

No. 654,541.

Patented July 24, 1900.

T. H. HOLMES.
ROD PACKING.

(Application filed Feb. 14, 1898.)

(No Model.)

Fig. 2.

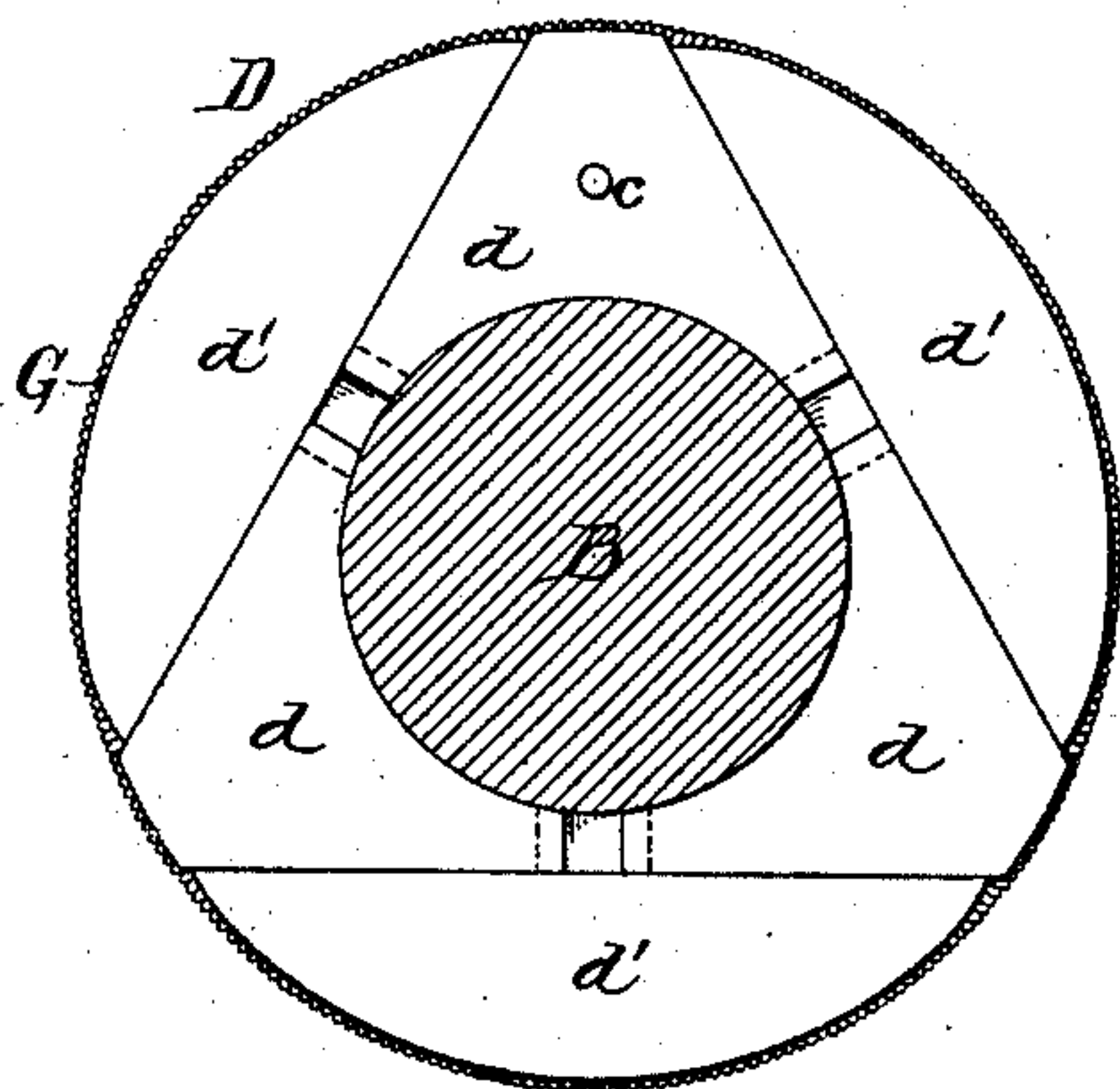


Fig. 3.

