

No. 724,712.

PATENTED APR. 7, 1903.

W. S. JONES.
CAR COUPLING.

APPLIOATION FILED JULY 29, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

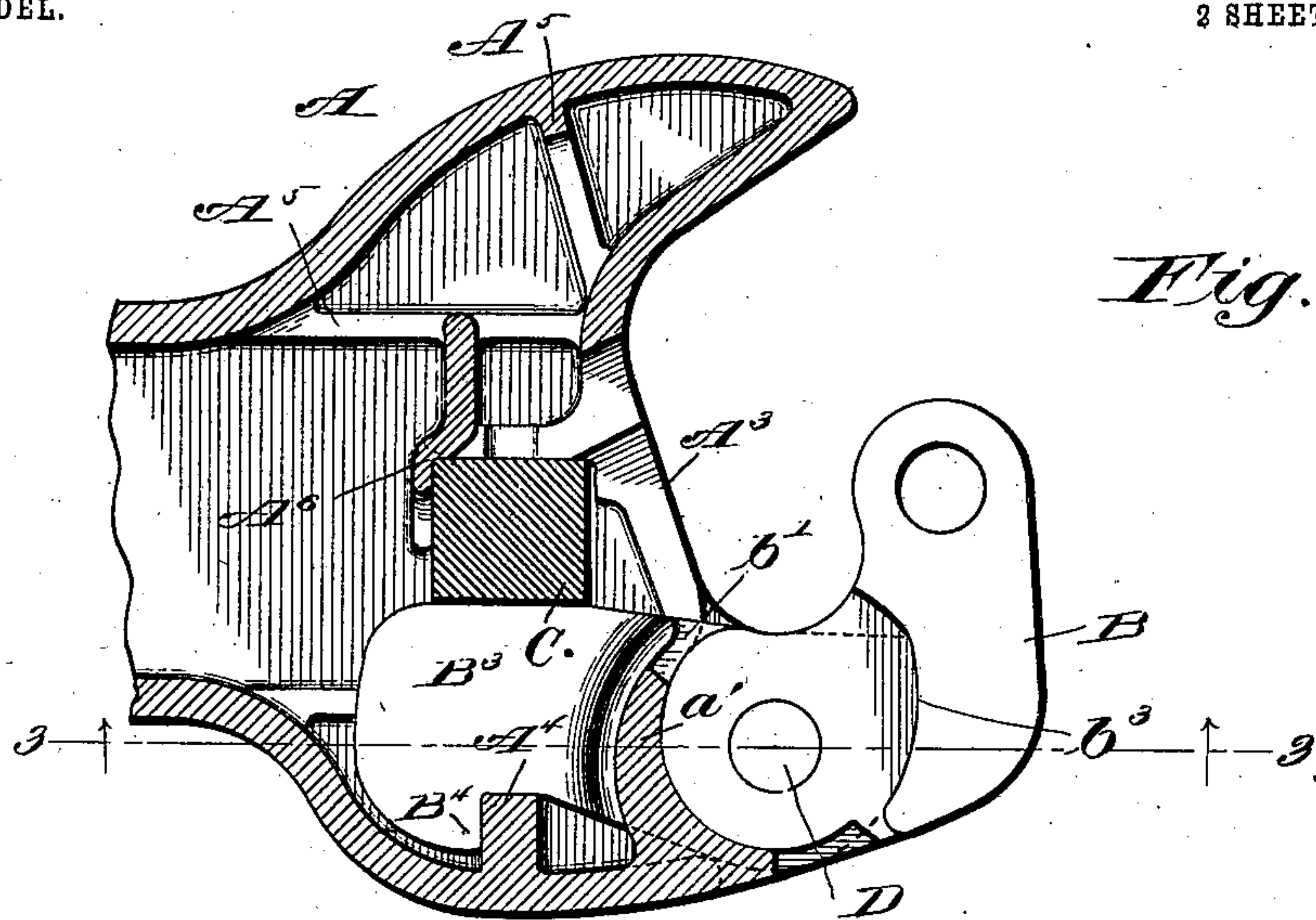


Fig. 1.

