

No. 749,345.

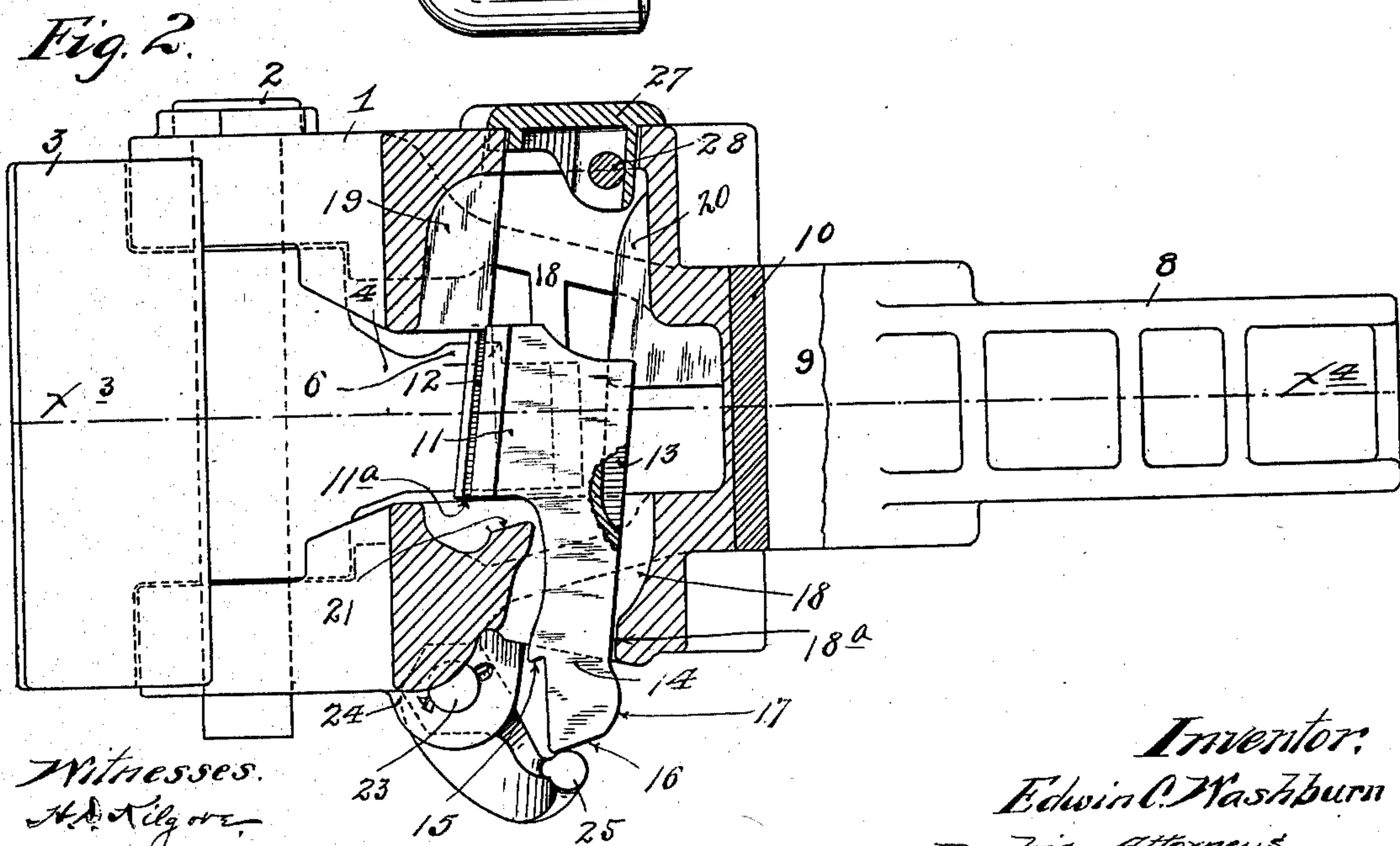
