

No. 667,427.

Patented Feb. 5, 1901.

C. DIETZ.
CAR COUPLING.

(Application filed Apr. 27, 1899.)

(No Model.)

2 Sheets—Sheet 1.

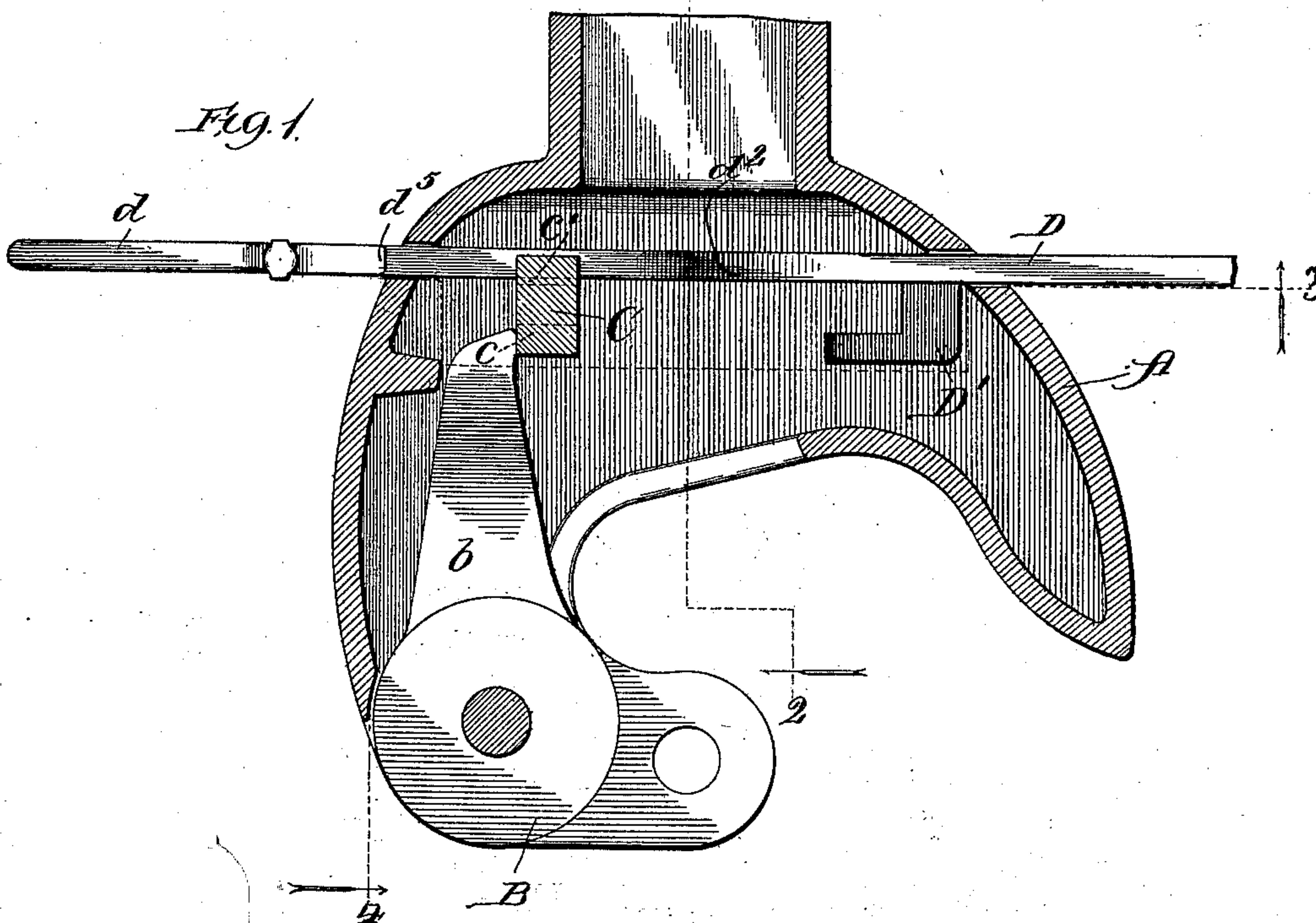
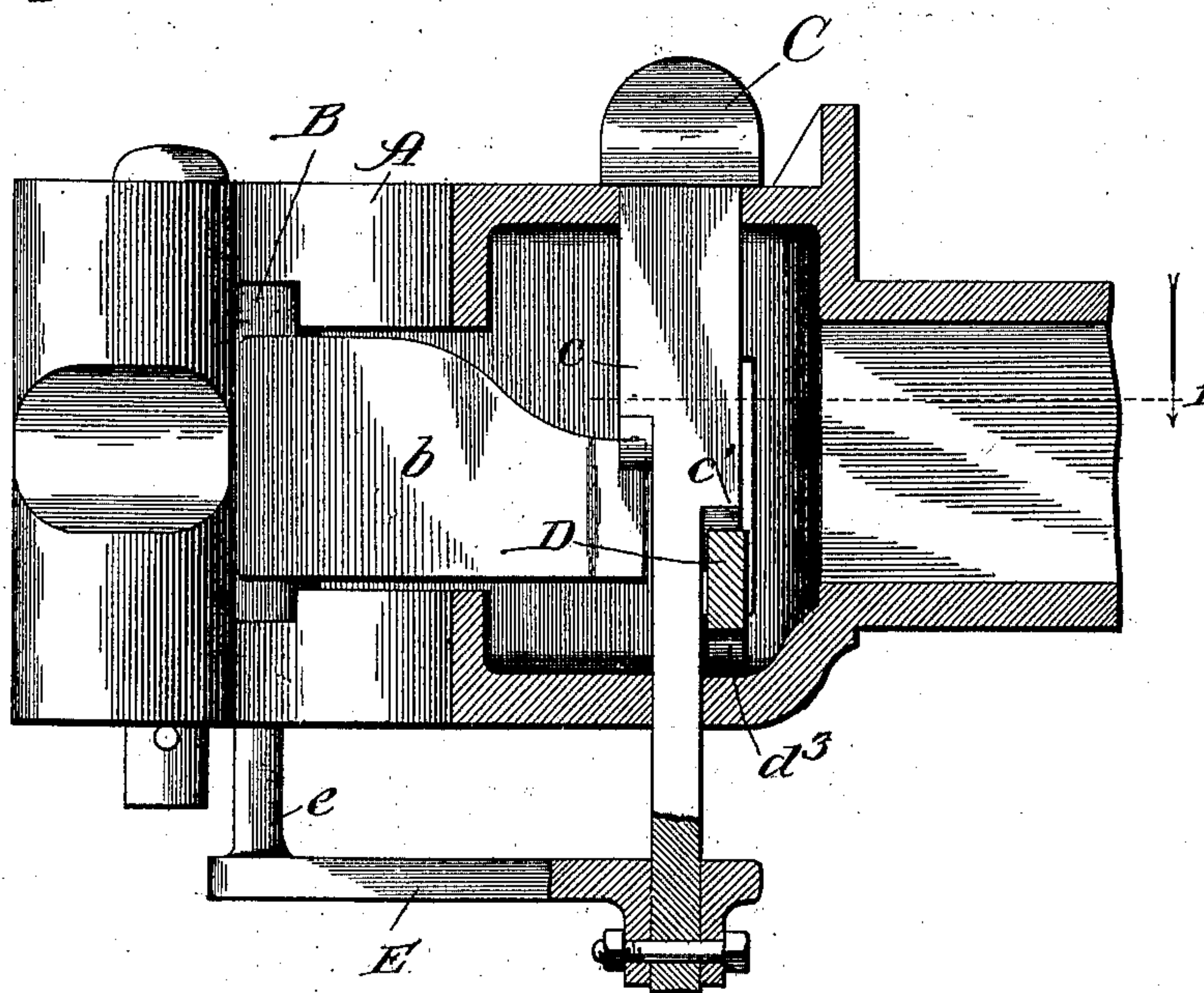


