

No. 834,771.

PATENTED OCT. 30, 1906.

J. STUART.
CAR WHEEL.

APPLICATION FILED MAY 19, 1906.

2 SHEETS—SHEET 1.

Fig. 2.

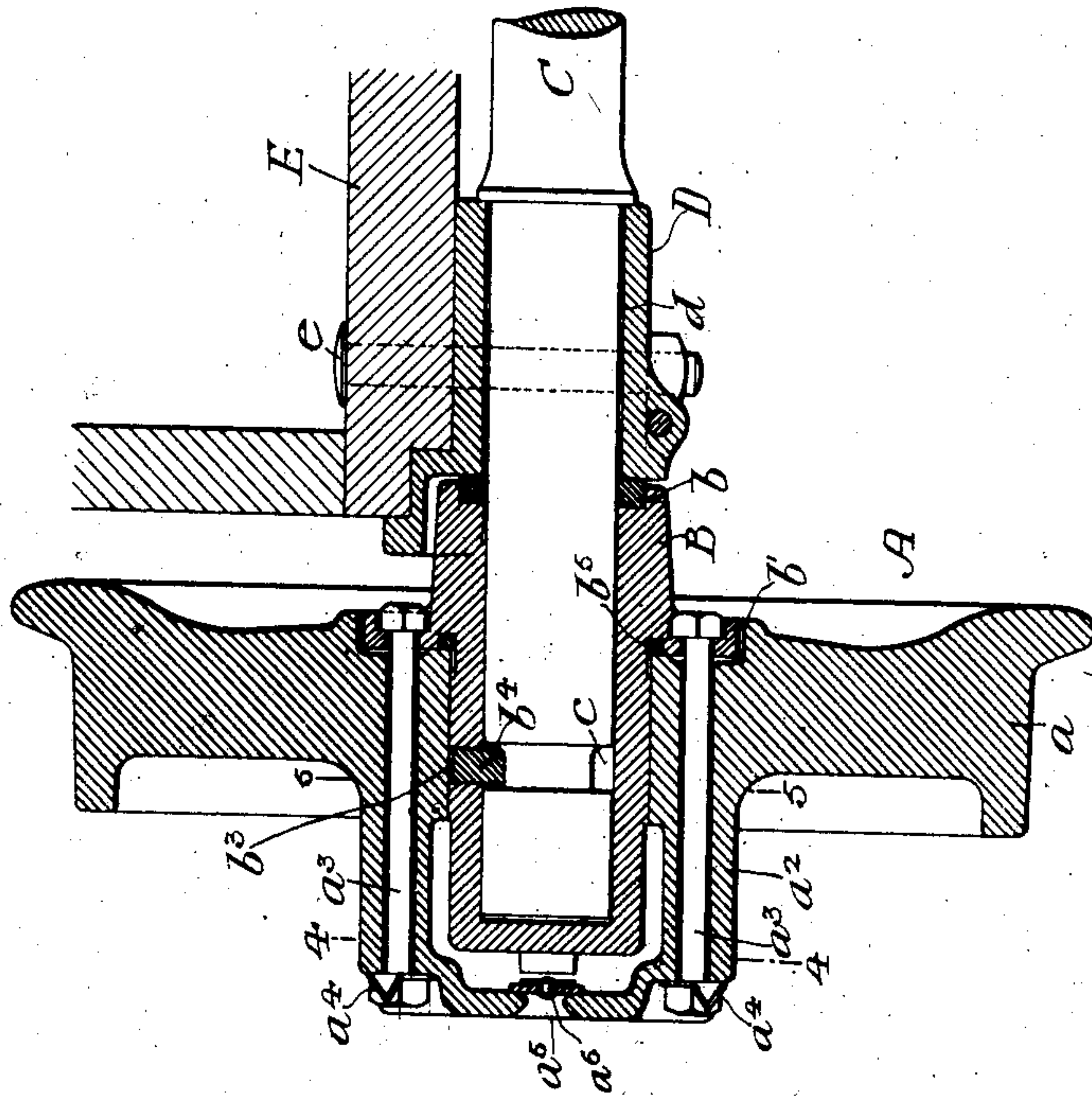
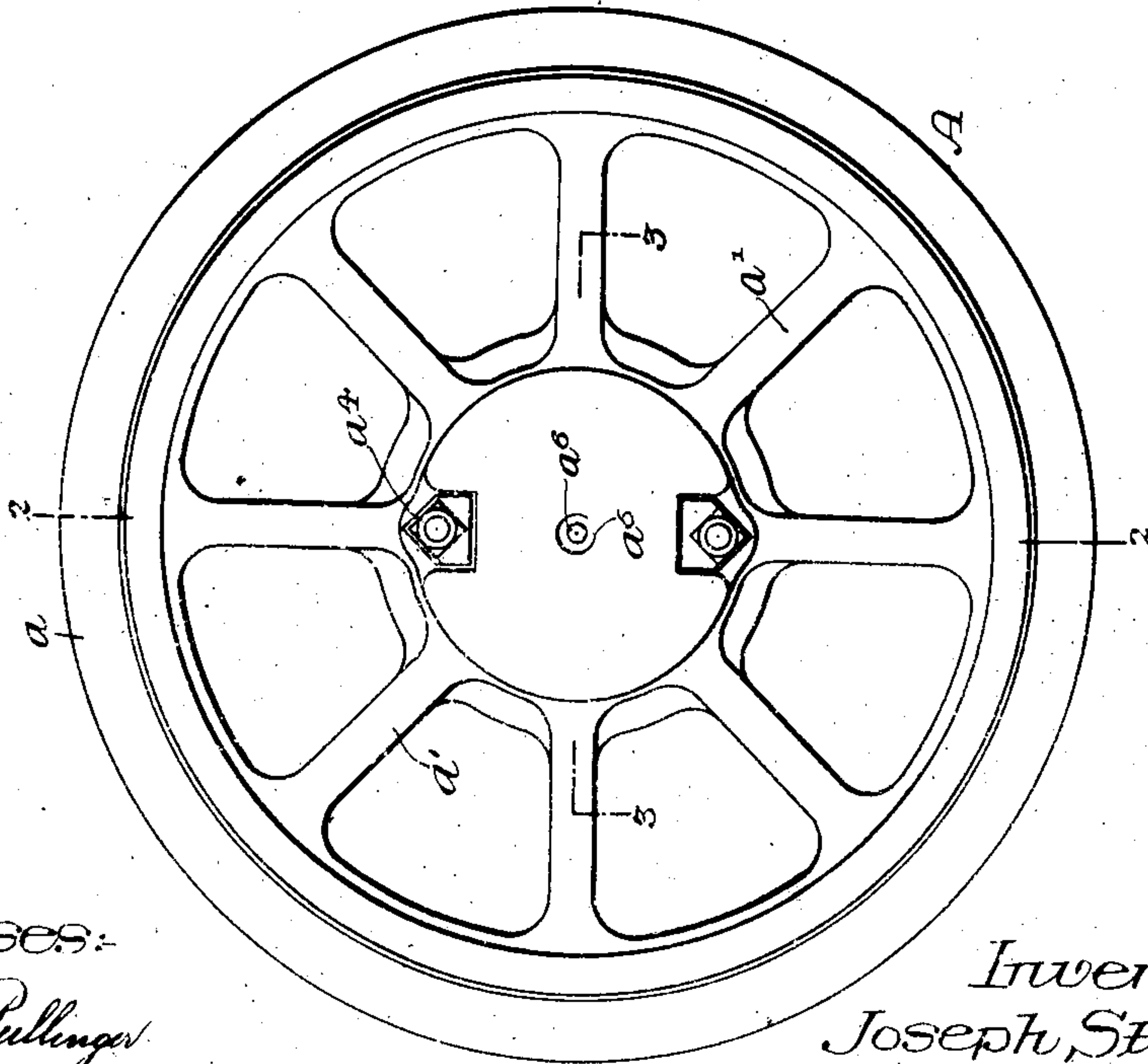


