

(No Model.)

2 Sheets—Sheet 1.

E. P. EASTWICK, Jr.
CAR COUPLING.

No. 417,006.

Patented Dec. 10, 1889.

Fig. 1.

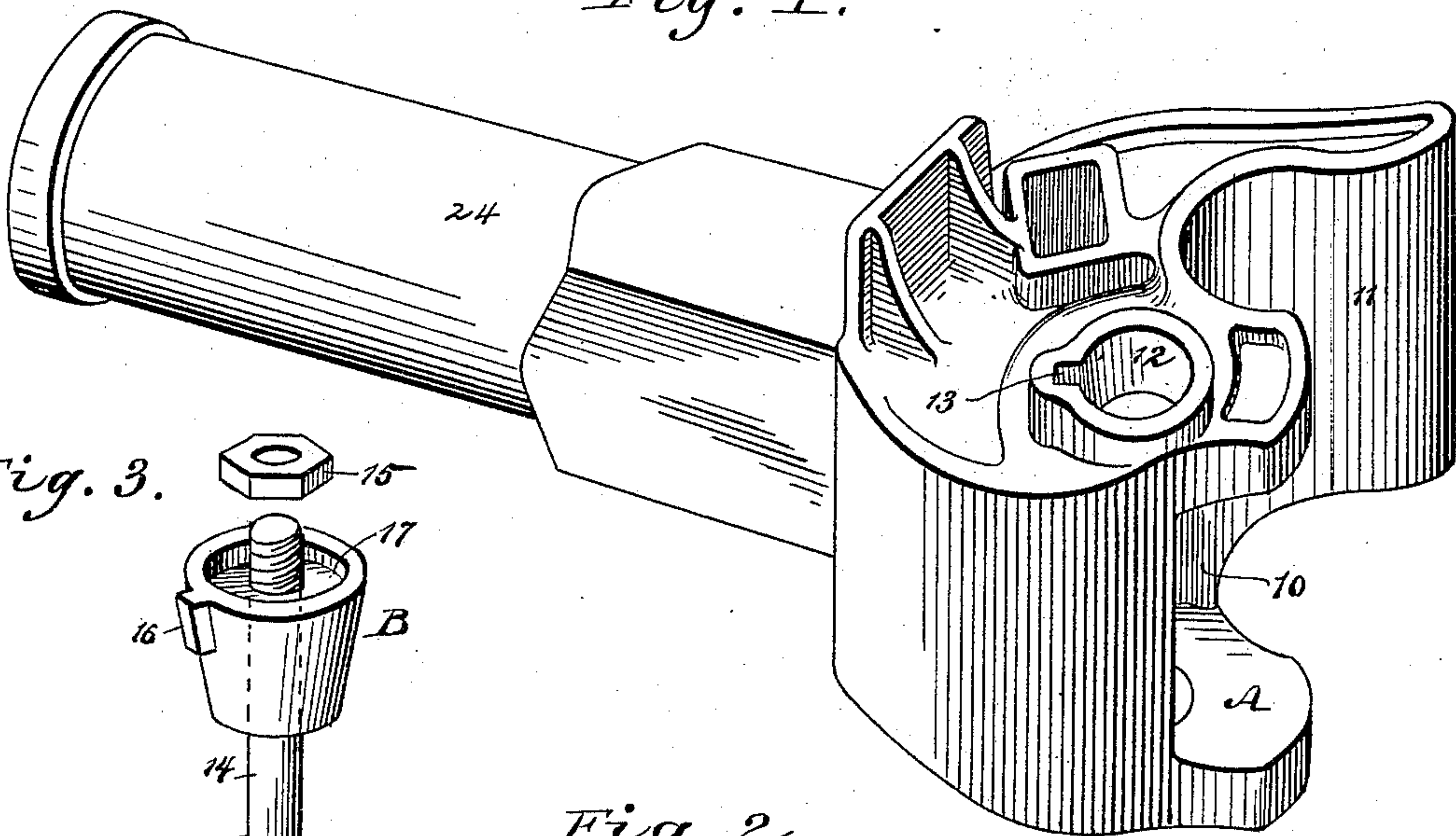


Fig. 3.

