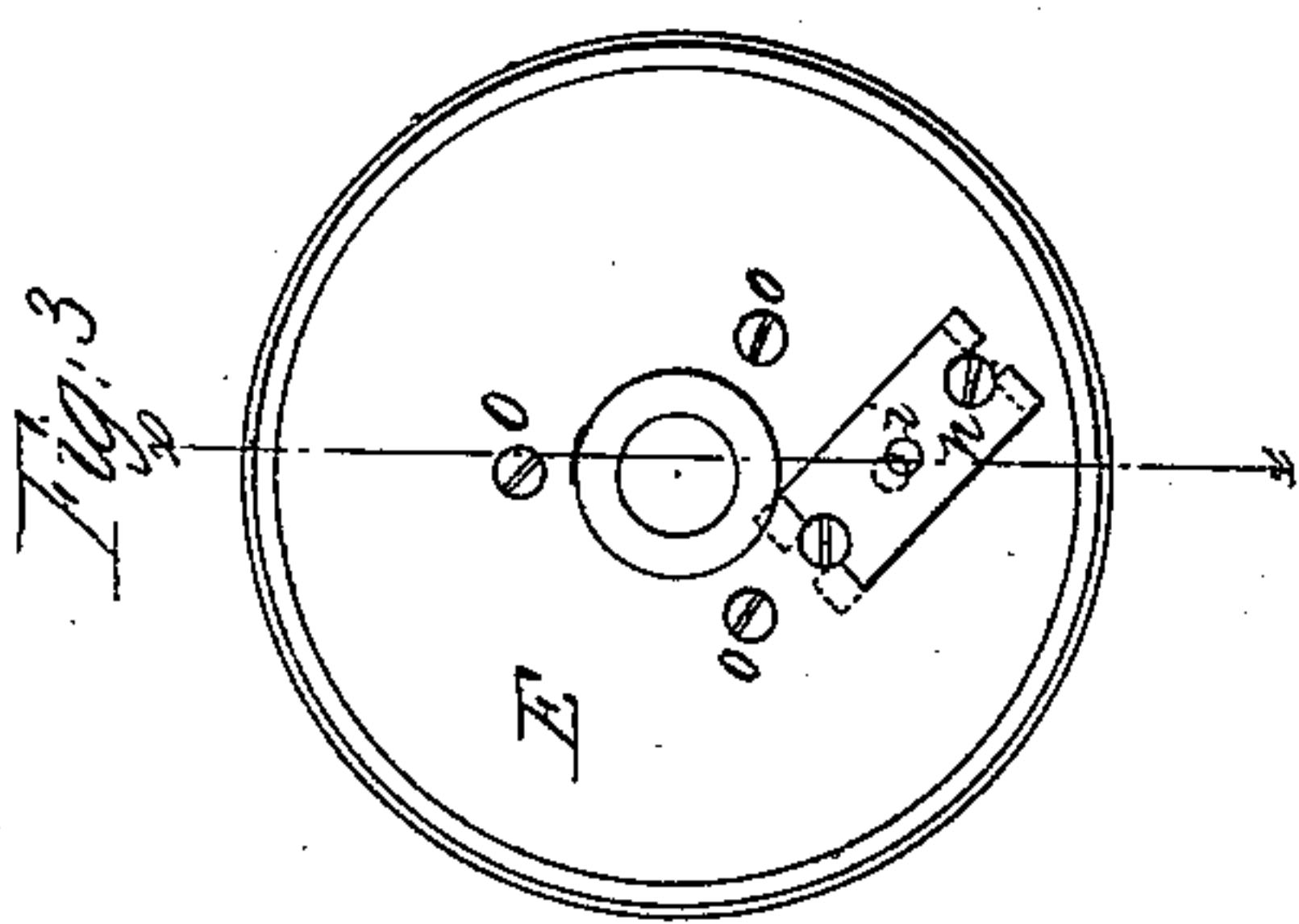
