

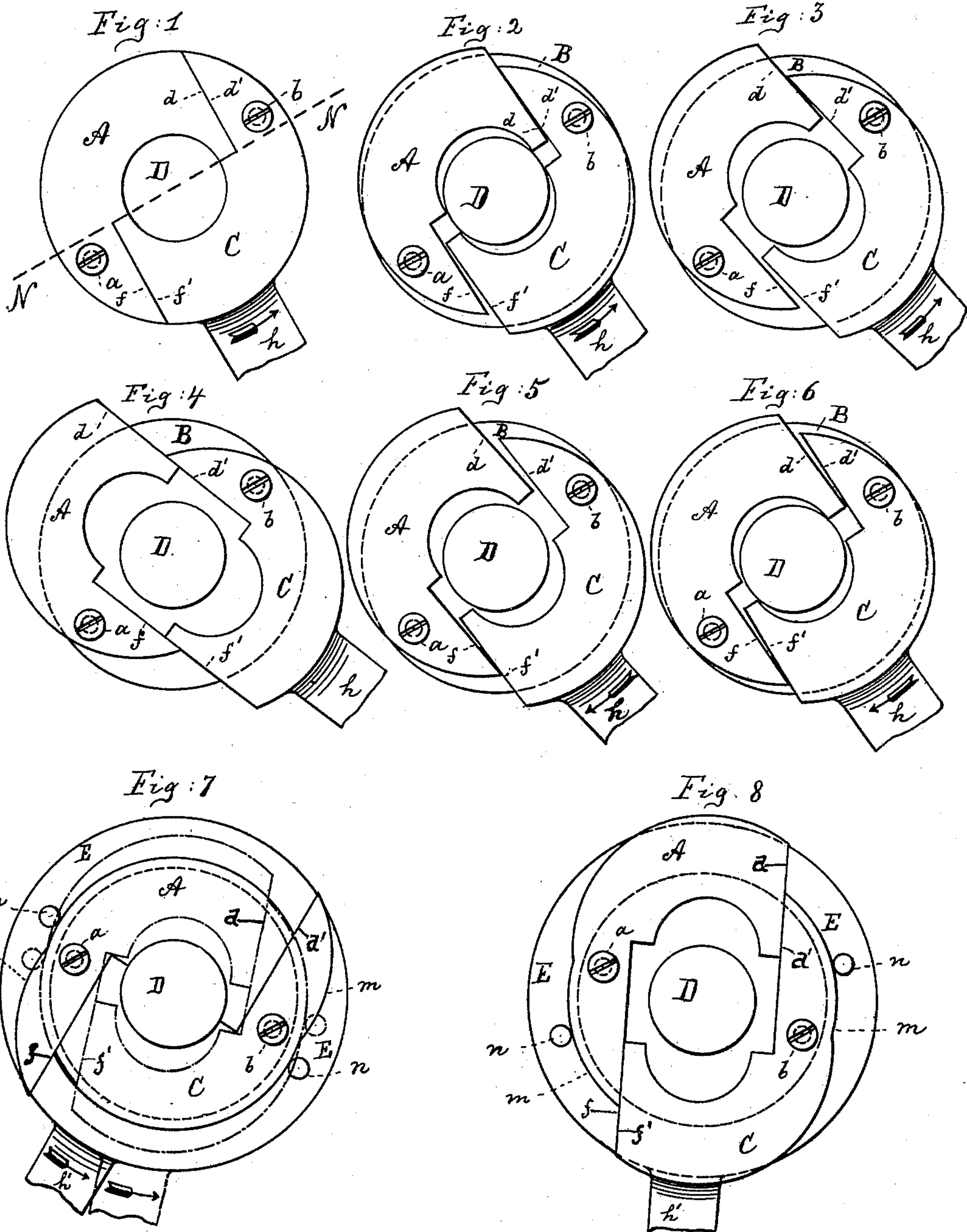
(No Model.)

8 Sheets—Sheet 1.

J. BRANDNER.
COUPLING.

No. 463,301.

Patented Nov. 17, 1891.



Witnesses:
W. Wagner.
A. Bonglmann.

Inventor:
J. Brandner
by his attorney
Roeder & Brien

(No Model.)

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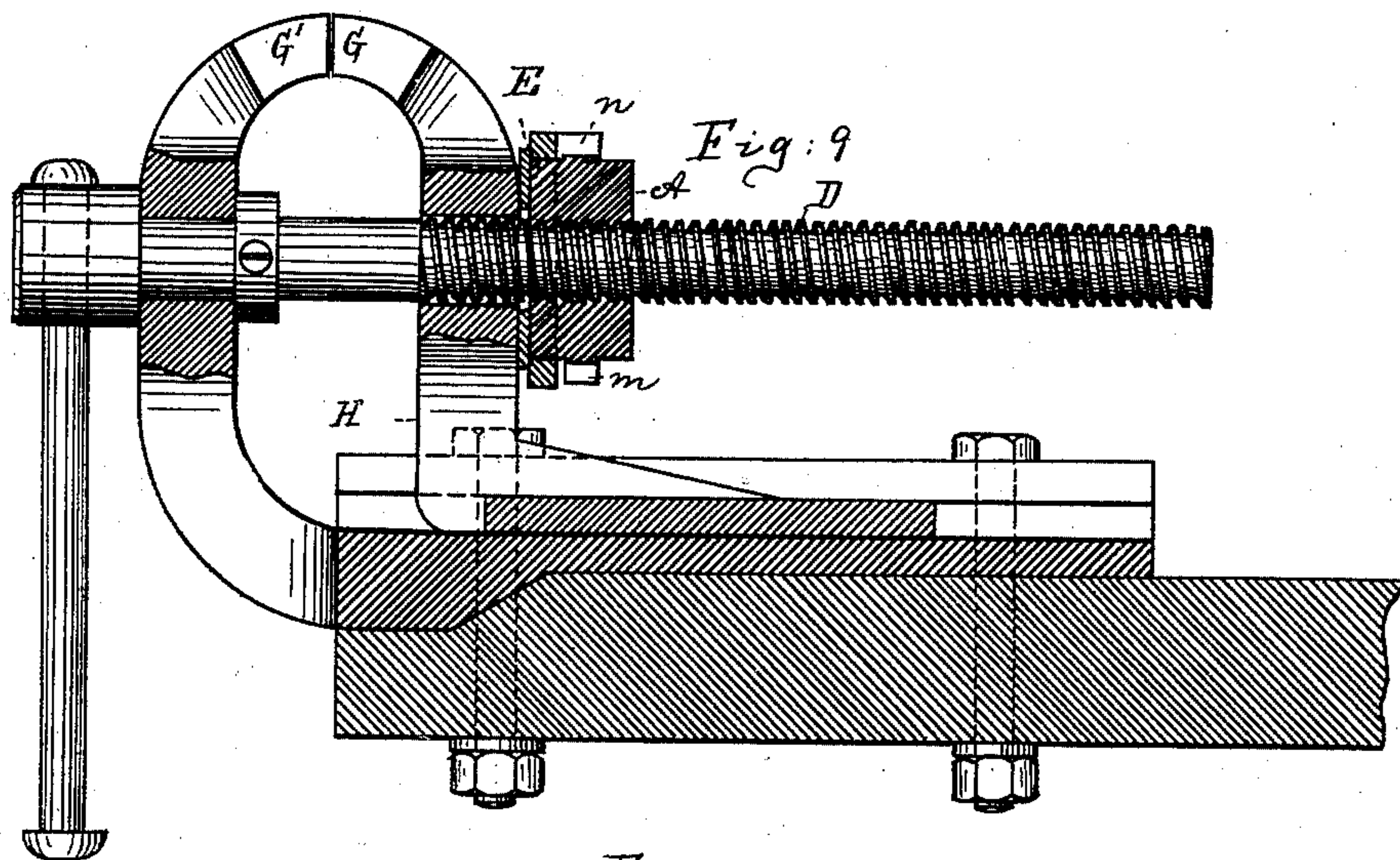