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 4.

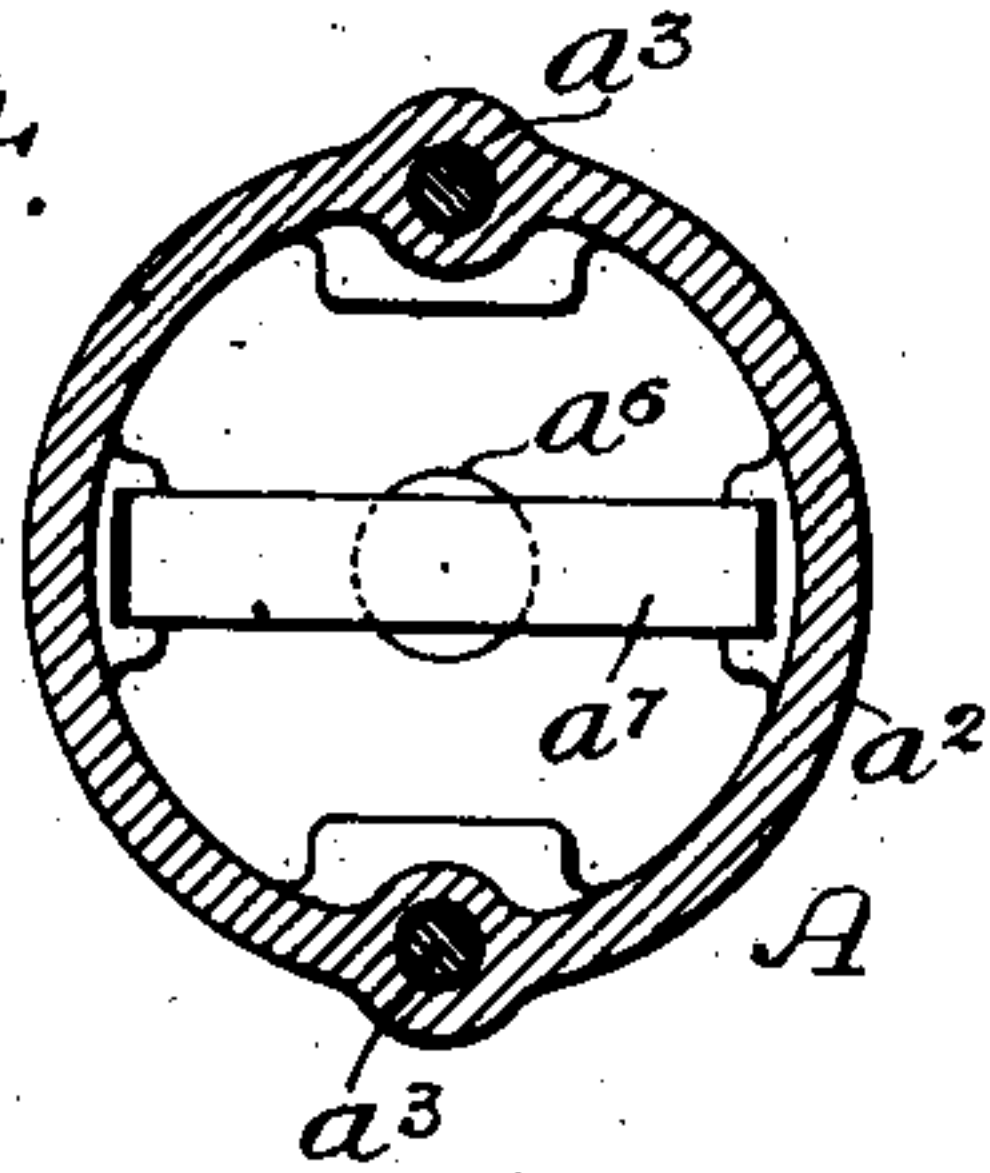


Fig. 5.