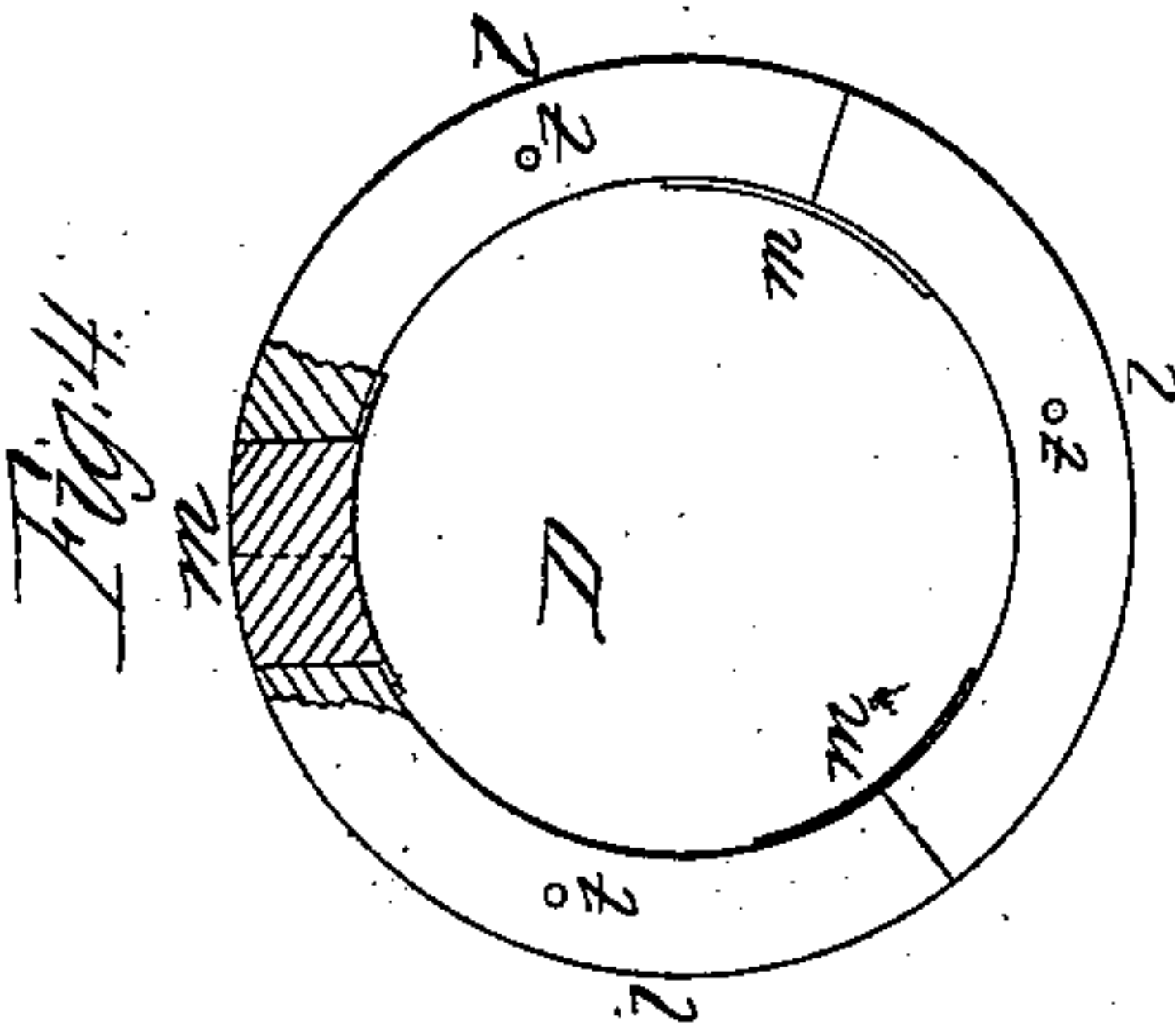