Fig. 10

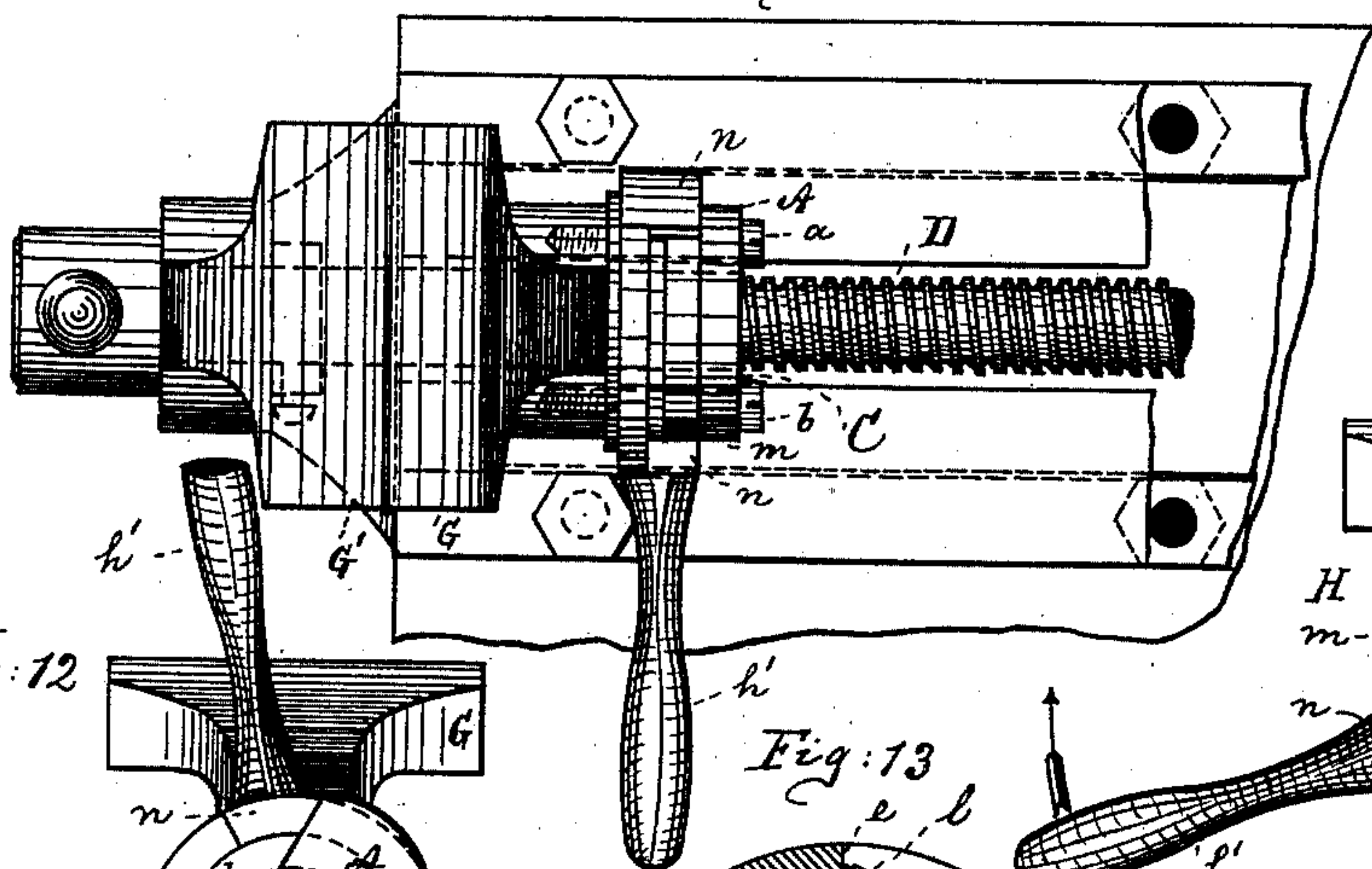


Fig. 12

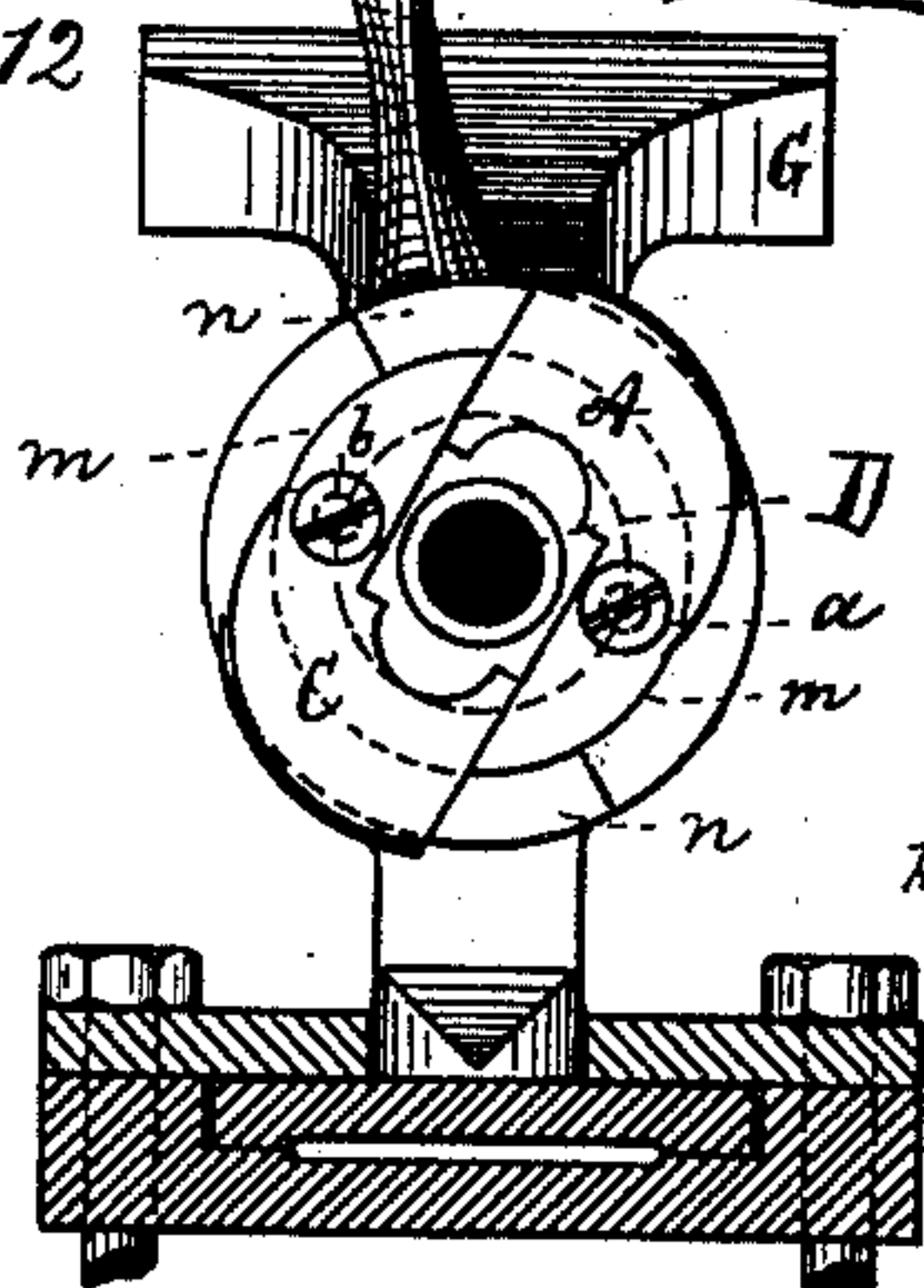


Fig. 13

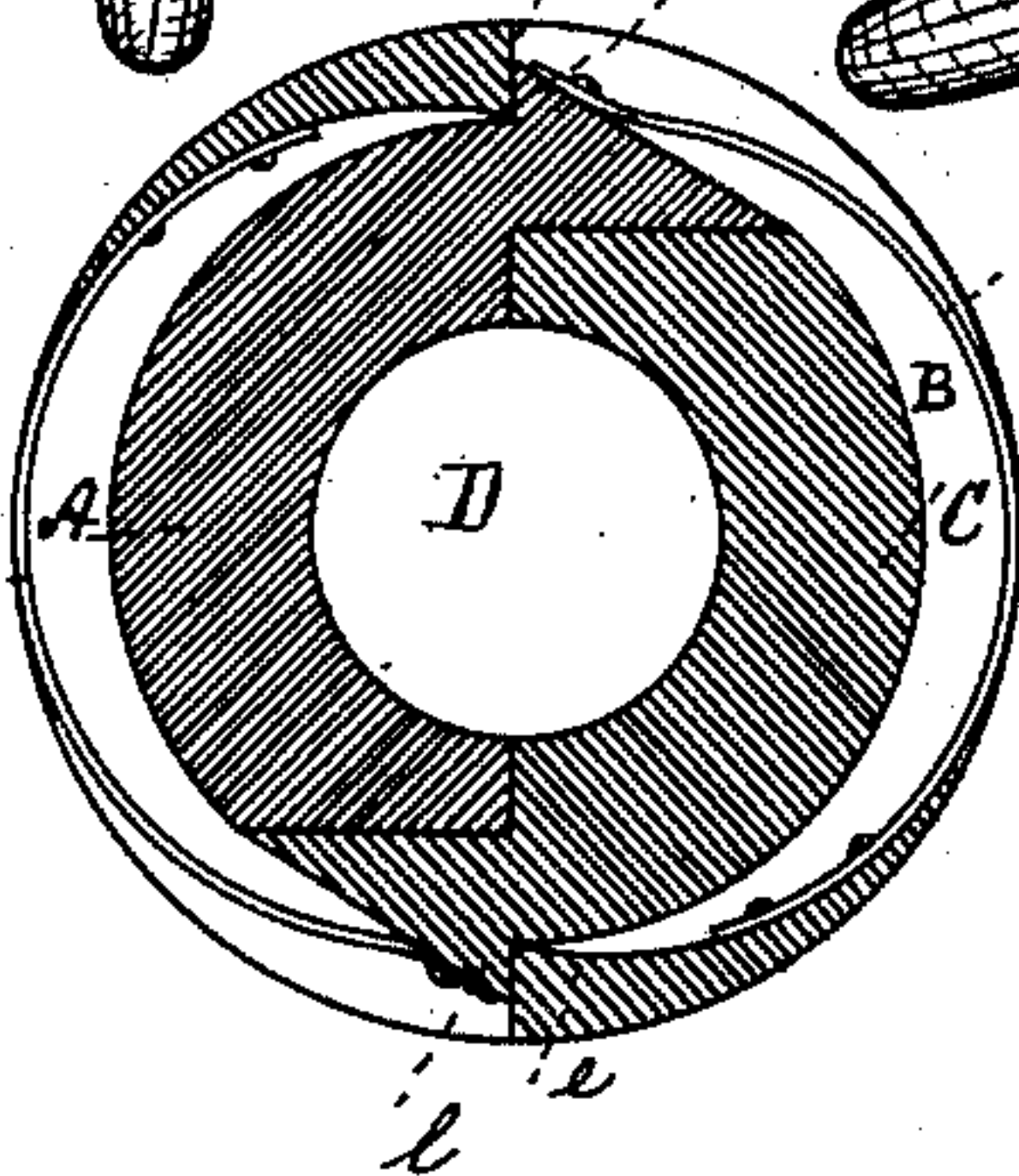
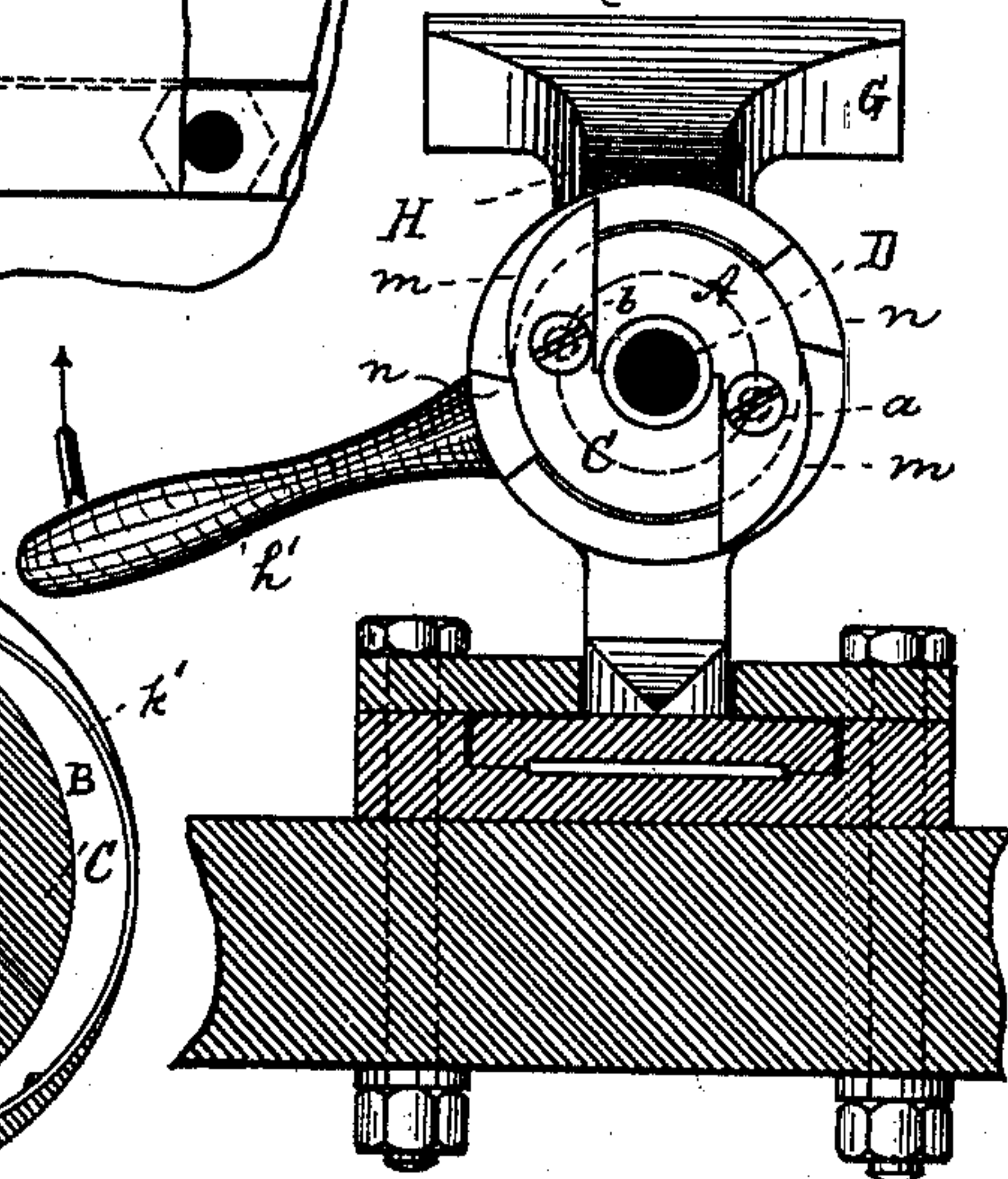


