

(No Model.)

2 Sheets—Sheet 1.

J. E. HUNTER.
ROLLER FOR FULLING MILLS, &c.

No. 547,518.

Patented Oct. 8, 1895.

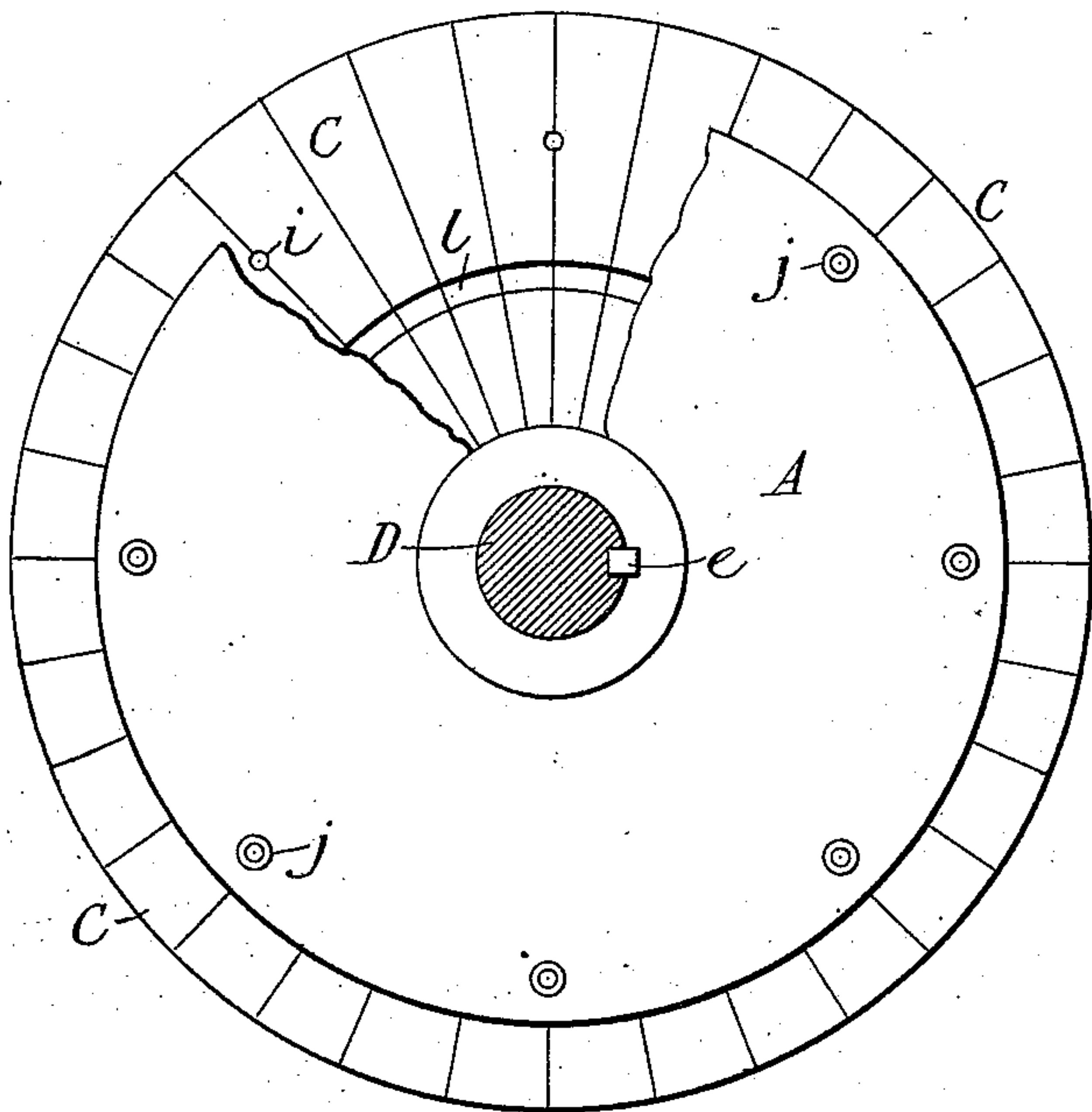


Fig. 1.