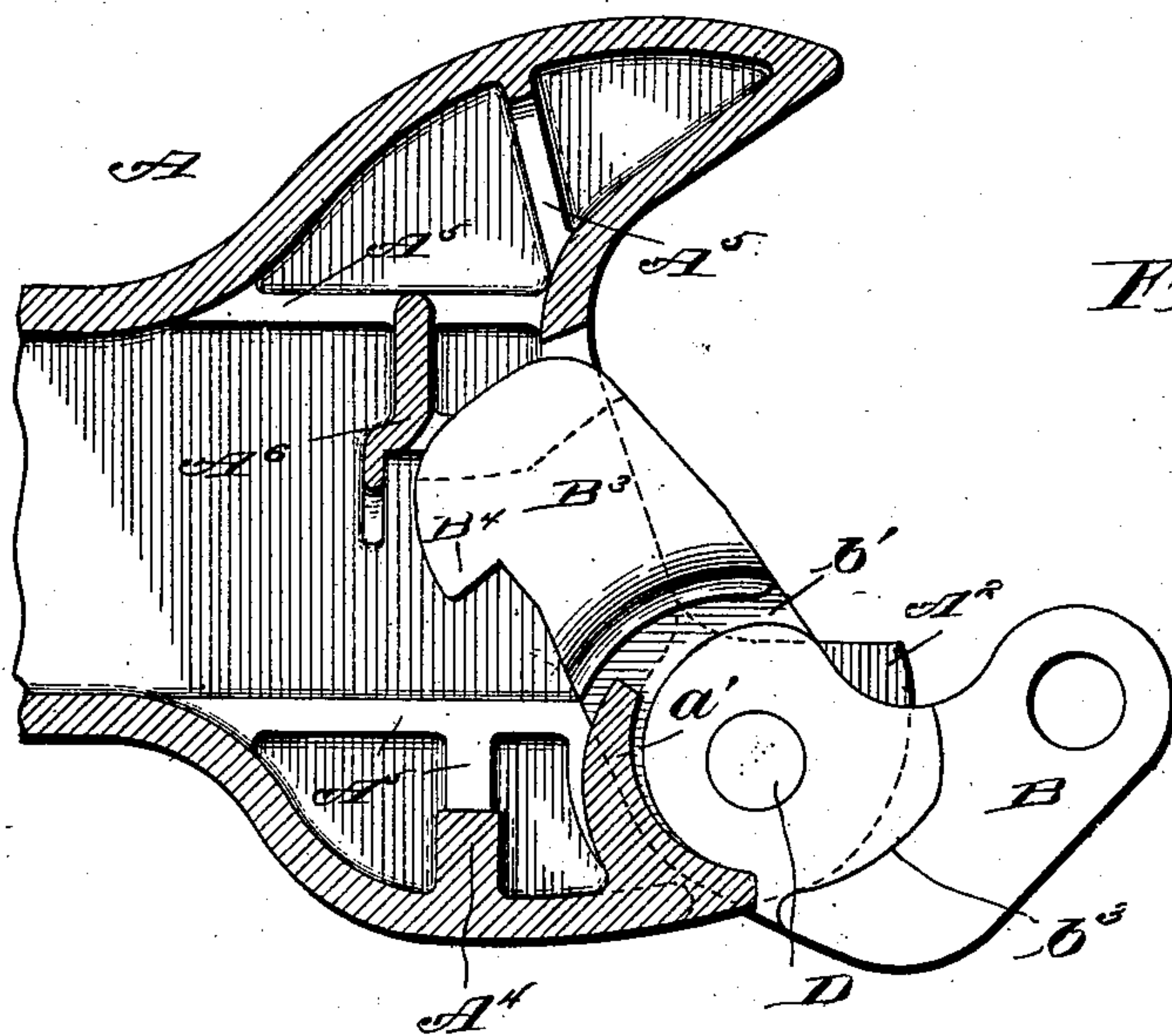


Fig. 2.

