(No Model.) 2 Sheets—Sheet 1.

C. H. HAMILTON.

CAR COUPLING.

No. 571,520. Patented Nov. 17, 1896.

Fig. 1.

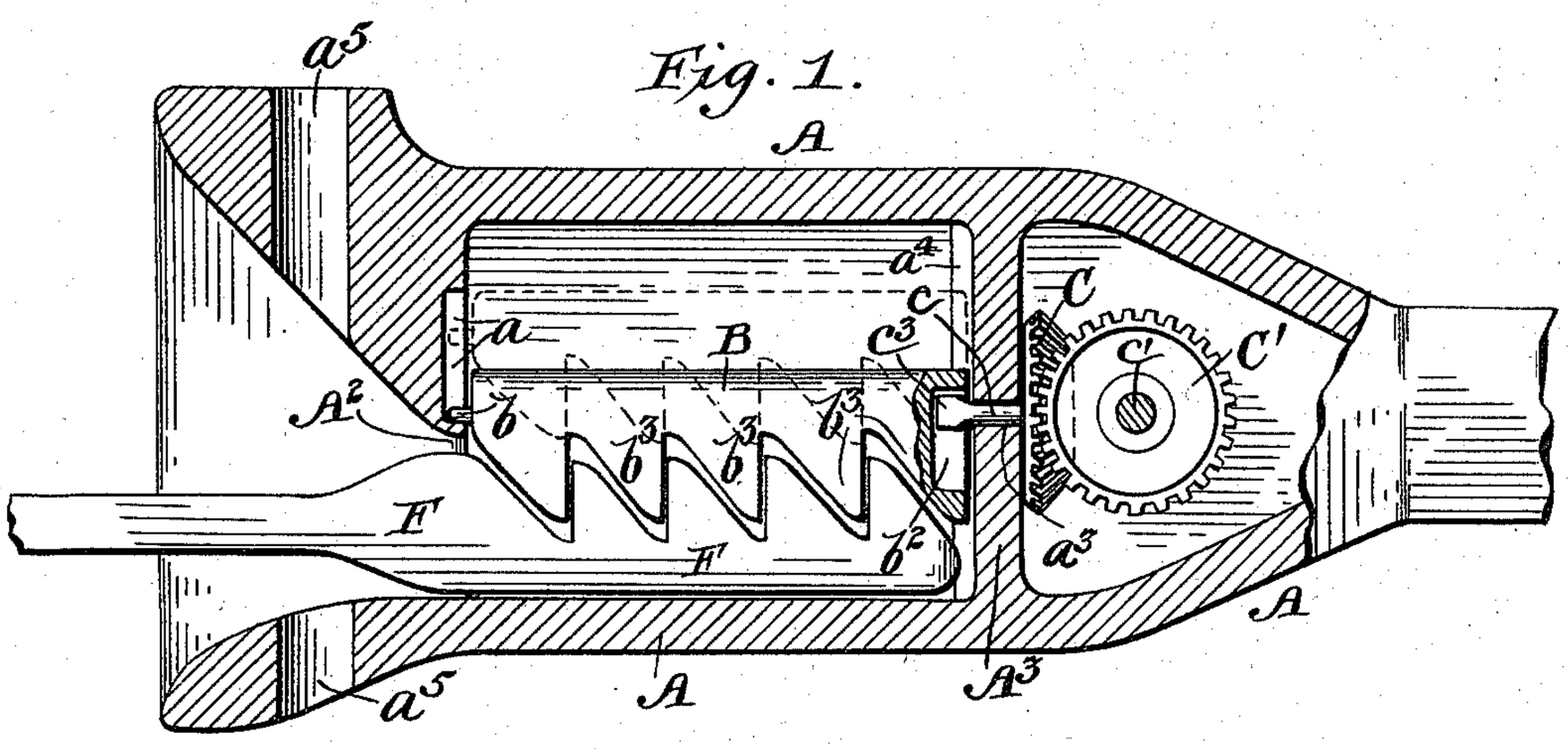


Fig. 2.