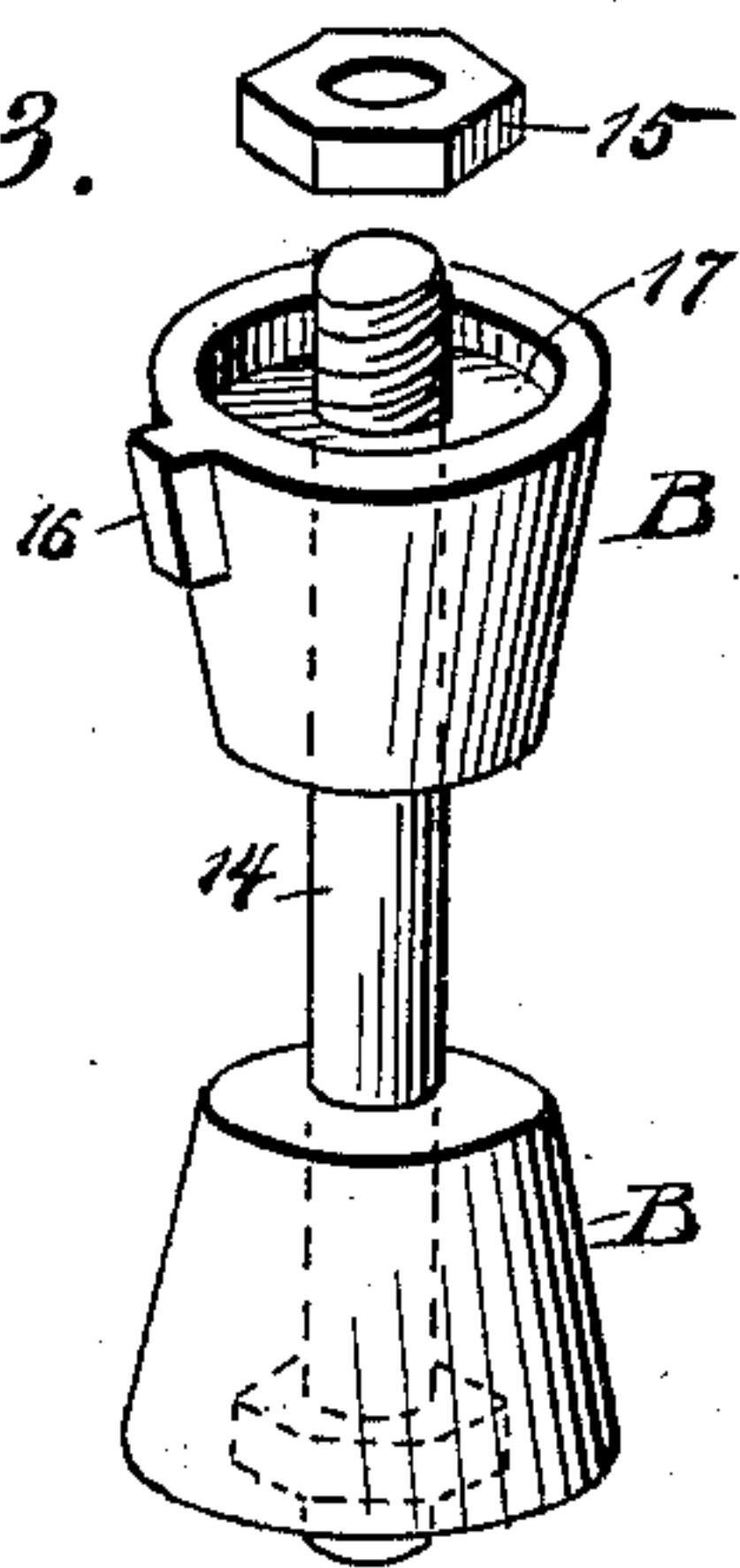


Fig. 2.

