

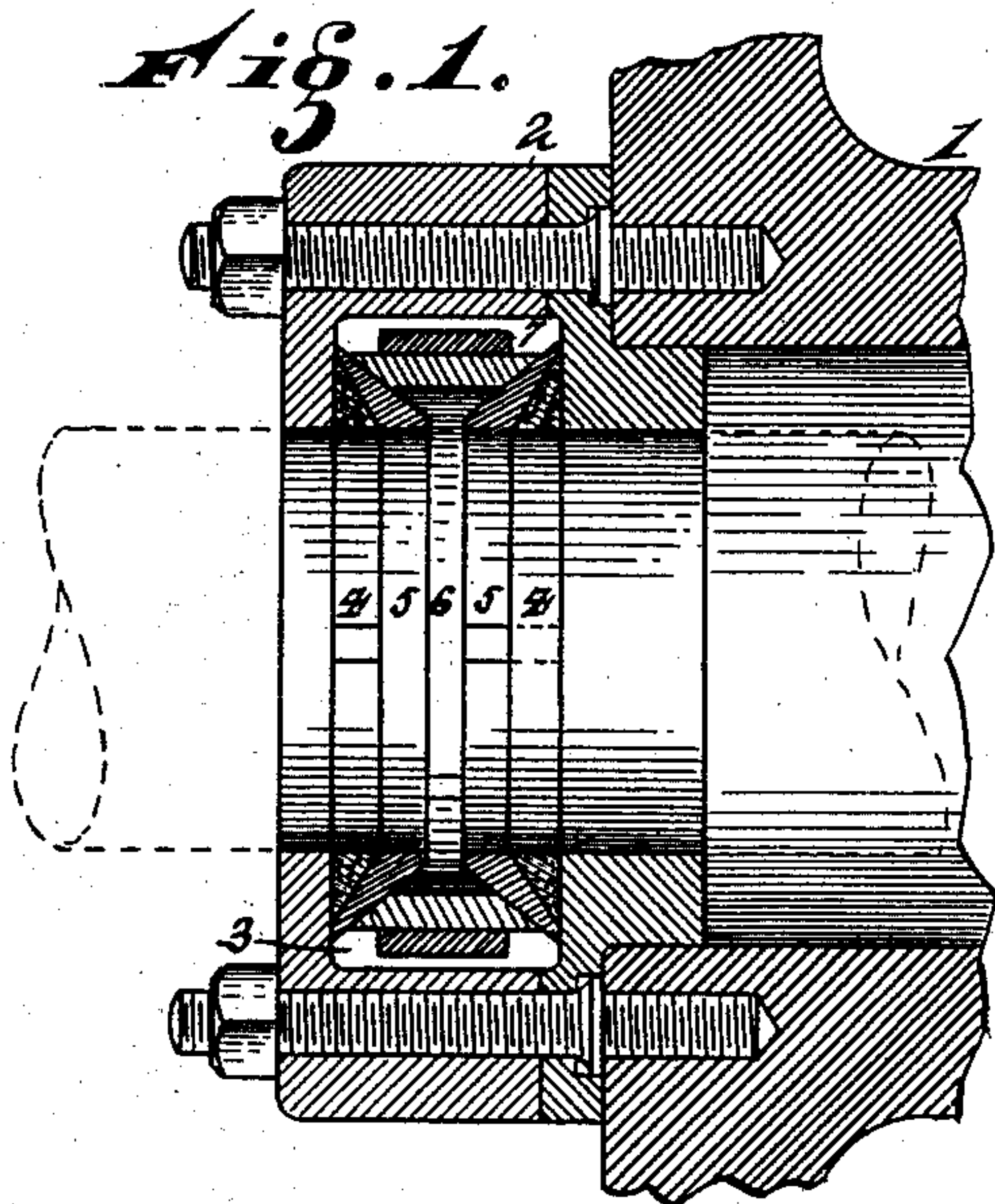
(No Model.)

