

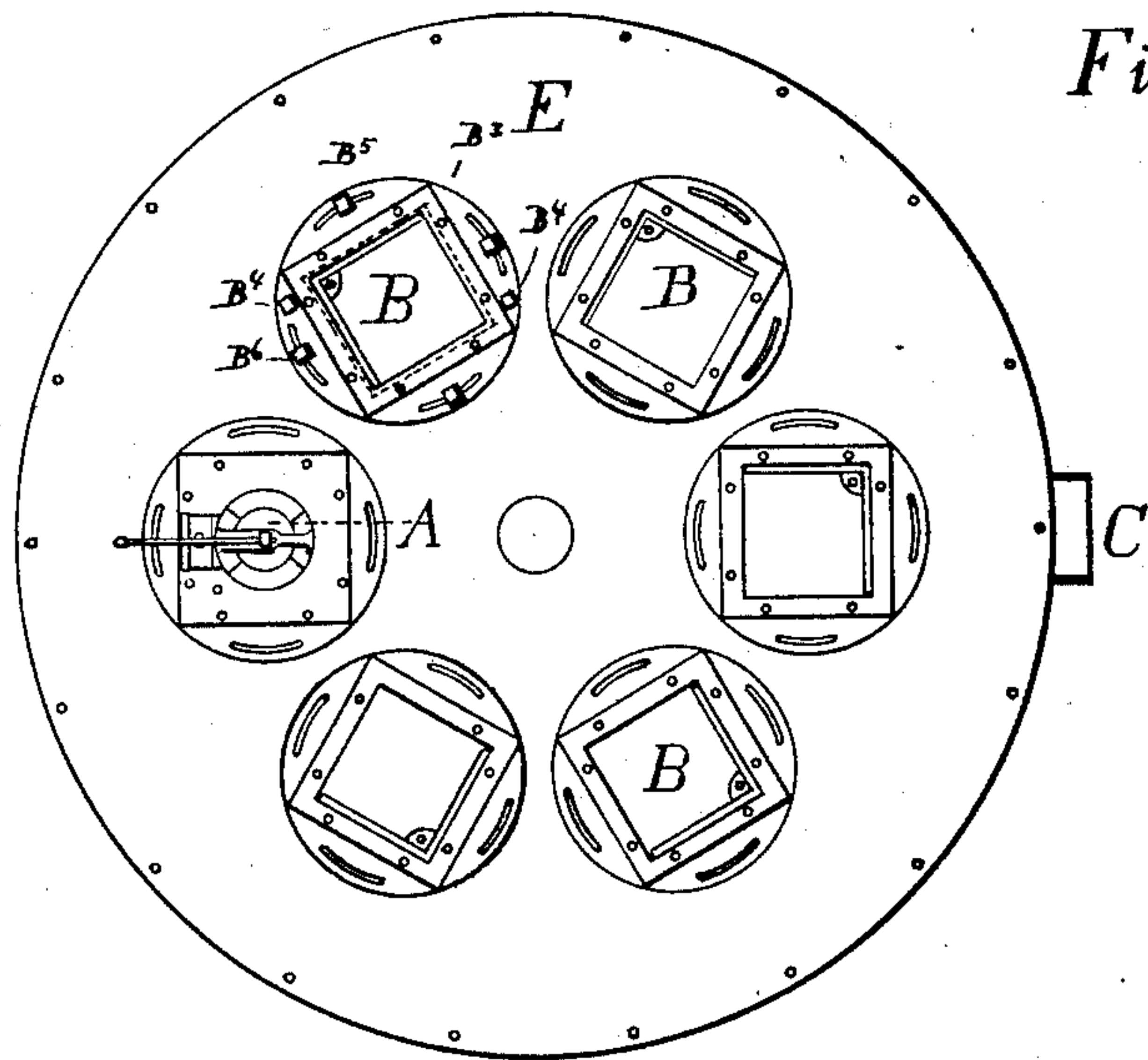
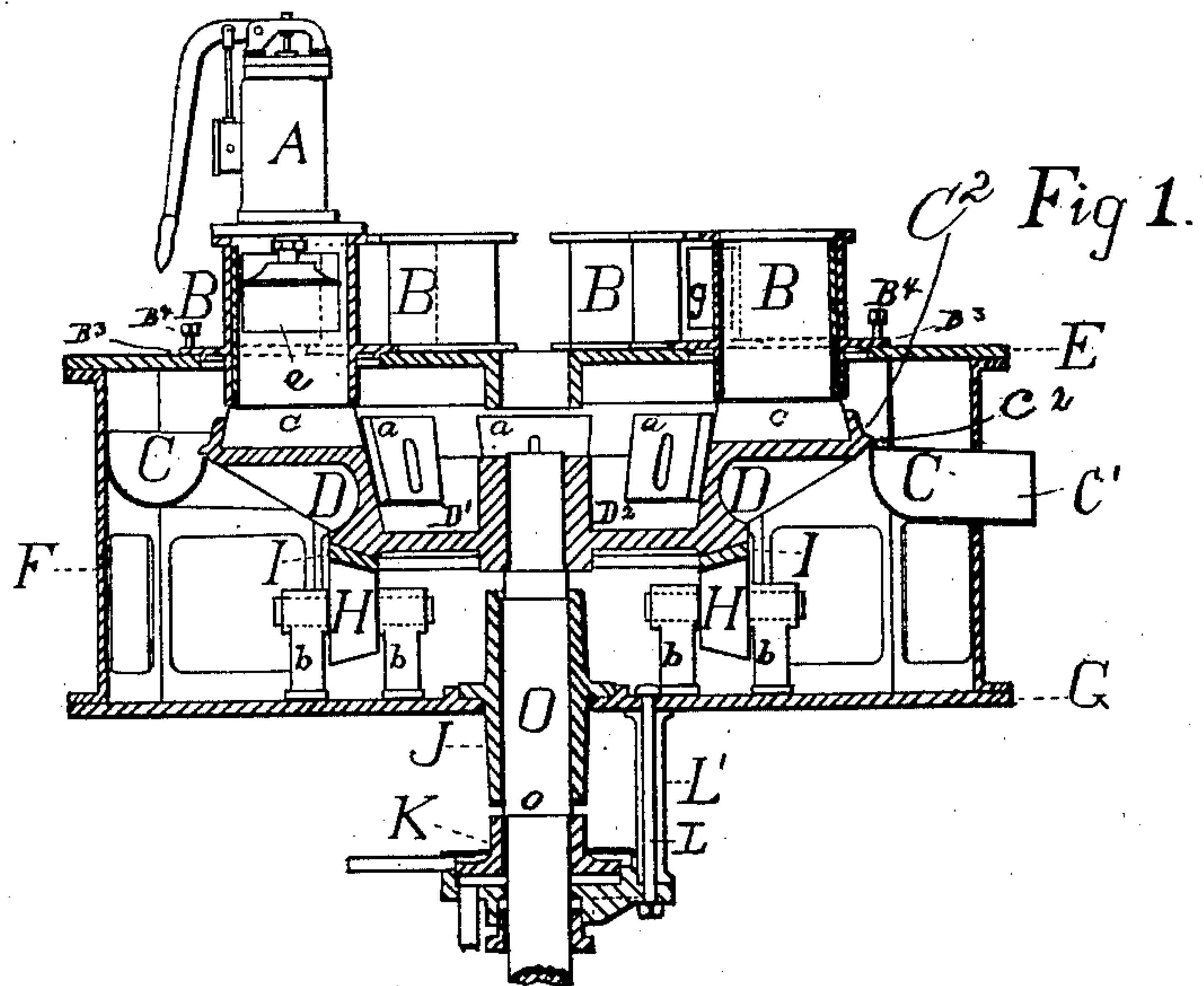
(No Model.)

