

(No Model.)

J. M. KNAUS.
AXLE BOX.

No. 437,122.

Patented Sept. 23, 1890.

Fig 1.

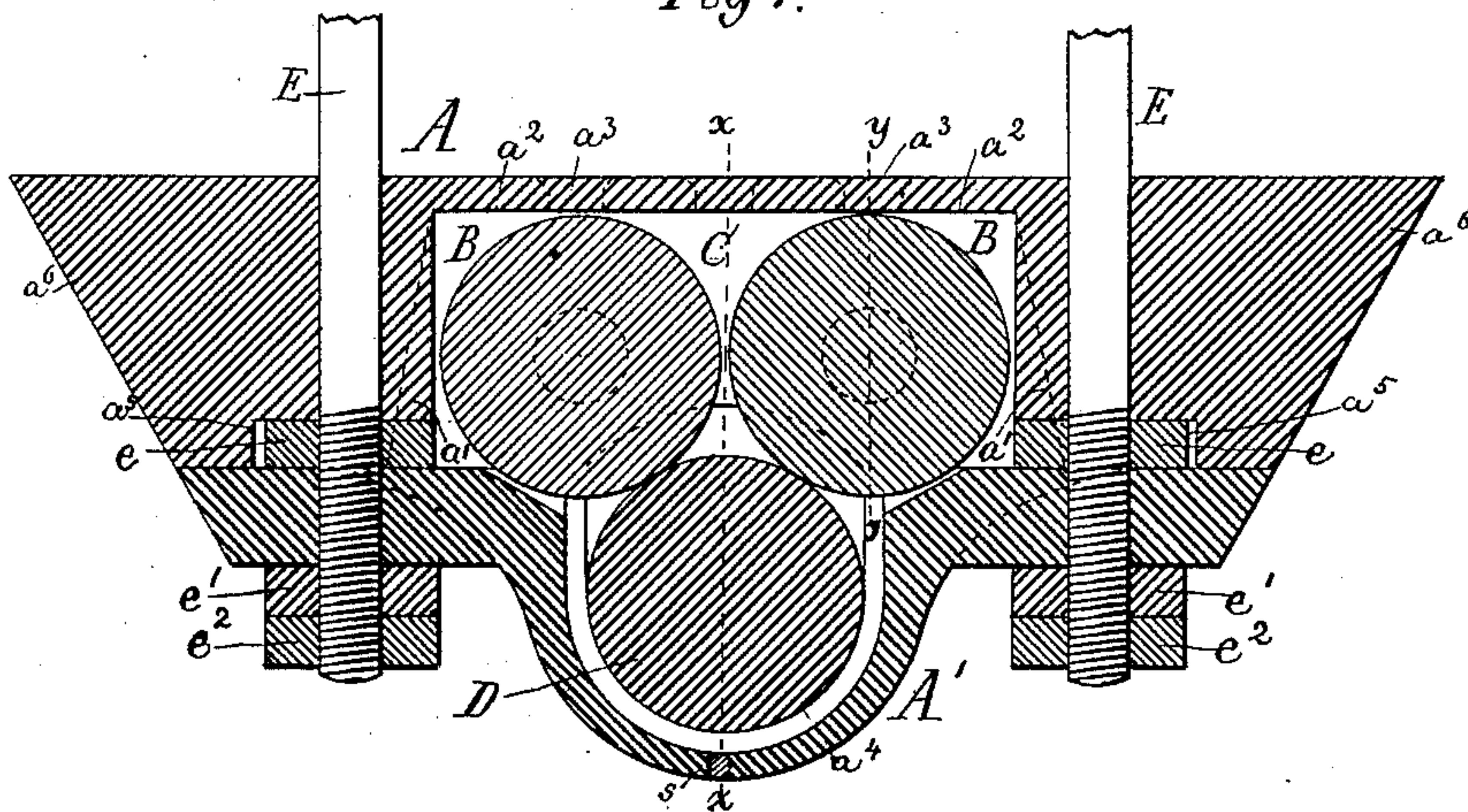


Fig 2.