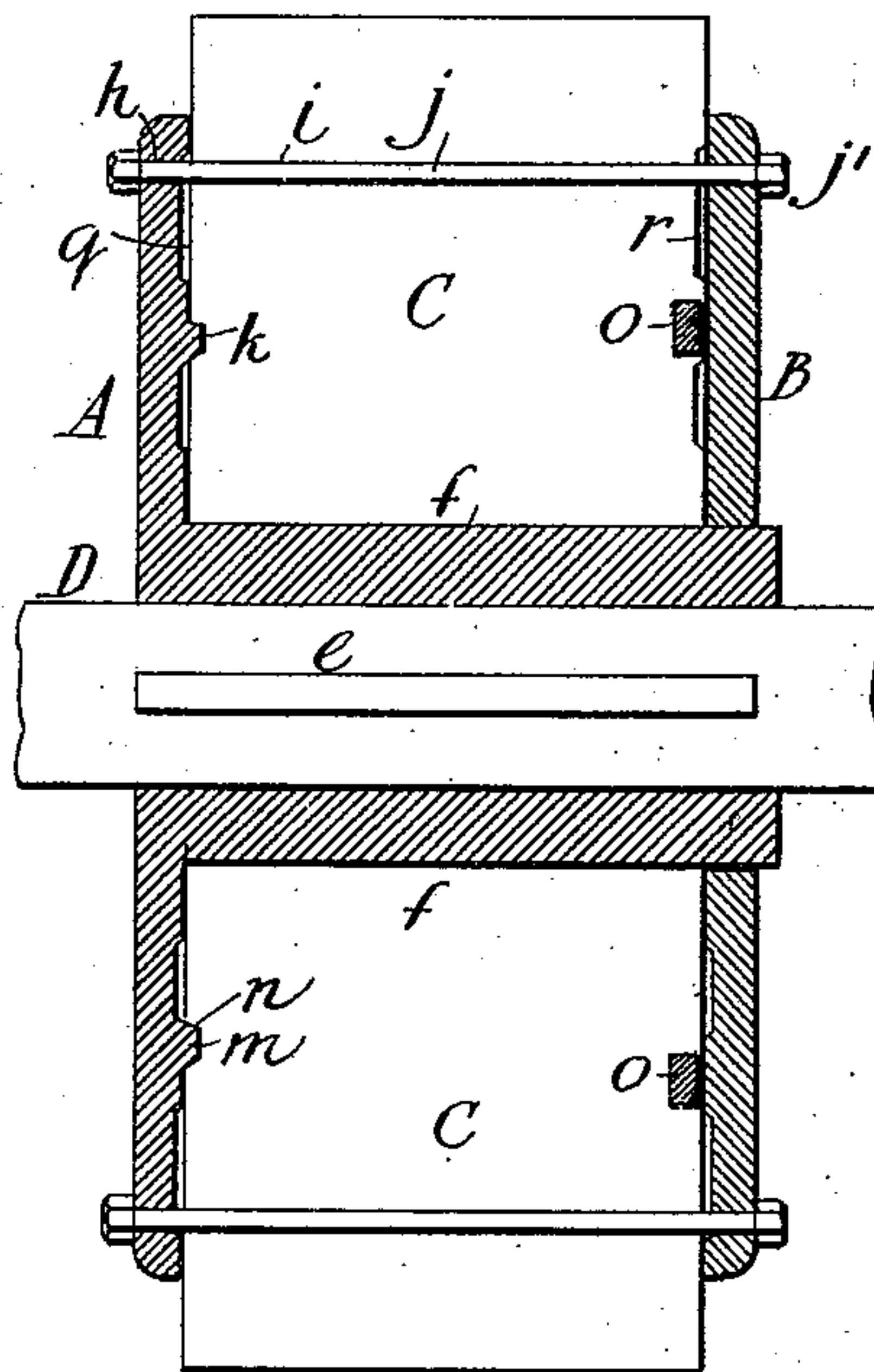


Fig. 2.