Fig. 2.



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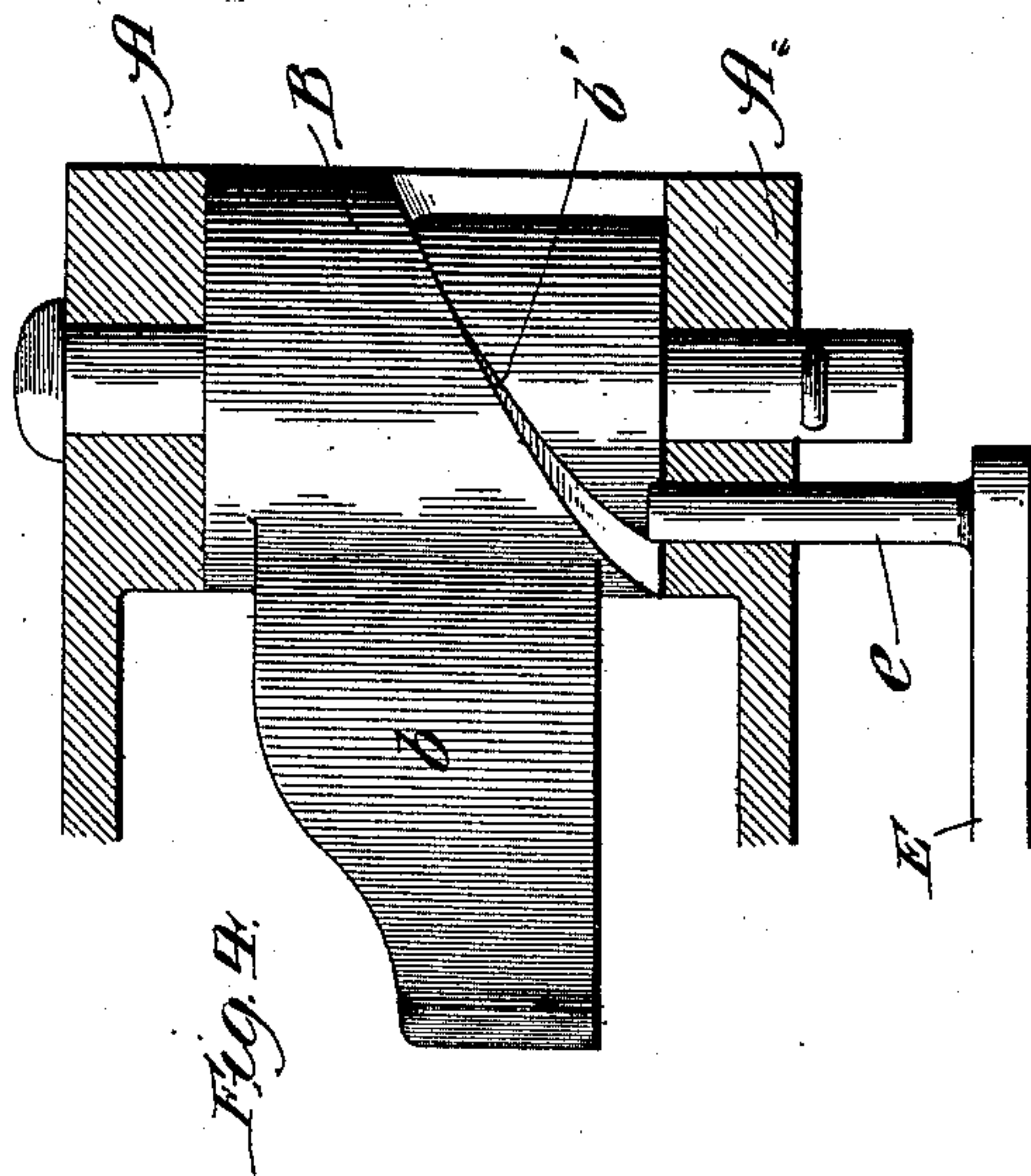
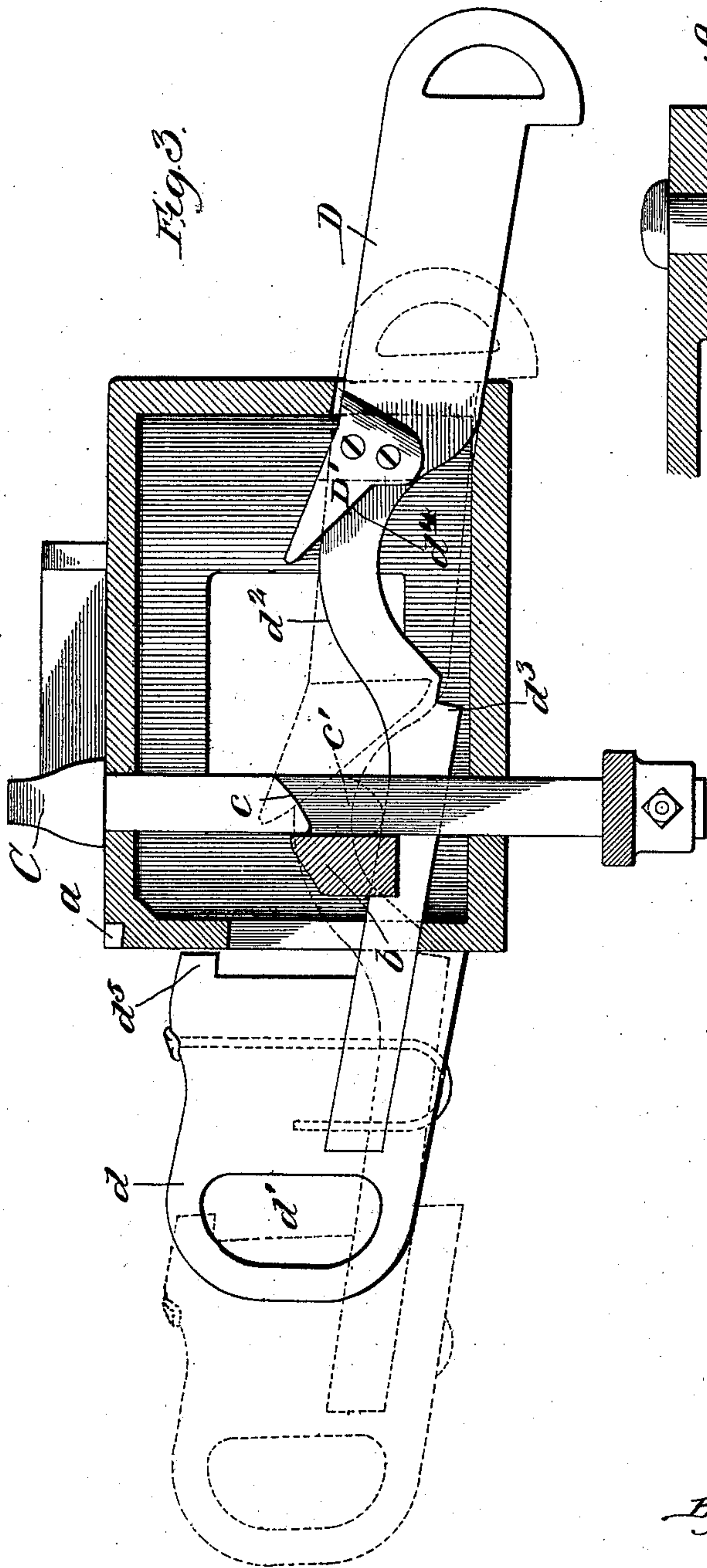
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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 667,427, dated February 5, 1901.