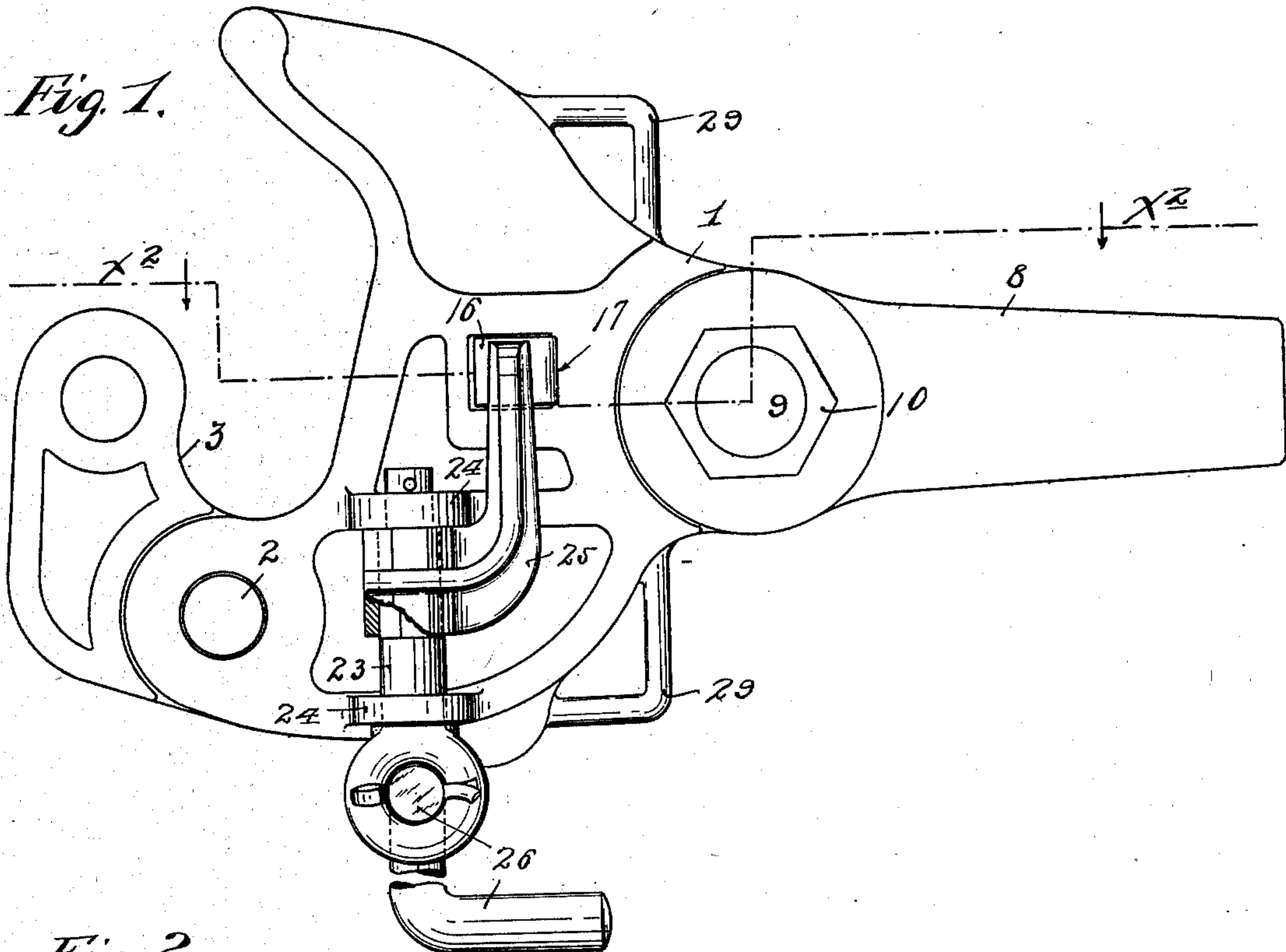
PATENTED JAN. 12, 1904.

