

No. 607,790.

Patented July 19, 1898.

J. C. REBER.
ANTIFRICTION BEARING.

(Application filed Oct. 1, 1897.)

(No Model.)

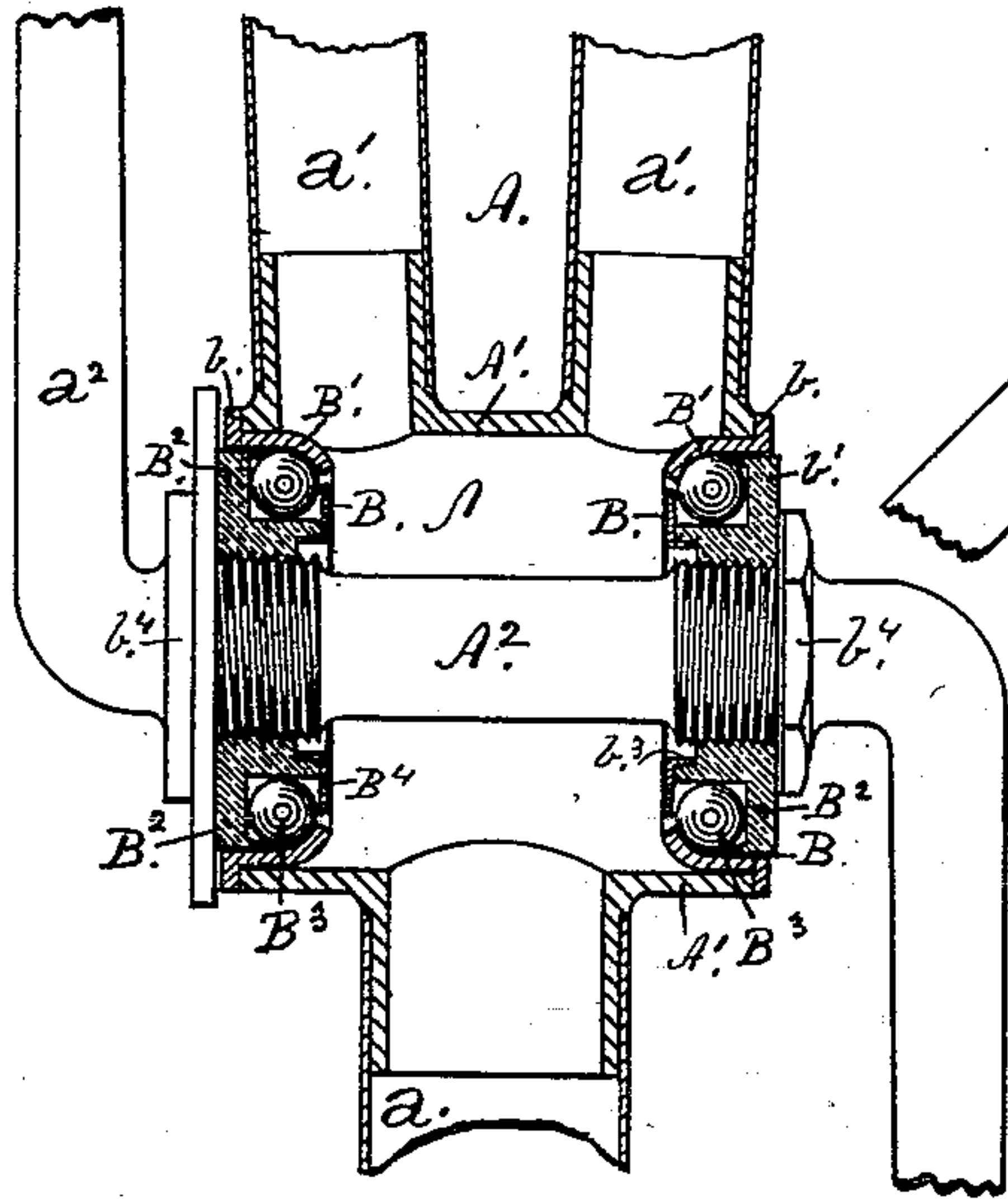


Fig. 1.

