(No Model.) 2 Sheets—Sheet 1.

C. A. CHAMBERLAIN.

CAR COUPLING.

No. 332,380. Patented Dec. 15, 1885.

FIG. 1.

ATTEST-
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FIG. 2.

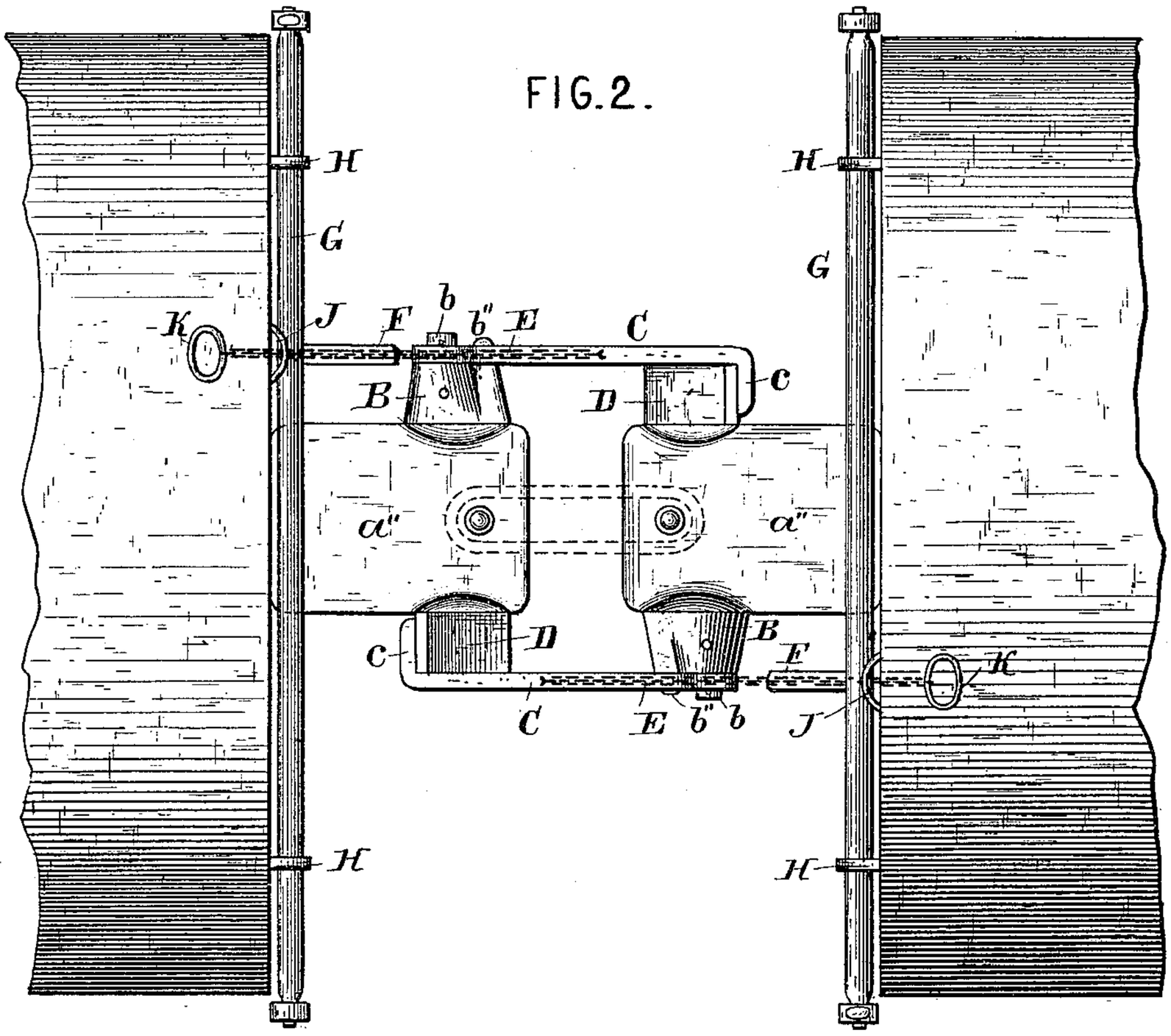
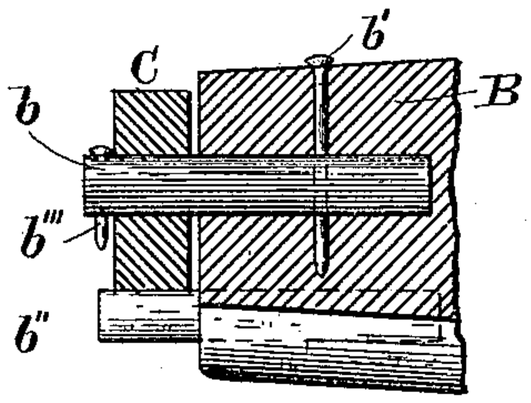


