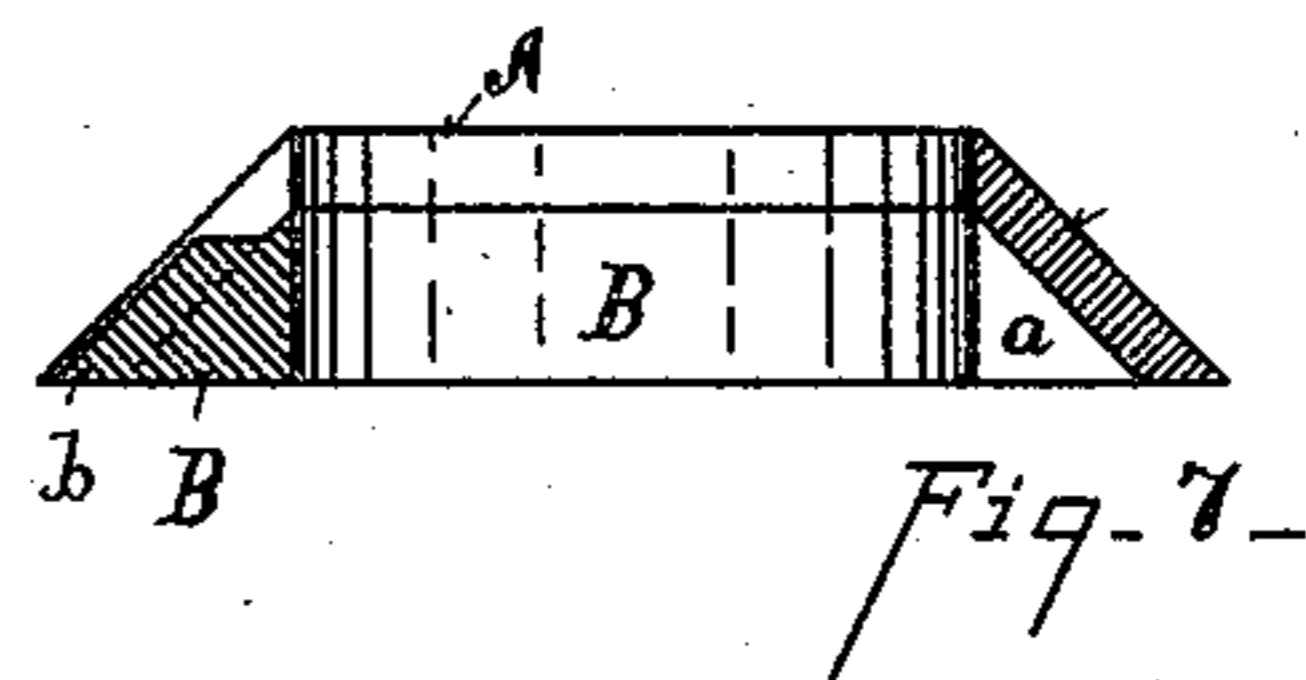
