(No Model.)

J. RICHARDS.

METALLIC PACKING.

No. 323,446. Patented Aug. 4, 1885.

Fig. 1

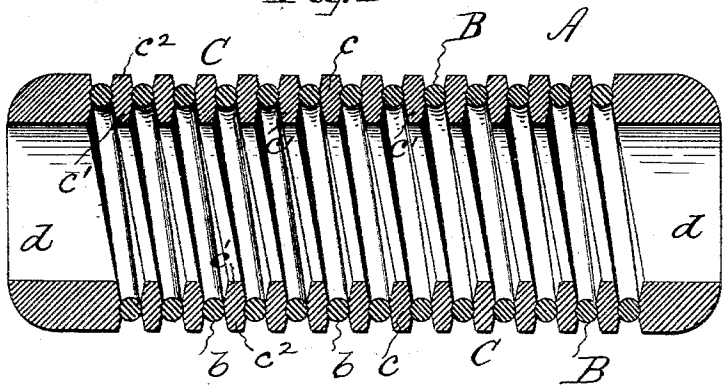
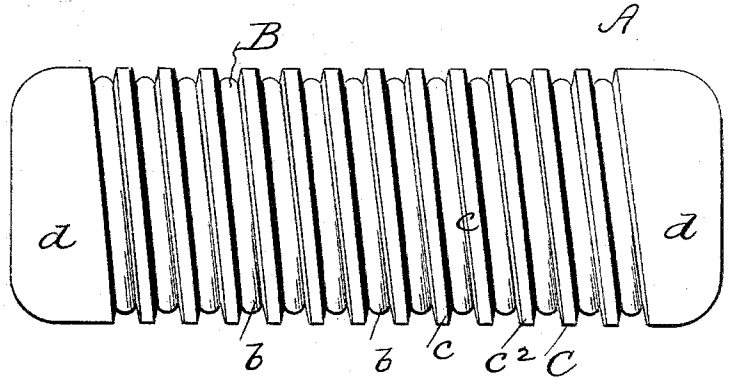


Fig. 2.



WITNESSES:

Allen Hollingsworth

Chas. F. Van Stavoren

INVENTOR

Jackson Richards

By S. J. Van Stavoren

Attorney.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

JACKSON RICHARDS, OF PHILADELPHIA, PENNSYLVANIA.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 323,446, dated August 4, 1885.

Application filed May 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, JACKSON RICHARDS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Packing, of which the following is a specification, reference being had therein to the accompanying drawings, wherein—

Figure 1 is a longitudinal vertical section of my improved metallic packing, and Fig. 2 is an elevation of the same.

My invention has relation to metallic packing for piston-rods, valve-stems, or other fixtures or uses; and it has for its object to provide a simple, inexpensive, durable, and effective packing, which is self-contained and which is susceptible of being readily inserted into and removed from a stuffing-box or other fixture.

My invention accordingly consists of a packing which is made by first coiling a spiral spring and then filling up the spaces between its coils with a spiral of Babbitt metal or other substance; and, second, of a metallic packing composed of a spiral spring and an embedded or intercoiled spiral of Babbitt or other metal or material, as hereinafter described and claimed.

Referring to the drawings, A represents the packing of the form suitable for piston-rods, and is composed of a spiral spring, B, between the coils *b* of which is formed or placed a spiral, C, of Babbitt or other metal, the inner and outer edges, $c' c^2$, of its coils *c* projecting, respectively, beyond the corresponding edges of the coils *b* of spring B, said inner edges, c', being of greater depth than that of the edges c^2, in order to provide the former with sufficient metal or thickness to take up the wear of the same and avoid liability of contact between the piston-rod and spring B.

The metal spiral C is provided with enlarged ends or thickness of end coils, *d d*, as shown, to give a finish to the packing and to provide increased end bearing-surfaces for supporting the longitudinal pressure applied to the packing by the screwing up of the stuffing-box cover or gland. When such pressure is imposed upon the packing, the spring B is compressed and causes the metal coils *c c* to spread outwardly and inwardly, so that their edges will close upon and form a steam or other tight joint for the piston-rod and stuffing-box or other fixtures to which the packing is applied. When such pressure is released, the expansion of the spring B causes a contraction in the diameter of the soft-metal coils *c*, or increases their pitch, and thus loosens the packing upon the piston-rod and in the stuffing-box, so that it is susceptible of being readily drawn out or removed therefrom without resorting to the use of a chisel or picking-tool, heretofore required in the present forms of packing employed.

The coils of the spring B may be round, oval, square, or other suitable configuration in cross-section, and the soft-metal spiral C may be of any appropriate outline in cross-section.

Any suitable soft metal may be substituted for the Babbitt metal, or, instead of using the metal, asbestus or other packing may be employed.

The preferable manner of making the packing is as hereinafter follows; but, as it may be made in any desired or suitable way, I do not limit myself to any particular process of making it. The coiled or spiral spring is suitably mounted, either by screwing it or otherwise, upon a core of sand or a mandrel having spirally-arranged grooves therein corresponding to the pitch and form of the inner edges, c', of the spiral C. This core, with attached spring B, is placed in a suitably-formed mold having a spiral groove corresponding to the configuration of the outer edges, c^2, of soft-metal spiral C, and coinciding with the spiral groove upon said core or mandrel. When the metal is poured into the mold, said grooves are filled up to form the intercoiled soft-metal spiral C, which may, if desired, have ends *d d*, or otherwise. The core or mandrel is then removed, and a self-contained metal packing is thereby formed, having two spirals of metal, of different degrees of hardness, intercoiled with one another. The wear on one side of the packing is avoided by periodically rotating it or giving it a quarter or other suitable turn on its axis.

If desired, the spaces *e*, between the coils *c c*, may be utilized for oil-receptacles, such lubricant being indicated at *x*, Fig. 1.

When asbestus is used in place of the Babbitt metal, the former may be molded or placed in position in the usual or other manner; and

if desired, it may be combined with plumbago or other self-lubricating material.

What I claim is—

1. A packing composed of a spiral spring having a coiled or spiral packing between its coils, the inner and outer circumferential edges of which packing project beyond the corresponding edges of said spring, substantially as shown and described.

2. A packing composed of two intercoiled spirals having the inner and outer circumferential edges of one projecting beyond the corresponding edges of the other, substantially as shown and described.

3. A packing composed of intercoiled metal spirals B and C, of unlike density or hardness, and having different diameters and mandrel-openings, substantially as shown and described.

4. The metal packing, herein described, comprising a spiral spring, B, and a soft-metal spiral, C, having projecting edges c' c^2, substantially as shown and de cribed.

5. The packing A, composed of spiral spring B and intercoiled spiral C, having ends d d, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JACKSON RICHARDS.

Witnesses:

W. D. WOLFF,

CHAS. F. VAN HORN.