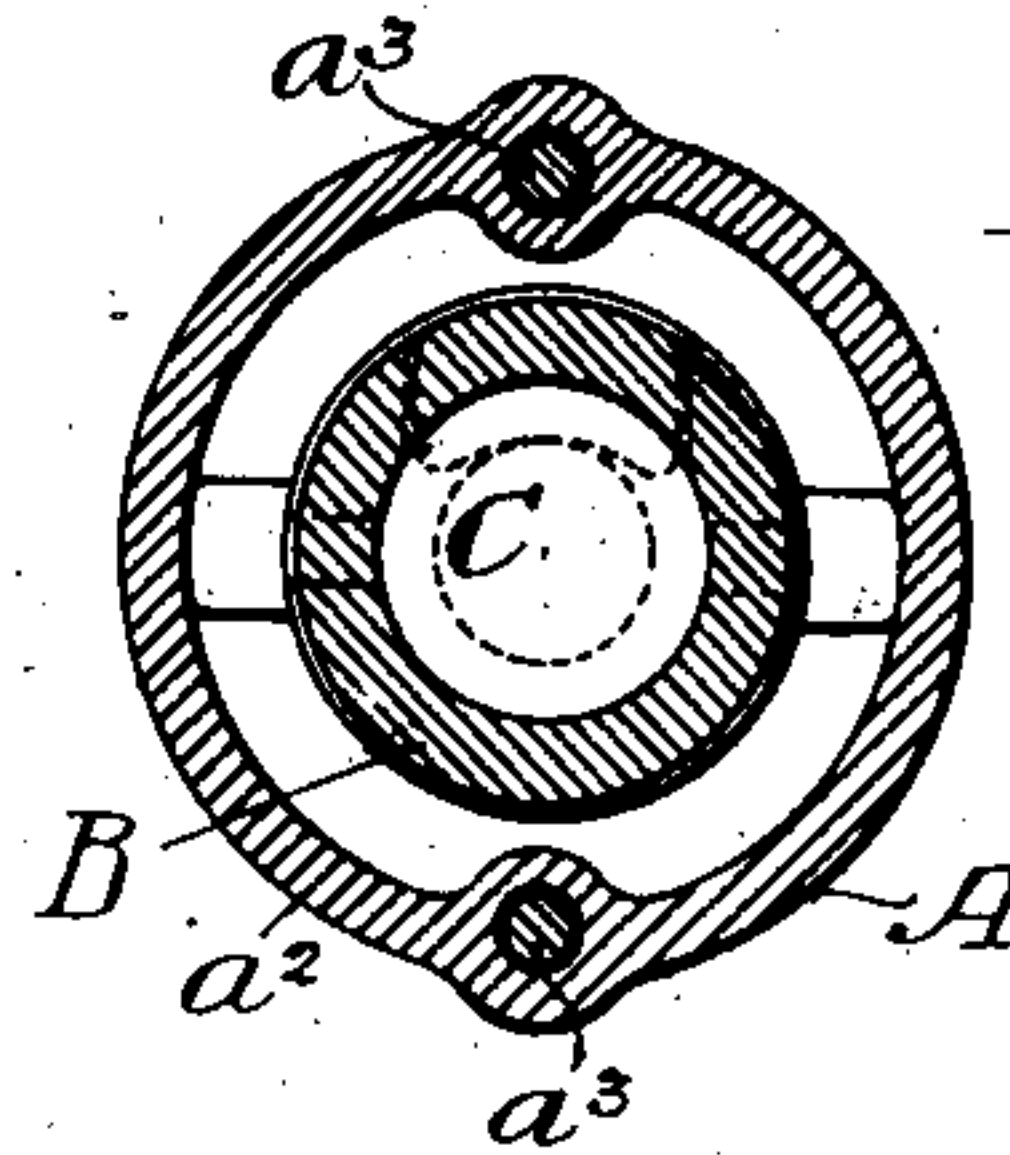


Fig. 6.