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2 SHEETS--SHEET 2.

Fig. 3.

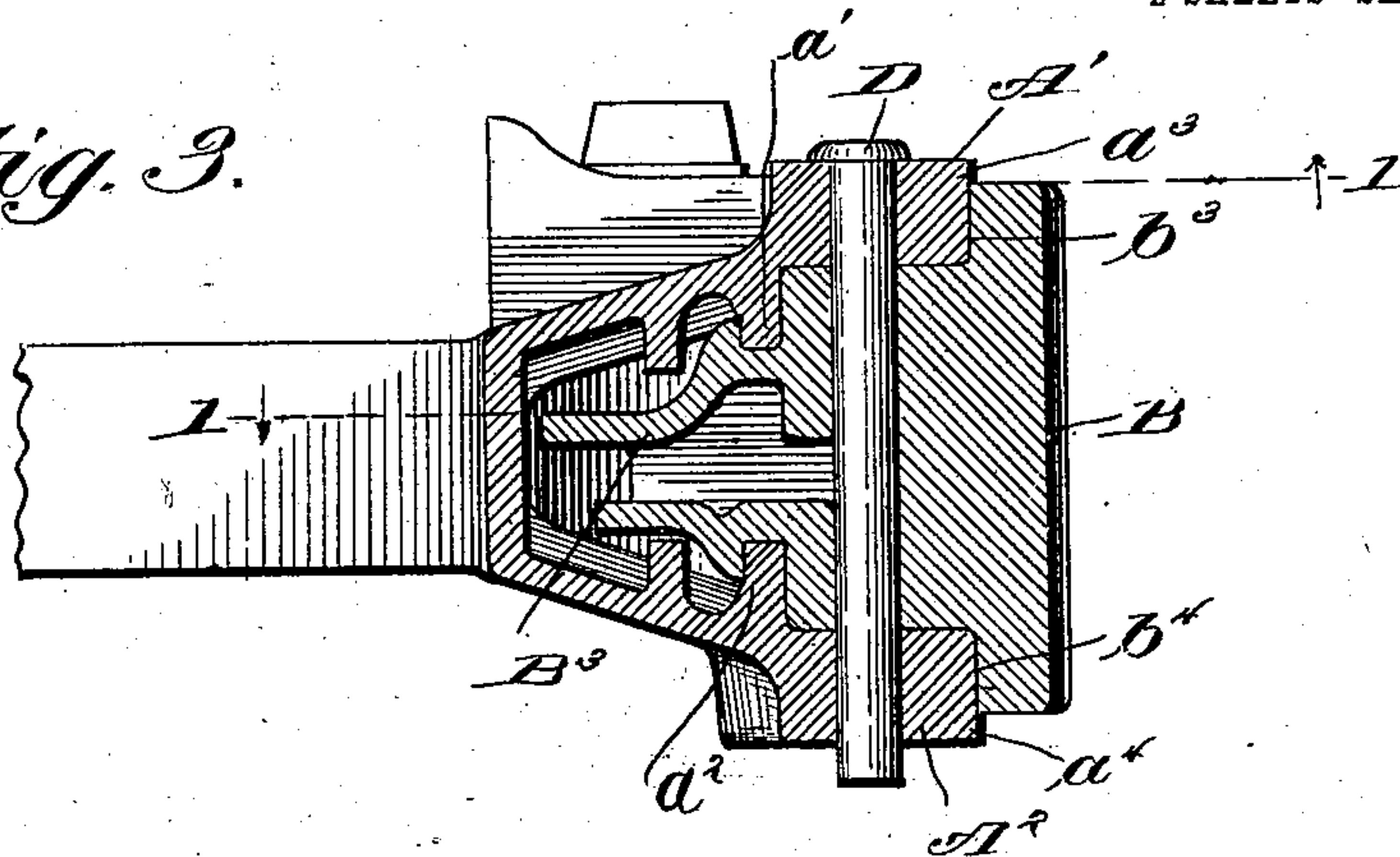


Fig. 4.