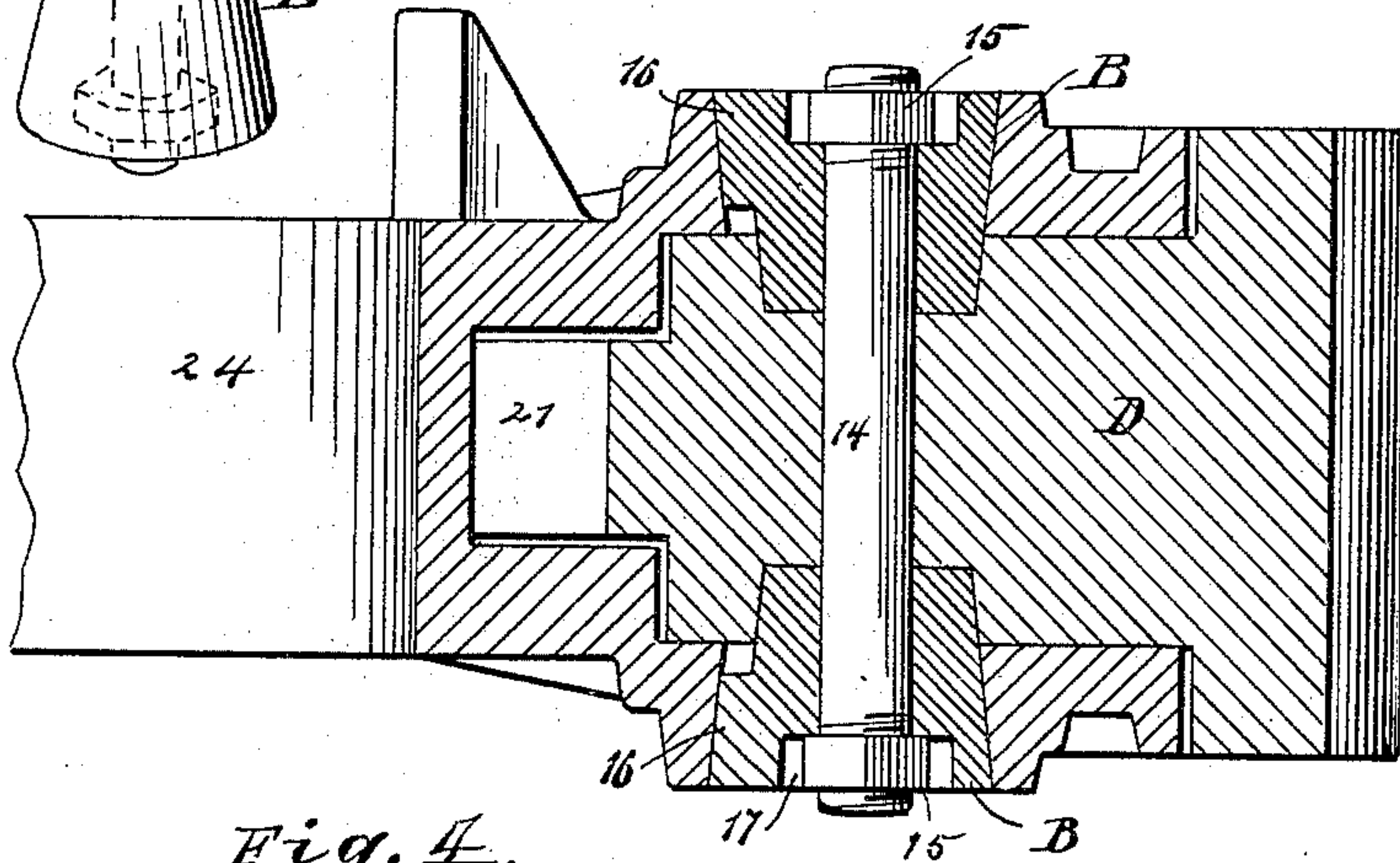
