

No. 871,409.

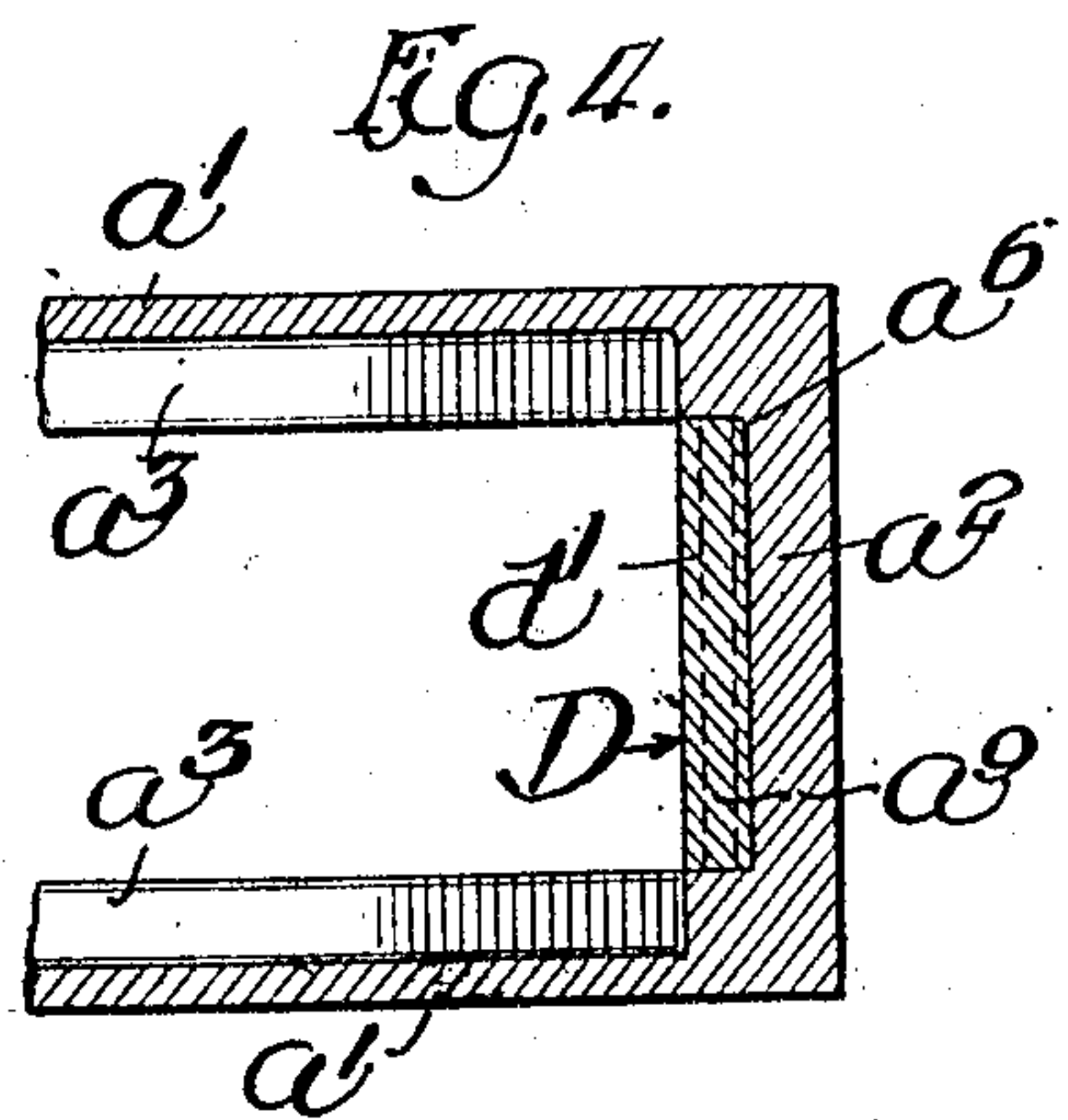
