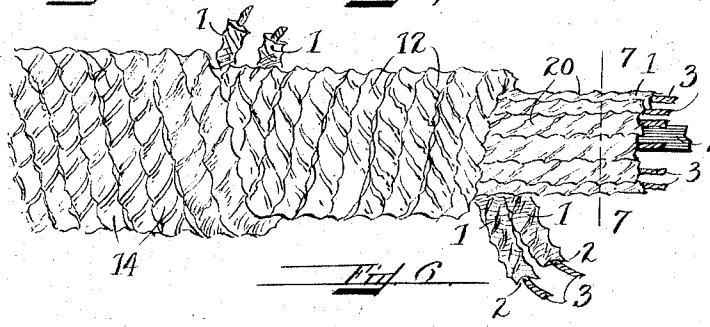


Fig. 6.

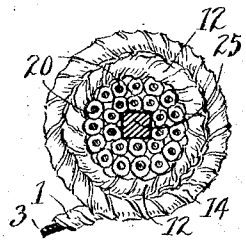


Fig. 7.

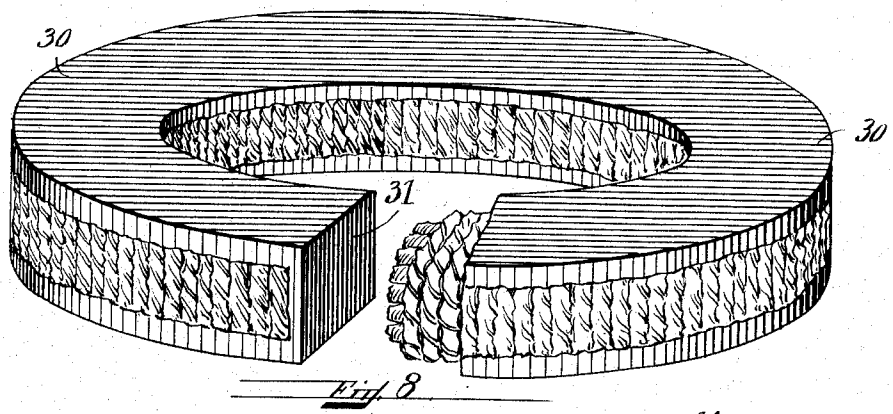


Fig. 8.

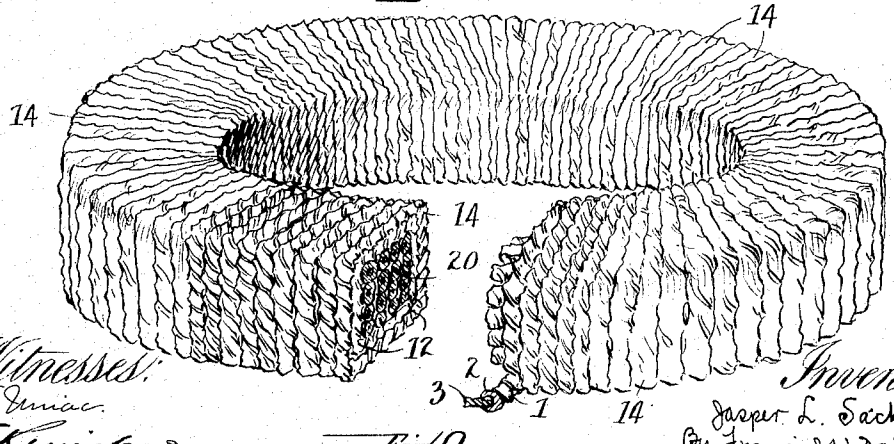


Fig. 9.

Witnesses:
E. F. Innis
H. Kennicke Jr.

Inventor.
Jasper L. Sackett
By Francis J. W. Dakin
Atty

UNITED STATES PATENT OFFICE.

JASPER L. SACKETT, OF MELROSE, MASSACHUSETTS.

PACKING.

No. 864,996. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed May 19, 1905. Serial No. 261,109

To all whom it may concern:

Be it known that I, JASPER L. SACKETT, a citizen of the United States, residing at Melrose, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Packing, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to packings for piston-rods, pumps, valves and for such other purposes as packings are suitable and consists broadly of a packing comprising a central portion or core of any suitable material, and an outer portion made up of a strand wound transversely around said core in one or more layers; said strand comprising a fibrous string enveloped in metal.

The object of my invention is to secure an efficient and durable form of packing which is elastic and will respond to variable pressure and which may be easily applied.

A further object is to produce a packing so constructed that it may be cut or bent into any convenient form for use without impairing the packing or causing it to come apart.

The following is a clear description of my invention, reference being made to the accompanying drawings, in which,

Figure 1 is a view of the strand, made up of a string enveloped in metal; Fig. 2 is a view in cross-section on line 2—2 in Fig. 3; Fig. 3 is a side elevation of my packing in course of construction; Fig. 4 is a side elevation of a core composed of parallel strands and a center-piece of rubber or other material; Fig. 5 is a cross-sectional view on line 5—5 in Fig. 4; Fig. 6 is a side elevation of a modified form of packing showing the mode of construction; Fig. 7 is a cross-sectional view on line 7—7 in Fig. 6; Fig. 8 is a view in perspective of my packing in ring form provided with an outer covering of rubber, and Fig. 9 is a view in perspective of my packing in ring form.