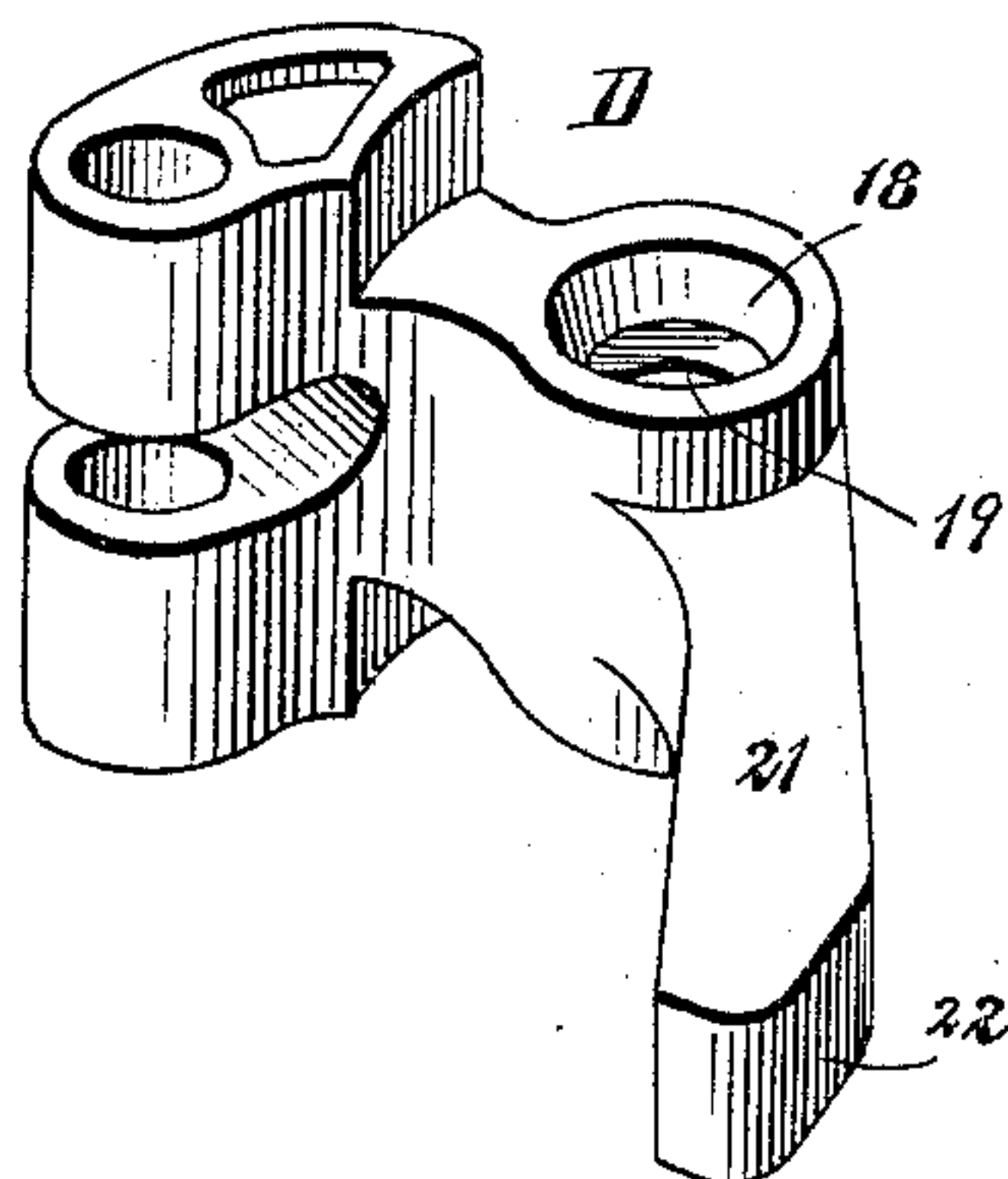