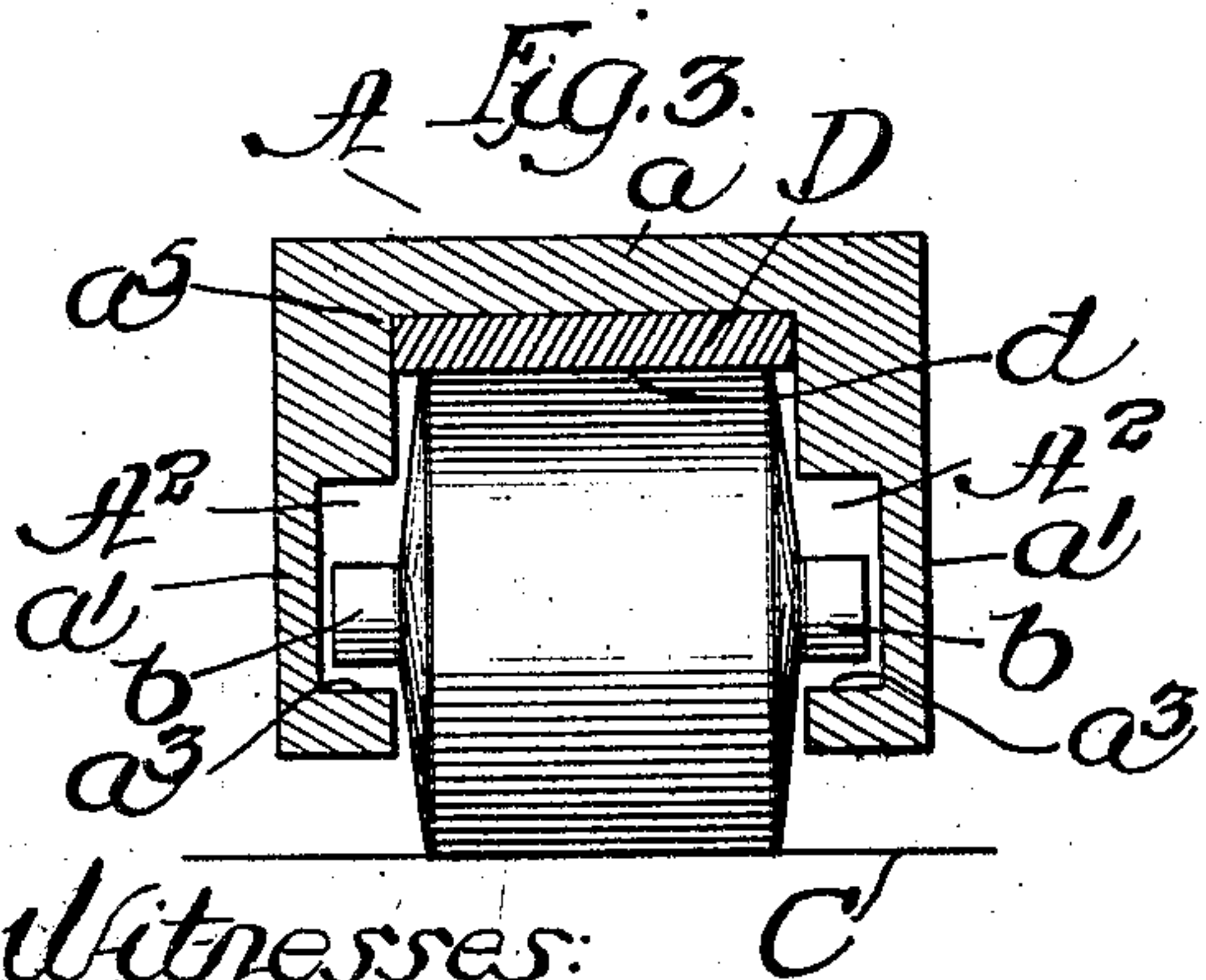
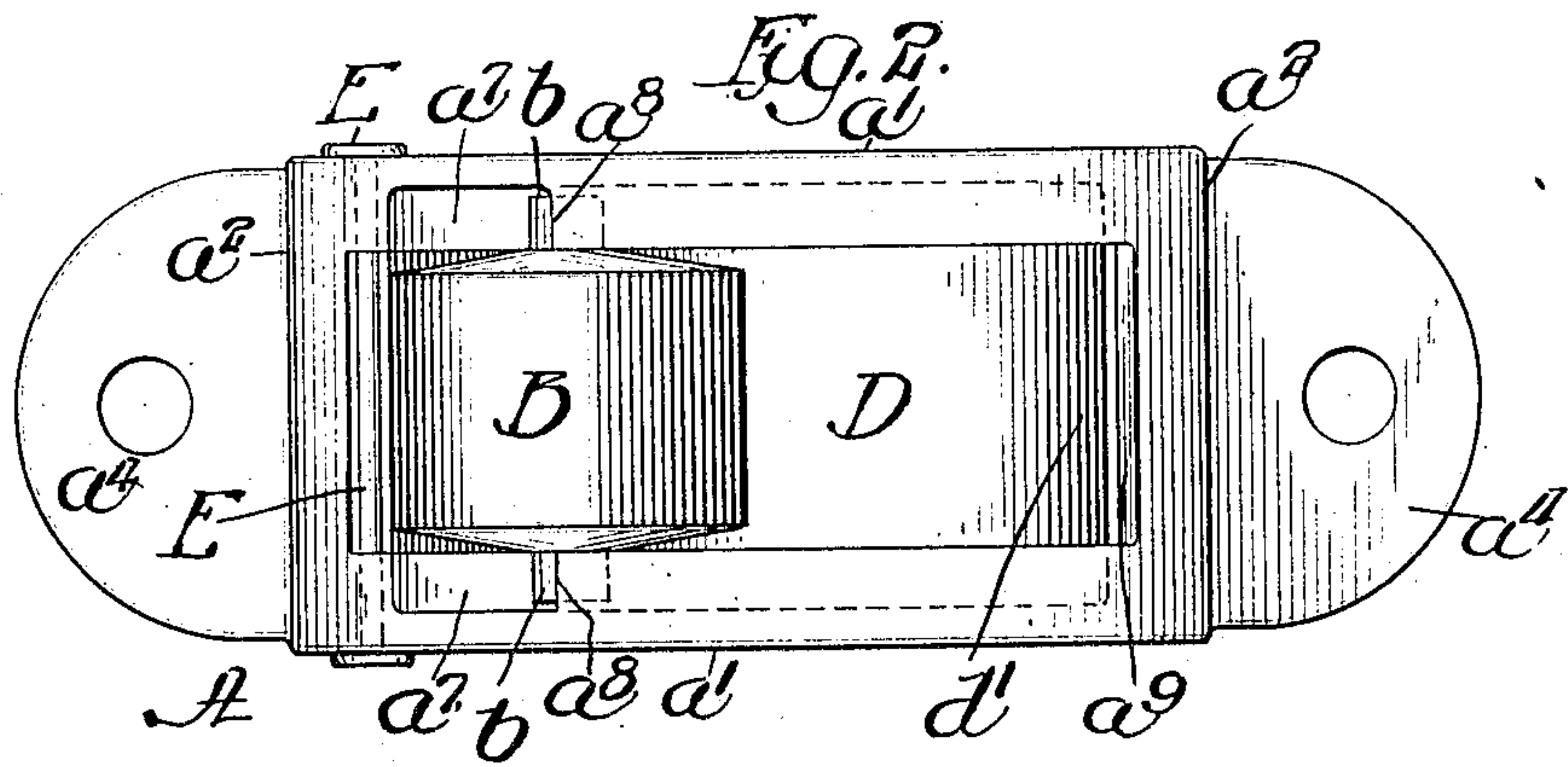