J. J. SULLIVAN.

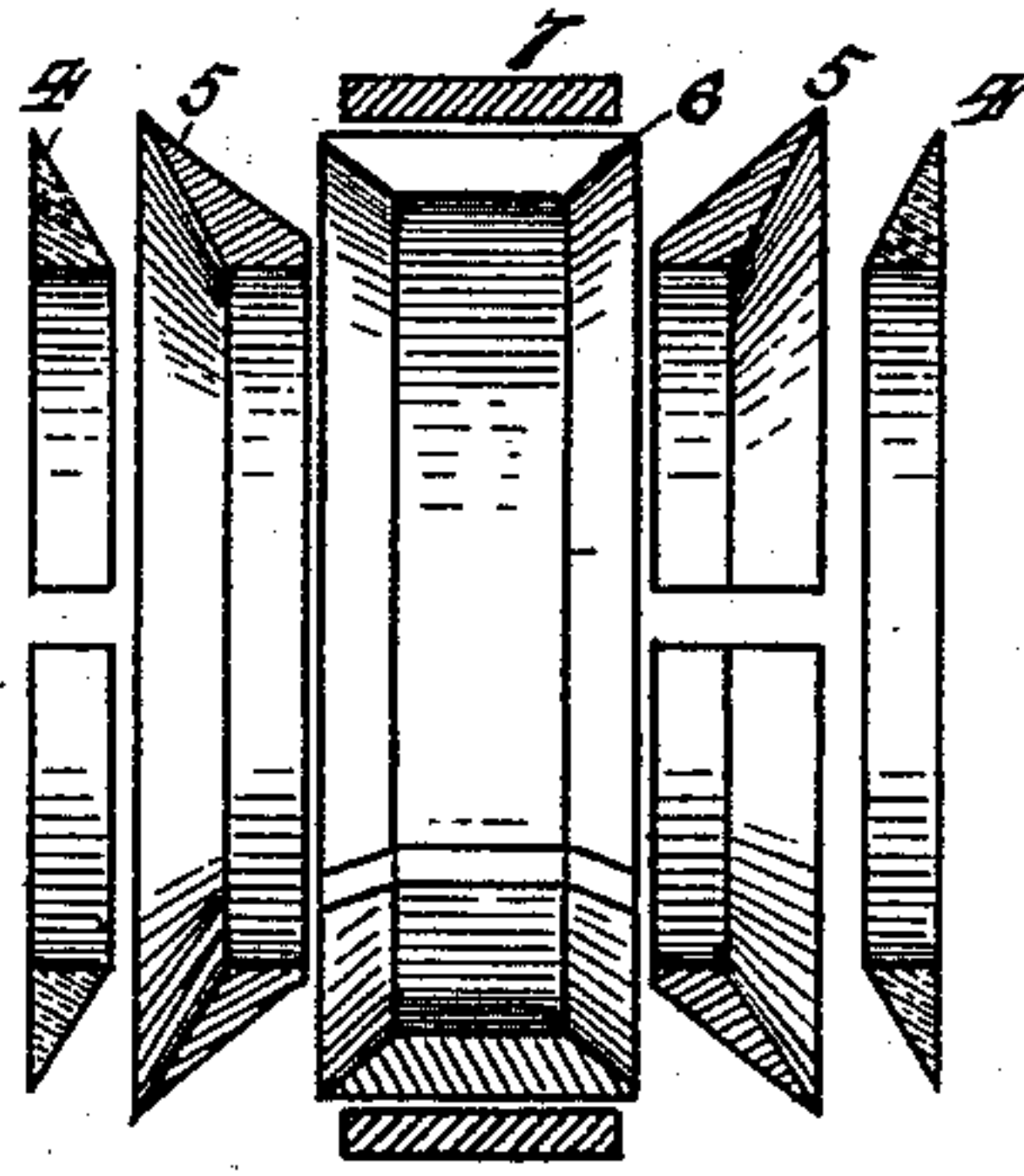
PACKING RING.

No. 389,772.