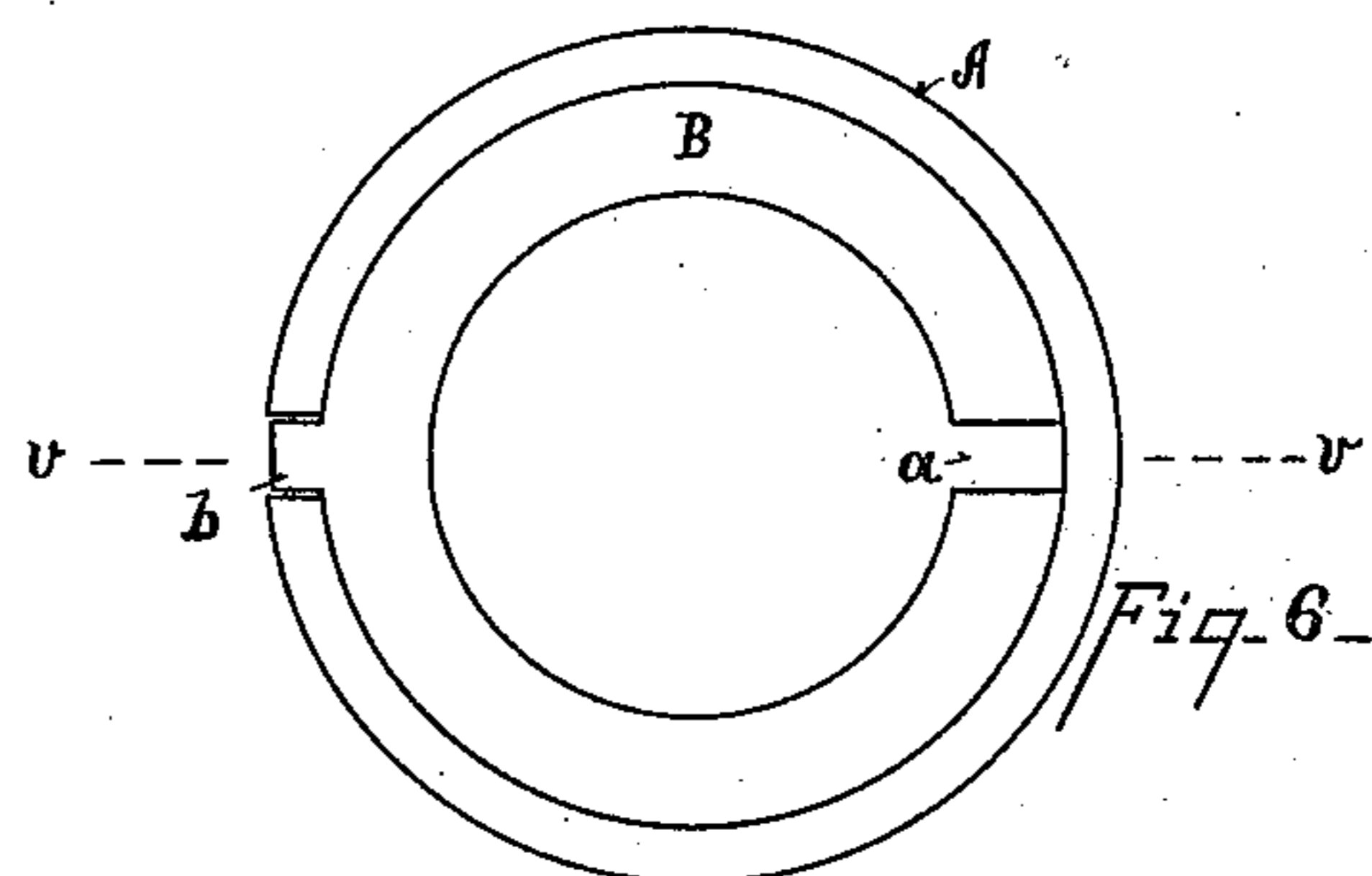
