(No Model.)

2 Sheets—Sheet 1.

A. S. EDEY.

CAR COUPLING.

No. 526,011. Patented Sept. 11, 1894.

Fig. 1.

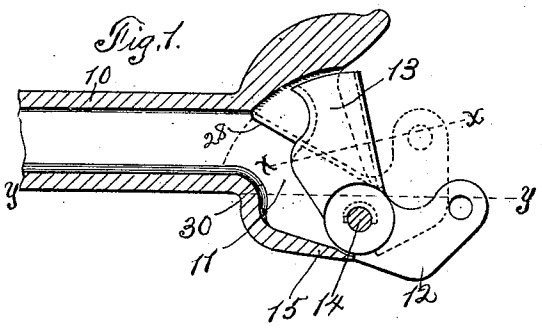


Fig. 2

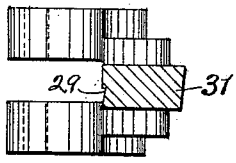


Fig. 3.

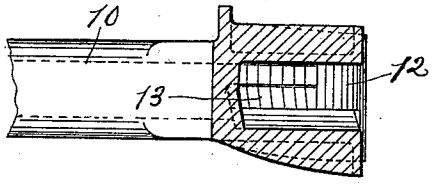


Fig. 4.

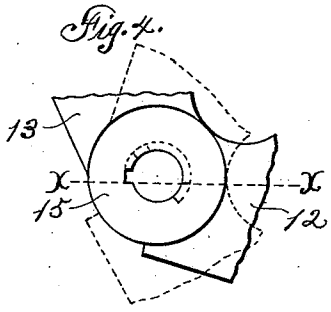


Fig. 5.

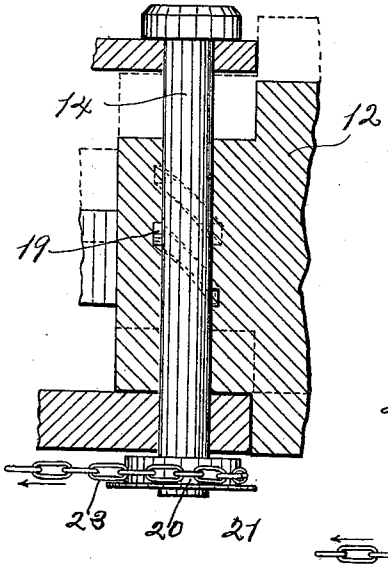


Fig. 6.

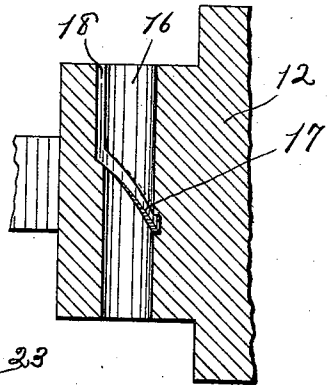
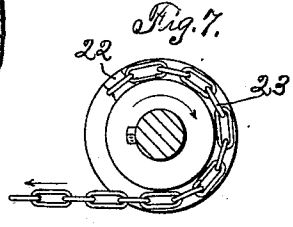


Fig. 7.



Witnesses:
F. S. Stahl,
W. A. Ballard.

Inventor,
Alfred S. Edey,
by Sheldon
his Atty

(No Model.)

2 Sheets—Sheet 2.

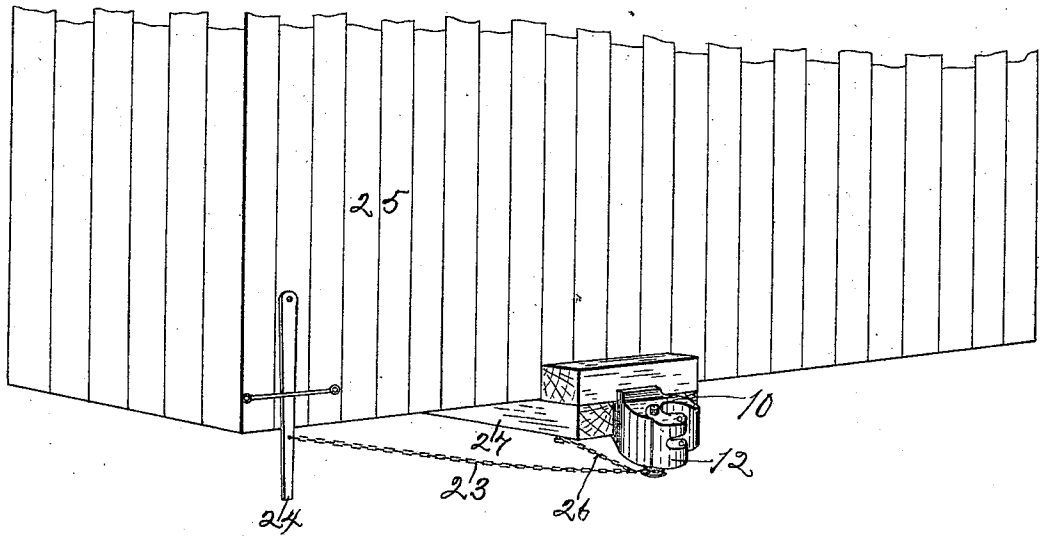
A. S. EDEY.