3 Sheets—Sheet 1.

W. CURTIS.
WOOD PULP MACHINE.

No. 367,504.

Patented Aug. 2, 1887.



Witnesses:

Carl Karp
Henry Mann

Inventor:

Warren Curtis
by George Rogers
Attorneys.

(No Model.)

3 Sheets—Sheet 2.

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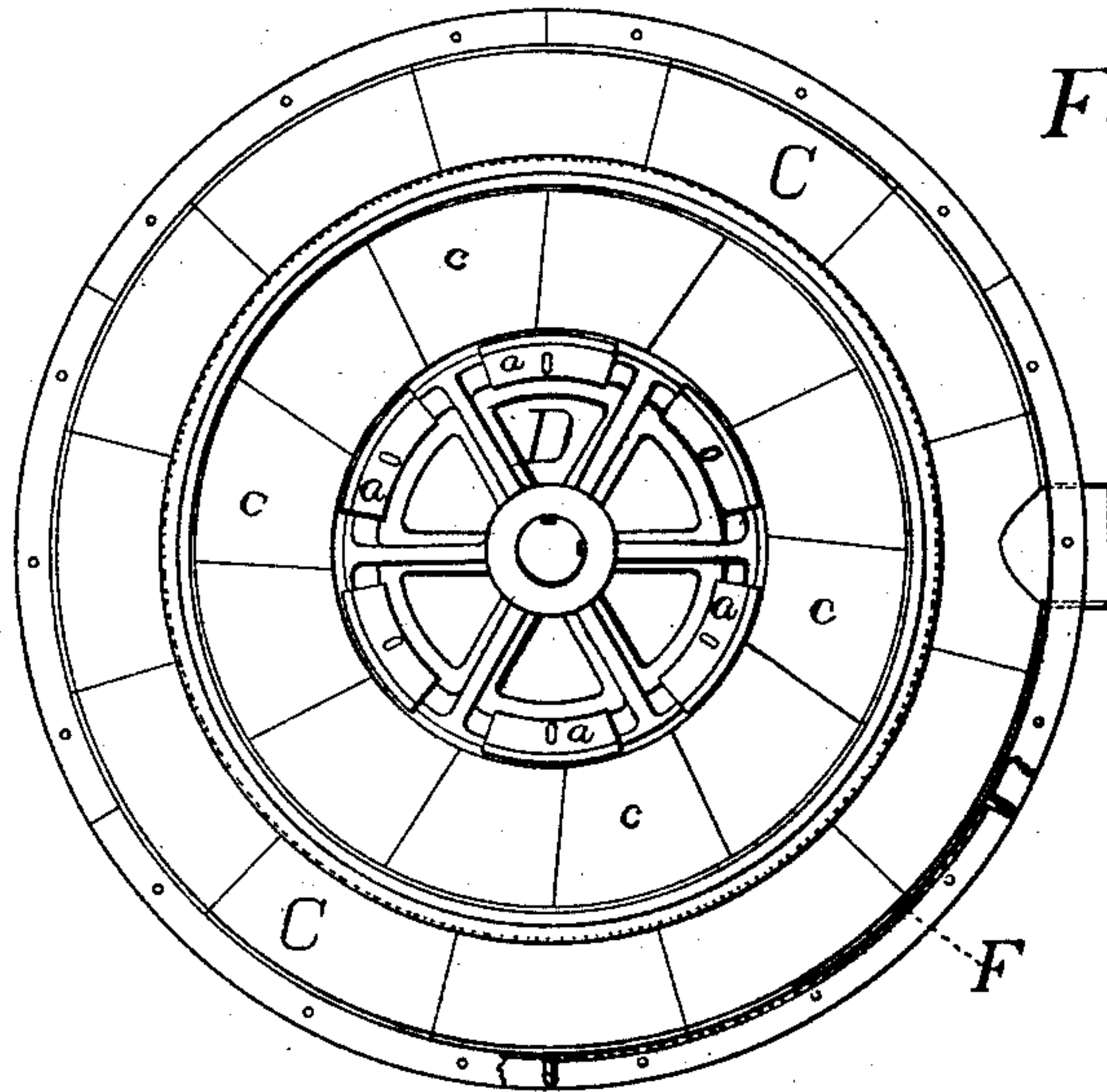