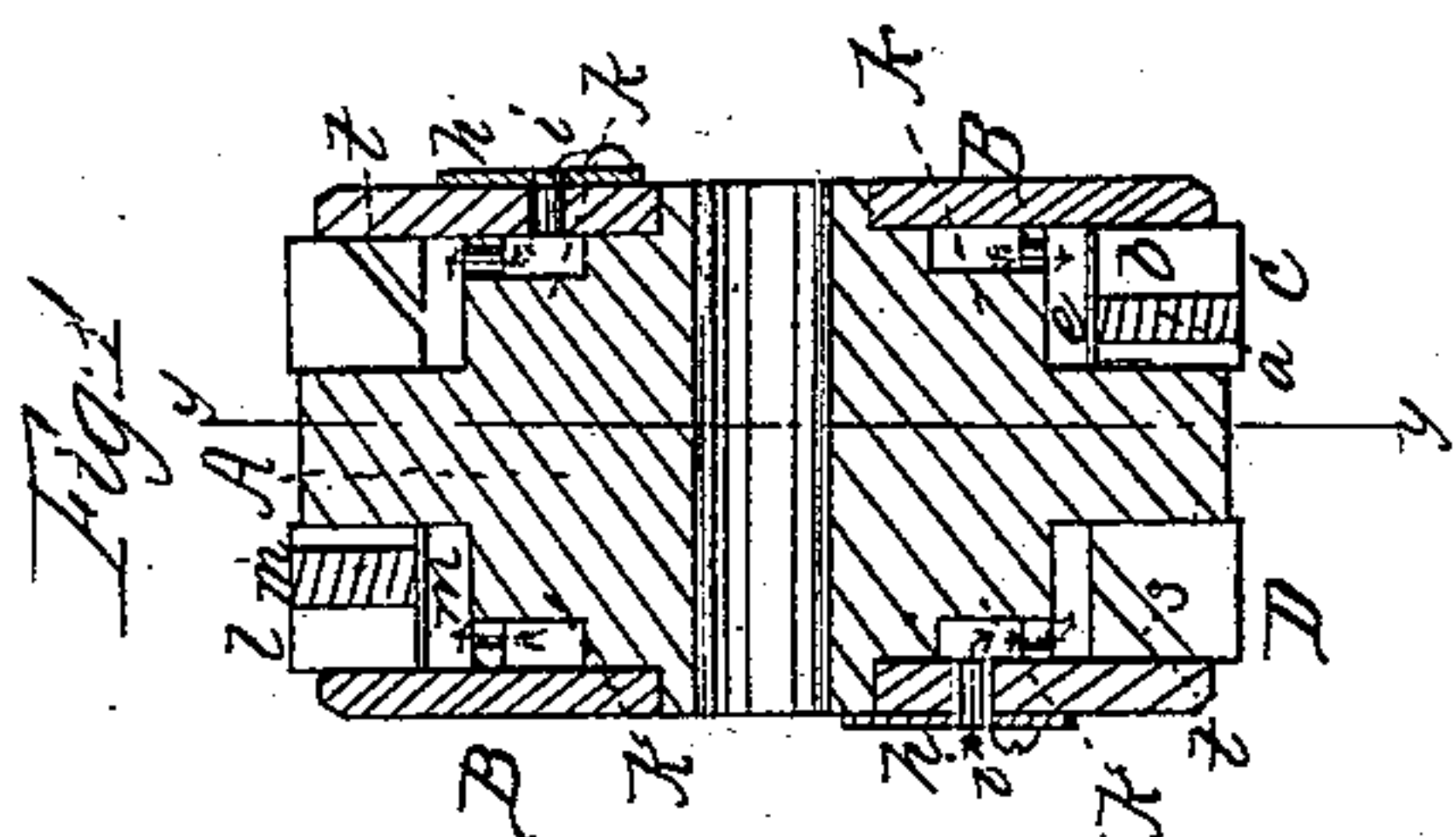