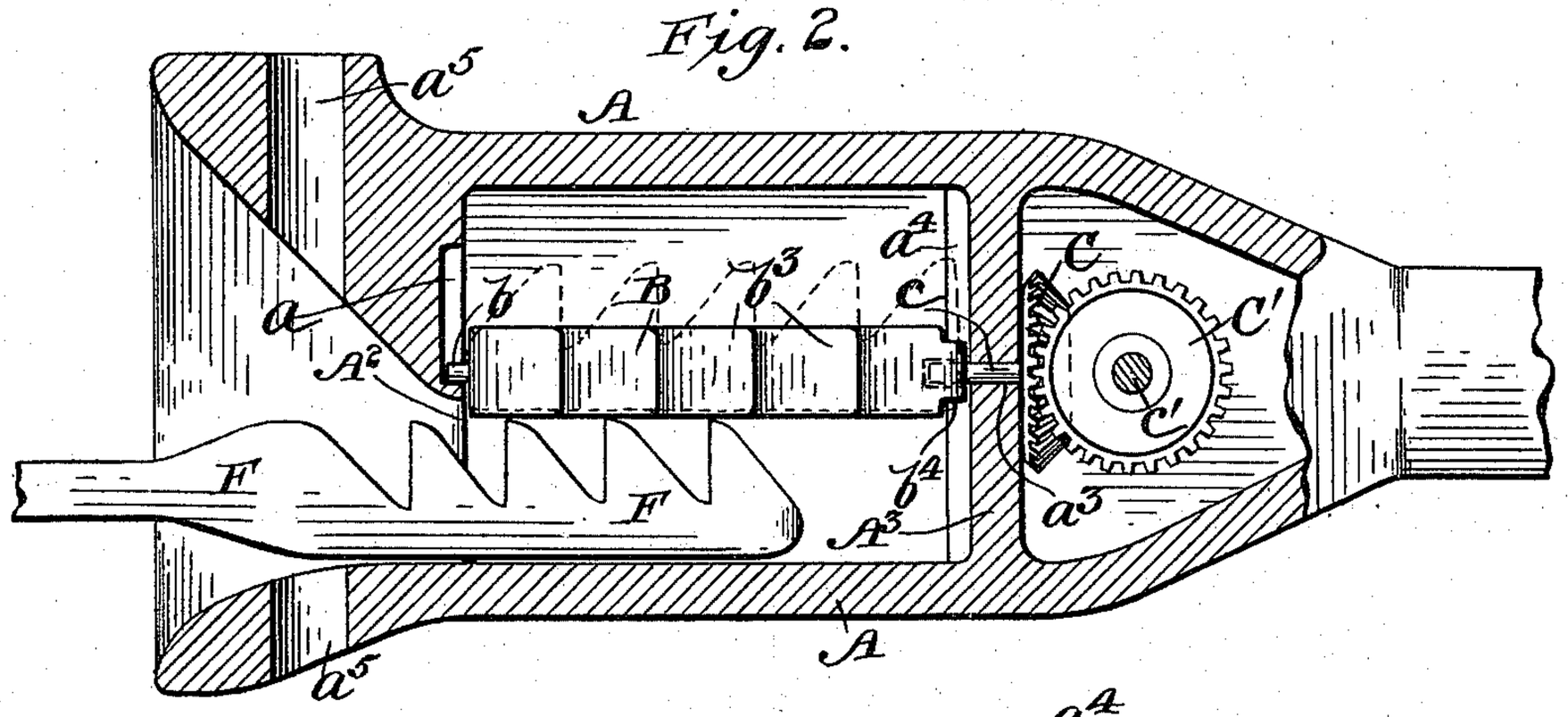


Fig. 3.

