(No Model.) 2 Sheets—Sheet 1.

J. A. BRILL & E. H. ZITZMAN.

CAR COUPLING.

No. 346,460. Patented Aug. 3, 1886.

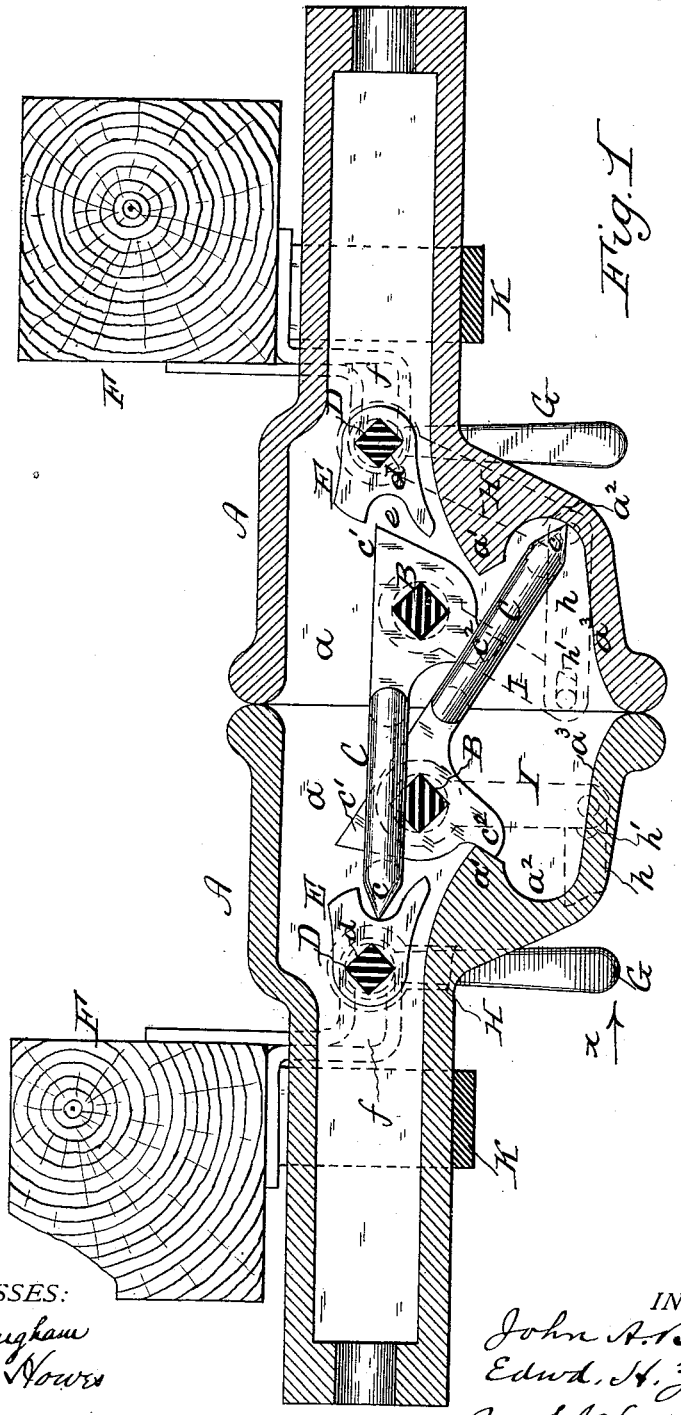

Fig. 1.

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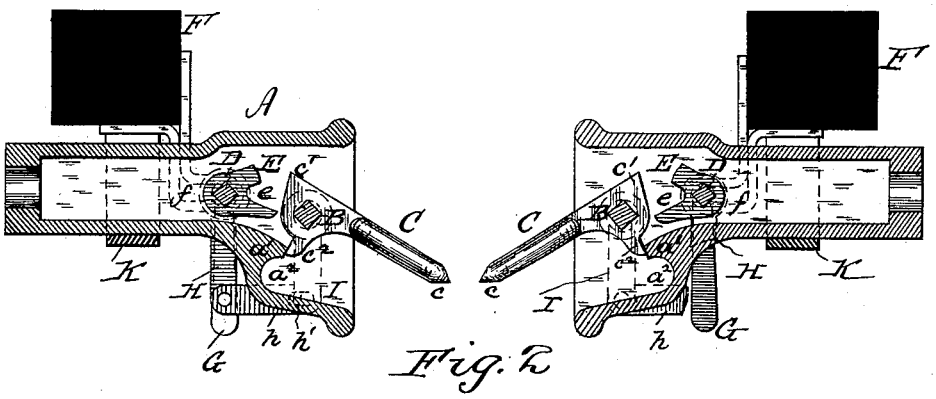

