(No Model.) 2 Sheets—Sheet 1.

B. BONNANS.

CAR COUPLING.

No. 519,600. Patented May 8, 1894.

Fig. 4.

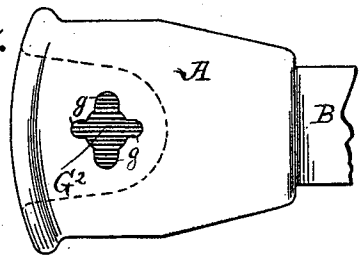


Fig. 5.

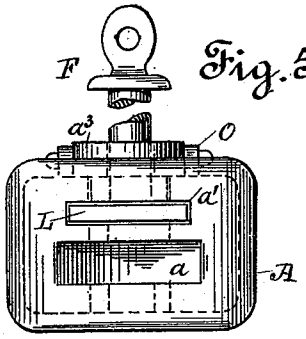


Fig. 1.

Fig. 2.

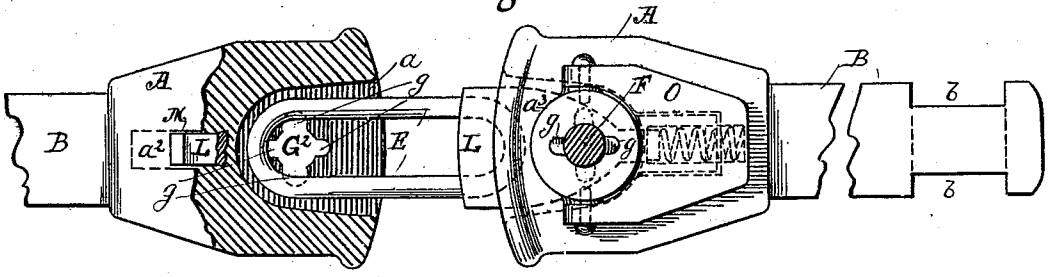
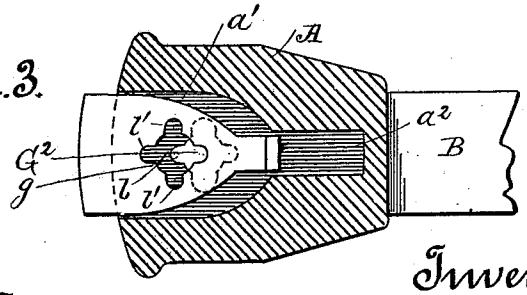


Fig. 3.



Witnesses.

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Fig. 8.

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by A. H. Ste Marie

atty

(No Model.) 2 Sheets—Sheet 2.

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CAR COUPLING.

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Fig. 6.

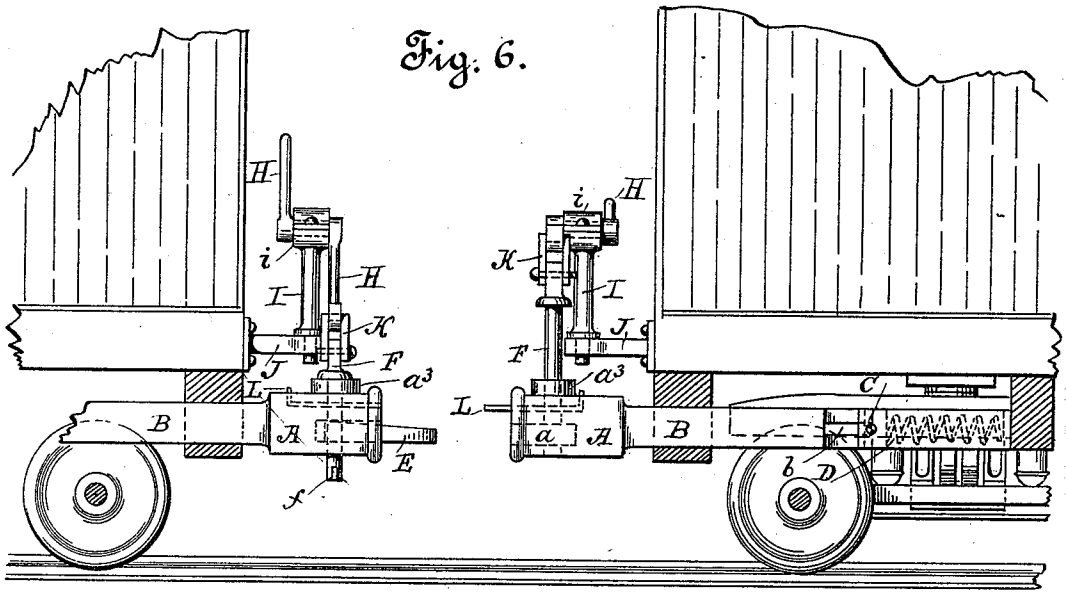
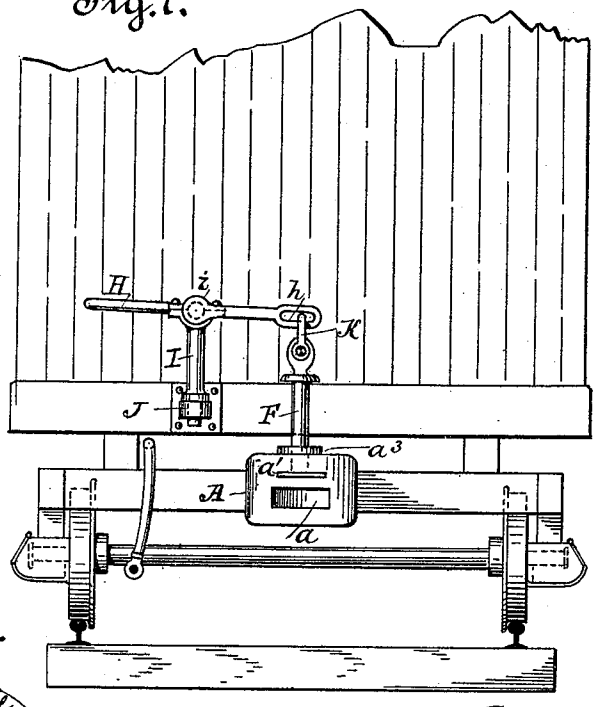