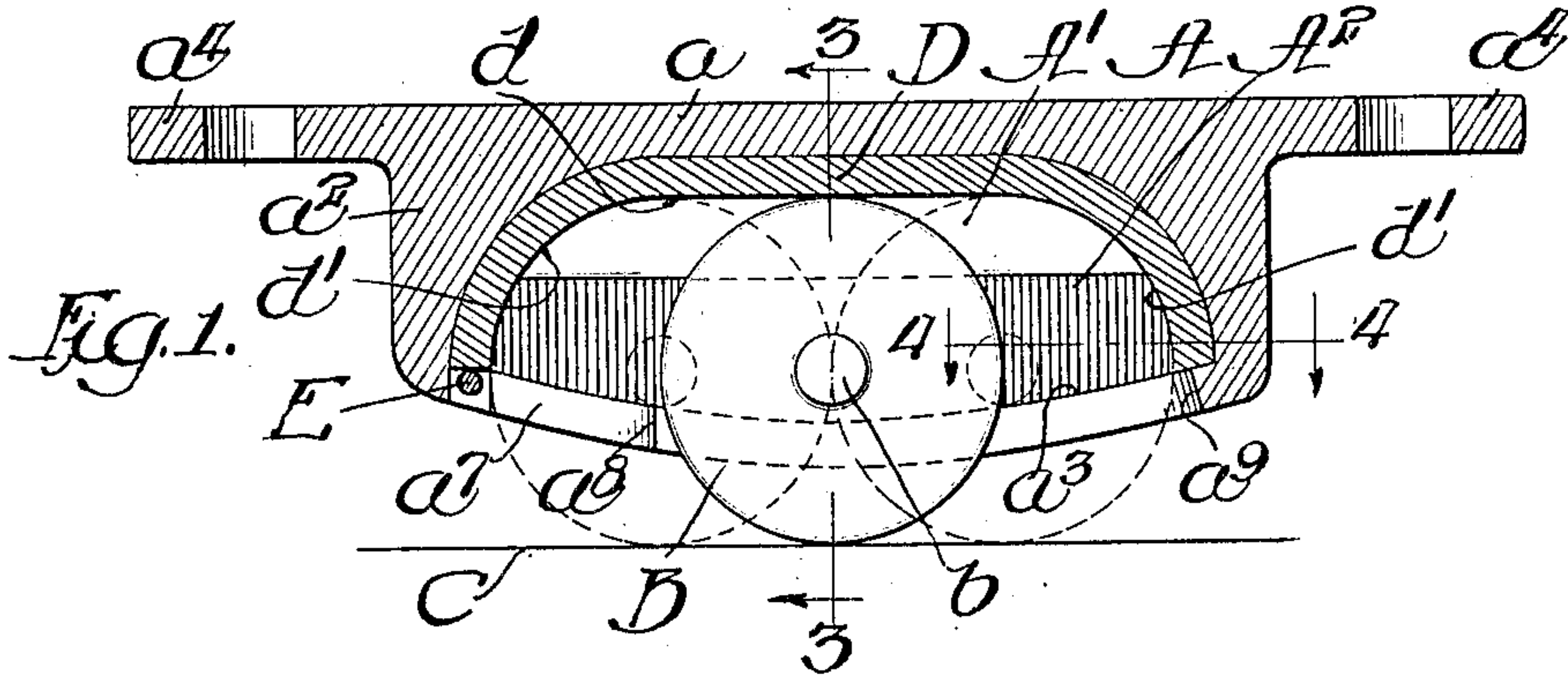
PATENTED NOV. 19, 1907.