Fig. 2

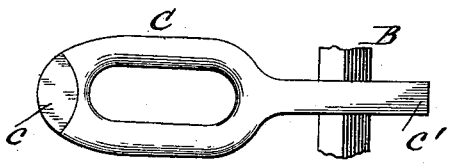

Fig. 4

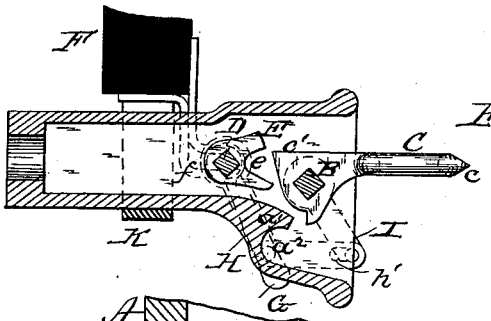

Fig. 3

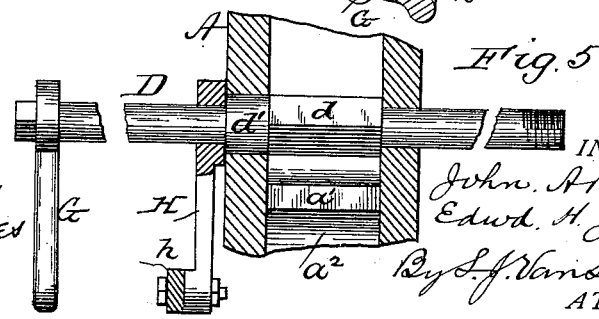

Fig. 5

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UNITED STATES PATENT OFFICE.

JOHN A. BRILL AND EDWARD H. ZITZMAN, OF PHILADELPHIA, PA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 346,460, dated August 3, 1886.

Application filed February 23, 1886. Serial No. 192,825. (No model.)

To all whom it may concern:

Be it known that we, JOHN A. BRILL and EDWARD H. ZITZMAN, citizens of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification, reference being had therein to the accompanying drawings, wherein—

Figure 1 is a longitudinal section of two draw-heads coupled together, showing our improvements. Fig. 2 is a like view of the draw-heads separated or uncoupled. Fig. 3 is a like view of one of the draw-heads, showing its coupling-link in position for entrance into a draw-head of different construction, or one having the well-known or other like drop or link pin. Fig. 4 is a plan view of link and square part of shaft therefor; and Fig. 5 is a transverse section of part of the draw-head, showing tumbler or trip shaft in elevation and partly broken away; also levers or crank-arms for manually moving said shaft and trip.

Our invention has relation to automatic car-couplers the draw-heads of which are adapted to be coupled to any draw-head of a different construction having the usual drop or link pin; and it has for its object to provide a strong and durable coupling for the draw-heads, which coupling cannot be accidentally uncoupled by the jolting, jarring, swaying, or other motion of the cars as they travel either upon the curve or straight parts of a line of way, and which can easily and quickly be uncoupled at the side of the car, to avoid accidents to the train-hands in the act of uncoupling.

Our invention accordingly consists in the combination, construction, and arrangement of parts, as hereinafter described and claimed, having reference particularly to a draw-head having a transverse ledge or stop and a recess below the ledge; a free or loose link pivoted or journaled to the sides of the draw-head, and provided with a stop-piece or lug for engagement with said ledge; a wedge-shaped or pointed front end and a tail-piece back of its pivot-shaft, and a trip or tumbler pivoted to or journaled on the sides of the draw-head adjacent to the tail-piece of said link, whereby the latter assumes by gravity a downwardly-inclined position when uncoupled, is held in a rigid position when a similar link in a like draw-head is coupled thereto, and the last-named link is prevented from being accidentally uncoupled by the engagement therewith of the tumbler or trip of the draw-head into which said link enters.

In the drawings, A represents the draw-heads, each of which, for purposes of our invention, are of like construction, and a description of one answers for both, and which may be of any suitable configuration, or, as shown, having, preferably, a vertical elongated chamber or mouth, *a*, in which, near its bottom, is an inner transverse forwardly-projecting stop or ledge, a', and below the latter a recess, a^2, the lower side of which is formed by the inner surface, a^3, of the bottom of chamber *a*, which surface is preferably inclined, as shown.