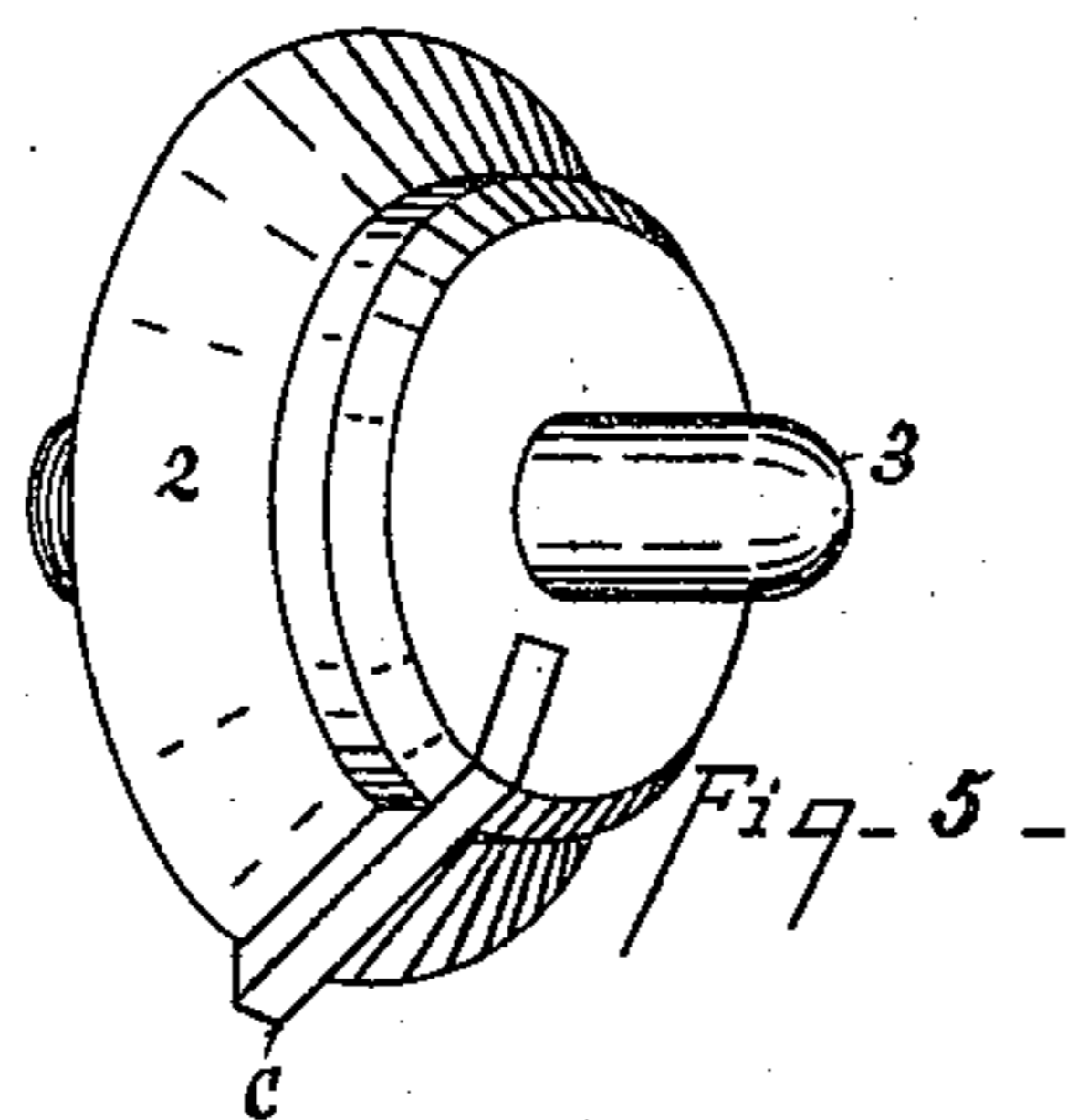
