

No. 713,964.

Patented Nov. 18, 1902.

E. L. CLARK.
PACKING.

(Application filed July 15, 1901.)

(No Model.)

Fig. 1.

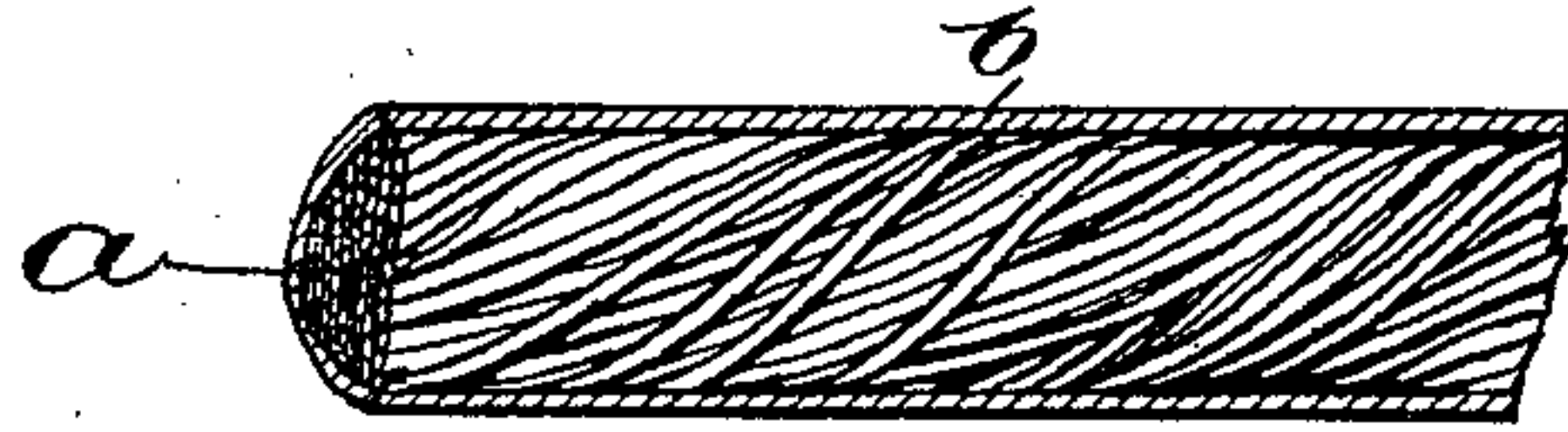


Fig. 2.