Fig 3.

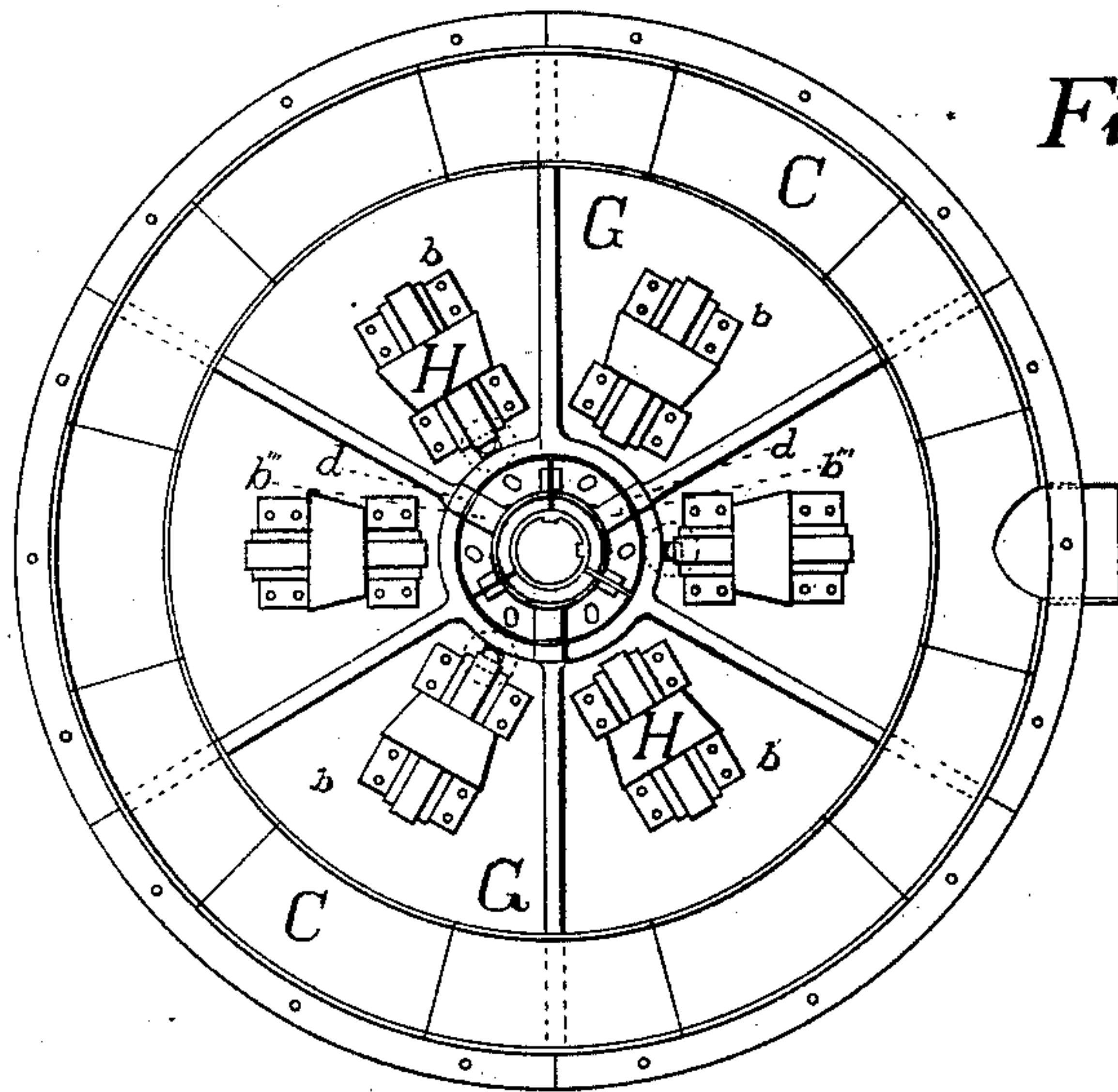


Fig 4.

Witnesses:
Carl Karp
Sidney Mann

Inventor:
Warren Curtis
by George Paegem
Attorneys.

