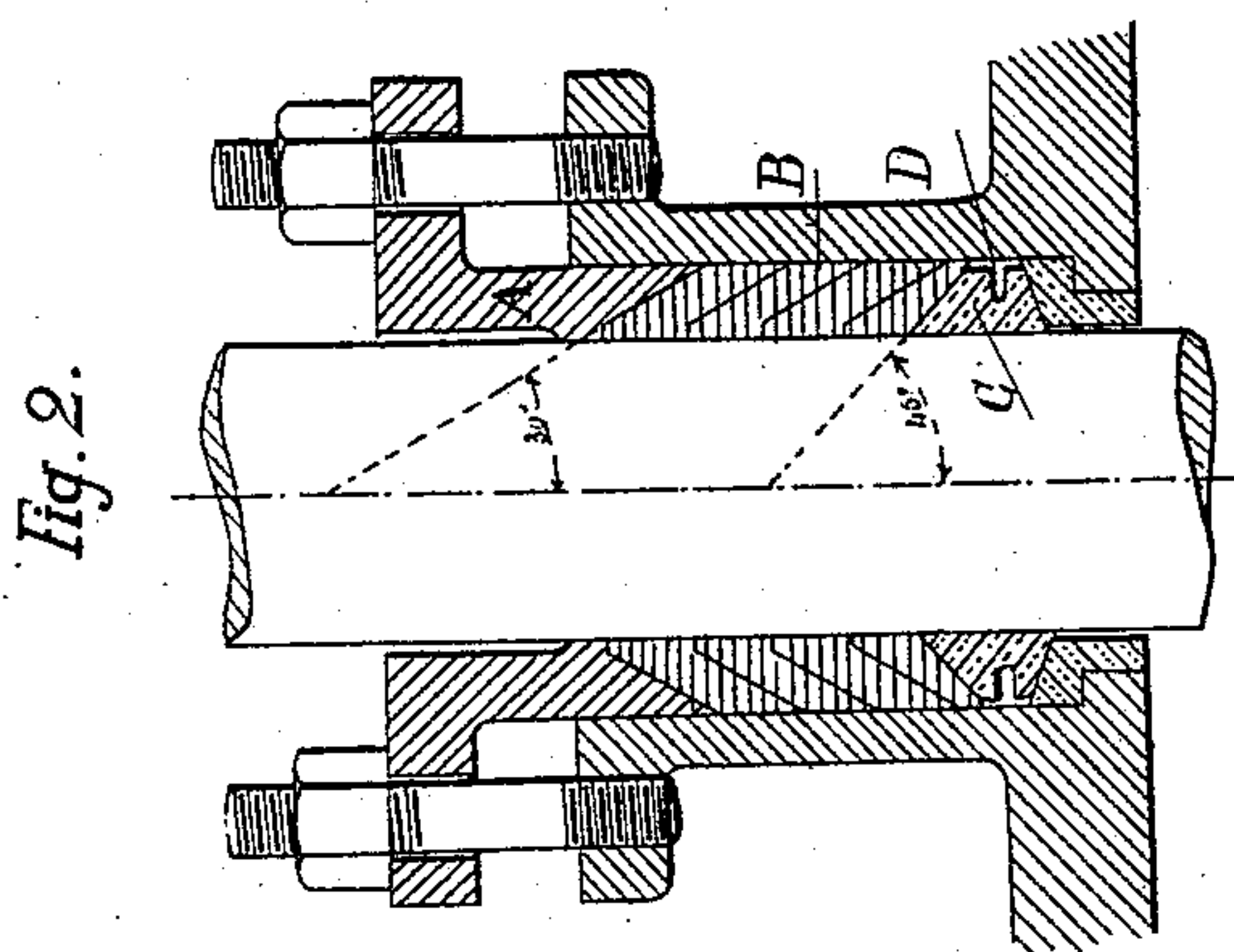