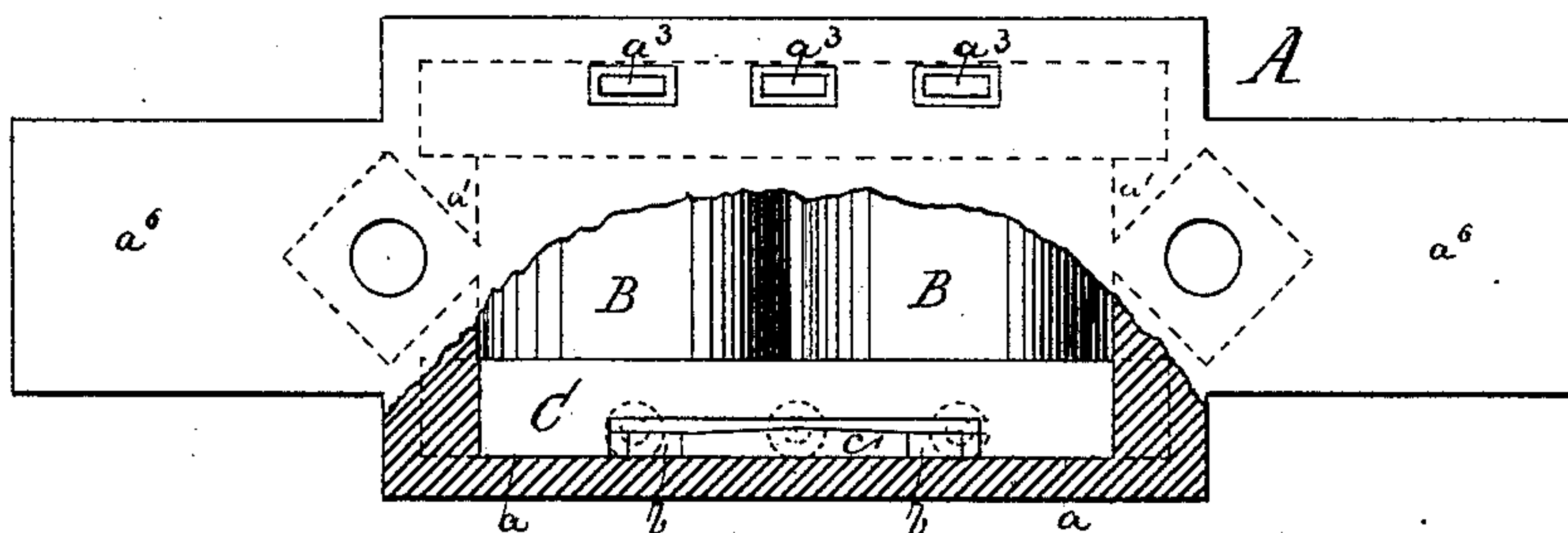


Fig 3.