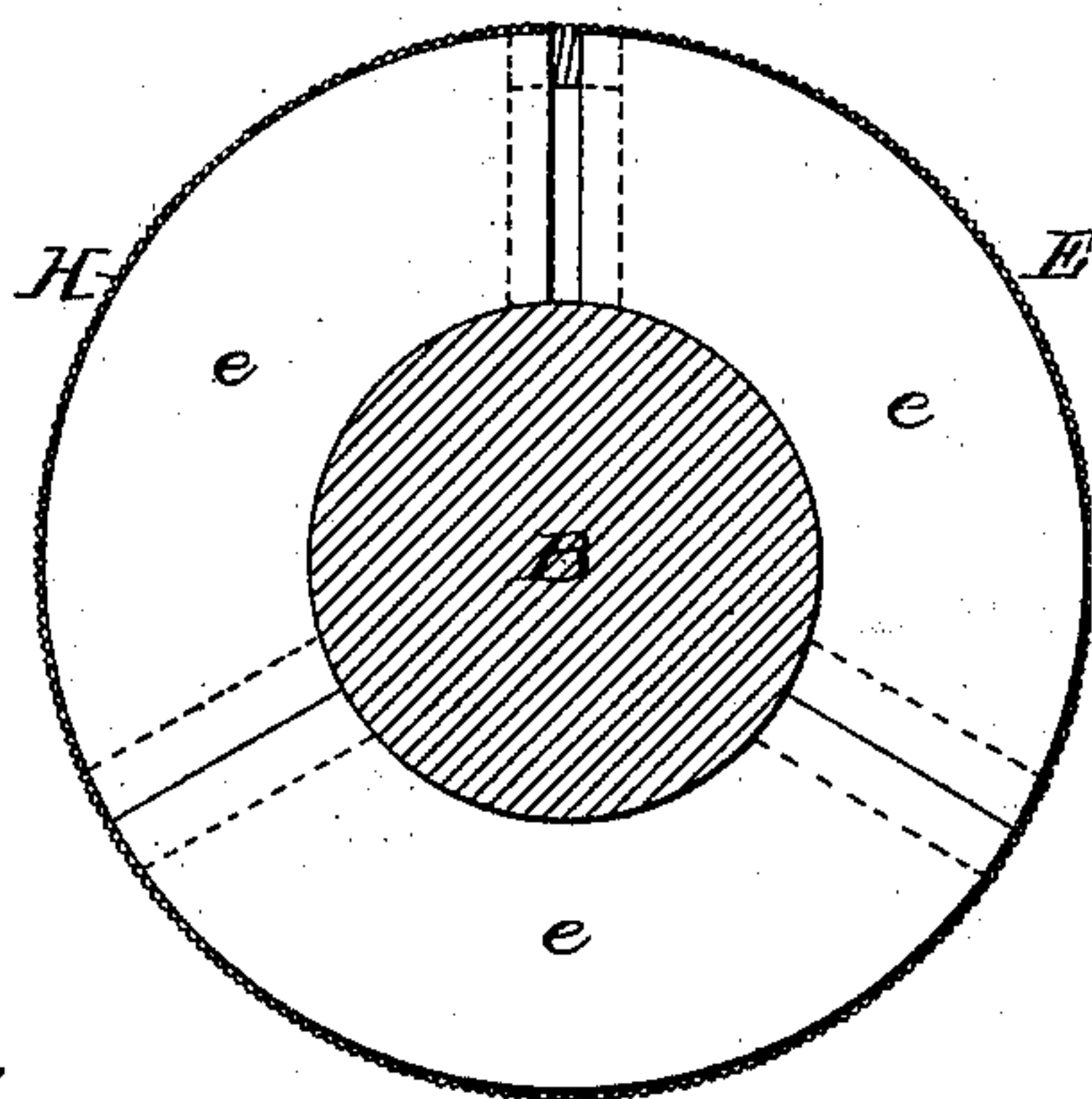


Fig. 1.