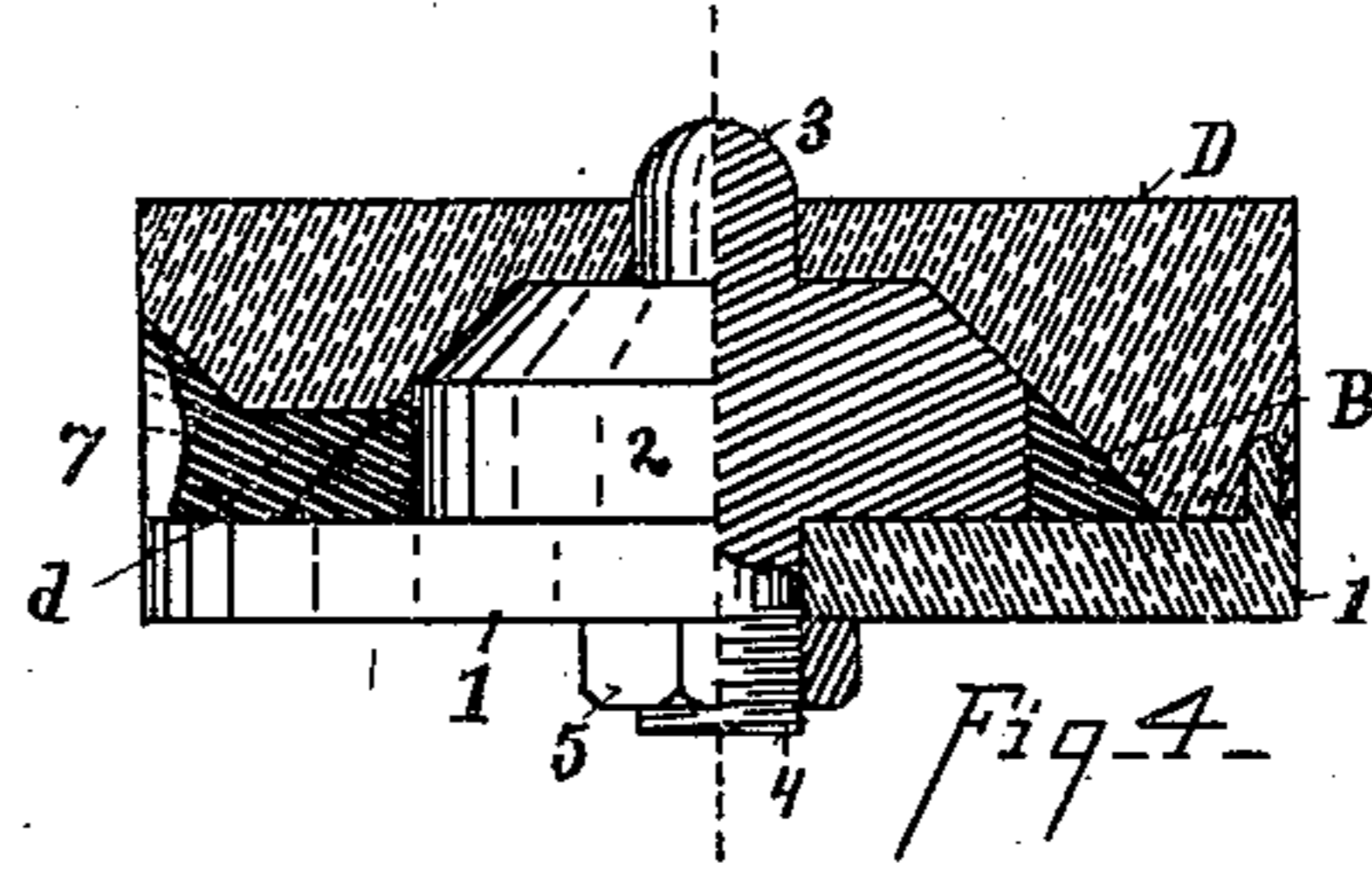