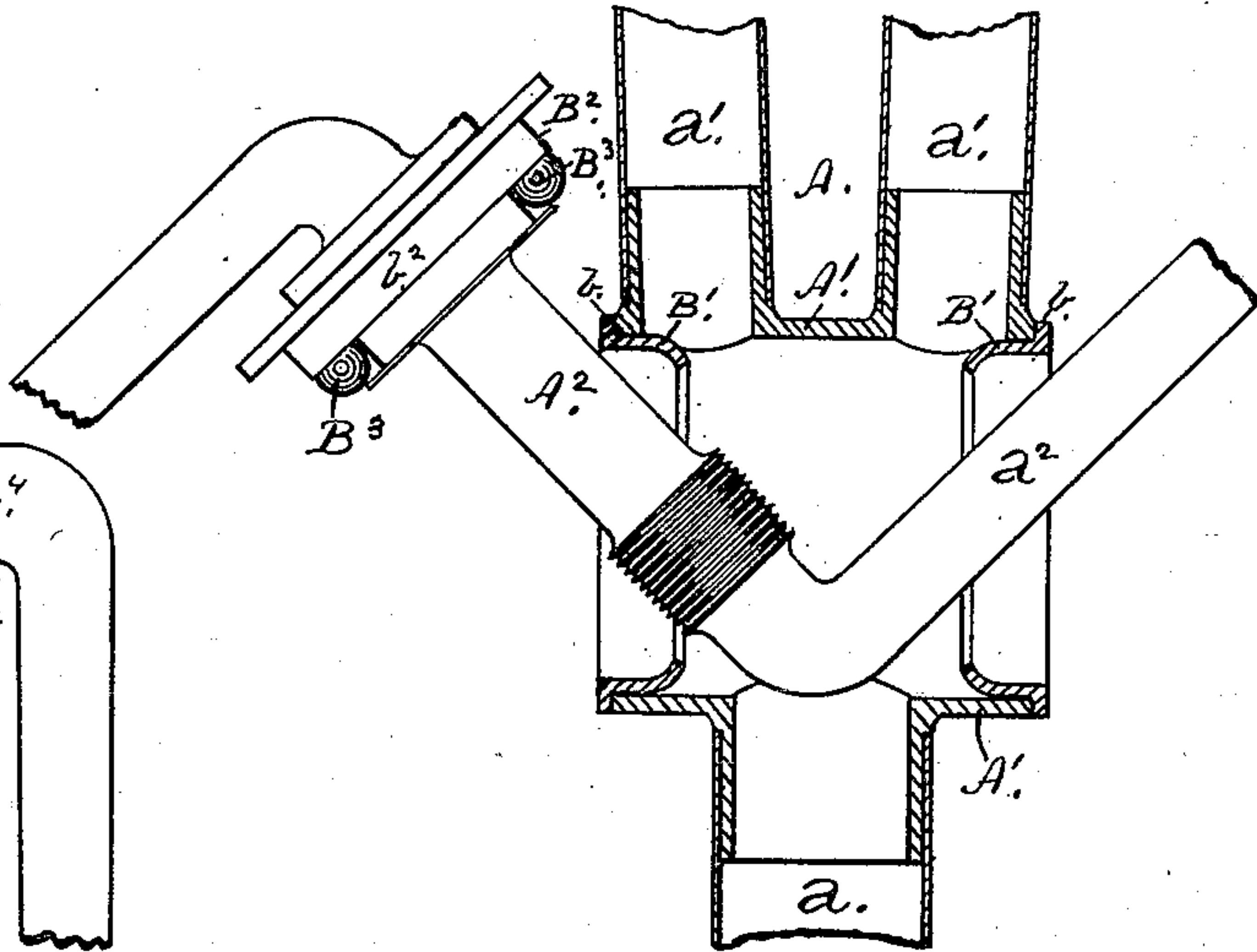


Fig. 2.