FIG. 3.



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UNITED STATES PATENT OFFICE.

COURTLAND A. CHAMBERLAIN, OF CANTON, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 332,380, dated December 15, 1885.

Application filed October 24, 1885. Serial No. 180,844. (No model.)

To all whom it may concern:

Be it known that I, COURTLAND A. CHAMBERLAIN, of Canton, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Freight-Car-Coupling Devices; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a true and complete description thereof.

My improvement relates to automatic freight-car couplers, and is in the principle of its operation related to that patented to me by Letters Patent No. 315,908, April 14, 1885. I have found simpler means, however, by which to carry out the coupling of freight-cars, whereby the utmost certainty and precision are secured, and, while means of great strength and durability are brought into use, all complicated mechanism is wholly dispensed with; and to the end that my coupler may be attached without great expense to cars of any construction I have adapted it to be applied to any of the various forms of draw-bars in common use.

My improvement relates to that class of couplers in which the engagement is automatic, and in which gravity, without any aid from springs or elastic media, is wholly relied on for the work; and it consists, as will be more particularly hereinafter pointed out, in a draw-bar provided upon the one side of its head with a projection or arm cast solidly thereon, with a central journal or bearing at its outer extremity, while upon the diametrically-opposite side of the head a laterally-projecting engaging-jaw having a forwardly-inclined contact-face and a rear vertical face is cast, the said head being combined with a vertically-swinging coupling-link carrying at its forward extremity a laterally-projecting jaw, whereby when the jaw of the link is forced against the inclined contact-face of the fixed engaging-jaw it rides freely over the apex and drops into engagement at any point with the rear vertical face of the said fixed jaw; and my invention further consists in details which will be hereinafter more fully described, and set forth more particularly in the claims.

To more particularly describe my invention, I will now refer to the accompanying drawings, in which—

Figure 1 represents in perspective view my coupler as applied to an ordinary draw-bar, one of the said draw-bars being in place upon the end of a box-car, while its fellow is represented as disengaged from the adjoining car. Fig. 2 is a plan view of the couplers in position between two cars, while Fig. 3 represents, in a section enlarged, a detailed view showing a preferred construction of the journal of the coupling-link.

A is the ordinary draw-bar, having the shank *a*, about which the ordinary spring is coiled and secured, and the squared or prolonged portion *a'*, for engagement with the bed-frame of the car. It is also provided with the ordinary buffer-head, *a''*, having the horizontal link-opening in its face and vertical pin-opening for the common link-and-pin connection of the ordinary freight-car.

Upon one side of the head, and cast integrally therewith, I provide the projection B, terminating centrally in a journal or bearing, *b*. This bearing or journal I make of steel or some equally durable metal, and secure the same in the projection or arm of the head, advisedly, as shown in Fig. 3, by a key or other locking device, *b'*.

Upon the lower forward limb of the projection B, I make a further smaller projection or shoulder, *b''*, which may be cast integrally with the entire draw bar and head, or may be preferably attached, for security and permanence of wear, as shown in Fig. 3, being also made of steel or equivalent durable metal, and seated within an opening or socket tapped into the projection B in any of the well-known methods. This shoulder is broad and has an upper bearing-surface acting as a fulcrum for the coupling-link, presently to be described. I have found, however, that an ordinary cast shoulder upon the projection B has withstood the severest test of actual service.