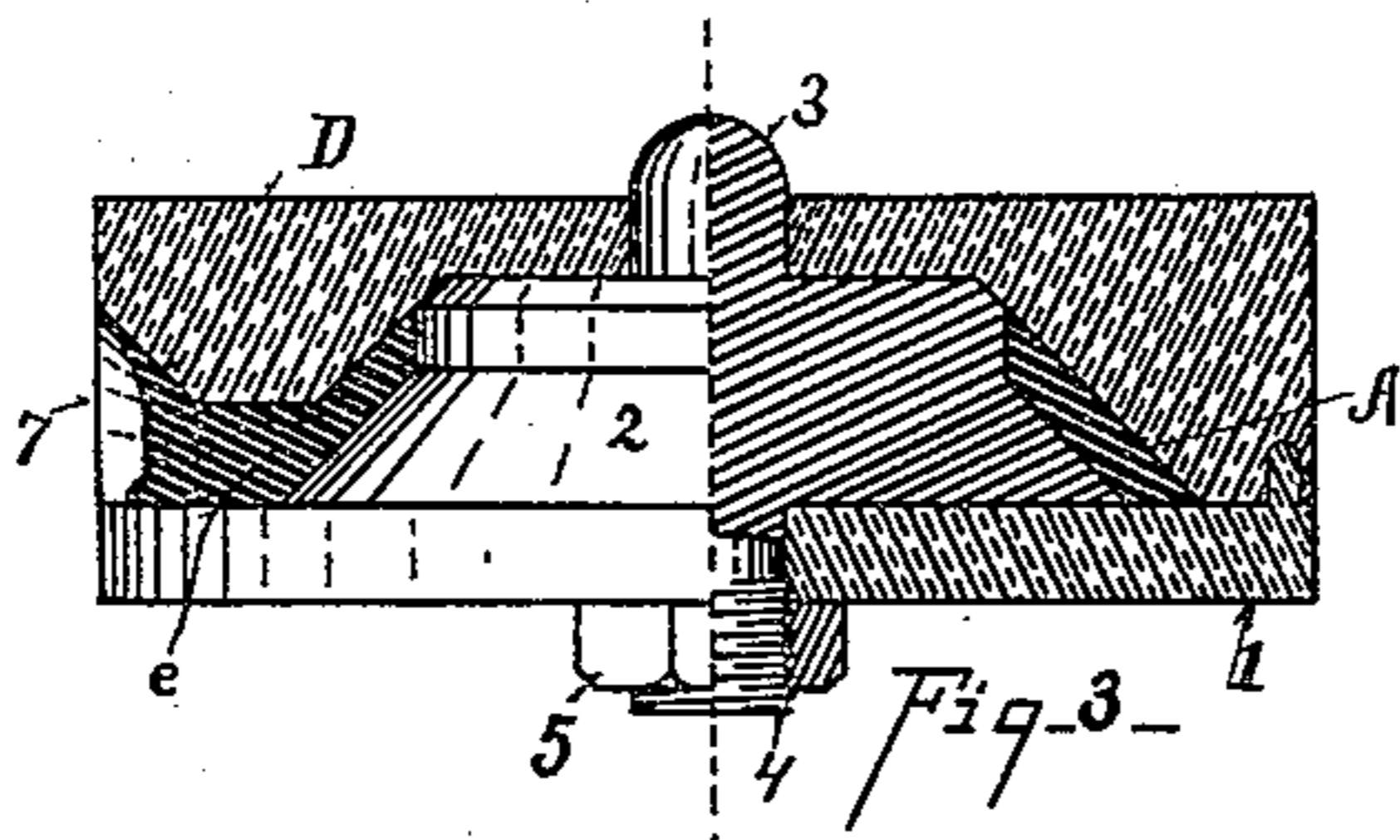
