

(No Model.)

2 Sheets—Sheet 1.

A. D. ALDEN.
CAR COUPLING.

No. 569,481.

Patented Oct. 13, 1896.

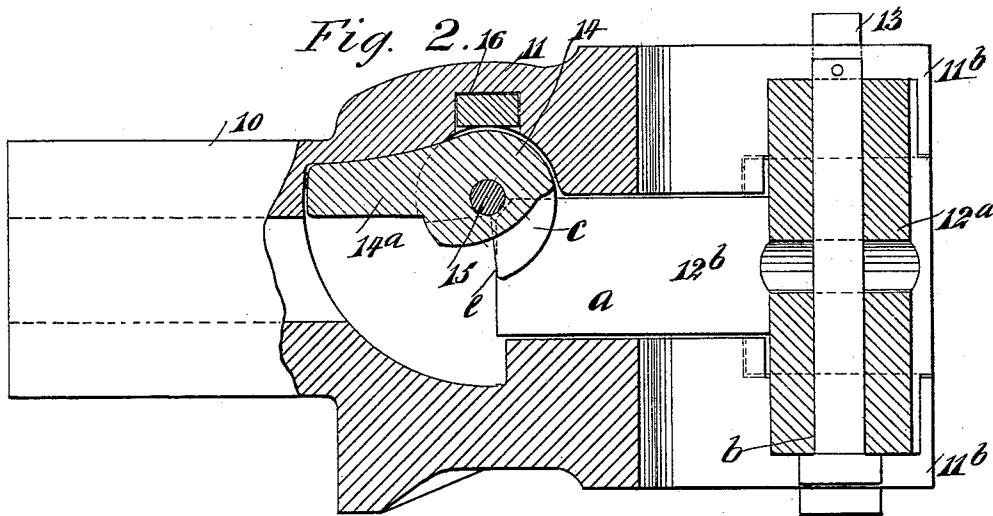
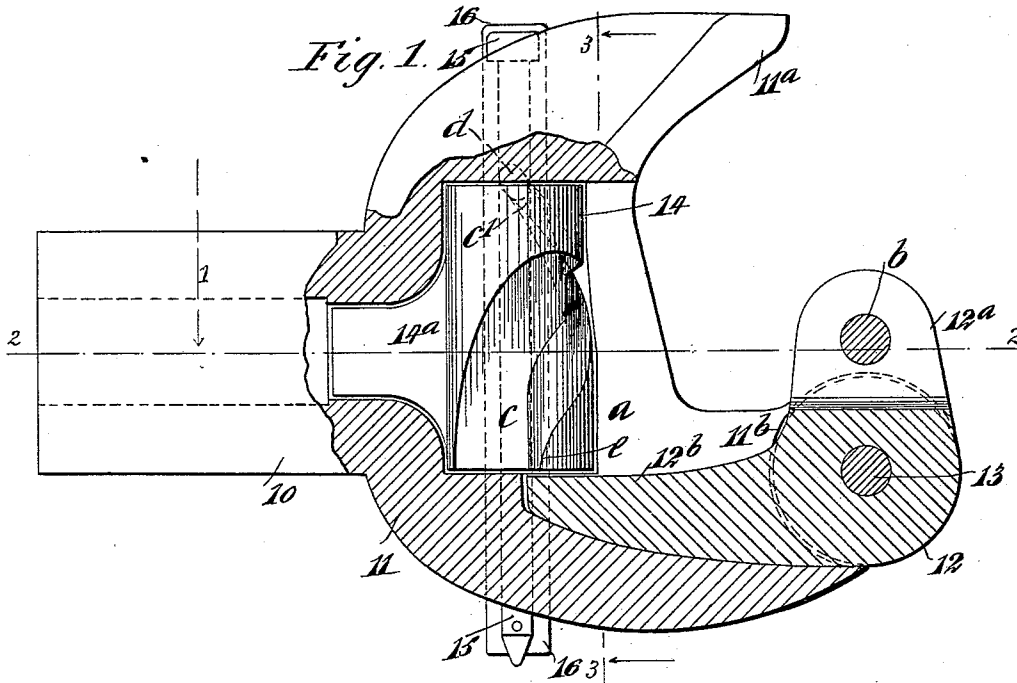
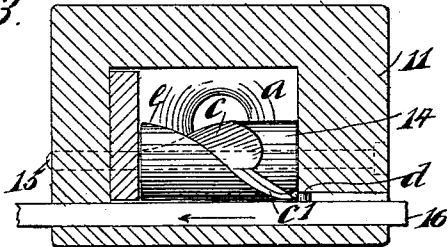


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ANDREW D. ALDEN, OF BROCKPORT, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 569,481, dated October 13, 1896.

Application filed January 20, 1896. Serial No. 576,174. (No model.)

To all whom it may concern:

Be it known that I, ANDREW D. ALDEN, of Brockport, in the county of Elk and State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings, of which the following is a full, clear, and exact description.

