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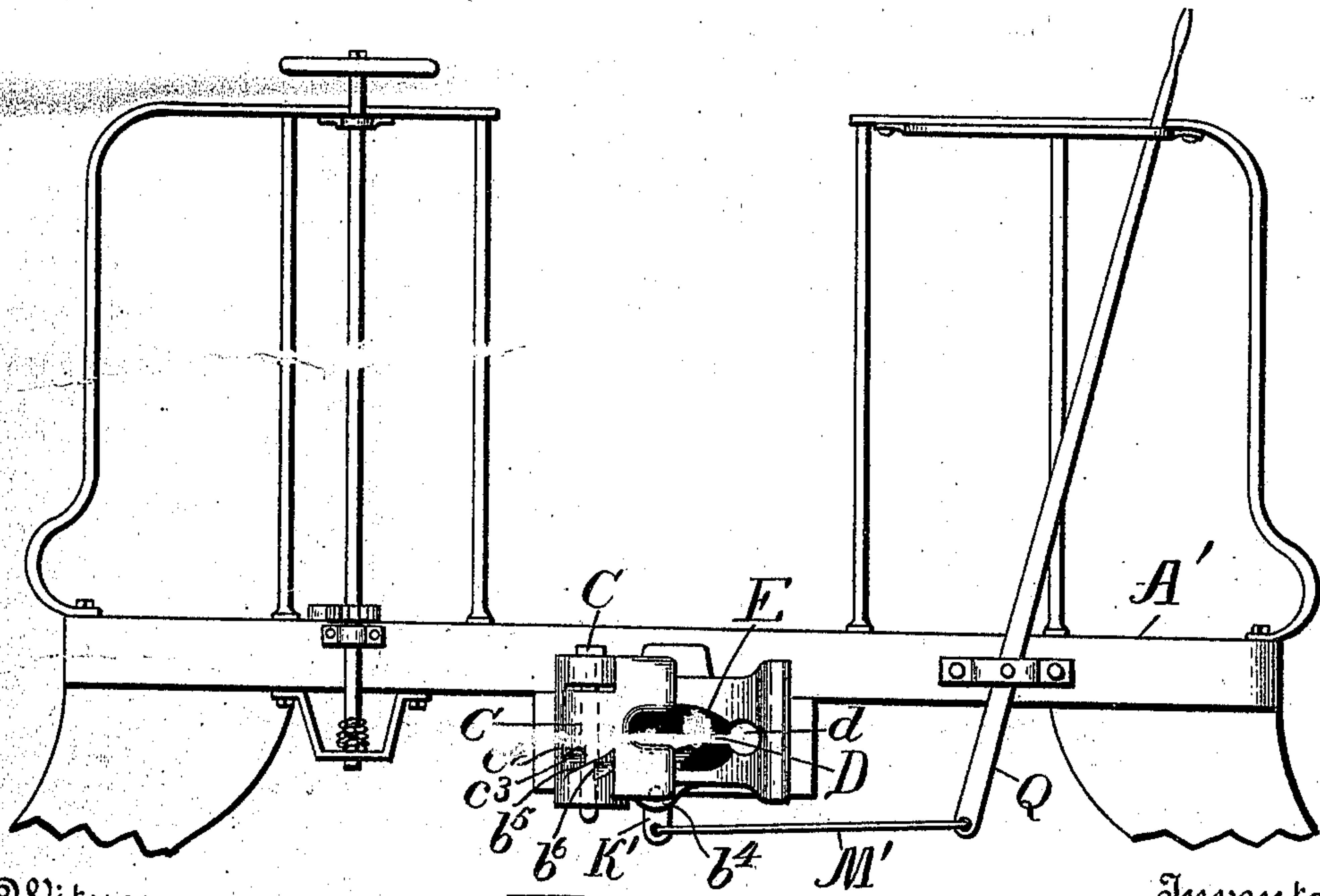