Fig. 11



Witnesses:
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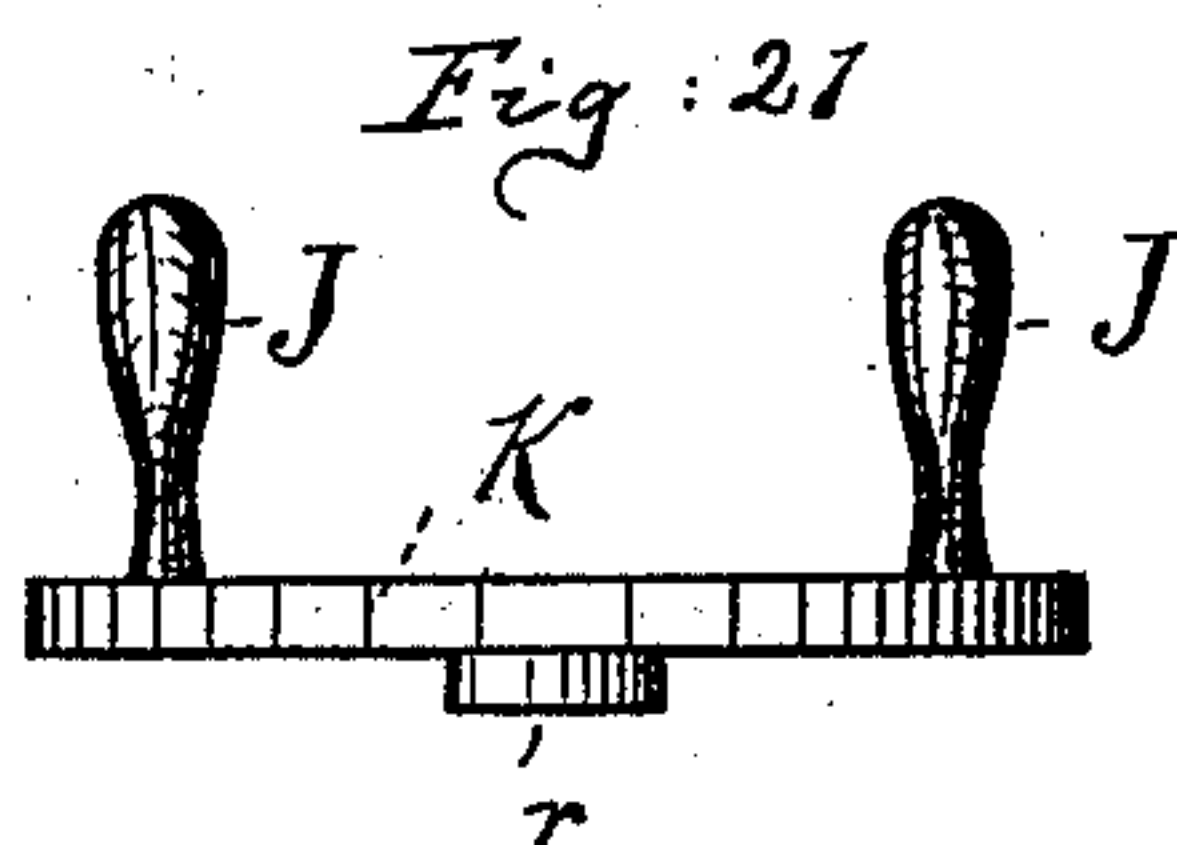
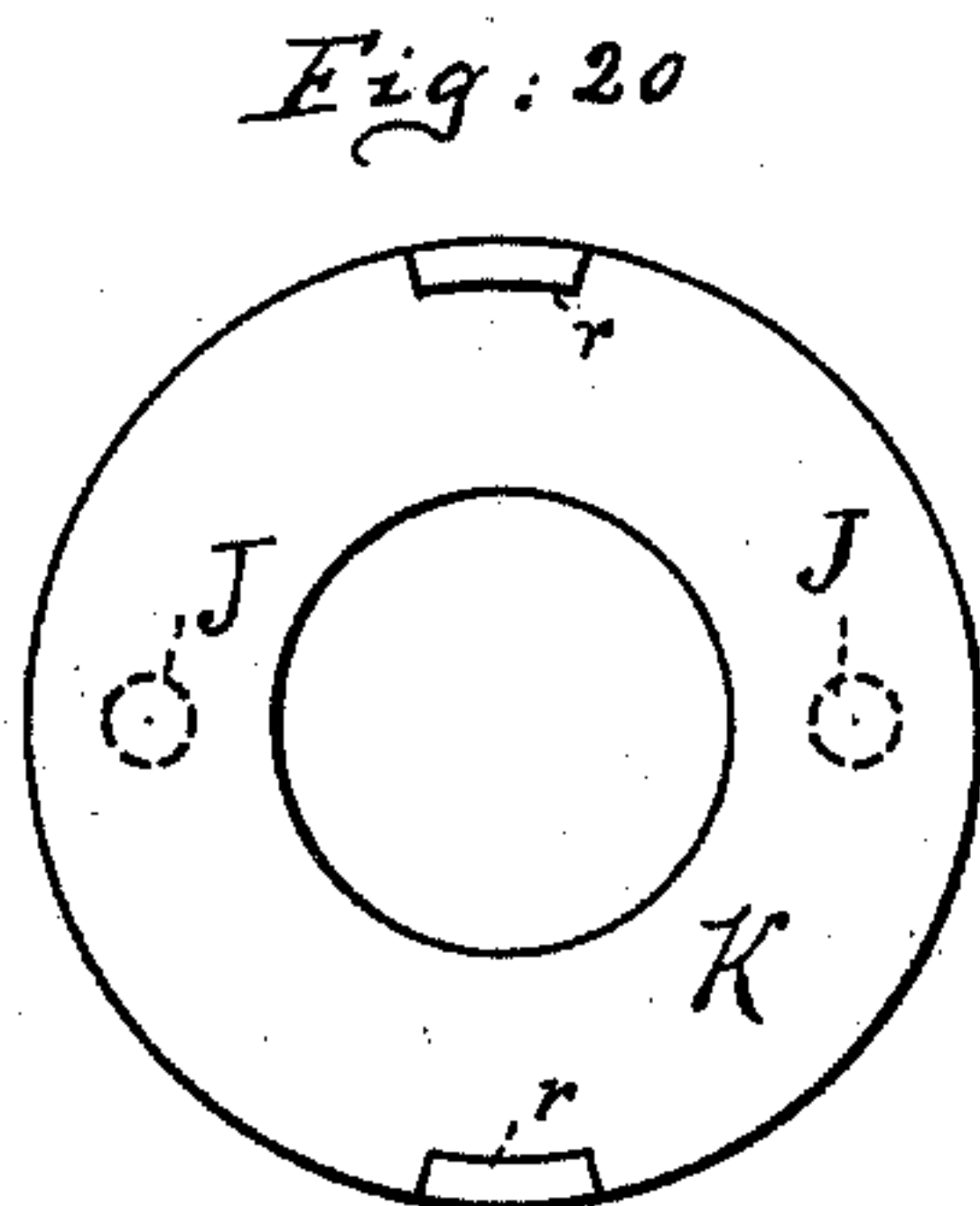
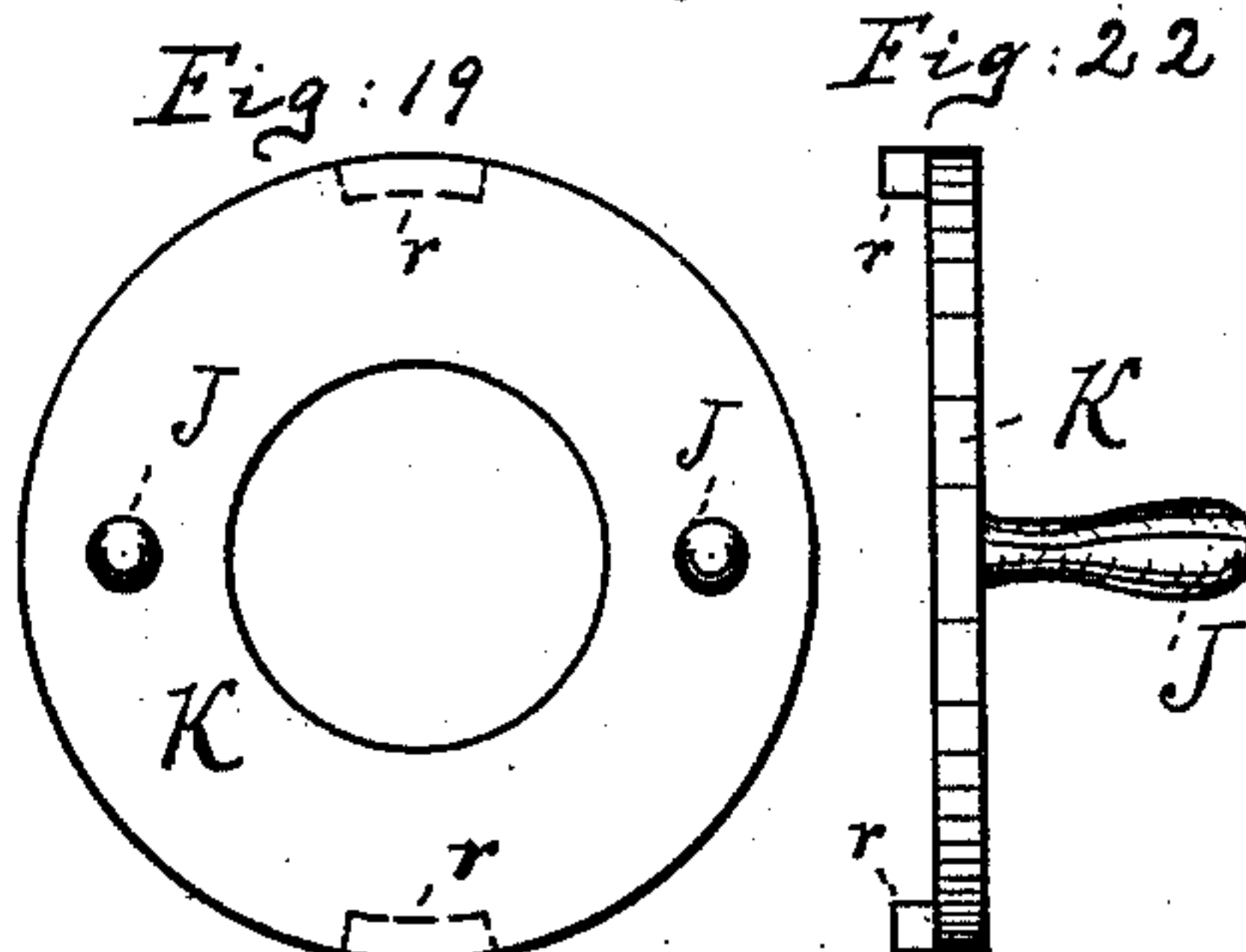
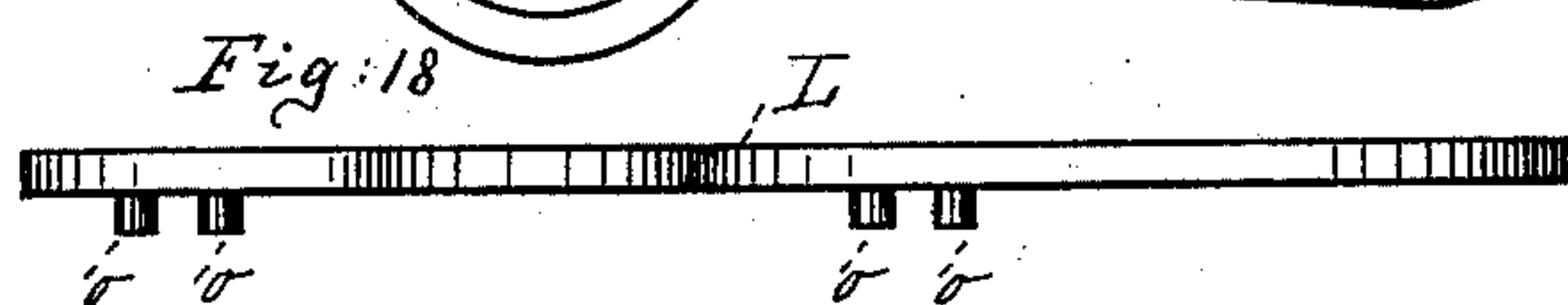
