

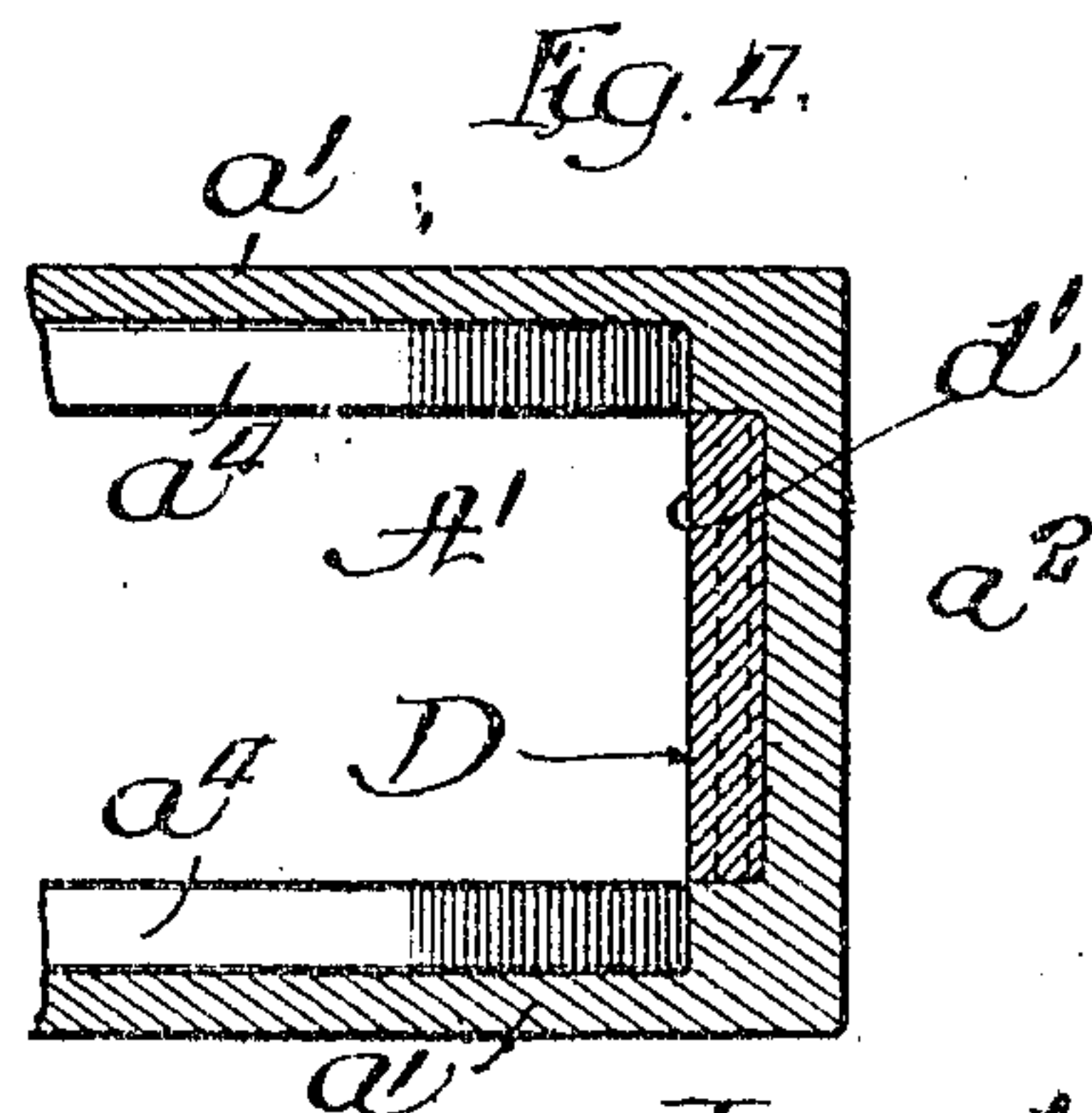