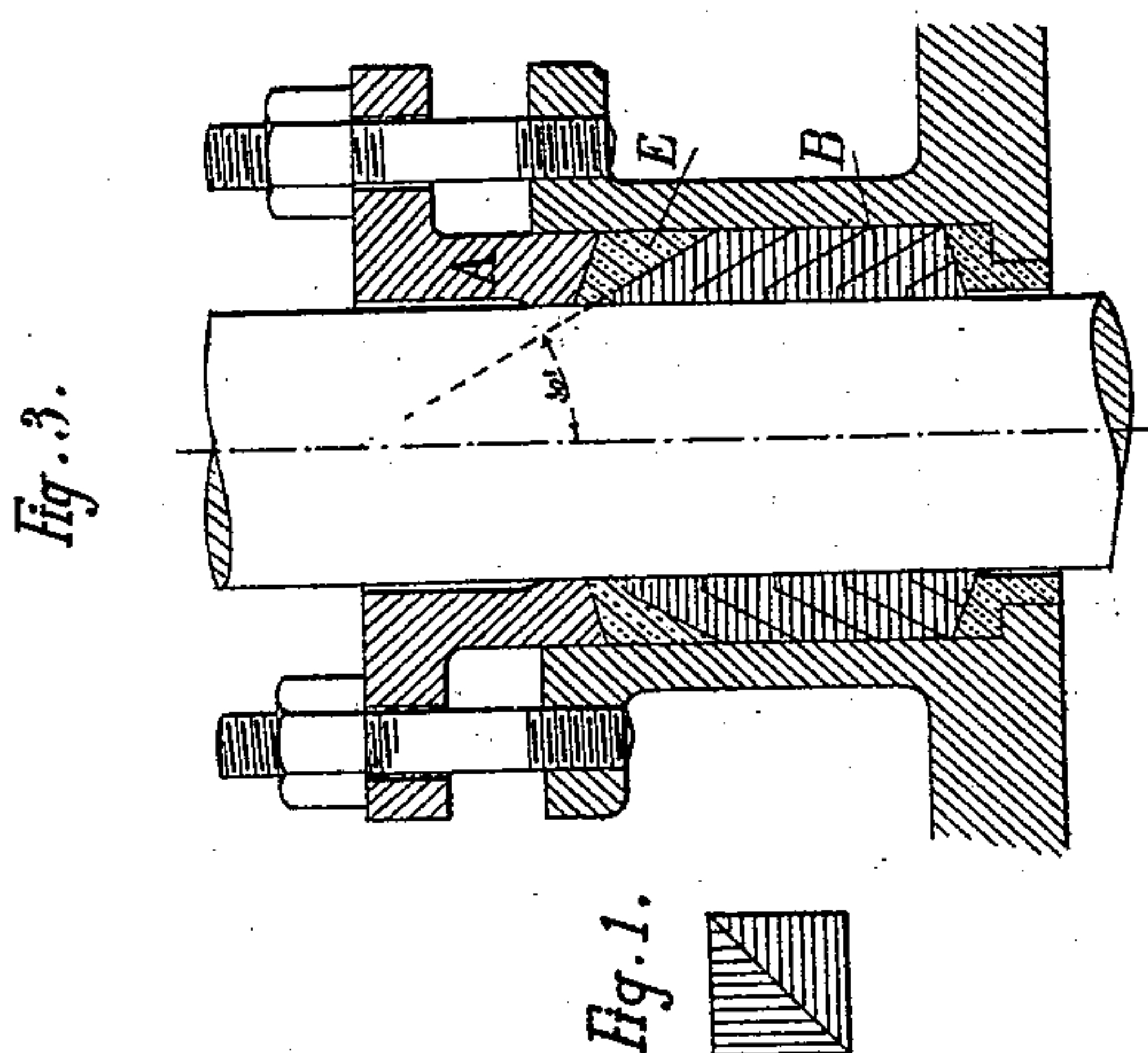