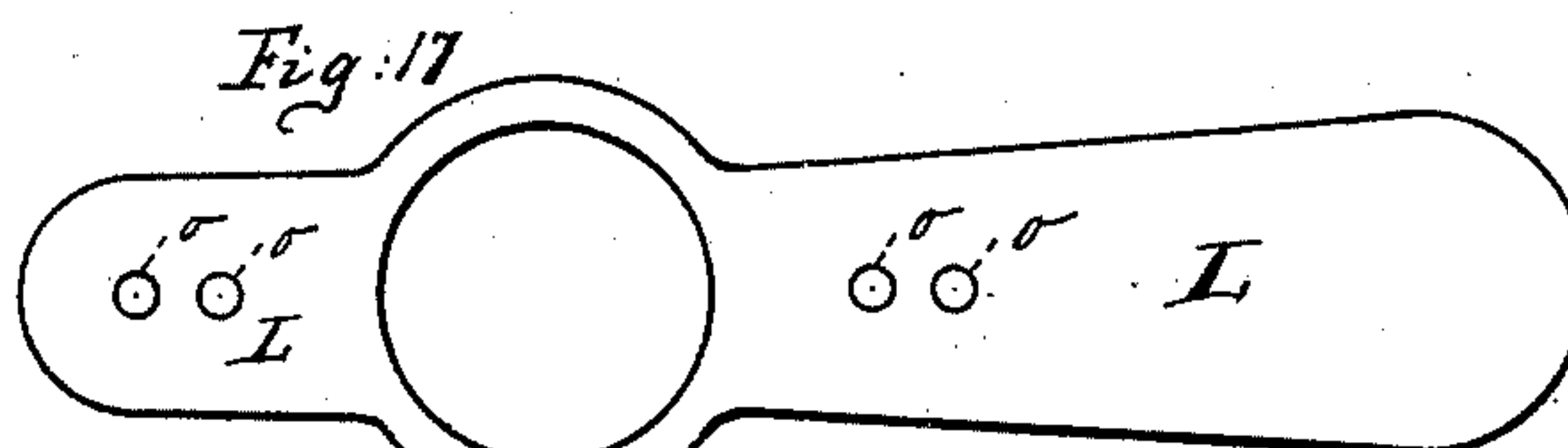
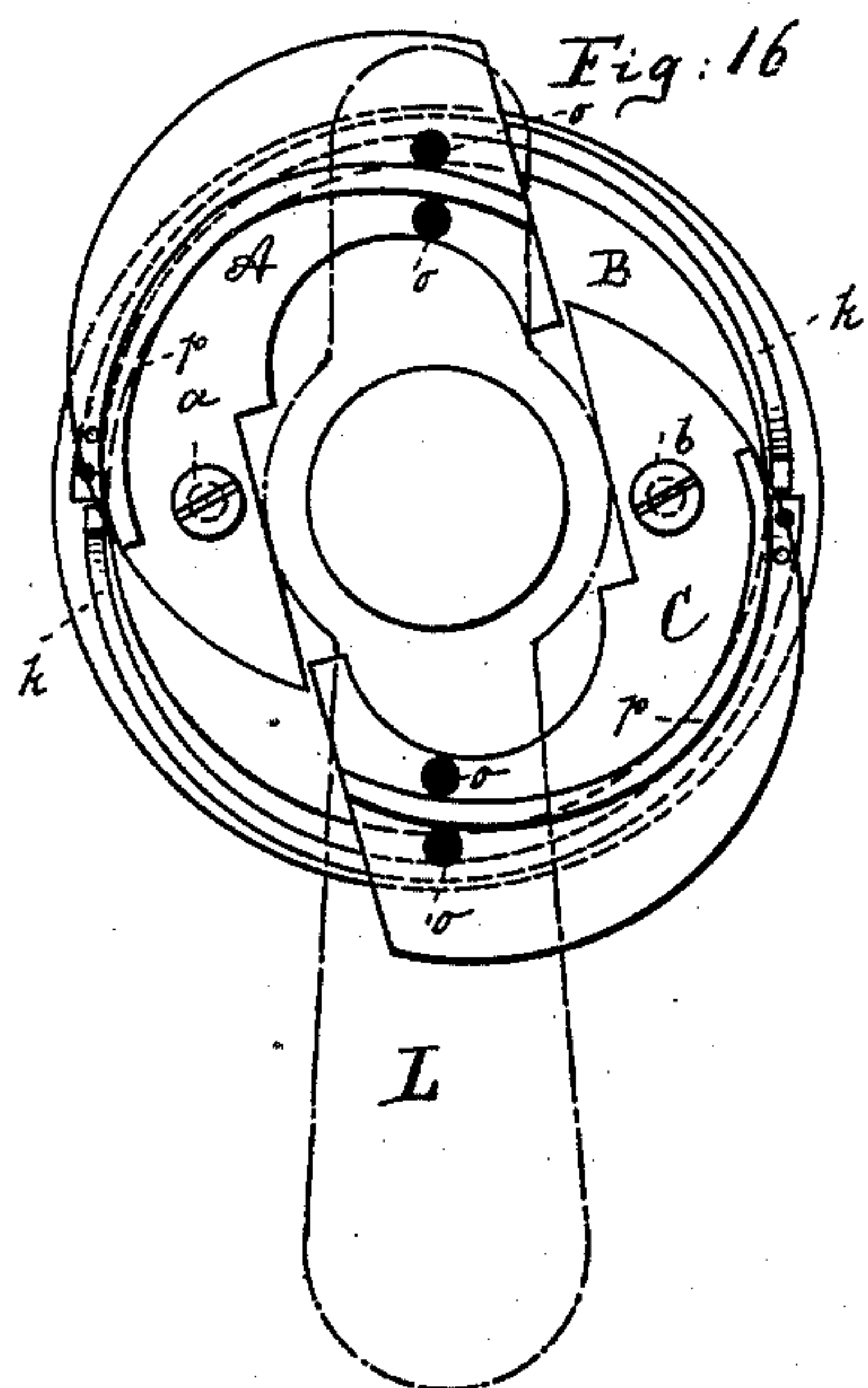
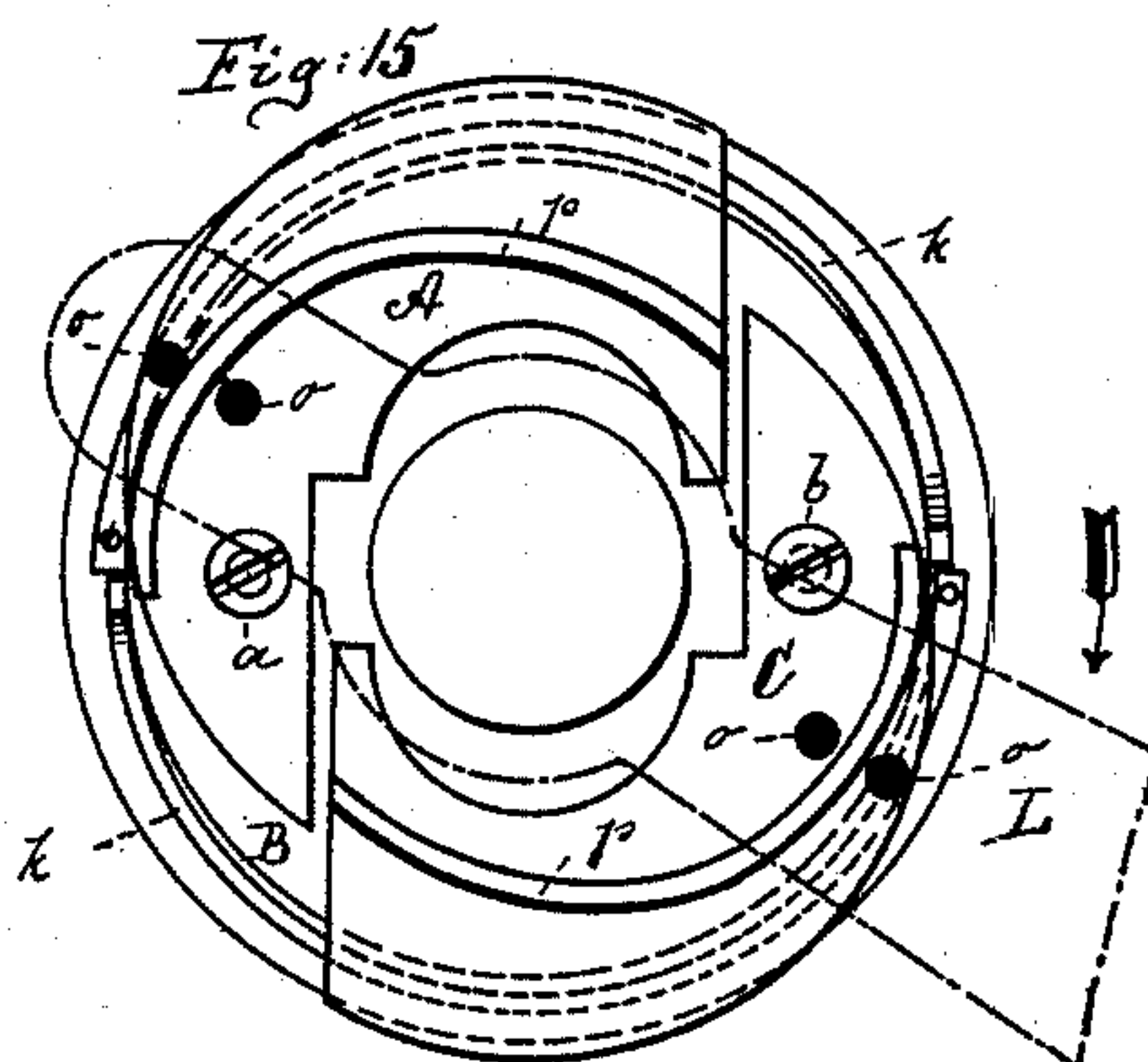
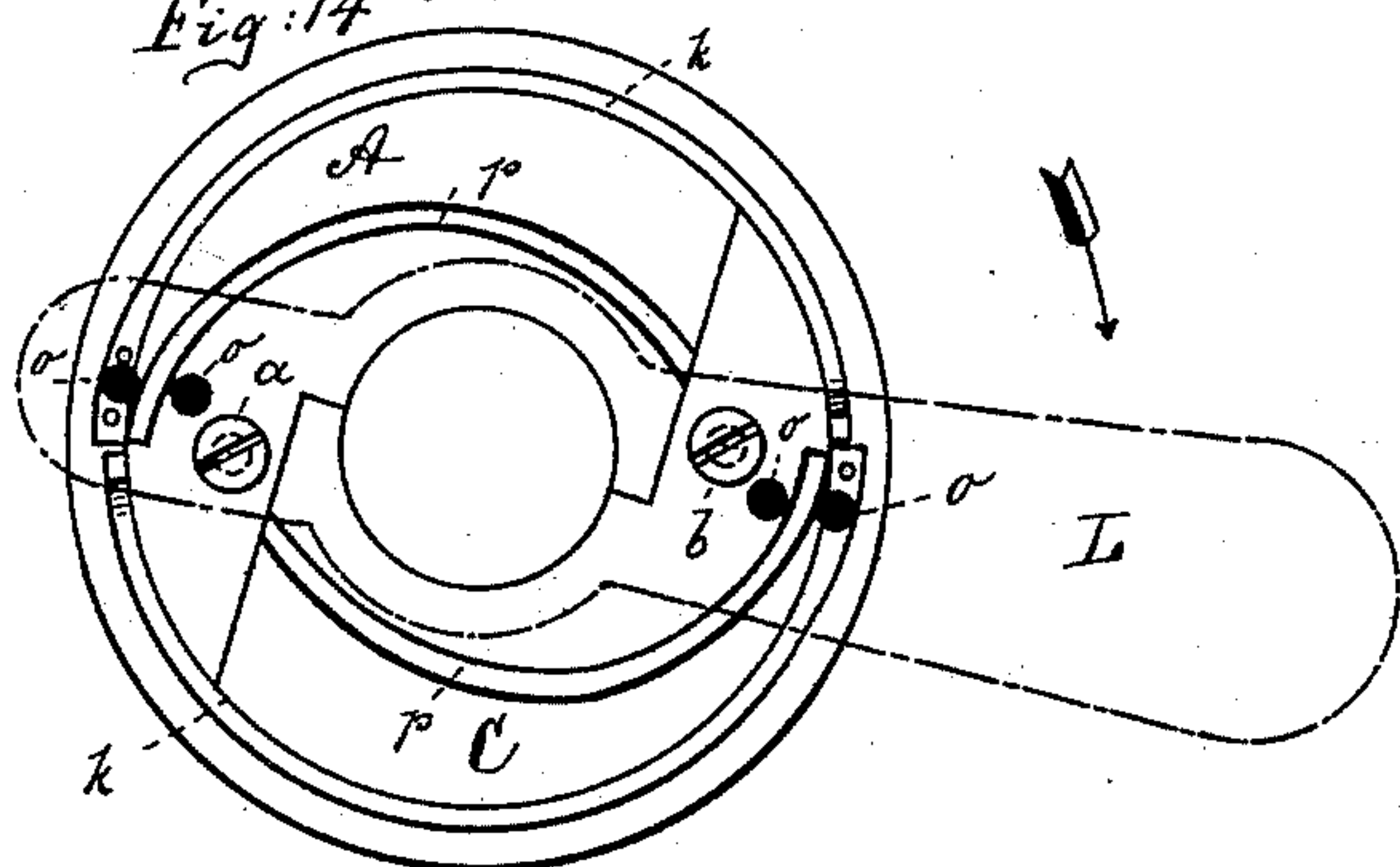
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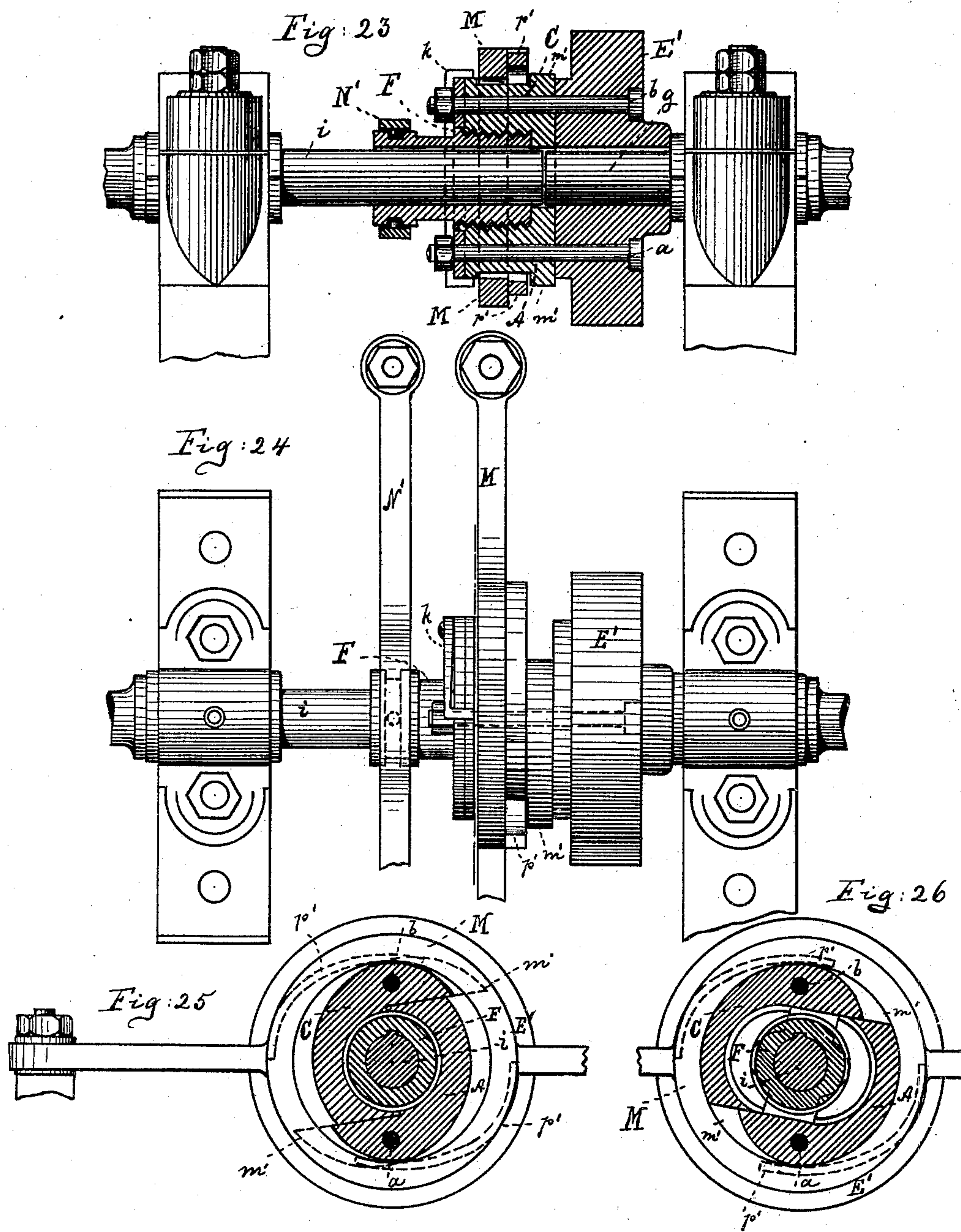
