

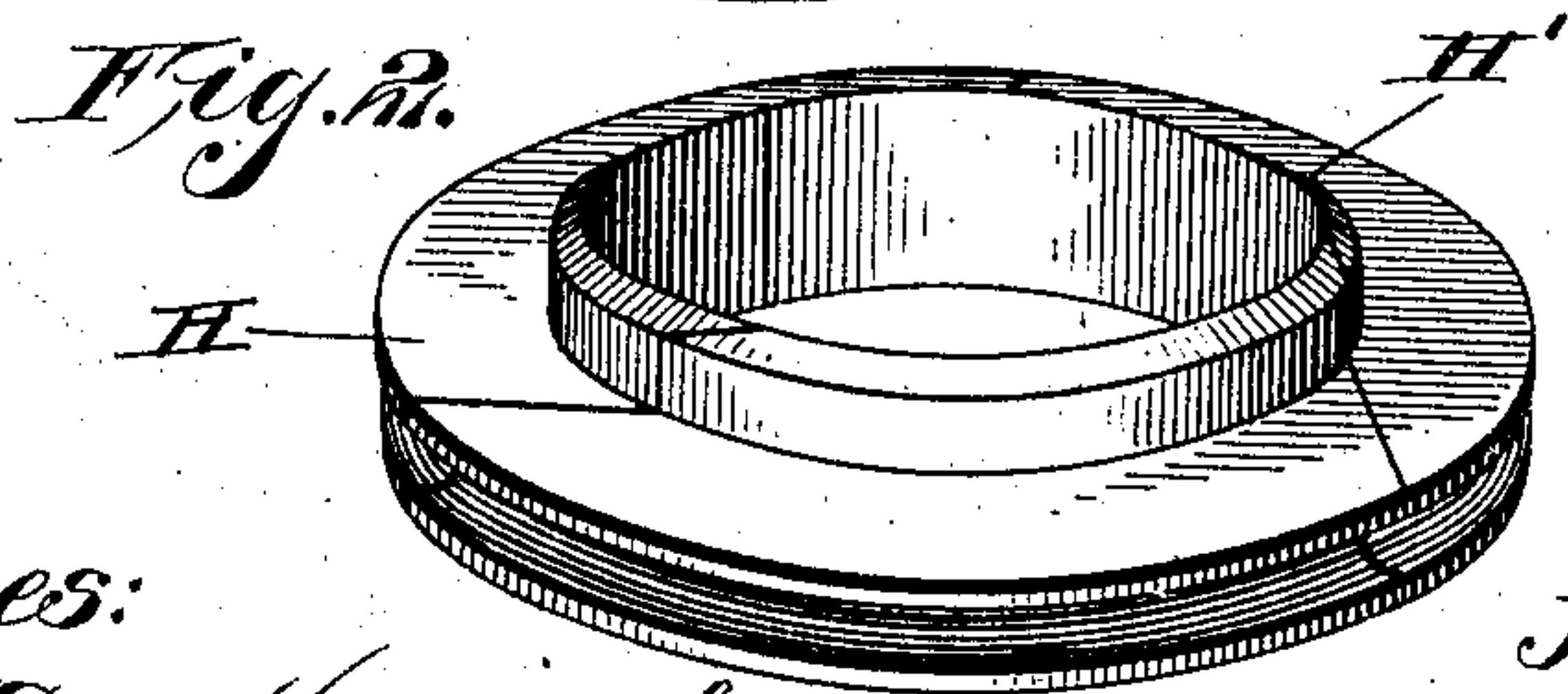
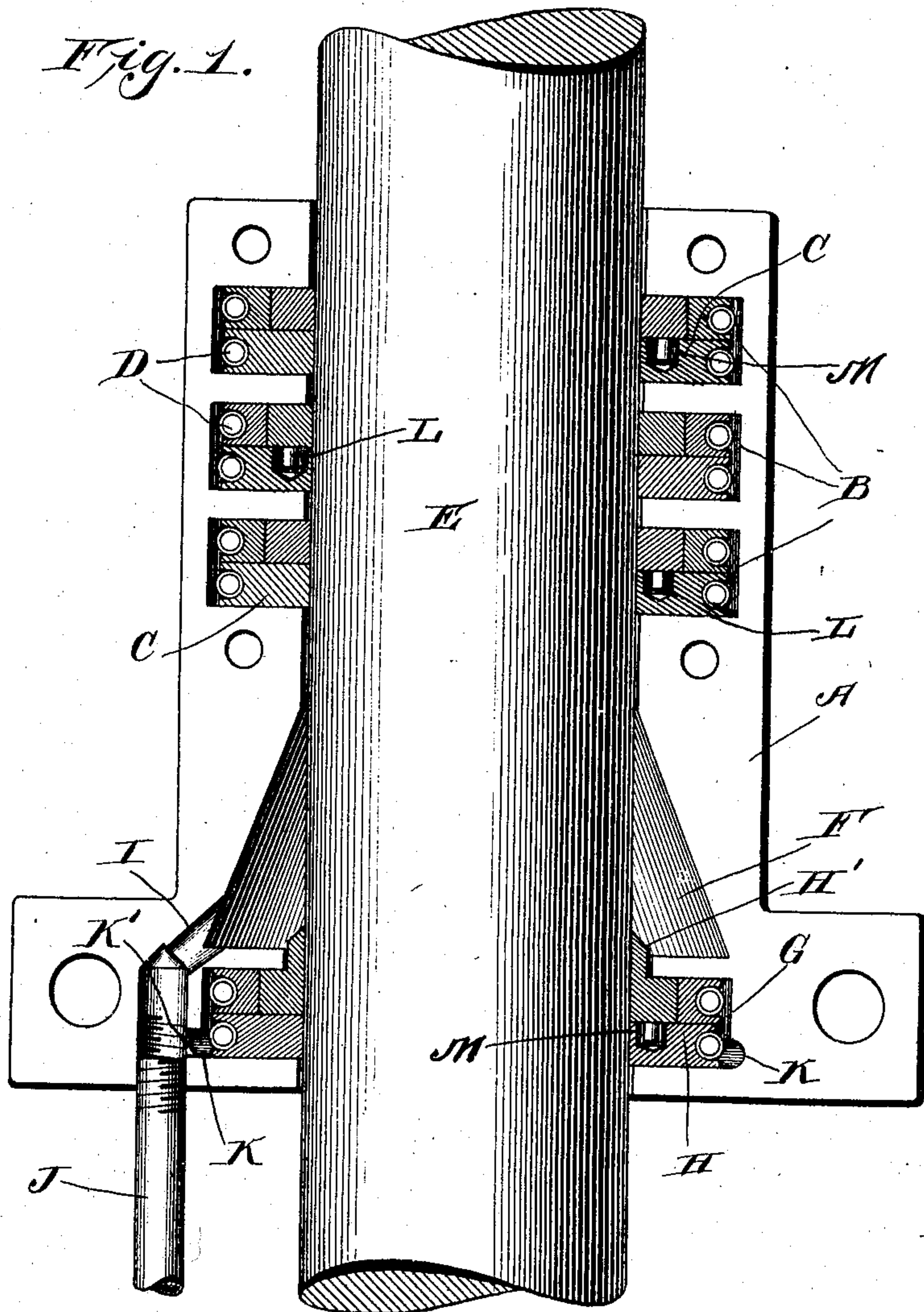
No. 791,300.