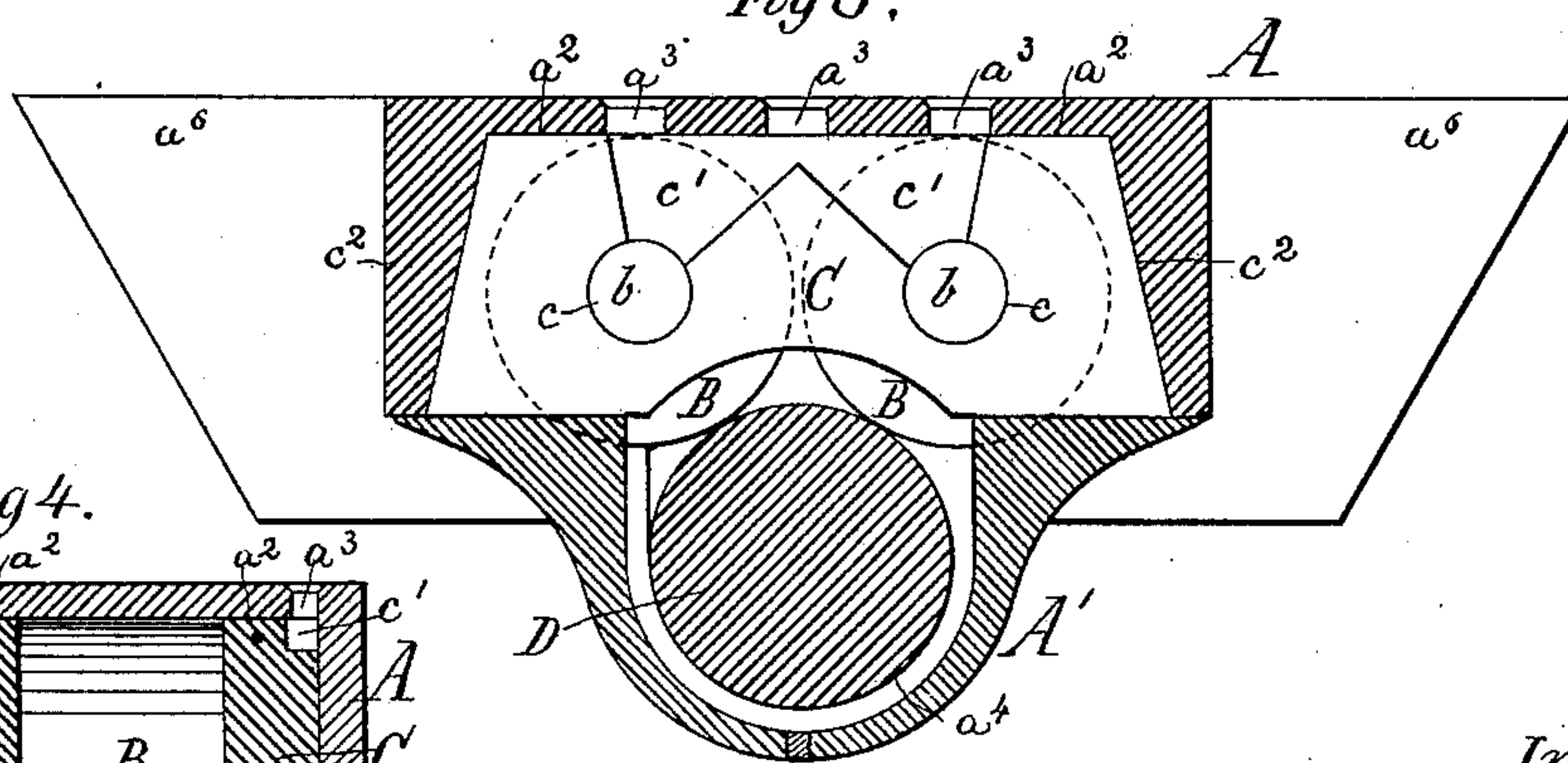


Fig 4.