Application filed April 27, 1899. Serial No. 714,738. (No model.)

To all whom it may concern:

Be it known that I, CHARLES DIETZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

My invention relates to that class of car-couplers known as "twin-jaw" or "automatic" car-couplers of the Master Car-Builders' type, and particularly to the means for raising the locking-pin, holding it in its elevated position, and throwing open the knuckle, all of which will more fully hereinafter appear.

The object of the invention is to provide a twin-jaw coupler of the Master Car-Builders' type with means for raising the locking-pin, holding it in its elevated position, and throwing open the coupling-knuckle; and the invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a sectional plan view of a draw-bar head and car-coupler constructed in accordance with my improvements, taken on line 1 of Fig. 2; Fig. 2, a vertical sectional elevation taken on line 2 of Fig. 1; Fig. 3, a transverse sectional view taken on line 3 of Fig. 1, and Fig. 4 a sectional detail taken on line 4 of Fig. 1.

In the art to which this invention relates it is well known that it is highly desirable to provide means for unlocking the car-couplers without requiring the trainman to go between the cars for that purpose. The usual means for accomplishing this result is by means of a rock-shaft on the dead-wood of the car, which has a chain connecting it with the locking-pin. The objection to this style of mechanism is that if the draw-bar happens to have an undue motion longitudinally the locking-pin is raised to unlock the coupler and break the train on perhaps a dangerous grade, as well as to cause delay and confusion. My invention therefore is designed primarily to provide a car-coupler with locking and unlocking mechanism in which these objections will be obviated and which will not require the trainman to go between the cars, all of which will more fully hereinafter appear.