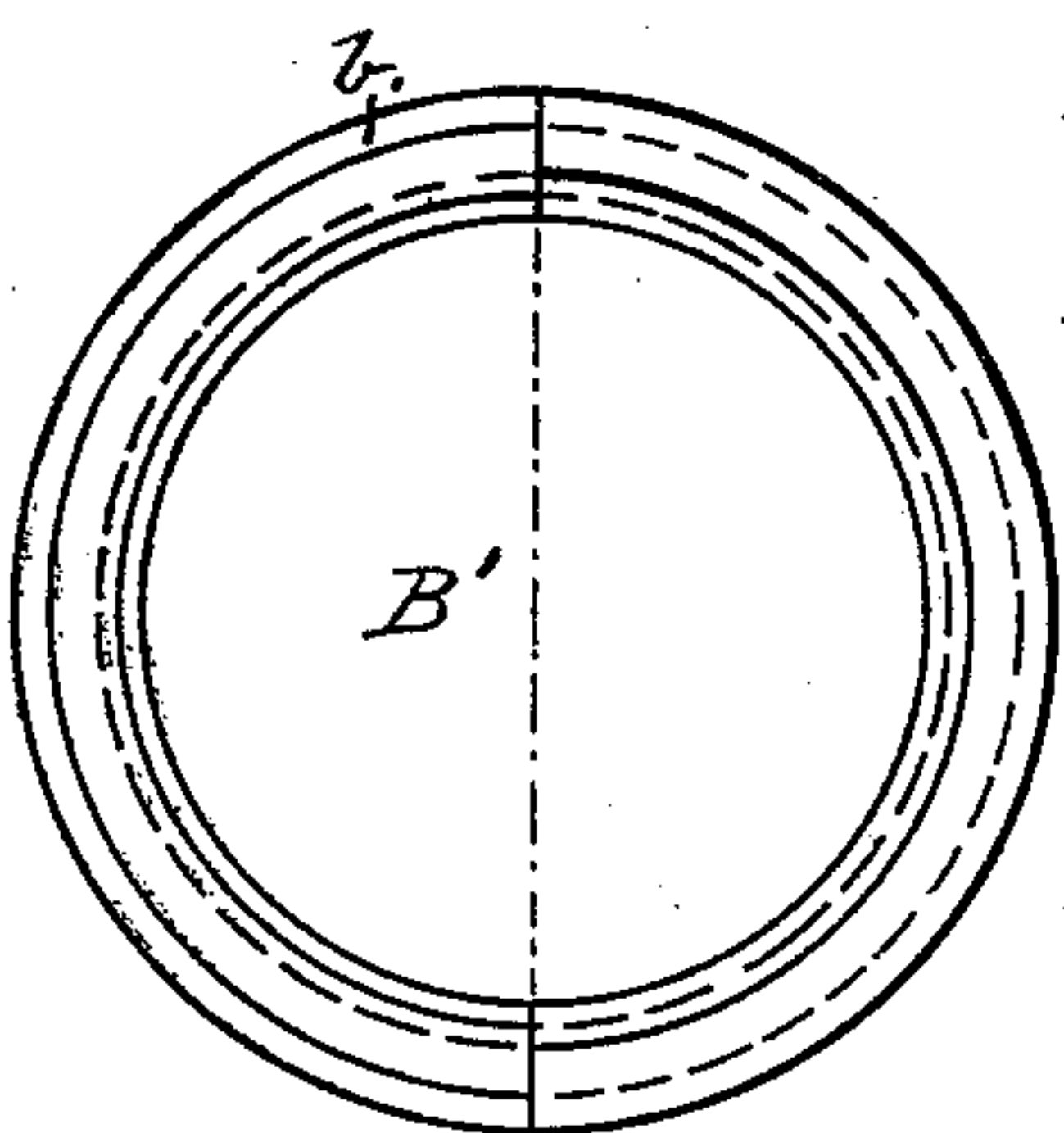


Fig. 4.