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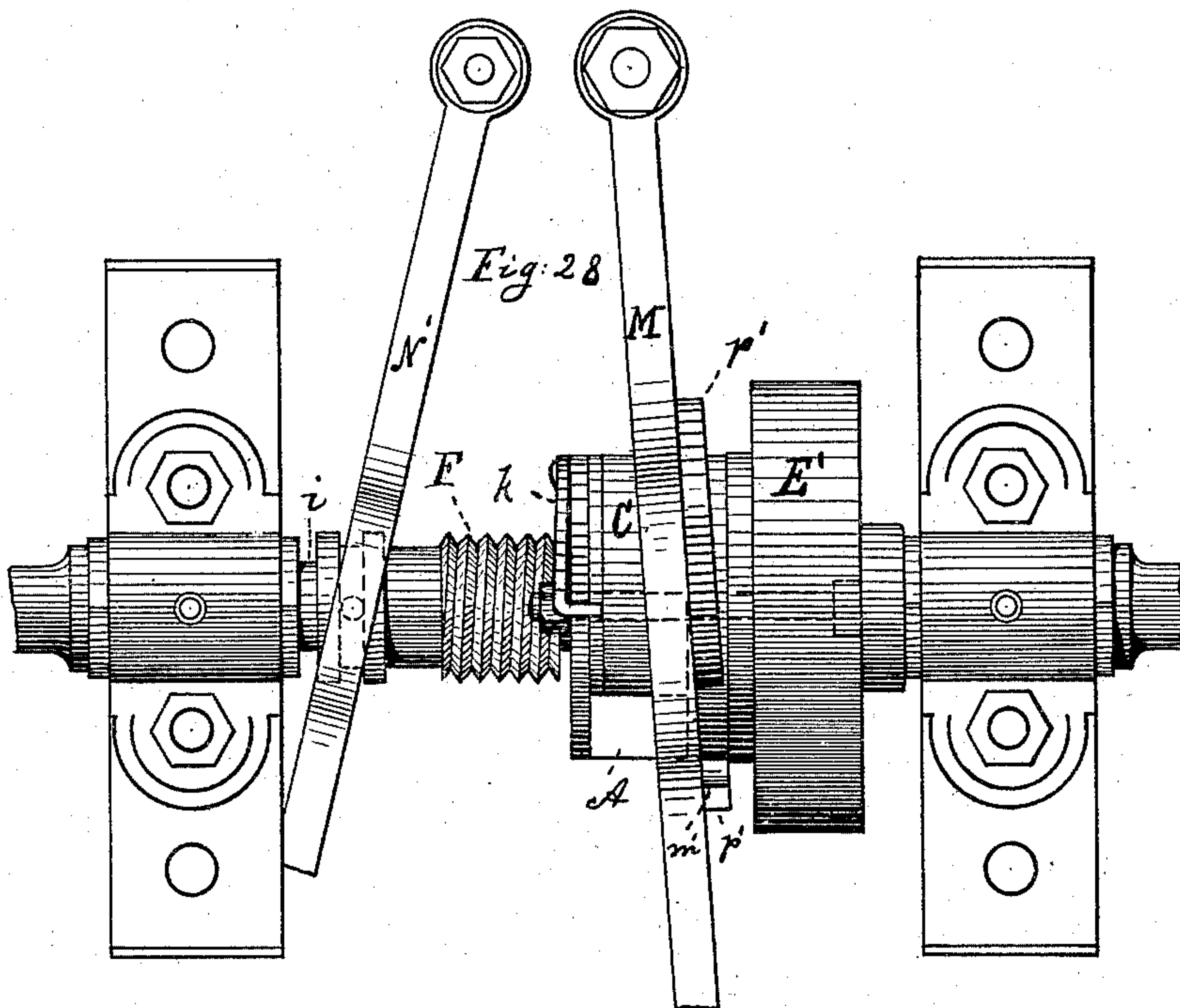
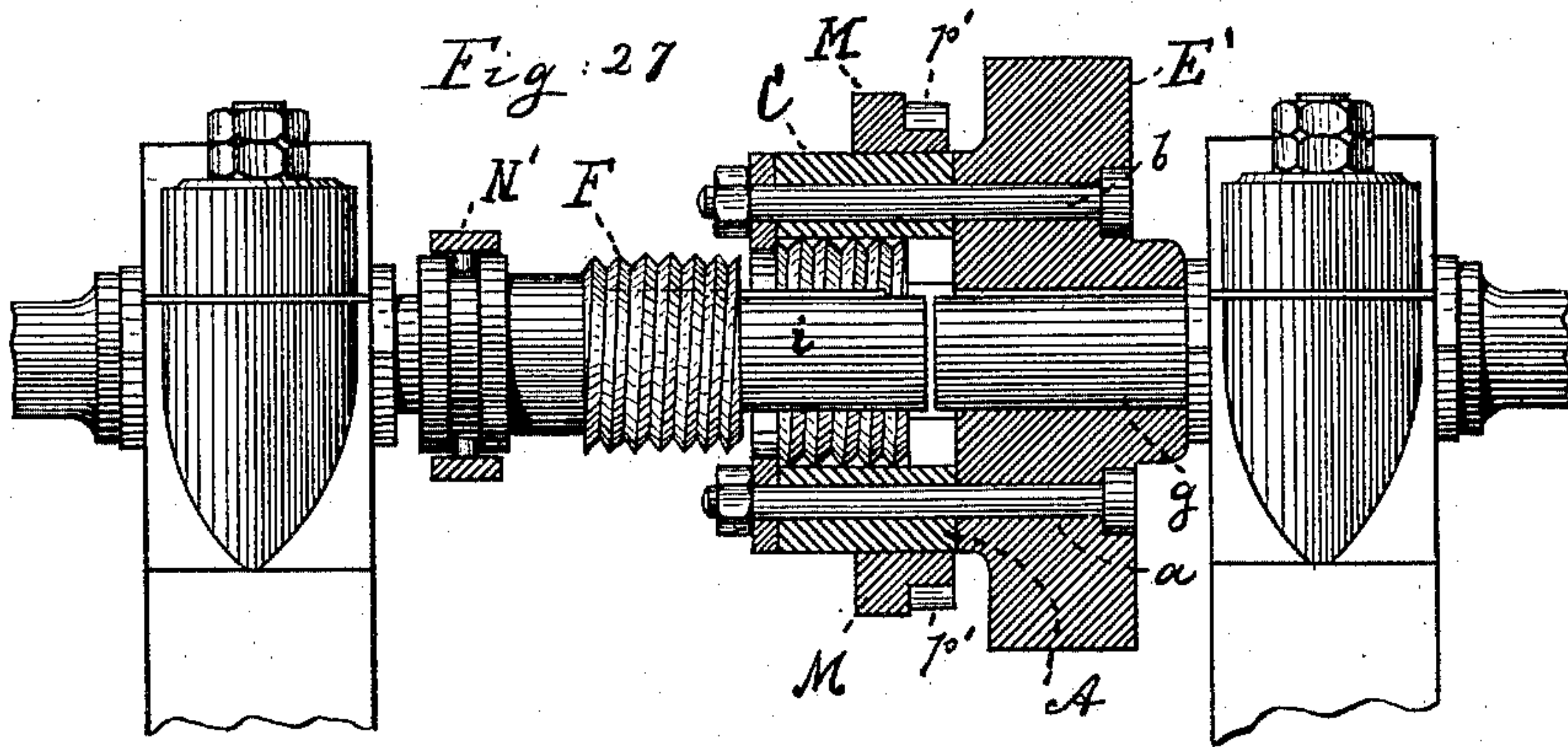
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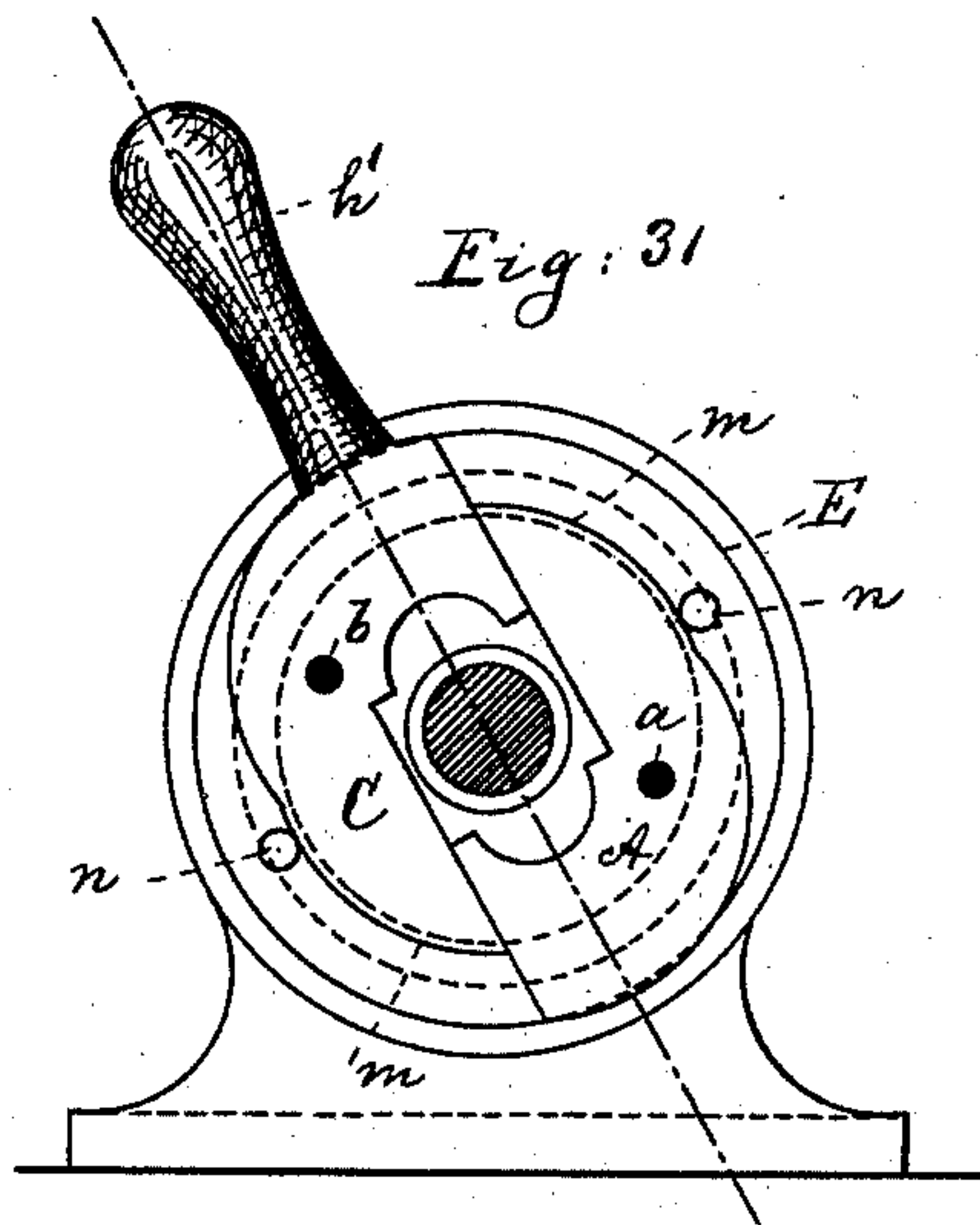