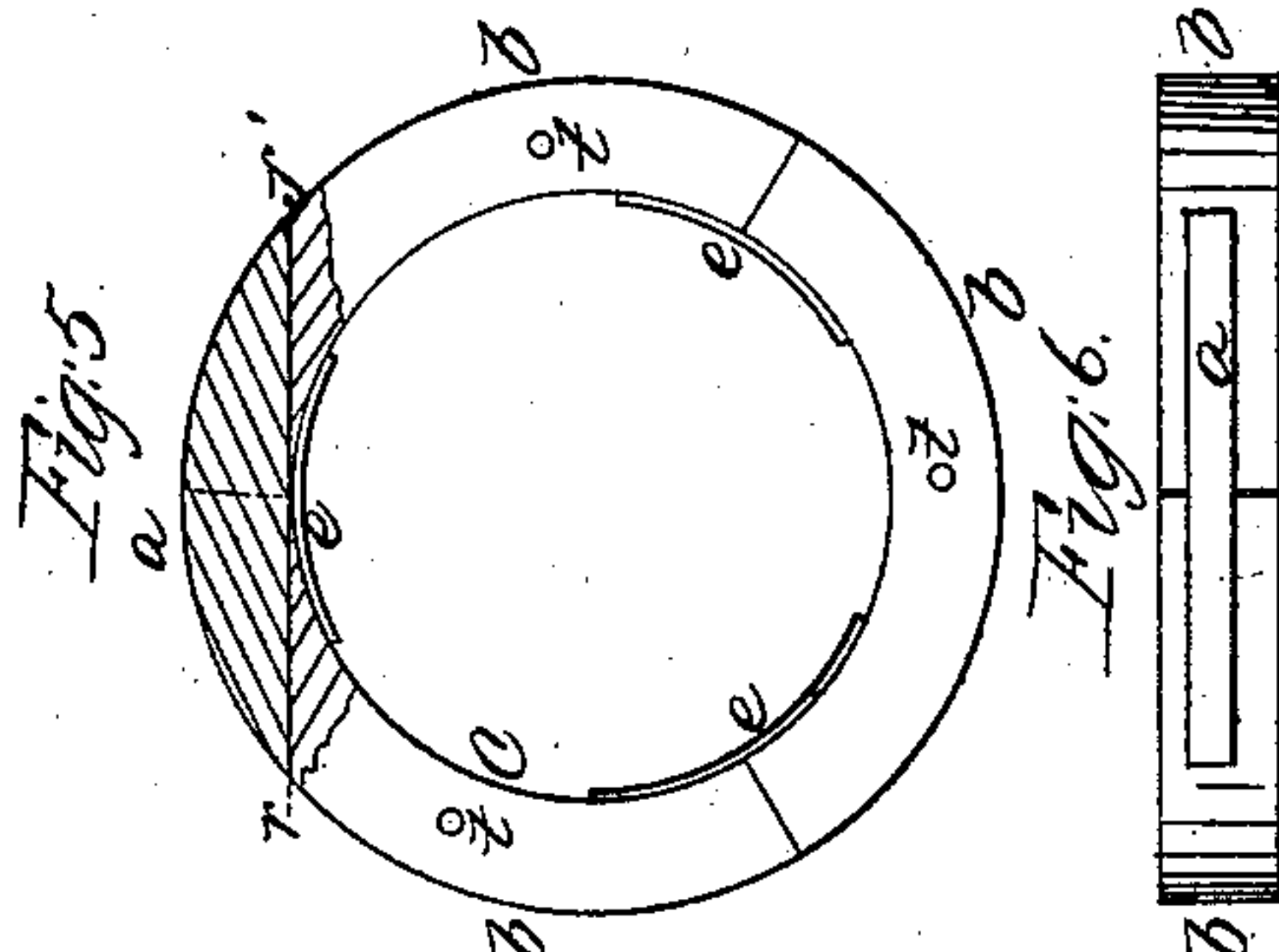