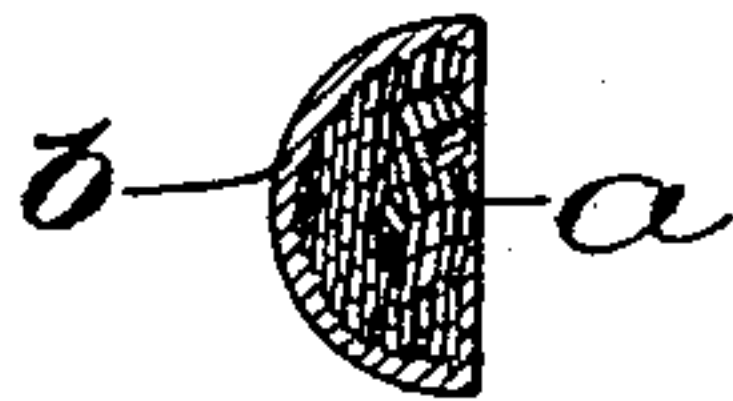
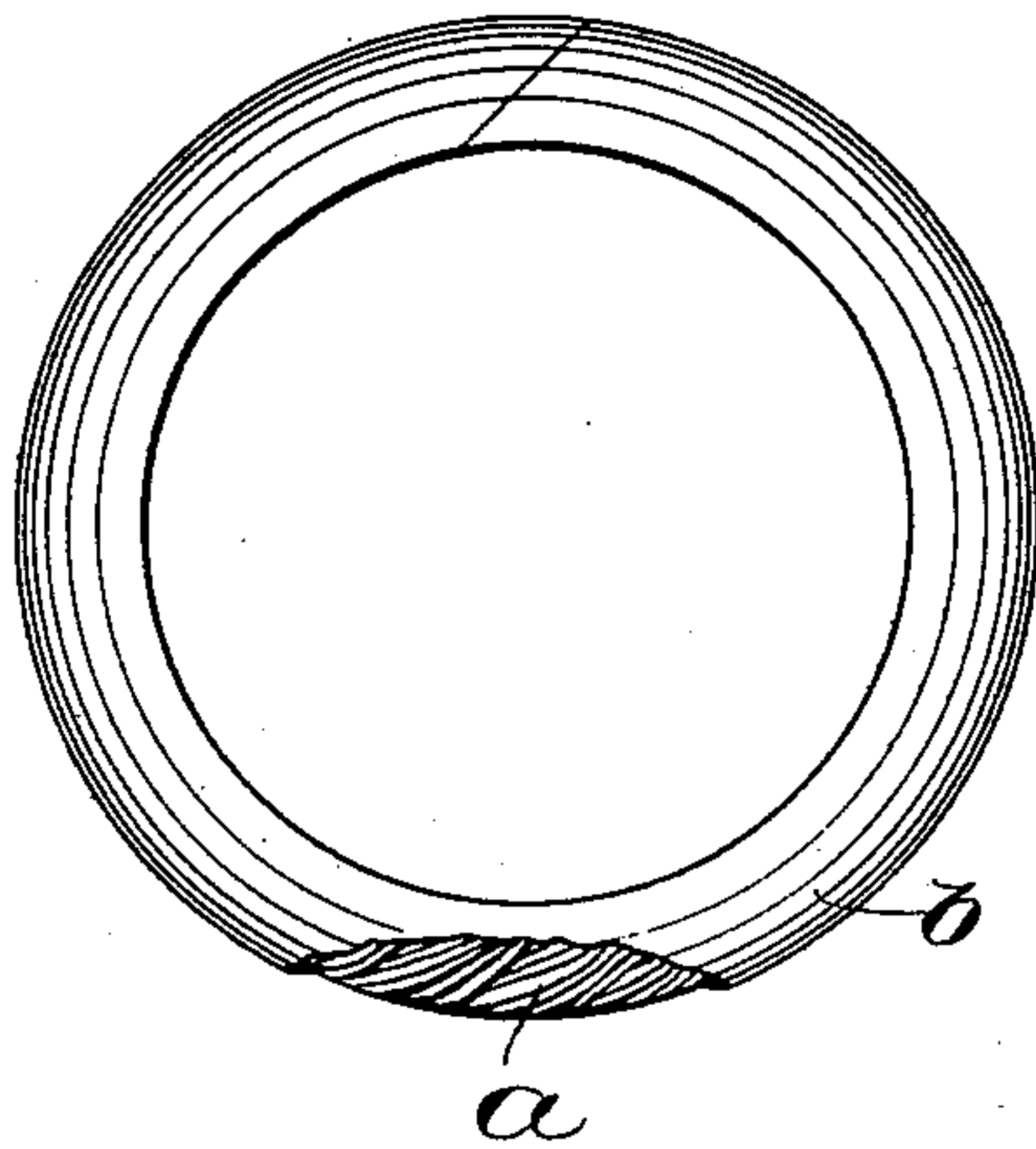


Fig. 3.



witnesses:
Jas. J. Maloney
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Inventor,
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by J. P. and H. J. Livermore
Att'ys.

UNITED STATES PATENT OFFICE.

EDWIN L. CLARK, OF AUBURNDALE, MASSACHUSETTS, ASSIGNOR TO CLARK FLEXIBLE METALLIC PACKING COMPANY, OF STANDISH, MAINE, A CORPORATION OF MAINE.

PACKING.

SPECIFICATION forming part of Letters Patent No. 713,964, dated November 18, 1902.

Application filed July 15, 1901. Serial No. 68,350. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. CLARK, of Auburndale, county of Middlesex, and State of Massachusetts, have invented an Improvement in Packing, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to packing material for pistons, &c., and is embodied in a novel form of metallic packing which consists, essentially, in a mass of soft metal in shredded or fibrous form saturated with plumbago, which acts as a lubricant, there being preferably oil or other liquid lubricant added as a flux for the plumbago to carry the same into the interstices of the metal fiber.

The object of the present invention is to obtain a fibrous metal packing put up in such form that it can be readily applied to the parts which are to be packed, the invention consisting mainly in a packing which consists of a fibrous alloy or any soft metal in the form of shreds or fibers combined with a binding of material which does not contribute to the function of the packing material, but merely serves to maintain the said packing material in a convenient form for use.