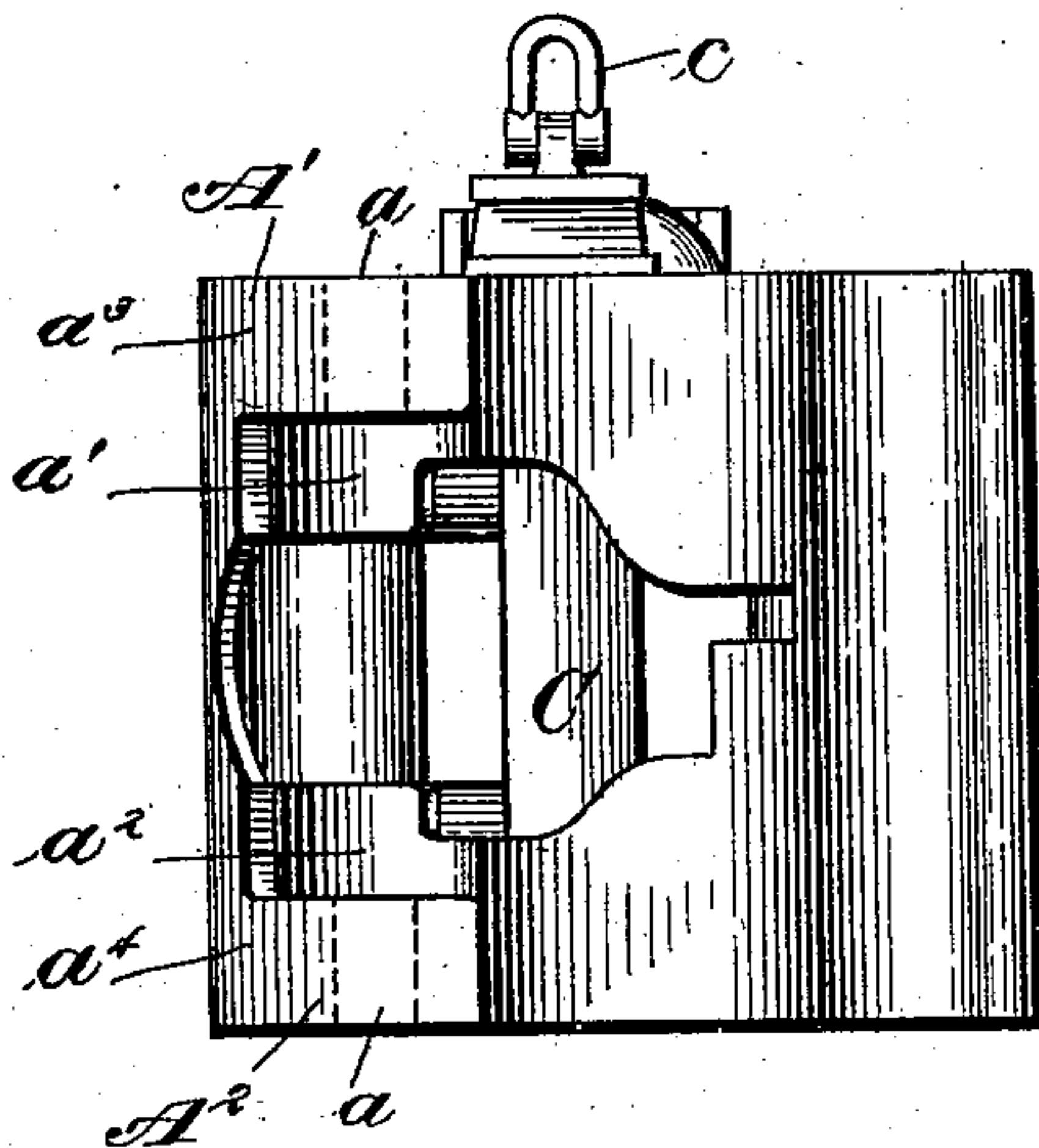