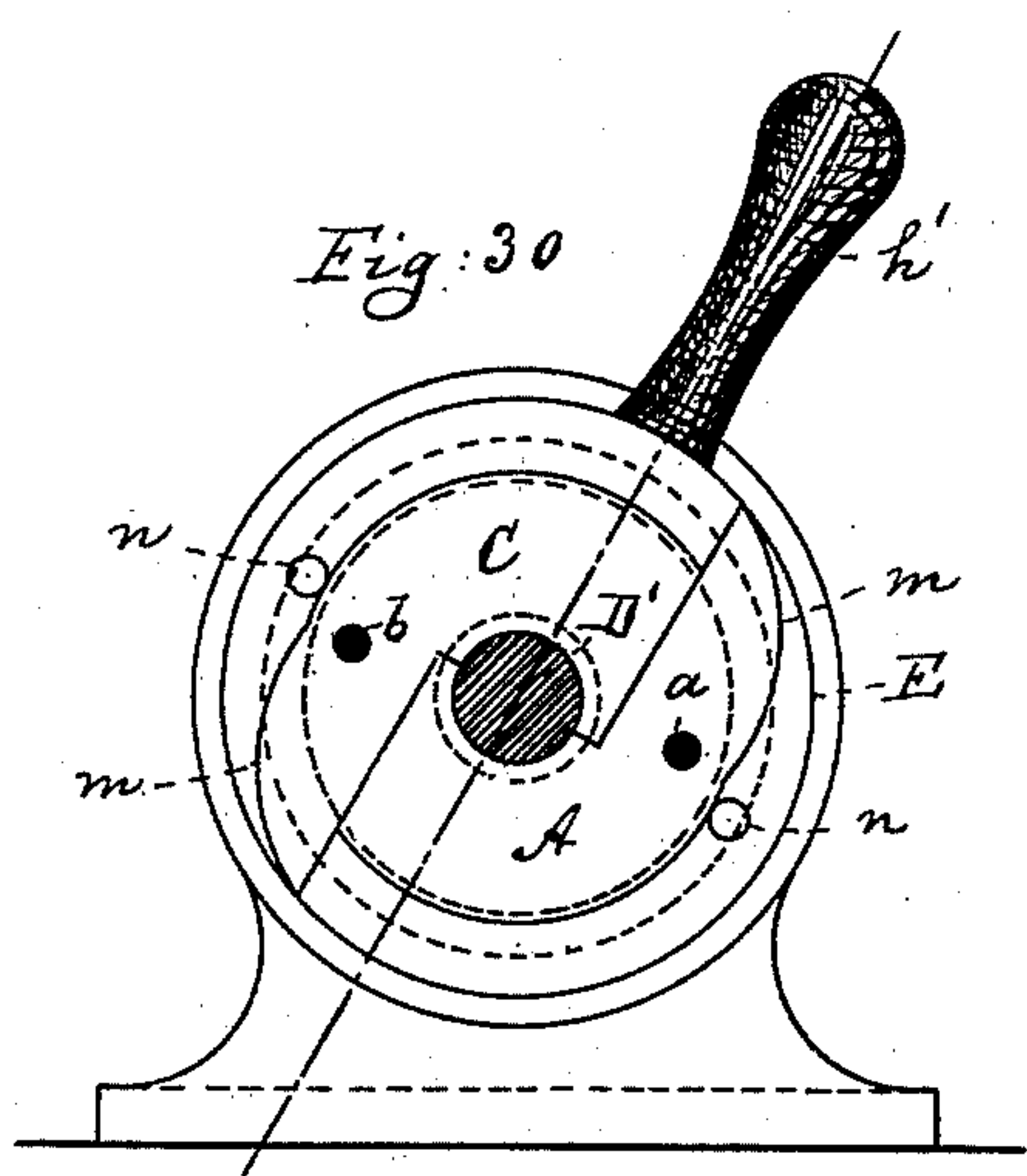
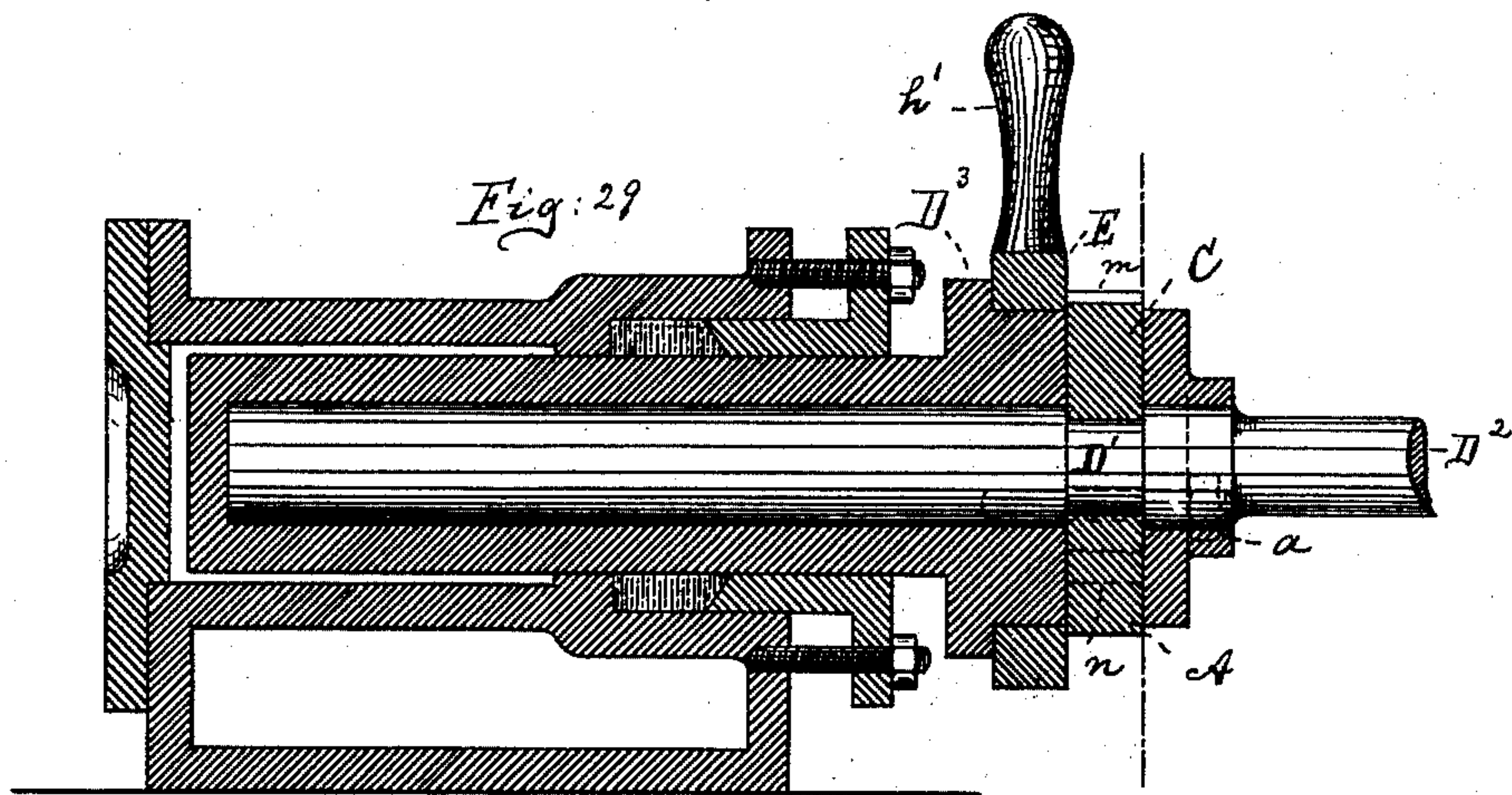
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Wm. Wagner.
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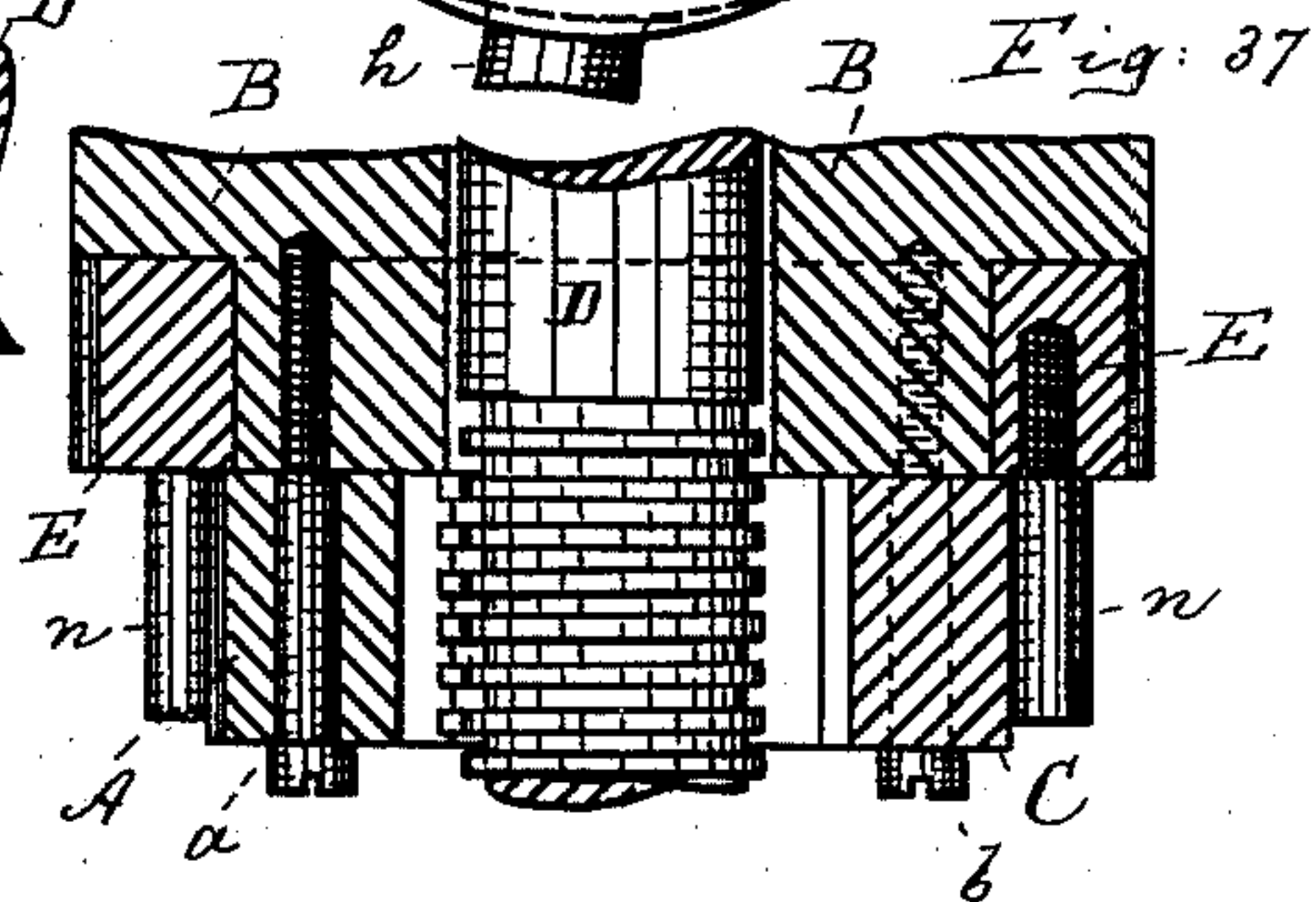
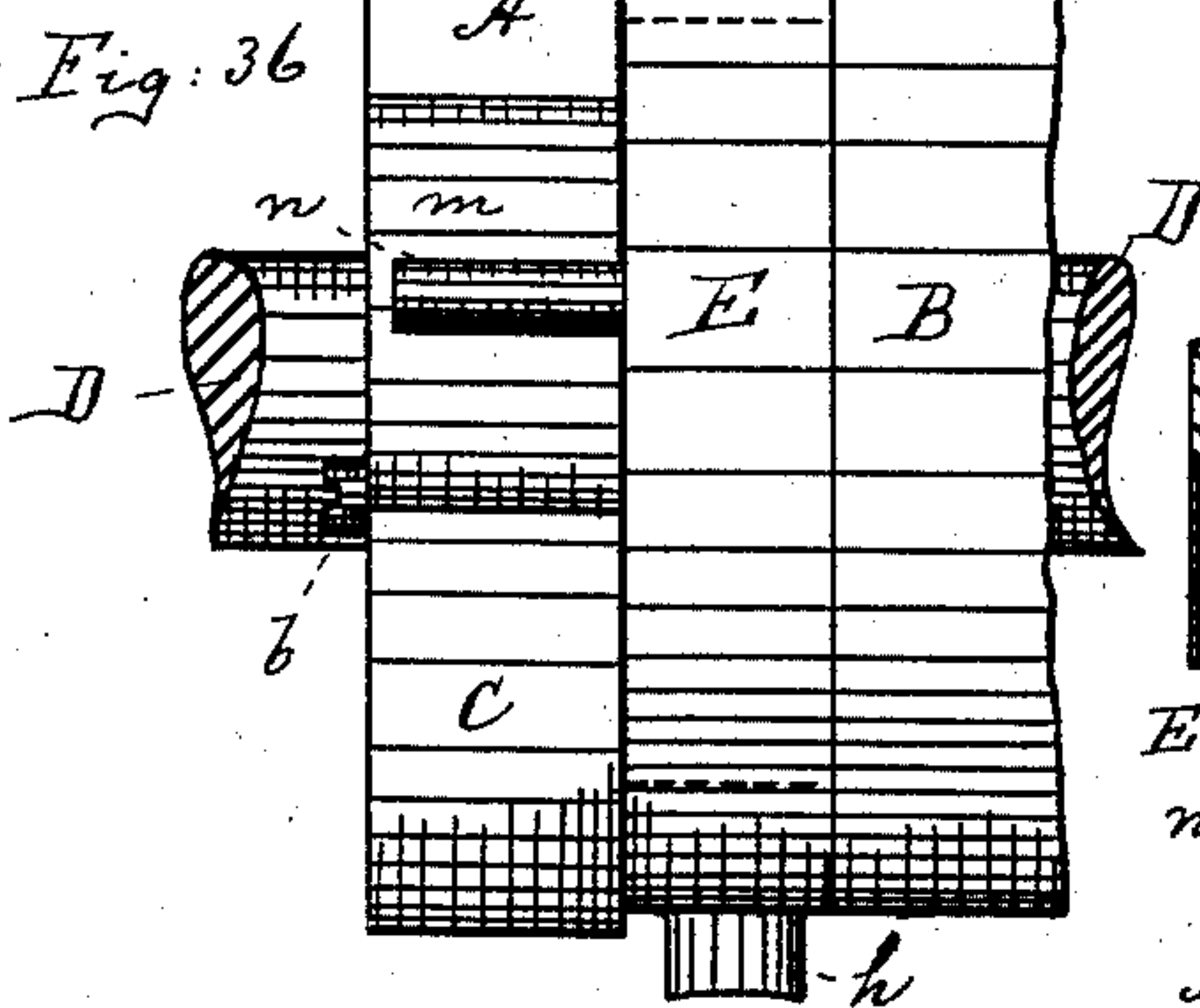