E. C. WASHBURN.
CAR COUPLING.

APPLICATION FILED MAY 26, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses.
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A. H. Opsahl

Inventor:
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By his Attorneys.

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3 SHEETS—SHEET 2.

Fig. 3.

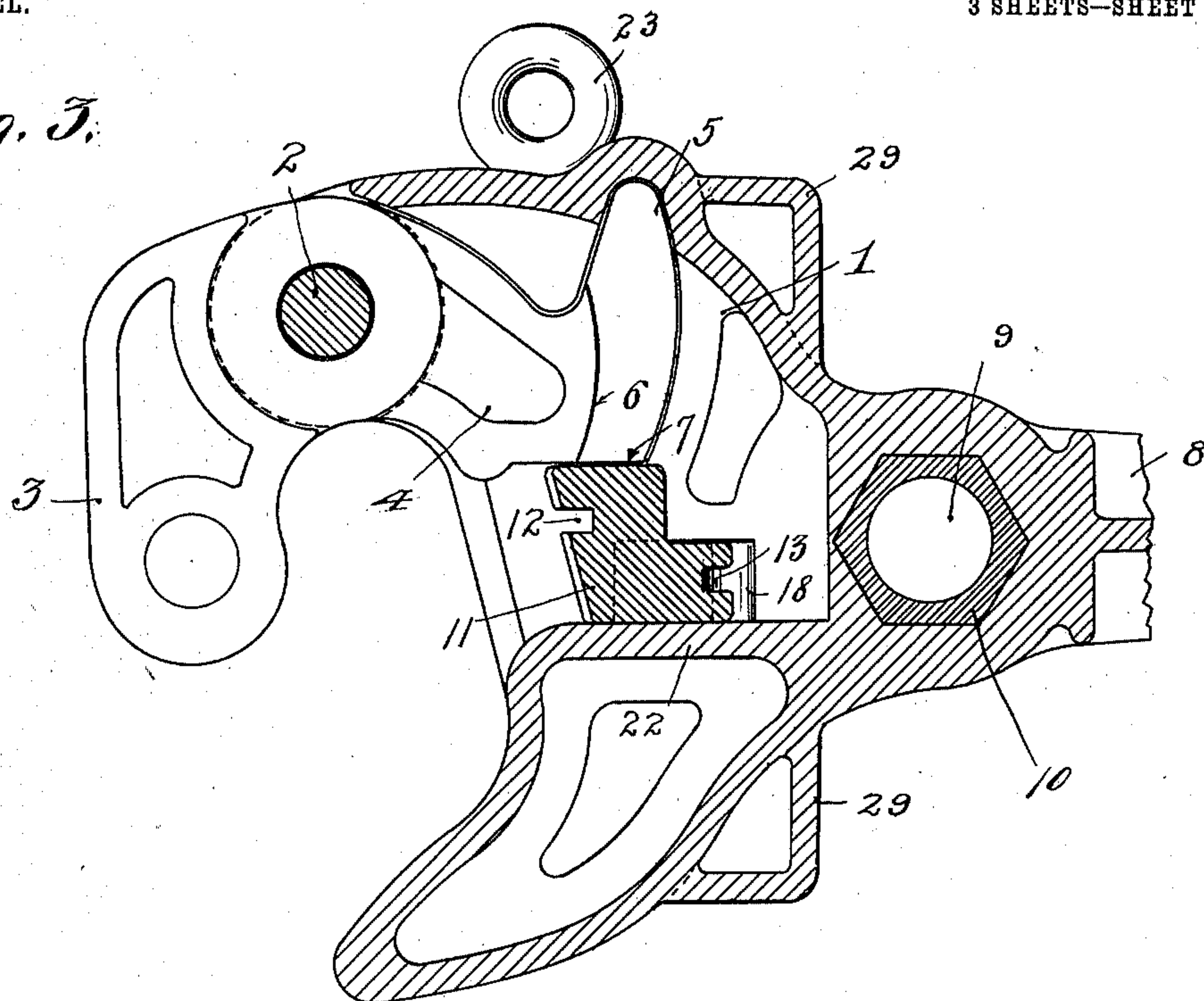
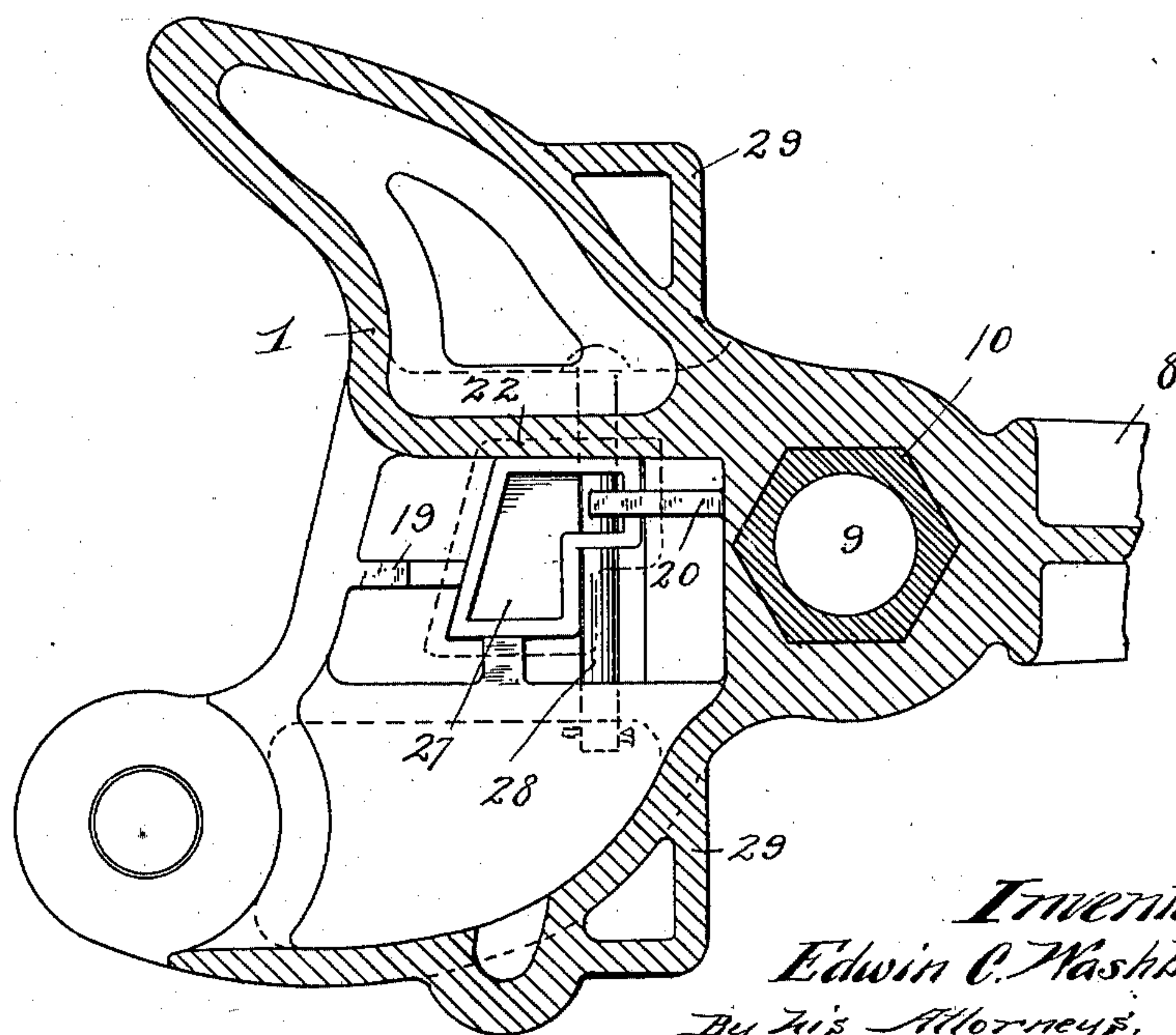