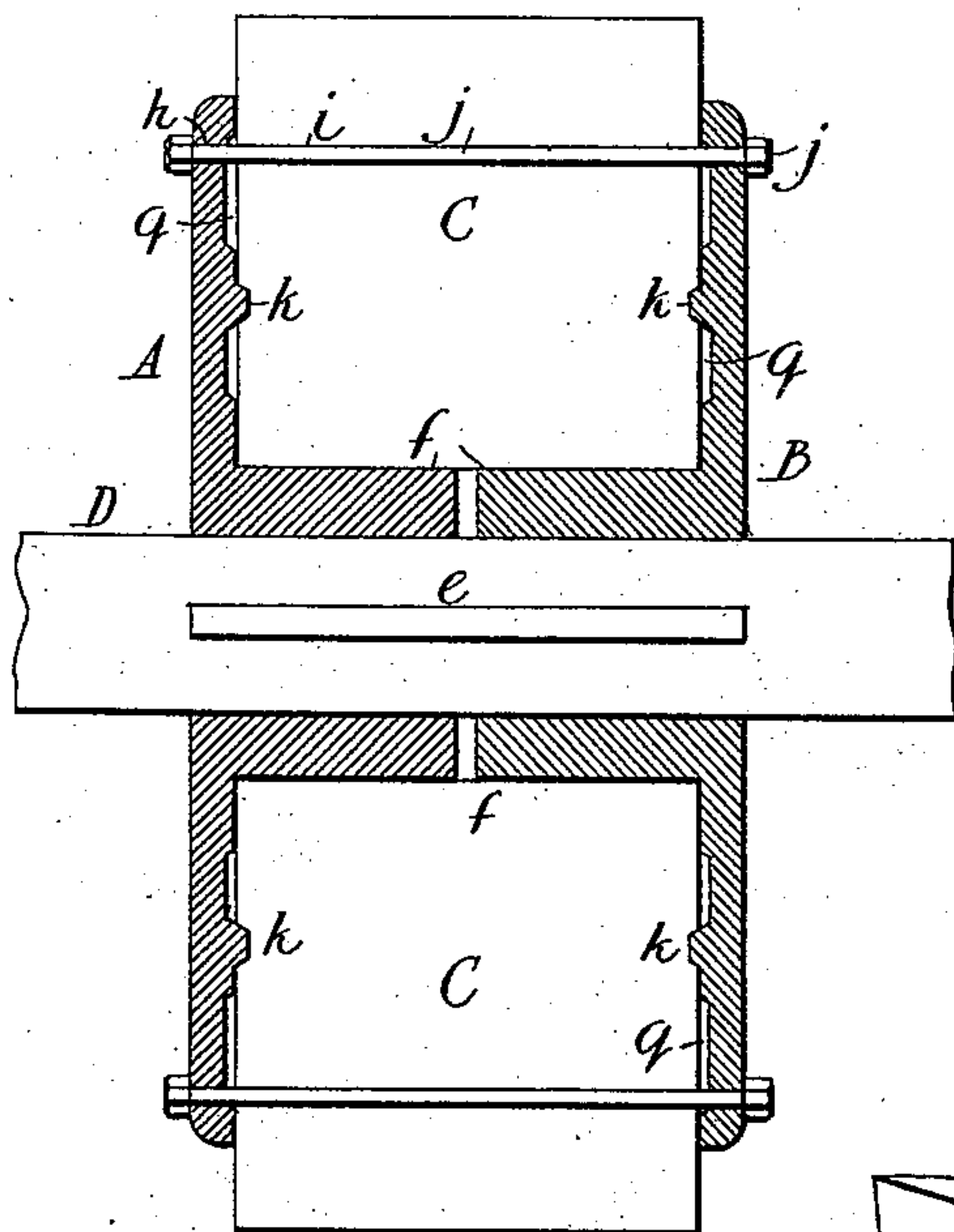


Fig. 3.