J. JACOB.

ROLLER BEARING.

APPLICATION FILED FEB. 11, 1907.

2 SHEETS—SHEET 1.



Witnesses:
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W. H. Hall

Inventor:
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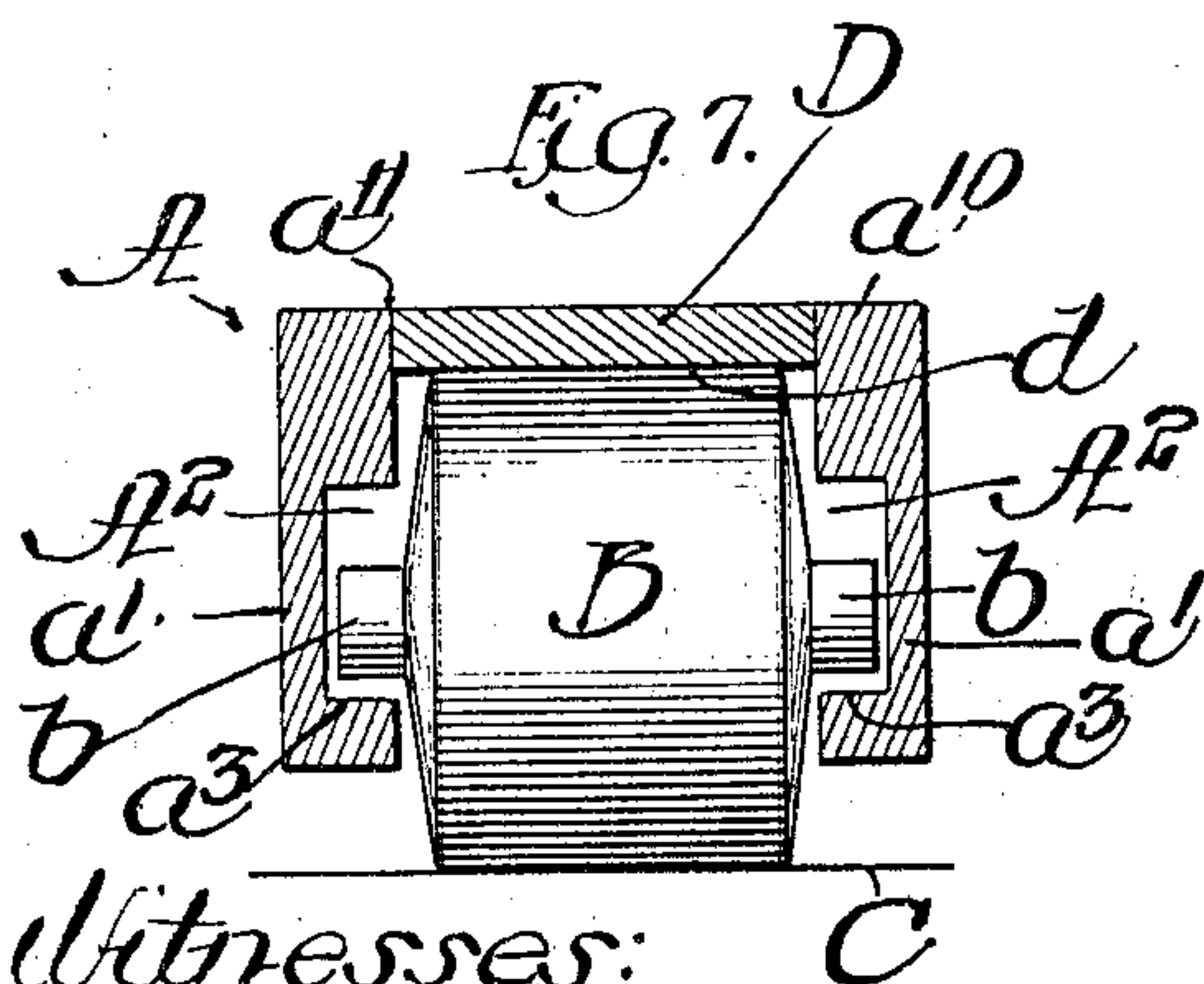