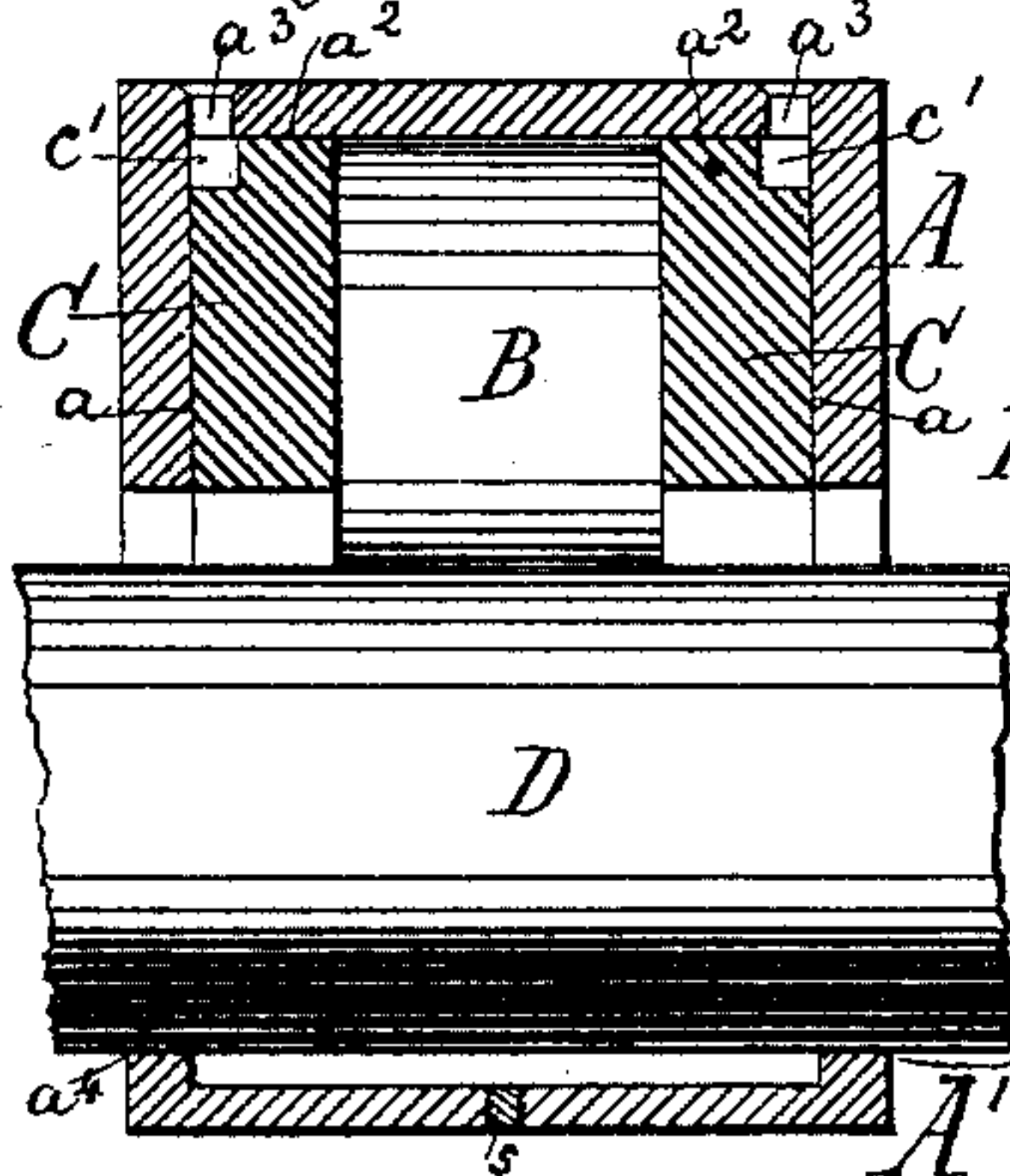
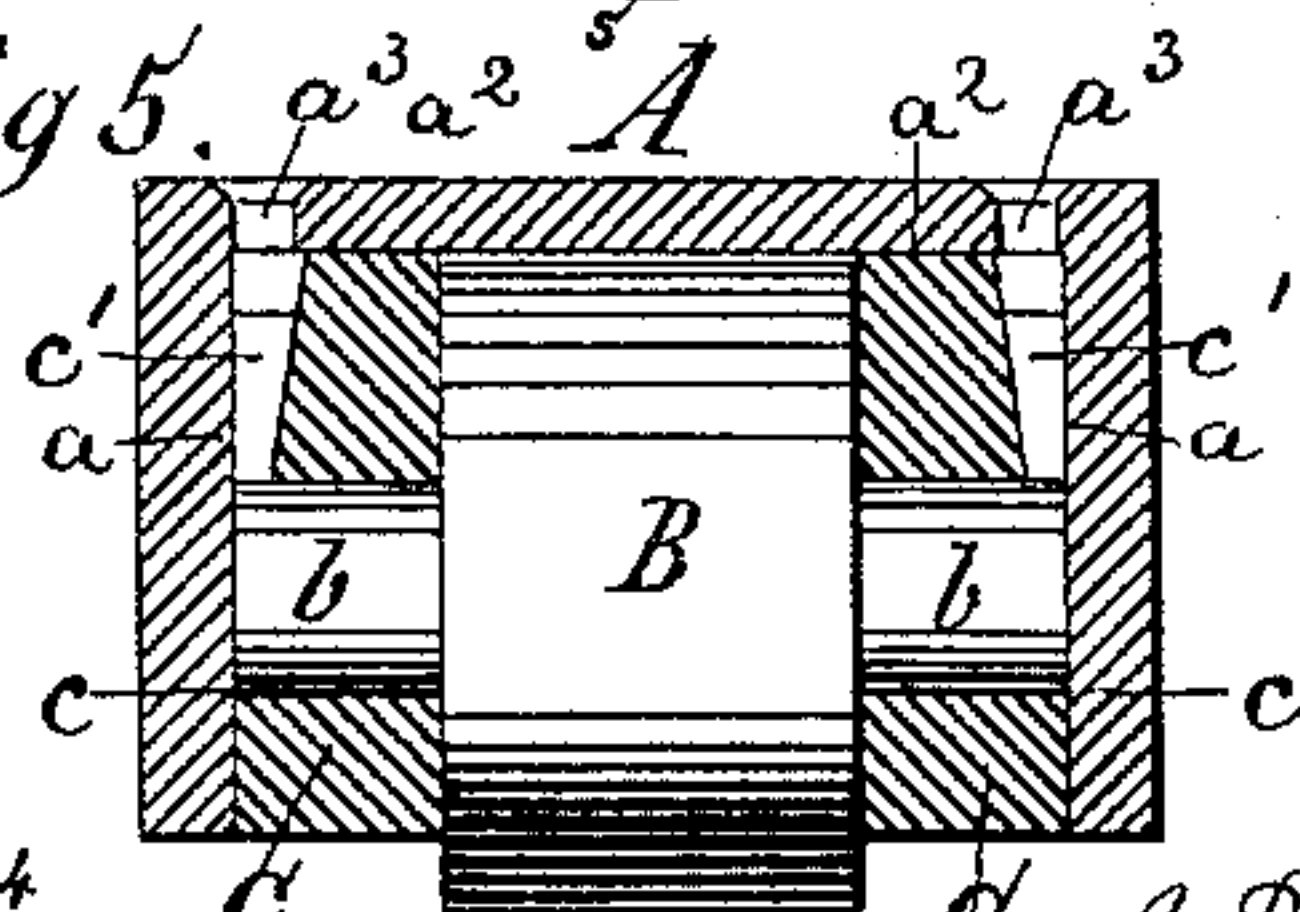