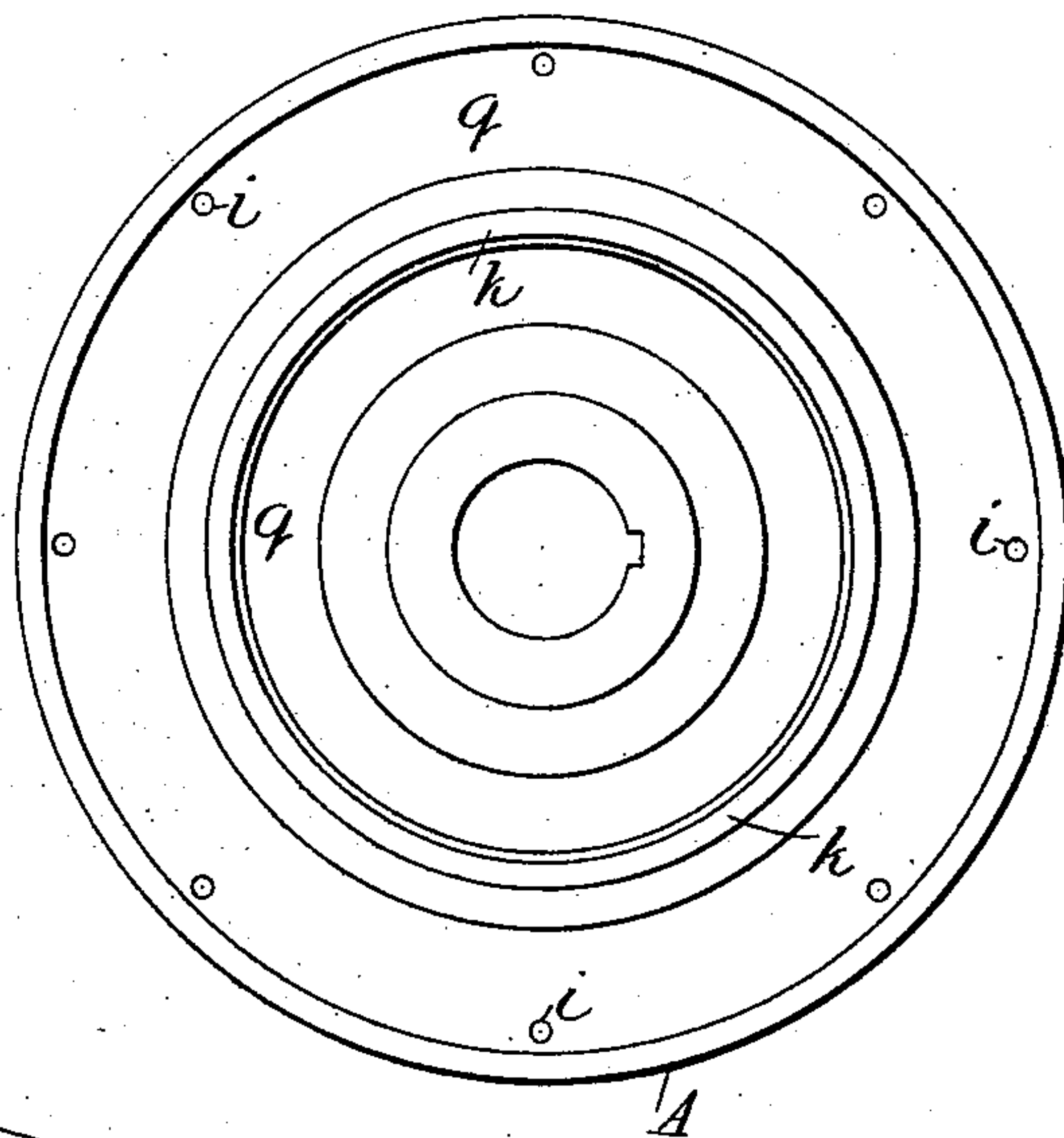
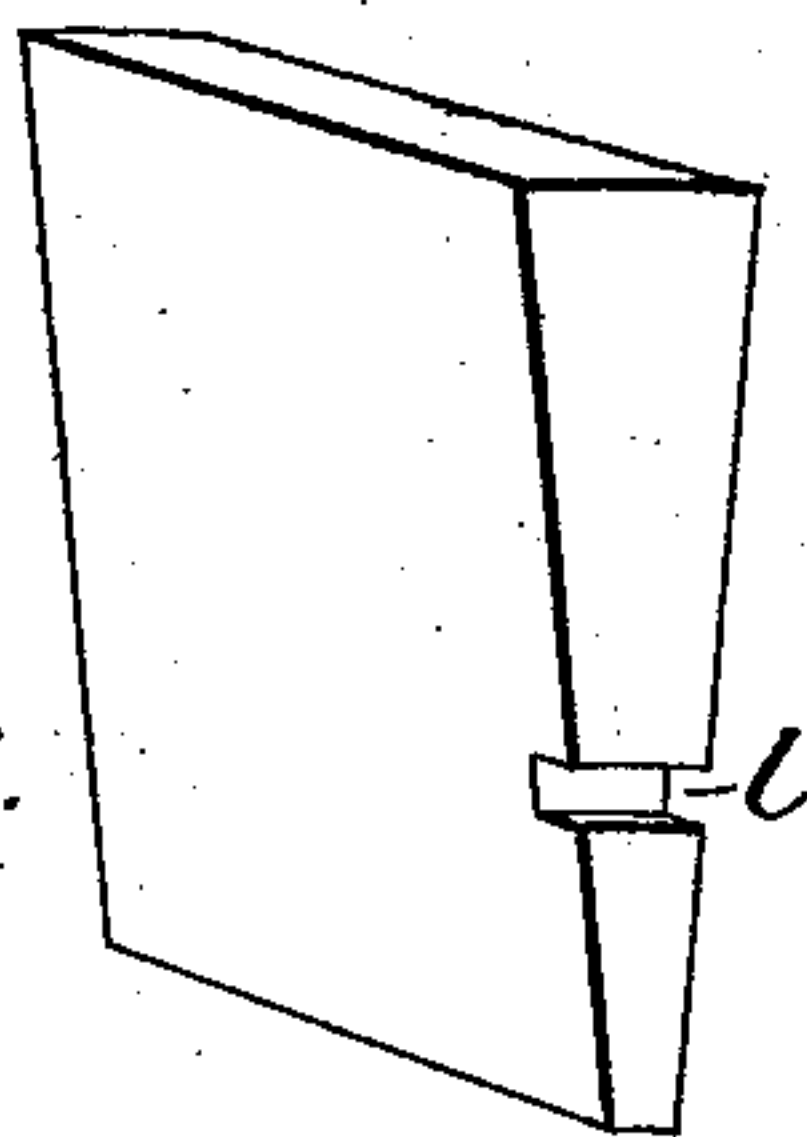