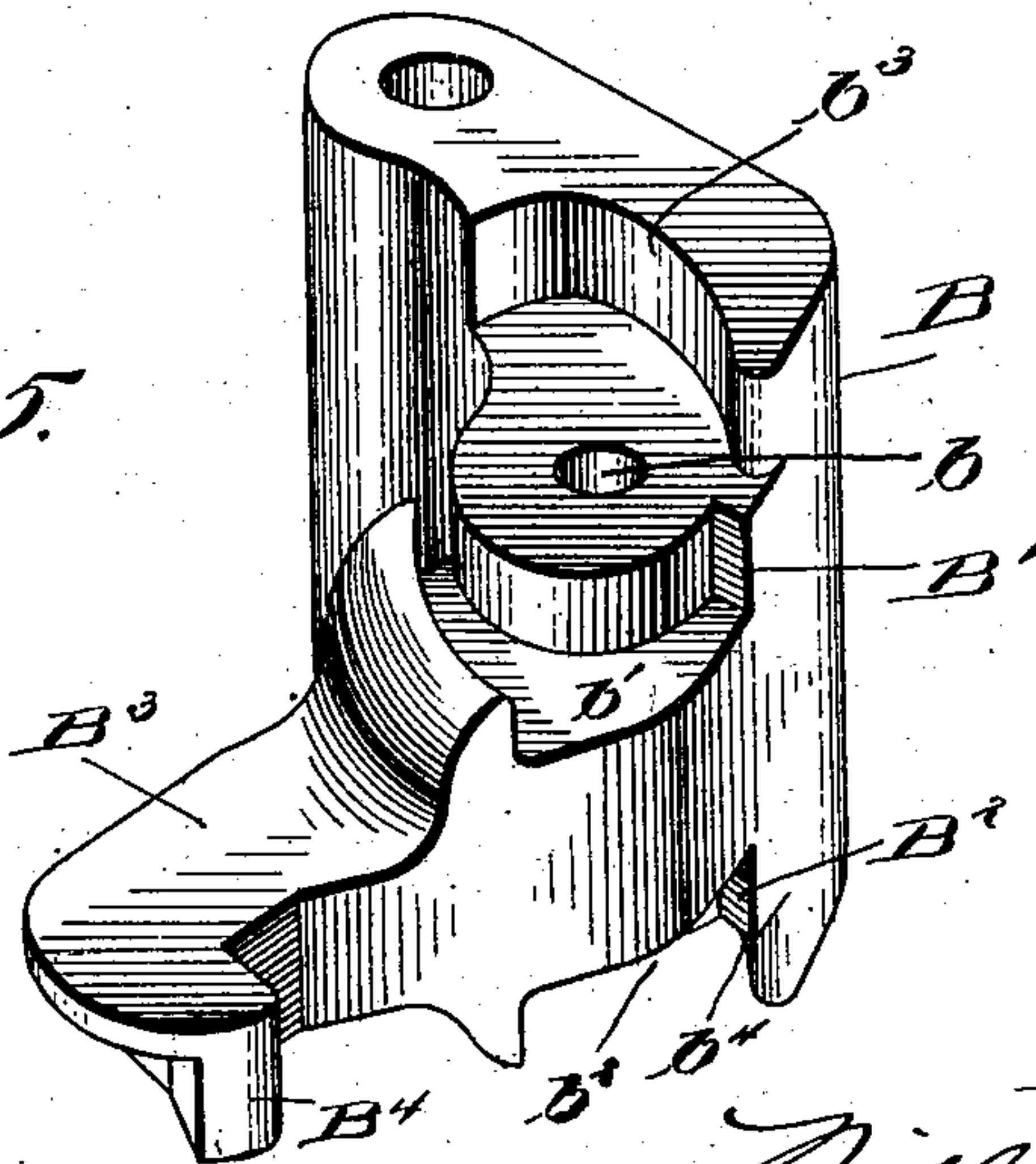