Fig. 4.



Witnesses.

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3 SHEETS—SHEET 3.

Fig. 5.

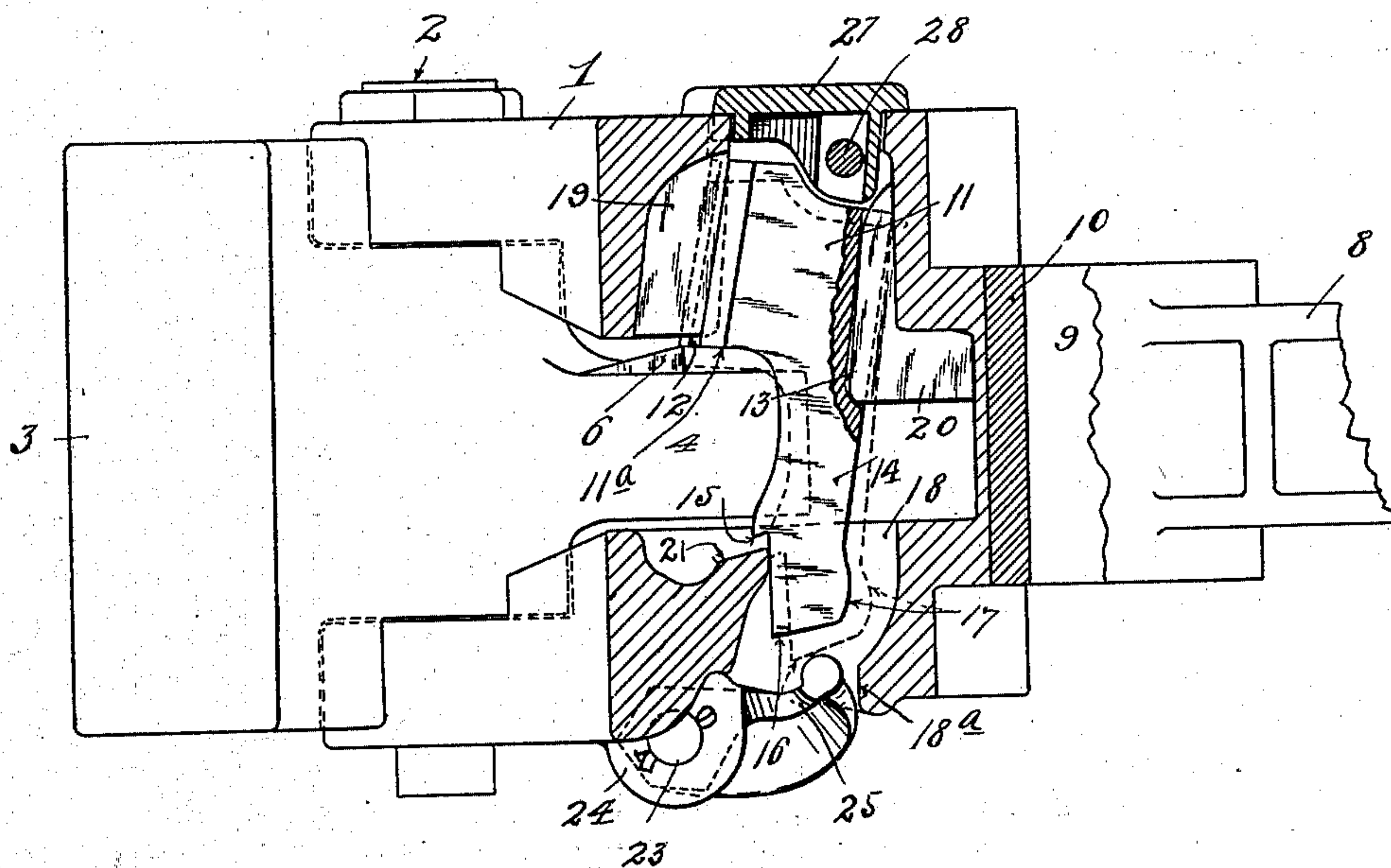
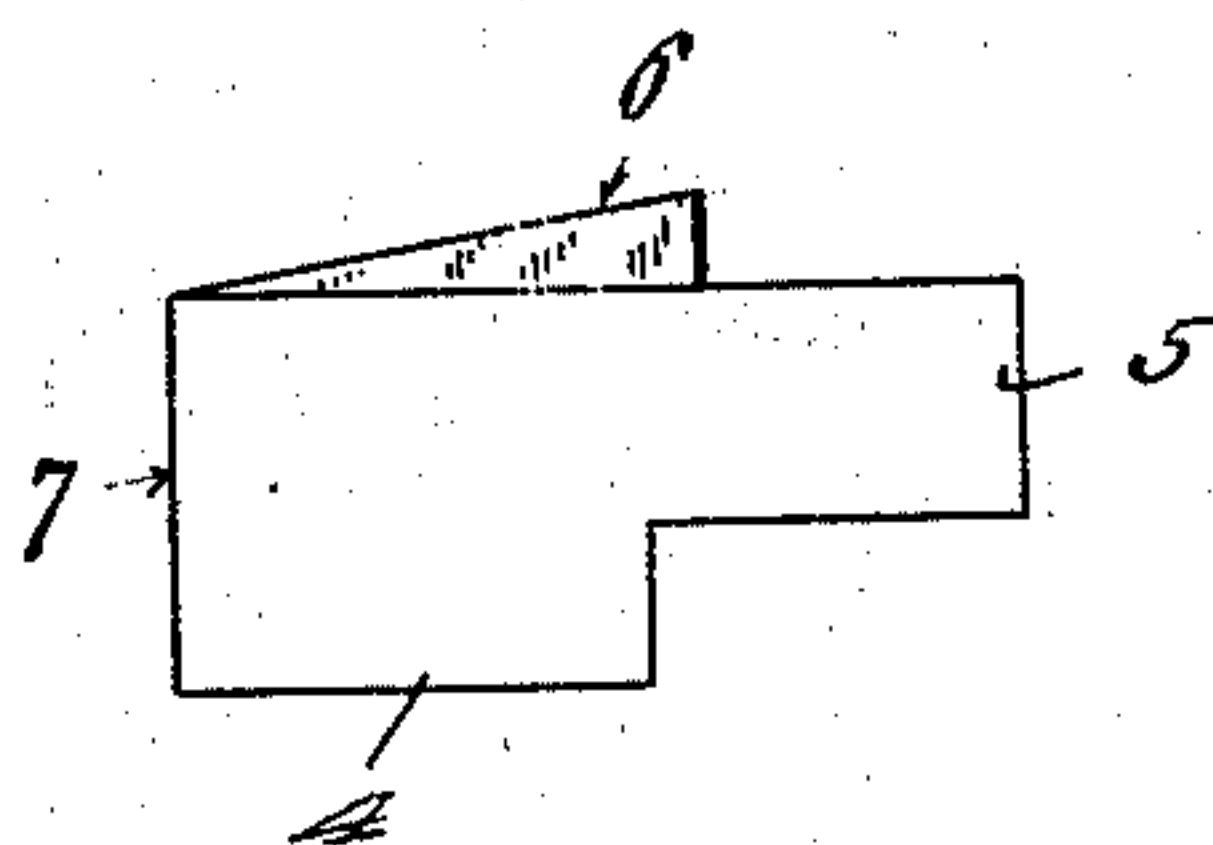