This invention relates to car-couplings of the automatic latching type, and more particularly to that form wherein a coupling jaw or knuckle is pivoted to swing laterally in the draw-head to interlock with or be released from a knuckle on a similar coupling.

The object of my invention is to provide a simple, practical, and inexpensive car-coupling of the indicated type which will have novel features of construction that adapt it for convenient and reliable operation.

A further object is to produce a car-coupling which will be imperforate on the upper side of the draw-head and thereby avoid obstruction from ice, snow, or other impediments to free action that are incidental to car-couplings which have openings for working parts on the upper side of the draw-head near its front end.

My invention consists in the novel construction and combination of parts, as is herein-after described, and defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a partly sectional plan view of the improved coupling, showing its parts in coupled condition. Fig. 2 is an inverted longitudinal sectional view of the improvement having parts adjusted as shown in Fig. 1, the view being taken substantially on the line 2 2 in Fig. 1 and in direction of the arrow 1. Fig. 3 is a reduced transverse sectional view essentially on the line 3 3 in Fig. 1. Fig. 4 is a partly sectional plan view of the improved car-coupling in position on an end portion of a car, showing operative connections extending from the coupling toward the side of the car, parts of the coupling being adjusted to release the knuckle thereof; and Fig. 5 is a front elevation, on a reduced scale, of parts shown in Fig. 4, the front of the coupling draw-head being broken away to expose the

novel locking-dog of the coupling, which part is adjusted to release the knuckle.

In the drawings, 10 indicates a portion of the coupling draw-bar, having the draw-head 11 formed on what in service is the front end of said draw-bar. The draw-head and draw-bar are preferably cast into form together and, as represented, the draw-head is provided with the usual horn 11^a, that projects forward at one side of the draw-head, two parallel and suitably-spaced ears 11^b being formed on the opposite side thereof and also extending forwardly.

A chamber *a* is formed in the draw-head 11 and is located between the horn and ears, and the said chamber has parallel upright side walls, as clearly shown in the drawings.

The knuckle 12 consists of a substantially L-shaped block having the jaw or coupling member 12^a of the same horizontally slotted near the center of thickness, as indicated in Figs. 1 and 4, this being a common provision to permit an ordinary coupling-link to be coupled thereto by a pin that may be inserted in a perforation *b* of the knuckle-jaw, as shown in Fig. 2. The tailpiece 12^b of the knuckle extends substantially at a right angle to the member 12^a and in service occupies an open recess laterally formed in inside of the draw-head, said recess being practically a lateral extension of the chamber *a*, so that when the knuckle is pivoted between the ears 11^b by a bolt 13 it may be swung to occupy said recess, as shown in Fig. 1, or be rocked into the position represented in Fig. 4.

In the chamber *a* the novel locking-dog 14 is located, which, as shown, comprises a mainly cylindric block that is longitudinally and centrally perforated for the reception of a pivot-bolt 15, that also is inserted through opposite perforations in the sides of the draw-head. The dog 14 has a heavy limb 14^a projected from its rear face, and the cylindric body of the dog, as well as its limb, are seated in a suitably-shaped cavity produced in the bottom of the chamber *a*, as best shown in Fig. 2.

A coarse spiral groove *c* is formed in the peripheral surface of the cylindrical body of the dog 14, which groove extends from the end of the dog that is nearest to the recess

made to accommodate the tailpiece 12^b toward the opposite end of the dog, curving down and forward, as shown in Figs. 1, 3, and 5.

5 At a correct distance from the initial point of the groove *c* its width is reduced, affording a more narrow spiral channel *c'*, that has the same pitch of twist as has the wider and deeper groove it extends from, as best shown
10 in Fig. 3 by full lines and in Fig. 1 by dotted lines, the spiral channel *c'* cutting through the end wall of the cylindric body of the dog 14, toward which it trends.

Below the pivot-bolt 15 and parallel therewith there is a tripping-bar 16, loosely inserted in a transverse perforation in the draw-head 11, the upper part of this perforation cutting through into the bottom of the cavity occupied by the cylindric body of the dog 14.

20 There is a toe *d* of correct form and dimensions projected upward from the upper side of the tripping-bar 16 at such a point as will permit the toe to enter the outer end of the channel *c'* when the tripping-bar is slid in
25 the direction of the arrow shown in Fig. 3.

It will be evident that when the tripping-bar is moved so as to cause the toe *d* to traverse the channel *c'* toward the wide groove *c* the cylindric dog 14, which is shown having
30 its limb 14^a horizontally disposed in Figs. 1, 2, and 3, will be rocked forwardly, which will elevate the limb and depress the high shoulder *e*, that is produced on the body of the dog adjacent to the side of the draw-head having
35 the recess, by the excavation or coarse groove *c*, such a depression of the shoulder being shown in Fig. 5.

