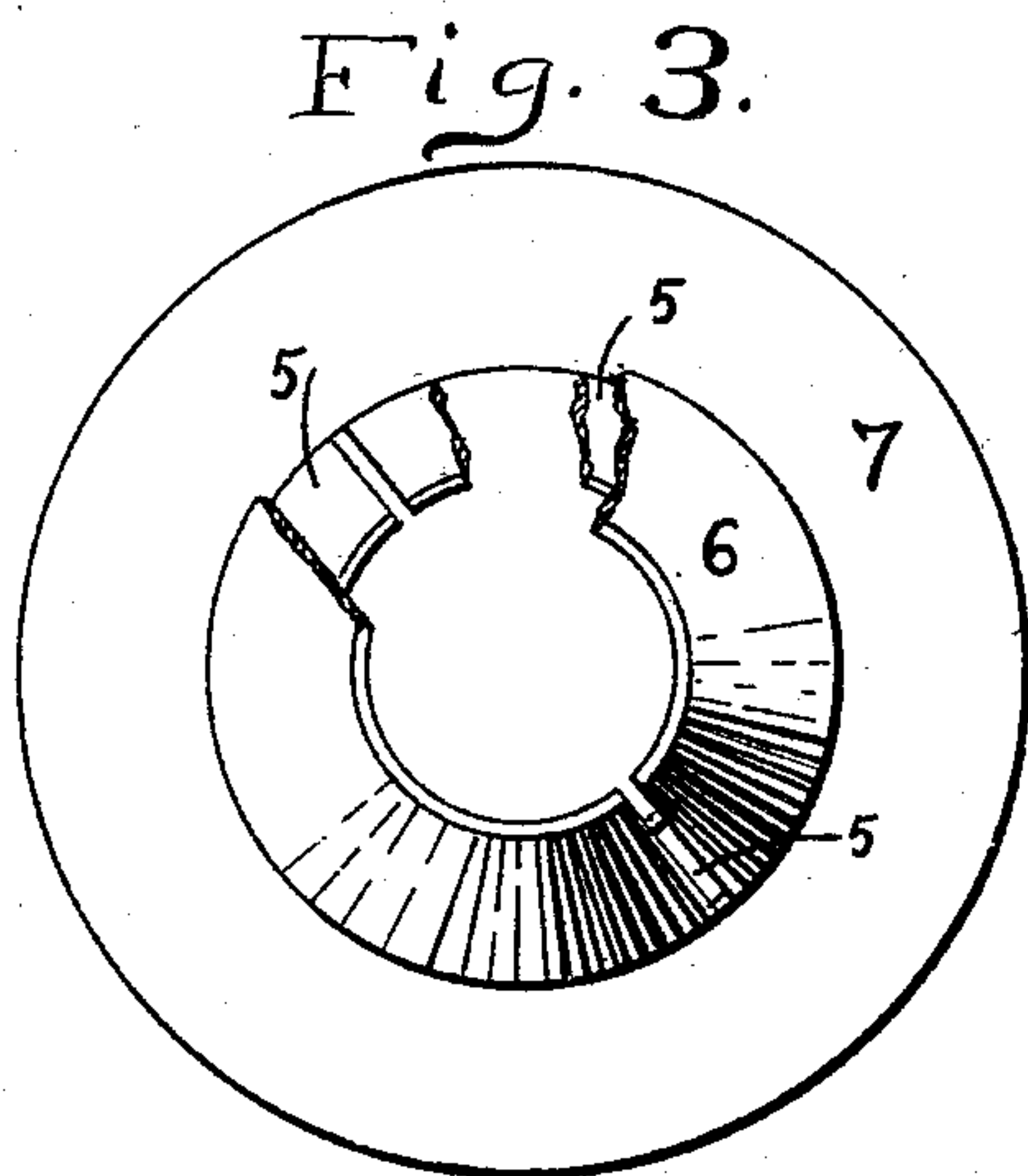
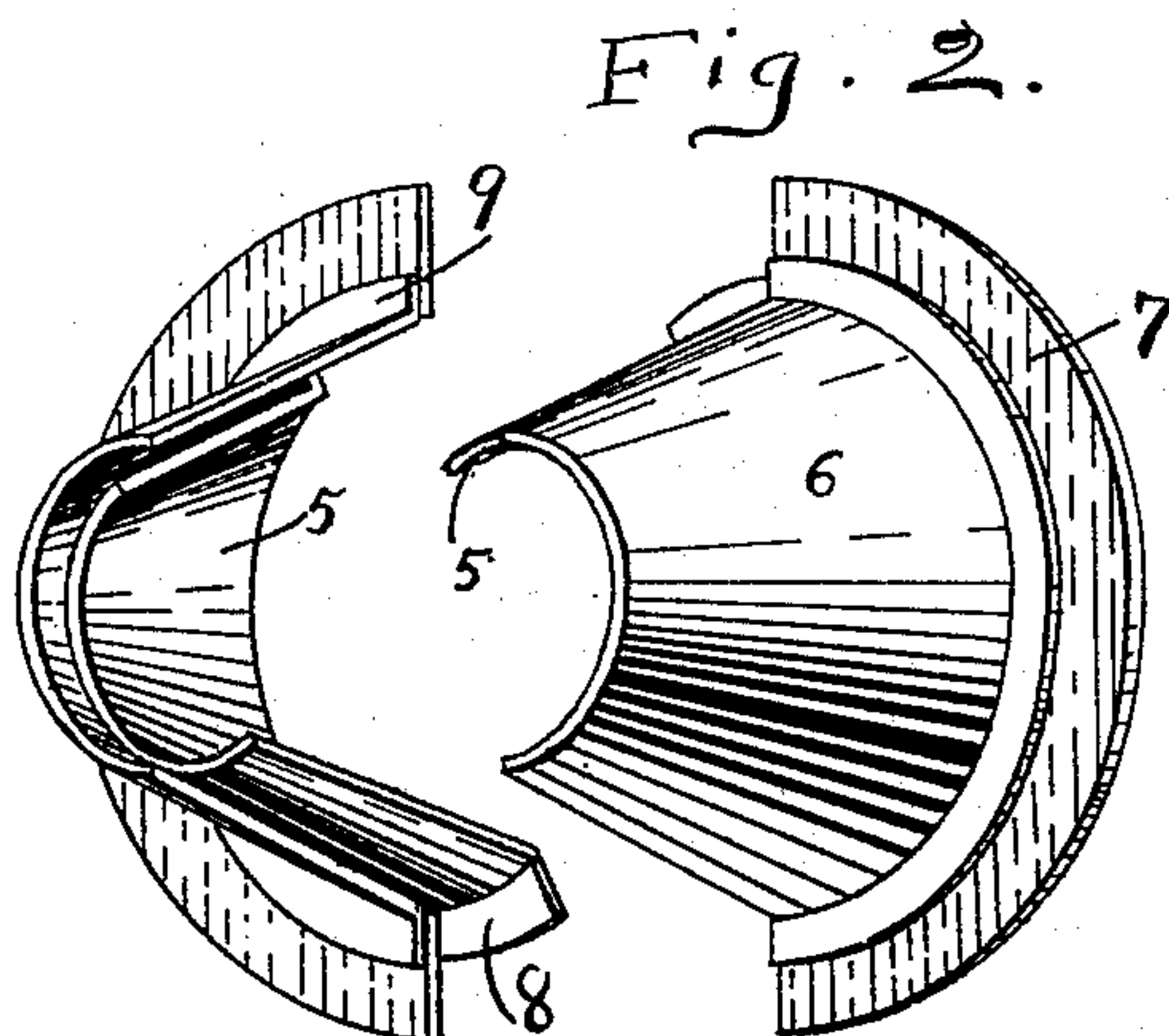