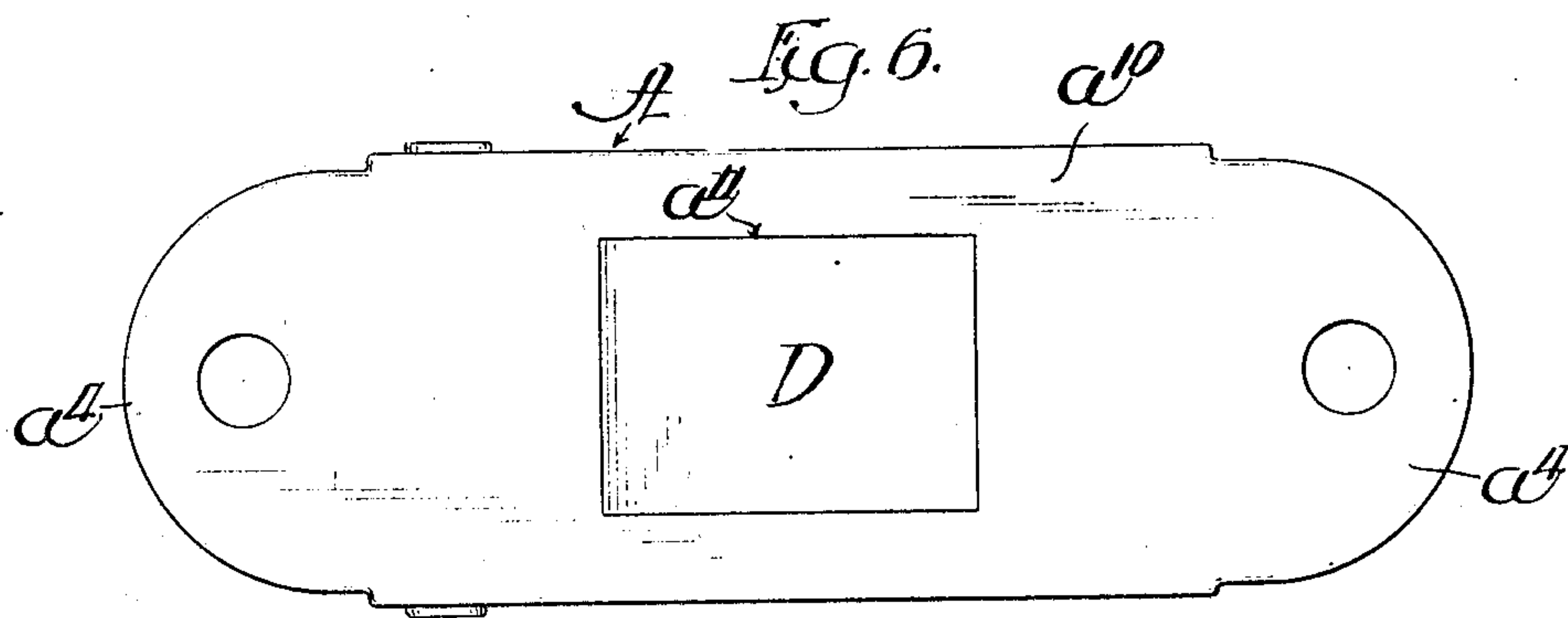
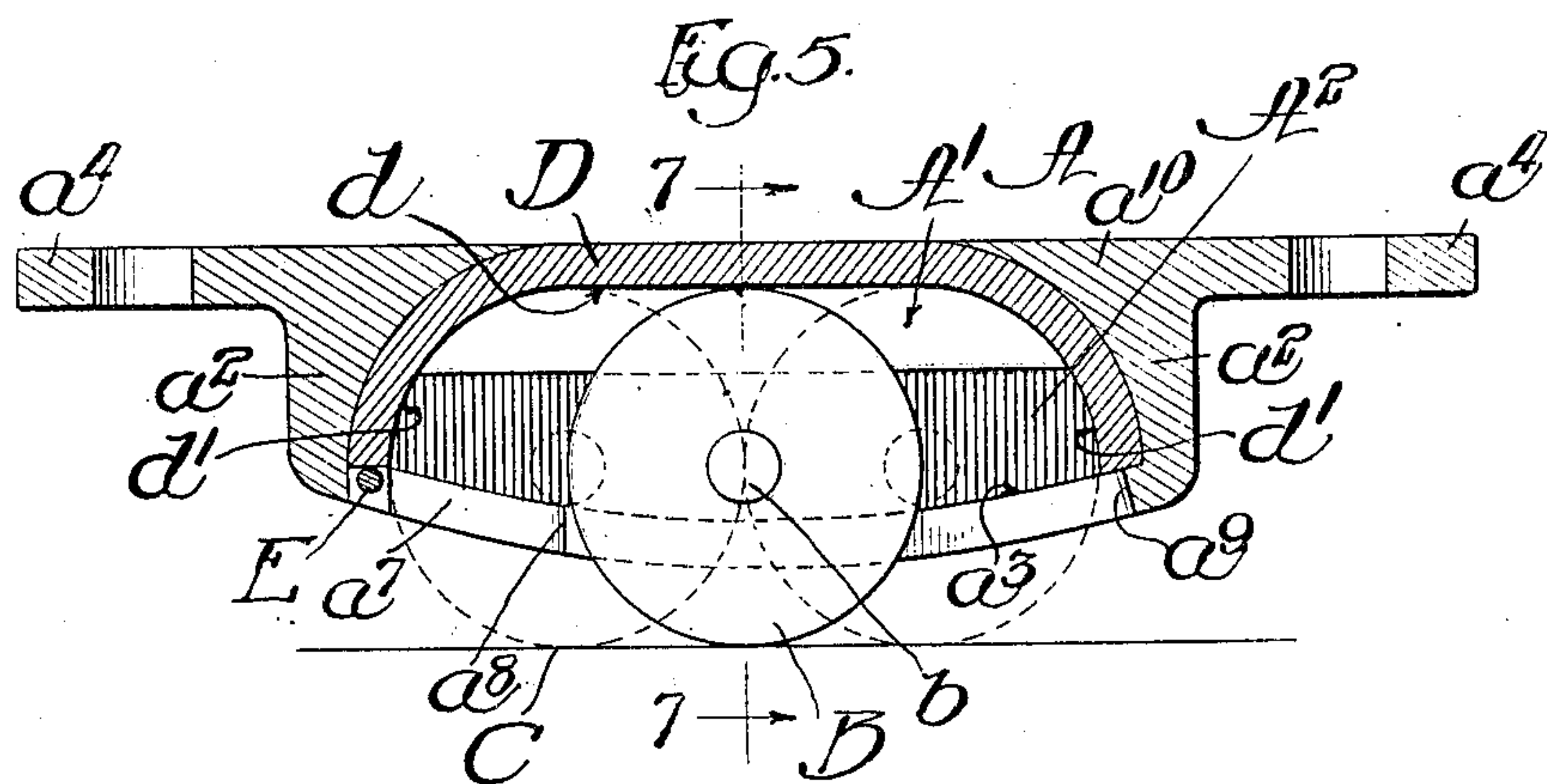
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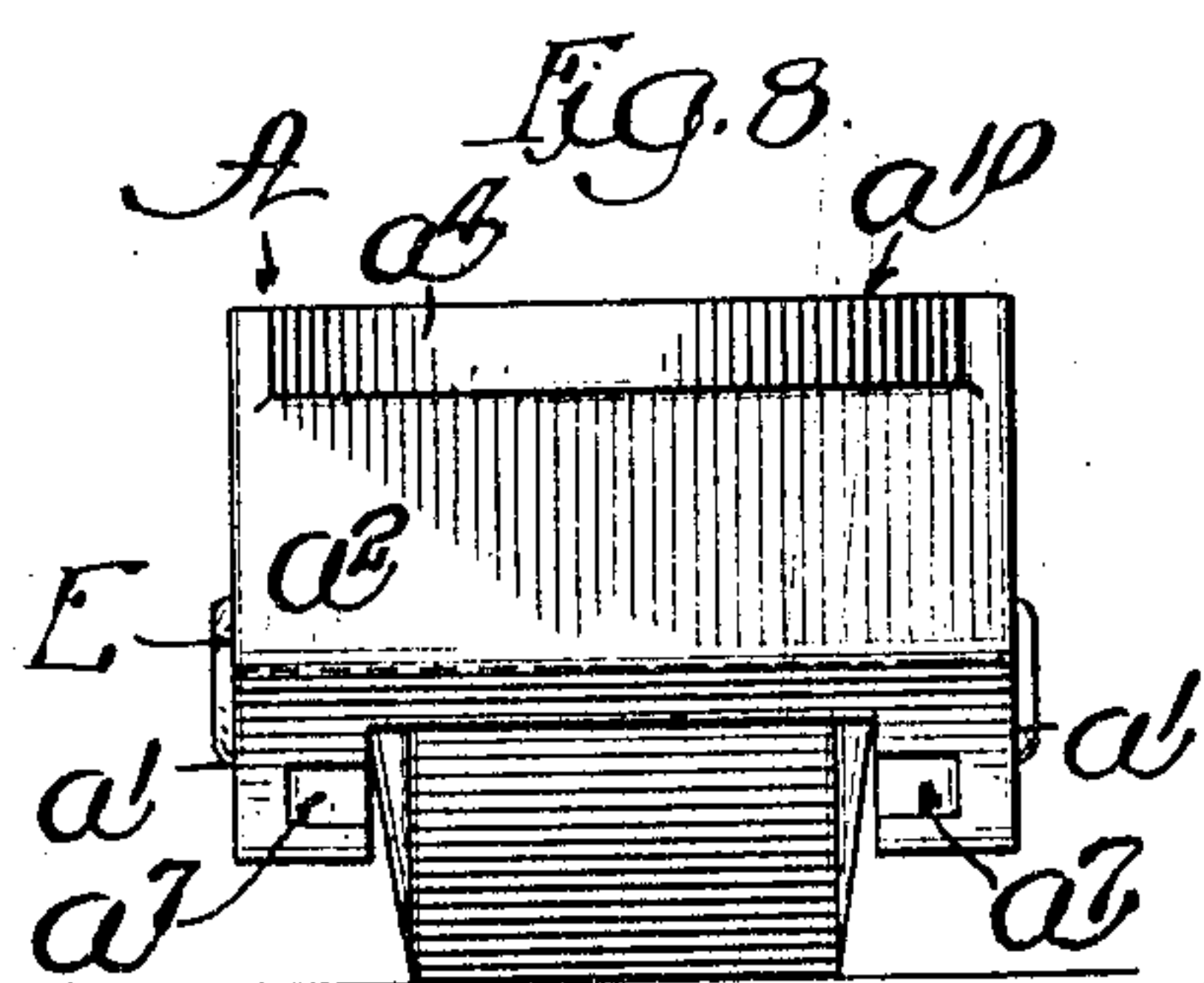
J. JACOB.
ROLLER BEARING.