Upon the journal or bearing *b*, I pivot the coupling-link C, securing the same by a locking-pin, *b'''*. The forward end of this link terminates in the lateral engaging hook or jaw *c*. The forward or contact face of this hook or jaw is slightly inclined, to enable it to rise freely over the inclined face of its complementary engaging-jaw D, to be presently described. The rear or engaging face of jaw or hook *c* is not at a right angle to the length of

the link, from which it projects laterally, but makes an angle that is slightly acute to the line of the link, for a purpose which will presently appear.

Diametrically opposite the projection B, upon the side of the head, projects the engaging-jaw D. The forward face of this jaw is inclined from the vertical, and presents its face squarely toward its engaging-hook C. Jaw D stands out at right angles to the plane sides of the buffer-head, with its forward or contact face inclined, as before described; but its rear or engaging face is not only at right angles to the side of the head, but is also in a plane that is truly vertical. In casting the draw-bar this jaw is made integral therewith, care only being taken that its contact and engaging faces be perfectly smooth. The body of the jaw may be recessed, as shown at *d;* or, if preferred, it may be made as a solid projection.

Attached to the coupling-links is the chain E, which engages with the rigid arm F upon the rock-bar G, carried in guide-eyes H upon the end of the car. The rock-bar is provided with handles at either end, by which the links may be lifted; or, if preferred, the uncoupling may be performed from the roof of the car by means of a continuation of the chain to the eye J, through which the end of the chain is kept from slipping by the large terminal ring K.

The operation of the device described is obvious. Cars equipped with the couplers, as set forth, on coming together engage automatically the link pivoted upon the projection B and supported in horizontal position upon the fulcrum or shoulder *b″*, rising easily up the inclined front face of jaw D, and dropping by force of gravity, as soon as the apex is reached, behind the same and into close engagement with the vertical rear face thereof. Each head being provided with a coupling-link upon one side and an engaging-jaw upon the other, the engagement is simultaneous and complementary. The motion and jolting of the cars serve only to make the slightly-undercut rear face of hook or jaw *c* engage more closely with the vertical face of jaw D. This latter jaw, it will be observed, is in vertical height the whole depth of the draw-bar head. The journal of the coupling-link is carried out from the central portion of the opposite side of the head. This arrangement of parts secures the positive engagement of the coupling-jaws not only when the draw-heads come together in the same horizontal plane, but provides for the largest difference in planes of meeting possible to a heavily-laden car coupled to one wholly empty. This advantage is of the utmost importance in couplers of this class. For lack of this high and low ability of engagement most of the couplers heretofore devised are largly inoperative. Good and effective results cannot be secured either, with springs, which are found in practice to be wholly unreliable, always failing in moments of extreme need. Dispensing, therefore, entirely with springs, I make my coupling-link of solid metal, so heavy that gravity quickly acts upon it when released from support. By pivoting it to swing vertically, and yet engage horizontally with its contacting-jaw in a broad smooth vertical face, I secure a twofold advantage. I am enabled also to most securely brace and strengthen, beyond all ordinary accident, the engaging-jaw, the inclined forward face thereof not only operating to carry the link-hook up to its apex, but also acting in the most perfect way as a powerful brace in support of the working-face, against which the whole strain of the draft is exerted.

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

1. The draw-bar provided with a laterally-projecting journal upon one side of the head, in combination with a vertically-swinging link provided with a laterally-projecting jaw at its forward extremity, the said head being provided upon its diametrically-opposite side with a projecting engaging-jaw whose front face is inclined to an apex and whose rear face is vertical, as set forth.

2. The draw-bar provided with a laterally-projecting arm or bearing upon the one side of its head and with a right-angularly-projecting jaw upon its opposite side, all cast in a single piece, the arm or bearing being provided with a steel journal keyed therein and with a shoulder or fulcrum also keyed therein, in combination with a vertically-swinging coupling-link pivoted upon the said journal and having a laterally-projecting engaging-jaw at its forward extremity, as set forth.

COURTLAND A. CHAMBERLAIN.

Witnesses:
H. E. SEAVER,
WORTH CHAMBERLAIN.