PATENTED MAY 30, 1905.

J. H. SMITH.
METALLIC PACKING.

APPLICATION FILED MAR. 10, 1903.

2 SHEETS—SHEET 1.



Witnesses:

Louis D. Heinrichs
L. H. Morrison

Inventor
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By his Atty

W. J. Thomas

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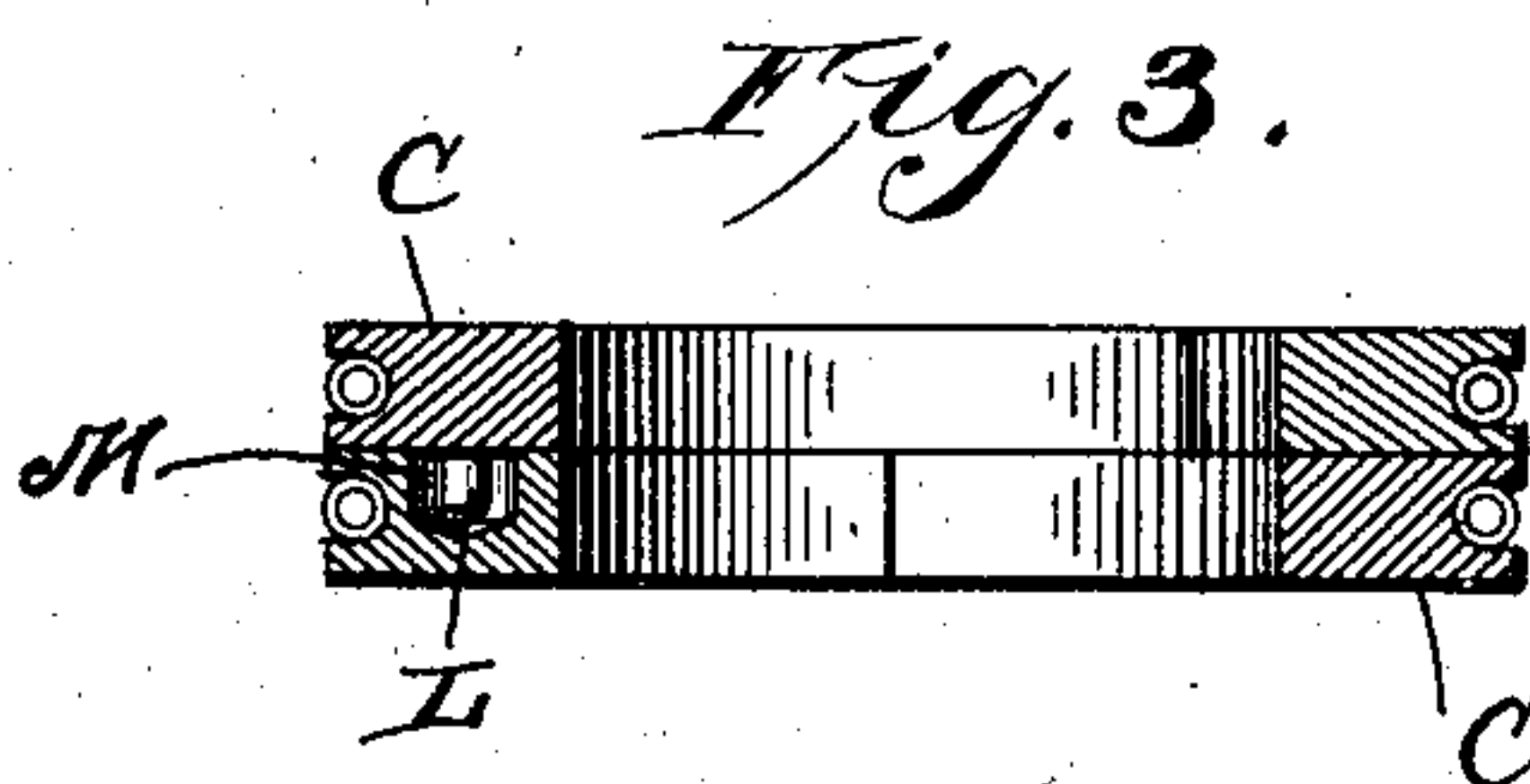


Fig. 4.