APPLICATION FILED FEB. 11, 1907.

2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN JACOB, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO EDWIN S. WOODS, OF CHICAGO, ILLINOIS.

ROLLER-BEARING.

No. 871,409.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed February 11, 1907. Serial No. 356,779.

To all whom it may concern:

Be it known that I, JOHN JACOB, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Roller-Bearings; and I do hereby declare that the following is a full, clear, and exact description thereof, 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 roller bearings for railway cars and like purposes and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

The objects of the invention are to provide novel construction for retaining the roller in the roller bearing casing and to otherwise improve the general construction of the bearing.

In the drawings:—Figure 1 is a longitudinal, vertical section of a roller bearing embodying my invention. Fig. 2 is a bottom plan view thereof, showing the roller at one end of its travel. Fig. 3 is a transverse section, taken on line 3—3 of Fig. 1. Fig. 4 is a detail horizontal section, taken on line 4—4 of Fig. 1. Fig. 5 is a longitudinal vertical section of a slightly modified form of the bearing. Fig. 6 is a top plan view thereof. Fig. 7 is a transverse section, taken on line 7—7 of Fig. 5. Fig. 8 is an end view of the bearing shown in Fig. 5.

My improvements are herein shown as applied to roller side bearings for railway cars, wherein the bearing roller is contained in a casing which is adapted to be attached to and to depend from the end of the car bolster and through the lower open side of the roller chamber of which the roller projects for contact with an upwardly facing bearing on the truck. As will be obvious, however, my invention may be variously adapted to other types of roller bearing of the same general character for this and analogous uses.

As shown in said drawings, A designates, as a whole, the upper bearing member of the type of bearing referred to, comprising a cast-metal casing formed to provide a downwardly opening, horizontally elongated, roller chamber A¹. B designates a cylindric bearing roller located in said chamber, which

is adapted for rolling contact with a downwardly facing bearing surface at the top of said chamber and projects through the lower open side of the chamber for contact with a lower bearing surface, indicated by the line C. The said casing shown in Figs. 1 to 4, comprises a top wall *a*, side walls *a*¹ *a*¹ and end walls *a*² *a*². The side walls are formed to provide on their inner faces elongated channels or recesses A² which receive the trunnions or end bearings *b* of the roller B. The bottom walls *a*³ of said channels constitute tracks that support the roller B, through the medium of said trunnions, when the roller is out of engagement with the upper and lower bearing surfaces. The said tracks are shown as inclined inwardly and downwardly towards the longitudinal center of the casing to automatically center the roller in the casing when it is supported by said tracks, as is common in this type of bearing. Said casing is provided at its ends with oppositely extending apertured lugs *a*⁴ by which the casing is attached to the bolster or other part which carries the same.

