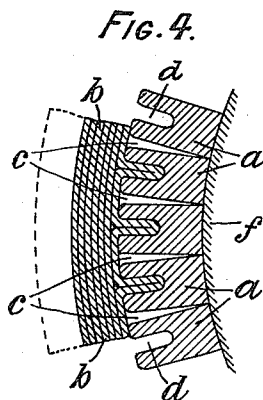
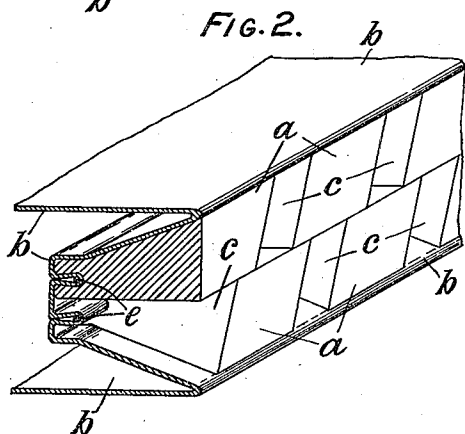
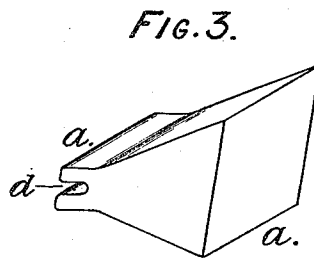
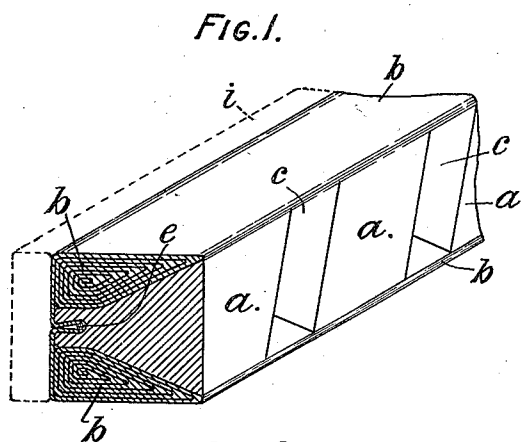


G. W. BELDAM.
ENGINE OR MACHINE PACKING.
APPLICATION FILED OCT. 19, 1914.

1,173,086.

Patented Feb. 22, 1916.



Witnesses.

Frederick Cornwall
J. M. Meyer

Inventor
G. W. Beldam.

By *J. M. Meyer*
Atty.

UNITED STATES PATENT OFFICE.

GEORGE WILLIAM BELDAM, OF EALING, ENGLAND.

ENGINE OR MACHINE PACKING.

1,173,086.

Specification of Letters Patent.

Patented Feb. 22, 1916.

Application filed October 19, 1914. Serial No. 867,470.

To all whom it may concern:

Be it known that I, GEORGE WILLIAM BELDAM, a subject of the King of England, residing at Ealing, in the county of Middlesex, England, have invented new and useful Improvements in or Connected with Engine or Machine Packing, of which the following is a specification.

This invention has reference to engine and machine packings, for making fluid tight joints between movable parts, such as piston rods, valve rods, of steam and like engines, pumps and the like, of the type generally known as "semi-metallic" packing, wherein the solid metal bodies or parts are used in conjunction with soft or flexible packing of textile fabric or material, asbestos, or the like; or of such material in conjunction with wire strands, wire gauze or mesh-work, or thin metal or metal foil.

The invention has for its object generally, to provide improvements in connection with this type of packing, by which it is rendered capable of being more readily fitted and applied, and will more readily accommodate itself to the rod, and have greater flexibility and give, and is generally advantageous.

The packing as made, will generally be in continuous form, consisting of separate blocks or pieces of substantial size of soft or white or other suitable metal, with spaces between them; and all connected together and held in and fixed to a backing or carrier of textile or like fabric, consisting of a plurality of laminae of textile fabric or material, or of such material and rubber or the like; and the blocks or pieces of metal are preferably of less depth or size at the back than at the front; and the flexible backing or carrying textile or like part makes up the rectangular or other form of packing it is desired it should have, as a whole. Furthermore the sides of these metallic blocks or pieces are inclined to the vertical or other plane so that at the face view they are of rhombus shape.

The invention will be further described with the aid of the accompanying drawings which illustrate it.

In the drawings, Figure 1 is a perspective view illustrating the packing according to the invention in one form—that is single form; and Fig. 2 represents a modification, showing the packing made up in double form. Fig. 3 is a perspective view showing one of the separate blocks or pieces which are used in the packing shown in Fig. 1.

Fig. 4 is a section through a form of the packing shown applied to a valve rod or other similar moving part.

Referring to the drawings, *a* represents the separate blocks or pieces of soft or white or other suitable metal, of which the metallic part of the packing is constituted; and *b* is the soft or flexible packing portion, of textile fabric, asbestos, or the like, either alone or in conjunction with wire strands, wire gauze, wire meshwork, or thin metal or metal foil or the like. The blocks or pieces *a* at their faces or parts which bear against the surface to be packed are of rhombus shape; and each of the blocks, which is separately held and secured to the textile or like portion *b*, is separated from the others by spaces designated *c*.

