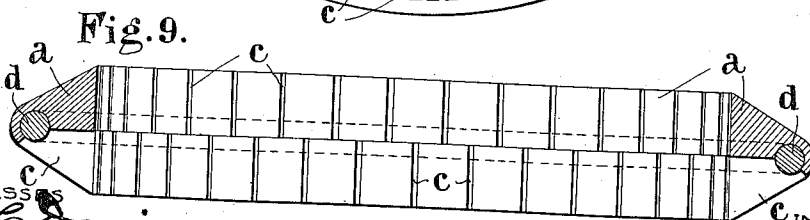
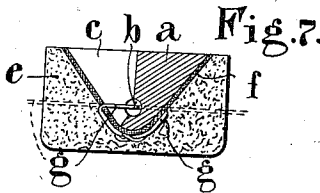
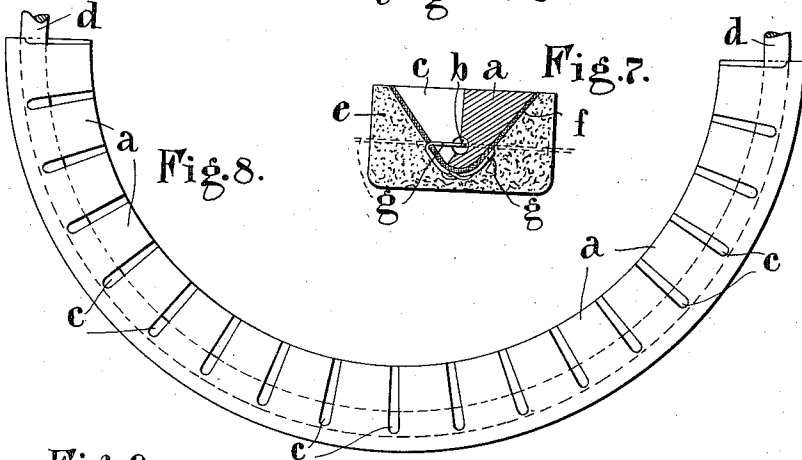
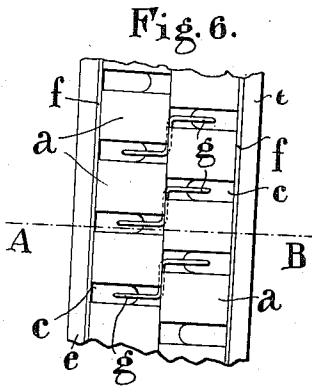
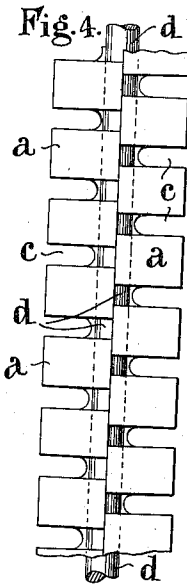
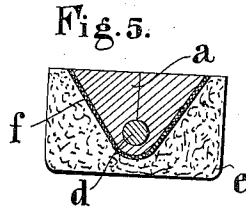
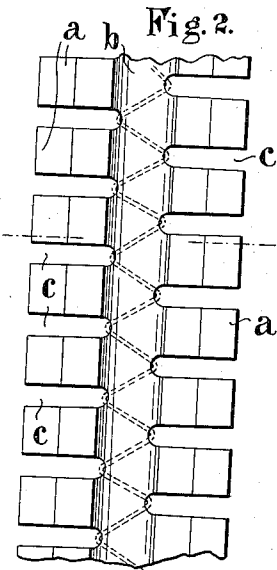
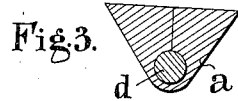
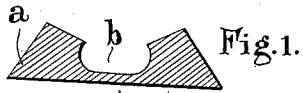


G. H. ROBINSON.
 PACKING FOR PISTON RODS OR THE LIKE.
 APPLICATION FILED NOV. 28, 1910.

1,000,293.

Patented Aug. 8, 1911.



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PACKING FOR PISTON-RODS OR THE LIKE.

1,000,293.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed November 28, 1910. Serial No. 594,476.

To all whom it may concern:

Be it known that I, GEORGE HUNTER ROBINSON, of 93 and 94 Gracechurch street, London, E. C., England, a subject of the King of Great Britain and Ireland, have invented certain new and useful Improvements in Packing for Piston-Rods or the Like, of which the following is a specification.

This invention relates to packing for piston-rods or the like, and has for its object to provide a packing which, besides being capable of making a thoroughly fluid-tight joint, is simple and easy to construct, capable of conforming to the shape of the piston-rod or other moving part in connection with which it is being used, and very durable.

According to the present invention the improved packing consists of a bar or strip or plurality of bars or strips of white metal or other anti-friction metal or alloy each of which is formed with a longitudinal cut along the wearing surface and with transverse slots on each side of said cut, the transverse slots being arranged in staggered relation to one another to prevent the passage of steam or other fluid from one side of the packing to the other.

The invention further comprises improved means for binding or affixing the metal packing to asbestos or other fibrous or textile packing, when it is desired to use such in conjunction with the metallic packing.