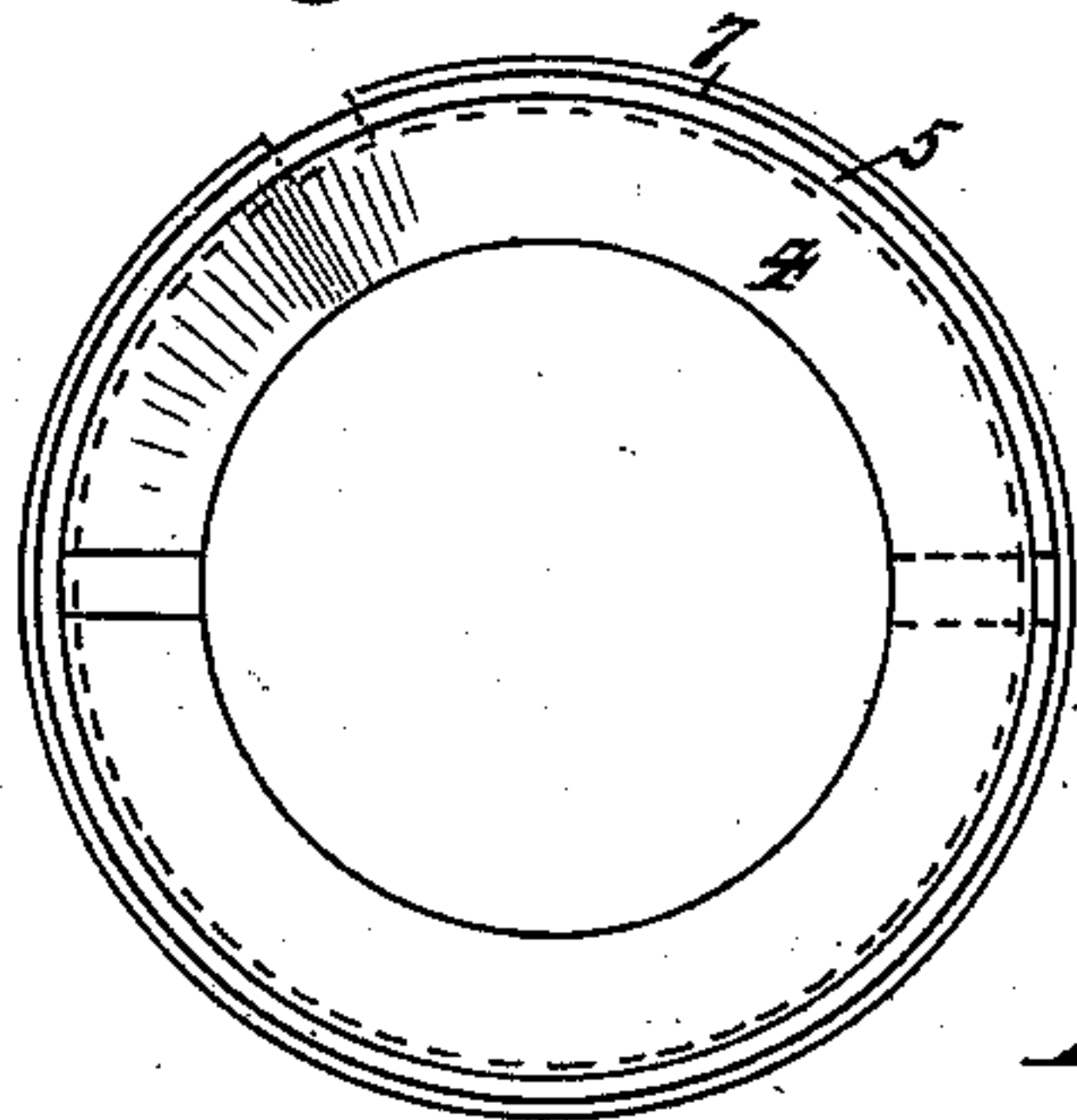
Patented Sept. 18, 1888.