A further feature of the invention consists in the form of the packing-strip, which admits of the proper packing with the same strips of articles where different-sized spaces are to be filled by the packing material. While any kind of binding material—such as woven or coiled wire, cloth, or other fabric—may be used and applied in any suitable way, it is probable that the best material for this purpose is vulcanized rubber, which can be easily formed around the packing material proper and suitably shaped before being vulcanized, there being only sufficient of the material used to properly support the packing material, and the said rubber or other binding medium being rapidly disintegrated by heat and wear after the packing is in use, leaving the lubricated fibrous metal or metal alloy in contact with the moving parts which are packed.

Figure 1 is a longitudinal section of a strip of packing embodying the invention. Fig. 2

is a transverse section of the same, and Fig. 3 is a plan view of a strip of packing bent into a ring for application to a stuffing-box.

The packing proper, which constitutes the filling of the space to be packed, consists of fibrous metallic material *a*, preferably a fibrous alloy, which may be twisted or braided into a mass, as indicated, so as to be crushed into the proper shape by means of the packing-gland after the packing material has been placed in the chamber around the joint. For convenience in transporting and applying the packing the said mass of packing material, which is saturated with plumbago or other suitable lubricating substance, is bound together by means of an enveloping substance *b*, which is preferably rubber vulcanized after being applied or molded around the material *a*. The fibrous metal will readily absorb the lubricating substance, especially if the said substance—plumbago, for example—is carried by a flux of oil, the capillary attraction causing the fibrous alloy *a* to take up a large quantity of the substance, in fact, substantially to the point of saturation.

The enveloping material *b* is only used in sufficient quantity to bind together the mass of fibrous material *a* and to confine the lubricant, so that it can be readily handled and applied, the strip *a*, for example, being inserted into the space around the piston or other member to be packed and then squeezed into the proper shape by the application of the gland.

The binding material *b* after the packing has been placed in position is rapidly worn away, and if the packing is thereby loosened, so as to leak, it is necessary only to tighten the gland, thus causing the mass of lubricated fiber to fully fill the space.

When vulcanized rubber is used as the binding material, the heat developed by friction rapidly causes the rubber to disintegrate and be worn away, thus leaving the packing material in contact with the moving part, which is thus tightly packed and at the same time lubricated. By shaping the packing-strip, as shown, with a substantially semicylindrical cross-section it is obvious that the same packing-strip may be applied in spaces

of different width by winding a strip of packing around with the flat portion vertical or with the flat portion horizontal, according to the width of the space. It is, of course, not essential that the packing should fit tightly when first placed in position, as the fibrous metal α will be forced into the space by the action of the gland when applied. As shown in Fig. 3, a strip of the packing is shown as bent into the form of a ring with the flat portion vertical, the ends of the strip being beveled where they meet. The packing in this form can be easily inserted in the stuffing-box and will be crushed into shape by the gland, the fibrous metal being easily shaped by pressure.

While the shape described is, as stated, of substantial utility and forms a feature of the invention, it is not intended to limit the invention to any particular shape or configuration of the packing-strip, since such shape is immaterial, so far as relates to the main feature of the invention, which consists in the combination, with the fibrous alloy or analogous material, of a binding element combined therewith to form a homogeneous structure.

I claim—

1. A packing consisting of a body or mass of fibrous soft metal or alloy saturated with lubricant, the fibers extending lengthwise of the body, combined with a binding surrounding the mass of metal to maintain the mass in shape at all times and permitting that face which comes into contact with the moving surface to be speedily removed to expose the side faces of the fibers of metal, substantially as described.

2. A packing consisting of a body or mass of fibrous soft metal or alloy saturated with lubricant, the fibers or shreds extending lengthwise of the body in substantial parallelism, combined with a binding surrounding the mass of metal to maintain the mass in shape at all times and permitting that face which comes into contact with the moving surface to be speedily removed to expose the metal, substantially as described.

3. A packing consisting of a body or mass of fibrous soft metal or alloy saturated with lubricant, the fibers or shreds of the metal extending throughout the length of the body in substantial parallelism, combined with a binding of rubber surrounding the mass of metal or alloy to maintain the mass in shape at all times, and permitting that face which comes into contact with the moving surface to be speedily removed to expose the metal, substantially as described.

4. A packing consisting of a body or mass of fibrous soft metal or alloy saturated with lubricant, the fibers or shreds of the metal extending throughout the length of the body in substantial parallelism, combined with a binding of vulcanized rubber which maintains the mass in shape and presents to the rod or moving member a metallic packing-face, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN L. CLARK.

Witnesses:

NANCY P. FORD,
HENRY J. LIVERMORE.