The downwardly facing bearing surface in the upper part of the roller chamber comprises the downwardly facing surface *d* of a removable hard-metal wear-plate D that is fitted to the top and end walls of the casing in the same general manner as shown in the prior application for United States Letters Patent filed by myself and Edwin S. Woods, on August 4th, 1906, Serial Number 329,233. The top wall of the casing is provided with a horizontal groove *a*⁵ which receives the central or horizontal portion of the wear-plate D and the end walls of the casing are provided with like grooves *a*⁶ *a*⁶ to receive the curved end portions *d*¹ of said plate. Said removable wear-plate D comprises a central horizontal portion, and downwardly curved ends *d*¹ *d*¹ which are so disposed as to constitute curved stops to arrest the travel of the roller in the same manner as shown in the aforesaid application.

In accordance with my invention the roller is inserted into the roller chamber through a suitable opening between the side walls of the casing and the wear-plate D is thereafter inserted into the casing between said roller and the top wall of the casing in a manner to constitute a locking device to confine the roller in the casing, it being nec-

essary to remove the wear-plate in order to
 remove the roller. In the present construc-
 tion the roller is inserted into the roller
 chamber through the opening at the lower
 5 side thereof, through which the roller pro-
 jects for contact with the lower bearing C.
 The track flanges at the lower margins of the
 side walls of the casing are cut away near the
 ends of the casing to provide notches a^7 a^7
 10 through which the trunnions of the roller
 pass when the roller is inserted into the cas-
 ing. The said notches are located at such
 distance from one end wall a^3 of the casing
 that the distance between the inner end
 15 walls of said notches and the adjacent end
 wall of the casing is slightly greater than the
 distance between the periphery of the roller
 and the curved faces of the trunnions at
 points remote from the point on the periph-
 20 ery from which the measurement is taken.
 This arrangement permits the roller to be in-
 serted freely into the casing and the trun-
 nions to pass through said notches in the
 track flanges at a time when the wear-plate
 25 is removed from the casing. Thereafter the
 wear-plate is inserted into said chamber
 through the end thereof adjacent to the said
 notches. When the said wear-plate is in
 place the end thereof adjacent to the trun-
 30 nion receiving notches constitutes a lock
 which prevents the removal of the roller so
 long as said plate is in place. That is to say,
 the distance between the inner face of said
 curved end of the wear-plate, and the inner
 35 ends of the trunnion receiving notches, is so
 short that when the periphery of the roller
 engages said end of the plate, the trunnions
 are not free to pass through said notches, as
 clearly shown in Fig. 2.
 40 In constructions where the bearing mem-
 ber is reversed from the position shown to
 present the roller to a downwardly facing
 bearing surface, no special means are re-
 quired to lock the wear-plate in place.
 45 When, however, the said bearing member is
 disposed to present the roller to an upwardly
 facing bearing surface, any suitable means
 are employed for locking said wear-plate
 from endwise removal from the casing.
 50 Such locking of the wear-plate is effected in
 this instance by means of a bolt or rivet E
 extending through openings in the side walls
 of the casing and transversely across said
 casing in line with the adjacent end face of
 55 the wear-plate. The opposite end of the
 wear-plate engages an upwardly facing
 shoulder a^9 on the adjacent end wall of the
 casing which holds the end of the plate in
 place. A readily removable locking device
 60 for the wear-plate is preferred, inasmuch as
 it simplifies the dismemberment of the bear-
 ing when desired. Such dismemberment of
 the bearing is effected by removing the rivet
 E or other locking device, whereupon the
 65 wear-plate may be readily withdrawn end-

wise from the casing. Thereafter the roller
 is free to be removed from the casing as is ob-
 vious.

In Figs. 5 to 8, inclusive, the upper wall
 a^{10} of the casing is cut away in a plane which
 intersects the roller bearing chamber through-
 out a portion of its length, thus producing
 a central opening a^{11} in said top wall. In
 this instance, the horizontal portion of the
 wear-plate is flush at its upper face with the
 75 upper face of said top wall and constitutes
 a portion of the top wall of the casing. When
 the bearing member is fixed in place the said
 upper face of the wear-plate has contact
 with the lower face of the part to which the
 80 bearing is attached, thereby constituting a
 backing or support for the intermediate or
 central part of the wear-plate. In this con-
 struction, as in the previously described
 construction, the curved ends of the wear-
 85 plate fit against the correspondingly curved
 surfaces of the top and end walls of the cas-
 ing, and said wear-plate is inserted into the
 casing from one end thereof and is locked
 therein in the manner before described. 90
 This construction last described recommends
 itself where the distance between the parts
 carrying the two bearings is such as to re-
 quire a bearing of minimum height. More-
 over, said latter construction makes it prac-
 95 ticable to introduce the roller through the
 upper open side of the casing, as shown in
 my copending application for Letters Patent
 filed on the 11th day of February 1907,
 Serial No. 356,780. In the latter event the
 100 track flanges are made continuous or un-
 broken and the notches through which pass
 the roller trunnions are formed in the side
 walls of the casing at the top margins thereof.

I claim as my invention:—

1. In a roller bearing, an integral casing
 provided with an elongated roller chamber,
 a roller removably mounted in said chamber
 and provided with trunnions, flanges on the
 side walls of the casing adapted for engage-
 110 ment by said trunnions, a wear-plate remov-
 ably fitted within said chamber, and arranged
 to confine said roller in said chamber.

2. In a roller bearing, an integral casing
 provided with an elongated roller chamber,
 115 a roller removably mounted in said chamber
 and provided with trunnions, flanges on the
 side walls of the casing adapted for engage-
 ment by said trunnions, a wear-plate remov-
 ably fitted within said chamber, and arranged
 120 to confine the roller in the chamber, and
 means for locking the wear-plate in place.