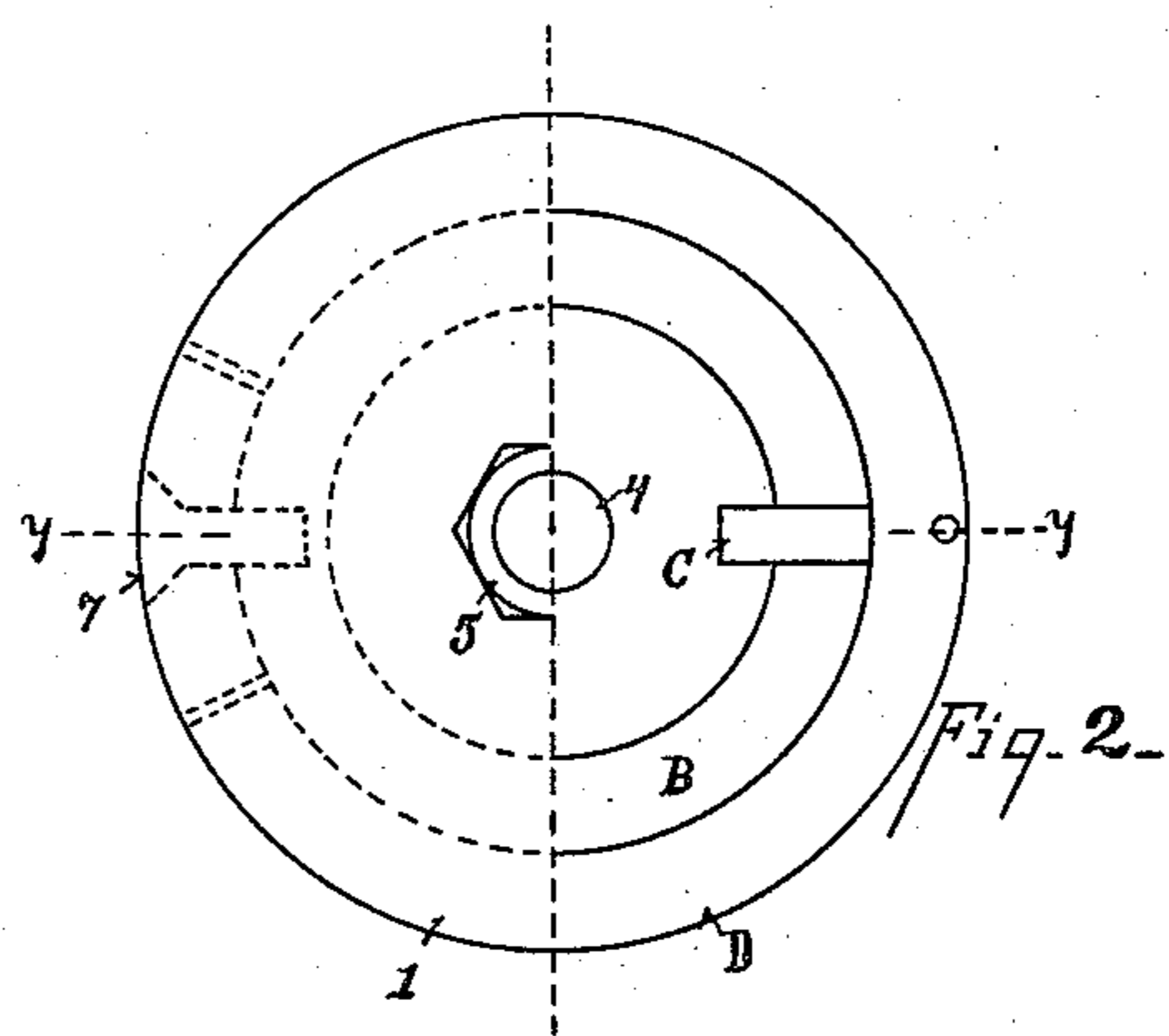