Fig. 4.

Fig. 6.



Witnesses

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By Button Gray
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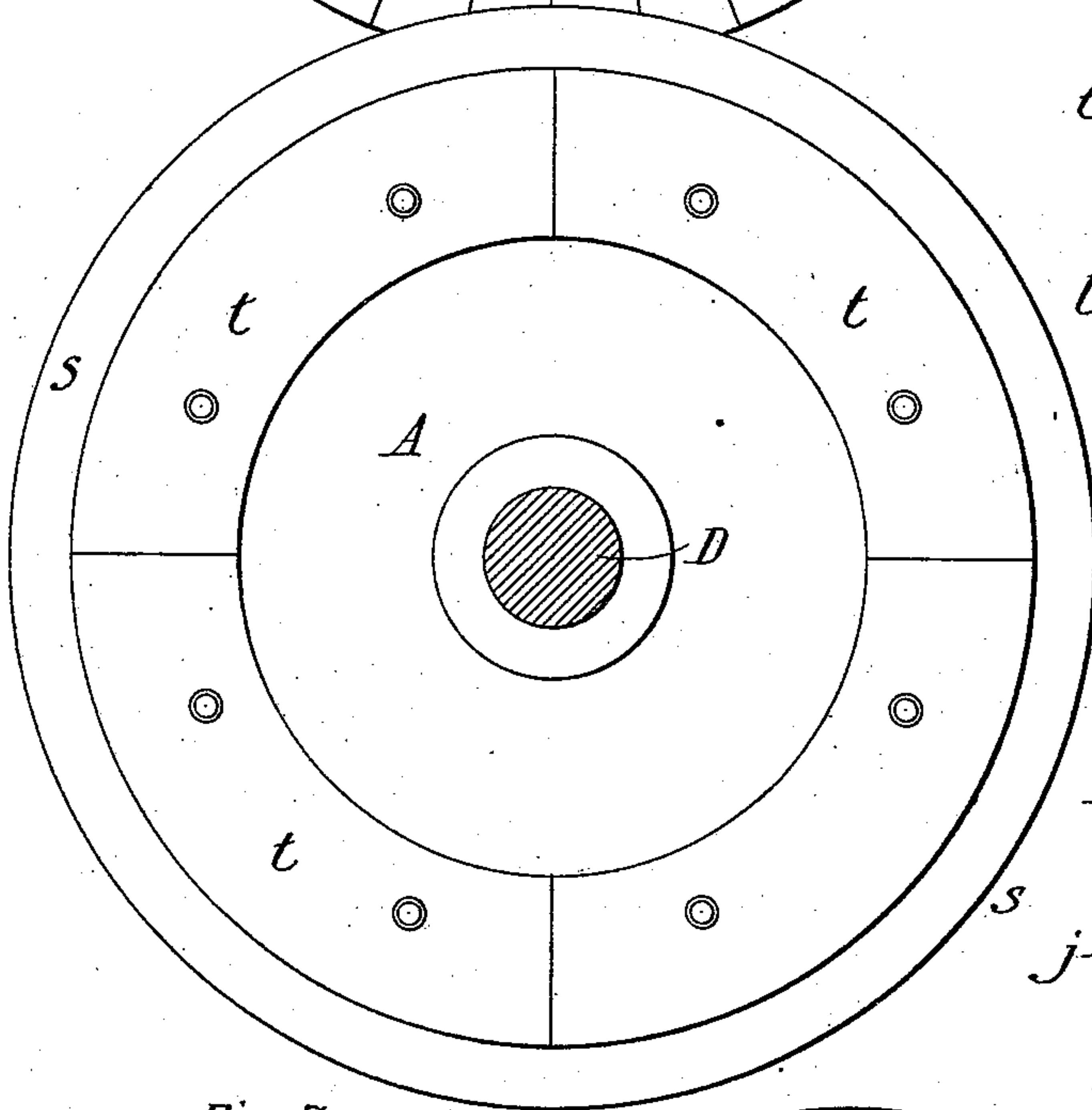
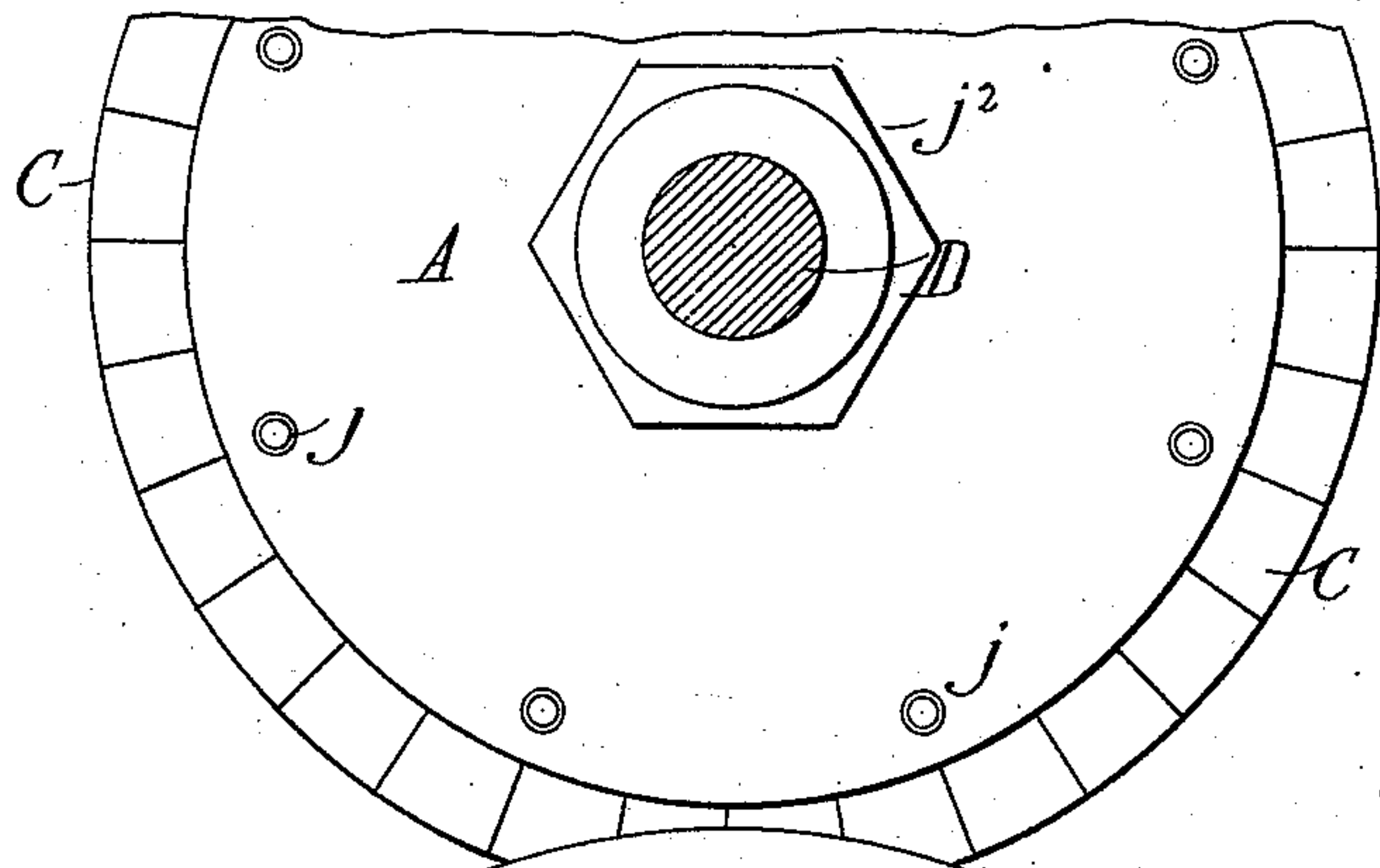


Fig. 7.