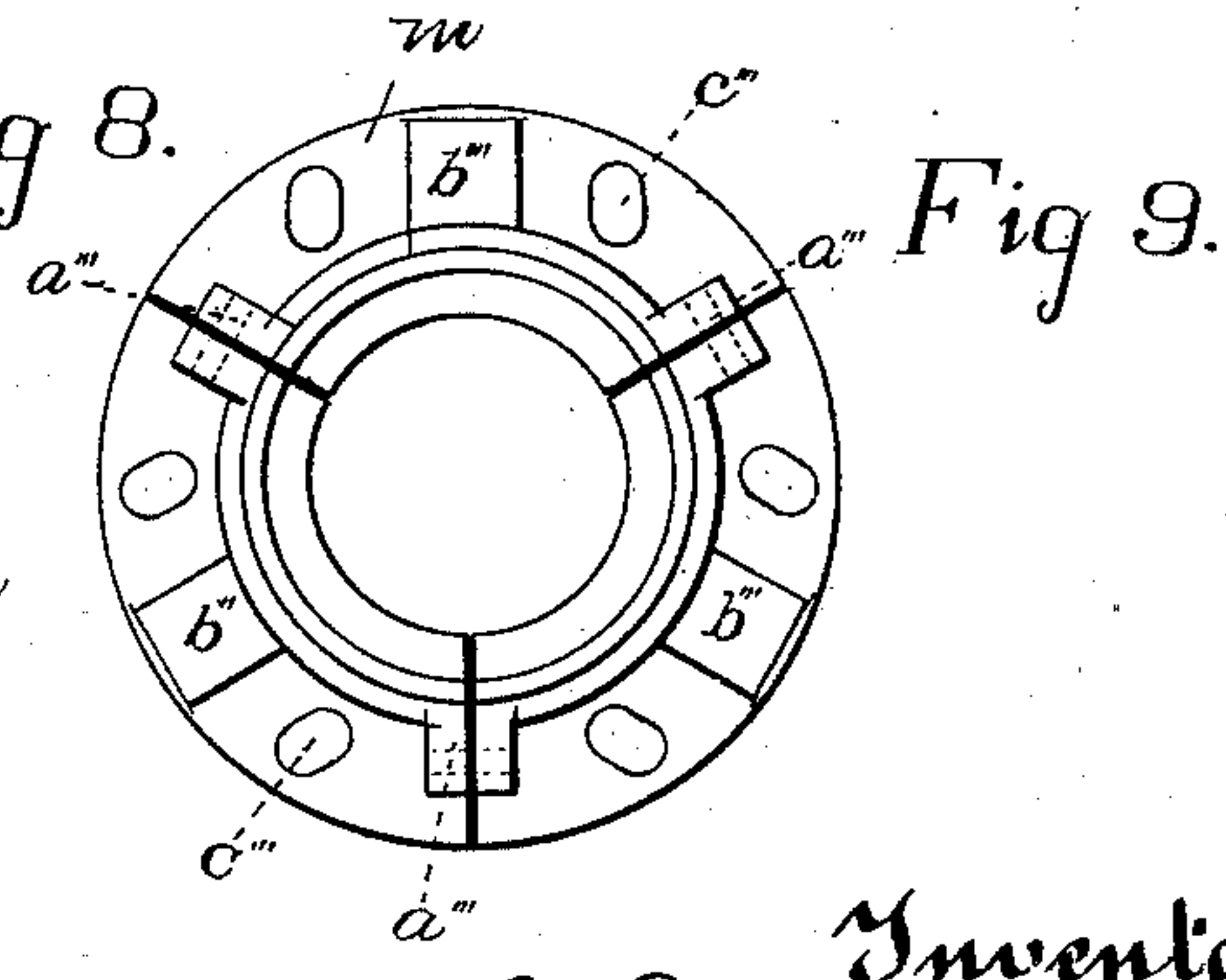
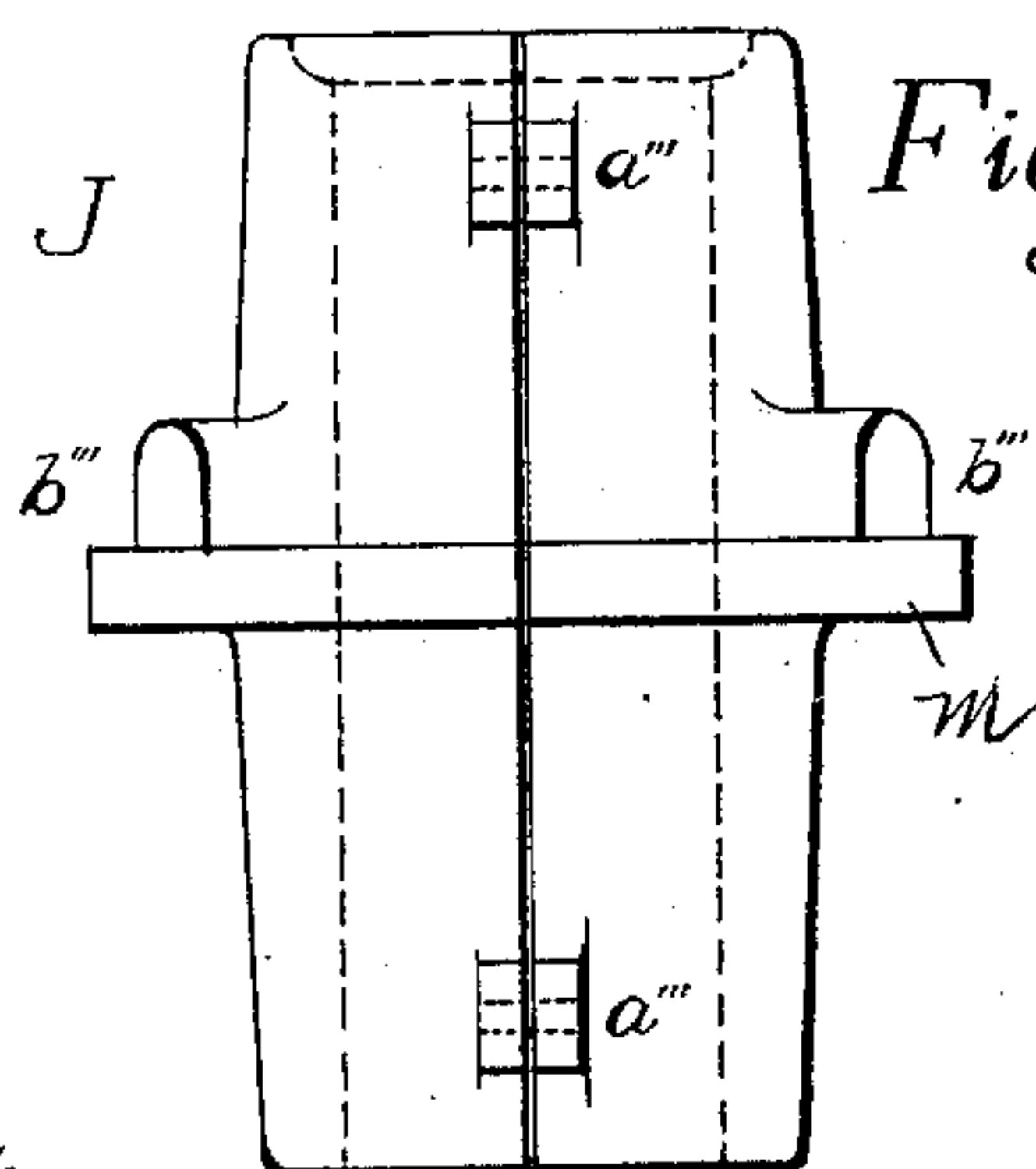