Similar numbers refer to similar parts throughout the several views.

Broadly, my invention consists in taking a core of any suitable material, and winding transversely around it in one or more layers, a strand which is made up of a string of fibrous material enveloped in metal.

In Fig. 1 of the drawings, is shown on an enlarged scale my strand, 1, which is made by taking a ribbon, 2, of anti-friction or Babbitt metal V-shaped in cross-section, laying therein a string, 3, of flax, hemp, asbestos, jute or other material and twisting the two together in such a manner that the metal ribbon completely envelops the string. When finished the strand, 1, resembles a metal string.

Having made the strand, 1, I then construct the packing by taking a core, 10, of any suitable material, as shown in Figs. 2 and 3, and cover said core by winding said strand, 1, transversely about it in one or more layers. I have found it advantageous to wind the core with two or more strands, 1, 1, at the same time which enables the packing to be constructed more rapidly. In Figs. 2 and 3, 10 represents the core, 12 the inner layer and 14 the outer layer, the latter being wound in the opposite direction to the former in order to break joints.

Although my packing may be constructed with a core of any suitable material, I have found it advantageous to employ a core made as shown in Figs. 4 and 5, where 20 designates a core made up of a group of parallel strands, 1, 1, having in the center a piece 25 of elastic material such as rubber composition. This center piece, 25, gives an additional elasticity to the packing permitting it to respond readily to variable pressure when in use, and the amount of elasticity may be regulated by varying the diameter of the center piece 25. If an extremely hard packing is desired, the center piece may be omitted and the core may be made entirely of the strands, 1, 1, laid in substantial parallelism as is shown in Fig. 9.

In Figs. 6 and 7 is illustrated my packing composed of the core 20 surrounded by the transverse inner layer 12 and outer layer 14 of strands 1, 1, the two layers being wound in opposite directions. After the packing has been made in rope form as above explained, it may be formed into various shapes by means of rolls or molds. At this stage, the packing may be made into spiral form, round, octagonal or square in cross-section by passing the rope-packing between calender rolls, suitably formed, or it may be made into rings, as shown in Figs. 8 and 9. This latter form is made by means of molds and then compressed into the desired form. The amount of pressure to which the packing is subjected at this time is an imporant consideration, for it is possible by great pressure to compress the packing almost to the consistency of solid metallic packing, or only a slight amount of pressure may be applied and the packing emerges from the rolls or molds comparatively soft and elastic. By varying the pressure, packing of different grades of hardness and elasticity may be produced and although of similar construction, yet the differences in density and elasticity enable the packing to be used successfully under an infinite variety of conditions.

In some cases, I have found it desirable to cover the top and bottom of the packing (see Fig. 8) with a very thin coating or covering 30 of suitable material, vulcanized rubber composition being preferable, to keep the rings from adhering to each other when compressed in a stuffing box. Between the ends of the rings, I interpose a piece of uncured rubber composition, 31, the result being that when the ring is placed in a

stuffing box where the parts are hot, this piece 31, becomes vulcanized and the two ends of the ring are cemented together forming a jointless ring. In Fig. 8, the sides of the packing are left uncovered, the material 30 extending a short distance over on the sides from the top and the bottom. This allows the rod or moving part to come into contact with the inner metal face of the packing immediately.

Throughout the packing, powdered graphite or other lubricant may be interposed among the strands or in the flax when the packing is in process of construction, for the purposes of lubrication, but for general uses, this is not absolutely essential, as the metal covering of the strands is a soft Babbitt or anti-friction metal.

The great advantages of this construction is that my packing can be used for a very long period without falling apart and being of the same material throughout, it will wear away to the core before losing its utility as a packing. Further, owing to this construction, my packing may by slight changes of construction be made suitable for various uses; may be made almost solid or very elastic and so forth. In view of this, I do not intend to limit my invention to any particular shape or form of packing or to any particular kind core since they are not a material part of the invention, which is the combination of a core enveloped by strands wound transversely around it, and I desire to claim my invention in the broadest manner legally possible.

What I claim is:—

1. In a packing, the combination of a central portion or core, an outer body made up of strands, each of which consists of a fibrous string enveloped in metal, wound transversely around said core in a plurality of layers which are wound alternately in opposite directions in order to break joints, and a covering of suitable material on the upper and lower faces of said outer body.

2. In a packing, the combination of a central body or core, and an outer body entirely surrounding said central body and made up of strands wound transversely around said central body in a plurality of layers: said layers being wound alternately in opposite directions in order to break joints, and each of said strands consisting of fibrous material enveloped in metal.

3. In a packing, the combination of a central body or mass of strands laid in substantial parallelism, and an outer body entirely surrounding said central body and made up of strands wound transversely around said central body in a plurality of layers; said layers being wound alternately in opposite directions in order to break joints, and each of said strands both in the central body and the outer body consisting of fibrous material enveloped in metal.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses, this the 7th day of April, 1905.

JASPER L. SACKETT.

Witnesses:
CHARLES F. RICHARDSON,
E. F. UNIAC.