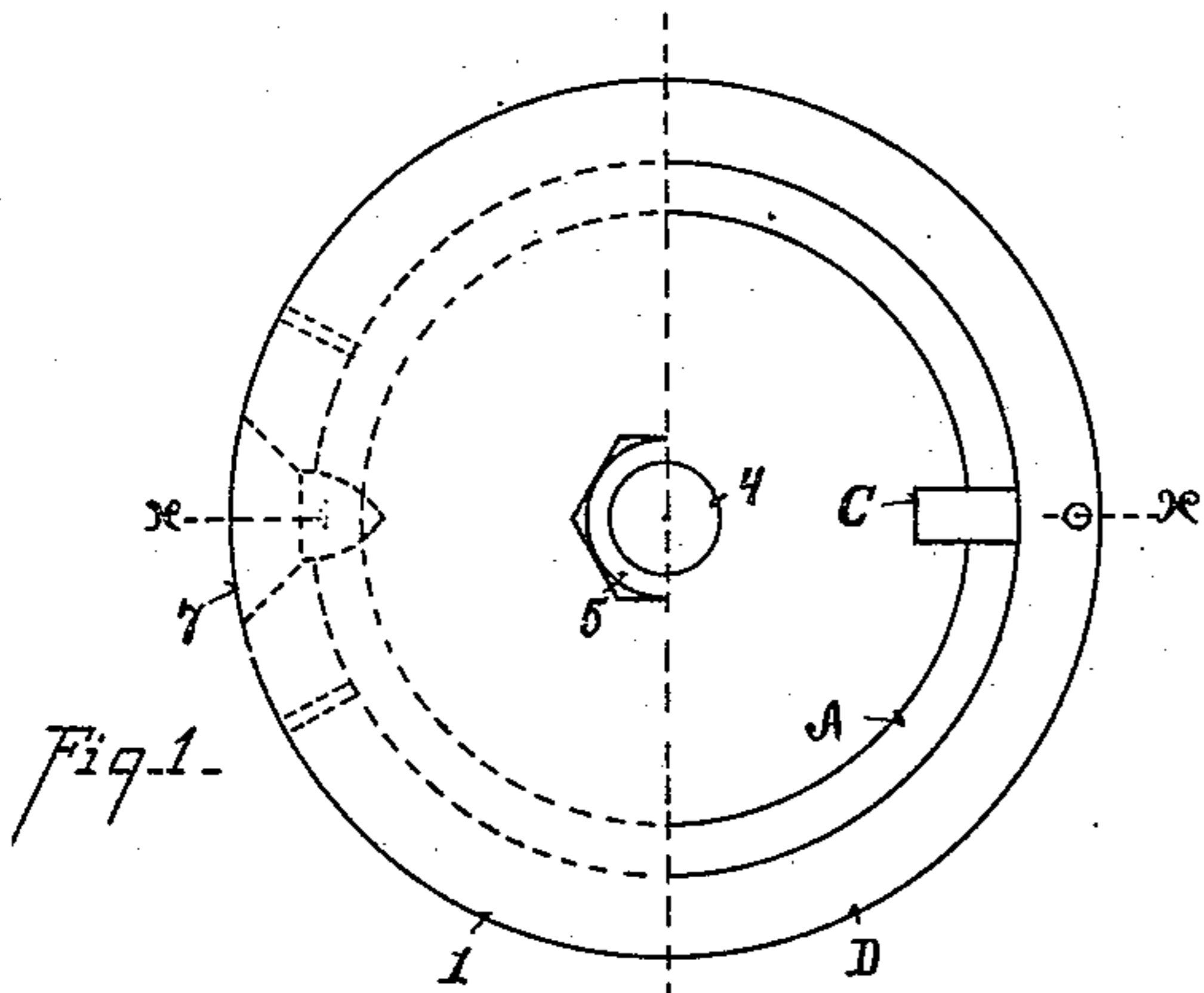