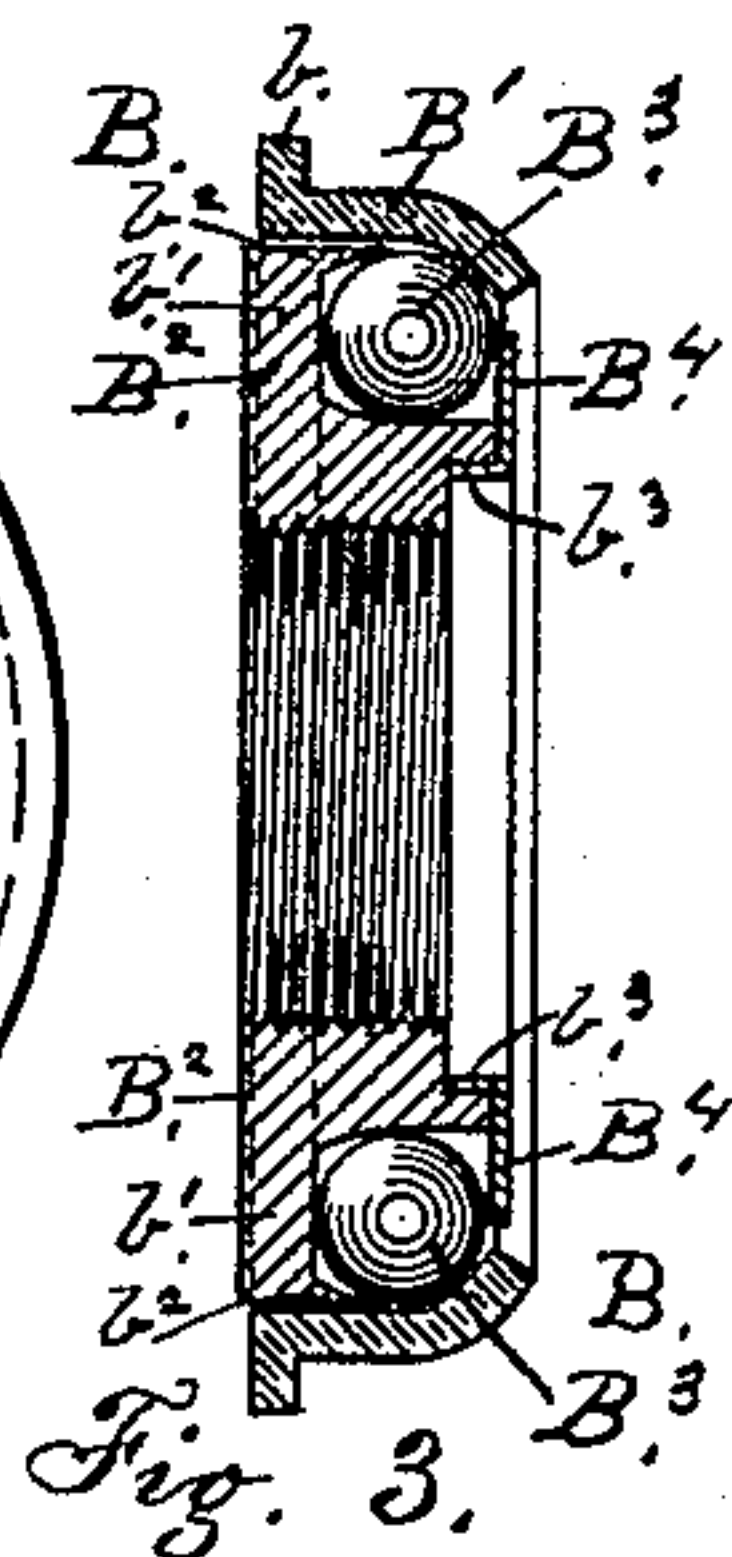


Fig. 3.