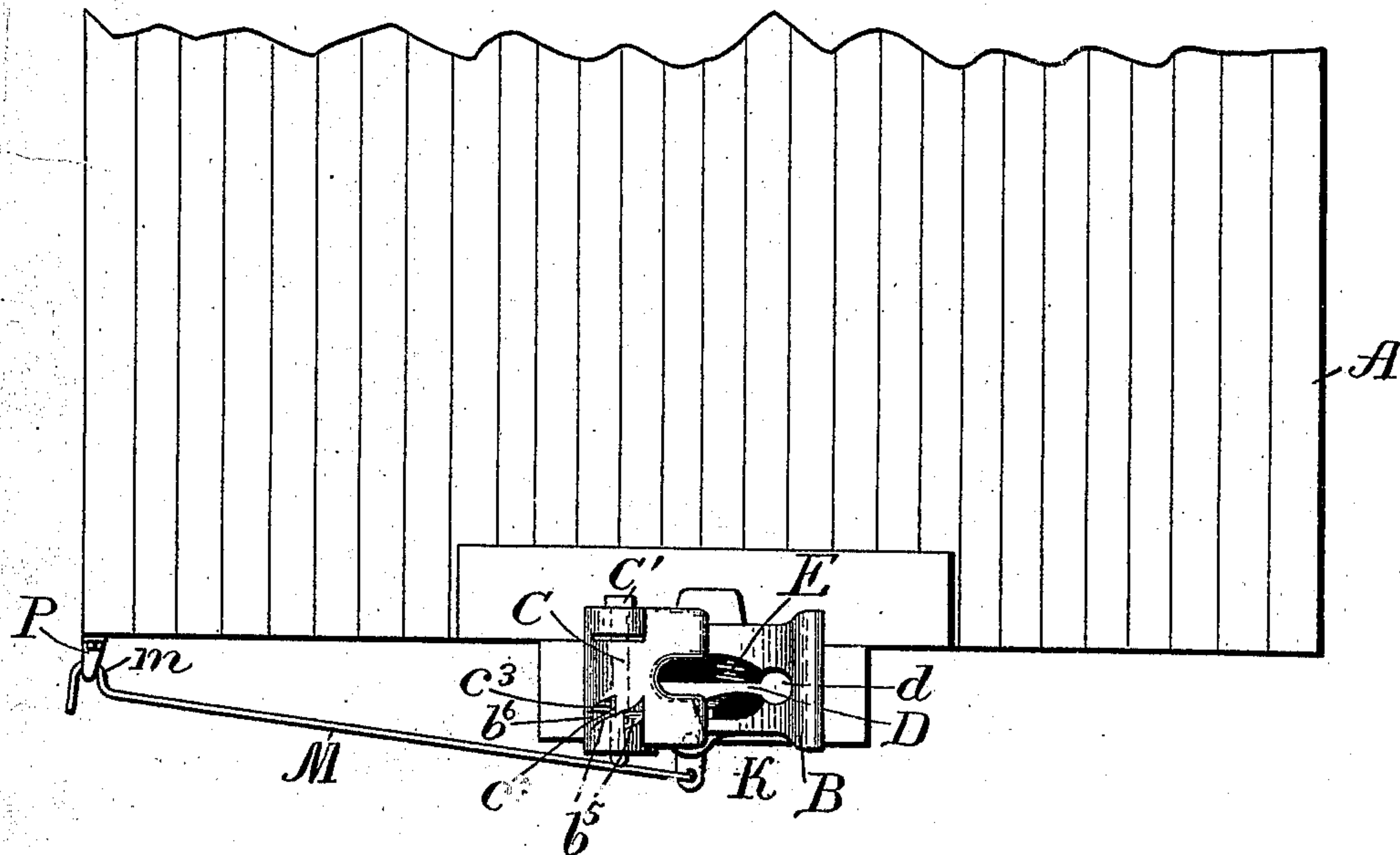
2 Sheets—Sheet 1.