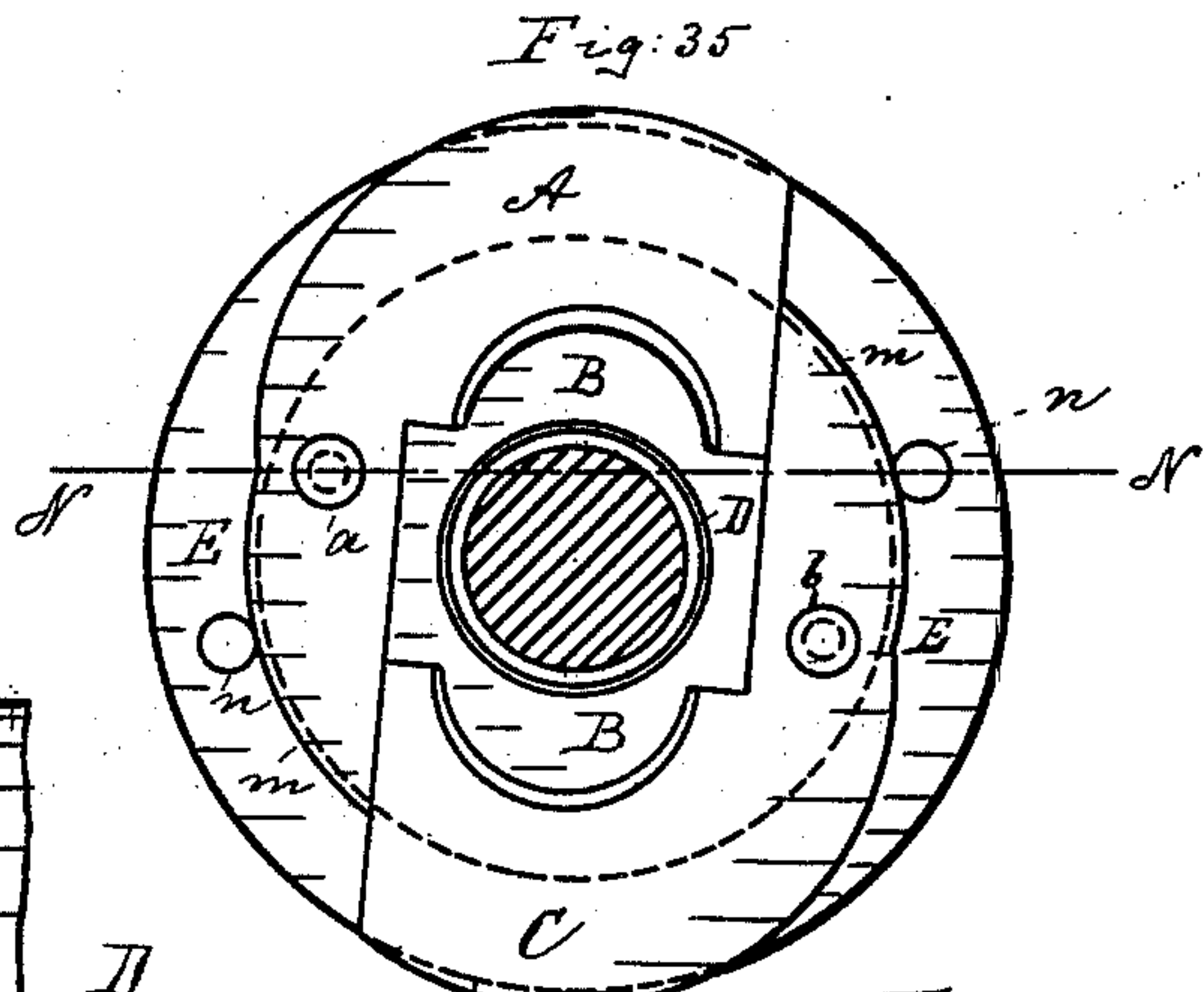
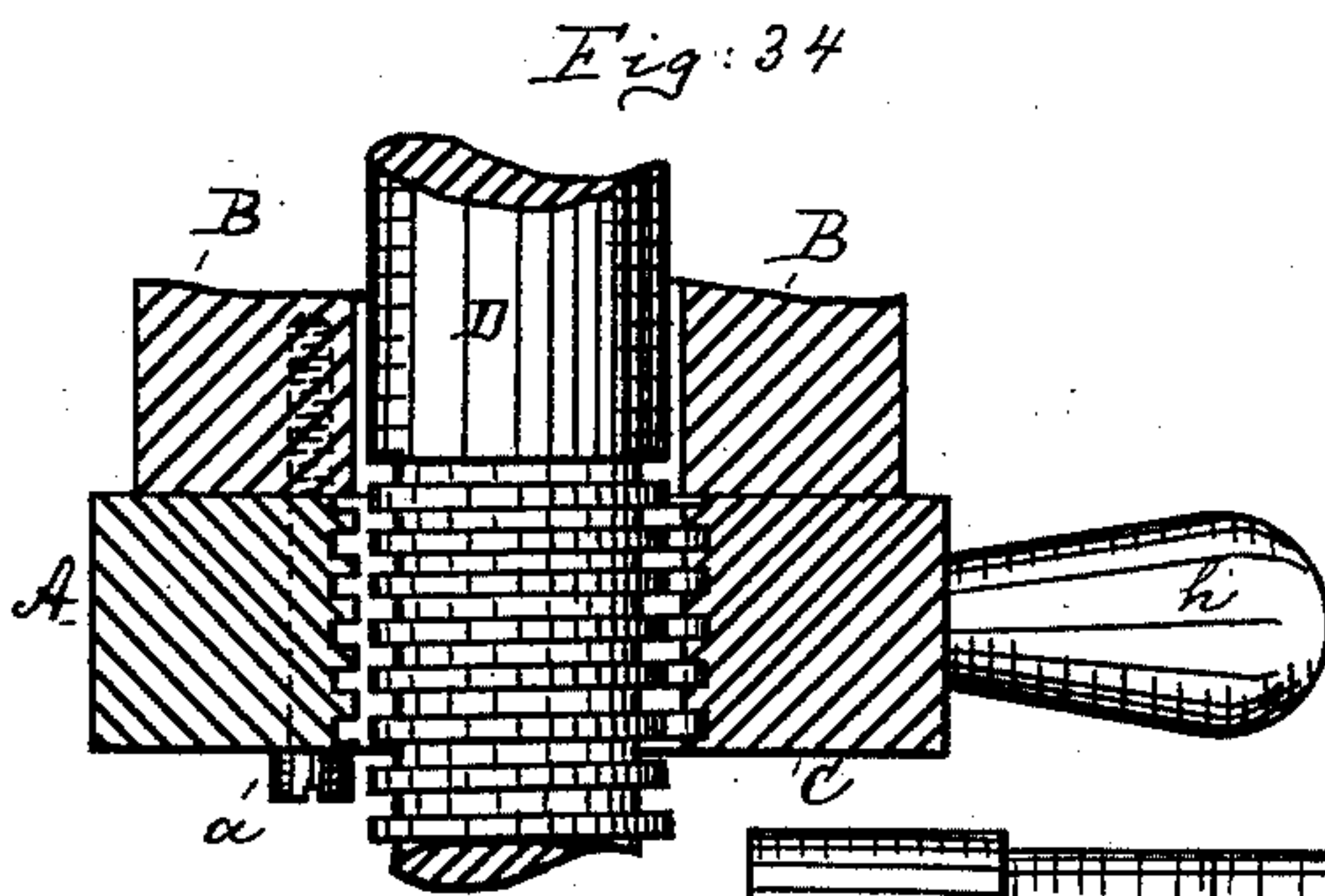
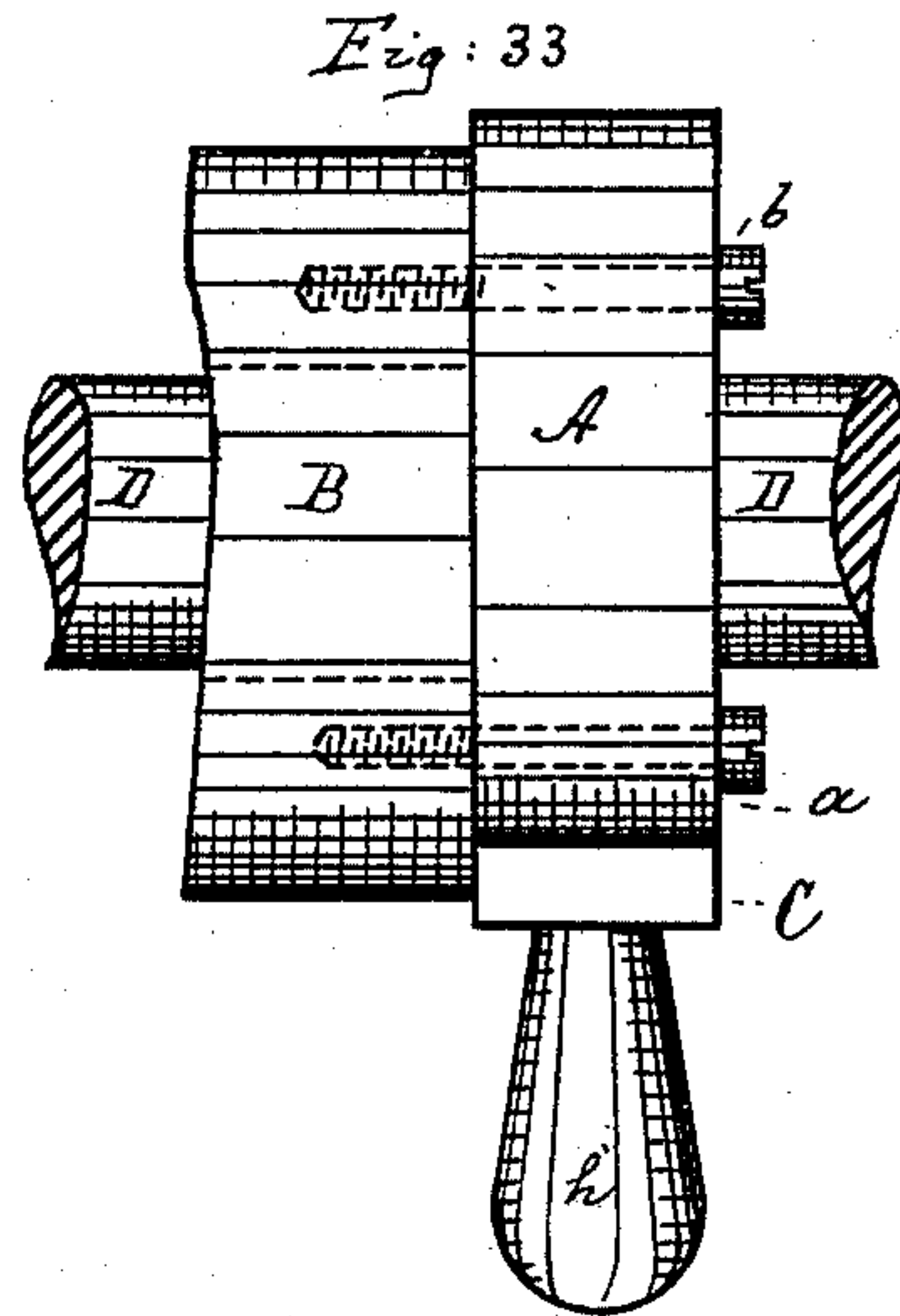
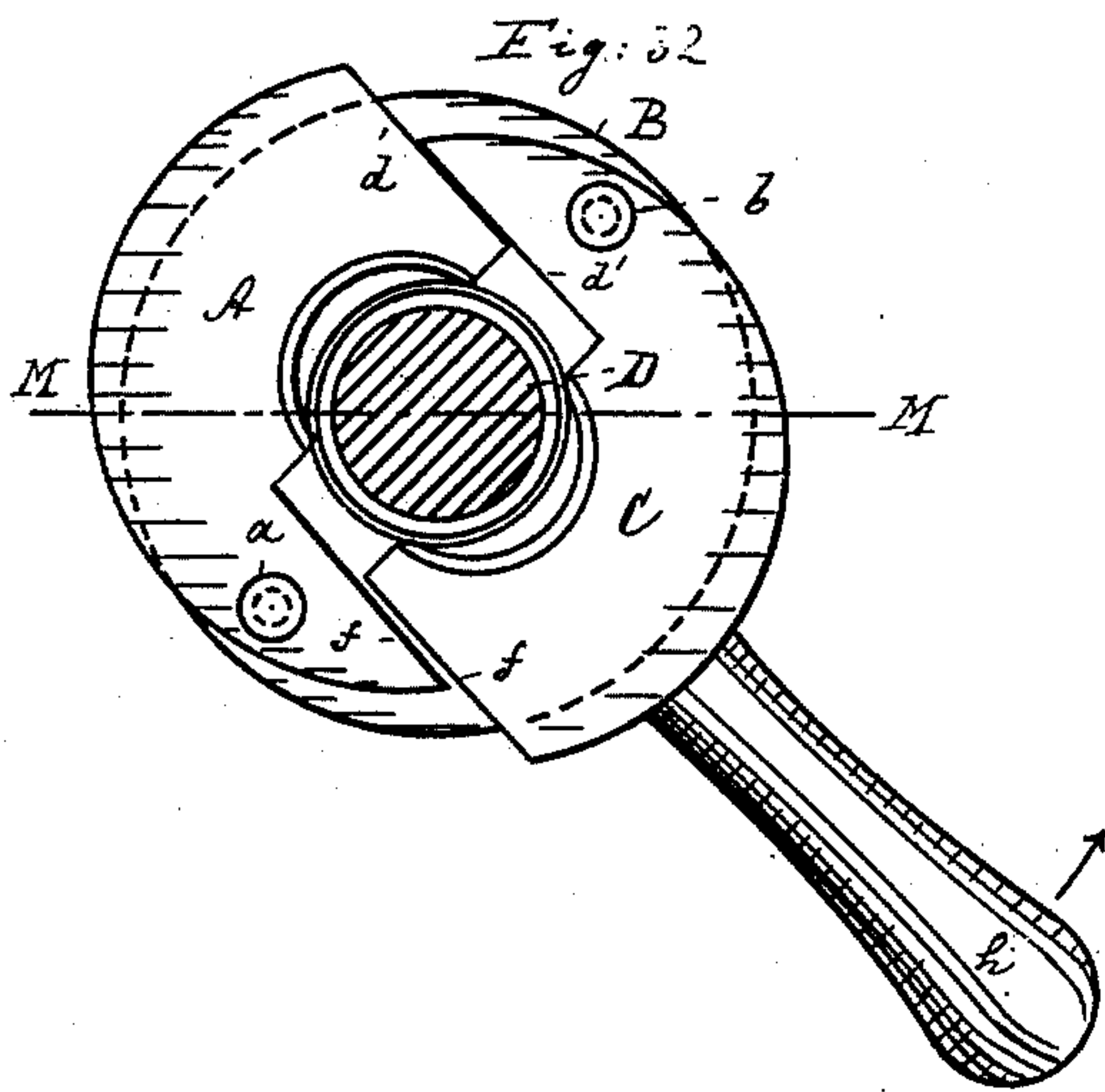
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8 Sheets—Sheet 7.

