

No. 725,510.

PATENTED APR. 14, 1903.

J. THOMSON.

MEANS FOR SECURING CRANK DISKS OR GEARS AGAINST END MOVEMENT.

APPLICATION FILED JUNE 16, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

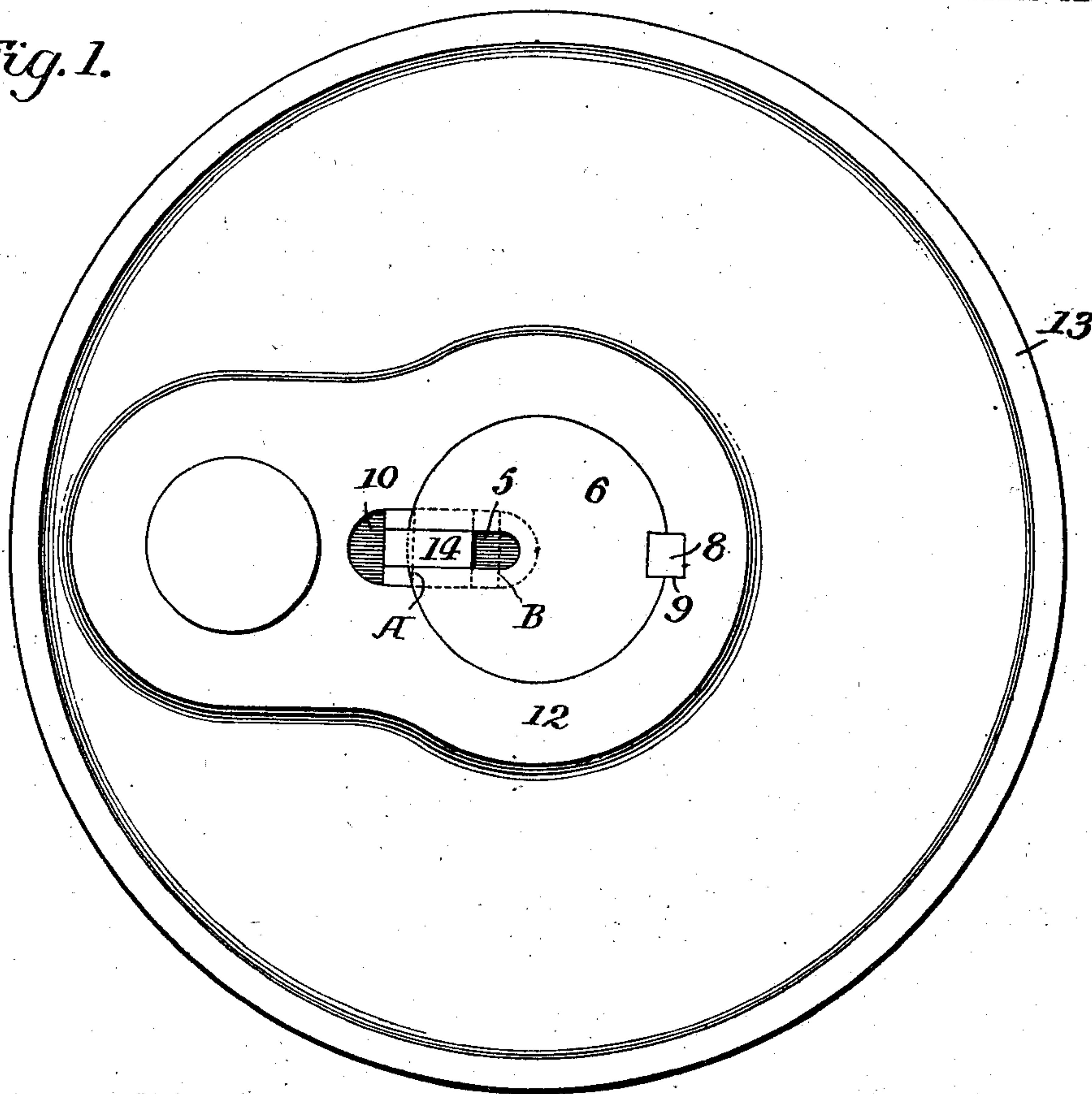


Fig. 2.