In the form of packing shown in Figs. 1 to 3, the blocks or pieces *a* are split or gapped at the back portion at *d*, toward which parts they are tapered from their faces; and this part is comparatively shallow, and is in itself of jaw form; and into this gap *d* the carrier canvas or like fabric or a fold of it is introduced; and a wire *e* is passed in between the folds, and it holds this folded portion at the bottom of the gap *b*; and when placed in this position, the gap will be closed up so as to grip the inclosed fold and wire, so that the wire and closure serve as a holder means to the blocks. Thus, the packing while comprised largely of interspace metal pieces or blocks *a*, will be all in one, and the pieces will keep their relative positions, both in the form in which the packing is stocked for sale, and afterward in use in the stuffing box, or engine or machine.

When fitting the packing in the gland or receptacle, the parts will be so arranged that the spaces *c* between the adjacent pieces or blocks of metal in the ring, will lie over the blocks *a* of the adjacent layer of packing, in "break" joint fashion; so that in the successive rings or rows of packing, the spaces in one row will lie at a point between the spaces of the adjacent rows; and the width of the blocks *a* will be preferably substantially larger than the spaces *c*, as shown in the drawings, say from once to twice larger.

The form of packing shown in Fig. 2, comprises two or more layers or rows of metal blocks or pieces *a* which in the case shown, lie directly one upon the other (or they may have laminae of canvas or the like between them), in which case the spaces *c*

between the blocks in the different rows, lie at points between the spaces of the adjacent or other row or rows; and in such a case, the metal blocks or pieces *a* at the top and bottom, will be preferably inclined or diminish in depth or thickness from the front face of the blocks to the back, as is shown in the drawing; and the meeting surfaces of the blocks or pieces in the different rows are parallel. In this case, as in that shown in Fig. 1, the back part of the blocks, has a groove or gap *d* in it, constituting a species of rearward projection or flange of jaw form.

The packing according to this invention, adapts itself very readily to any required circle, and lengths of it are easily spiraled, and the packing is generally more adaptable and accommodates itself to the rod, and the convolutions, one toward the other; especially in cases where the packing is wound a plurality of times in spiral form around the rod, when there is a tendency for the top convolutions to prevent self-adjustment and accommodation; but by the present packing this is obviated, and the metal parts adjust themselves very freely, both in relation to one another in the pieces, and also in the coils. In this packing, it will be seen therefore, that each block or piece of metal—which say is a rod cut up into pieces—is separately held in position, and when the length of packing is finished, and complete for use, each of these metal blocks acts independently and the flexibility of the packing as a whole is practically equal to the flexibility of the fabric or material with which the pieces or blocks are combined.

In the case shown in Figs. 1 and 2, the packing is used so that the grooves or gaps *d* of the blocks *a* by which they are held at the back, are in planes at right angles to the axis of the rod or part to be packed; but according to a modification, these blocks may be used so that the fastening groove is vertical. This is illustrated in Fig. 4 which is a transverse section; and in this figure *f* represents a part of the rod or other part to be packed with the packing.

In the form shown in Fig. 4, a layer or layers of the flexible carrier part *b*, which comes next to the back of the blocks *a*, will be of crimped or corrugated form, as shown; and this part is entered into the vertical gap,

and the parts of the block on each side of it are pressed on to it, and so the several blocks are held in relation to one another as desired; and in this case the side edges of the working faces of the blocks *a* may come up against one another at the rod or part; whereas, outside this point from the center of the rod, the tapered spaces *c* exist. If the rings of packing, constructed in this form of Fig. 4, be arranged around the rod in plurality, in the stuffing box, and with "break joint" arrangement of blocks in the successive rings or turns of packing, so that in the adjacent rows or turns, a block will lie over or opposite a gap *c*, as referred to in connection with Figs. 1 and 2 above, they will act effectively in preventing the passage of fluid past them.

What is claimed is:—

1. A rod packing comprising in combination a trough-shaped carrier provided at its bottom with an inwardly extending rib formed by crimping the material from which the trough-shaped member is formed, a wire disposed within the recess formed by crimping the rib, a plurality of blocks spaced apart from each other and disposed within the carrier, said blocks being provided with bifurcated ends which are adapted to engage the rib.

2. A rod packing comprising in combination a trough-shaped carrier provided with an inwardly extending rib, a wire disposed in the said rib, and a plurality of spaced blocks provided with bifurcated ends and disposed in the said carrier with the rib and wire in the bifurcated ends.

3. A rod packing comprising in combination a trough-shaped carrier provided at its bottom with a plurality of inwardly extending ribs, a plurality of wires disposed within the ribs, and a plurality of rows of separate blocks disposed within the said carrier, the blocks of each row being provided with bifurcated ends and being engaged by one of the ribs and wires.

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

GEORGE WILLIAM BELDAM.

Witnesses:

S. J. EARL,

CHAS. J. FALCONER.