B represents a shaft or transverse pivot-bar suitably journaled in the sides of the draw-head, and has a square or angular collar near its middle portion for the reception of a link, C. The latter has a pivoted or wedge-shaped front end, *c*, a tail-piece, c', at its rear end, through which shaft B passes, and on its under side, or below shaft B, a downwardly-projecting lug or stop-piece, c^2, which is adapted to abut against the ledge or stop-piece a' of the draw-head, as and for the purposes hereinafter explained.

To the rear of shaft B, and above the plane of the same, is another shaft, D, which has a square or angular collar, *d*, for the reception of a tumbler or trip, E, and a round collar, d', which has a bearing in one of the sides of the draw-head. (Seen more plainly in Fig. 5.) This shaft may terminate in the other side of the draw-head if used on one-half of the width of the car; but if employed for the whole width of the car the shaft is extended across the same, and has end bearings in slotted brackets *f*, depending from the sill-pieces F, to permit the draw-head and shaft D to recede or yield when two meeting draw-heads come together. The shaft B is of the same construction in all respects as that of shaft D, except that the former has its bearings in the sides of the draw-heads, and does not extend

to either side of the car. The trip E is arranged to be just back of the tail-piece c' of link C, and its forward end is bifurcated, as shown at e, for receiving the pointed or wedge-shaped end of an entering link, to assist in locking it when in coupling position.

Upon shaft D, at the side of the car, is secured, in any suitable manner, a lever, G, and adjacent to the outside of the draw-head there is also secured to said shaft a crank-arm, H, the lower end of which has a link-connection, h, with a like crank-arm, I, secured to one of the ends of shaft B, which is extended through one side of the draw-head to receive the same. In one end of link h is a slot, h', through which the pin connecting either of the crank-arms H and I to said end passes. In the drawings we have shown this slot at the forward end of the link, or at that which connects with crank-arm I. The draw-heads are supported or hung in suitable carrier-irons, K, depending from sill-pieces F, as shown.

The operation is as follows: The link stop-piece c^2, normally abutting against draw-head ledge or stop a', holds the link, when the draw-heads are separated or uncoupled, in the position shown in Fig. 2—*i. e.*, they incline downwardly and forwardly and outside of the draw-heads, in position for their pointed or wedge-shaped ends c to contact with one another when two draw-heads approach. In this position the links cannot be depressed, but may be elevated or raised. As two draw-heads approach one another, the pointed end of the link of one strikes against that of the other, and causes one link to rise and ride or glide upon the other. The rising link is thus guided into the upper part of the opposing draw-head over the tail-piece c' of its link until the pointed end of the rising link strikes the trip E in said draw-head. As the trip E is struck, it and its shaft D are oscillated to throw the trip backward and provide sufficient space for said entering link to drop over the tail-piece of the link of said draw-head, and as the entering link drops over said tail-piece its pointed end enters the bifurcation of said trip, and the weight of the link as it drops brings the trip forward to lock the link in position and prevent it rising off of said tail-piece; hence the tail-piece of the link of one draw-head forms a coupling catch or pin for the link of the other draw-head, as shown in Fig. 1. As the rising link of one draw-head is guided to the upper part of the opposing draw-head, as described, the link of the latter remains in its normal position, and its forward end, c, enters the recess a^2 of the other draw-head in Fig. 1; hence when the draw-heads are coupled the link of the one whose tail-piece forms a coupling-pin for the link of the other draw-head is firmly held in position by its stop-piece c^2 abutting against its draw-head ledge or stop a', and by its forward end, c, abutting against the wall of the recess a^2 of the opposite draw-head, so that said link cannot move up or down, but is held rigid, and as the trip in the draw-head prevents the coupled link from rising the coupling is exceedingly secure, and is not susceptible of accidental displacement.

To release the coupling-connection the lever G is moved in the direction of arrow x, Fig. 1, to raise the forward end of the trip and elevate the coupled link above the plane of its coupling-pin or the tail-piece of the link to which it is coupled. The coupling of the draw-heads is therefore automatically effected, but manually released.