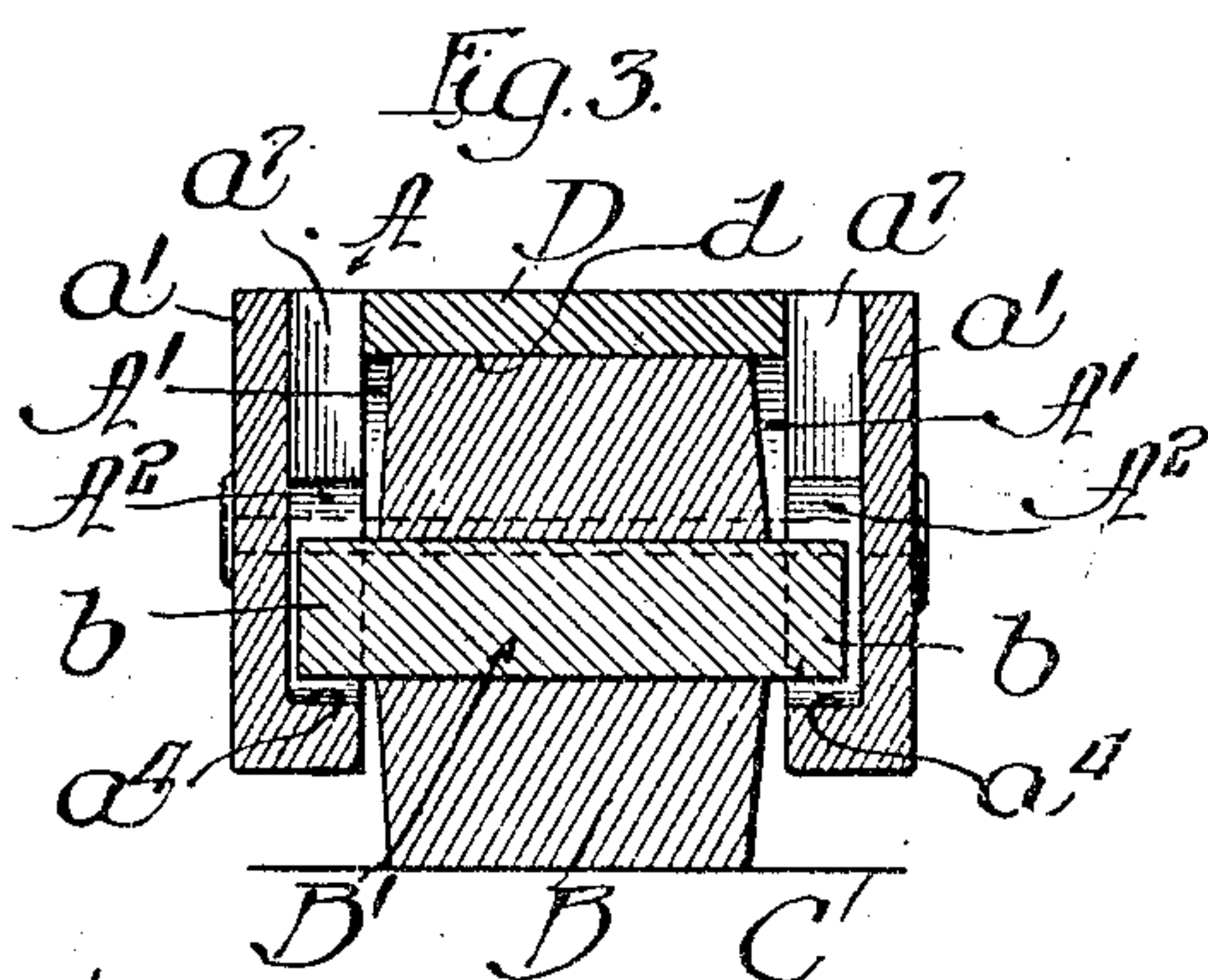