In the accompanying drawings, which illustrate several modes of carrying out the invention, Figures 1 and 2 are respectively a cross sectional elevation and plan of a convenient form of metallic bar which may be used. Figs. 3 and 4 are similar views showing the bar bent into shape. Fig. 5 is a sectional elevation showing one form of combined metallic and fibrous packing. Fig. 6 is a plan of a modification, and Fig. 7 is a section on the line A—B of Fig. 6. Figs. 8 and 9 are an elevation and plan showing the packing illustrated in Figs. 3 and 4, bent around to fit a piston or like rod.

In carrying out the invention according to one mode, a strip or bar *a* is rolled or cast or otherwise suitably formed of anti-friction metal such as white metal, of the

required length and width to suit the required size of packing. This bar in cross-section is an obtuse V-shaped channel or trough, the bottom face being flat and the sides being inclined substantially at right angles to the sides of the V-channel as shown clearly in Fig. 1. A section taken through the strip or bar is thus substantially double-wedge shaped, the thin ends of the wedges being adjacent to one another, and to further reduce the thickness of metal at the bottom of the V-shaped channel, a groove *b* may be cut along its length. The bar is then cut through from each side toward the center, the cuts *c* which may be parallel or V-shaped being made alternately on each side (Fig. 2) so that they are in staggered relation to one another. The cuts *c* may be made in any convenient manner, and if the bar is cast, the gaps are preferably formed during the casting by means of cores or the like. Along the bottom of the channel, or along the groove *b* if such is cut a piece of copper or other metal wire *d* is laid and the bar or strip is then bent from the sides upward so as to surround the wire. The sides of the V-channel are thus forced together, and what were the sides of the bar or strip now become the wearing face of the packing which is substantially V-shaped in cross-section as shown in Fig. 3. The saw-cuts or gaps *c* along the packing give flexibility to the same, and allow it to be bent round to any required shape, the cuts closing together as seen in Fig. 9. At the same time it will be seen that they occur alternately along the packing so that there is no direct way for the steam or other fluid from one side of the packing to the other.

This packing may be used alone, or with a strip of asbestos or other fibrous packing placed along each side of the V. Preferably, however, it is embedded in a channel in any suitable soft and pliable packing *e* (Fig. 5) such as asbestos, canvas or the like. This may be accomplished in several ways. For example the outside surfaces of the metallic packing may be roughened or scored, and a piece of asbestos cloth *f* or other fabric wrapped around it and attached to it by means of rubber solution or the like. This layer of fabric *f* is in turn secured to the channel in the soft packing *e* by means of

solution. Again instead of laying the wire *d* along the channel in the bar, the wire may be laid in and out of the saw-cuts or gaps on each side of the packing and along the central channel or groove, or it may be wound spirally around the bar, as shown dotted in Fig. 2, and pieces of fabric secured to the parts of the wire on the external surfaces of the packing, these pieces of fabric in turn being secured to the asbestos or other packing, *e* by rubber solution or other adhesive substance.

In a still further convenient method, illustrated in Figs. 6 and 7, instead of employing a single length of wire, a number of shorter pieces, *g*, may be used, which are laid across the packing through a saw-cut or gap *c* on one side of the packing and out through a saw-cut, preferably the next, or next but one, in the other side in such a manner that the ends of the wires project beyond the sides of the packing. A piece of fabric *f* is then wrapped around, being pierced by the wires *g* on either side, the ends of which wires are then bent back over the packing and twisted together (Fig. 7). The fabric covering is then caused to adhere to the asbestos or other packing, and this method possesses the advantage of allowing a certain amount of relative movement, while at the same time causing the same to adhere firmly together.

It will be understood that the invention may be modified in various ways. For example, the bar or strip of metal above referred to may be cut into a series of short strips by means of transverse oblique cuts. These pieces are then separately bent up from the sides in such a manner that the wearing faces of the packing are arranged in staggered relation to one another, thus producing a similar packing to that described above when a series of these strips or bars is used. The methods of threading them on wire, and causing them to adhere to an asbestos or other packing may be substantially the same as those described above.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. Fluid tight packing comprising a bar of anti-friction metal having a longitudinal cut along the wearing surface and transverse slots on each side of said cut, the transverse slots being arranged in staggered relation to one another as set forth.

2. Fluid tight packing comprising a bar of anti-friction metal formed with two wedge-shaped members having transverse slots arranged in staggered relation to one another said bar being bent up from the sides and the wedge shaped members abutting against one another in longitudinal direction, as set forth.

3. Fluid-tight packing comprising a bar of anti-friction metal of approximately double wedge shaped section provided with slots on each side placed in staggered relation to one another and having a longitudinal groove therein and a wire rod placed in said groove before bending the bar up from the sides.

4. Fluid tight packing comprising a bar of anti-friction metal divided longitudinally into two parts each of which is divided by transverse slots placed in staggered relation to one another, fabric secured to outside of said bar by wire and fibrous packing in which said bar is embedded and adhering to said fabric.

5. Fluid tight packing comprising a bar of anti-friction metal divided longitudinally into two parts each of which is divided by transverse slots placed in staggered relation to one another, fabric secured to the outside of said bar by wire loops, and fibrous packing in which said bar is embedded and adhering to said fabric.

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

GEORGE HUNTER ROBINSON.

Witnesses:

P. A. OUTHWAITE,
T. J. LEAFORD.