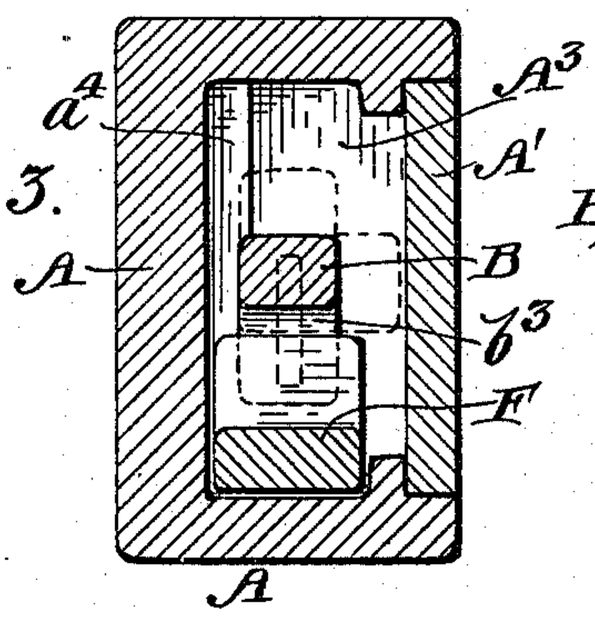
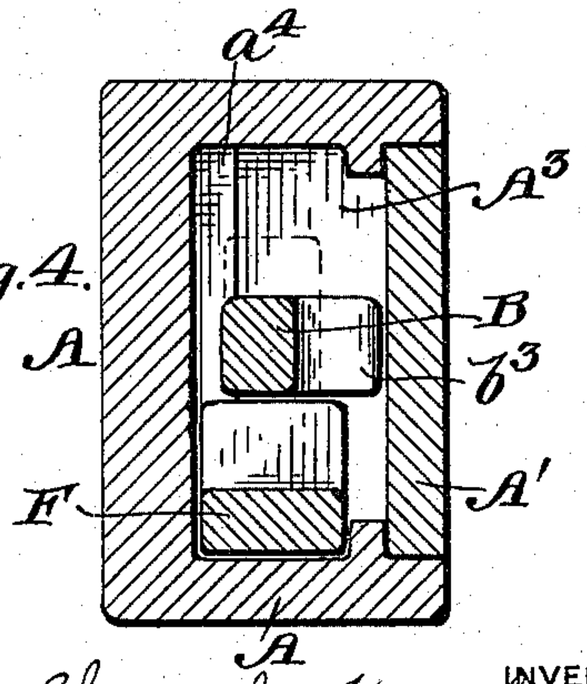


Fig. 4.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

C. H. HAMILTON.

CAR COUPLING.

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Fig. 5.