In illustrating and describing my improvements I have only illustrated and described so much of the mechanism as is old, in connection with what I consider to be new, as may be necessary to properly disclose the invention and enable those skilled in the art to practice the same, leaving out of consideration other and well-known parts, which if illustrated and described here would only tend to confusion, prolixity, and ambiguity.

In constructing a car-coupler in accordance with my improvements I provide the usual draw-bar head A of the twin-jaw or Master Car-Builders' type, in which is pivotally mounted a coupling-knuckle B. This coupling-knuckle is held in its locked position by means of the vertically-movable locking-pin C, which is mounted in convenient position in the draw-bar head to contact the rearwardly-extending tail *b* of the knuckle and hold it in its locked position and so that it cannot be unlocked until the locking-pin is elevated, as will more fully hereinafter appear.

To permit the coupling-knuckle to be unlocked, the locking-pin, as shown in Fig. 2, is made of different thicknesses, so that when raised the cam projecting portion *c* is raised above the tail of the knuckle and permits the same to swing open. This cam projection, as will be seen particularly in Fig. 3, is cam-shaped, and, as shown in the same figure, the tail of the coupling-knuckle is likewise cambered or beveled to contact the same, so that during the closing motions of the coupling-knuckle the locking-pin is elevated automatically to permit the coupling-knuckle to swing into its locked position and then drop back and hold it in such position. It is desirable that means be provided by which this locking-pin may be raised without requiring the operator or trainman to go between the cars for that purpose and which will permit the connected cars to be uncoupled without danger to the operator. To accomplish this result, I provide what I term a "sliding bar" D and arrange it so that it moves substantially in a horizontal plane transversely of the draw-bar head and in proper openings in the same. This sliding bar is provided with a head portion *d*, having a perforation *d'* in the same, into which the operator may pass a hook and pull it toward him or which may be pro-

vided with a cord or chain loosely connected to some portion of the car. It is also, as will be seen from an examination of Fig. 3, provided with a cam or curved upper surface d^2 , arranged directly under a projection c' on the locking-pin, so that as it is pulled to the left, as in Fig. 3, the locking-pin is elevated. When pulled completely over, as shown in dotted outline in that figure, the bar drops down, so that its projecting lug d^3 on the lower surface thereof contacts the side wall of the draw-bar head and prevents the sliding bar from being returned until it has been raised, thus holding the locking-pin elevated and permitting the coupling-knuckle to be unlocked. It is highly desirable and, in fact, necessary that some means be provided for returning this sliding bar to its initial position during the operation of unlocking the coupling-knuckle; otherwise the subsequent closing thereof would have no effect in engaging or locking two cars together. To accomplish this result, the sliding bar is provided with a cam projection D' , arranged on the front face thereof, so that as the coupling-knuckle is unlocked it strikes the cam-surface d^4 on the under side of this projection, partially raises the sliding bar, and then throws it back to its initial position during the further rotation of the coupling-knuckle, and thus permits the locking-pin to drop to its initial position; so that the next closing movement of the coupling-knuckle will permit a coupling engagement.

There are times when it may be desirable for the locking-pin to be held in its inoperative position. In order to accomplish this result, the sliding bar is provided with a projecting lug d^5 , adapted to engage a notch a on the draw-bar head, as shown particularly in Fig. 3, and when such sliding bar is in this engagement it raises the locking-pin and holds it in its inoperative position, so that the knuckle may swing in and out indefinitely without permitting a coupling engagement. It is also highly desirable that while the locking-pin is being raised some means be provided for giving the coupling-knuckle an impetus to throw it toward its open position, this particularly when the sliding bar is in its initial position and elevated to have its projecting lug engage the upper surface of the coupling-bar, so as to throw the coupling-knuckle open, or to do the same by merely elevating the pin and not raising or moving the sliding bar to permit a coupling engagement. To accomplish this result, the locking-pin is provided with a projecting arm E , having a vertical projection e arranged thereon, as shown particularly in Figs. 2 and 4. The tubular portion of the coupling-knuckle is provided with a lower cam-surface b' , adapted to be engaged with this pin, as shown particularly in Fig. 4, and while the locking-pin is being raised the pin e contacts this cam-surface and throws the

coupling-knuckle open toward its engaging position.