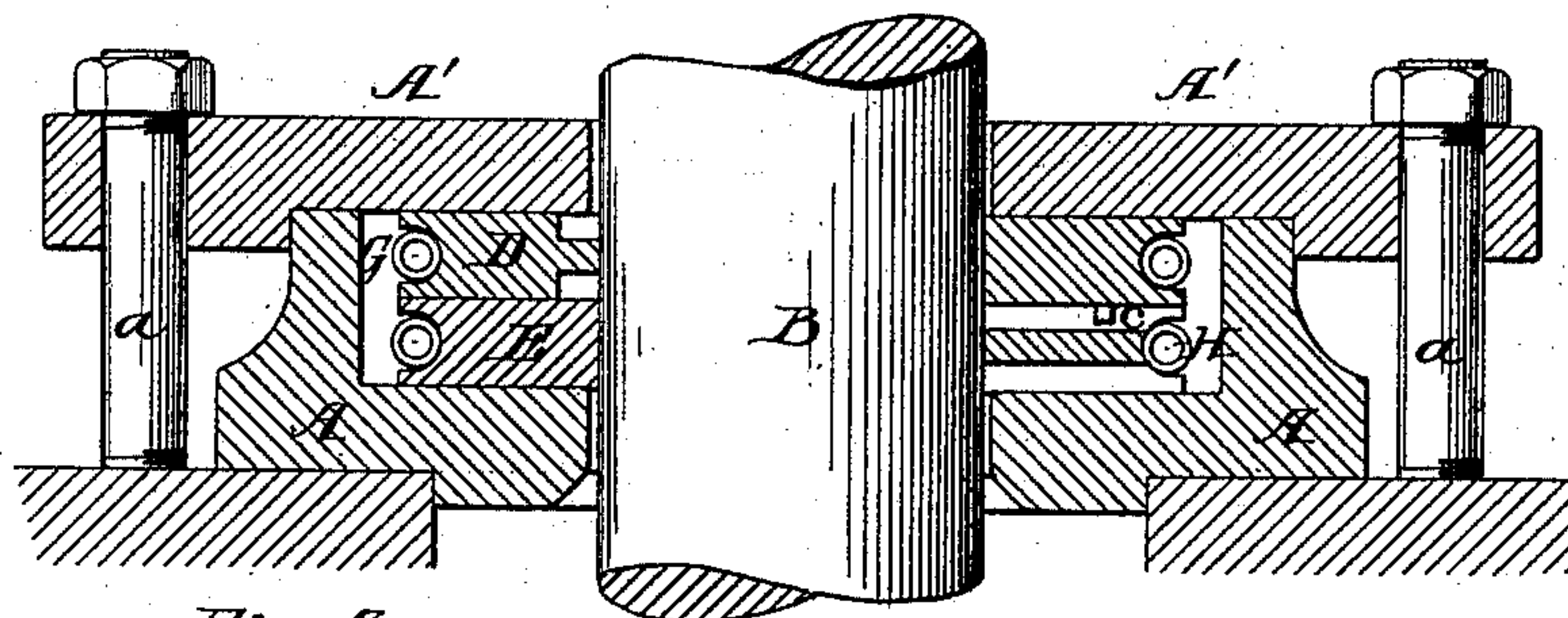


Fig. 4.