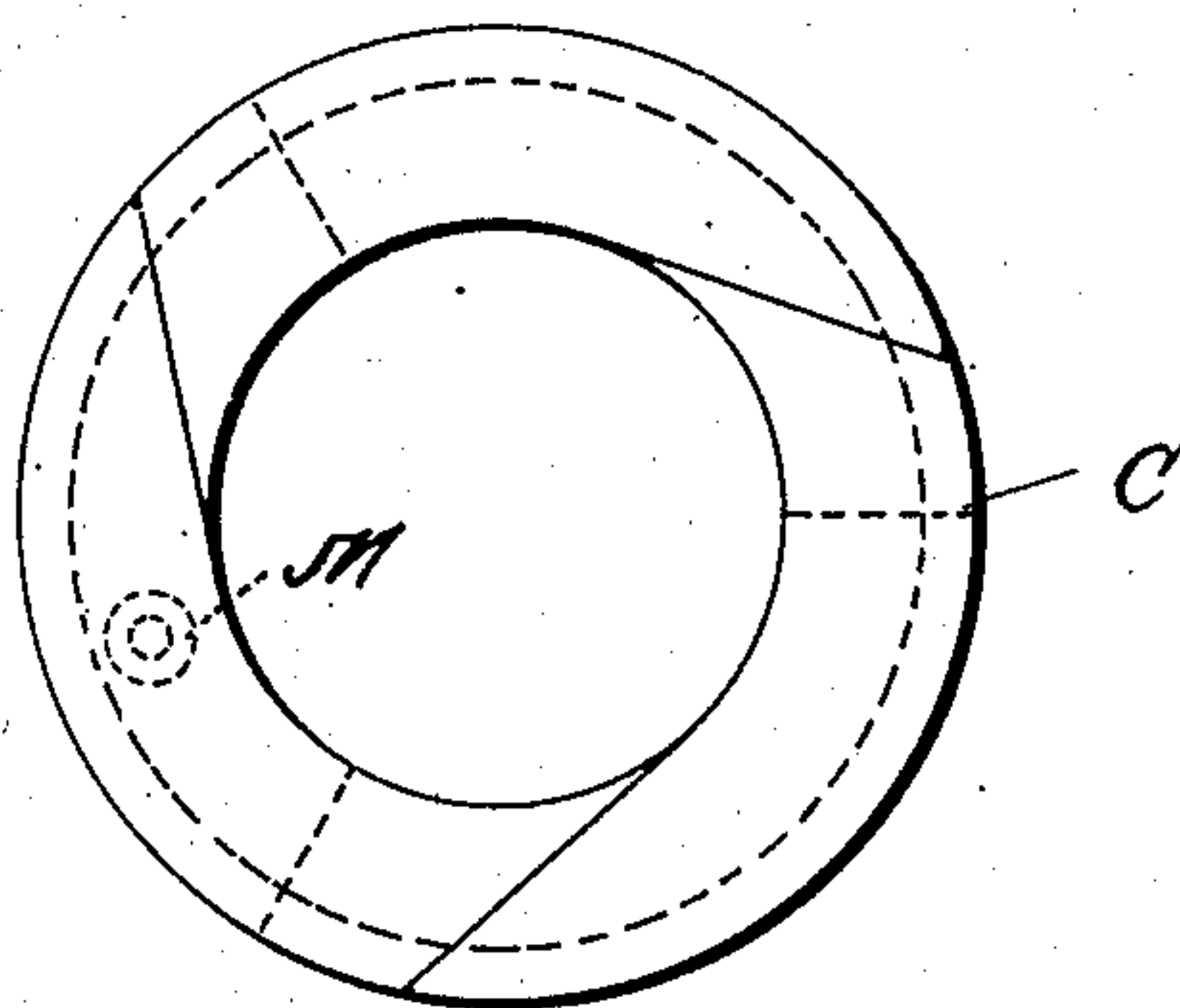


Fig. 5.