3. In a roller bearing, a chambered inte-
 gral casing, a roller removably mounted
 therein provided at its ends with trunnions,
 125 said casing being provided with an opening
 to receive the roller and with notches at the
 sides of the opening through which the trun-
 nions of the roller pass when the roller is in-
 serted into and removed from the casing, 130

flanges on the side walls of the casing adapted for engagement by said trunnions, and a wear-plate removably fitted in said casing and constructed and arranged to confine the roller in the casing.

4. In a roller bearing, a chambered integral casing, a roller removably mounted therein provided at its ends with trunnions, said casing being provided with an opening to receive the roller and with notches at the sides of the opening through which the trunnions of the roller pass when the roller is inserted into and removed from the casing, flanges on the side walls of the casing adapted for engagement by said trunnions, and a wear-plate removably fitted within said casing and having a part so disposed relatively to said notches as to prevent the trunnions from passing through the notches when the wear-plate is in place.

5. In a roller bearing, a chambered casing, a roller removably mounted therein provided at its ends with trunnions, said casing being provided with an opening through which the roller passes when inserted into and removed from the casing, flanges on the side walls of the casing on which the trunnions are adapted to rest and roll, a wear-plate adapted to be inserted endwise into said casing through said opening and to be located between the roller and the wall of the casing opposite to said opening and arranged to confine the roller in the casing, and means for locking said wear-plate in place.

6. In a roller bearing, an integral casing provided with an elongated roller chamber having a top wall, a roller removably mounted in said chamber and provided with trunnions, tracks on the side walls of the casing on which said trunnions are adapted to rest and roll, said roller having vertical movement relatively to said tracks, and a wear-plate removably fitted in said chamber between said roller and top wall, and bearing upwardly against a downwardly facing part of the casing, said plate being arranged to confine said roller in said chamber.

7. In a roller bearing, a casing provided with an elongated roller chamber having a top wall and open at its lower side, a roller removably mounted in the chamber and projecting through said open side of the chamber, tracks on the side walls of the casing, said roller being provided with trunnions adapted to rest and roll on said tracks and having vertical movement relatively to the tracks, said tracks being provided with notches through which said trunnions pass when the roller is inserted into and removed from the chamber, and a wear-plate removably fitted within said chamber between the roller and said top wall and arranged to prevent passage of the trunnions through said notches when the wear-plate is in place.

8. In a roller bearing, a casing provided

with an elongated roller chamber open at one side of the casing, a roller removably mounted in said chamber and projecting through the open side thereof, and provided at its ends with trunnions, flanges on the side walls of the casing adapted for engagement by said trunnions, and a wear-plate fitted in said casing and provided with curved ends to constitute stops for the roller, said plate being arranged to confine said roller in said chamber.

9. In a roller bearing, a casing provided with an elongated roller chamber open at one side, a roller removably mounted in the chamber, provided with end trunnions, and projecting through said open side of the chamber, flanges on the side walls of the casing adapted for engagement by said trunnions and provided, near one end of the casing, with notches through which said trunnions pass when the roller is inserted into and removed from the chamber, and a wear-plate removably fitted within the casing, the ends of which are curved toward the side opening of the chamber to constitute stops for the roller, said curved ends of the plate being so disposed relatively to said notches as to confine the roller in said chamber.

10. In a roller bearing, a casing formed to provide an elongated roller chamber open at one side, a roller therein, provided with trunnions, and extending through said open side of the chamber for contact with a bearing exterior to the casing, and a wear-plate within the chamber between the roller and the wall of the casing opposite to said opening of the casing and curved at its ends to form end stops for the roller, the latter wall being provided with an opening and the intermediate part of said wear-plate occupying said latter opening.

11. In a roller bearing, a casing formed to provide an elongated roller chamber open at one side, a roller therein, provided with trunnions, and extending through said open side of the chamber for contact with a bearing exterior to the casing, and a wear-plate within the chamber between the roller and the wall of the casing opposite to said opening of the casing, and curved at its ends to form end stops for the roller, the latter wall being provided with an opening and the intermediate part of said wear-plate occupying said latter opening, said plate being arranged to confine said roller in said chamber.

12. In a roller bearing, a casing formed to provide an elongated roller chamber open at one side, a roller therein, provided with trunnions, and extending through said open side of the chamber for contact with a bearing exterior to the casing, and a wear-plate within the chamber between the roller and the wall of the casing opposite to said opening of the casing, the latter wall being provided with an opening extending vertically therethrough

and the intermediate part of said wear-plate occupying said latter opening with its outer face flush with the outer face of said latter wall.

5 13. In a roller bearing, a casing provided with an elongated roller chamber open at its lower side, a roller removably mounted in said chamber and provided with trunnions, the casing being provided at the sides of the
10 chamber with tracks engaged by said trunnions, said rollers having rolling movement longitudinally of the chamber and vertical movement relatively to said tracks, and a wear-plate adapted to be inserted into the
15 chamber through the lower open side thereof and arranged to confine said roller in said chamber.

14. In a roller bearing, a casing provided with an elongated roller chamber open at its
20 lower side, a roller removably mounted in

said chamber and provided with trunnions, the casing being provided at the sides of the chamber with tracks engaged by said trunnions, said roller having rolling movement longitudinally of the chamber and vertical 25 movement relatively to said tracks, a wear-plate adapted to be inserted into the chamber through the lower open side thereof and arranged to confine said roller in said chamber, and means for fixing the wear-plate 30 in place in said chamber.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 22nd day of January A. D. 1907.

JOHN JACOB.

Witnesses:

WILLIAM L. HALL,
GEORGE R. WILKINS.