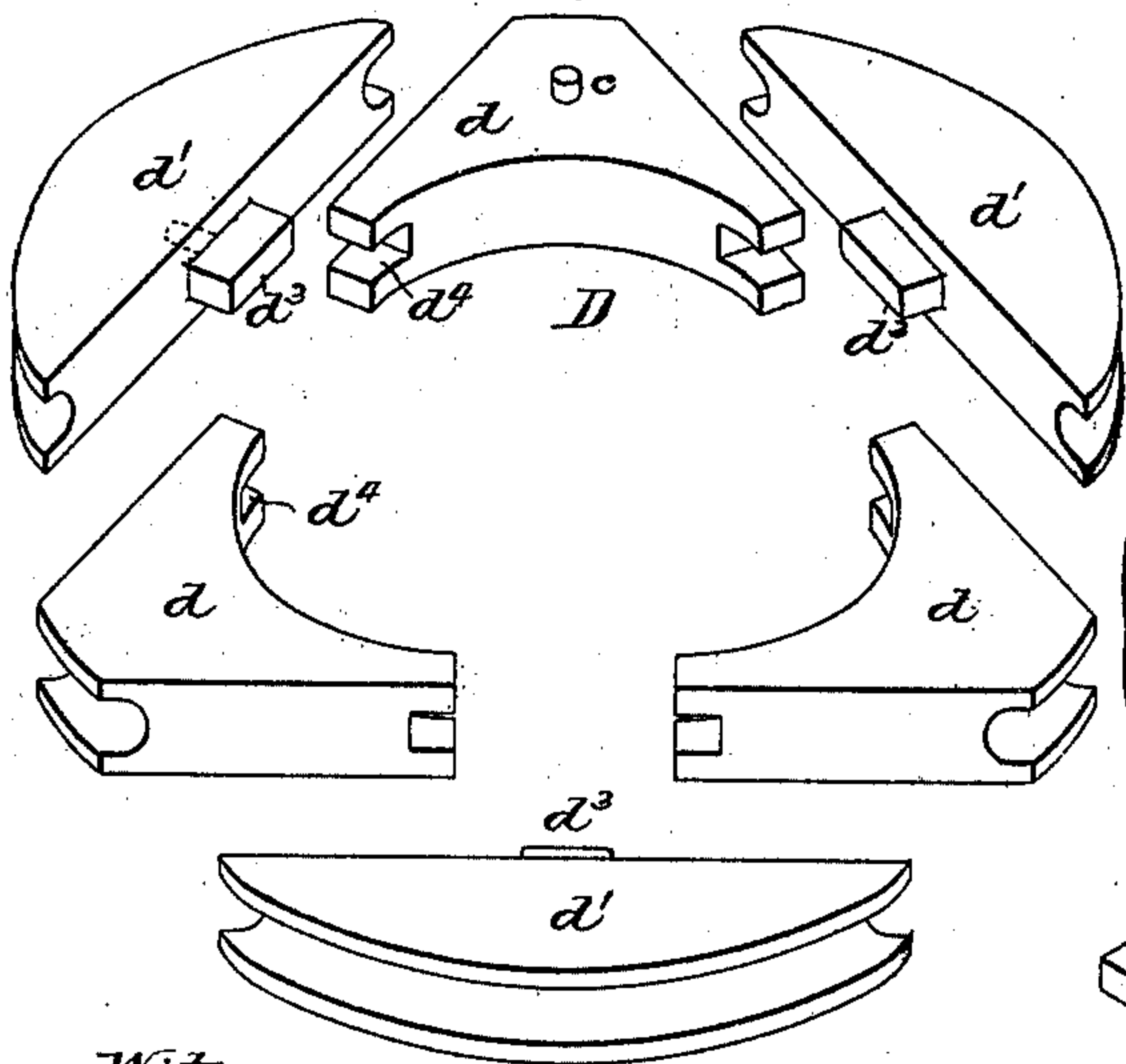
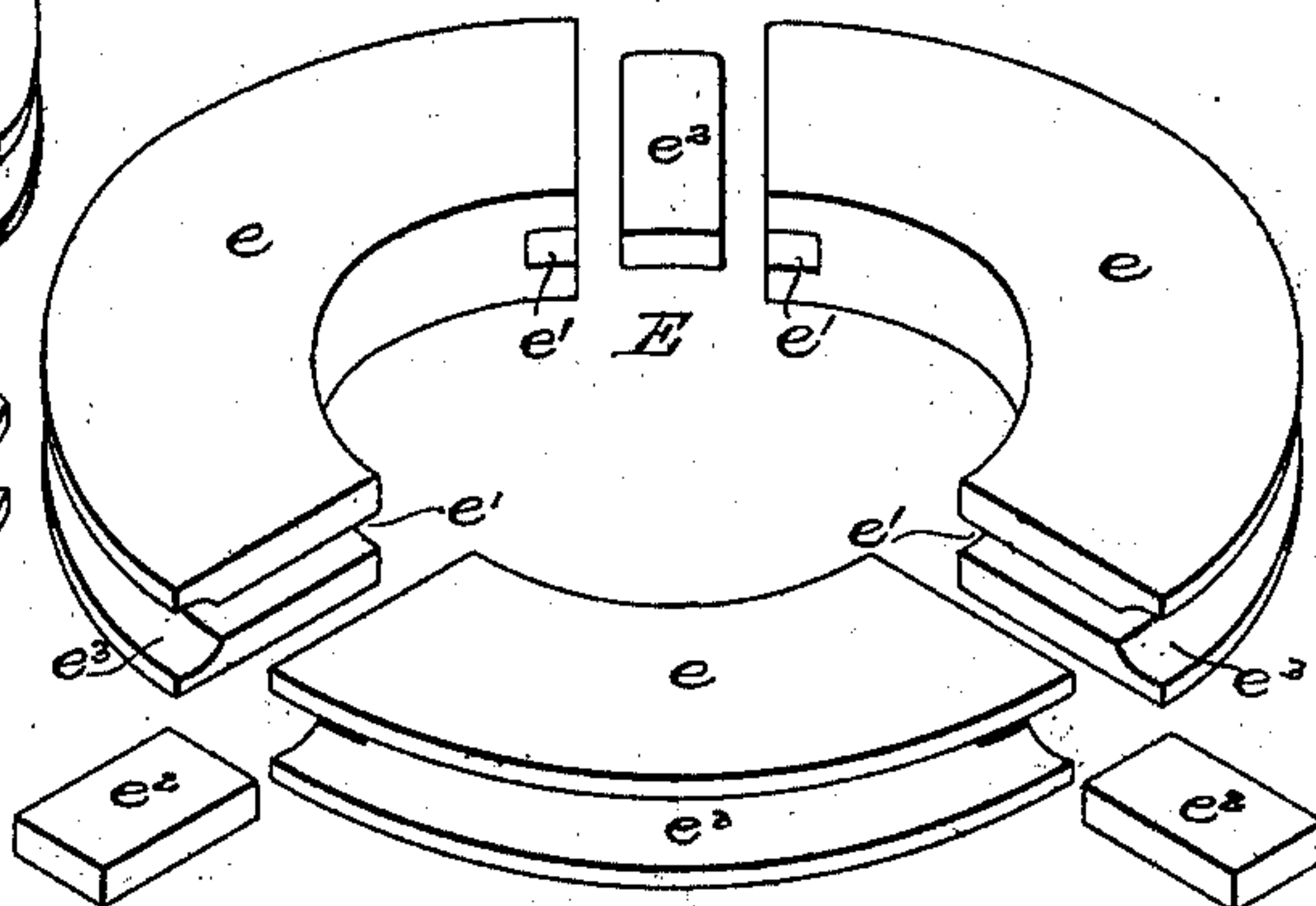