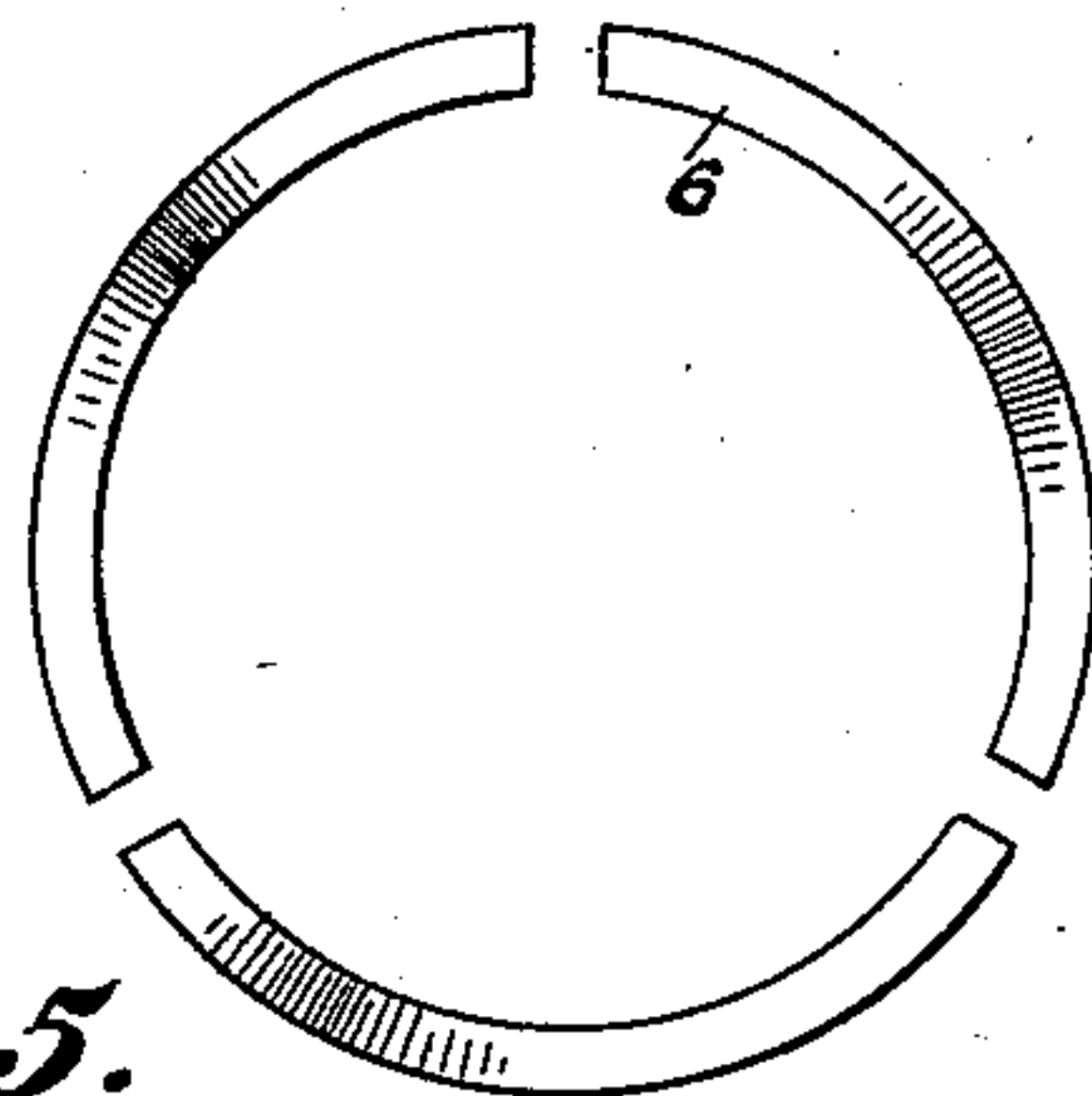
*Fig. 2.*



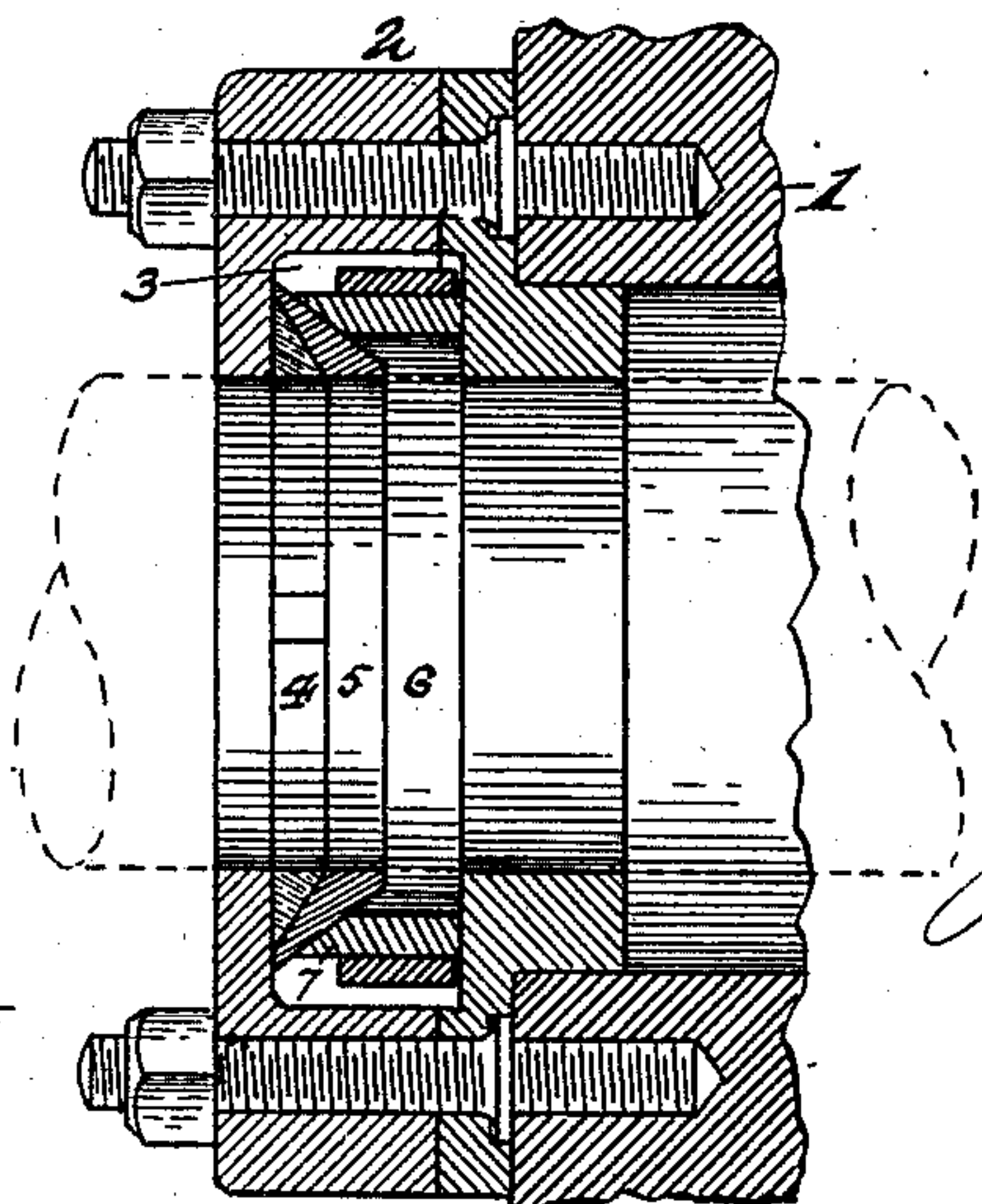
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Attest*

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# UNITED STATES PATENT OFFICE.