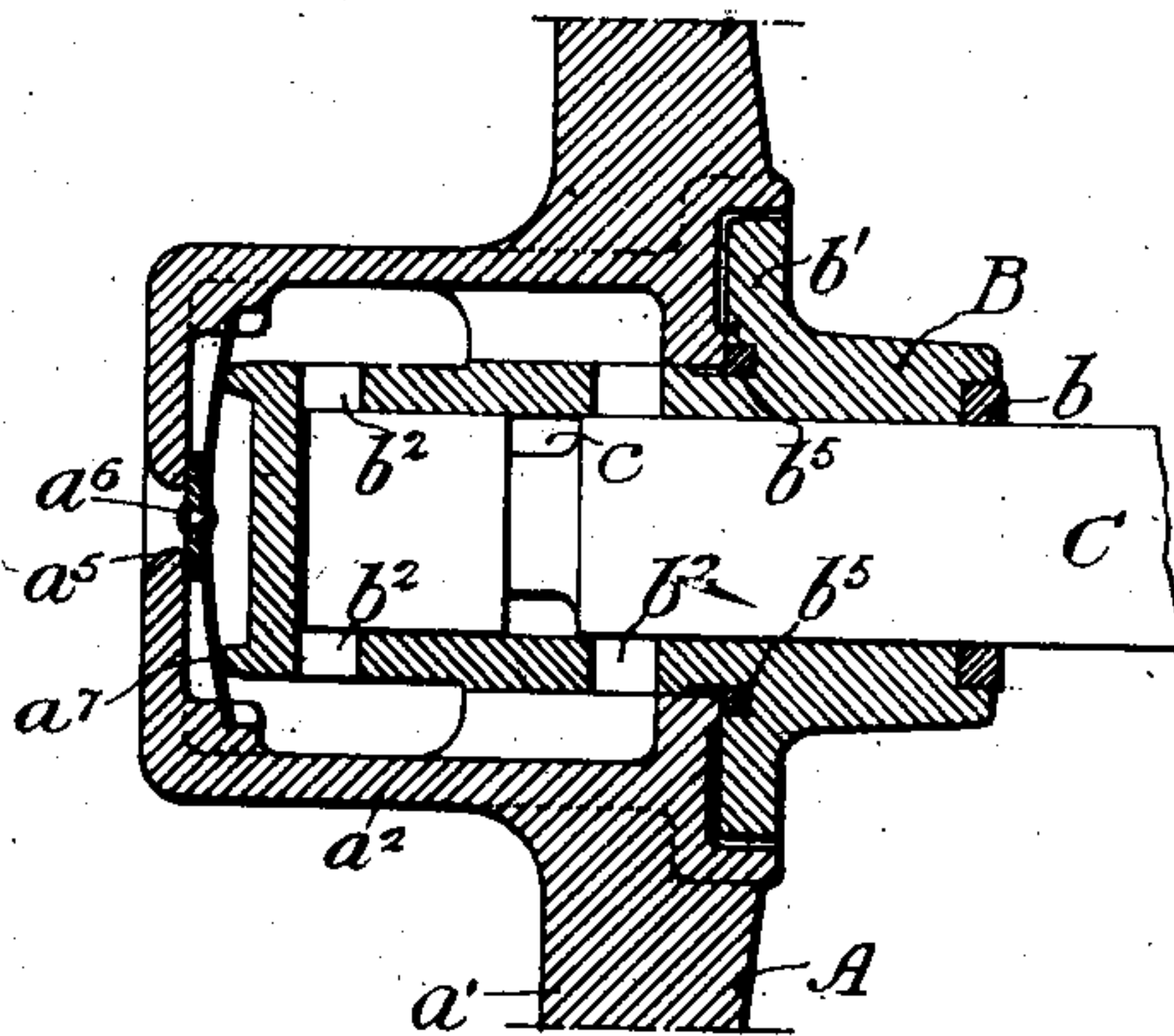


Fig. 7.