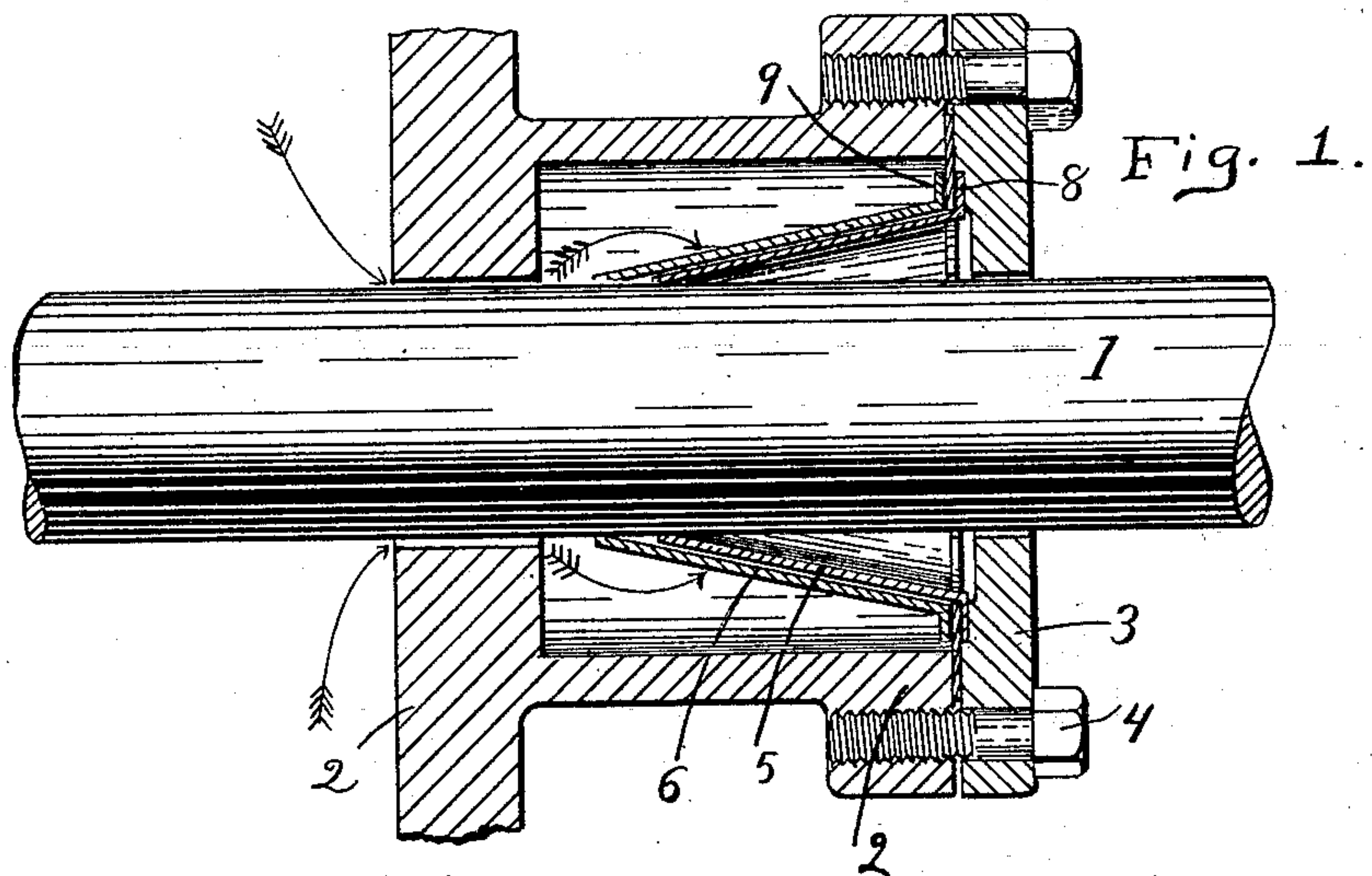