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIS S. JONES, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE RAILROAD SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 724,712, dated April 7, 1903.

Application filed July 29, 1901. Serial No. 70,036. (No model.)

To all whom it may concern:

Be it known that I, WILLIS S. JONES, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have
5 invented a certain new and useful Improvement in Car-Couplers; and I 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 pertains to
10 make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to car-couplers, and more particularly to that class of
15 couplers commonly known as the "Master Car-Builders' type," which consists in a coupler-head and a horizontally-swinging knuckle pivoted to the head by means of a vertical pin passing through the registering openings
20 in the knuckle and head. The knuckle is provided with a tailpiece, which enters the head of the coupler and is adapted to be engaged by a locking-pin to retain the knuckle in closed position. The greater the weight
25 of the cars forming a train the greater is the strain upon the pin which unites the knuckle to the coupler-head, and consequently the increased capacity of modern freight-cars has added greatly to the strain upon the coupler
30 and rendered necessary some means either for reinforcing the pin or for partially relieving or removing the strain thereon which occurs both when momentum is acquired and destroyed. Various means have been pro-
35 vided for this purpose—such, for instance, as providing annular bosses or flanges on the coupler-head surrounding and concentric with the holes therethrough for the pivot, which are engaged by circular grooves formed
40 in the knuckle concentric with the hole for the pivot-pin. This arrangement has proved objectionable, as it is difficult to accurately form the engaging grooves and the flanges concentrically upon the parts of the coupler.
45 Another objection results from the fact that there must be sufficient space between the concentric engaging grooves and flanges to permit the knuckle to freely swing into its open and closed positions, and consequently
50 such intermediate space must be traversed by the bodily movement of the knuckle before

the strain upon the pin is relieved, completely destroying the efficiency.

The object of my invention is to provide a car-coupler of the type referred to in which
55 the strain upon the pivot-pin will be effectively relieved both in pulling and buffing. I accomplish this object by forming lugs and flanges on the coupler-head and on the tailpiece of the knuckle eccentrically located
60 with respect to the pivot-pin and which will be brought into close engagement when the knuckle is closed, and thereby relieve the strain on the pivot-pin, and which will be entirely disengaged during the swinging of the
65 knuckle to and while in its open position and will consequently offer no resistance to the free movement of the knuckle from one position to the other. This object of my invention is further accomplished by providing
70 shoulders on the knuckle in front of the pivot and eccentric therewith, which when the knuckle is closed abut against and closely contact with corresponding eccentric shoulders formed on the front of the coupler-head,
75 and thereby protect the pivot-pin from the strain in buffing, the strain in pulling being relieved by the engagement of the hooked end of the tailpiece with a rib projecting from the interior surface of the coupler-head and
80 by the engagement of the eccentric grooves and flanges above referred to.

My invention will be more fully described hereinafter with reference to the accompanying drawings, in which the same is illustrated
85 as embodied in a convenient and practical form, and in which—

Figure 1 illustrates my invention applied to a coupler, the coupler-head being shown in transverse section on line 1 1 of Fig. 3 and
90 the knuckle being shown in plan in its closed position; Fig. 2, a view similar to Fig. 1 with the knuckle in its open position; Fig. 3, a vertical sectional view taken on the line 3 3 of Fig. 1 and looking in the direction of the
95 arrow; Fig. 4, an end elevation of the coupler-head, the knuckle removed; and Fig. 5, a perspective view of the knuckle removed from the coupler-head.

The same reference characters indicate the
100 same parts in the several views of the drawings.