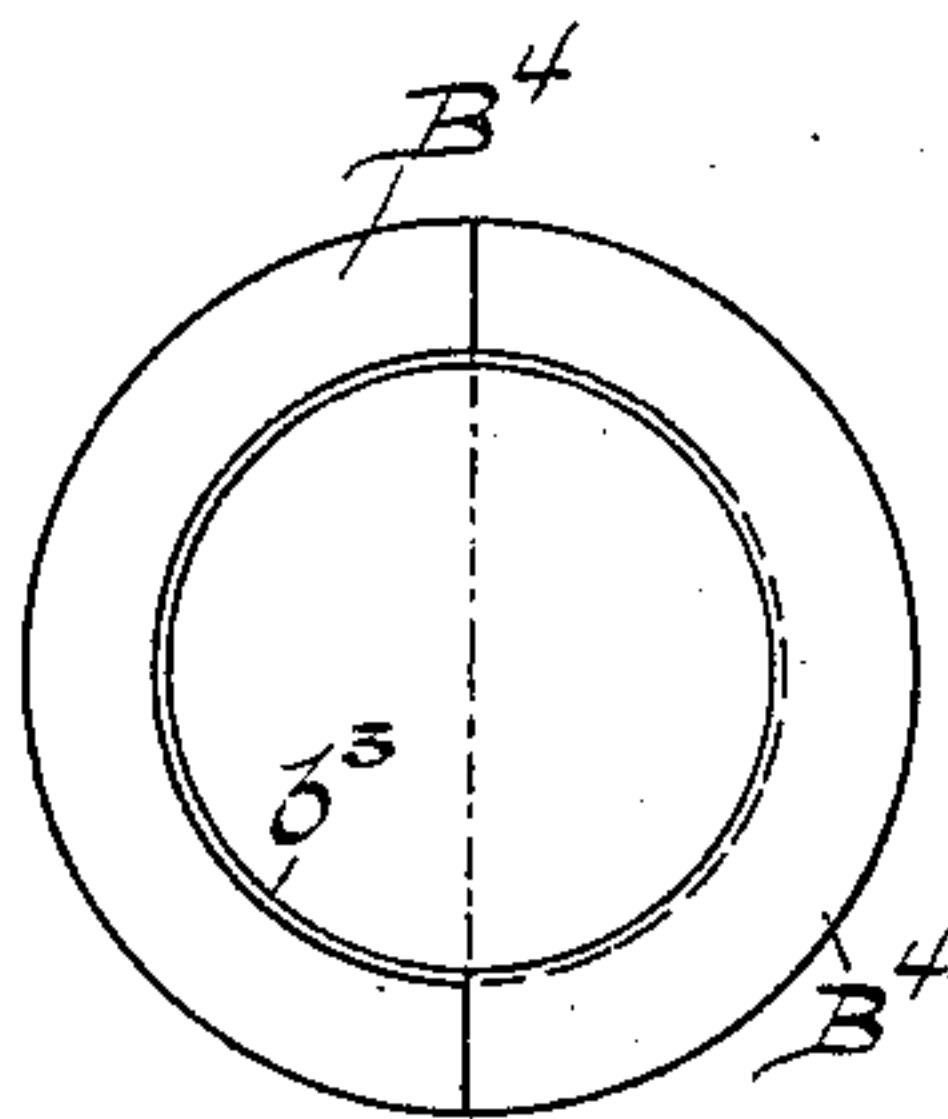


Fig. 5.

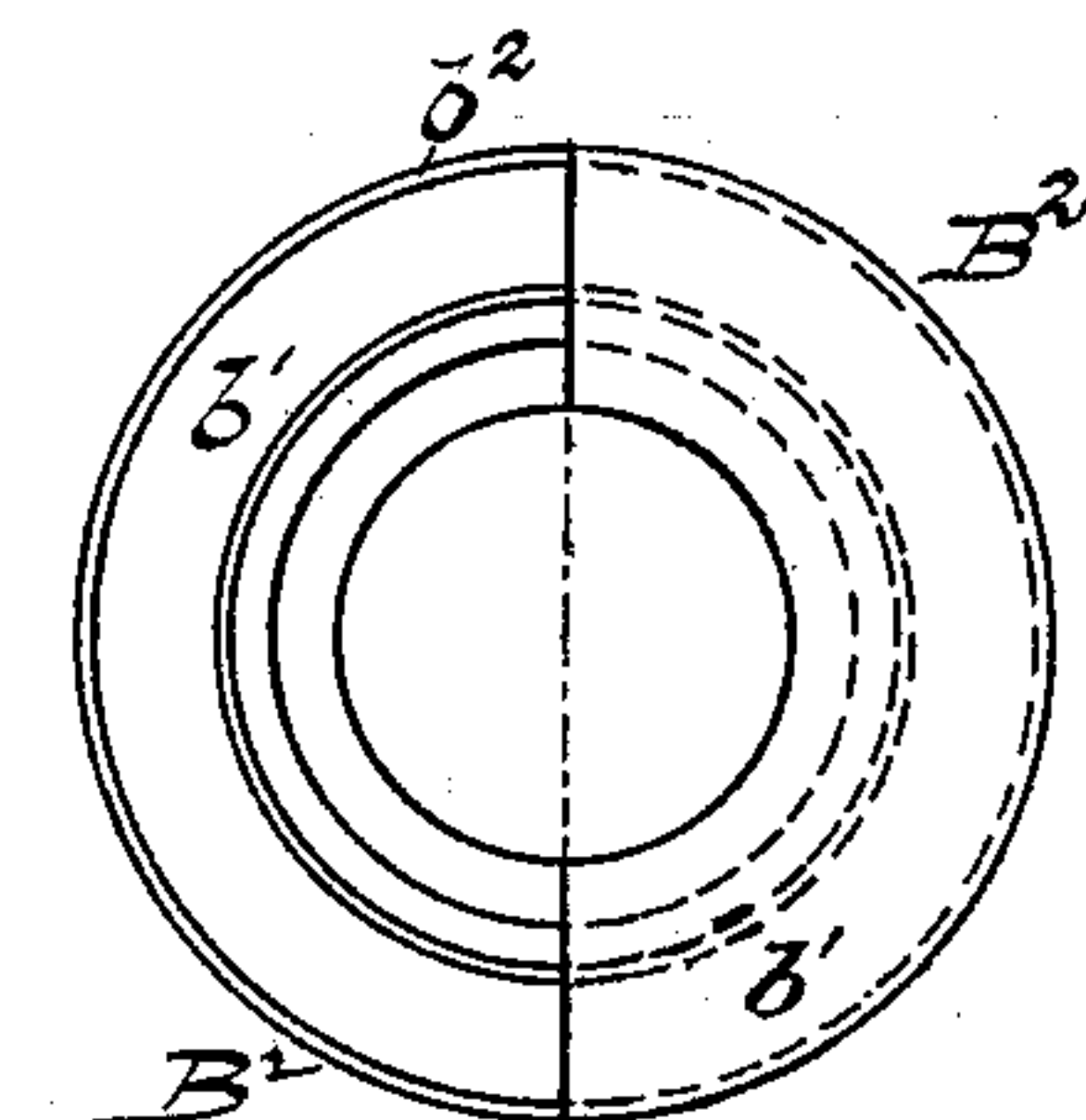


Fig. 6.