(No Model.)

N. JESSUP.  
METALLIC PACKING.

No. 604,474.

Patented May 24, 1898.



Witnesses:

Burgess F. Allen,  
Julia Green

Inventor  
Nathan Jessup.  
By V. H. Rockwood  
His Attorney.



# UNITED STATES PATENT OFFICE.

NATHAN JESSUP, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO  
JOHN A. SMITH, OF ROSSVILLE, INDIANA.

## METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 604,474, dated May 24, 1898.

Application filed August 13, 1897. Serial No. 648,163. (No model.)

*To all whom it may concern:*

Be it known that I, NATHAN JESSUP, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Metallic Packing; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

10 This invention relates to metallic packing for piston-rods and similar places in steam-engines where packing is required.

The chief feature of this metallic packing is that its construction and arrangement are such that the packing is forced into steam-tight engagement with the piston-rod by the steam itself. No springs or fiber packing or other means are employed to hold the packing in close engagement with the piston-rod. 15 The steam that escapes from the cylinder automatically accomplishes this function, and the greater the pressure of the steam thus seeking to escape the greater will be the tightness with which the packing envelops the piston-rod, whereby no steam can escape. This 20 packing therefore may be said to be automatically adjustable to the piston-rod to resist any pressure of the steam. It will conform to the slight variations in the surface and diameter of the piston-rod that exists, especially after the piston-rod has been worn somewhat. It usually wears in the middle most; but this 25 packing will engage the middle portion of the worn piston-rod with the same force and tightness as either end of the piston-rod. The tightness of the engagement depends on the pressure of the steam rather than the size of the piston-rod. This therefore makes a theoretically as well as a practically perfect metallic packing, successfully accomplishing the 30 chief object of the packing—namely, the prevention of the escape of steam—and having none of the defects and drawbacks of packing used for a similar purpose heretofore.