J. A. ROOSEVELT.
CAR COUPLING.

No. 540,111.

Patented May 28, 1895.

FIG. 1.



Witnesses

Roy C. Bowen
Maurice Linosa

FIG. 2.

Inventor

James A. Roosevelt
By *Whitman & Wilkinson*
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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FIG. 3.

FIG. 4.

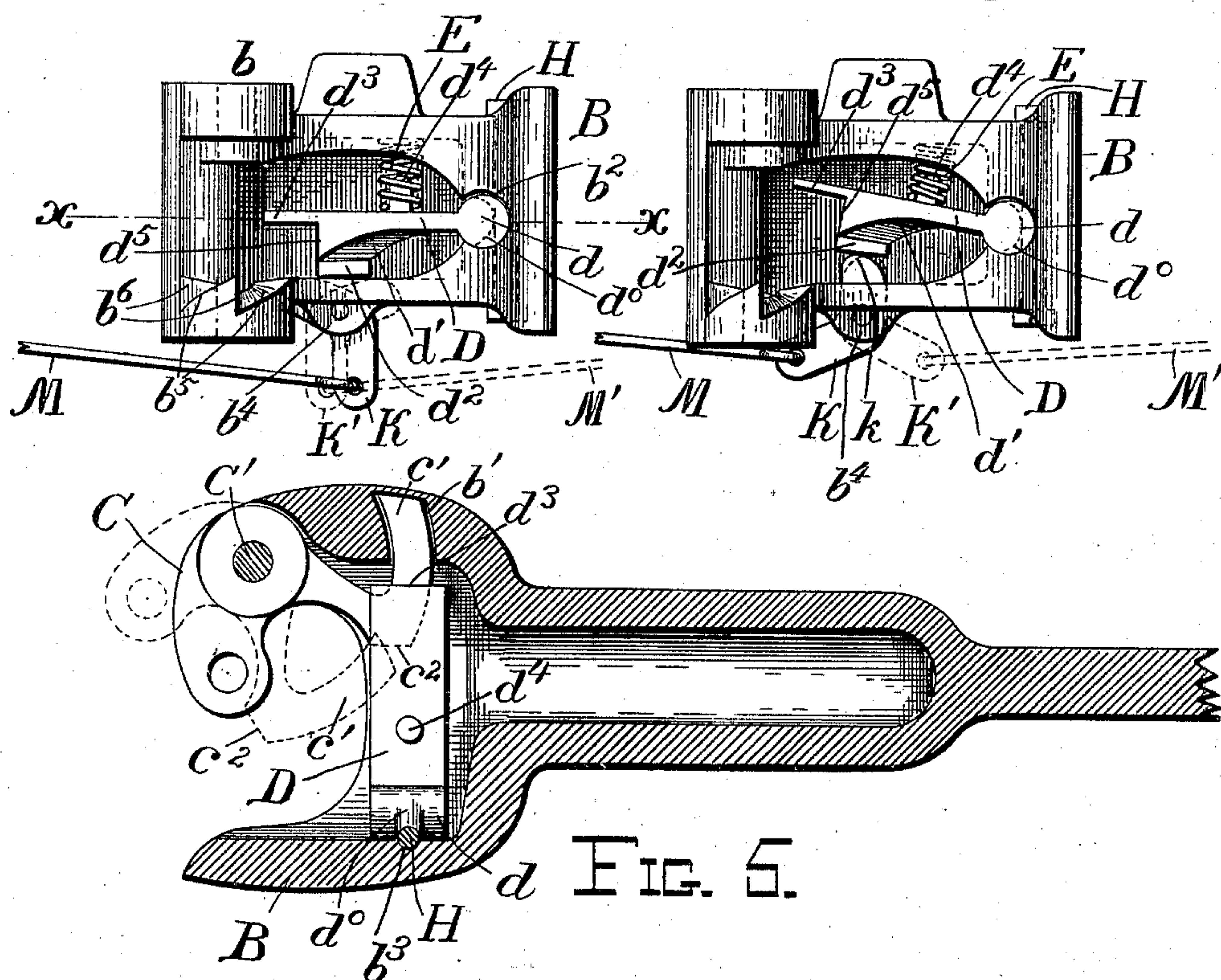


FIG. 5.