Fig. 4.



WITNESSES:
John H. Deemer
C. Sedgwick

INVENTOR:
E. P. Eastwick Jr.
Munn & Co.
ATTORNEYS.

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Fig. 5.

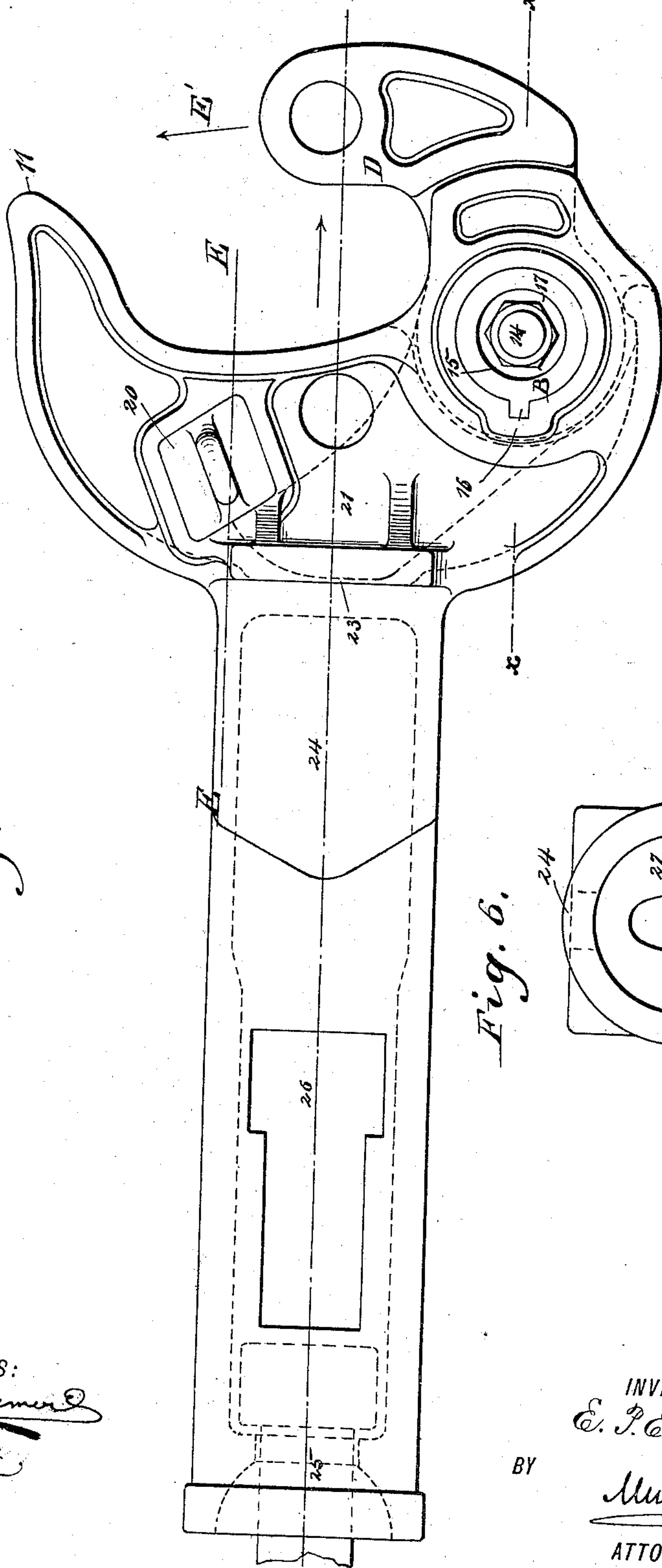
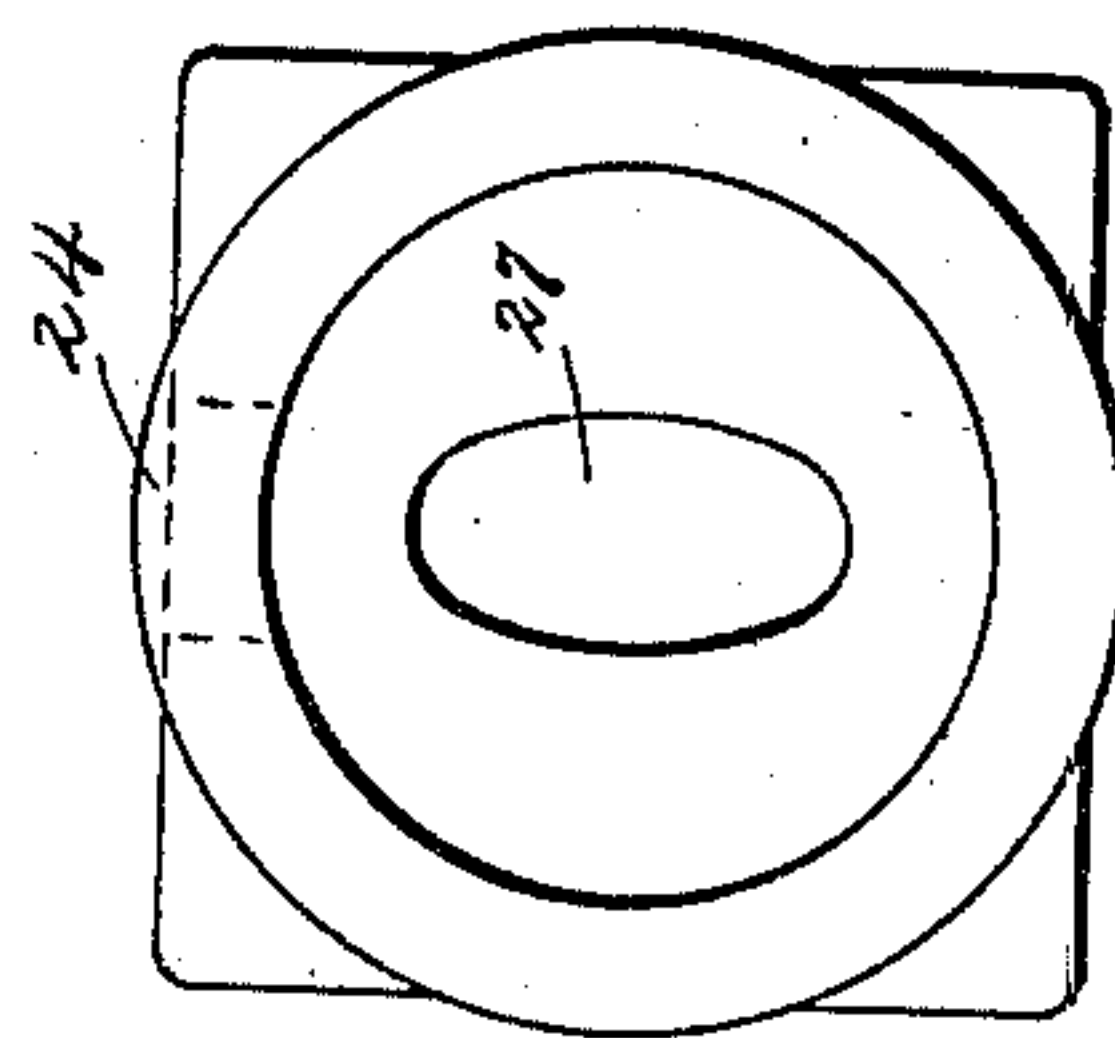