35 The full nature of my invention will be understood from the accompanying drawings and the description and claims following.

40 In the drawings, Figure 1 is a longitudinal section of the end of a cylinder and my packing, the piston-rod being shown fully, but broken at one end. Fig. 2 is a perspective

of my packing when used in the form of two halves or parts. Fig. 3 is a plan view of the packing with the small end upward when it is used in a single piece, a part broken away. 55

I show my packing used in connection with the piston-rod 1, extending through the end of the steam-cylinder 2, whose end, as shown, is hollowed out or provided with a chamber to receive the packing. 60

3 is a follower or head that is secured to the end of the cylinder by bolts 4. The end of the cylinder and head 3 are centrally apertured to receive the piston-rod. However, unless a packing is provided steam will escape 65 from the cylinder through the apertures referred to and around the piston-rod.

I provide my packing preferably in the form shown in Fig. 2—that is, in two sections—so that the same can be readily placed on the 70 piston-rod. It consists of three parts—an inner conical sleeve 5, an outer conical sleeve 6, surrounding the inner one, and an annular flange 7. These three parts are secured together at their place of union by any means 75 that will render the joint steam-tight. I show each of the cones provided with small integral annular flanges 8 and 9, between which the large flange 7 is placed, and the three are soldered together tight. It is possible that 80 they may be bolted; but I have always soldered them. The cones must be split longitudinally, as shown, in one or more places. This is to permit the small end of the cones to contract and more closely engage the piston-rod when subjected to steam-pressure. 85 Because this longitudinal split is required it is necessary to have a second cone to cover the split in the first cone. This is the reason for having two cones, so that the split in one 90 may be protected by the surface of the other. In other words the cones are so arranged as to break joints. When the packing is made in the form shown in Fig. 2, each cone is provided with two splits on opposite sides. 95 However, when it is used in single form, as shown in Fig. 3, only one split in each cone is used. I have heretofore placed the splits in the two cones opposite each other when used in the form shown in Fig. 3. When 100 used in the form shown in Fig. 2, the split in the one cone is not far from the split in the



outer cone—merely enough to provide a lap that will be close and effective under steam-pressure. The inner cone is sufficiently shorter than the outer cone, as shown in Fig. 1, that the smaller ends of the cones will simultaneously and equally engage the piston-rod. The packing or cones are so placed that the smaller ends will extend toward the chamber of the cylinder from which the steam escapes.

The packing is held in place by clamping the wide flange 7 tightly between the end of the cylinder and the follower 3. This prevents any escape of steam being possible unless it passes between the small ends of the cones and the piston-rods. The follower 3 bears against the large end of the cone, so that the steam cannot blow it out or backward.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Metallic packing comprising two conical sleeves, one within the other and both split longitudinally so their small ends will contract under pressure but the splits in each being located at different places, an outwardly-extending annular flange secured to the large end of the conical sleeves and means for securing such flange against the head of the cylinder.

2. Metallic packing in two or more parts

each comprising a section of two conical sleeves, one within the other, a section of an outwardly-extending annular flange secured to the large end of the sleeves, the lines on which the sleeves are cut being at different points so that the sections of the sleeves will overlap, and means for securing such flange against the head of the cylinder, substantially as shown.

3. The combination with a cylinder or other steam-chest having a packing-chamber, a follower to close said packing-chamber, and a piston-rod extending therethrough, of metallic packing comprising two conical sleeves, one within the other, split longitudinally at different points so that their small ends will contract under pressure, and an outwardly-extending annular flange secured to the large ends of said sleeves, said packing being placed in the packing-chamber surrounding the piston-rod with the small end of the sleeve engaging it and the annular flange clamped between the end of the steam-chest and the follower.

In witness whereof I have hereunto set my hand this 27th day of July, 1897.

NATHAN JESSUP.

Witnesses:

JOHN A. SMITH,  
D. H. LOCKWOOD.