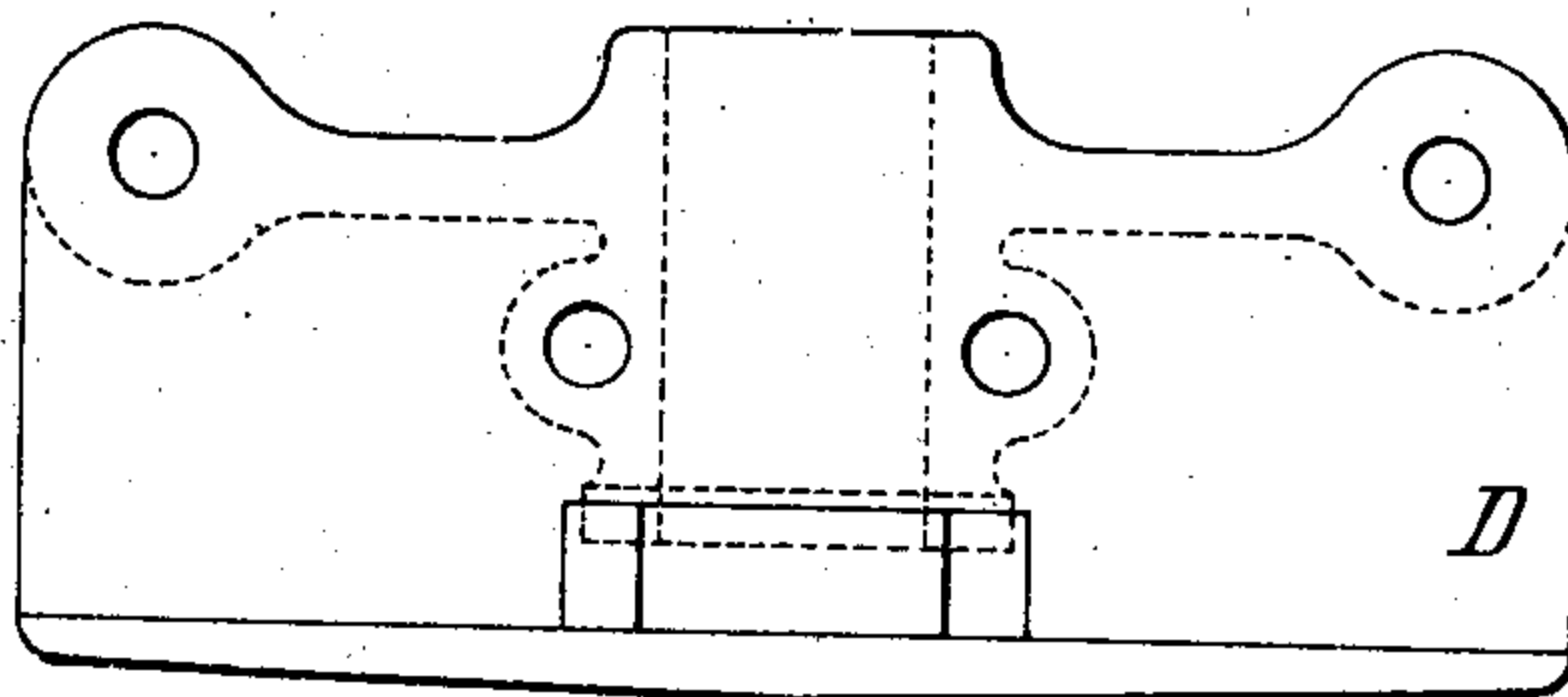
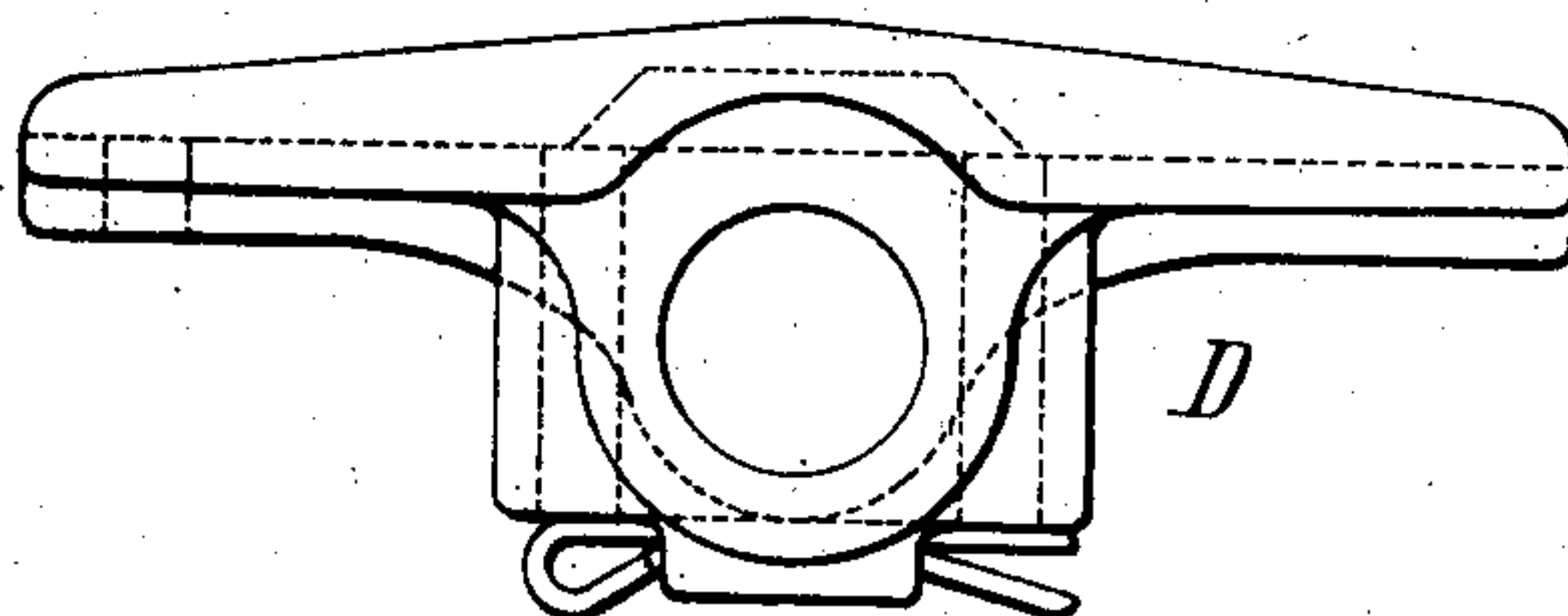