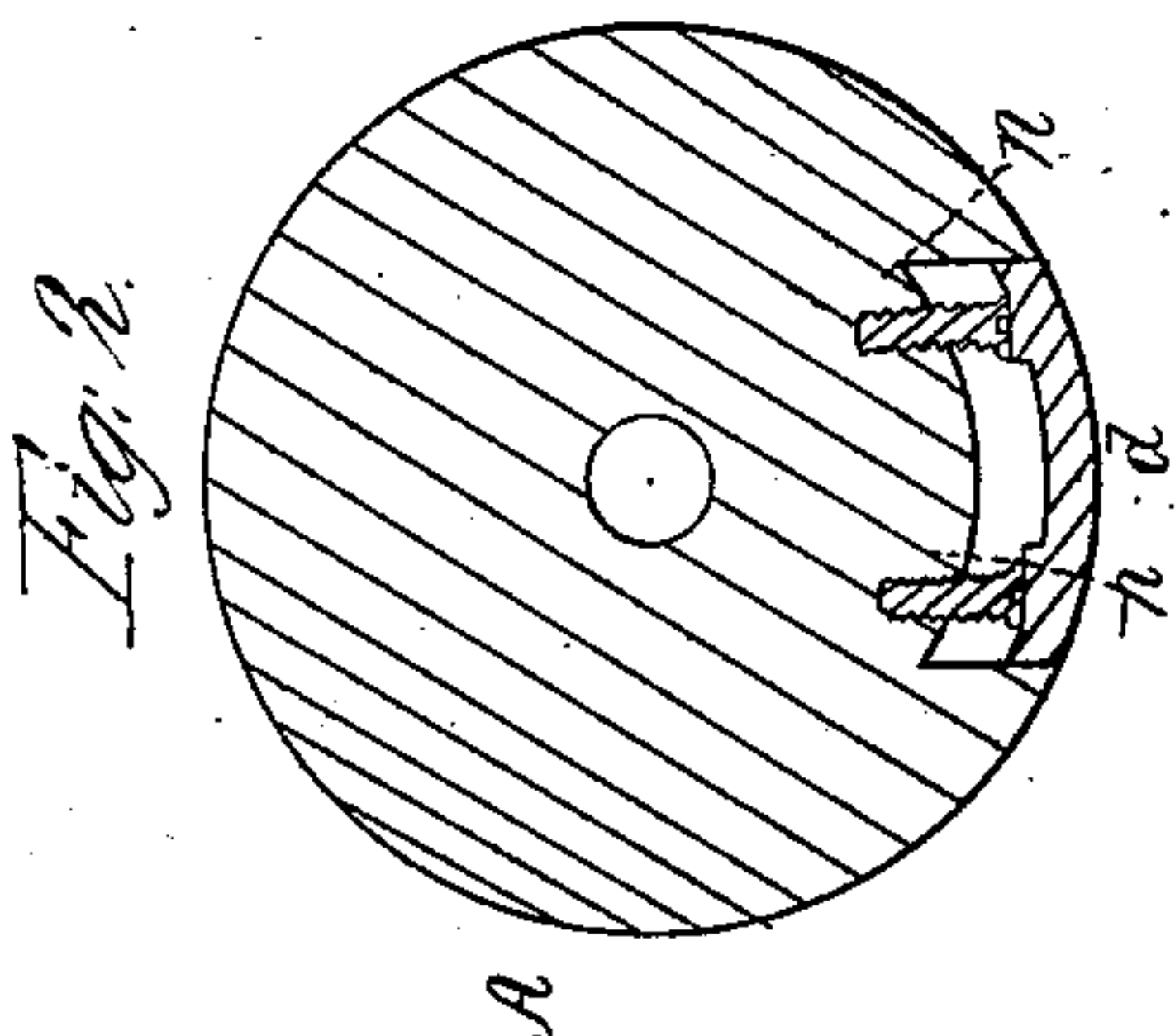
