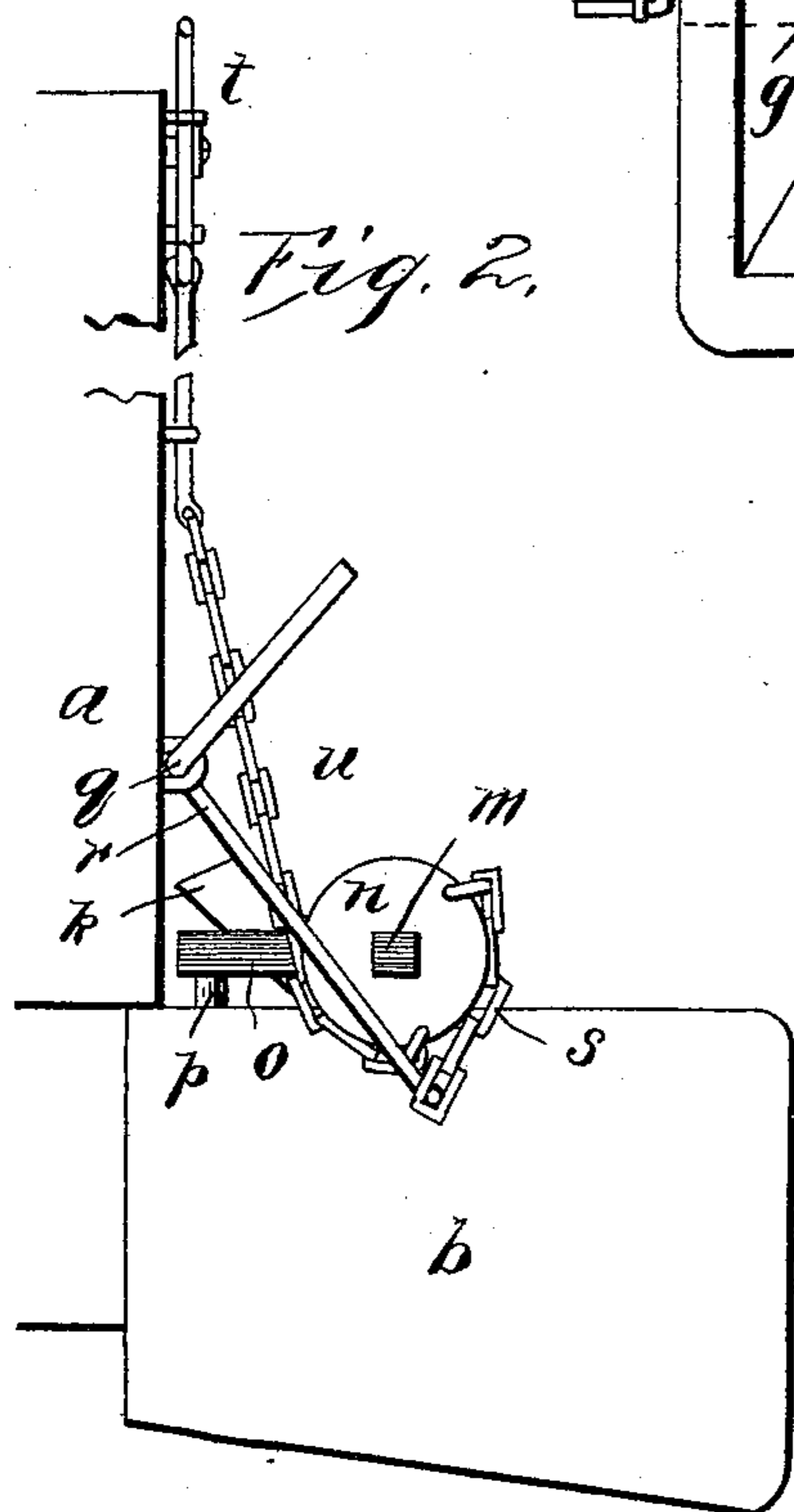
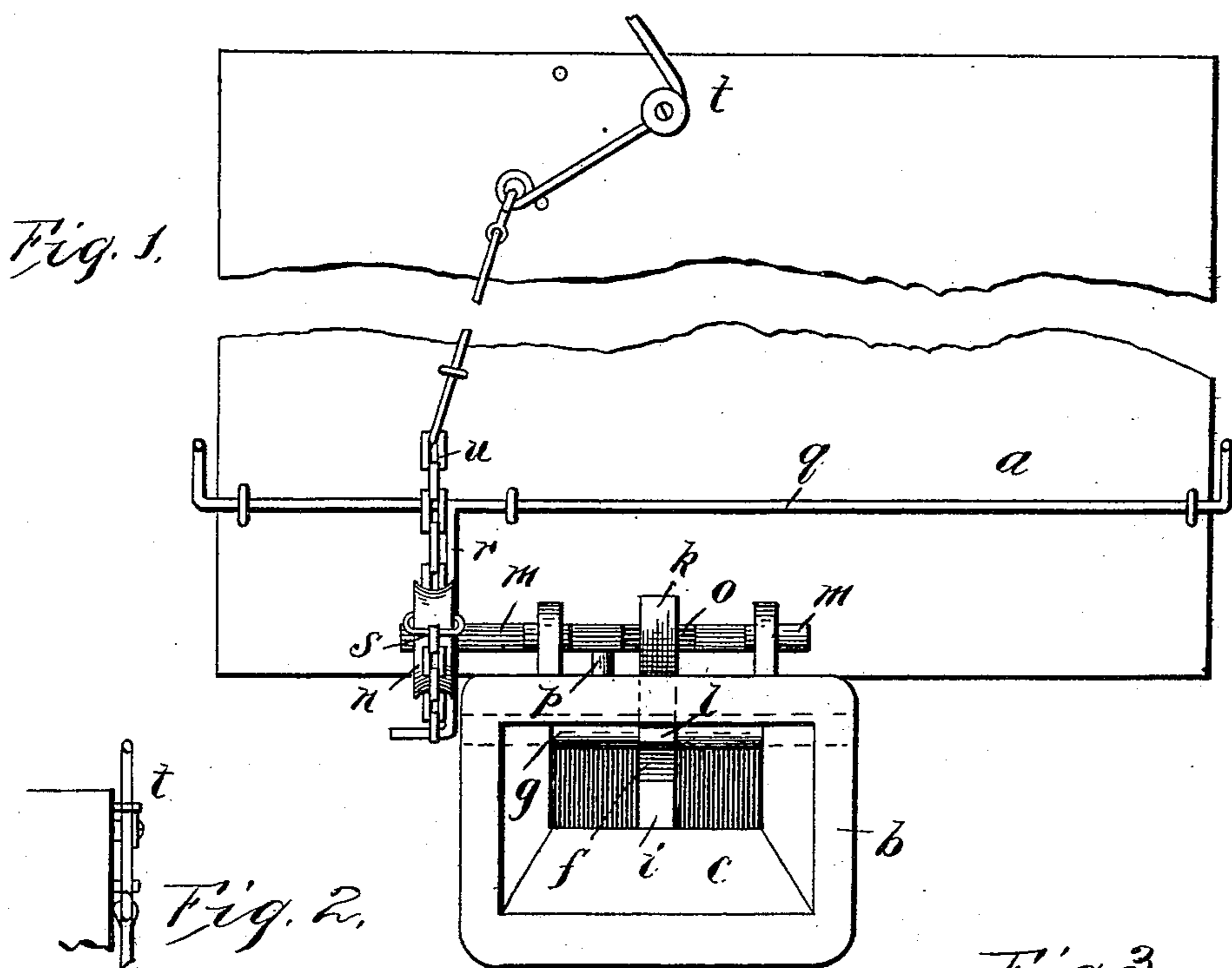