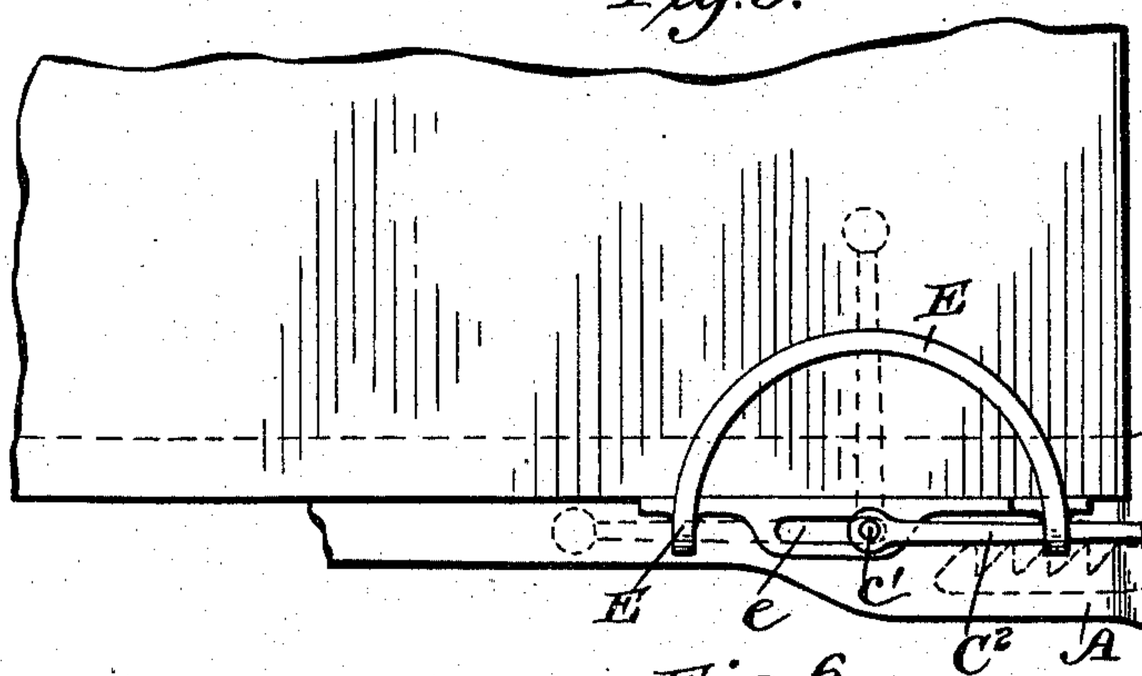


Fig. 6.

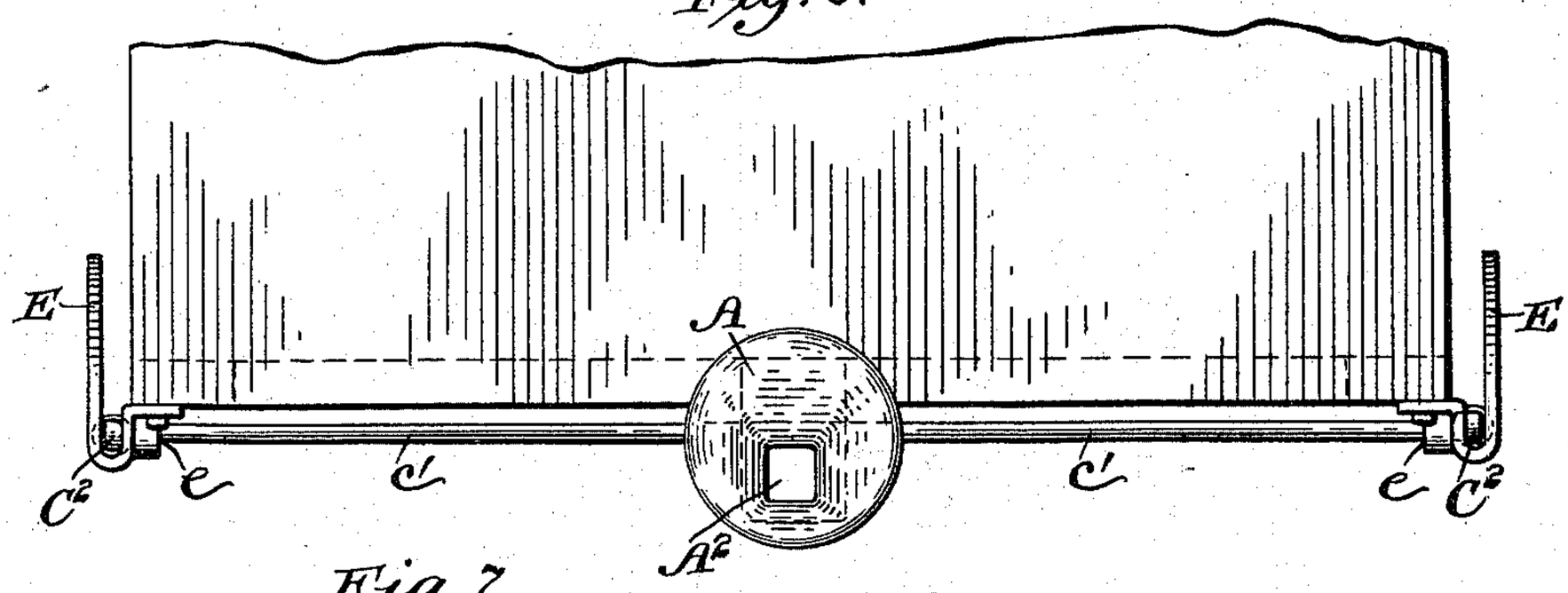


Fig. 7.