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOSEPH STUART, OF WILMINGTON, DELAWARE, ASSIGNOR TO LOBDELL CAR WHEEL COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

CAR-WHEEL.

No. 834,771.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed May 19, 1906. Serial No. 317,700.

To all whom it may concern:

Be it known that I, JOSEPH STUART, a citizen of the United States, residing in Wilmington, Delaware, have invented certain
5 Improvements in Car-Wheels, of which the following is a specification.

My invention relates to certain improvements in that class of car-wheels which are loosely mounted on the car-axle, one object
10 of the invention being to provide a wheel of such construction that even under the most adverse conditions of operation it shall last for a relatively long time and require but little attention, the arrangement of parts being
15 such that the only portion of the wheel subject to appreciable wear may be easily removed and replaced.

Another object of my invention is to prevent wear of the hub, as well as of the axle, by
20 the use of a chilled-iron bushing within said hub, and, moreover, I desire to so support the car-axle that it shall be free to turn under certain circumstances, thereby preventing localized wear on but one portion thereof. In
25 addition I provide an opening for the introduction of oil to the interior of the hub, so placed as to be always accessible for the reception of the spout of an oil-can irrespective of the position of the wheel on its axle, and
30 also provide improved means for excluding dirt, water, &c., from the oil-hole and from the inner end of the hub-bushing.

The above objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a wheel constructed according to my invention. Fig. 2
35 is a vertical section taken on the line 2 2, Fig. 1. Fig. 3 is a partial horizontal section of the wheel, taken on the line 3 3, Fig. 1. Figs.
40 4 and 5 are vertical sections taken on the lines 4 4 and 5 5, respectively, Fig. 2; and Figs. 6 and 7 are respectively a plan and a
45 side elevation of the pedestal.

In the above drawings, A represents the body or main portion of the wheel, having a rim a , arms a' , and a hub a^2 . This hub is
50 partially cored and partially bored for the reception of a bushing or sleeve B, of chilled iron, which is closed at its outer or forward end and has an annular recess at its opposite end for the reception of a ring or washer b ,

of fibrous material, for preventing passage of oil or the entrance of dirt, &c., between
55 the car-axle C and said bushing. This latter is provided with an annular flange b' , and through this extend bolts a^3 , which also pass through suitable holes in the hub of the
60 wheel. The heads of these bolts fit into square recesses in the flange, and the nuts on their opposite ends are kept from backing off by means of portions of washers a^4 , which
65 are turned up to engage the sides of said nuts after these latter have been set up.

In addition to having a number of openings or ports b^2 to permit of the passage of oil from the hollow interior of the hub to the
70 axle C, the bushing B has a slot b^3 for the reception of a forked key b^4 , designed to fit into an annular recess c , formed in said axle. A
75 fiber washer b^5 is also placed in a suitable recess, usually at the base of the flange b' , to prevent passage of oil between the bushing B and the adjacent vertical face of the
wheel A.

To permit of the introduction of oil to the hollow interior of the hub a^3 , I provide an
80 opening a^5 in the center of the end thereof coaxial with the axle C, keeping this normally closed by means of a leather washer a^6 , held in position by a flat spring a^7 , whose ends project into recesses within the hub and
85 which is held in place by the end portion of the sleeve or bushing B. The body of the car is indicated at E with one of the pedestals D, which is preferably of the construction shown
in Figs. 6 and 7, and held to said car-body on bolts e .