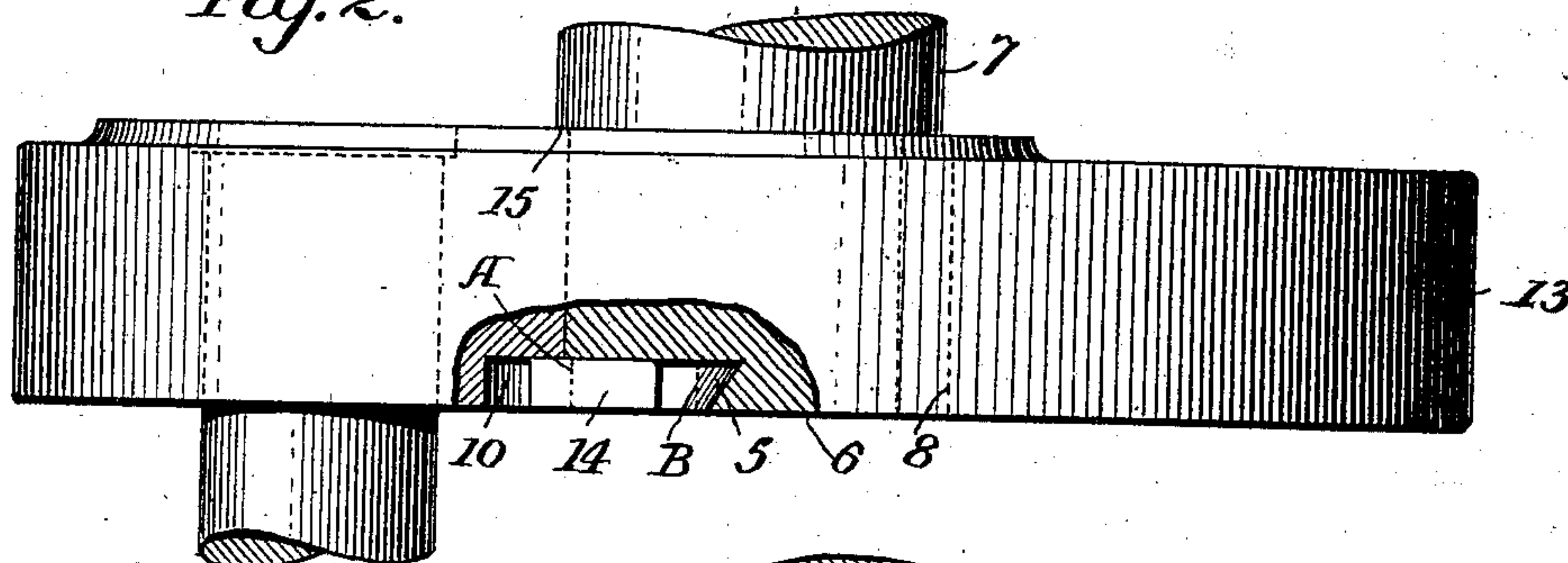
