E. HOLT.

Packing for Piston-Rods, &c.

No. 196,119. Patented Oct. 16, 1877.

Fig. 1.

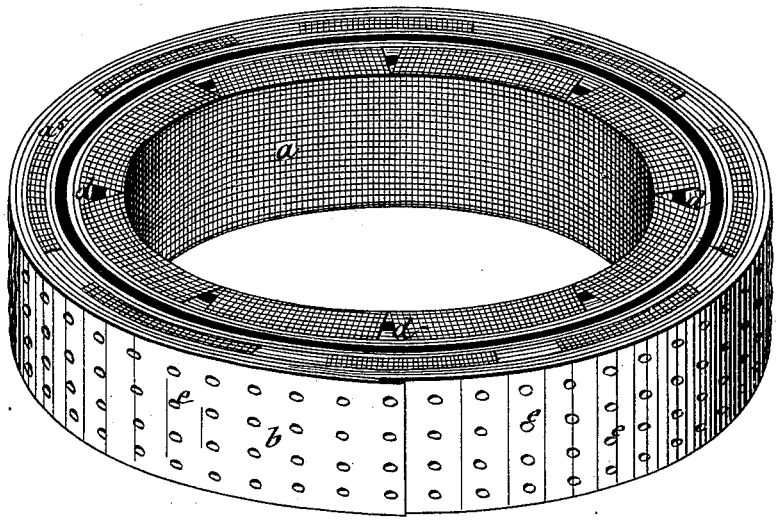
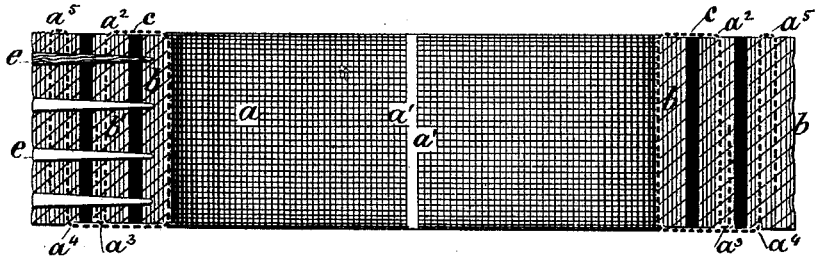


Fig. 2.



Attest:
N. F. Hood.
D. P. Cowl

Inventor:
Elizabeth Holt,
by E. E. Masson
atty

UNITED STATES PATENT OFFICE.

ELIZABETH HOLT, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN PACKINGS FOR PISTON-RODS, &c.

Specification forming part of Letters Patent No. **196,119**, dated October 16, 1877; application filed April 5, 1877.

To all whom it may concern:

Be it known that I, ELIZABETH HOLT, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Packings for Piston-Rods, &c.; and that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of a packing-ring embodying my invention. Fig. 2 represents a vertical section of the same.

My invention relates to packing-rings to be used in the stuffing-boxes of piston and pump rods, &c., in which the material used is mainly hemp or cotton woven into a strip and wound into a ring, with an inside lining or protecting-band of metal.

Packing made of fibrous material is generally preferred for its property of retaining the lubricating material and distributing it evenly upon the rod through which it passes. At the same time it is elastic and easily compressed, so as to form a tight packing; but the difficulty is to lay or coil it uniformly within the stuffing-box.

To simplify the operation the fibrous material has been woven and formed into a coil, uniform in thickness, and used in that condition or inclosed in wire-gauze, or even sewed or pegged together, so that the arrangement of the coils forming the ring may not be disturbed while the ring is cut to place it around the rod. But the same elasticity that renders packing of fibrous material superior to others makes it very difficult to introduce the packing-ring into the stuffing-box after it has once been cut, and forces many manufacturers to use metallic packing, although more injurious to the frictional parts, or more expensive.

The object of my invention is to produce a packing that will combine the elasticity and other qualities of fibrous material with the advantages of metal packing—*i. e.*, to retain its form permanently while the ring is cut vertically, so that it can be introduced in the stuffing-box without any difficulty or disarrangement of the parts of which the packing is composed.

My invention consists in forming a packing-ring of a series of coils of woven fibrous material and india-rubber, retained permanently in relation to each other by means of wire-gauze folded a number of times within the body of the fibrous material, mainly toward its periphery, to retain the parts in their normal position while the packing is placed in the stuffing-box, as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

My improved packing is generally formed in the shape of rings upon a mandrel of the same size as the rods around which it is to be used. For this purpose a sheet of wire-gauze, *a*, of the required size is first placed upon said mandrel, so that two of its edges will nearly meet, as at a^1, and the other two edges extend beyond the proposed height of the packing-ring. A strip or tape, *b*, of woven fibrous material—as hemp or cotton—is then wound tightly around the wire-gauze, and a band of india-rubber, *c*, is then interposed to add to the elasticity of the packing, and around it is wrapped an additional length of the strip, as at b'. The wire-gauze is then split at *d*, so that it can be folded over the strip already wound, as shown at a^2, and where it is retained by a couple of additional coils of the fibrous material, upon which the edge of the wire-gauze is then folded, as at a^3, this edge being retained within the packing by another coil or coils of the strip *b*. A second band of india-rubber is then added, and retained in place by a few coils of the woven strip. The opposite edge of the wire-gauze is then operated upon in the same manner, being first split, as at *d*, and folded over, as at a^4, and retained in that position by continuing to wind the long woven strip a few turns. The edge of the metallic gauze is at last folded over, as at a^5, and a few more coils of the woven strip placed tightly around it. All the metallic folds of wire-gauze are then permanently and securely united to each other and to the fibrous strip by a series of pegs, *e*, driven through them, so that the ring can be cut vertically, (in a number of pieces, if desired,) andintroduced in a stuffing-box with the same facility as metallic packing.

It is evident that the number of folds of the wire-gauze within the woven fibrous material

may vary somewhat according to the size of the packing, and that one of the rubber bands may be dispensed with, or more added, without departing from the spirit of my invention.

Having now described my invention, what I claim is—

The packing-ring composed of a series of coils of woven fibrous material and india-rubber, retained permanently in relation to each other by means of a sheet of wire-gauze, having two of its edges folded within the body of the fibrous material, substantially in the manner and for the purpose described.

ELIZABETH HOLT.

Witnesses:
WEST MCMURRAY,
J. H. SWETT.