Fig. 6.



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UNITED STATES PATENT OFFICE.

EDWIN C. WASHBURN, OF MINNEAPOLIS, MINNESOTA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 749,345, dated January 12, 1904.

Application filed May 26, 1903. Serial No. 158,795. (No model.)

To all whom it may concern:

Be it known that I, EDWIN C. WASHBURN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Car-Couplers; 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 car-couplers of the Master Car-Builders' type, and especially to that type known to the trade as the "Washburn" coupler.

My present invention has for its object to improve car-couplers of the general character indicated in the several particulars hereinafter noted; and to such ends it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

Certain of the features illustrated in the present application are disclosed and broadly claimed in my pending application, Serial No. 122,561, filed of date September 8, 1902, entitled "Car-couplers."

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a bottom plan view of the coupler-head and dog-actuating mechanism. Fig. 2 is a vertical section on the irregular line $x^2 x^2$ of Fig. 1, some parts being broken away. Fig. 3 is a horizontal section on the line $x^3 x^4$ of Fig. 2 looking downward. Fig. 4 is a section on the line $x^3 x^4$ of Fig. 2 looking upward at the parts shown, but with the lock-dog removed. Fig. 5 is a view corresponding to Fig. 2, but with some parts broken away and with the lock-dog and knuckle moved from normal position; and Fig. 6 is a diagrammatic elevation of the tail end of the knuckle looking at the same from the rear toward the front of the coupler.

The numeral 1 indicates the recessed head of the coupler, to which is pivoted in the usual way by means of a pivot-bolt 2 a knuckle 3 of approximately the same form as that disclosed in my said prior application. More specifically stated, the tail 4 of the knuckle is formed with a segmental horizontally-extended dog-

supporting surface 5 and inward thereof an eccentric cam or ledge 6. This cam, flange, or ledge 6 in a horizontal plane is eccentric to the axis of the pivot-bolt 2 and more closely approaches the same as it extends outward or away from the vertical dog-pressing surface 7 of the tail of the knuckle. The upper cam face or surface of the said flange or ledge 6 rises in a direction extending from the same point—to wit, from the said surface 7.

As shown, the coupler-head is provided with a rearwardly-projecting shank 8 and is adapted to be pivotally connected to the draw-bar (not shown) by means of a pintle or pivot-bolt, which may be passed through a vertical perforation or seat 9, formed in the rear shank portion of the coupler-head. The pin-seat 9 is formed in a bushing 10, the exterior of which is hexagonal or of other polygonal form and closely fits a corresponding seat in the shank of the coupler-head. This bushing 10 may be of hardened steel, if desired, or it may be of any other suitable metal.