In assembling the parts of this device after
90 the fiber washer b has been placed in its recess in the sleeve B this latter is slipped over the end of the axle C and the forked key b^4 is dropped through the slot b^3 therein, so that its
95 ends enter the annular recess c of said axle. This key is retained in place by the wheel A, for when this is placed on the sleeve B its bored portion completely covers the slot b^3 .
100 The nuts on the bolts a^3 are then set up and the washers a^4 bent so as to prevent their turning in the future. Inasmuch as said sleeve is of chilled iron its wear is very considerably less than that of the ordinary cast-iron hubs hitherto used in wheels of the same
105 general type, and it is further to be noted that after such wear has occurred to what is

considered, a serious extent it is possible to very conveniently and quickly remove the worn sleeve and replace it by a new one.

Under normal conditions the flat spring a^7 keeps the leather disk a^6 tightly pressed against the opening a^5 of the hub, so that sand, water, &c., are effectually excluded from the oil-chamber. It is also impossible for such substances to obtain access at the opposite end of the wheel-hub because of the washers b and b^5 .

When it is desired to supply oil to the interior of the hub, this may be done by introducing the nozzle of an oil-can into the opening a^5 , thus temporarily moving the washer a^6 out of the way. When the can is removed, the spring a^7 again forces said washer into its former position.

The axle C is free to turn in the pedestal-bearing d , so that there is no danger of its wearing unevenly, as would be the case if it was immovably held.

I claim—

1. The combination of a wheel having a chambered hub, an axle therefor, and a bushing of chilled iron in the hub of the wheel for the reception of the axle, there being a dirt-excluding ring between the bushing and the hub, substantially as described.

2. The combination of a wheel having a cored hub, an axle for the wheel, a bushing closed at the end and fitting over said axle, said bushing being removably fixed in the hub and having an opening or openings to permit of the passage of oil from the hub to the axle, substantially as described.

3. The combination of a wheel having a hard-metal bushing removably fitted to its hub, an axle projecting within said bushing, a relatively fixed bearing for the axle, and a dirt-excluding ring between the axle, the bushing and the bearing, substantially as described.

4. The combination of a wheel having a hollow hub closed on one face, a flanged bushing fitting into the hub from the opposite face thereof, a dirt-excluding ring between the flange and the hub, an axle within said bushing, means for normally preventing removal of the wheel and the bushing from said axle, with a bearing, and a second dirt-excluding ring between the said bearing and the adjacent portion of the bushing, substantially as described.

5. The combination of an axle having an annular groove, a bushing having a slot placed to register with said groove, a key in

the slot extending into the groove of the axle, with a wheel removably fitted to the bushing and normally retaining the key in its slot, substantially as described.

6. The combination of a wheel having a cored hub made with a bored portion, a bushing of relatively hard metal removably fitted to the bored portion of the hub and having a slot normally covered thereby, an axle having an annular groove placed to register with said slot, and a key in the slot having portions extending into the annular groove of the axle, substantially as described.

7. The combination with the body of a car, of a pedestal therefor, an axle bearing in said pedestal, a hardened-metal bushing for the axle, said bushing being closed at one end and having a dirt-excluding ring between itself and the pedestal at the opposite end, radially-projecting portions on the bushing, with a wheel mounted on the bushing and bolts removably connecting the projecting portions of the bushing and said wheel, substantially as described.

8. The combination of a wheel having a chambered hub closed at one end, with an axle extending into said hub, there being an opening in the hub concentric with the axle, and a yieldingly-supported cover for said opening, substantially as described.

9. The combination of a wheel having a chambered hub and an axle extending into the same, there being an opening in the hub substantially concentric with the axle, a bushing within the hub, a cover for said opening into the hub, and a spring mounted between the bushing and said cover for normally maintaining the same in position, substantially as described.

10. The combination of a wheel having a chambered hub and an axle extending into the same, there being an opening in the hub concentric with the axle, a bushing within the hub, a piece for closing said opening into the hub, and a flat spring guided within the hub and attached to said piece for closing the hole, said bushing engaging the spring to maintain it in position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH STUART.

Witnesses:

INGERSOLL OLMSTED, Jr.,
JOS. H. KLEIN.