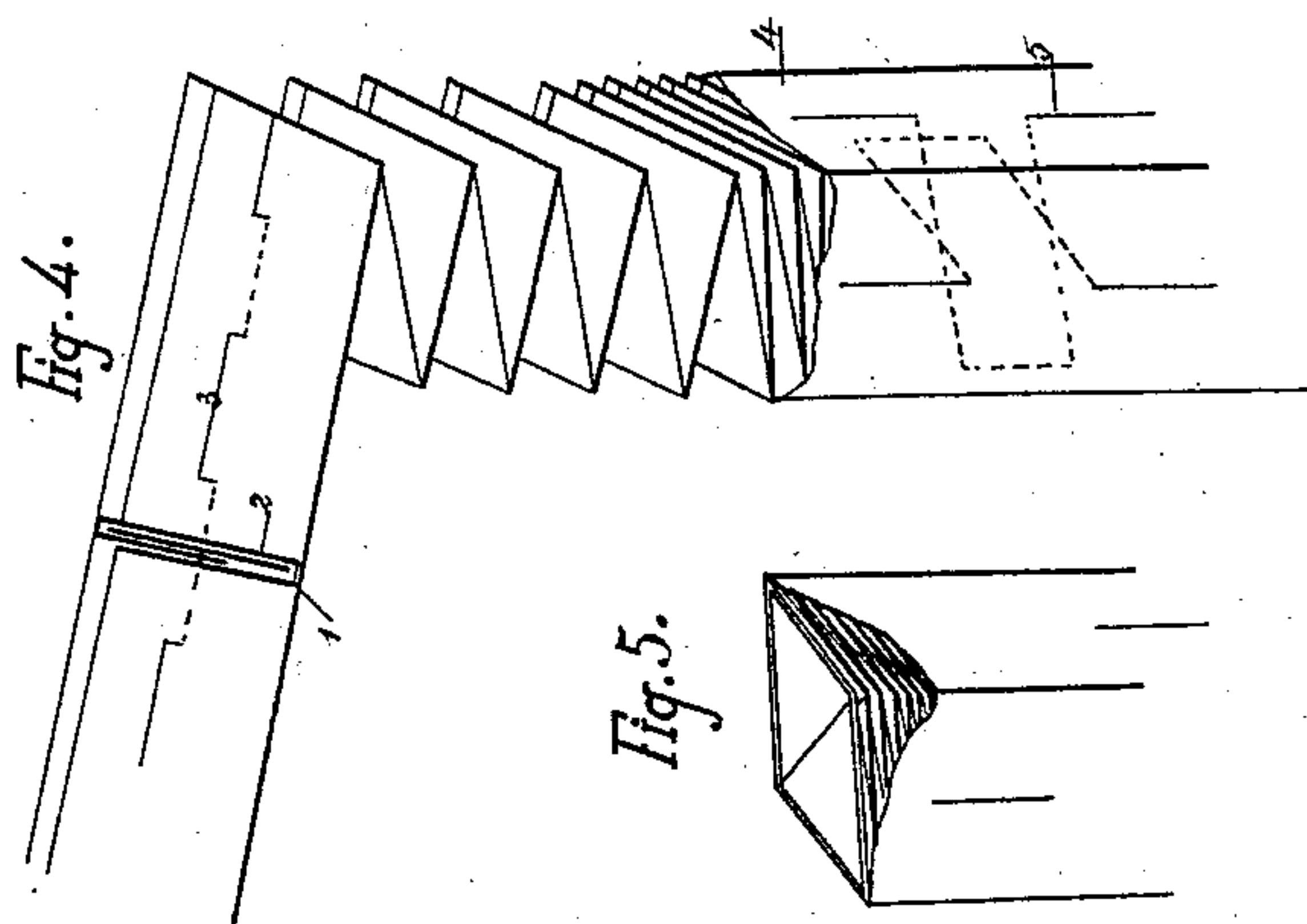