J. BRANDNER.
COUPLING.

No. 463,301.

Patented Nov. 17, 1891.



Witnesses:

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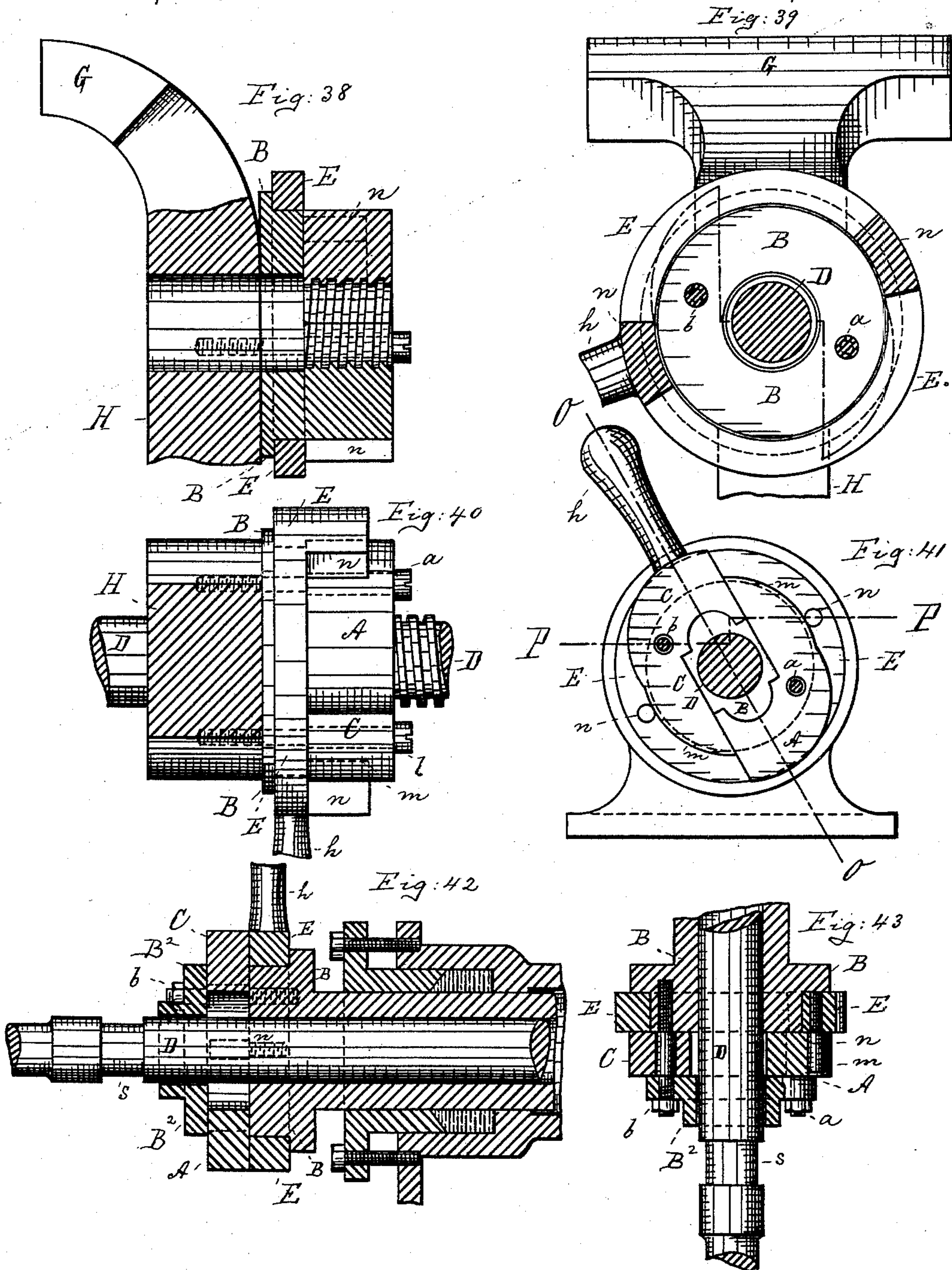
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J. BRANDNER.
COUPLING.

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Patented Nov. 17, 1891.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHANN BRANDNER, OF REGENSBURG, GERMANY.

COUPLING.

SPECIFICATION forming part of Letters Patent No. 463,301, dated November 17, 1891.

Application filed May 8, 1889. Serial No. 309,997. (No model.)

To all whom it may concern:

Be it known that I, JOHANN BRANDNER, a subject of the King of Bavaria, residing at Regensburg, in the Kingdom of Bavaria, Germany, have invented a new and useful Improvement in Couplings, of which the following is a specification.

This invention relates to an improved coupling consisting of a divided nut that may be opened or closed to release or hold an inclosed shaft, screw, or spindle.

The invention consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figures 1 to 6 are face views of my improved coupling, showing its jaws in different positions. Figs. 7 and 8 are face views of a modification, showing the jaws in different positions. Fig. 9 is a sectional side view of a vise provided with my improvement. Fig. 10 is a top view thereof. Figs. 11 and 12 are sectional end views of Fig. 9, showing the coupling respectively closed and opened. Fig. 13 is a longitudinal section of a modification of my improved coupling. Fig. 14 is a face view of another modification, showing it closed. Figs. 15 and 16 are similar views of this modification, showing the coupling partly and completely open. Figs. 17 and 18 are face views and end views, respectively, of the hand-lever used in this modification. Fig. 19 is an outer face view of a disk used in lieu of the lever shown in Figs. 17 and 18. Figs. 20, 21, and 22 are inner face views and end views thereof, respectively. Fig. 23 is a longitudinal section, partly in side view, of a pair of shafts connected by my improved coupling, showing the same closed. Fig. 24 is a top view thereof. Fig. 25 is a sectional end view thereof; Fig. 26, a similar view, showing the coupling open; Fig. 27, a sectional side view thereof, showing the coupling open; Fig. 28, a top view thereof, with the coupling open; Fig. 29, a longitudinal section of a pump-rod provided with my improved coupling. Figs. 30 and 31 are sectional end views thereof, showing it respectively closed and open. Fig. 32 is a view of the parts similar to Fig. 3; Fig. 33, an edge view thereof; Fig. 34, a section on line M M, Fig. 32; Fig. 35, a view of the parts similar to Fig. 8; Fig. 36, an edge

view thereof; Fig. 37, a section on line N N, Fig. 35; Fig. 38, a sectional side view of part of the vise illustrated in Fig. 9; Fig. 39, a vertical transverse section thereof; Fig. 40, a sectional end view thereof; Fig. 41, a vertical transverse section of a construction similar to that shown in Fig. 29; Fig. 42, a longitudinal section on line P P, Fig. 41; and Fig. 43, a section on line O O, Fig. 41.

With particular reference to Figs. 1 to 6, the letter B represents an annular plate, to one face of which are pivoted the jaws A C. The pivots *a b* of these jaws are placed upon opposite sides of any diameter that can be drawn across plate B, as indicated by dotted diameter N N, Fig. 1. The jaw C is provided with an arm or lever *h*, which has a tendency, when the jaws are closed, to stand by its own gravity in the downwardly-inclined position shown in Fig. 1.

The jaw A has the straight edges *d* and *f* placed opposite corresponding straight edges *d'* and *f'* on jaw C. At the center the jaws are cut away, each in a semicircular line. Here they inclose a shaft or screw D.

The operation of the device is as follows: If the lever *h* is raised, the jaw C will turn on pivot *b*. The outer end or point of edge *d'* will bear against edge *d*, Fig. 2, and thus jaw A will be made to turn around pivot *a*. In this way the jaws will be gradually made to recede from each other to liberate the spindle D. In use in the two extreme positions, Figs. 1 and 4, the edges *d d' f f'* will stand parallel to each other, while in the intervening positions the edges of one jaw will be inclined toward the edges of the other jaw, Figs. 2, 3, 5, and 6. If the lever *h* is permitted to fall back, the edge *f'* will press upon outer point of edge *f*, and thus the jaws will be turned on their pivots until they resume their closed position, Fig. 1. The inner semicircular edge of the jaws should be threaded, so that the entire device constitutes a sectional nut, which may be made to grasp or release the inclosed screw. The weight of lever *h* serves to prevent spontaneous opening of the jaws.

In Figs. 7 and 8 the jaws A C are likewise pivoted to an annular disk B; but the opening and closing of the jaws A C does not depend entirely upon contact between their

edges. In this modification the opening and closing are effected by a ring E, provided with the lever h' and free to turn concentrically with spindle D. The jaws A C have 5 curved edges m , that are engaged by pins n , secured to ring E. If the lever h' is vibrated to the right, (dotted line, Fig. 7,) the action of pins n against curved edges m will cause the jaws A C to recede from one another as they 10 are turned on their pivots until they assume the position shown in Fig. 8. A reverse motion of lever h' causes the jaws to close against each other, and the pins n , bearing against edges m , will prevent spontaneous opening. 15 In the same way the jaws are prevented when open from closing upon one another as long as the ring E is not moved.

Figs. 9 to 12 show the invention applied to a vise having the usual clamping-jaws G G'. 20 The jaws A C are again pivoted to an annular back plate B, which is secured to the movable jaw of the vise. The movable jaw G is secured to arm H, which, by means of my improved coupling, can be connected 25 with or disconnected from the screw-spindle D. When the coupling is opened, the movable jaw may be slid outward to any desired distance, after which the coupling is closed, so that the movable jaw may be drawn up 30 tight. In these figures, as in Figs. 7 and 8, A C are the two coupling-jaws turning on pivots $a b$, respectively. E is the concentric ring secured to the arm H and provided with the pins n , that engage the curved edges m of jaws A C. h' is the lever that operates 35 the coupling.

In Fig. 13 the pivots $a b$ are dispensed with, the jaws A C being provided with noses l , engaging projections e on disk B. Thus the 40 parts $e l$ constitute fulcrums for the jaws to turn on. Springs k' serve to draw the jaws together, so as to interlock with spindle D.

In Figs. 14 to 18 the jaws A C are provided with eccentric rails p , engaged by a double 45 pair of pins o on hand-lever L. These pins move concentrically with the screw-spindle. The rails enter between each pair of pins $o o$, and the jaws A C are by them turned on their pivots $a b$, so as to open or close. The closing 50 of the jaws may be aided by springs k , acting against the edges of the jaws with their free ends and attached to the disk B with their fixed ends.

In Figs. 19 to 22 the disk K revolves by 55 handles J, has only single teeth r , adapted to act against the inner edge of the rails p . (Shown in Figs. 14 and 16.) Here the closing of the jaws is entirely effected by the springs k . This construction, as well as that shown 60 in Figs. 7 and 8, is particularly applicable to couplings used for the transmission of power, as represented in Figs. 23 to 28. Upon the driving-shaft g is keyed the disk E', to which the jaws A and C are pivoted by the bolts a 65 b . The jaws are adapted to engage the screw-

threaded end F of a sliding shaft i . k is the spring for closing the jaws. By revolving the driving-shaft g the shaft i is gradually drawn into the coupling against disk E', and finally participates in the revolution of the 70 driving-shaft. The jaws are provided with the projections m' , engaged by rail p' on a shifting-lever M that encircles the jaws. When the coupling is closed upon the screw F, Figs. 23 and 25, the parts $p' m'$ are out of contact 75 and the jaws A C are pressed together by springs k .

When the coupling is open, Figs. 26 and 28, the rails p' engage projections m' and hold the jaws apart. A lever N' serves for moving 80 the shaft i .

The coupling may be so constructed that the jaws A C carry the eccentric rails p' , while the shifting-lever carries the projections. The jaws may also, if desired, be provided with 85 cam-shaped curves at the center in lieu of carrying the screw-thread. This enables the jaws to grasp the inclosed shaft by friction, and thus the second lever is rendered unnecessary. This arrangement is shown ap- 90 plied to a pump-rod in Figs. 29 to 31. Here the piston-rod D³ carries the ring E, to which are pivoted by bolts $a b$ the jaws A C. The bolts connect the jaws A C to the ring E in the manner already described, so that the 95 jaws are free to turn on the ring. The ring E is moreover provided with the pins n for engaging the curved edges m of the jaws. The draw-rod D² is provided with a groove D', into which the jaws A C bite. The rod 100 D² may be secured to the piston-rod D³ by turning lever h' of ring E.

In Figs. 41 to 43 the fixed part or disk B constitutes the piston of the pump, while the spindle D constitutes the pump-rod. This 105 rod is notched, as at s , for the engagement of the pivoted jaws A C. These jaws are protected by a collar B², which is connected to the disk B by the same bolts $a b$, that connect the jaws to the disk. 110

What I claim is—

1. The combination of an annular disk with a pair of interdependent simultaneously-oscillating jaws A C, pivoted thereto, the jaws being cut out at the center and provided with 115 contact-edges adapted to operate against one another, substantially as specified.

2. The combination of an annular disk with a pair of interdependent simultaneously-oscillating jaws pivoted thereto and provided 120 with contact-edges and with a spring for pressing the jaws together, substantially as specified.

3. The combination of an annular disk having pins n with interdependent simultaneously-oscillating jaws A C, pivoted thereto, and having curved edges m , adapted to be engaged by pins n , substantially as specified. 125

4. The combination of an annular disk with a pair of jaws pivoted thereto and provided 130

with eccentric rail *p* and with a hand-lever provided with pins adapted to engage said rails, substantially as specified.

5 5. The combination of an annular disk having projections *e* with a pair of interdependent simultaneously-oscillating jaws A C, provided with noses *l*, that engage said projections, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of 10 two subscribing witnesses.

JOHANN BRANDNER.

Witnesses:

ADOLF HACUSSER,
WM. ESSENWEIN.