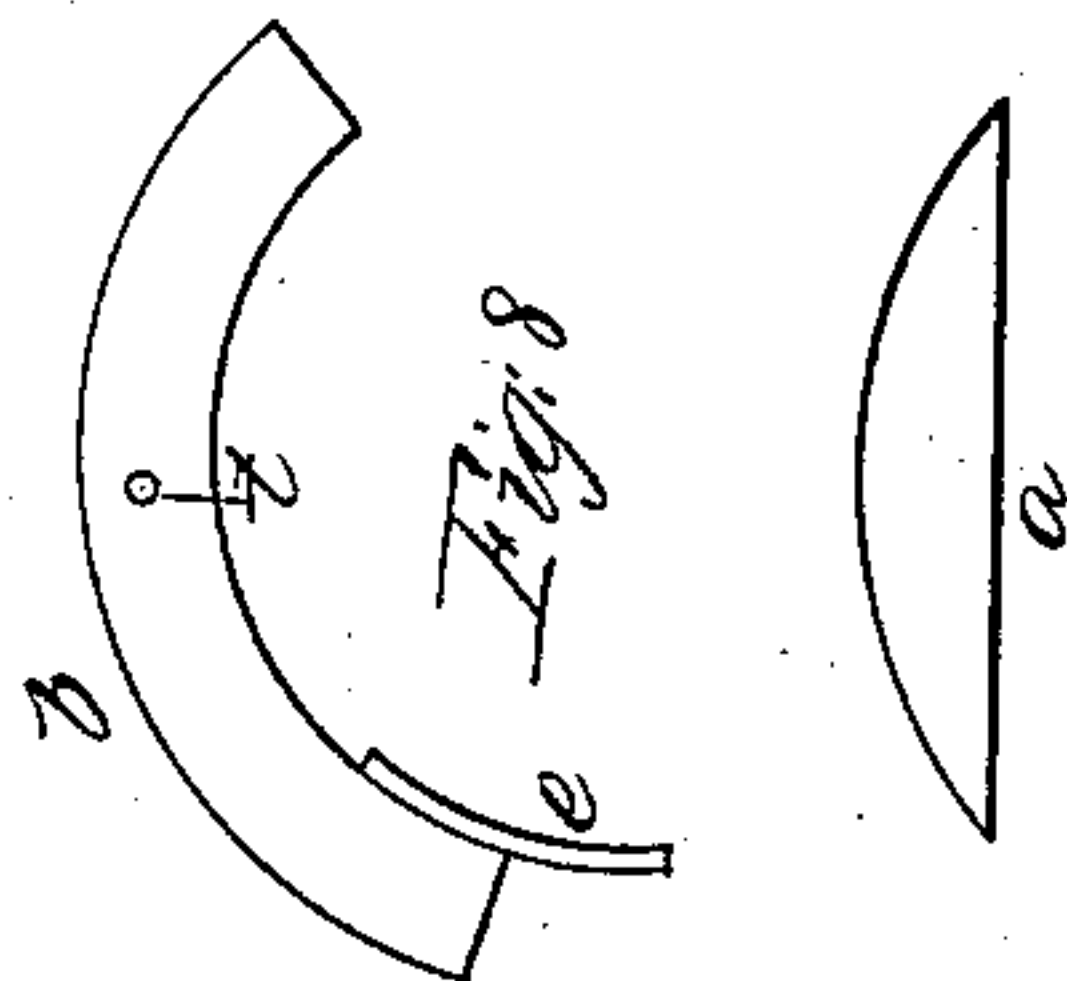