FIG. 6.

FIG. 7.

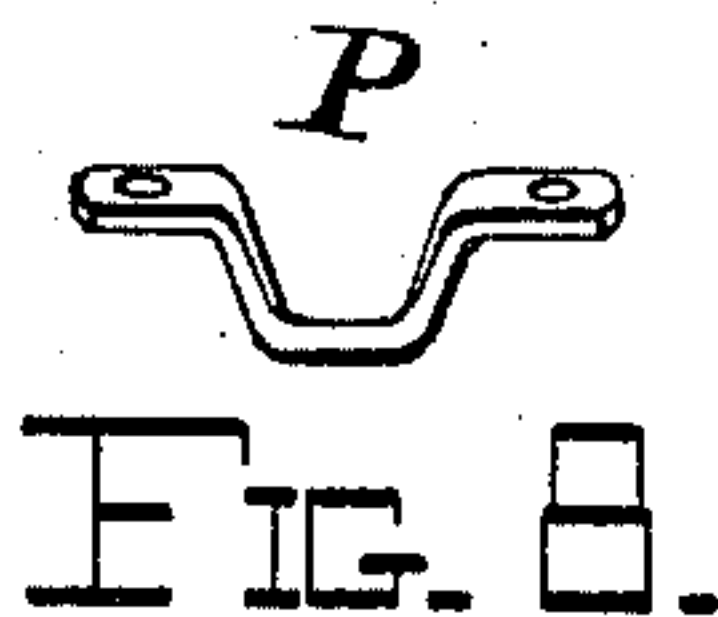
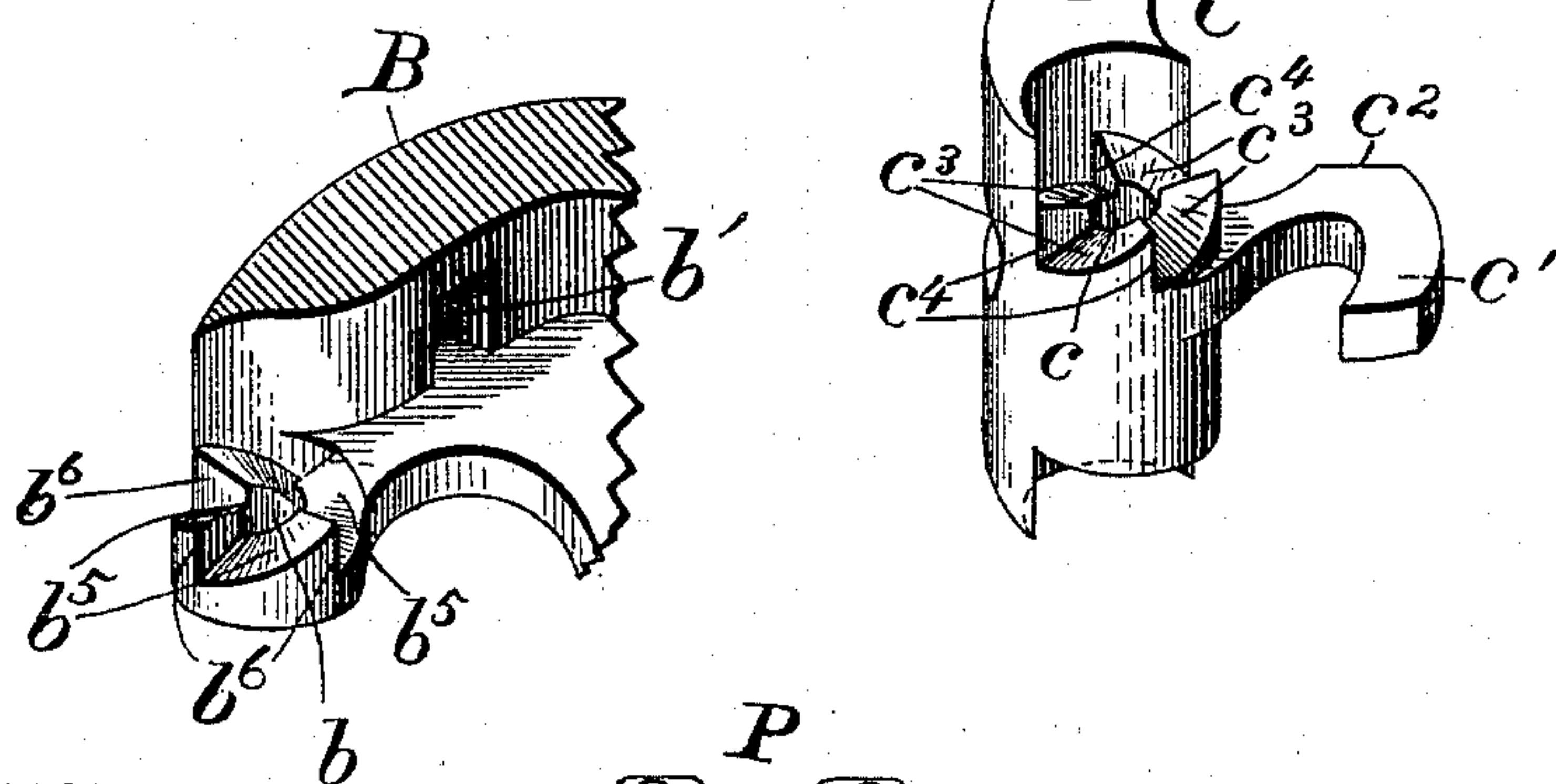