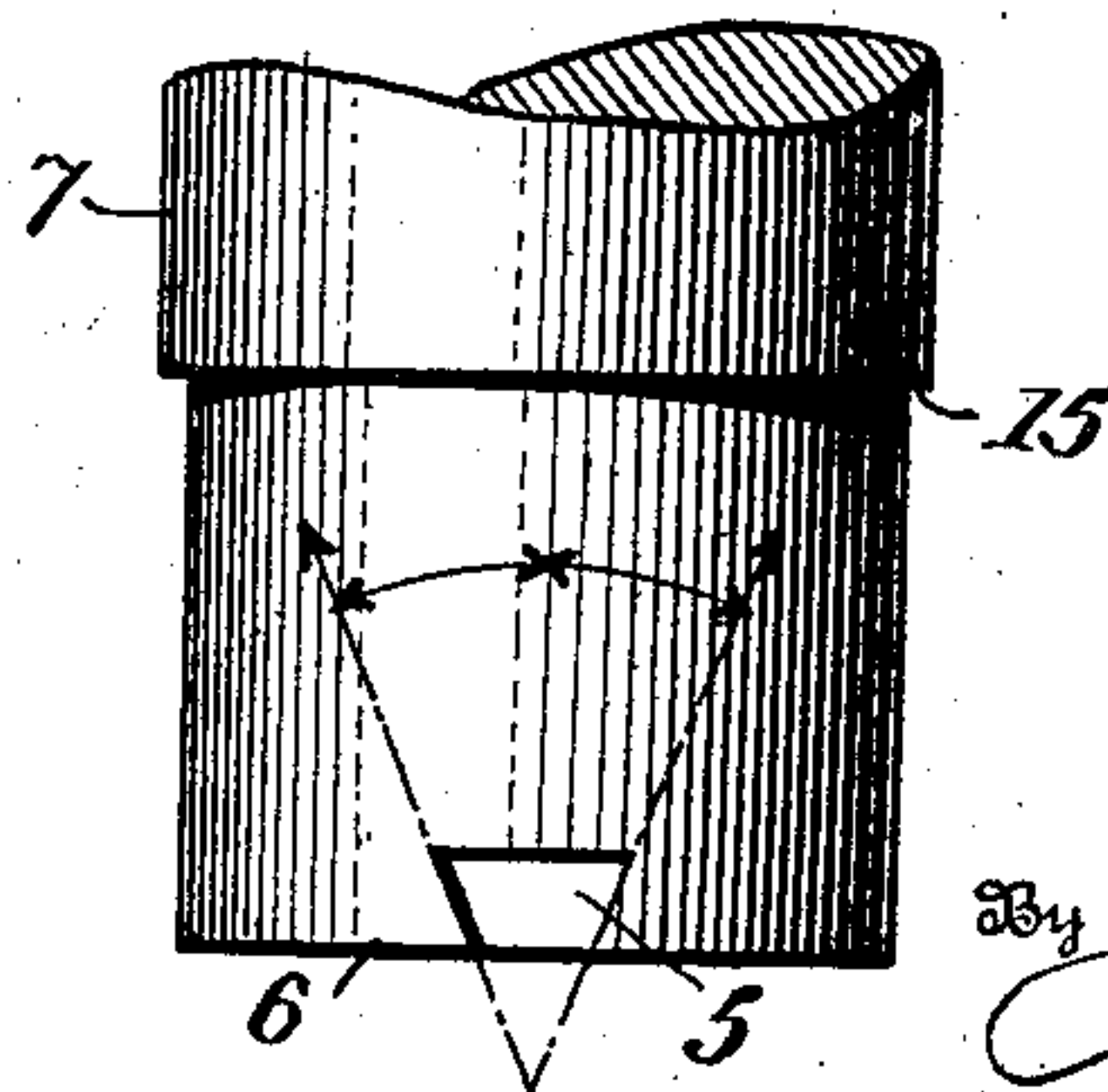