In service under repeated bumping and draft strains the seat 9 becomes rapidly worn and elongated in a direction from front to rear of the coupler. With the polygonal bushing shown when such wear takes place the bushing may be removed, turned or rotated on its axis through an angle represented by one of its sides, and then replaced in such a manner that the slack from front to rear of the coupler is taken up or again reduced to approximately normal. The bushing is thus capable of several changes in position before it becomes useless and even when worn out may be replaced by a new bushing. In this way the life of the coupler may be extended considerably. It is of course evident that the polygonal bushing must have sides of equal dimensions in order to permit it to be set in the various positions above indicated. A bushing having the hexagonal form will best serve the purpose and will provide for three different adjustments of the bushing.

In the present coupler the lock-dog does not work through the top of the coupler-head, but has a part depending through the bottom of the same and is raised by a lifting device, which operates on the said depending end

thereof. In its preferred form this lock-dog 11 is formed on its front face with a vertical groove 12 and on its rear face with a vertical groove 13 and is provided with a depending leg 14. The leg 14 of the lock-dog is formed on its forward edge some little distance above its lower end with a supporting-shoulder 15, and at its extreme lower end it is beveled, as at 16, and formed with a rear bulge 17 for purposes which will presently appear.

The lock-dog 11 works vertically within a seat 18, formed within the coupler-head and provided with internal guide-flanges 19 and 20, which work, respectively, in the grooves 12 and 13 of the lock-dog. These flanges 19 and 20 permit free vertical movements of the lock-dog and limited oscillation thereof from front to rear of the coupler-head, but hold the same against movement transversely of the coupler-head. The leg 14 of the lock-dog normally depends through the lower section of the dog-seat 18, as shown in Fig. 2. The coupler-head 1 is formed or provided with a dog-supporting ledge 21, which is located in front of the leg 14 of the lock-dog and bears a relation to the co-operating shoulder 15 of the said leg, which will hereinafter more fully appear. In the locking action one flat side face of the lock-dog is pressed against a flat vertical interior wall 22 of the coupler-head, as shown in Fig. 3. This surface 22 extends parallel to the surface 7 of the tail of the knuckle.

The dog-lifting device involves an oscillating bolt 23, which is pivoted in lugs 24, depending from the bottom of the coupler-head. Said bolt has an angular stem, on which is fitted the laterally-bent hub of a dog-lifting finger 25, the projecting end of which is preferably rounded and engages the beveled lower end 16 of the leg 14 of the lock-dog, as best shown in Fig. 2. When the bolt 23 is oscillated so as to raise the finger 25, the lock-dog is raised. Preferably the lock-bolt 23 is oscillated by movements of a torsional rod 26, one end of which is bent laterally and passed through an eye in the outer end of said bolt and the other end of which is bent laterally to afford a handpiece. The rod 26 will be mounted in suitable bearings (not shown) in the adjacent end of the car-body to which the coupler is applied.

The upper end of the lock-dog seat 18 is normally closed by a cap 27, which depends into the said seat, and is provided with a marginal flange which overlaps with the said seat and prevents dirt or sand from entering the same. This cap 27 is rigidly but detachably held in place by a pin 28, driven therethrough and through the surrounding walls of the said seat.

It has come to my notice that serious accidents have frequently resulted from the fact that it is often necessary for a switchman to force a coupler-head laterally in order to make

the same properly engage with the coupler of an adjacent car, engine, or tender. To accomplish the lateral swinging movement of the coupler for the above purpose, the switchman has found it necessary either to take hold of the forward portion of a coupler with his hand or to press the same with his foot about the time of coupling, and this has resulted in the loss of a great many hands and feet. To remove the above danger in coupling, I provide the coupler-head with handpieces 29 on its sides forward of its pivotal connection to the draw-bar. These handpieces are preferably in the form of loops, which are cast integral with the head of the coupler.