FIG. 8.

Witnesses

Wesley C. Bowen
Maurice Sivusa

Inventor

James A. Roosevelt
By *Whitman & Wilkinson*
Attorneys.

UNITED STATES PATENT OFFICE.

JAMES A. ROOSEVELT, OF AUSTIN, TEXAS, ASSIGNOR OF ONE-HALF TO
THOMAS H. WHELESS, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 540,111, dated May 28, 1895.

Application filed October 5, 1894. Serial No. 525,001. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. ROOSEVELT, a citizen of the United States, residing at Austin, in the county of Travis and State of Texas, have invented certain new and useful Improvements in Car-Couplings; 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 improvements in car-couplings, and it consists of certain improvements upon the invention described in Letters Patent No. 520,380 for an improvement in car couplings, granted to me May 22, 1894.

Reference is had to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a front view of a freight-car body provided with the improved car-coupling. Fig. 2 represents a front view of the platform of a passenger-car provided with the improved car-coupling. Fig. 3 represents a front elevation of the draw-head after the knuckle has been removed therefrom and with the latch down. Fig. 4 represents a similar view to Fig. 3 and with the latch up. Fig. 5 represents a section along the line xx of Fig. 3. Fig. 6 represents a detail perspective view of part of the draw-head. Fig. 7 represents a perspective view of the knuckle as inverted, and Fig. 8 represents a detail view of the loop for supporting the hooked end of the hand-rod for uncoupling the coupler when used on freight-cars.

A or A' represents the car body.

B represents the drawhead; C, the knuckle; C', the pivot-pin; D, the locking-latch; E, the latch spring; H, the pin for holding the latch in position; K or K', the tripping lever, and M or M' the hand rod for operating the same.