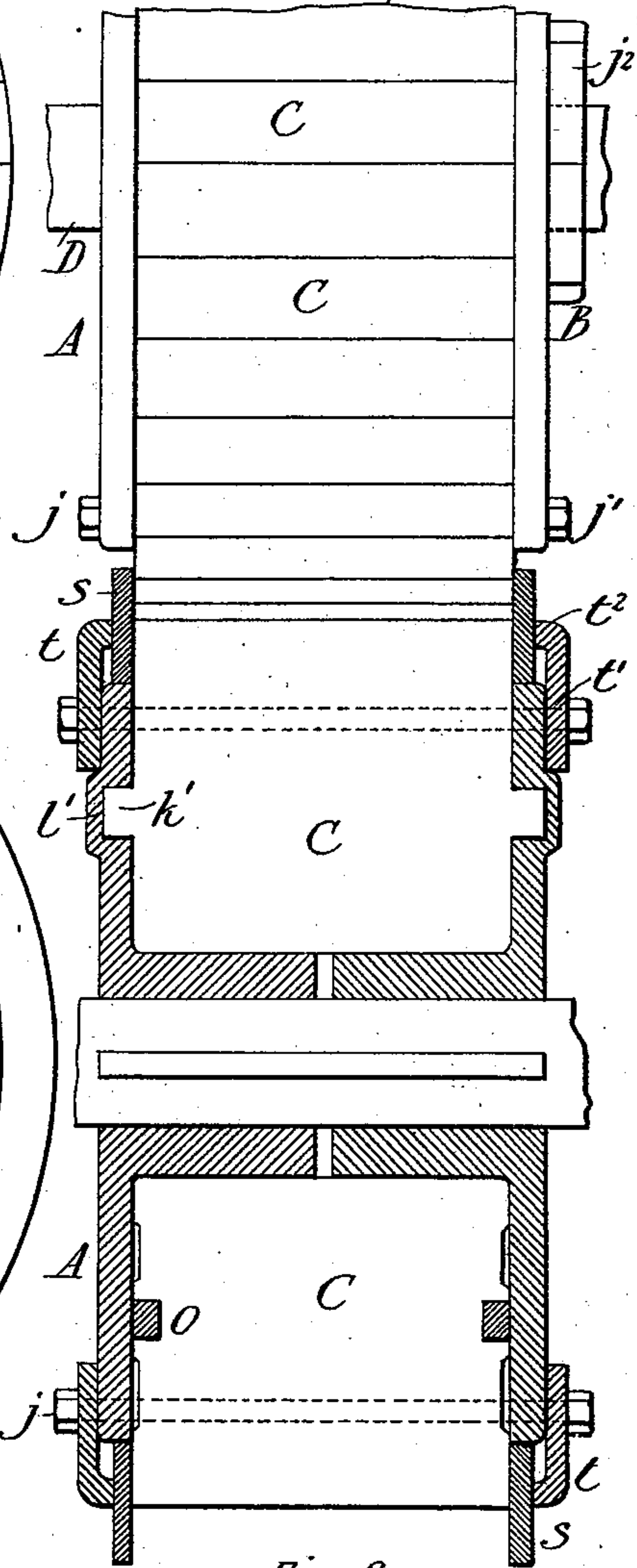


Fig. 8.