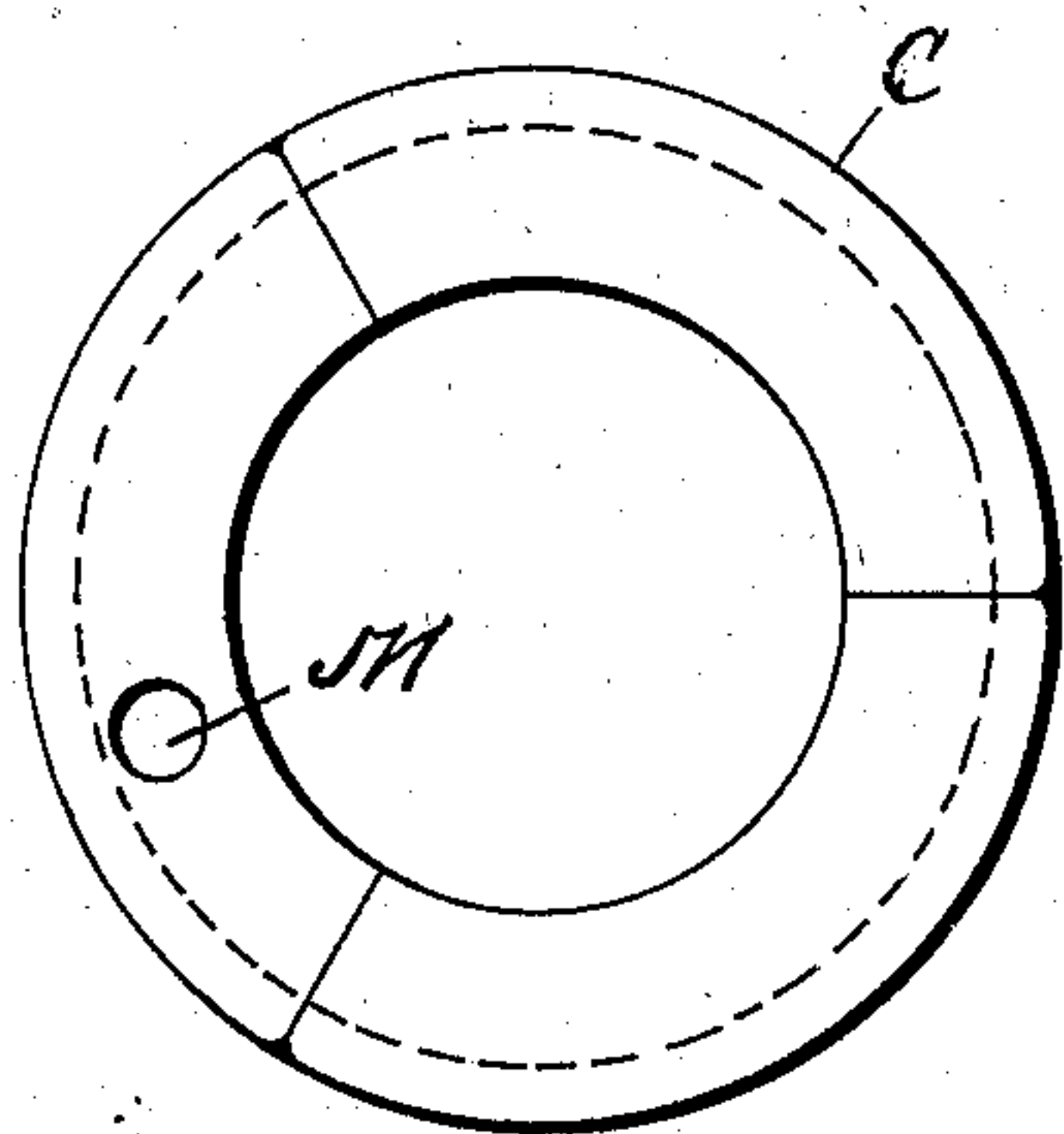