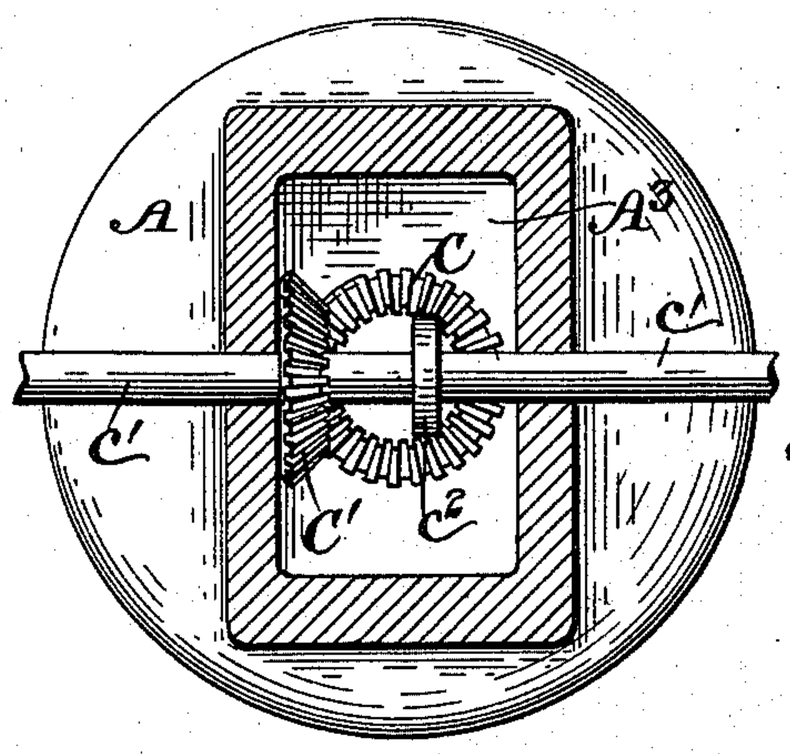
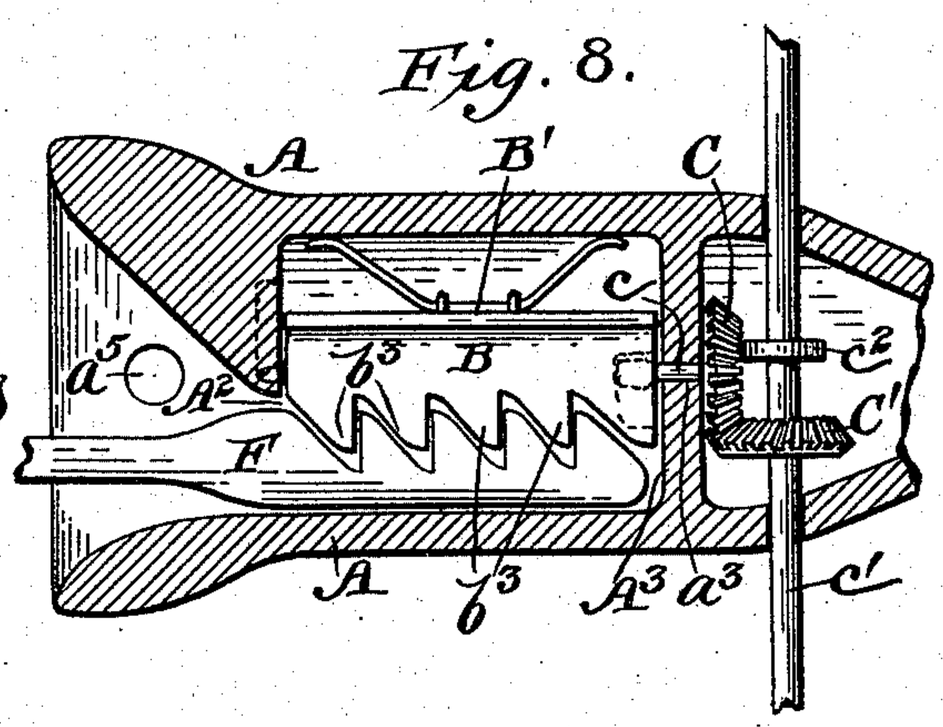


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHRISTOPHER HESKETH HAMILTON, OF NEW YORK, N. Y., ASSIGNOR TO FRANK R. BIEDLER, OF BALTIMORE, MARYLAND.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 571,520, dated November 17, 1896.