My invention is illustrated as embodied in a car-coupler of the well-known Master Car-Builders' type, in which—

A indicates the coupler-head, which is shown as cored out and provided with suitable strengthening-ribs A^5 . An opening A^3 is formed in the front of the coupler-head, through which the tailpiece B^3 of the knuckle B passes. The shape of such opening conforms to the shape of the tailpiece, which in the present instance is provided with a cut-away portion at the lower side of the end thereof. Upper and lower portions A' and A^2 project outwardly from the coupler-head, in which are formed bearings for the knuckle. Vertical openings a extend through the projecting portions A' and A^2 , which register with an opening b through the knuckle when the latter is operatively located in the coupler-head. A pivot-pin D passes through the registering openings a in the coupler-head and knuckle, and thereby retains the knuckle within the projecting portions A' and A^2 . A locking-pin C of any desired construction is located within the coupler-head and engages suitable guides A^6 , which serve as stops to resist the movement of the pin when the latter engages the tailpiece of the knuckle to lock the same in its closed position. A clevis c or any other suitable means may be secured to the end of the locking-pin C which projects above the coupler-head for lifting the pin out of engagement with the tailpiece. Grooves b' and b^2 are formed in the upper and lower surfaces of the knuckle in the rear of the opening b for the pivot-pin. These grooves are located eccentrically with respect to the opening b and flare outwardly from the inner vertical face of the tailpiece, forming shoulders B' and B^2 , respectively, at the points where their front vertical walls join the side vertical face of the knuckle. Flanges a' and a^2 project downwardly and upwardly, respectively, from the upper and lower interior faces of the coupler-head, such flanges being located in the rear of and eccentric to the openings a , through which the pivot-pin D passes. These flanges flare outwardly and unite with the vertical wall of the coupler-head and serve as shoulders to engage the shoulders B' and B^2 , formed on the knuckle when the latter is in its open position. These flanges a' and a^2 are so located with respect to the openings a that they are engaged by the grooves b' and b^2 , respectively, formed in the knuckle, the flanges and grooves corresponding in shape, shoulders b^3 and b^4 projecting downwardly and upwardly, respectively, in front of and eccentric to the vertical opening b through the knuckle, which are adapted to engage similar shoulders a^3 and a^4 , formed on the projecting portions A' and A^2 in front of and eccentric to the openings a through the coupler-head. These eccentric shoulders are so located that they will be brought into close contact when the knuckle is in its closed position, as shown in Fig. 1,

but will be separated from each other when the knuckle is open, as shown in Fig. 2. An inwardly-projecting rib A^4 is located upon the inner wall of the coupler-head and is engaged by a hook-shaped projection B^4 , formed on the tailpiece of the knuckle when the latter is in its closed position, as shown in Fig. 1.

The operation of my invention, which will be readily understood from the foregoing description, is as follows: When the knuckle is swung into its closed position, (shown in Fig. 1,) the eccentric shoulders b^3 and b^4 contact with the shoulders a^3 and a^4 , respectively, formed on the ends of the projecting portions A' and A^2 of the coupler-head, and thereby relieve the strain which would otherwise be imposed upon the pivot-pin in buffing. The hook-shaped projection B^4 of the tailpiece engages the rear vertical face of the rib A^4 , which projects inwardly from the vertical side wall of the coupler-head, and thereby partially receives the strain which occurs in pulling which would otherwise be entirely imposed upon the pivot-pin. The eccentric grooves b' and b^2 , formed in the upper and lower faces, respectively, of the knuckle in the rear of the pivot-pin, closely engage the correspondingly-shaped flanges a' and a^2 , projecting downwardly and upwardly from the upper and lower interior faces of the coupler-head. This engagement between the concentric flanges and grooves, which extends throughout the length of the flanges, relieves the strain upon the pivot-pin both in pulling and in buffing—in the former instance by the engagement of the rear walls of the grooves with the rear faces of the flanges and in the latter instance by the engagement of the front walls of the grooves with the front faces of the flanges. When the locking-pin C is removed from the path of movement of the tailpiece of the knuckle and the latter is swung into its open position, as shown in Fig. 2, the eccentric shoulders B^3 and B^4 are removed from their contact with the eccentric shoulders a^3 and a^4 , while the grooves b' and b^2 are disengaged from the flanges a' and a^2 , as clearly shown in Fig. 2. It is therefore evident that I have constructed a coupler of the Master Car-Builders' type in which the strain is removed from the pivot-pin by means of eccentric shoulders formed on the knuckle and projecting portions of the coupler-head, such shoulders engaging each other throughout their entire extent when the knuckle is closed and being instantly moved out of contact when the knuckle commences to swing from its closed to its open position. It is also evident that I have further relieved the strain upon the pivot-pin by means of the engagement between the eccentric grooves and flanges formed in the knuckle and on the interior of the coupler-head, respectively, and that such engagement extends throughout the length of the flanges when the coupler is closed, but is instantly discontinued when the knuckle commences to swing from its closed position, and conse-