CAR COUPLING.

No. 526,011.

Patented Sept. 11, 1894.

Fig. 8.



Witnesses.
F. S. Stahl,
W. A. Ballard.

Inventor:
Alfred S. Edey,
by J. H. Sweet
his Atty.

UNITED STATES PATENT OFFICE.

ALFRED S. EDEY, OF DES MOINES, IOWA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 526,011, dated September 11, 1894.

Application filed July 14, 1893. Renewed August 9, 1894. Serial No. 519,890. (No model.)

To all whom it may concern:

Be it known that I, ALFRED S. EDEY, a subject of the Queen of Great Britain, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Car-Coupling, of which the following is a specification.

The object of my invention is to provide improved means, in a vertical plane car coupling, for locking the knuckle in a closed position in such a manner that said knuckle cannot be accidentally released.

A further object of my invention is to be found in the provision of improved means whereby in the continuation of the movement, primarily unlocking and releasing the knuckle effects a rotation of the knuckle upon its pivotal pin, outward relative to the draw head.

A further object of my invention is to be found in the provision of means, whereby, in the event of the accidental dislodgment of the draw-bar from its bearings upon the car, the connected draw bars will be unlocked and separated simultaneously with such dislodgment.

My invention consists in the combination in a car coupler of the vertical plane type, of a draw head, a knuckle pivoted upon said draw head, a dove tail shoulder formed in lower portion of said draw head, at the rear of the mouth thereof, a dove tail face formed on the impact arm of the knuckle and adapted, when the knuckle is closed, to engage said shoulder, and means for elevating said knuckle, and impact arm relative to the draw head sufficiently to disconnect the dove tail parts, in order to effect an uncoupling.

My invention consists further in the combination, in a car coupler of the vertical plane type, of a draw head having a knuckle pivoted thereon, a pin vertically positioned within said draw head and forming a pivot for said knuckle, a bore in said knuckle adapted to retain said pin, a spiral groove in said bore, a laterally extending lug on said pin and playing within said groove, and means whereby a movement of rotation is imparted to said pin resulting in an upward and forward movement of said knuckle relative to said draw head.

My invention consists further in so connecting the locking devices, of a car coupler, with the car upon which said coupler is mounted as that in the beginning of an accidental dislodgment of the draw head the said connecting means between the car and coupler shall operate said unlocking devices and permit of the separation of previously connected draw heads, the loosened and partly dislodged coupler being retained within its bearings until manually removed, thus preventing the precipitation of the draw bar beneath the moving cars.

My invention consists further in the construction, arrangement and combination of parts, hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of a draw head and a knuckle mounted thereon, in an open position. Fig. 2 is a vertical sectional view on the line x—x of Fig. 1. Fig. 3 is a vertical sectional view on the line y—y of Fig. 1. Fig. 4 is a plan view of portions of the knuckle, and the draw head. Fig. 5 is a vertical sectional view on the line x—x of Fig. 4, the dotted lines indicating the vertical movement of the knuckle relative to the draw head. Fig. 6 is a vertical sectional view on the line x—x of Fig. 4, the pin and draw head portions being removed. Fig. 7 is a transverse sectional view on the line x—x of Fig. 5. Fig. 8 is a perspective view showing the device applied as required for practical use.

In the construction of the device as shown, the numeral 10 designates the draw bar and 11 the draw head thereon, which draw head is of the same general conformation characteristic of this class of car couplings. A knuckle 12, having an impact arm 13 thereon, is mounted upon a pin 14, vertically positioned in a forwardly extending portion 15, of the draw head 11, and has a limited rotary movement relative to said pin. The bore 16 of the knuckle 12, within which the pin 14 is adapted to be retained, is provided with a spiral groove 17, the upper end of which spiral groove connects with the vertical groove 18, leading to the top of the knuckle. A stud 19 is formed on the pin 14, and extends laterally therefrom within the groove 17, the said stud reaching its position within the groove 17 by first passing through the vertical groove 18. A wheel 20 is detachably se-

cured on the lower end portion of the pin 14, and is provided with a flange 21 and a radially extending stud 22. A chain or cable 23, is secured at one end to the stud 22, and extends partially around the wheel 20, resting upon the flange 21, and outward from said wheel to a point of attachment to a lever 24 fulcrumed on the end of a car 25, on which the coupler is supported. A chain or cable 26 is fixed at one end to the cable 23, and at its other end to one of the draft timbers 27, the point of connection between the cables being adjacent to the wheel 20.