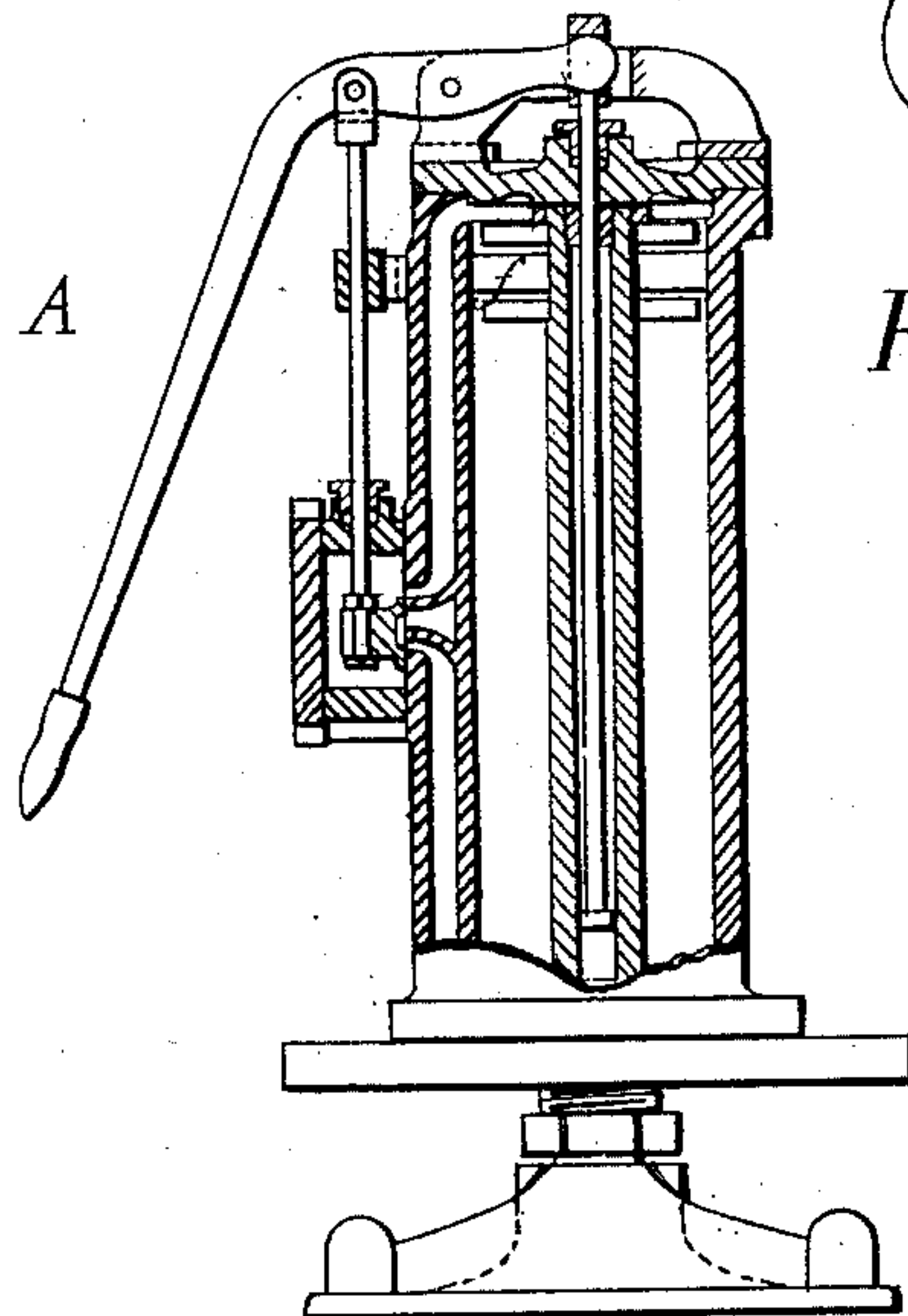
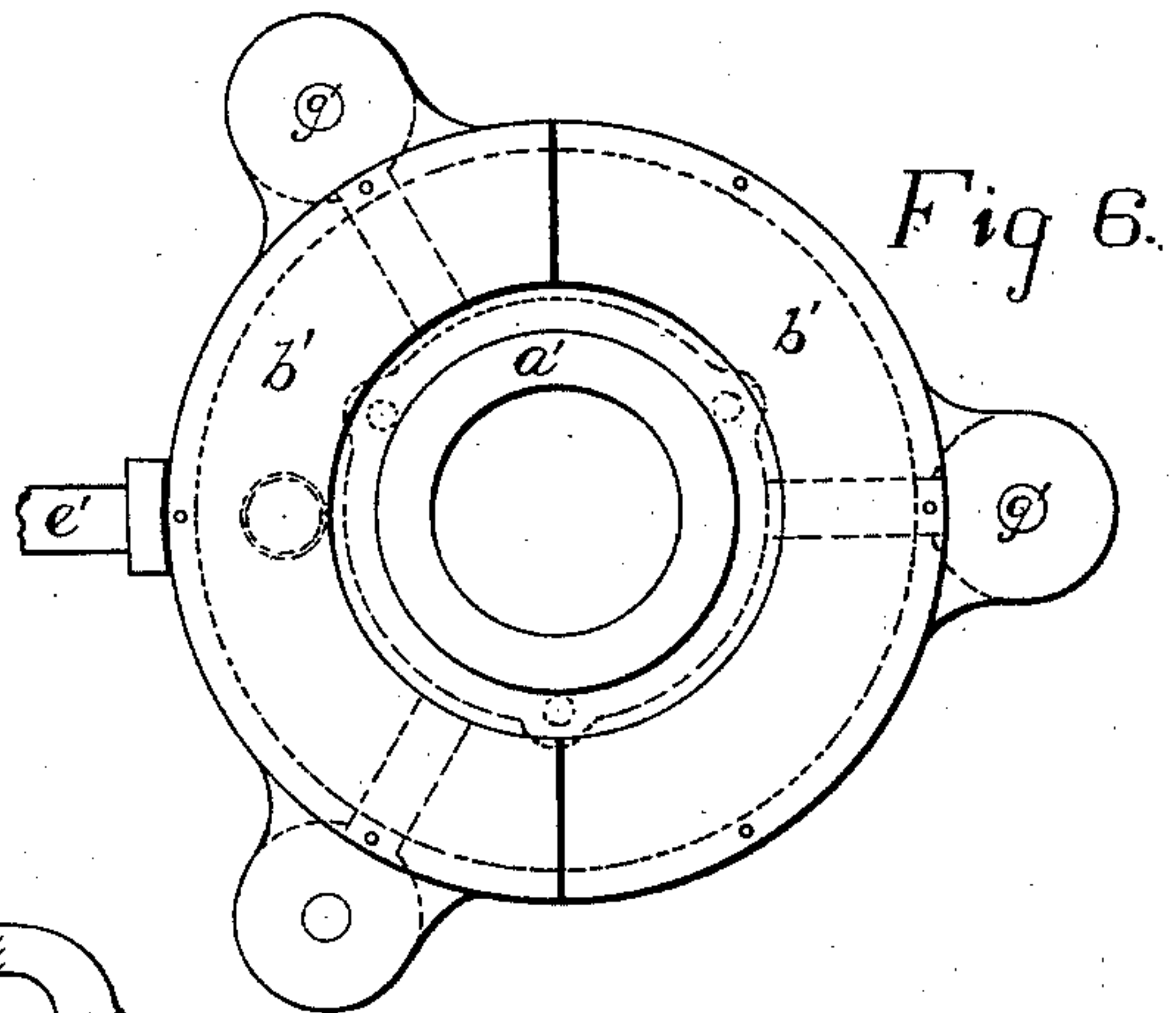
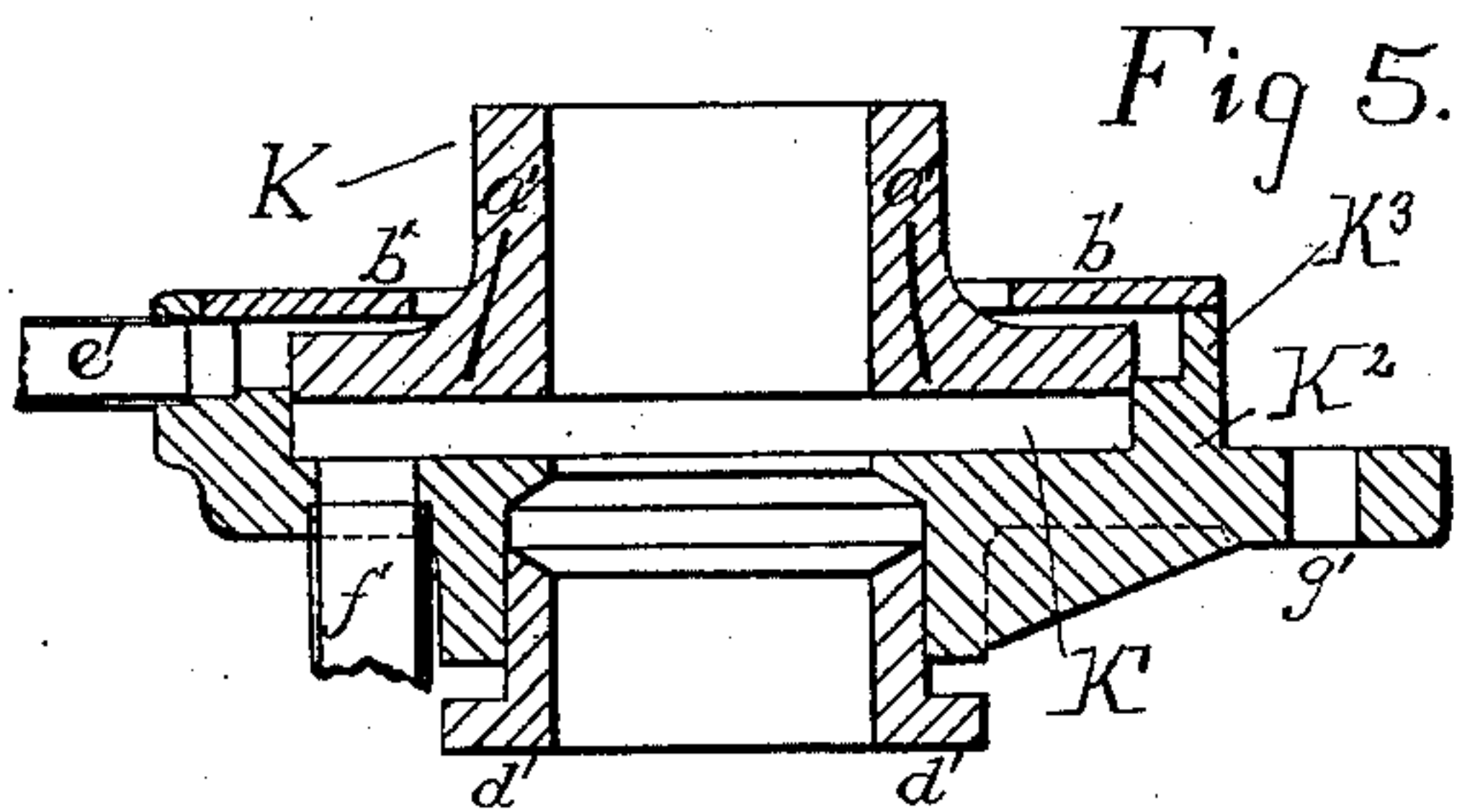
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3 Sheets—Sheet 3.