The drawhead B is hollow, and of the Master Car Builders' type. It is provided with the pin hole b , the curved recess b' for the hook shaped wing of the knuckle, the recess b^2 for the pivoted end of the latch, and the hole b^3 for the latch holding pin H. The upper portion of the lower arm or horn of the drawhead is provided with four wedge-shaped

teeth, sloping as at b^5 , and vertical as at b^6 , arranged in a circle about the hole b for the pivot pin. The base of the drawhead is provided with two lugs b^4 between which the bell-crank lever is pivoted.

The knuckle C is pivoted in the drawhead in the usual way. The locking arm c of the knuckle is provided with a circular wing c' adapted to swing into the corresponding groove b' in the drawhead and has a square holding face c^2 . The body of the knuckle is provided with a hole c for the pivot pin, and with four wedge-shaped teeth having inclined faces c^3 adapted to engage the inclined faces b^5 of the drawhead, and vertical faces c^4 to engage the vertical faces b^6 of the drawhead.

The lock or latch D is provided with an enlarged heel d fitting in the circular groove in the drawhead, and acting as a pivot to the said lock, the said heel having a groove d^0 to engage the holding pin H, as shown in Fig. 5. The said latch is also provided with an inclined face d' , a flat lug d^2 on its rear edge, a projecting arm d^3 and a lug d^4 on the back thereof and entering the spiral spring E, and a vertical flat face d^5 most clearly shown in Figs. 3 and 4. The holding pin H passes through the hole b^3 in the drawhead, and engages in the groove d^0 and so prevents the lock D from being accidentally removed from the drawhead. The back of the lock D is in close proximity to but free from contact with the wall at the rear portion of the hollow part of the drawhead.

The bell-crank tripping lever K is pivoted between the lugs b^4 , and is rounded at k on the tripping arm, as shown in Fig. 4. Since in freight cars it is desirable to operate the car coupling from the right side of the car, while in passenger cars the car coupling lever is generally arranged near the opposite side, the bell-crank lever may be arranged either as shown at K' for passenger cars, or as shown at K for freight cars, the lead of the rod M' or M being different accordingly. On passenger cars the rod M' connects the bell-crank lever K' to the hand lever Q in the ordinary way. On freight cars, I preferably use a hand rod M hooked as at m and engaging a loop P. This hook m will hold the tripping arm k of the lever K out of engagement with the latch

D, and will thus prevent the cars from becoming accidentally uncoupled. Moreover the hook *m* has another function which will be hereinafter described.

5 The operation of the device is as follows: Suppose the knuckle to be open, as shown in dotted lines in Fig. 5, and another car provided with a coupler of the Master Car Builders' type to be backing down to couple on.
 10 When the cars come together the knuckle C is swung around. The shank of the knuckle which already supports the latch in a partly raised position, wedges under the inclined face *d'* of the lock D, raises the lock upward
 15 against the spring E until the arm *b'* passes behind the catch *d⁵* when the lock springs down again, firmly locking the knuckle in place. At the same time the hook-shaped wing *c'* has entered the recess *b'* and gives a firm
 20 hold in case the pivot pin carries away. Now, suppose the two cars to be coupled together, and it be desired to uncouple. By pulling on the rod M (or M') the tripping lever K (or K') will be brought into the position shown in Fig.
 25 4, when the lug *d²* of the lock will rest upon the flat face *k* of the bell-crank lever K, and the holding face *c²* of the knuckle will be released from the catch *d⁵*. The weight of the knuckle will cause the sloping faces *c³* to slide
 30 down the sloping faces *b⁵*, and the knuckle will swing open, in which position it will remain, or to which position it will return unless extraneous pressure be applied. Thus it will be seen that the knuckle will always
 35 remain open and ready for locking, and that there will be no necessity for the train hand to pass between the cars for the purpose of opening the knuckle should it become accidentally closed. Two of these teeth should
 40 be approximately at right angles to the longitudinal axis of the car, whereby the draft strain may be taken up by said teeth should the pivot pin be broken or misplaced. Having four of these teeth limits the outward swing
 45 of the knuckle to ninety degrees, and insures a more rapid swing to the opened position than where a less number of teeth are used. By having four teeth each occupying the quadrant of a circle about the hole for the pivot
 50 pin, and two of them arranged at approximately right angles to the longitudinal axis of the car, the draft strain will be taken up to such an extent by one of the said teeth, that the knuckle cannot be dragged out by
 55 the draft strain, even though the pivot pin be removed. The tendency of the knuckle to move laterally, due to the wedging effect of the teeth, will also be resisted by one or both of the teeth in approximately the longitudinal
 60 direction of the train. Thus by having four teeth, the knuckle will be held by one tooth against being dragged out, will be held by the opposite tooth against buffing strains, while the two remaining teeth will hold the knuckle
 65 against lateral motion, either when the train is going ahead or backing. The result of this arrangement is that the four teeth will always