A dove tail shoulder 28 (Fig. 1) is formed on the interior of the draw head 11, below the cavity therein, and a dove tail face 29, (Fig. 2) is formed on the forward side of the impact arm 13, said dove tail face being adapted to impinge against and contact with, and interlock with the dove tail shoulder when the knuckle is in a locked position. An inclined face 30, is formed on the rear portion of the draw bar parallel with, and opposite to the shoulder 28, said face being adapted to be engaged by the inclined face 31, (Fig. 2) on the rear side of the impact arm.

By reason of the employment of the inclined faces parallel with the dove tail faces, the impact arm will settle between, and be seated in the space bounded by the face 30, and the shoulder 28, when the knuckle is in a locked position, and provide for a rigid connection, between said impact arm and the draw head.

In the practical operation of the device the knuckle being in a locked position, a movement of rotation is imparted to the wheel 20, through the medium of the cable 23, by the manual application of force to the lever 24, causing the stud 19 to engage the inclined face of the spiral groove 17, and in the advancement of said stud elevating the knuckle 12, sufficiently to unseat the impact arm 13, and disengage the dove tail faces. In the continuation of the movement of rotation imparted to the pin 14, the stud 19 reaches the extremity of the groove 17, and impacting against the knuckle 12 imparts a horizontal rotary movement thereto, turning said knuckle upon its axis into the position shown in Fig. 1, the dotted lines in said figure indicating the closed position of said knuckle.

In the event of the accidental dislodgment or withdrawal of one of the couplers from its seat on a car, a strain or draft is immediately exerted upon the cable 26, which in turn exerts a draft upon the cable 23, and rotates the pin 14, thereby unlocking the knuckle and permitting of the separation of the connected draw head prior to the complete dislodgment of said coupler, by this means preventing the precipitation of a dislodged coupler beneath the wheels of the moving car, and obviating what otherwise might be a serious accident.

By the employment of the coinciding dove-tail faces, accidental vertical movement of the knuckle relative to the draw head is rendered impossible, thus securely connecting engaging draw heads and maintaining such connection until released by the automatic or manual operation of the unlocking devices.

It is obvious that the dove tail locking device may be employed in conjunction with any desired unlocking device with which the knuckle may be elevated and rotatively moved. It is also obvious that the connection between the unlocking devices and the car, whereby the knuckle is automatically acted upon in the accidental dislodgment of the draw bar, may be employed, with equally beneficial results, in conjunction with any locking and unlocking devices.

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

1. In a vertical plane car coupling, the combination of a draw head and knuckle pivoted thereon, coinciding oppositely inclined dove tail faces on said draw head and knuckle, and means whereby said dove tail faces may be disengaged and separated.

2. In a vertical plane car coupling, the combination of a draw head and a knuckle pivoted thereon, oppositely inclined dove tail faces on the draw head and knuckle respectively adapted to coincide with each other and produce engaging hooks to lock said knuckle, said dove tail faces being approximated by the impact of contacting draw heads.

3. In a vertical plane car coupling, the combination of a draw head having an inwardly inclined dove tail shoulder on the interior thereof, a knuckle pivoted upon said draw head and having a dove tail face inclined oppositely to said shoulder and adapted to coincide with said shoulder, an inclined face on the rear of said knuckle parallel with the dove tail face thereon, an inclined face within said draw head parallel with said dove tail shoulder, a recess within said draw head adapted to admit and normally retain one corner of said knuckle, and means for elevating and rotating said knuckle relative to said draw head.

4. In a car coupling of the vertical plane type, the combination of a draw head, a knuckle pivoted upon said draw head, a pin vertically positioned and serving as a pivot for said knuckle, a spiral groove within said knuckle, a lateral stud on said pin extended within said groove, and means whereby a movement of rotation is imparted to said pin by which said stud is caused to act upon said knuckle and elevate and rotate the same.

5. In a car coupling of the vertical plane type, the combination of a draw head, a pivotal pin mounted upon said draw head, a knuckle mounted upon said pin and having a limited rotary movement relative thereto, means for rotating said pin, and connections

between said pin and the said knuckle whereby in the rotation of said pin said knuckle is elevated and rotated synchronously therewith.

6. In a car coupler, as described, means for rotating the pivotal pin, comprising a cable and wheel mechanism mounted upon said pin, the outer end portion of said cable being attached to a lever adapted to be fulcrumed on the car carrying said coupler and manually actuated.

In testimony whereof I hereunto have set my hand in the presence of two witnesses.

ALFRED S. EDEY.

Witnesses:
GEO. KERNHOLD,
S. C. SWEET.