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WOOD PULP MACHINE.

No. 367,504.

Patented Aug. 2, 1887.



Witnesses:

Egil Karp
Adway H. H. H.

Inventor:

Warren Curtis
by Joseph R. R. R.
Attorneys:

UNITED STATES PATENT OFFICE.

WARREN CURTIS, OF CORINTH, NEW YORK.

WOOD-PULP MACHINE.

SPECIFICATION forming part of Letters Patent No. 367,504, dated August 2, 1887.

Application filed July 16, 1886. Serial No. 208,184. (No model.)

To all whom it may concern:

Be it known that I, WARREN CURTIS, of Corinth, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Wood-Pulp Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in that class of machines in which revolving stones or other abrading devices are used for grinding wood into pulp.

The object of my invention is to provide a machine in which a piece or pieces of stone or other abrading material can be used to great advantage and the wood ground in any desired direction to the grain, and which machine is simple in construction, strong and durable, and produces a superior long-fibered pulp with a comparatively small amount of power.

The invention consists in a frame or disk mounted to revolve in the horizontal plane, in which frame or disk the pieces of stone or other abrading parts are held, and against which stones the blocks of wood are pressed by suitable means or devices, the revolving frame being surrounded by a gutter for catching the pulp.

The invention consists, further, in the combination, with said frame or disk, of suitable devices for supporting the same and counteracting the pressure of the block-pressers.

The invention also consists in the construction and combination of parts and details, as will be fully described hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a cross-sectional view of my improved wood-pulp machine. Fig. 2 is a plan view of the same, some of the pressers being removed. Fig. 3 is a plan view of a revolving frame in which the abrading-pieces are held, parts being taken out. Fig. 4 is a plan view of the frame on which the revolving platform revolves. Fig. 5 is a detail cross-sectional view of the hydraulic cushion. Fig. 6 is a plan view of the same. Fig. 7 is a longitudinal sectional view of one of the pressers. Fig. 8 is a side view of the sleeve in which the main shaft revolves, and Fig. 9 is a plan view of the same.

Similar letters of reference indicate corresponding parts.

On the upper end of the vertical shaft O the

circular frame or platform D is rigidly mounted to revolve in a horizontal plane, said frame being provided at its outer edge with an inwardly and upwardly inclined flange, C², against the inner side of which the beveled edges of the stone blocks c are placed, said blocks being held and pressed against the said flange by the clips or plates a, fastened to the sides of a recess, D', formed around the hub D² of the wheel or frame D. If desired, the flange C² may be provided along the inside edge of the circular platform and the clips a passed along the outside edge, or clips may be used on the inside and outside. The stone sections c, which have beveled edges, are placed close together, so that their upper surfaces form an annular abrading-surface, as shown in Fig. 3, the tops of all the stones being flush. At the bottom of the flange C² an outwardly-projecting lip, c², is formed, which extends over the inner edge of a fixed circular trough, C, surrounding the revolving platform or frame D, and provided with a spout or outlet, C'.