(No Model.)

W. B. BRUCE.
CAR COUPLING.

No. 471,463.

Patented Mar. 22, 1892.



WITNESSES:

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WILLIAM B. BRUCE, OF STAUNTON, VIRGINIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 471,463, dated March 22, 1892.

Application filed December 5, 1891. Serial No. 414,158. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. BRUCE, of Staunton, in the county of Augusta and State of Virginia, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 part of this specification.

This invention relates to certain improvements in car-couplers.

The object of the invention is to provide an improved link car-coupler exceedingly cheap and durable in construction and composed of a minimum number of parts, which is automatic in action, and can be uncoupled from the side or top of the car, thereby avoiding all danger to the operator, and which when uncoupled is always in position to automatically receive and couple the link.

The invention consists in certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is an end view of the car provided with my invention. Fig. 2 is a side view. Figs. 3 and 4 are longitudinal vertical sections showing the coupling bolt or dog.

In the drawings, reference-letter *a* indicates a portion of the car shown.

b indicates the hollow coupling-head having the open end. The lower portion of the mouth of the coupling-head is inclined upwardly and rearwardly to form the upwardly-inclined guiding-face *c*, and the bottom of the interior of the head is inclined downwardly and rearwardly from the upper end of face *c* to form the downwardly and rearwardly inclined face *d*. The top of the draw-head is provided with a longitudinally-extending vertical slot *e*. A vertical swinging bolt or locking-dog *f* is longitudinally located in the draw-head so as to swing in said slot. *g* is a pivot of said bolt extending horizontally through the upper part of the draw-head above and forward of the center of gravity of said bolt, so that the large or weighted end of the bolt

is behind the pivot and constantly tends to drop by gravity with its lower end resting on the inclined face *d*. The rear edge *h* of said main portion or body of the bolt is curved, preferably, from the pivotal point of the bolt as a center. The lower edge of said main portion is preferably inclined, as shown at *i*, so that when in its normal position (see Fig. 3) the end of the link *j* in entering the draw or coupling head will strike said inclined edge *i* and will swing the gravity locking-bolt up and admit the entrance of the link, and the bolt will then drop down into the link with its lower end resting on the face *d*, thereby automatically locking the link and effecting the coupling, the end of the link engaging and pulling against the rear curved face *h*, which is so curved that the strain on the link tends to maintain the bolt in its locking position and to throw the end of the link down and the bolt against face *d* of the coupling-head. The strain on the bolt is thus distributed on its pivot and on the face *d* of the coupling-head. The bolt is provided with an upwardly-extending releasing-controlling-arm *k*, extending above the coupling-head, and is also provided with the forwardly-extending restoring-arm *l* within the coupling-head and arranged to swing between the top and bottom of the front end thereof.