While I have described my invention with more or less minuteness as regards details of construction and arrangement and as being embodied in certain precise forms, I do not desire to be limited thereto unduly or any more than is pointed out in the claims. On the contrary, I contemplate all proper changes in form, construction, and arrangement, the omission of immaterial elements, and the substitution of equivalents, as circumstances may suggest or necessity render expedient.

I claim—

1. In a car-coupler of the class described, the combination of a draw-bar head, a coupling-knuckle pivotally secured in the same and provided with a rearwardly-extending tail portion, a locking-pin arranged to move in a vertical plane and adapted to unlock or permit the coupling-knuckle to be unlocked, and a sliding bar arranged to move transversely of the draw-bar head and in a horizontal plane provided with a cam-surface arranged to contact the coupling-pin and elevate the same to permit the coupling-knuckle to be unlocked and with a portion arranged to be contacted by the coupling-knuckle during its unlocking movement to return it to its initial position, substantially as described.

2. In a car-coupler of the class described, the combination of a draw-bar head, a coupling-knuckle pivotally secured to the same and provided with a rearwardly-extending tail portion, a vertically-movable locking-pin arranged to hold the coupling-knuckle in its locked position and permit it to be unlocked and provided with a projection thereon, a sliding bar arranged to move transversely in the draw-bar head and in a horizontal plane provided with a cam-surface adapted to contact the projection on the locking-pin and elevate the same and also provided with a projection adapted to engage with the wall of the draw-bar head to hold the parts in their disengaging position, and a second cam on the sliding bar adapted to be contacted by the tail of the coupling-knuckle during its unlocking motion to partially raise the sliding bar and at the same time throw it back to its initial position, substantially as described.

3. In a car-coupler of the class described, the combination of a draw-bar head, a coupling-knuckle pivotally secured in the same and provided with a rearwardly-extending tail portion, a vertically-movable coupling-pin provided with a projection and adapted to hold the coupling-knuckle in its locked position and permit it to be unlocked, a sliding bar arranged to move transversely of and in a horizontal plane in the draw-bar head and provided with an upper cam-surface to engage the projection on the locking-pin and elevate the same, a lug or projection d^3 on the

sliding bar adapted to engage with the side wall of the draw-bar head and hold the parts in their disengaging position, a second cam-shaped projection on the sliding bar adapted to be engaged by the tail of the coupling-knuckle during its unlocking movement and to partially raise the sliding bar and throw it back to its initial position, and a third projection d^5 on the sliding bar adapted to engage with a portion of the draw-bar head and hold the locking-pin in its up and operative position until disengaged therefrom, substantially as described.

4. In a car-coupler of the class described, the combination of a draw-bar head, a coupling-knuckle pivotally secured in the same and provided with a tail portion extending backwardly and with a cam portion on the lower surface of the tubular part of the knuckle, a reciprocating coupling-pin, arranged to slidably move in a vertical plane, and hold the coupling-knuckle in its locked position, an arm secured to the lower end of the coupling-pin, and a vertically-disposed pin on the outer end of such arm adapted to engage with the cam on the tubular part of the coupling-knuckle and force such coupling-knuckle open during the vertical movement of the coupling-pin, substantially as described.

5. In a car-coupler of the class described, the combination of a draw-head, a coupling-knuckle pivoted in the draw-head and having on the lower end of its pivoting-socket an up-

wardly-inclined and curved contact-face, a vertically-slidable pin carried by the draw-head and formed to engage with the coupling-knuckle and hold the knuckle in its closed position, and means carried by the coupling-pin for engaging the contact-face of the coupling-knuckle and automatically forcing said coupling to its open position after the coupling-pin has been raised to the uncoupling position for the coupling-knuckle, substantially as described.

6. In a car-coupler of the class described, the combination of a draw-head, a coupling-knuckle pivotally secured in the draw-head and having a finger or tailpiece inwardly extending and having on the lower end of its pivoting-socket a cam-face, a vertically-slidable coupling-pin carried by the draw-head formed to engage the end of the finger or tailpiece of the coupling-knuckle when the pin is down and hold the knuckle in its closed position and to clear the finger or tailpiece when the pin is raised and release the coupling-knuckle, and a lifting-pin carried by the coupling-pin for engaging the cam-face of the coupling-knuckle and automatically forcing the coupling-knuckle open after the coupling-pin has been raised to uncoupling position, substantially as described.

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