The trend of the coarse groove *c* in the body of dog 14 and its width and depth are proportioned and arranged to permit the rear
40 end of the tailpiece 12^b to enter the said groove and move freely therein, and it will be seen that if the groove *c* is disposed as shown in Figs. 4 and 5 the rearward swinging
45 movement of the tailpiece will adapt the latter, by its traverse of the groove mentioned, to depress the shoulder *e* and thus allow the tailpiece to enter the recess in the side of the chamber *a*. When the tailpiece is fully em-
50 bedded in the recess and has clearance from the dog 14, the heavy limb on the latter will fall by its gravity and elevate the shoulder *e*, thus locking the tailpiece from leaving said recess.

55 The draw-bar 10 of the improved car-coupling is secured to project outward from the transverse center of the end of a car-frame, which is represented in Figs. 4 and 5, by the broken bumper-beam A, and the connection
60 of the draw-head therewith may be effected by any preferred means.

The tripping-bar 16 is projected from the side of the draw-head to permit its reciprocation a sufficient degree. As represented,
65 this projection of the bar is provided at the side of the draw-head which receives the tail-block 12^b, but the said tripping-bar may have

sufficient length to project it considerably at each side of the draw-head. One end of a link-bar 17 is loosely secured to the projected
70 end portion of the tripping-bar, and the said link-bar is of a length that will permit its extension to a point near the side of the car for a pivotal engagement with the upright lever
75 18, that is supported to rock on the car-frame, as clearly shown in Figs. 4 and 5.

It will be apparent that if considered essential the slidable bar 16 may have its opposite end also connected with a link and lever for movement from the other side of the car. 80

In operation the act of pushing two cars together, so that the improved couplings thereon will impinge the closed knuckle of one coupling on the tailpiece of the other
85 coupling, that is, at the time of contact in the position indicated in Fig. 4, will cause the tailpiece struck to rock backward, so that its free end will traverse the coarse groove of the dog 14, which previous to such contact is disposed by the weight of its limb 14^a, as shown
90 in Fig. 3.

When the tailpiece 12^b presses the dog sufficiently to rock its limb 14^a into an upright position, the shoulder *e* of the dog will be so depressed that the tailpiece may pass into the
95 recess in the draw-head side wall, which will release the dog, and the shoulder *e* will be elevated by the weight of the limb 14^a, as before explained.

To release two coupled cars having the im-
100 provements, it is only necessary to move the lever 18 on one car, which may be readily effected by a trainman at the side of the car, said rocking movement causing the toe *d* on the tripping-bar 16 to glide along the chan-
105 nel *c'* in the dog and rock the latter forwardly, so as to depress the shoulder *e* and release the tailpiece of the knuckle.

Should it be preferred, the lever 18 may be so positioned and afforded such a length that
110 it may be operated by a trainman from the roof of the car whereon the lever and coupling are placed, which will permit the release of the coupling by an operator on the car-roof.

It will be seen that the improved car-coupling is extremely simple, easy to manufacture,
115 strong in all its parts, and is reliable in operation. Furthermore, the draw-head of the improved car-coupling being devoid of openings in its upper side obviates any risk of
120 the working parts within the draw-head becoming inoperative from the action of the elements.

Having thus described my invention, I claim as new and desire to secure by Letters
125 Patent—

1. In a car-coupling, the combination with a draw-head, and a knuckle pivoted to the draw-head, of a rockable dog having a spiral groove and a channel that is an extension of
130 said groove, and a slidable tripping-bar having a toe adapted to traverse the channel and rock the dog when the tripping-bar is longitudinally moved, the tailpiece of the knuckle,

which loosely engages the spiral groove, being locked by a shoulder thereof when the knuckle is closed and released when the tripping-bar is slid, substantially as described.

5 2. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto, a rocking dog having a shoulder to be engaged by the knuckle when the same is moved into operative position, and provided with an inclined spiral channel, and a tripping-bar movable adjacent to the dog and provided with a toe to traverse the channel and rock the dog to release the knuckle when the tripping-bar is moved, substantially as set forth.

15 3. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto, a rocking dog provided with a spiral channel and having a shoulder to engage the knuckle when the same is moved into operative position, a tripping-bar mounted to slide in the draw-head under the dog, and a toe on said trip-

ping-bar arranged when the tripping-bar is slid to engage the spiral channel and rock the dog to release said knuckle, substantially as set forth.

25 4. In a car-coupling, the combination of a draw-head, a knuckle pivoted thereto, a rocking dog having a spiral channel and provided with a shoulder to engage the knuckle when the same is moved into operative position, a tripping-bar mounted to slide in the draw-head under the dog, an operating-lever connected to the tripping-bar and arranged to move the same, and a toe on the tripping-bar arranged when said bar is slid, to engage the spiral channel and rock the dog to release the knuckle, substantially as set forth.

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Witnesses:

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