A suitable uncoupling device is provided to operate the bolt, preferably consisting of the rock-shaft *m*, mounted in suitable bearings and extending transversely across the top of the coupling-head and at one end provided with a grooved wheel or pulley *n* and between its ends provided with a crank or laterally-extending bend *o* over the slot *e* in the coupling-head and into which the arm *k* of the bolt extends, so that when the parts are in their normal position, as shown in Fig. 3, the crank *o* will be thrown toward the rear end of the coupling-head and will be resting in a substantially horizontal position, preferably on stops, such as *p*, and the arm *k* of the bolt will be inclined rearwardly and loosely resting within the crank against the end thereof. When the parts are in this position and it is desired to uncouple, the shaft *m* is rocked and the crank *o* is swung upwardly and forwardly, thereby swinging the arm *k* forwardly and lifting the bolt from the link

and throwing the arm *l* down against the upper end of face *c*. The crank *o* is weighted so as to hold the arm *k* down in its forward position and the bolt *l* from the link, as shown in Fig. 4. The bolt is thus held in unlocked or uncoupled position until the link is withdrawn, and in withdrawing the link its inner end strikes the restoring-arm *l* and throws it up, restoring the bolt and the crank-shaft to their normal positions, and the coupler is in position to automatically receive and couple the link. It will thus be seen that withdrawing a link places the parts in position to automatically receive and lock the link.

Various means can be employed to operate the crank-shaft from the top or side of the car. The means here shown consist of the horizontal shaft *q*, journaled to the end of the car and with handles at the sides thereof and with the forwardly-extending arm *r*, having one end of the chain *s* secured thereto, the opposite end of the chain being secured to the periphery of wheel *n*, so that when the shaft *q* is rocked the wheel *n* will be rotated in the direction to rock the shaft *m* and throw the crank forwardly to raise the rocking or coupling-bolt.

t is a vertical rocking lever mounted at the top of the car with a laterally-extending toe connected to flexible connections *u* and the pulley *n*, so that when said lever is rocked the crank will be moved in a direction to raise the bolt and effect the coupling. Suitable stops are provided for this lever *t*.

The many and great advantages of this invention are obvious without further enumeration.

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

1. In a car-coupler, the combination of the coupling-head with the vertical swinging bolt pivoted therein and provided with the restoring-arm and with an unlocking or controlling arm, substantially as described.

2. The combination of a coupling-head having the downwardly and rearwardly inclined bottom and the vertical swinging bolt mounted on the pivot inside the head and adapted to rest on said bottom when locked and having a forwardly-extending restoring-arm and means for raising the bolt, substantially as set forth.

3. In combination, the coupling-head, the gravity swinging locking-bolt therein having the forwardly-extending restoring-arm, a controlling-arm extending from said bolt above the coupling-head, the rock-shaft on the coupling-head, having the weighted crank in which said controlling-arm loosely rests and by which the bolt is operated, said crank being of a weight to hold the bolt raised during the uncoupling operation.

4. The coupling-head having the top slot and the swinging rocking bolt mounted in the head at said slot, provided with a restoring and unlocking or controlling arm, one of the arms extending above the coupling-head, whereby the bolt can be operated, substantially as described.

5. In combination, the coupling-head having the slot in its top, the swinging gravity-bolt extending into said slot and mounted on the pivot in the coupling-head and having the curved rear face, the controlling-arm extending above the coupling-head to operate the bolt through the medium of said arm, and the rock-shaft on the coupling-head, having the weighted crank in which the controlling-arm loosely rests and by which the bolt is operated, such crank being of a weight to hold the bolt raised during the uncoupling operation.

6. The combination of the coupling-head, the swinging gravity-bolt therein having the curved rear face to be engaged by the link, being provided with the restoring-arm and with an unlocking or controlling arm, and the swinging weighted crank to operate the bolt carried by the shaft, the crank being of a weight to hold the bolt raised in the coupling operation in the manner and for the purposes set forth.

7. The combination of a coupling-head, a swinging locking-bolt, a rocking crank-shaft to operate said bolt mounted on the coupling-head and having the wheel, and means at the side and top of the car, connected by flexible connections to said wheel to rock the shaft, as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM B. BRUCE.

Witnesses:

JOHN A. ALEXANDER,
ASHER AYRES.