Application filed April 27, 1895. Renewed March 6, 1896. Serial No. 582,139. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER HESKETH HAMILTON, a subject of the Queen of England, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Car-Couplings; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in car-couplers, and has particular reference to that class known as "automatic" couplers, and it has for its object the provision of a coupler that will be reliable in operation, easily and safely manipulated, and in which the working parts are all within and thoroughly protected by the walls of the draw-head.

The invention consists, essentially, in a sliding and rotating detent and means for rotating the said detent to throw it out of engagement with the link.

The invention further consists in the construction and novel arrangement of the parts hereinafter described, illustrated in the drawings, and more particularly pointed out in the claims hereunto appended.

In the drawings, Figure 1 is a vertical longitudinal sectional view through the coupler, showing the draw-head, the sliding detent, the link engaged therewith, the said detent being shown raised in dotted lines, and means for rotating said detent to disengage the link. Fig. 2 is a similar view to Fig. 1, showing the sliding detent turned out of position in full lines and one-half way around in dotted lines. Figs. 3 and 4 are cross-sections of Fig. 2, showing the different positions of the rotating and sliding detent. Fig. 5 is a view of the coupler attached to a car and showing a lever at one side of the car for rotating the detent to release the link. Fig. 6 is an end view of the car, showing lever and guide therefor on each side of the car and rod connecting said levers to the coupler. Fig. 7 is an elevation of the turning or rotating device for turning the detent to release the link. Fig. 8 is a horizontal longitudinal sectional view of the coupler when used in another position, provided with a spring for holding said detent in its proper position.

Like letters indicate like parts in all the figures.

In the drawings, A represents the body of the draw-head, and A′ is a plate covering a suitable opening through which access is had to the chamber in the interior of the draw-head.

A^2 is the link-opening in the draw-head, so placed that every portion thereof will to one side of the center, as shown in Figs. 1, 2, 6, and 8. The front of the draw-head is round or elliptic in shape, and the opening therein tapers toward the link opening or hole A^2, one portion thereof being thicker than the other, by reason whereof great strength is obtained.

a is a vertical groove in the front inner wall of the thick portion of the draw-head, and extends from the center of said draw-head toward the top thereof, as shown in Figs. 1 and 2.

B is a toothed detent provided at one end with a lug or pin *b*, that sets in the groove *a*, and in its opposite end with a vertical groove b^2, into which sets a pin *c*, which passes through a circular opening a^3 in the vertical partition A^3 and has secured upon its opposite end a bevel-gear C, which meshes with a similar bevel-gear C′, rigidly secured upon a rod *c*′, which passes through the sides of the draw-head out under the car to the sides thereof and has secured upon its outer ends the bars C^2, the movements of which are limited by the guides E, secured to the sides of the car, as shown. The guides E are provided with horizontal slots *e* for the purpose of receiving and holding the rod *c*′ and permitting a free play therein when the draw-head is pushed back by two cars, as is evident.

The lug or pin on one end of the detent B sets in and slides in the vertical groove *a*, and the groove in the opposite end thereof receives and slides upon the squared or oblong end c^3 of the pin *c*, whereby the detent B has a vertically-sliding movement, the limit of which is the length of the grooves *a* and b^2, as is apparent.