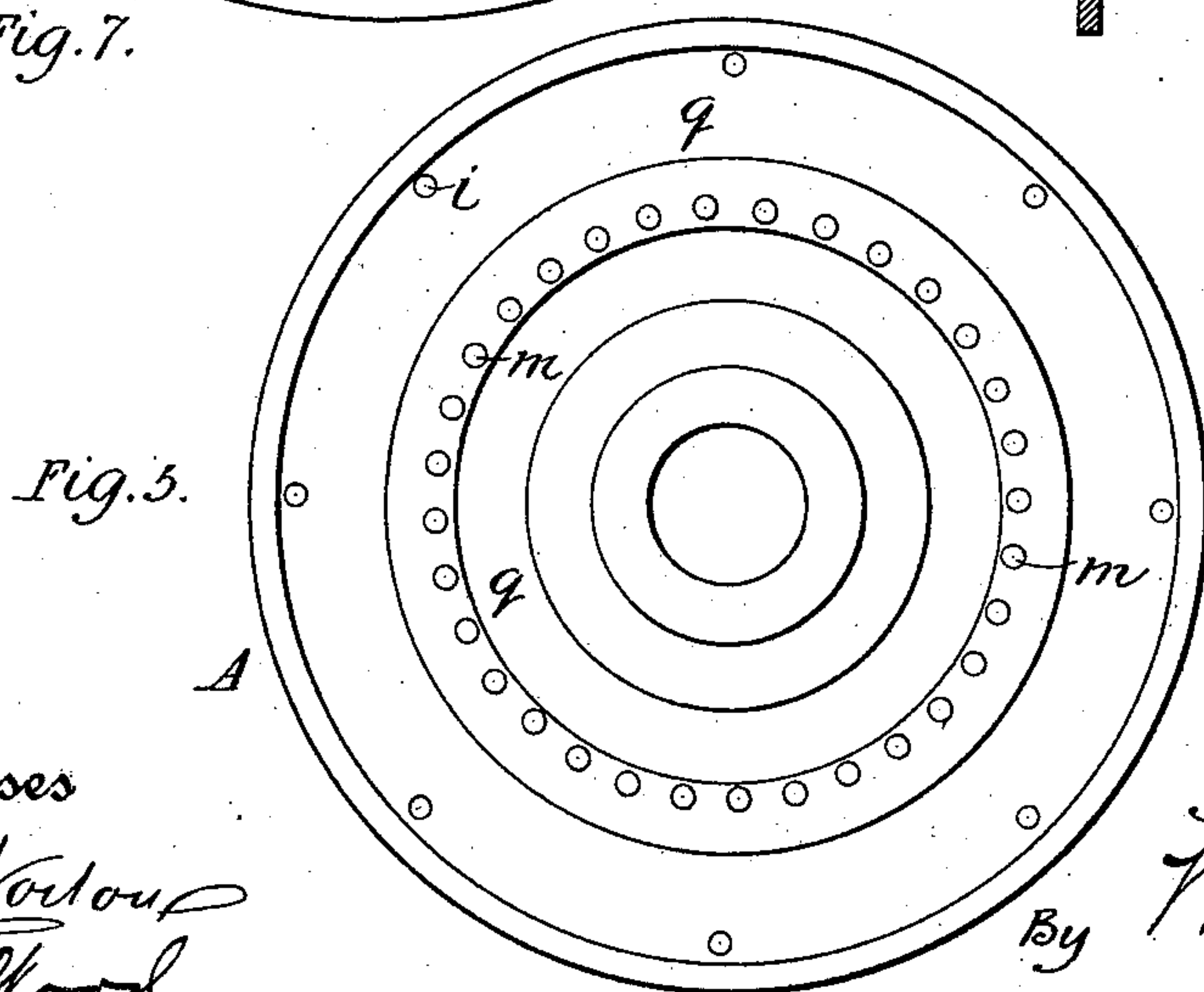


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES E. HUNTER, OF NORTH ADAMS, MASSACHUSETTS, ASSIGNOR TO THE
JAMES HUNTER MACHINE COMPANY, OF SAME PLACE.

ROLLER FOR FULLING-MILLS, &c.

SPECIFICATION forming part of Letters Patent No. 547,518, dated October 8, 1895.

Application filed July 30, 1894. Serial No. 518,995. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. HUNTER, a citizen of the United States, residing at North Adams, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Rollers for Fulling-Mills, Cloth-Washers, and Like Machinery; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in rollers of that type which are used in connection with fulling-mills, cloth-washers, and other like machinery, and has for its object the production of a roller constructed mainly from wood, but so arranged as to present the end of the grain as the working surface, thus insuring durability and a more perfect surface as compared with existing rollers, and by its construction, also, to preclude against the splitting or displacement of any of the blocks which are assembled to form the roller and the breaking of any of the fastenings which hold the parts in their respective positions.

The nature of my invention will fully and clearly appear from a reading of the subjoined description, when taken in connection with the accompanying drawings, which form a part of the specification, and in which—

Figure 1 illustrates in side elevation, partly broken away, one form of roller embodying my improvements. Fig. 2 is a vertical central longitudinal section of the same; Fig. 3, a view similar to Fig. 2, but showing a modified form of construction. Fig. 4 is an inside elevation of one form of head. Fig. 5 is an inside elevation of another form of head. Fig. 6 is a perspective view of one of the blocks employed. Fig. 7 is a side elevation, partly broken away, of two rollers embodying my improvements, one of which is flanged; and Fig. 8 is a vertical central longitudinal section of the same.

Like letters of reference denote like parts in all of the figures of the drawings.

Referring to the said drawings by letter, A and B denote the heads, between which the blocks C are clamped, and D is a shaft, on which the roller is shown mounted to turn therewith, a key *e* being employed in the usual manner. The head A in the construction shown in Fig. 2 carries a collar or bushing *f*, which is apertured to receive the shaft and against which the inner ends of the blocks abut; but, as shown in Fig. 3, both of the heads A and B may be provided with half collars or bushings, the inner ends of which are slightly separated when the parts are assembled, it being preferable to thus allow for the tightening of the fastenings after repeated use.

In the construction of the heads shown in Fig. 2 the head B is formed with a central aperture to receive the bushing *f*, said head being slipped over the outer end of said bushing and permitting thereby the subsequent tightening of the fastenings in a manner similar to that in the other construction shown.