Fig 5.



Witnesses:

Inventor:
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by his attys
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UNITED STATES PATENT OFFICE.

JAMES M. KNAUS, OF SEDALIA, MISSOURI.

AXLE-BOX.

SPECIFICATION forming part of Letters Patent No. 437,122, dated September 23, 1890.

Application filed July 17, 1890. Serial No. 359,010. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. KNAUS, a citizen of the United States, residing at Sedalia, in the county of Pettis and State of Missouri, have invented certain new and useful Improvements in Bearing-Boxes for Hand-Car and Velocipede Axles; 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.

My invention relates to bearing-boxes with anti-friction rollers for a car or velocipede axle; and it consists in certain novel constructions, combinations, and arrangements of parts, hereinafter fully described and specifically claimed, whereby a box for a car or velocipede axle of novel and improved construction and great durability is produced, the same keeping the axle and its anti-friction rollers perfectly lubricated, and being especially adapted for hand-cars and velocipedes, and when repairs are necessary admitting of the same being conveniently done.

In the accompanying drawings, Figure 1 is a central vertical longitudinal section of my improved box for a car or velocipede axle. Fig. 2 is a top view of the same representing a portion of the metal of the outer casing broken away in order to expose portions of the interior construction. Fig. 3 is a vertical section of the outer casing and an axle and a side view of the bearing for the friction-rollers, which rollers and their journals are shown in end elevation. Fig. 4 is a broken transverse vertical section in the line $x x$ of Fig. 1. Fig. 5 is a transverse vertical section in the line $y y$ of Fig. 1.