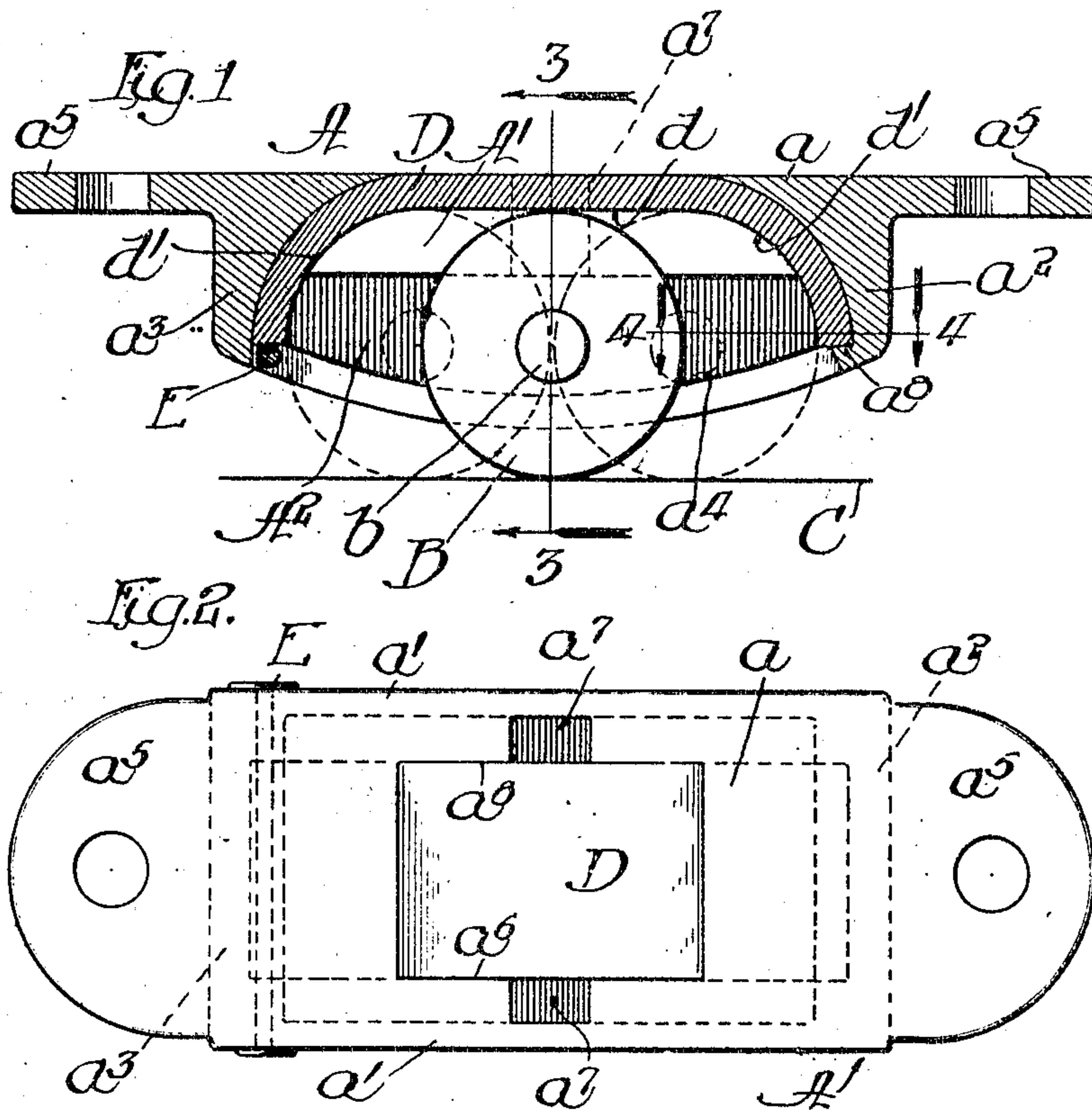
No. 871,410.