quently does not interfere with the freedom of movement of the knuckle.

While I have shown the eccentric grooves formed in the knuckle and the flanges projecting from the coupler-head, the reverse arrangement would be equally as practicable.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit of my invention.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupler, the combination with a coupler-head, of a pivot-pin supported by said head, a knuckle having a cylindrical opening therethrough closely surrounding said pivot around which the knuckle is adapted to swing, said coupler-head and knuckle having a groove and a flange eccentrically located relatively to the pivot-pin and adapted to interlock when the knuckle is closed and thereby relieve part of the strain upon the pivot-pin.

2. In a car-coupler, the combination with a coupler-head, of a knuckle pivoted therein, a pivot-pin supported by said head and passing through a cylindrical opening in and closely engaged by said knuckle, said knuckle having a groove eccentric to the pivot-pin, a flange on said coupler-head eccentrically located relative to the pivot-pin and projecting into the path of said groove when the knuckle is swung into its closed position, whereby the engagement between said groove and flange relieves part of the strain upon the pivot-pin, substantially as described.

3. The combination with a coupler-head having forwardly-projecting portions, of a knuckle pivoted within said projecting portions, eccentrically-curved shoulders on said projecting portions and said knuckle in front of and eccentric to the pivotal point, and flanges and grooves on said coupler-head and knuckle in the rear of and eccentric to said pivotal point, substantially as described.

4. The combination with a coupler-head having vertical openings therethrough for a pivot-pin and having curved shoulders in front of and eccentric to said openings and flanges in the rear of and eccentric to said

openings, of a knuckle having a vertical opening therethrough for the pivot-pin and having curved shoulders in front of and eccentric to said opening and grooves in the rear of and eccentric to said opening, and a pivot-pin passing through the registered openings in said head and knuckle, substantially as described.

5. In a car-coupler, the combination with a coupler-head, of a knuckle pivoted to swing horizontally in said head, eccentrically-curved shoulders formed on said head and knuckle in front of and eccentric to the pivot, a lug projecting laterally from the end of the tailpiece of said knuckle, a rib extending inwardly from the interior of said coupler-head, and eccentric flanges and grooves on said tailpiece and coupler-head, whereby when the knuckle is closed the strain on the pivot is relieved by the contact of the eccentric shoulders, by the engagement between said eccentric grooves and flanges and by the engagement of the lug on the tailpiece with the rib on the interior of the head, substantially as described.

6. In a car-coupler, the combination with a coupler-head having forwardly-projecting portions provided with vertical openings therethrough, of eccentrically-curved shoulders formed on said projecting portions eccentric to said openings, flanges eccentric to said openings extending downwardly and upwardly from the upper and lower interior surfaces respectively of said coupler-head, a knuckle pivotally supported between said forwardly-projecting portions on the coupler-head having grooves formed in its upper and lower faces in the rear of and eccentric to its pivotal point, eccentrically-curved shoulders extending upwardly and downwardly from the upper and lower faces of said knuckle in front of and eccentric to its pivotal point, said eccentric shoulders and grooves on the knuckle engaging the eccentric shoulders and flanges on the coupler-head when the knuckle is closed thereby relieving the strain on the pivot, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIS S. JONES.

Witnesses:

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