Fig. 6.



WITNESSES:

John H. Deemer
C. Sedgwick

INVENTOR:

E. P. Eastwick Jr.

BY

Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWARD P. EASTWICK, JR., OF NEW YORK, N. Y.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 417,006, dated December 10, 1889.

Application filed May 24, 1889. Serial No. 311,922. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. EASTWICK, Jr., of the city, county, and State of New York, have invented a new and useful Improvement in Car-Couplers, of which the following is a full, clear, and exact description.

My invention relates to an improvement in car-couplers of the vertical-plane type, and has for its object to provide a means for pivoting a removable knuckle in the draw-head in a novel manner, whereby large bearing-surfaces will be obtained without greatly decreasing the strength of the knuckle.

It likewise provides a means for inserting and holding the tail-bolt in the shank of the draw-head without removing the knuckle, which is necessary in almost all couplers heretofore devised, in which the knuckle revolves about a pivotal pin; and, further, in the construction of this car-coupler I make use of the principle of the moment of forces in the determination of the proper location of the locking device. The position of the locking device is so taken that when the knuckle is locked a draft strain upon it will have the tendency to revolve it about the locking-point in a direction that will cause the locking sections to be brought close together, or, in other words, the knuckle is made to revolve toward the center line of the coupler instead of away from it, as is the case in all couplers of this type heretofore constructed. The advantage of this is that any lost motion about the pivotal pin of the knuckle will not cause any opening of the knuckle, a fault which has been found in practice in couplers of this type that have heretofore been manufactured. In this device the construction of the knuckle is such that a buffing strain coming upon it is directly transmitted to the draw-head through the center line of the shank without causing any strain to come upon the pivotal pin.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this speci-

cation, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the draw-head. Fig. 2 is a section on line *xx* of Fig. 5. Fig. 3 is a perspective view of the trunnion-bearings provided for pivoting the knuckle in the draw-head. Fig. 4 is a perspective view of the knuckle detached. Fig. 5 is a plan view of the draw-head and the knuckle pivoted therein, and Fig. 6 is an end view of the shank of the draw-head.

In carrying out the invention the draw-head is made essentially hollow, whereby a chamber 10 is obtained and provided with a horn 11 at one side and a concave front face. The side of the draw-head opposite to that carrying the horn is recessed, as illustrated at A in Fig. 1, and provided with apertures 12, located in the top and bottom faces, the wall of which apertures is made slightly beveled. The said apertures are adapted to receive trunnions B, about which the knuckle, to be hereinafter described, revolves, the beveled wall of each aperture 12 having formed therein at its outer end a recess 13.

The trunnions (shown in detail in Fig. 3) consist of metal blocks having a slightly-tapered outer face representing in general contour the frustum of a cone, and each block is provided with a central longitudinal bore, into which a bolt 14 may be inserted having preferably threaded extremities, so that when the trunnions are placed in the apertures 12 provided for them in the draw-head they may be tightly held there by means of nuts 15, keys, or equivalent fastening devices. The trunnions are provided with a feather 16, which fits in the corresponding recesses 13, made in the draw-head, as heretofore stated, whereby the trunnions are prevented from revolving. In the outer end of each trunnion a depression 17 is formed to receive the nuts 15 when such locking device is employed. The trunnions pass into circular recesses 18, formed at the top and bottom in the shank of the knuckle D, which recesses are likewise preferably made slightly tapered or beveled, and the knuckle is further pro-

vided with a vertical bore 19, which allows the bolt 14 for connecting the trunnions to be passed through. The object of the tapering trunnions is to provide a means for taking up any lost motion that will be caused by the wearing away of the bearing-surfaces, and also for tightly fixing the trunnions in the draw-head, which may be done by bringing the trunnions closer together by means of the nuts or keys of the connecting-bolt 14. By the use of these trunnions it will be seen that I obtain a large bearing-surface, about which the knuckle may revolve without seriously affecting its strength, as the bolt passing through, having but little strain upon it, can be made very small; and, further, by the use of these trunnions I can obtain steel bearings both on the trunnion and knuckle, which must reduce the wear to a minimum.