JEREMIAH J. SULLIVAN, OF LUDLOW, KENTUCKY.

## PACKING-RING.

SPECIFICATION forming part of Letters Patent No. 389,772, dated September 18, 1888.

Application filed May 29, 1888. Serial No. 275,456. (No model.)

*To all whom it may concern:*

Be it known that I, JEREMIAH J. SULLIVAN, of Ludlow, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Packing-Rings, of which the following is a specification.

My invention relates to a means for packing piston-rod valve-stems, hydraulic rams, and other similar devices where tight packing is desired. One of the objects of my invention is to provide a cheap as well as a more durable packing for joints.

Another object of my invention is to provide a durable packing-joint with a tightening device upon each side of the supporting-ring.

Another object of my invention is to provide a packing device which can be readily made of soft metal and the parts of which will be properly secured and readily adjusted automatically without turning nuts and without steam-pressure, all of which will be fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a central longitudinal section of my improvement attached to the cylinder. Fig. 2 is a longitudinal central vertical section of the packing device with the parts separated so as to expose them to view. Fig. 3 is a face view of the packing-rings and spring. Fig. 4 is a face view of one set of the wedge-shaped packing-rings. Fig. 5 is a modification showing the packing-rings on one side of the supporting-ring.

1 represents, say, a cylinder-head.

2 represents a gland for supporting the packing, made of two sections and provided with annular recesses, 3, in which are placed the packing-rings.

4 5 represent wedge-shaped packing-rings, the inner one, 4, resting upon the base of the recess 3 in the gland, the outer one, 5, resting upon the ring 4. These are split rings with the splits placed opposite to each other, so as to break joints. Upon the packing-ring 5 rests the supporting-ring 6, which is preferably made of three pieces, the sections of which break joints with the packing-ring 5. Upon the beveled outer edge of said support-

ing-ring 6 is placed the inner one of two similar rings, 4 5, in like manner to those on the opposite side of the supporting-rings. The outer wall of the recess 3 of the gland 2 rests upon said ring 4.

7 represents an elastic split ring, preferably made of steel and sprung over the supporting-ring 6, as shown in Fig. 3.

The rings 4 5 6 are preferably made of soft metal, malleable metal, brass, or other similar material. It will be observed that as the packing-rings 4 and 5 wear away by the movement of the piston the steel spring-ring 7 presses and draws in the supporting-ring 6, drawing in inwardly and together the packing-rings 4 and 5. There being two sets of rings, 4 and 5, on either side, a tight packing is secured. Thus I am enabled to make a very cheap, convenient, and durable packing, which once set will hold in position for a long time without liability of leakage or breakage and requires no care or attention on the part of the operator.

In the modification shown in Fig. 5 I employ packing-rings 4 and 5 only upon one side of the supporting-ring. This requires one edge of the supporting-ring 6 to be made flat instead of tapering, and accomplishes the work in a less efficient manner than when the packing-ring is employed upon both sides.

By the construction of the packing-rings herein provided I obtain a great amount of wear, because of the width of the packing-rings and the narrowness of the supporting-rings, which allows the packing-rings to be drawn close together.

I am aware that wedge-shaped packing-rings are not of themselves new, and that in another instance a spring-ring has been arranged around a divided or sectional packing-ring. Such, therefore, I do not broadly claim.

Having described my invention, what I claim is—

The combination, in a packing, of the sectional metal ring 6, the inner wedge-shaped split packing-ring 5, resting therein and having both its inner and outer surfaces in-

clined and its outer inclined surface bearing upon the edge of the sectional ring, the outer wedge-shaped split ring resting in the outer packing-ring, and the steel ring 7, encircling  
5 the sectional metal ring 6, to force its sections against the inclined outer surfaces of the inner wedge-shaped packing-ring, substantially as described.

In testimony whereof I have hereunto set my hand.

JEREMIAH J. SULLIVAN.

Witnesses:

ROBERT ZAHNER,  
J. WATSON SIMS.