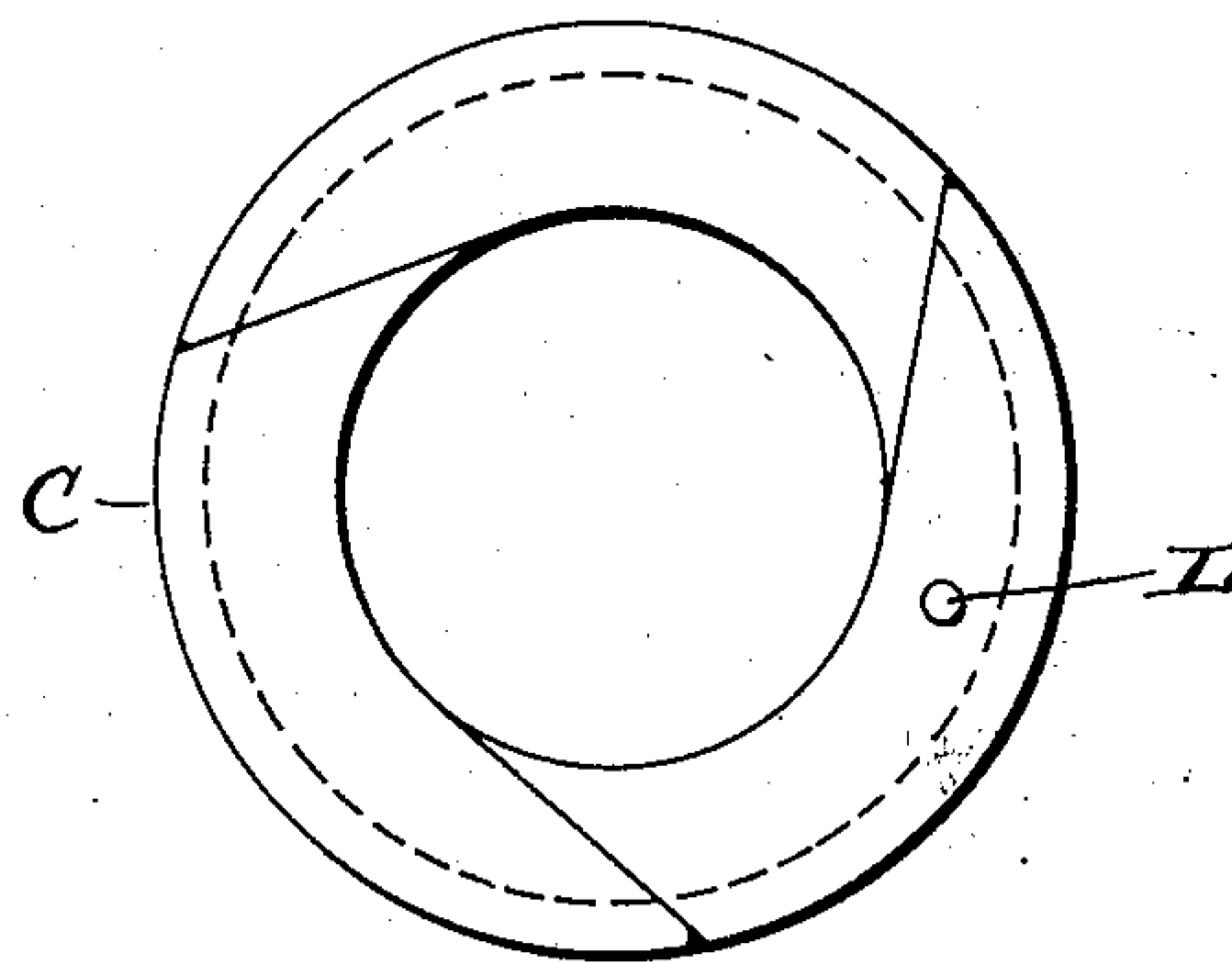