PATENTED NOV. 19, 1907.

J. JACOB.

ROLLER BEARING.

APPLICATION FILED FEB. 11, 1907.



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UNITED STATES PATENT OFFICE.

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ROLLER-BEARING.

No. 871,410.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed February 11, 1907. Serial No. 356,780.

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.

Among the objects of the invention are to simplify and improve the general construction of the bearing and to provide means for confining the roller in the bearing casing.

In the drawings:—Figure 1 is a longitudinal section of a roller bearing made in accordance with my invention. Fig. 2 is a plan view thereof. Fig. 3 is a cross-section, taken on line 3—3 of Fig. 1. Fig. 4 is a horizontal detail section taken on line 4—4 of Fig. 1.

My improvements are herein shown as applied to a roller side bearing for railway cars of that kind 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 bearings of the same general character for this and analogous uses.

As shown in the drawings, A designates, as a whole, the upper member of the type of bearing referred to, comprising a cast metal casing formed to provide an elongated roller chamber A¹ which opens downwardly.

B designates a cylindric bearing roller located in the chamber and adapted for rolling contact with a downwardly facing bearing surface at the top of the chamber and projecting through the lower open side of the chamber for contact with a lower bearing surface, indicated by the line C. Said casing comprises a top wall a, side walls a¹ a¹ and end walls a² a³. The side walls are formed

to provide on their inner faces horizontally elongated channels or recesses A² which receive the trunnions or end bearings b of the roller B. The bottom walls a⁴ 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 toward the longitudinal center of the casing to automatically center the roller in the casing when it is supported by the tracks and out of contact with the bearing surfaces, as is common in this type of bearing. The casing is provided at its opposite ends with apertured lugs a⁵ by which it is attached to the bolster or other part which carries the same.

The downwardly facing bearing surface at the top of the roller chamber comprises a 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 is shown in my co-pending application filed on the 11th day of February, 1907, Serial Number 356,779. Said removable wear-plate D comprises a central horizontal portion and downwardly curved end parts d¹ d¹ which are fitted against the complementally formed inner faces of the end walls a² a³ of the casing. Said curved end portions of the wear-plate constitute curved stops to arrest the travel of the roller in both directions in the same general manner as shown in my aforesaid application.

In accordance with my invention the roller is inserted into the roller chamber through a suitable opening formed to permit the insertion of the roller and the trunnions; and the wear-plate D is thereafter inserted in the casing between the 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 necessary to remove the wear-plate in order to remove the roller. In the construction of my aforesaid application the roller is inserted through the open side of the roller chamber through which the roller projects for contact with the lower bearing, the track flanges being notched to permit the trunnions to pass therethrough.

In the present application, the top wall of the casing is formed to provide a centrally located opening a⁶ of sufficient dimensions to permit the roller to be inserted into the cas-

ing therethrough. The track flanges at the lower margins of the side walls are, therefore, continuous or unbroken. The side walls of the casing above the trunnion recesses a^4 are provided with downwardly opening notches a^7, a^7 , as shown in Fig. 2, through which the trunnions pass when the roller is inserted into and removed from the casing. When the wear-plate is inserted into the casing, after the roller is in place, said roller is confined in the casing and cannot be removed until the wear-plate is withdrawn.

The manner of inserting the wear-plate into the casing and locking it therein is the same as that illustrated in my aforesaid application. That is to say, the said wear-plate is inserted into the casing through the lower open side thereof from one end of the casing after the roller has been located therein. The end wall a^2 of the casing opposite to the end into which the wear-plate is inserted is provided with a shoulder a^8 which serves as a stop for the adjacent end of the wear-plate. A locking device is provided for the other end of the wear-plate when necessary to hold the same in place. As herein shown, said locking device consists of a rivet or bolt E that extends transversely through the side walls of the casing just inside the end wall a^3 and across the adjacent end face of the wear-plate.

The horizontal part of the wear-plate is arranged within the opening of the top wall of the casing and the upper face of said wear-plate is flush with the upper face of said top wall. 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 bearing is attached, thereby constituting a backing or support for the central part of the wear-plate.

When the wear-plate is in place it will be seen that it constitutes means located between the top wall of the casing and the roller for confining the roller in the casing, and that it is necessary to remove the wear-plate before the roller can be removed. It will be furthermore noted that the wear-plate is contained within and constitutes a part of the upper member of the bearing and does not project above the upper face of said upper member. This construction admits of the bearing casing, as a whole, being made of substantially less height/over all than in bearings where the upper bearing surface is formed on a part that constitutes in effect the top wall of an open topped casing.

As a further separate improvement, the trunnions of the roller are formed by the ends of a shaft B^1 about which the body of the roller is cast. The shaft, preferably made of steel, is of the length required to extend across the roller chamber and engage the tracks thereof, while the main body of the roller is made of cast-metal, properly chilled,

and is cast about said shaft as stated. This construction possesses the important advantage that the bearing trunnions may be made of much smaller diameter than is practical or safe to make them when cast integral with the roller. This feature of the construction contributes also to the result of enabling the height over all of the bearing to be materially reduced. Moreover, the end bearings or trunnions thus formed are considerably stronger than bearings of like diameter cast integral with the body of the roller.

I claim as my invention:—

1. 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 removably fitted within the chamber between the roller and the wall of the casing opposite to said opening, said latter wall being provided with an opening through which the roller is inserted into the chamber at a time when the wear-plate is removed from the chamber, whereby said wear-plate, when in place, confines the roller in the chamber.