(No Model.)

J. J. SULLIVAN.
MOLD FOR RINGS.

No. 433,879.

Patented Aug. 5, 1890.



Witnesses

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T. Simmons

Inventor

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UNITED STATES PATENT OFFICE.

JEREMIAH J. SULLIVAN, OF LUDLOW, KENTUCKY.

MOLD FOR RINGS.

SPECIFICATION forming part of Letters Patent No. 433,879, dated August 5, 1890.

Application filed April 14, 1890. Serial No. 347,802. (No model.)

To all whom it may concern:

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

My invention relates to a new form of mold for producing split rings adapted for packing pistons, valve-stems, cylinders, &c. These rings are cast by means of peculiarly-constructed molds, which are set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of the base of the mold, one half showing the bottom and the other half showing the top of the base. Fig. 2 is a similar plan view of a similar mold adapted to cast the reverse form of ring. Fig. 3 is a section, partly in elevation, of Fig. 1, and Fig. 4 is a section, partly in elevation, of Fig. 2. Fig. 5 is a perspective view of the cone-shaped core. Fig. 6 is a plan view of the two rings cast in the above form of molds. Fig. 7 is a section on line *v v*, Fig. 6.

In order to fully illustrate the process and molds, I have shown two forms of split rings and the molds for casting each of said forms. The preferred form of rings for packing pistons and valve-stems is V-shaped and beveled rings. The drawings illustrate the molds adapted to make these form of rings.

A represents the outside beveled split ring and B the inner V-shaped split ring.

In Fig. 6, *a* represents a slot formed in the ring, and *b* represents a boss cast upon the inner ring, which fits into the slot or split of the adjacent ring. It is of material advantage to provide this boss nesting in the slot of the adjacent ring, as, first, it prevents the rings from turning and perfectly breaks the joints, and, second, the wide split allows the rings to be made in metal molds. If the ring were cast solid, the composition metal preferably employed for packing-rings would break by contracting in cooling, but the slot allows the rings to shrink without breaking. These rings are cast in the following manner: 1 represents the base of the mold; 2, a central movable core around which the ring is cast to form the inner periphery of the same.

3 represents a mandrel, which is passed through the cone, so as to center and hold it firmly on the base. 4 represents screw-threads cut upon the lower projecting end of said mandrel, and 5 a nut for securing in position. I prefer to cast the mandrel with the cone. C represents a dowel inserted in the cone, which projects out from the periphery the thickness of the ring, so as to form slot *a* in the ring adapted to admit the hub *b*. D represents the cap of the mold, which fits down upon the base 1, and it is recessed out to fit upon the core 2, as shown in Fig. 3, leaving a space between the three parts of the mold to form the ring A. 7 represents the gate of the molds, which is cut through from the periphery of the cap into the annulus formed between the cone-core and said cap. The gate on ring A is sawed off on the line of the bevel *e*, as no hub can be employed on the outer ring.

The drawings in Figs. 2 and 4 represent molds adapted to form the inner ring B, the base 1 and cap D being the same general construction. When, however, it is desired to make a V or triangular shaped ring, the cone-core 2 is made with the vertical sides and the recess in the cap D made on the incline, as they are shown in Fig. 4, leaving a triangular-shaped annulus. The dowel C (not shown in the drawings) is employed in the same manner as shown in Fig. 5. The gate of this mold is likewise formed in its periphery; but when the hub *b* is employed on the ring it is sawed off at the line *d*, (shown in Fig. 4,) which leaves the hub *b* and adapts it to nest in the slot of the outer ring A. It is obvious that any desired shape of ring can be made by making the proper shaped central core 2 and recess in the cap D. It is necessary to have the gate of the mold pierced through the periphery of the cap, so that the cap may be removed. If the gate were cut through the face of the mold, the cap could not be removed. It is necessary to employ the dowel C to form the hub A in casting V-shaped or wedge-shaped rings from the center 4, as the presence of the slots allows the rings to spread or open enough to be removed, as well as allowing for contraction when cooling; hence the dowel C is an essential feature in casting packing-rings with the metal core 2.

Another important advantage is obtained by use of metal molds herein described for casting rings of Babbitt metal or other similar composition usually employed in making
5 packing-rings, which is that they can be cast smooth and require little or no finishing except cutting off the gates.

I do not wish to limit myself to the use of the mandrel 3 with the nut 5 for securing the
10 molds together, as dowels or other means may be employed in lieu thereof. This is the preferred form of construction.

Having described my invention, what I claim is—

15 A mold for casting split packing-rings, consisting of the base 1, the conical core 2, detach-

ably secured to the base and provided with the projecting center mandrel 3, a dowel C, carried by and projecting from the periphery of the cone a distance coextensive with the
20 thickness of the packing-ring desired, and the removable cap D, resting on the base, having the edge gate 7, shaped to receive the cone and its mandrel and provide an intervening space for casting the packing-ring, 25 substantially as described.

In testimony whereof I have hereunto set my hand.

JEREMIAH J. SULLIVAN.

Witnesses:

C. W. MILES,
T. SIMMONS.