The roller is, as before stated, constructed and composed mainly of wood, which is in the form of segment-shaped blocks C, arranged to present the end of the grain as the working surface to insure durability and a more perfect working surface, and each of said blocks is concentrically curved at its top and bottom and has straight sides to permit the adjacent blocks to lie closely thereto and parallel straight edges to form when assembled even surfaces, against which abut the heads, as shown. Near the outer edge of each head are regularly-spaced apertures *h h*, and *i i* are holes made transversely through the blocks, preferably at the dividing-line of two adjacent blocks, said holes registering with the apertures, and through said apertures and holes are passed headed bolts *j j*, which project sufficiently beyond the opposite head to accommodate nuts *j' j'*, as shown. Instead of this arrangement, however, I may, if desired, and as shown in Fig. 8, screw-thread the end of bushing *f* and when the parts are assembled employ a large nut *j²*

in connection with such threaded end to complete the connection. These bolts and nuts and the arrangement just described in practice bind the heads and blocks securely together both laterally and radially; but owing to the differential strain, centrifugal force, and other causes exerted it is essential that means other than the means stated and the friction between the heads and edges of the blocks be employed to prevent the displacement of the blocks. I have shown four different means for overcoming this radial movement of the blocks, the preferred means being an annular ring k , integral with one or both of the heads and fitting a correspondingly-shaped annular depression l , formed in one or both the edges of the blocks, as shown in Fig. 1. Instead, however, of the integral annular ring and depression I may employ a series of projections m , annularly arranged and integral with the head or heads and spaced equally, said projections engaging depressions n in each block or in every second or third block, as may be required; or instead of the means stated I may employ an annular ring o , separated from and unattached to the head or heads, and which fits within an annular depression in one or both of the edges of the blocks; or, if desired, the ring may be of wood, as at k' , in which case each block would have formed with it a projection which would correspond with all the projections on the other blocks, which when fitted together would form an annular wooden ring, and in this case a correspondingly-shaped annular depression l' would be formed for its reception in the inner face of the head. In any and all of the means stated the blocks are rigidly held in position and cannot be displaced or removed except by dismembering the entire roller.

In order to overcome the tendency of the bolts to break under the expanding influence of the blocks by reason of great strain and other causes, I recess the inner faces of the heads or the edges of the blocks, as preferred, in order to allow a space or spaces for the fibers of the expanding wood to fill, and thus prevent a bursting action on the heads and bolts. The recesses in the heads are shown at q q , and those in the blocks at r r are preferably annular and disposed at each side of the rings or projections.

In Figs. 7 and 8 I have shown a flanged roller and the relation and position it bears to a plain or unflanged roller. The flanged roller is the same in all respects, except the flange, as the roller previously described and shown at the upper end of said figures, so that the flange and the means for securing same only will now be referred to. As will be noticed, the blocks or wooden portion of the roller extends some distance beyond the heads, and thereby is formed an annular seat for the flange s , which is preferably in the form of a washer, the inner annular edge fit-

ting closely the outer periphery of the heads. For maintaining the position of the flanges I employ annular clamps t , one for each flange, and each of said clamps is formed of segment-shaped sections apertured at t' and having a projecting lip t^2 , which bears on the flange. The bolts, when the same are employed, that clamp the heads and blocks are passed through the apertures t' , which are arranged to register with the apertures and holes in the heads and blocks, and thus the flanges are securely held against displacement.

Rollers when constructed in accordance with the foregoing are not only strong and durable, but are light of weight and cheap to produce, and once made true maintain their perfection. The means for fastening the parts together, moreover, although very simple in construction and application, effectually hold the parts rigidly together in a practically homogeneous condition.

I claim—

1. A roller composed of two heads, and a hub forming a bearing, a series of segmental blocks clamped between said heads with their inner periphery against the hub, interlocking projections and depressions on the blocks and inner faces of the heads between said hub and the outer periphery for precluding radial displacement of the blocks, securing bolts passed through the heads and blocks near the outer periphery, and nuts for said bolts.

2. A roller composed of two heads having annular projections on their inner faces within the outer periphery, and a hub forming a bearing, a series of segmental blocks clamped between said heads with their inner periphery against the hub and having depressions corresponding to and engaged by the said projections to preclude radial displacement of the blocks, and securing bolts passed through both heads and blocks near the outer periphery, and nuts for said bolts.

3. A roller composed of two heads and a hub forming a bearing, a series of segmental blocks clamped between said heads with their inner periphery against the hub, interlocking connections between said heads and blocks within the outer periphery to preclude radial displacement of the latter, recesses in one of the parts to permit of the expansion of the blocks, bolts passed through the heads and blocks near the outer periphery and securing nuts for said bolts.

4. A roller comprising wooden blocks or segments having recesses in the sides thereof, two heads between which said blocks are clamped having on their inner sides annular projections engaging said recesses, and also having annular recesses to permit of the expansion of the blocks, and securing nuts and bolts, all substantially as set forth.

5. A roller composed of two heads provided on their inner sides with projections, a series of segmental blocks clamped between said heads and having recesses engaged by said

projections, said blocks extending radially beyond the heads, flanges for the roller comprising rings, the inner peripheries of which conform to the outer peripheries of the heads, and the outer periphery of which rings extends beyond the blocks, clamping segments for maintaining the position of the rings, nuts passed through the clamping segments, the

heads and the blocks, and securing nuts for said bolts.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. HUNTER.

Witnesses:

HERBERT D. ROCKNER,

HARRY W. DANIELS.