2. 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 removably fitted within the chamber between the roller and the wall of the casing opposite to said opening of the casing, said latter wall being provided with an opening through which the roller is inserted into the chamber at a time when the wear-plate is removed from the chamber, whereby said wear-plate, when in place, confines the roller in the chamber, the intermediate part of said wear-plate occupying said latter opening.

3. 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 removably fitted within the chamber between the roller and the wall of the casing opposite to said opening and curved at its ends towards said opening to constitute stops at the end of the chamber for said roller, said latter wall being provided with an opening through which the roller is inserted into the chamber at a time when the wear-plate is removed from the chamber, whereby said wear-plate, when in place, confines the roller in the chamber.

4. 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 removably fitted within the chamber between the roller and the wall of the casing opposite to said opening, said latter wall being provided with an opening through which the roller is inserted into the chamber at a time when the wear-plate is removed from the chamber, whereby said wear-plate, when in place, confines the roller in the chamber, and means for removably locking the wear-plate in the casing.

5. In a roller bearing, a casing formed to provide a downwardly opening, horizontal, elongated roller chamber, a roller therein projecting through the lower open side thereof and provided at its ends 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 the tracks and a wear-plate removably fitted within the chamber between the top wall thereof and the roller, said top wall being provided with an opening through which the roller is inserted into and removed from the chamber, and the wear-plate constituting means for confining the roller in said chamber.

6. In a roller bearing, a casing formed to provide a downwardly opening, horizontal, elongated roller chamber, a roller therein projecting through the lower open side thereof and provided at its ends 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 the tracks and a wear-plate removably fitted within the chamber between the top wall thereof and the roller and turned downwardly at the ends of the chamber to constitute stops to limit the travel of the roller, said top wall being provided with an opening through which the roller is inserted and removed from the chamber, and the wear-plate constituting means for confining the roller in said chamber.

7. In a roller bearing, a casing formed to provide a downwardly opening, horizontal, elongated roller chamber, a roller therein projecting through the lower open side thereof and provided at its ends 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 the tracks, a wear-plate removably fitted within the chamber between the top wall thereof and the roller, and means for removably locking said wear-plate within said chamber, said top wall being provided with an opening through which the roller is inserted into and removed from the chamber, and the wear-plate constituting means for confining the roller in said chamber.

8. In a roller bearing, a casing formed to

provide a downwardly opening, horizontal, elongated roller chamber, a roller therein projecting through the lower open side thereof and provided at its ends 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 the tracks, and a wear-plate removably fitted within the chamber between the top wall thereof and the roller and turned downwardly at the ends of the chamber to constitute stops to limit the travel of the roller, said top wall being provided with an opening through which the roller is inserted and removed from the chamber, the central or intermediate portion of the wear-plate occupying the opening in said top wall with its upper face flush with the upper face of said wall.

9. 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 removably fitted within the chamber between the roller and the wall of the casing opposite to said opening and adapted for insertion into said chamber through the said opening, said latter wall being provided with an opening through which the roller is inserted into the chamber at a time when the wear-plate is removed from the chamber, whereby said wear-plate, when in place, confines the roller in the chamber.

10. In a roller bearing, a casing formed to provide an elongated roller chamber open at its lower side, a roller therein provided with trunnions and extending through said lower open side of the chamber for contact with a bearing exterior to the casing and a wear-plate removably fitted within the chamber between said roller and the top wall of the casing and curved at its ends to form end stops for the roller, said top wall being provided with an opening through which the roller is inserted into the casing at a time when the wear-plate is removed from the chamber, whereby said wear-plate when in place confines said roller in the chamber, the intermediate part of said wear-plate occupying the opening in said top wall with its upper face flush with the upper face of said wall.

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 removably fitted within the chamber between the roller and the wall of the casing opposite to said opening, said latter wall being provided with an opening through which the roller is inserted into the chamber at a time

when the wear plate is removed from the chamber, and the casing being provided in its side walls at the sides of said opening which receives the roller when inserted into the casing with notches through which the trunnions pass when the roller is inserted into and removed from the casing, the construction being such that the wear plate confines the roller in the chamber.

10 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
15 exterior to the casing, and a wear plate removably fitted within the chamber between the roller and the wall of the casing opposite

said opening, said casing being provided with an opening through which the roller is inserted in the chamber at a time when the wear plate is removed from the chamber, and the wear plate being arranged when in place to confine the roller in the chamber, and locking means engaging the ends of the wear plate for locking said wear plate in place. 20 25

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.