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

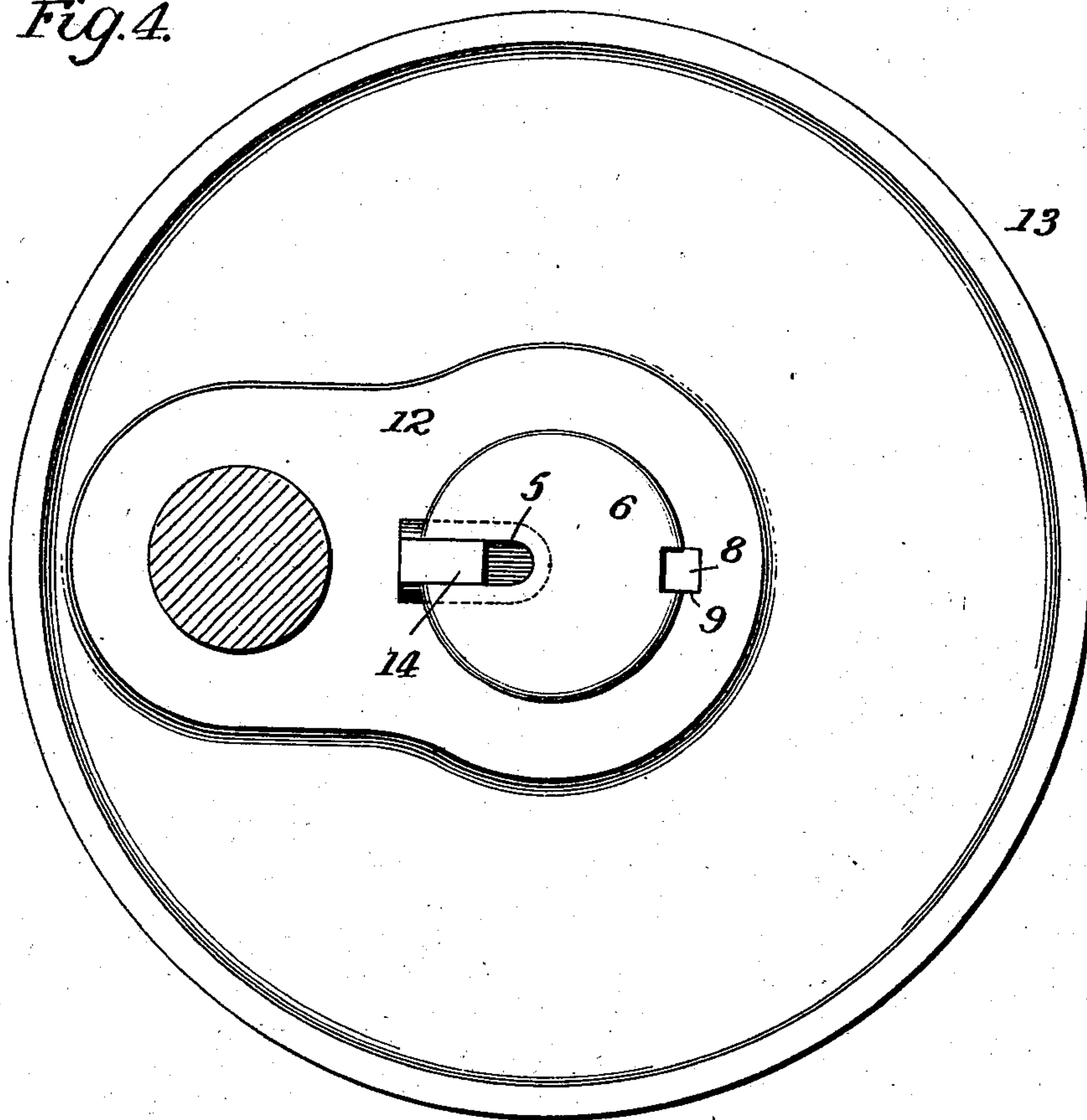
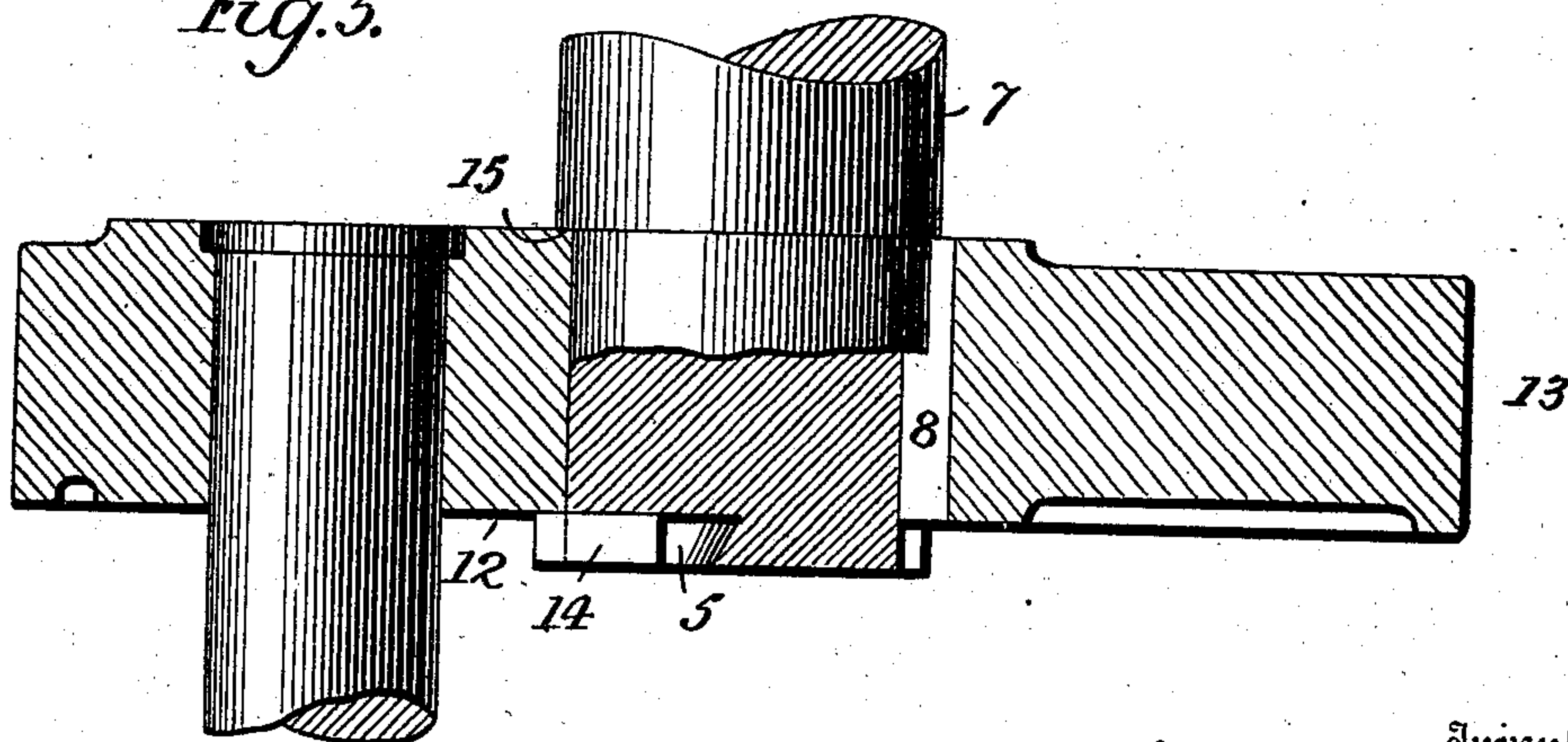