(No Model.)

J. M. GUIBAL.
METALLIC PACKING.

No. 414,882.

Patented Nov. 12, 1889.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOSEPH MARIE GUIBAL, OF ODESSA, RUSSIA.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 414,882, dated November 12, 1889.

Application filed March 7, 1889. Serial No. 302,376. (No model.) Patented in France October 28, 1886, No. 179,280; in Belgium December 17, 1886, No. 75,633, and in England February 21, 1887, No. 2,696.

To all whom it may concern:

Be it known that I, JOSEPH MARIE GUIBAL, a citizen of the French Republic, residing at Odessa, Russia, have invented a new and useful System of Metallic Packing for Stuffing-Boxes, (for which I have obtained Letters Patent in France, No. 179,280, dated October 28, 1886; in Belgium, No. 75,633, dated December 17, 1886, and in Great Britain, No. 2,696, dated February 21, 1887;) and I do hereby declare that the following is a full, clear, and exact description of the invention.

My invention has for its object the manufacture of a new packing for stuffing-boxes of piston-rods, for valves, and for joints of all kinds.

My packing is composed of a combination of various metals united without fusion, which is an essential point to give this packing a resistance to temperature approaching that which the employed metals have in their natural state, said metals being prepared in thin sheets enveloping a ribbon of a greased tissue and then folded in a zigzag manner, so as to form a kind of spiral of a rectangular or square section, which spiral is sewed into a woven sheath, forming in this manner a packing flexible in all directions.

This packing can be continually used—that is to say, that the used packing is never removed from the stuffing-box, and that it is sufficient to add on top of the old packing some new for keeping the joint in a good condition.

In order to make my invention well understood, I have represented in the annexed drawings, which form a part of this specification, the series of operations necessary for the manufacture of the new packing.

Figure 1 shows a special arrangement of the packing. Figs. 2 and 3 show the application of my packing in stuffing-boxes. Fig. 4 shows the usual method of manufacture of the packing of my invention.

The most suitable metal is a combination of twenty parts tin applied without fusion on eighty parts lead. The metal is laminated in thin sheets, and subsequently cut in strips. These strips are then lengthwise applied on a narrow ribbon. This operation is shown in Fig. 4, where the metal is indicated by 1 and

the ribbon by 2. This ribbon can be made of wool, linen, cotton, or silk, &c. The ribbon is sewed over its entire length with large stitches 3, and is then folded together with the metal strip in a perfectly regular zigzag manner. Those foldings are flattened in a mechanical way one on the other, and are then compressed in a sheath of cotton yarn 4, forming in this way a perfectly square packing, flexible in all directions. This metallic packing is then attached to its sheath over its entire length by means of crossing longitudinal sewings 5, so that the packing can be transversely cut at any place and into small pieces without leaving its proper place in its sheath. The sewing is done with yarn of cotton, wool, silk, or brass wire. After the mechanical flattening of the folding the latter can be cut through in a diagonal line, as shown in section in Fig. 1, and then, leaving the two parts juxtaposed, be compressed in the sheath in the same way as previously described. This arrangement is shown in Fig. 5.

To effect a tightening a packing is selected a little thicker than the width of the packing-space, so that the packing must be slightly jammed in its place. Then the packing is passed around the rod for the purpose of ascertaining its circumference, whereupon it is cut through in a transverse way at proper distances, so that every piece forms a complete ring around the rod without leaving any open space between the ends. It may be noted that the ring can be composed of several pieces, provided they have the same thickness; consequently all small ends are used and there is no loss whatever.

The drawings show the application of this kind of packing on a stuffing-box. The rings, which are cut, as heretofore explained, are introduced one after the other in the stuffing-box. The under end of the follower A must be made sloping under thirty degrees to the piston-rod, leaving around the rod a small flat edge of about one-fifth of the width of the packing-space. (See Fig. 2.) Each ring is successively pushed to its place by the follower; consequently those rings will assume a conical shape, as shown in B, and, through the pressure of the follower, they will quoin at one side against the rod and at the other side

against the interior surface of the stuffing-box, which causes the steam-tightness of the packing. An ordinary follower may also be used, provided that a ring E with the same
5 sloping of thirty degrees be placed on its under end. When it is difficult to obtain complete tightness, a ring C, in two parts, is applied at the bottom of the stuffing-box, which ring is provided with a groove D for the re-
10 ception of a string while being put at its place.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent in the United States, is—

15 1. A metallic packing composed of laminated strips of metal combined with a longi-

tudinal ribbon of greasy woven fabric, the whole being folded in a zigzag manner, substantially as set forth.

2. A metallic packing consisting of a strip 20 of metal folded in a zigzag manner, as described, forming a long body in which the layers or zigzags are transverse to the direction of its length, substantially as set forth.

In testimony whereof I have signed this 25 specification in the presence of two subscribing witnesses.

JOSEPH MARIE GUIBAL.

Witnesses:

LÉON PAPPADATOS,
THOS. E. HEENAN.