The normal or locking position of the lock-dog (shown in Fig. 2) has already been noted. To raise the lock-dog and set the same for what is called "double automatic action"—that is, so that the coupler will automatically open and subsequently automatically lock—the free end of the lifting-finger 25 is oscillated upward in a manner already described and the lock-dog is raised far enough to carry the shoulder 15 of the leg thereof onto the ledge 21 of the coupler-head. Under this lifting movement the engagement of the rounded end of the finger 25 with the beveled end of the knuckle-leg 14 tends to force the said leg forward, and the engagement of the rounded surface 17 thereof with the lower surface 18^a of the seat 18 positively gives to the depending leg of the lock-dog a starting tilt or initial forward rocking movement. Again, the lower corner of the guide-flange 20 at the extreme upward movement of the lock-dog engages the curved lower extremity of the groove 13 and further insures the forward locking movement of the lock-dog, so that its shoulder 15 will be placed upon the supporting-ledge 21. When the said shoulder 15 rests upon the ledge 21, the lower forward portion 11^a of the lock-dog is moved forward into the path of movement of the cam-flange 6 on the tail of the knuckle. When, therefore, the knuckle is subsequently swung into an open position, the said cam-flange 6 passes under the projecting bottom portion 11^a of the lock-dog, raises the same, so as to carry the shoulder 15 off from the supporting-ledge 21, as shown by full lines in Fig. 5. As the coupler nearly reaches its extreme open position the cam-flange 6 in view of its eccentricity passes from under the lock-dog and permits the lock-dog to drop until its shoulder 15 again strikes the ledge 21. Then under the closing movement of the knuckle the eccentric surface of the said cam-leg 6 by its engagement with the forward lower portion of the lock-dog cams the same backward, so that its shoulder 15 is thrown rearward out of engagement with and clear of the ledge 21. The lock-dog then drops upon the segmental supporting-surface 5 of the tail of the knuckle, and when the knuckle reaches its normal position the dog again drops to its normal lock-

ing position. (Shown in Fig. 2.) The bulged surface 17 on the depending leg of the lock-dog in addition to its function already noted serves to prevent the lock-dog from working upward by imparting thereto a swinging movement and preventing the same from moving upward on a straight line.

It will of course be understood that the mechanism described is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a coupler of the character described, the combination with the supporting-ledge 21 and guide-flange 20 on the interior of the coupler-head, of the lock-dog 11 having the shoulder 15 for co-operation with said ledge 21, and having the groove 13 cam-shaped at its lower extremity and co-operating with said flange 20 to guide said dog and insure the engagement of said shoulder 15 with said ledge 21, substantially as described.

2. In a coupler of the character described, the combination with a lock-dog having a depending leg, of a lifting device comprising the oscillating bolt 23 swiveled in lugs on the bottom of the coupler-head, and the lifting-finger 25 having the laterally-bent hub fitting the angular portion of the stem of said bolt 23 and projecting for engagement with the depending leg of said lock-dog, substantially as described.

3. A car-coupler of the Master Car-Builders' type having a handpiece secured to one side thereof.

4. A car-coupler pivoted for lateral oscillation and provided on each side of its head with handpieces, for the purposes set forth.

5. A car-coupler pivoted for lateral oscillation and provided with handpieces on the coupler-head located at each side thereof, forward of the pivot, substantially as described.

6. A car-coupler having handpieces cast integral with the opposite sides of its head, for the purposes set forth.

7. In a coupler of the character described, a lock-dog, the upper extremity of which is always below the top of the coupler, said dog having a depending leg formed with the lateral bulge 17, which engages with an adjacent portion of the coupler-head to swing or lock the lower portion of said lock-dog, when the same is moved vertically, substantially as described.

8. In a coupler of the character described, a lock-dog having a depending leg formed with a beveled lower end, and a shoulder 15, in combination, with the supporting-ledge 21 within the coupler-head, and an oscillating lifting-finger mounted on the bottom of the coupler-head and engageable with the said beveled surface 16 to lift said dog and engage said shoulder 15 with said ledge 21, substantially as described.

9. A car-coupler, having at one of its pivotal joints a bushing formed with a polygonal exterior and adapted to be moved into different adjustments, substantially as described.

10. A car-coupler, having in one of its pivotal joints a bushing formed with a hexagonal exterior fitting a hexagonal seat in one of the pivoted members, and adapted to be set at different adjustments, substantially as described.

11. A car-coupler having a rearwardly-projecting shank cast integral with the coupler-head, the said shank being provided with a bushing 10 having a polygonal exterior fitting the correspondingly-formed seat in said shank and adapted to be set in different adjustments, substantially as described.

12. The combination, with a coupler-head having a rearwardly-projecting shank, of the hexagonal bushing 10 seated therein and adapted to be set in different adjustments, substantially as and for the purposes set forth.

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

EDWIN C. WASHBURN.

Witnesses:

ELIZABETH H. KELIHER,
F. D. MERCHANT.