hold the knuckle against two motions, the one at right angles to the other, and the result will be to fix it in position until the lock 70 be lifted. After uncoupling, in order to set the lock, reverse the operation of uncoupling, and thus draw the face *k* of the bell-crank lever K from beneath the lug *d²* at the rear of the lock D. This will allow the lock to fall 75 down into the position shown in Figs. 1, 2, and 3, when it will be ready to operate automatically.

The hook-shaped wing *c'* of the knuckle when swung out into the uncoupled position, 80 as shown in dotted lines in Fig. 5, raises the latch somewhat, and thus causes it to partly block the mouth of the drawhead when open, and the latch and the wing beneath the same materially assist in keeping snow, sleet, rain, 85 or other solid matter carried by the air out of the drawhead when the knuckle is swung open.

It will be seen that not only is the necessity for going between the cars obviated by 90 the herein described device, but that it would be extremely difficult to open the coupler from any where but the outside of the car, and thus any temptation to go between the cars for the purpose of opening the knuckle by hand, will 95 be removed.

By having the rod M pivotally connected as by the hook *m* at the side of the car, an important result is obtained in automatically uncoupling in case of accident to the draw- 100 bar, and also of swinging the broken off drawhead clear of the track. Thus any breaking loose of the drawhead from the draft rigging or any parting of the drawbar in rear of the drawhead, will cause the drawhead to be 105 drawn forward bodily putting a tension on the rod M and causing it to lift the latch D and uncouple the car ahead. Any further forward movement of the broken drawbar will cause the bar M to tend to bind the same in 110 the draft rigging; but if the drawbar be broken off too near the drawhead, or be drawn forward too violently in the first instance so as to become entirely clear of the draft rigging, then the broken off drawhead will swing 115 about the hook *m* as a pivot and will be dragged along the ground outside of the track, thus preventing the damage well known to occur from broken off drawheads falling on the track. These, and the various other advantages of the herein described construction will be appreciated by anyone skilled in the art. 120

The spring E is intended to give a positive motion to the lock D, but it is evident that the said lock will fall by gravity alone, and 125 thus operate without the assistance of the said spring.

It will be obvious that many modifications of the herein-described device might be made, which could be used without departing from 130 the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a twin jaw car coupling, the combination with a hollow drawhead, of a knuckle pivoted in said drawhead and provided with a locking arm adapted to enter into the hollow portion of said drawhead, a lock pivoted across said drawhead, and provided with an inclined face and a catch on the lower side thereof, the said lock being adapted to fall by gravity and engage said locking arm of said knuckle, a lever pivoted in said drawhead and having one arm adapted to trip said lock and release said arm; a hand rod connected to the other arm of said lever and leading to the side of the car, a hook at the outer end of said hand rod, and means for pivotally engaging said hook at the side of the car, substantially as and for the purposes described.