Fig. 6.



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UNITED STATES PATENT OFFICE.

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METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 791,300, dated May 30, 1905.

Application filed March 10, 1903. Serial No. 147,046.

To all whom it may concern:

Be it known that I, JAMES H. SMITH, a citizen of the United States, residing at Wilkesbarre, county of Luzerne, and State of Pennsylvania, have invented a certain new and useful Improvement in Metallic Packing, of which the following is a specification.

My invention relates to a new and useful improvement in metallic packing, and has for its object to provide a metallic packing to be applied to piston-rods and provide means within the casing of the packing to catch the water formed by the condensation of steam and convey the water to a suitable waste-pipe; and a further object of this invention is to provide means for holding the packing-rings in the proper relation to one another.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which--

Figure 1 is a central section through the metallic packing, showing my improvement applied thereto; Fig. 2, a perspective view of the upper one of the lower set of packing-rings; Fig. 3, a cross-sectional view of two packing-rings, showing my improved means for holding the two in proper relation to one another; Fig. 4, a plan view of Fig. 1; Fig. 5, a plan view of one of the rings; Fig. 6, a plan view of the other ring.

The great disadvantage of metallic packing is that when it is applied to a vertical piston-rod the water formed by the condensation of steam will travel down the piston-rod and flow out of the lower end of the packing upon the floor or surrounding objects, thus causing a great inconvenience and a deterioration of metal-work on account of rusting.

In my invention I provide means whereby the water is caught within a cavity within the casing of the packing and is conveyed from

said cavity by a suitable pipe to any point desired.

A represents the usual longitudinally-divided casing provided with a series of cavities B, in which the packing-rings C are held when the two halves of the casing are secured together. This constitutes a metallic packing, the coil-springs D, surrounding the ring C, holding said rings in close contact with the piston-rod E. These packing-rings prevent the escape of steam from the cylinder around the piston-rod, but do not prevent the flow of water caused by the condensation of steam. In the lower end of the casing A, I provide an annular conical-shaped cavity F, surrounding the piston-rod, and below this cavity F, I form within the casing an annular cavity G, similar to the cavities B, formed in the upper end of the casing. In this cavity G is fitted a set of packing-rings H, similar to the packing C in the upper end of the casing; but the upper ring of this set is different from the other packing-rings in that it is provided with an annular ledge H', extending upward from the ring and coming in close contact with the piston-rod, and the upper edge of this ledge is beveled downward and away from the piston-rod, as shown in Fig. 1. Thus it will be seen that this ledge provides a sharp edge coming in close contact with the piston-rod, which will practically scrape and divert the water from the piston-rod into the cavity F, and leading from this cavity F is a duct I, into which a pipe J is threaded, which will convey the water from the cavity F to the drain or suitable waste-receptacle. Should any water pass from the cavity F in around the rings H into the cavity G, I have provided a means for draining off this water, so as to prevent it from escaping around the piston-rod, and for this purpose I have provided an annular groove K, formed in the lower end of the wall of the cavity G, and this groove K is connected at the point K' with the duct I, so that the water within the cavity G will also drain off through the pipe J. It will thus be seen that without interfering with the functions in the device in preventing the escape of steam I have provided means in the same