B³ are ratchet-teeth, which may be either cast or cut upon the detent B and so set as to permit the toothed bar or link F to enter the draw-head and be engaged by the said detent, but will not permit the said link F to be withdrawn until the said detent has been disengaged from the said link. This link or bar F is provided on each end thereof, but on one face only, with ratchet-teeth set in a direction opposite to those on the detent B, as shown in the drawings. By reason of the mounting of this detent in its bearings and the shape and set of the teeth the detent B, when the bar or link F is thrust into the draw-head, will slide upward, so that the said bar or link F will enter the proper distance. When the bar or link F enters the draw-head, the teeth thereon will contact with the teeth on the detent and cause the said detent to slide away, so that the said bar or link can enter, when the said detent will fall back, either by gravity, its own weight, or by a suitable spring, and engage the said link or bar F, as is evident. The detent is revolved or turned out of engagement with the bar or link F by the turning of the gears C and C′.

c^2 is a suitable roller secured upon the rod c', just in front of the gear C, and is for the purpose of holding the gear C in its proper position.

The end of the detent in which is located the groove b^2 has on each side thereof cut-away portions b^4, into which works a check or stop a^4, which stop or check a^4 is for the purpose of holding the end of the said detent always in a true position and preserving its center when being rotated.

The forward end of the draw-head is provided with a pinhole a^5, as is usual. By reason of the peculiar construction of the forward end of the draw-head it will stand the greatest possible amount of strain.

The operation of this device is as follows:

The link or bar F is thrust into the draw-head which shoves or slides the detent B upward or away, and when the bar is in the draw-head the detent B will fall and engage it automatically. When it is desired to uncouple or disengage the link F, the bar C² is thrown toward the center of the car. When the bar C² is in an upright position, as shown in dotted lines, Fig. 5, the detent is turned to the position shown in full lines in Figs. 2 and 4, and the link or bar is then disengaged, and when put into the horizontal position shown in dotted lines, Fig. 5, the detent will be turned up, as shown in dotted lines in Figs. 2 and 3. It is evident that the detent may be held by any suitable means in either of the elevated positions when desired.

In this coupler it will be noted that when the link is released the side of the detent next to the teeth of the said link is perfectly smooth, and that by reason thereof it is impossible for this link to catch upon any part of the said detent when being withdrawn. It is to be further noted that when the said detent is turned the smooth face thereof falls a little below the upper part of the link-opening. Owing to this arrangement it will be impossible for the link when being withdrawn to catch upon the opening in the draw-head.

Having described my invention, what I claim is—

1. In an automatic car-coupler the combination of the draw-head constructed substantially as described and having a chamber therein, with a groove a in one end of said chamber, a detent or toothed rack B in said chamber, a pin b in one end of said detent adapted to set in the groove a, a groove b^2 in the opposite end of said detent, and a pin c adapted to set in the said groove b^2, as set forth.

2. In an automatic car-coupler the combination of the draw-head constructed substantially as described and having a chamber therein, with a groove a in one end of said chamber, a detent or toothed rack B in said chamber, a pin b in one end of said detent adapted to set in the groove a, a groove b^2 in the opposite end of said detent, a pin c having a squared end and set into the said groove b^2, and means for turning said pin c to operate the detent, as set forth.

3. In an automatic car-coupler the combination of the draw-head constructed substantially as described, with a groove a therein, detent B, groove b^2 in said detent, pin c, and a link or bar F, and means substantially as described for turning the said detent to disengage the link or bar, as set forth.

4. In an automatic car-coupler the rotating and vertically-sliding detent B, means for holding said detent in position, in combination with the gears C and C′, rod c', and means for operating said rod to turn or uncouple the detent, as set forth.

5. In an automatic car-coupler the combination of the draw-head constructed substantially as described and having a chamber therein, with a groove a in one end of said chamber, a detent or toothed rack B in said chamber, a pin b in one end of said detent adapted to set in the groove a, a groove b^2 in the opposite end of said detent, a pin c one end of which sets in the groove b^2, a gear C on the opposite end of said pin c, gear C′ meshing said gear C, rod c' on which said gear C′ is mounted, means for turning said rod to turn the detent, and a guide or other means to limit the extent of movement, as set forth.

6. In a car-coupler the combination of a rotating detent, substantially as described, with the gears C and C′, rod c', roller c^2 on said rod, and a lever C² for operating said rod to turn the detent, as set forth.

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

CHRISTOPHER HESKETH HAMILTON.

Witnesses:
J. W. PERRY,
I. J. POCHER.