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS H. HOLMES, OF WILKES-BARRÉ, PENNSYLVANIA.

ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 654,541, dated July 24, 1900.

Application filed February 14, 1898. Serial No. 670,211. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. HOLMES, a citizen of the United States, and a resident of Wilkes-Barré, Pennsylvania, have invented certain Improvements in Rod-Packing, of which the following is a specification.

The object of my invention is to construct metallic packing for piston-rods, valve-stems, &c., in such a manner that the sections of the packing will fit snugly against the piston-rod or valve-stem, thus making a steam-tight joint. By my invention I can reduce the number of sections required in the packing, and consequently economize in space. The packing, furthermore, will accommodate itself to the rod as it wears, insuring a steam-tight fit.

In the accompanying drawings, Figure 1 is a sectional view of my improved metallic packing, showing the piston-rod in place. Fig. 2 is a plan view of one of the packing-rings. Fig. 3 is a plan view of the other packing-ring. Fig. 4 is a perspective view showing the sections of the ring, Fig. 2, detached; and Fig. 5 is a perspective view showing the sections of the ring, Fig. 3, detached.

Referring to the drawings, A is the packing-casing, adapted to be secured to or form part of the head of a cylinder or valve-chest. A' is a cap adapted to the casing and secured thereto by bolts *a* or other fastenings.

B in the present instance is a piston-rod which passes freely through the casing and cap.