casing to prevent the escape of water around the piston-rod, and, in fact, at the same time I have increased the effectiveness of the packing against the escape of steam by adding another set of packing-rings below the water-cavity.

In Figs. 3, 4, 5, and 6 I have shown an improved method of holding the packing-rings contained in one cavity in the proper relation to one another. The spring packing-rings now in general use in packing of this description are sectional rings surrounding the piston-rod and held in contact therewith by annular helical springs surrounding said rings. There are generally two rings adapted to each cavity, one of the rings being divided tangentially with the central opening and the other ring being divided radially, and it is essential that the two rings be held in such a position relative to one another that the joints of one ring do not cross the joints of the other ring, and the usual method of accomplishing this heretofore has been to provide one of the rings with a pin which will extend in between two of the sections of the radially-divided ring; but this method has been found to be a disadvantage, owing to the fact that the two sections of the radially-divided ring are held somewhat apart from one another, so as to allow the steam to escape through the ring. My improvement consists in providing one of the sections of the tangentially-divided ring with a cavity M considerably larger in diameter than the pin L, and said cavity does not extend through the ring. In placing the rings together the pin L fits within the cavity, thus keeping the joints of the two rings from overlapping one another, and on account of the increased diameter of the cavity sufficient room is left for the expansion and contraction of the rings, so as not to affect their efficiency as a packing, and another advantage of this construction is that the faces of the rings which are designed to come together will always be placed in this position, as the cavity does not extend through the ring and there is only one way to assemble the parts. In the old construction, in which the pin extended between the sections of the radially-divided ring, the rings were sometimes placed in their wrong position—that is, with the wrong faces opposed to one another.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. The combination of a metallic packing, of a longitudinally-divided casing, packing-rings adapted to the upper end of said casing

with a set of packing-rings adapted to the lower end of said casing, the upper packing-ring of this set being provided with an annular upwardly-extending ledge, the upper edge of said ledge being beveled, the casing provided with an annular cavity located between the upper and lower sets of packing-rings, the annular ledge extending upward within said cavity, and a duct leading from the cavity, as and for the purpose specified.

2. In a metallic packing, a casing, sectional packing-rings located within the casing and surrounding the piston-rod, an annular cavity provided within the casing below the packing-rings and surrounding the piston-rod, means located within said cavity for diverting water from the piston-rod into the cavity, and a drain-pipe leading from the cavity, as and for the purpose specified.

3. In combination in metallic packing, a longitudinally-divided casing, a series of annular cavities provided in the upper end of said casing, packing-rings adapted to said cavity, the casing being provided with an annular conical-shaped cavity located below the packing-rings, the casing provided with an annular cavity below the cone-shaped cavity, packing-rings adapted to said cavity, the upper ring within the last-named cavity being provided with an upwardly-extending annular ledge in close contact with the piston-rod and protruding within the cone-shaped cavity, the upper edge of said ledge being beveled, and a drain-pipe leading from the cone-shaped cavity, as and for the purpose specified.

4. In a metallic packing, the combination of a longitudinally-divided casing having packing-rings adapted to the upper end thereof with an annular chamber formed in the casing below the packing-rings, a duct leading from said chamber to a suitable drain-pipe, an annular cavity formed in the casing below the annular chamber, an annular groove formed in the lower end of the walls of said cavity, said groove communicating with the duct leading to the drain-pipe, a set of packing-rings adapted to this lower cavity, the upper end of this set being provided with an upwardly-extending annular ledge in close contact with the piston-rod and protruding within the annular chamber, the upper edge of said ledge being beveled downward and away from the piston-rod, as and for the purpose specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JAMES H. SMITH.

Witnesses:

MARY E. HAME,
L. W. MORRISON.