The pulp that is formed on the stones flows over the outer edges of the same into the troughs C, and the functions of the lip c² are to prevent the pulp flowing down between the edge of the revolving frame D and the inner edge of the gutter or trough C. Said trough is held by a frame, F, surrounding the stone and carrying a top plate, E, on which the boxes B are fastened for receiving the blocks of wood, the bottom parts of the said boxes extending through the plate E and down to within a short distance from the tops of the stones.

The boxes B are provided with laterally-projecting flanges B³ some distance above the lower ends, which flanges are above the top plate, E, of the casing, and through said flanges screws B⁴ are passed and rest on the top plate, E, by means of which screws the boxes B can be raised or lowered, so that their lower edges will be a short distance above the upper surface of the abrading piece or pieces. In case the stones or other abrading-pieces wear off, the boxes are lowered, and when fresh stones or abrading-pieces are fastened in the revolving frame the boxes must be raised. Said boxes are provided with openings e, through which the blocks of wood can be passed into them. On the top of each box B a block-

presser, A, is secured, which may be a hydraulic block-presser, screw device, or any other device for exerting a pressure on the block of wood in the box for the purpose of pressing said block of wood upon the stones.

As the several block-pressers exert a great pressure on said revolving frame, the same must be suitably supported and balanced, and in addition to the support it derives from the shaft O, I have provided a circular track, I, on the bottom of the frame D, which track is beveled and runs on conical frictional wheels H, mounted on shafts journaled in standards b on the base of the frame of the machine. A greater or less number of said supporting-wheels may be provided, as may be required.

The vertical shaft O passes through a sleeve, J, formed of sections provided along their edges with lugs a^3 , which are bolted together. Said sections are provided at about the middle of their height with a rib or collar, m, on the outer surface, above which rib lugs b^3 are formed on the outer surface of the sections. Said collar m rests on the base-plate G of the frame, and is surrounded by a rib or projection formed on the upper surface of said base-plate. Below said collar the shaft O is provided with an annular offset, o, resting on the top edge of a collar, K, provided at its bottom with an outwardly-projecting flange, a' , which fits closely in a recess, K', formed in a circular plate, K², having lugs g' , through which bolts L are passed, which bolts are also passed through the base-plate G of the frame of the machine and are surrounded by braces L', nuts being screwed on the ends of said rods, whereby the plate K² is firmly and rigidly connected with the base of the machine.

A pipe, f, is connected with the recess K' in the plate K² for the purpose of conducting water or oil into said recess. A ring shaped projection, K³, is provided on the plate K², and forms a chamber above the recess K', which chamber is covered by a plate, b' , having an opening through which the flange K projects. The pipe e' is provided for conducting oil or water from said chamber. A packing-collar, d' , is passed into a circular recess in the bottom of the ring K² and surrounds the lower part of the shaft. The oil or water forced into the recess K' of the ring K² forms a cushion, on which the flange K of the sleeve rests, said flange fitting very closely on the recess K'. As the shoulder o on the spindle or shaft O rests on the collar K, the spindle is thus supported by the above-mentioned hydraulic cushion.

The operation is as follows: The blocks of wood are placed into the boxes B, and are pressed against the revolving stone or abrading-surfaces by suitable devices. Water is delivered upon the abrading surface, whereby the wood is converted into pulp, which flows into the gutter and is carried off. The wood can be placed in the boxes in such a manner that the grain is parallel to the direction of the movements of the stone, or at any angle to the

direction of movement, according to the size or quantity of fiber desired in the pulp. The flanges B³ of the boxes B have segmental slots B⁵, through which locking-bolts B⁶ are screwed into the top plate, E, thus permitting of turning and adjusting the boxes on their longitudinal axes to grind lengthwise of the fiber of the block in the box, or at any angle to the fiber.

The special advantages of this machine are, that pieces of grinding-stone may be used, and thus the highly-expensive large stones, which are also very apt to break, are no longer required. In place of the grinding-stones, emery blocks or other suitable abrading devices may be provided.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A wood-pulp machine having its abrader mounted to revolve in the horizontal plane, said abrader being supported at different points by friction-rollers, substantially as shown and described.

2. A wood-pulp machine constructed with its abrader mounted to revolve in the horizontal plane, a track on the under side of the abrader, and friction-rollers on which said abrader can run for the purpose of supporting it in its revolutions, substantially as shown and described.

3. In a wood-pulp machine, the combination, with an abrader mounted to revolve in the horizontal plane, of a shaft on which the abrader is mounted, and a hydraulic cushion for supporting the shaft, substantially as shown and described.

4. In a wood-pulp machine, the combination, with a frame or wheel mounted to revolve in the horizontal plane, of grinding-stones or other abrading-pieces held on said wheel, a shaft on which the wheel is mounted, the shaft being provided with a shoulder, a flanged sleeve on which the shaft rests, and a ring provided with a recess for receiving the flange of the sleeve, which recess contains oil or water for the purpose of forming a hydraulic cushion, substantially as shown and described.

5. A wood-pulp machine constructed with a revolving abrader having a track on one side or surface, and friction-wheels which run on the track of the abrader, substantially as shown and described.

6. In a wood-pulp machine, the combination, with a horizontal revolving abrader, of a frame or casing surrounding the abrader, vertically-adjustable boxes on the frame or casing, which boxes serve to receive the blocks of wood, and pressers, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

WARREN CURTIS.

Witnesses:

OSCAR F. GUNZ,
MARTIN PETRY.