2. In a twin jaw car coupling, the combination with a hollow drawhead, of a knuckle pivoted in said drawhead, and provided with a locking arm adapted to enter into the hollow portion of said drawhead, a lock pivoted across said drawhead and provided with an inclined face, and a catch on one side thereof, a spring normally pressing on the opposite side of said lock, a lever pivoted in said drawhead and having one arm adapted to trip said lock, and release said arm; a hand rod connected to the other arm of said lever and provided with a hook at its outer end, and a loop at the side of the car supporting and holding said hook, substantially as described.

3. In a twin jaw car coupling, the combination with a hollow drawhead provided with a curved recess therein, of a knuckle C pivoted in said drawhead and provided with a hook-shaped wing c' adapted to enter into said curved recess and a bearing face c^2 , a lock D pivoted across said drawhead and provided with an inclined face d' ; a bearing face d^5 , a circular heel d engaging in a corresponding recess in said drawhead, and grooved at d^0 , the said lock being adapted to fall by gravity and engage said locking arm of said knuckle, and a vertical pin H entering into said groove in said heel, a bell-crank lever pivoted in said drawhead and having one arm adapted to trip said lock and release said locking arm of the knuckle and to support said lock when open, and an operating rod connected to the other arm of said lever, substantially as described.

4. In a twin jaw car coupling, the combination with a hollow drawhead provided with a curved recess therein, of a knuckle C pivoted in said drawhead, and provided with a hook-shaped wing c' adapted to enter into said curved recess and a bearing face c^2 , a lock D pivoted across said drawhead and provided with an inclined face d' ; a bearing face d^5 , and a lug d^2 on the lower side thereof, and a lug on the upper side thereof, a spiral spring engaging said lug and interposed between said lock and the inner wall of the drawhead, a lever pivoted to said drawhead and having one arm adapted to trip said lock and release

said arm; and an operating rod connected to the other arm of said lever, and pivotally attached to the side of the car substantially as described.

5. In a twin jaw car coupling, the combination with a hollow drawhead provided with four wedge-shaped equidistant teeth arranged in a circle about the pivot of the lower horn of the drawhead, and two of said teeth being approximately at right angles to the longitudinal axis of the car of a knuckle pivoted in said drawhead and provided with a locking arm adapted to enter into the hollow portion of drawhead, and four wedge-shaped teeth arranged in a circle about the pivot, on the lower side of said knuckle and adapted to engage the wedge-shaped teeth in the drawhead; a lock pivoted across said drawhead and provided with an inclined face, and a catch on one side thereof, a spring normally pressing on the opposite side of said lock; a bell-crank lever pivoted in said drawhead; an operating rod connected thereto for tripping said lock and releasing said arm, a hook at the end of said rod, and a loop at the side of the car engaging in and holding said hook, substantially as described.

6. In a twin jaw car coupling, the combination with a hollow drawhead B provided with four wedge-shaped teeth arranged in a circle about the pivot in the lower horn of the drawhead, and a curved recess b' , of a knuckle C pivoted in said drawhead and provided with a hook-shaped wing c' adapted to enter into the said curved recess, a bearing face c^2 and four wedge-shaped teeth arranged in a circle about the pivot and adapted to engage said teeth in the drawhead, a latch pivoted across said drawhead and provided with an inclined face d' ; and a bearing face d^5 on the lower side thereof, means for causing said latch to engage said knuckle, and means for tripping said latch and releasing it from engagement with said knuckle, substantially as and for the purposes described.

7. In a twin-jaw car coupling, the combination with a hollow drawhead, provided with four wedge-shaped teeth equidistant from each other and arranged in a circle about the lower horn of the drawhead, two of the said teeth being approximately at right angles to the longitudinal axis of the car; of a knuckle pivoted in said drawhead and provided with four wedge-shaped teeth on the lower side thereof, the said teeth encircling the pivot of said knuckle, and registering with the teeth in the drawhead; and means for locking said knuckle and for unlocking the same, substantially as and for the purposes described.

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

JAMES A. ROOSEVELT.

Witnesses:

SEDON HARRIS,
R. J. BROWN.