The location of the locking-pin 20, which may be of any suitable or approved construction, and the position of the line of draft, it will be seen by reference to Fig. 5, are upon the same side of the knuckle, and that the position of the locking-pin is at a greater distance from the center of revolution than the line of draft, from which it will result that the draft-strain upon the knuckle will cause it to revolve about the locking-point (indicated by the line E E) in the direction shown by the arrow E', whereby any lost motion about the revolving point of the knuckle will not cause the knuckle to open, ultimately allowing the couplers to come apart, as has been proved in practice. The use of this principle in determining the location of the pin is not restricted to a coupler having the bearing here shown, but may be likewise adapted to those having pivotal pins or arc-shaped channels or ribs.

The knuckle D is provided with a wing 21, integral with the inner face of the shank, which wing, when the knuckle is locked, extends in the direction of the horned side of the draw-head beyond a longitudinal central line, as shown in Fig. 5, and near the extremity of the wing, upon its inner side, a preferably flat bearing-surface 22 is provided, adapted to contact with a buffing-surface 23, forming the central portion of the rear wall of the draw-head chamber, as, instead of providing an opening at this point, leading into the shank 24 of the draw-head, as is customary for the introduction of the tail-bolt, I shut off entirely all communication between the draw-head and the shank and preferably re-enforce the wall at this point. The construction of the knuckle, it will be seen is such that its bearing-point upon the draw-head, as indicated in Fig. 5, for taking up the buffing strain, is located approximately in the line of draft, which also, from the construction of the knuckle, is made the line of direction of the buffing force, and thereby the knuckle when acting upon a buffing force and resisting this force

at the point 23 is theoretically, and in most cases practically, in perfect equilibrium, and will therefore cause no strain whatever to come upon the revolving surfaces of the knuckle.

In couplers of this type now manufactured the tail-bolt 25, which is used for connecting the coupler to the car, is held in the shank of the coupler by passing the round portion of the bolt through a hole in the end of the shank, and to insert this bolt it is necessary to cut a hole in the front face of the draw-head, through which it may be passed rearwardly into the shank.

My invention does away with the necessity of cutting the front face of the draw-head, and thereby weakening it, and consists in providing a proper-shaped opening 26 in the shank, as shown in Fig. 5, through which the tail-bolt may be slantingly passed through a second opening 27, formed in the rear end of the said shank, which latter opening is made oval in shape or elongated, as illustrated in Fig. 6.

It will be readily understood that by reason of the knuckle being pivoted in the draw-head in the manner above set forth the bearings of the trunnions may be readily lubricated at any time in an expeditious manner, if so desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a car-coupler of the type described, a knuckle provided with top and bottom recesses having tapering walls, substantially as specified.

2. In a car-coupler of the type described, the combination, with a knuckle, of vertically-adjustable trunnions, substantially as specified.

3. In a car-coupler of the type described, the combination, with a knuckle, of vertically-adjustable trunnions having tapering side surfaces, substantially as specified.

4. In a car-coupler of the type described, the combination, with a knuckle having a recess at top and bottom connected by a bore, of trunnions adapted to enter the recesses and a bolt connecting the trunnions, substantially as specified.

5. In a car-coupler of the type described, the combination, with a knuckle provided with upper and lower tapering recesses, of vertically-adjustable trunnions provided with a tapering side surface adapted to enter the recesses in the knuckle, substantially as shown and described.

6. The combination, with a draw-head of the type described provided with a closed buffing-wall between it and the shank, of a locking-pin located in the draw-head at one side of a center line and a knuckle pivoted in said draw-head at the opposite side of the said center line, provided with an integral wing contracting at its outer face with the locking-pin and upon its inner face

with a buffing-wall, all combined for operation substantially as and for the purpose specified.

5 7. In a car-coupler of the type described, the combination, with the head, of a shank having an opening in the face to receive the tail-bolt and an oval or elongated open-

ing in the end through which the said bolt is adapted to project, substantially as described.

EDW. P. EASTWICK, JR.

Witnesses:

FREDERICK ROBERT,
GUSTAVO ALFONSO.