G. Dryden, Piston Packing.

N^o 61,614.

Patented Jan. 29, 1867.



Witnesses:
P. F. Dodge.

Inventor:
George Dryden.
By W. C. Dodge,
attorney

United States Patent Office.

GEORGE DRYDEN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND E. A. PRESCOTT, OF SAME PLACE.

Letters Patent No. 61,614, dated January 29, 1867.

IMPROVEMENT IN PISTON PACKING.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE DRYDEN, of Worcester, in the county of Worcester, and State of Massachusetts, have invented certain new and useful improvements in Piston Packing; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use the invention, I will proceed to describe it.

The nature of my invention consists in the construction of a packing ring for pistons of steam engines by fitting it to receive at the joints peculiarly-formed tongues and flanges for packing the joint steam-tight; and also in a novel arrangement for regulating the admission of the steam under the packing rings.

Figure 1 is a vertical section, taken on the line xx of fig. 3.

Figure 2 is a transverse section, taken on the line yy of fig. 1.

Figure 3 is an end view.

Figures 4, 5, and 6 are representations of the packing rings detached, with the parts shown in detail.

A represents the hub or body of a piston head, it being cut away, as shown in fig. 1, to furnish a recess or seat for the packing rings C and D. B represents a disk or plate, secured to the face of the piston by screws, o , as shown in fig. 3, for the purpose of holding the rings in position. An annular recess, k , is formed in the face of the hub A, underneath the plate, into which recess steam is admitted through a hole, i , formed in the plate B, as shown in figs. 1 and 3, a sliding-plate, h , serving to regulate the size of the opening i , and consequently the admission of the steam, as shown clearly in fig. 3. From the annular spaces or recesses k , holes for the passage of the steam lead to the space under the packing rings, as shown in fig. 1, the passage of the steam being indicated by the red arrows. The piston head being thus formed, I then construct my packing rings as follows: I first cast a ring of the proper size, as shown by C or D, figs. 4 and 5, and after having turned it up in a lathe to the proper diameter and thickness, I then cut it into segments, as represented by l , of fig. 4, or b , of fig. 5, thus forming a ring composed of three or more segments. To one end of these pieces b , I then secure a thin piece, e , as shown in Figure 8, made preferably of steel, so as to form a spring. This piece e must be of a width exactly corresponding with the thickness of the segments b , and is so attached thereto that when the segments b are united to form the ring C, as shown in fig. 5, the piece e will lap over or cover the joint of the segments on the inside of the ring, and thus prevent the escape of any steam radially. On the periphery of the ring C, at the union of the segments b , a straight cut is made, extending from r to r' of fig. 5, this cut being of such depth as to just reach to the inner surface of the ring at the joint, as shown in fig. 5, and into this cut the tongue a is fitted, fig. 6 showing a face view of the ring with the tongue a inserted, the tongue a being shown detached in fig. 8. When the segments b are thus united to form the ring C, and placed in position in the piston head, it is obvious that the strips or pieces e will prevent the steam which enters from the recess k from escaping radially through the joints, and that the tongues a will at the same time prevent any from passing through the joints laterally, while the ring, being in sections, is perfectly free to be pressed outward by the steam under it, and thus pack the piston steam-tight. In fig. 4, the ring D is shown formed similar to C in the first instance, but instead of the pieces e and the tongues a being made separate, as in the ring C, I use the joint-piece m . This piece m has a flange corresponding to the piece e , equal in thickness to the ring D, to prevent the steam from escaping radially through the joints of the ring. It also has a tongue projecting radially, as shown in Figure 7, which is fitted into a recess made for it in the adjoining ends of the segments l , as shown in fig. 4, the segments being broken away to show the tongue of m in position. This last is but a modification of the former manner of constructing the ring, the only difference being that in this case the flange and tongue are both made in one piece, while in the other they are made separately, and are slightly different in form, the object and operation being the same in both cases. Instead of admitting the steam through the opening i into the recess k , and from thence under the ring, to press it out, it may, if preferred, be admitted through the holes t , made in the ring itself, just outside of the edge of plate B, and passing diagonally to the space under the rings, as shown in fig. 1, the openings t being shown covered by the plates B in this drawing. As the cylinder

and piston are liable to become worn on the lower side, where they are constantly in contact, I insert the shoe *d* into a recess formed for it in the periphery of the piston head *A*, and adjust it by means of the set-screws *n*, as shown in fig. 2. By adjusting the screws, as the parts become worn, I am enabled to keep the piston head concentric with the bore of the cylinder, and thus prevent strain on the piston-rod. By means of the slide *h* the amount of steam admitted under the rings can be regulated so as to give just the pressure required, and at the same time prevent it from pressing out the rings so as to cut or improperly wear the cylinder—a very important feature where metal packing alone is used. By these means I am enabled to construct a packing ring that will operate in a perfect manner as a packing, and one that can be very accurately and readily fitted, and in which the fitting and finishing of the joints and parts can be all done by machinery of the simplest kind.

Having thus described my invention, what I claim, is—

1. A packing ring, consisting of the segments *b*, with the springs *e* and tongues *a*, constructed and arranged to operate as shown and described.
2. In combination with the rings constructed as set forth, I claim the annular recess *k*, and the slide *h*, arranged to operate as described.

In presence of—

HENRY BACON,
C. G. KEYES.

GEORGE DRYDEN.