To couple a draw-head to one of different construction, the link of the former is first manually raised to position shown in Fig. 3, or in line with mouth or opening of the latter. To effect this movement the levers I and H and link h are employed to connect shafts D and B, so that an oscillation imparted to shaft D by a forward movement of lever G is communicated to shaft B to swing or raise its link to a horizontal position for entrance to a draw-head of different construction. The slot h' in link h is employed to provide lost motion or play between it and crank-arm I, to permit lever G to be moved to raise the forward end of a trip, E, for uncoupling, as above described.

From the foregoing it will be noted that the link in each draw-head is a free or loose link pivoted to or journaled in the sides of the draw-head, and when not coupled assume by gravity a downwardly-inclined position, and when coupled a link of one of the draw-heads engages with the tail-piece of the link of the other draw-head, which last-named link is rigidly held in a downwardly-inclined position by reason of its stop-piece c^2 abutting against the draw-head ledge a', and of its point or front end entering the recess a^2 of the opposite draw-head, while the coupled link is prevented from rising from the tail-piece of the link, held rigidly, as described, by the trip or tumbler in the draw-head, into which said coupled link enters, so that although both links are freely or loosely supported when uncoupled, yet they are rigidly fixed when coupled, and are not liable to accidental displacement.

What we claim is—

1. A draw-head having a mouth or chamber, a, extending below the body of the draw-head, and having an inclined bottom, a^3, a transverse stop or ledge, a', at the junction of the inner lower side of the draw-head body and said chamber, and a recess, a^2, below said ledge, substantially as and for the purpose set forth.

2. A draw-head having pivoted to or journaled in its sides a loose link provided with a pointed or wedge-shaped front end, a stop-lug on its under side, and a tail-piece located back of its pivot or shaft, and a trip, E, pivoted or journaled in the sides of the draw-head, substantially as and for the purpose set forth.

3. In a draw-head, the combination, with a link having a rear-end tail-piece, a stop-piece, and pointed or wedge-shaped end pivoted or

journaled in the sides of the draw-head, of a pivoted trip or tumbler adapted to the tail-piece of the link, as set forth.

4. The combination of draw-head A, having a link provided with tail-piece c', a trip or tumbler pivoted or journaled in the sides of the draw-head, and slotted brackets for the pivot-shaft of the trip or tumbler, as set forth.

5. The combination of draw-head A, link-shaft B, having crank-arm I, trip-shaft D, having crank-arm H, and connecting-link h, having elongated slot at one end, as set forth.

6. The combination of pivoted link C, having crank-arm I, the pivoted trip E, having crank-arm H, link h, connecting said crank-arms, and having slot h' at one end, and a lever, G, secured to pivot-shaft of trip E, as set forth.

7. A draw-head having a loose pivoted link provided with a tail-piece, serving as a catch or pin for a like link of a meeting coupler, in combination with a bifurcated trip or tumbler pivoted to the sides of the draw-head, substantially as shown and described.

8. The combination of a draw-head having a stop-piece and a recess, a pivoted link having a tail-piece, a stop-piece, and a pointed or wedge-shaped front end, and a pivoted trip located back of the tail-piece of said link, substantially as shown and described.

9. A draw-head having a loosely-journaled link and stop-pieces for holding the link in a downwardly-inclined position when not coupled, and for holding the link in a like but rigid position when coupled, and a pivoted trip for locking an entering link upon said rigidly-held link, substantially as set forth.

10. The combination of link C, having pointed end, tail-piece c', stop c^2, and shaft B, provided with an angular and a round collar, the bifurcated trip E, having shaft D, provided with angular and round collars, and lever G, connecting crank-arms H I, and link h, and draw-head A, having stop a' and recess a^2.

11. A draw-head having a stop-piece and recess, in combination with a loose or free pivoted link having a stop and a tail-piece, as set forth.

12. A draw-head having a stop-piece and recess, in combination with a link loosely journaled on the sides of the draw-head, and having a stop and a tail-piece, and a trip or tumbler journaled on the sides of the draw-heads, arranged for operation substantially as set forth.

13. A draw-head having a pivoted or journaled link serving as a coupling-pin, and which assumes by gravity a downwardly-inclined position when uncoupled, and is fixedly or rigidly maintained in a like position when coupled to a draw-head having a like link, substantially as set forth.

14. The combination, with a draw-head, of a link rigidly secured to a shaft or pin journaled in the sides of the draw-head and serving as a coupling-pin, and assuming a downwardly-inclined position by gravity when uncoupled for automatic coupling with a like link in a meeting draw-head, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JNO. A. BRILL.
EDWARD H. ZITZMAN.

Witnesses:
R. S. REED,
R. HAWKINS.