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOHN THOMSON PRESS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

MEANS FOR SECURING CRANK DISKS OR GEARS AGAINST END MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 725,510, dated April 14, 1903.

Application filed June 16, 1902. Serial No. 111,960. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Means for Securing Crank Disks or Gears Against End Movement, of which the following is a specification.

My invention relates to means for securing a crank disk, gear, or other like device upon a shaft, and its object is to improve and simplify the means whereby such a device can be secured against end movement with relation to its shaft.

The invention consists in providing a simple and effective lock which while maintaining the parts in place can readily be locked or unlocked when desired, and in order that the invention may be understood I have illustrated and will specifically describe a preferred embodiment thereof in one of its simplest forms.

Referring to the accompanying drawings, Figure 1 is a side elevation showing the end of a shaft and a crank-disk mounted thereon. Fig. 2 is a front view with a portion of the crank-disk cut away. Fig. 3 is a detached view of the end of the shaft, showing a preferred form of a groove or keyway-slot. Fig. 4 is a side elevation showing the end of a crank-shaft and a crank-disk, the disk being without a recess, and Fig. 5 is a transverse sectional view of the same.

In crank-disks or gear-wheels having crank-pins or similar devices used for actuating a mechanism, as by means of connecting-rods or pitmen, it is usually necessary to press the crank-disk upon its shaft very tightly in order to prevent it from "creeping" off endwise. This effect is due to the overhang of the crank, which when under heavy intermittent strain tends to set up a cramping action between the shaft and its bearing in the crank-disk. A well-known instance illustrating the foregoing is that of a crank-action platen-press for printing and embossing.

The particular objections to the practice heretofore followed—that is, pressing the crank-disk upon the shaft so tightly as to prevent it from creeping—are, first, the liability of subjecting the metal to excessive and even

destructive stresses, and, second, the great difficulty usually experienced when it becomes necessary to remove such parts, as for shipment, inspection, or otherwise.

In carrying out the invention there is mounted on or fixed to the end of the shaft a locking device, which is adapted to engage the crank-disk and hold it in proper alignment and counteract any tendency to cause creeping or end movement of the disk with relation to the shaft, and while various forms of locking devices may be used I have shown one that is simple and efficient and that is sufficient to indicate to those skilled in the art the nature of the invention.

In the drawings the shaft 7 is shown as having a shoulder 15 and an extended reduced portion 6, on which latter the crank-disk 13 is mounted and secured in any usual manner, as by the spline 8 in the groove 9 in the shaft and hub of the disk. Mounted on or formed in the end of the shaft is a guide for the lock, shown in the form of an undercut slot or recess 5, forming a wedge-shaped channel for the lock bolt or key, and this is preferably disposed at substantially right angles to the spline 8. Mounted in the guide is a bolt, tongue, or wedge-key 14, which is shaped to correspond to the cross-section of the channel and is adapted to slide closely therein. Formed in the hub or face of the crank-disk is a recess 10, corresponding substantially in shape with the slot or recess 5 and preferably arranged substantially on a line between the center of the shaft and the crank-pin.

In assembling the parts the lock or bolt 14 is forced toward the inner end of the slot or recess 5, as indicated by dotted lines A B, Fig. 1, and the disk is applied to the shaft in the usual way, and then the lock or bolt 14 is forced outwardly to the position shown in full lines in Fig. 1, so that the outer end of the lock or bolt enters the recess 10. In this way the lock, bolt, or key not only secures the disk against withdrawal, but tends to prevent any endwise movement or creeping of the disk and to aid in overcoming the intermittent strains upon the crank.

It is to be noted that it is not necessary to form a recess in the crank-disk, as the lock or bolt can bear upon the face of the disk, as

shown in Figs. 4 and 5; but when it is desired that the face of the shaft shall be approximately flush with the face of the disk the recess is necessary.

5 It will be apparent that if in assembling the parts the face of the crank-disk at the bottom of the recess 10 stands slightly forward of the bottom of the slot or recess 5 the bolt or wedge-key may be caused to drive with
10 any desired degree of resistance, thus acting to force the crank-disk back to the shoulder 15 on the shaft.

It is manifest that this construction is particularly advantageous in regular practice for
15 the additional reasons to those already mentioned that no special appliances are required for its operation. Moreover, it is fully exposed to the view of the operator, and he can readily manipulate the bolt or key by forcing
20 it inward when it is desired to remove the crank-disk.

While I have shown in the drawings a "crank-disk," it is understood that this term
25 is intended to embrace a crank, pulley, gear, or other device wherein the advantages of the invention would be secured.

It is apparent that the bolt or key may also be utilized to cooperate with or even take the

place of the spline 8. In such instance the recess 10 would preferably be undercut to
30 correspond to the wedge-shaped channel in the face of the shaft in that this would afford a greater bearing-surface to resist torsional strain.

What I claim is—

1. The combination with a crank-disk, of a
35 shaft having a wedge shape or undercut recess formed in its face, a key or tongue mounted in and corresponding to the recess, and adapted to be driven outwardly after the
40 crank-disk has been applied to the shaft to engage and retain the disk on the shaft, substantially as set forth.

2. The combination of a crank-disk, a shaft
45 having a wedge shape or undercut recess formed in its face, a key or tongue mounted in and corresponding to the recess and adapted to engage and retain the disk on the shaft, substantially as set forth.

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

JOHN THOMSON.

Witnesses:

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