Witnesses:

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ANTIFRICTION-BEARING.

SPECIFICATION forming part of Letters Patent No. 607,790, dated July 19, 1898.

Application filed October 1, 1897. Serial No. 653,765. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. REBER, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Antifriction-Bearings Used in Bicycle Construction; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in a bicycle or velocipede crank-hanger of that class in which a crank-shaft with integral crank-arms and pedal ends is mounted and rotatably secured in place by specially formed or constructed antifriction-bearings.

The object of the invention is the construction of a hanger that will permit the placing therein or the removal therefrom of such a shaft with integral crank-arms and pedal ends without first unscrewing parts from the ends of and without opening a slot or space lengthwise in the tube or sleeve of said hanger.

The elements of the invention will severally and at large appear in the following description, and they will be separately and collectively set forth in the claim.

The purposes of the invention are attained by the mechanism and devices illustrated in the accompanying drawing, similar reference characters designating like parts throughout the several views, in which—

Figure 1 is a sectional view of a hanger embodying the elements of the invention, showing the shaft with portions of integral crank-arms in place. Fig. 2 is a similar view of said hanger, showing progress in the introduction or in the removal of said shaft. Fig. 3 is an enlarged sectional view of the bearing detached from the left-hand end of Fig. 1, and Figs. 4, 5, and 6 are detail plans showing halves of elements detached from Fig. 3.

The hanger A of the invention is practically the same as that well known in bicycle construction, comprising a tube or sleeve A', secured in the usual way into the ends of tubes $a\ a'\ a'$ of the frame, but the diameter of the tube A' is measurably increased to meet the purposes of the invention.

The shaft A², here shown with the integral crank-arms $a^2\ a^2$, is similar to that illustrated

in Patent No. 492,959, dated March 7, 1893, and issued to William H. Fauber for a velocipede, and constitutes no part of this invention, but is illustrated in connection therewith to show how it may be inserted into or removed from the hanger without unscrewing or again screwing any part thereof and without opening and again closing the side of the tube of said hanger, as shown in said patent.

The antifriction-bearings B of the invention comprises a ball-race B', shaped as shown, which is inserted into the ends of the tube A', while an outwardly-projecting ring-flange b , resting against the edge of said tube, serves to hold said race in place, keeping it from entering farther into the tube. Onto the shaft A² is screwed a cone B², having at its outer end a prescribed ring-flange b' , provided with an inwardly-extending peripheral wall b^2 , inside of which is located a ball-race, into which are placed the required number of balls B³, and around the center, at the inner end of the cone, is formed an annular recess, into which is placed a tubular projection b^3 from an outwardly-projecting ring-flange B⁴, extending a prescribed distance over the balls, or to about the center thereof, constituting the ball-retainer of the invention, and serving to keep the balls in place when the cone is removed for any purpose whatever, while the ball-race B' aforementioned serves to complete the bearing. Of course the central aperture of the cone must be sufficiently large to allow the cone to pass freely over the angles where the shaft and crank-arms are joined. It will here be observed that one bearing is applied to each end of the tube A', their cones being secured in place by jam or lock nuts b^4 .

Now an inspection of Fig. 2 of the drawings, a cone having been removed from the shaft, clearly shows that said shaft may be readily removed from or inserted into the hanger without disturbing the ball-race in the tube or dropping the balls from the cones.

Having now described the invention and fully set forth the manner in which it is performed, what I consider as new, and desire to secure by Letters Patent, is—

The combination of an axle or shaft having integral cranks, a sleeve or hub, ball-races fitting in the ends thereof, cones engaging

the axle and each having a recess in its inner end producing an enlargement of its bore, balls between the races and cones, and ball-retainers fitting against the inner ends of the 5 cones respectively, and each having a central flange fitting the recess of the cone, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES C. REBER.

Witnesses:

FRED STEPHAN,

JOSEPH WAGNER.