D is one of the sectional rings, and E is the other sectional ring. The ring E is preferably placed nearest to the piston, as shown in Fig. 1. I have found that the two rings D and E, made in accordance with my invention, applied to a piston-rod will prevent the escape of steam and yet allow the rod to work freely, although I may use a number of pairs of rings, if desired. The ring D in the present instance is made up of six sections. The sections *d d d* are identical in form, being shaped as shown in the drawings, having a curved base adapted to fit the piston-rod B and tapered toward the end *d*². Resting against the inclined surface of two of these sections *d* are semicircular sections *d'*, of the shape illustrated in the drawings. A groove is formed in the semicircular side of the sec-

tion *d'*, as well as in the end *d*² of the section *d*, and when the several sections are assembled, as shown in Fig. 2, the groove is continuous, and adapted to the groove is a spring G, tending to press the several sections toward the piston-rod. The sections *d* being on such a bevel that as pressure is applied to the sections *d'* and to the end *d*² of the sections *d* these sections *d* will be pressed snugly against the rod. Extending from the center of the section *d'* are lugs *d*³, which have curved faces corresponding to the curve of the piston-rod and of such length that they will rest against the rod when the sections are assembled, as shown in Fig. 2. These lugs rest in notches or grooves *d*⁴, formed in the sections *d*, so that steam is prevented from escaping between the sections *d d*. The ring E is made in three sections, as shown in Figs. 3 and 5, and the sections abut on radial lines. In order to prevent the steam escaping between the joints of the sections, I form grooves *e'* in the ends of each section *e* and place within the grooves a plate *e*², having its end curved to coincide with the curve of the piston-rod. This plate is of such a length that the spring H, which is adapted to the annular groove *e*³, will not only tend to force the sections *e* toward the rod, but will also tend to force the plates *e*² against the rod. By placing this pair of rings together in the packing-box, as shown in Fig. 1, the two rings break joints, so as to make it impossible for steam to escape through the box when the rings are in position, and by having the ring E, with the radial parting-lines, arranged next to the steam any steam escaping through the parting-lines will enter the space between the peripheries of the rings and the casing and will press upon the peripheries of the rings holding the several sections to the rod.

In order to keep the two rings in a certain position in respect to each other, a projection *c* on one of the sections *d* of the ring D enters a space between two of the sections *e e* of the ring E, as shown.

It will be understood that while I have shown the ring D made with three inner and three outer sections they may be made in as many sections as shall by the angularity of their faces cause the segments to be forced toward the center by the circumferential pres-

sure of a spring, either of the spiral form or flat form or by other pressure.

Packing of this type can be used on a reciprocating rod or one that vibrates or rotates.

I preferably make the lugs d^3 in the form of T-headed pins set into the face of the section d' after they are finished; but they may be made integral with the sections, if necessary.

When the inner sections d wear by continued use until their ends touch, I can remove these sections, grind off the ends, so that they will clear, and deepen the grooves d^4 for the lugs d^3 . The packing will then be as good as new.

I prefer to use a spiral spring around the peripheries of the rings, as it conforms more readily to the irregularities of the sections.

I claim as my invention—

1. The combination in a packing-ring for piston-rods, of a series of inner sections adapted to encircle the rod, said inner sections being tapered toward the periphery of the ring, and a series of outer sections in the form of segments, each outer section adapted to rest against the faces of two of the inner sections, a lug extending from the center of each outer section toward the piston-rod, the ends of the inner sections being grooved to receive the lugs, with a spring encircling the ring and bearing upon the inner and outer sections, substantially as described.

2. The combination in a packing, of two or

more rings, one ring divided into a series of sections having their joints on radial lines, the ends of each section being grooved, with a plate adapted to the grooves so as to make the joint between the sections steam-tight, each of said sections having a groove, with a spring mounted in said groove and bearing upon the plates as well as upon the sections, substantially as described.

3. The combination in a packing, of a casing of one or more sets of rings, each set consisting of two rings, one ring divided into a series of sections on radial lines, each section having grooved edges, with plates adapted to rest in the grooves the said ring having an annular groove, a spring therein tending to force the sections and the plates toward the rod, the other ring made up of three inner sections separated from each other on radial lines, and three outer sections separated from the inner sections on tangential lines, a lug on each outer section extending into grooves in the ends of the inner sections and adapted to rest against the rod, the said ring having an annular groove and a spring in said groove tending to force the sections upon the rod, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS H. HOLMES.

Witnesses:

F. E. BECHTOLD,
JOS. H. KLEIN.