The letter A in the drawings represents the upper part of the outer casing of the bearing-box, and A' the lower part or cap thereof.

B are anti-friction rollers, and C removable bearing-blocks for the journals of said rollers, and D a hand-car or velocipede-axle. The anti-friction rollers B are arranged horizontally in line with each other and bear upon the axle D, and they have journals b , which are fitted into journal-bearing recesses c , formed in the blocks C, and said journals are held in place by said blocks, and the bearing-blocks C are held against the inner side surfaces a of the upper part A of the casing

of the bearing-box by means of two central lugs a' , and they are vertically secured by being held between the inner top surface a^2 of the part A and the top surface of the lower part A' of said box, as seen in the drawings. The top part A is provided with oil-holes a^3 , arranged nearly in line with the side surfaces a^2 below, and adjoining the said oil-holes oilways c' , preferably flaring, are provided in the sides of the bearing-blocks C, which lead the oil between the bearing-blocks and side surfaces a down to the journals b of the anti-friction rollers B. The lubricating-oil is thus caused freely to descend to the journals b , while at the same time it can accumulate in the oilways in such quantities as to last for long journeys. The lower part A' of the box incloses the lower portion of the axle D and holds it in contact with the anti-friction rollers B. Its inner surface is depressed around the axle D to such an extent as to leave a narrow bearing a^4 at either side. Into this depression the oil which is not retained by the moving parts descends, from whence it may escape through the small opening s in the bottom of the part A'. The said escape-opening may be plugged, if desired. The parts A A' are united by two bolts E, which in practice are passed through the upper part A and the car-frame, which rests upon it. These bolts are provided with nuts e , sunk into recesses a^5 in the under surface of the part A, and with nuts e' e^2 on their lower ends, the nuts e holding the part A permanently to the car-frame, and the nuts e' e^2 holding the parts A A' together, and thus the lower part A' can be removed without disturbing part A. In order to facilitate the insertion into the box A of the bearing-blocks C, they may be provided with beveled end surfaces c^2 , and similar matching surfaces may be formed on the part A of the box. By this means jamming and other inconveniences experienced with vertical end surfaces during the insertion and withdrawal of the blocks will be avoided. The end portions a^6 of the part A are made of the same width as the bars of the car-frame, to which part A is fastened, while the middle or chambered portion containing the journal-bearings and anti-friction rollers is made broader and extends in both directions beyond the bar to which it is con-

nected, and by this construction the oil-holes can be placed in the top of the part A, and the necessity of drilling them through the car-floor and frame is avoided.

5 With my improved axle-bearing box a hand-car or velocipede can be started with the slightest power, and in its propulsion much less friction than usual will be experienced.

What I claim as my invention is—

10 1. The hand-car or velocipede axle-box comprising, in combination, a lower part A' and an upper part A, the two parts forming a general oil-chamber, and the part A having oil-supply passages in its top on both sides of
15 the longitudinal center thereof, journal-bearing blocks C, having oilways in their outer faces and in communication with the general oil-chamber, friction-rollers B, and bolts E, provided with nuts *e*, fitting in recesses *a*⁵ of
20 the part A, and nuts *e'*, outside the box, all substantially as described.

2. The two-part axle-box provided with friction-rollers and journal-bearings for said rollers, said bearings having oilways in their outer faces, and the upper part of said box 25 being provided with passages for supplying oil to the axles and rollers and also directly to the journals of the rollers, substantially as described.

3. The combination of the downwardly-re- 30 movable journal-bearing blocks C, formed with beveled surfaces *c*², with the two-part bearing-box A A', the part A' being formed with matching beveled surfaces, substantially as described. 35

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

JAMES M. KNAUS.

Witnesses:

J. C. VAN RIPER,
S. E. MURRAY.