Fig. 7.



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UNITED STATES PATENT OFFICE.

BENJAMIN BONNANS, OF NORTH TEMESCAL, CALIFORNIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 519,600, dated May 8, 1894.

Application filed December 7, 1893. Serial No. 493,040. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN BONNANS, of North Temescal, in the county of Alameda and State of California, have invented certain new and useful Improvements in Car-Couplings; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 a part of this specification.

My invention relates to that class of car-couplers known as "link-and-pin" couplings, and it consists of various improvements, hereinafter described and claimed, that are intended to make devices of this nature automatic in operation, in so far as the act of coupling is concerned, and readily separable from a safe distance, through the agency of a simple lever, the whole comprising but a few parts, easily constructed, not liable to get out of order, and suitably protected from the weather and other noxious influences.

Referring to the accompanying drawings, in two sheets, for a detailed description of the said invention,—Figure 1 is a side elevation, partly in section and partly broken, illustrating the preferred mode of construction of my improved coupling. Fig. 2 is a top view of the same, the left draw-head being cut away on the line *x x*, Fig. 1. Fig. 3 is a sectional plan taken on the line *y y*, Fig. 1. Fig. 4 is a bottom view. Fig. 5 is a front elevation. Fig. 6 is a broken side elevation of railway-cars to which my improved coupling is applied. Fig. 7 is a front view of the car and coupling shown at the right hand side of Fig. 6. Fig. 8 is a perspective view of the coupling-pin.

Similar parts are indicated by similar letters of reference throughout all the views.

A represents the draw-head, which externally is made of the usual form but has two internal recesses or cavities *a a'* instead of the single one ordinarily provided.

B is the draw-bar, also of the usual shape, except the tail end which is made narrow and slotted longitudinally, as at *b*, to provide for the insertion and play of a cross-bolt C to which the back spring D is attached.

E is the link, which is adapted to enter the recesses *a* in the opposite draw-heads and is somewhat loosely fitted therein to insure ease of action during the various moves of the cars, especially in rounding curves. This link is wedge shaped, as shown at Fig. 1, that is to say is thicker at one end than at the other, so that, being heavier at the thick end, it will remain constantly in a level position ready for coupling, if care be taken to uncouple it at the thin end.

The coupling-pin, F, is preferably made round and provided with lateral projections or lugs *f f* at the point, that is at its lower end. It is inserted into holes G G' G^2, the first bored or formed through the upper part of the draw-head, the second through the partition separating the recesses *a a'*, and the third through the lower part of the draw-head. These holes have each four supplemental oppositely-placed grooves *g* cut out in their sides for the lugs *f* of the coupling-pin to pass through, but only two of these grooves reach up to the upper margin of the top hole G as shown by full lines in Fig. 2, the dotted lines at right angles thereto indicating that the two grooves they represent do not reach clear up to the outside but are stopped up at the surface. The object of this construction is to provide for the retention of the pin within the draw-head after insertion. By giving it a half-turn after it has been inserted, it may work up and down but cannot come clear out, since the lugs thereon no longer register with the outwardly-opening grooves. By preference, the grooves through which the lugs of the pin are destined to work are made deeper than the other, especially at the bottom of the draw-head, as shown at Fig. 4, the idea being to allow the coupling-pin to play freely within them. The pin is raised preparatory to coupling by means of a substantially Z-shaped lever H, the central part or stem of which forms a rocking-shaft and is journaled in a bearing *i* on a post or rod I whose lower end fits loosely in the eye of a bracket J projecting from the end of the car and upon the top of which the lever oscillates. The inner end of the lever is slotted at *h* and engaged with a clevis K pivotally secured to the head of the coupling-pin. The peculiar form of the lever throws back its outer end

conveniently close to the outer front edge of the car where it can be reached by a brakeman or other person intrusted with the care of coupling, so that the raising of the pin can be effected without going between the cars and need not be done by hand. Besides, owing to the mode of attachment provided and the way the supporting post is fitted, the lever is allowed the desired freedom of action and movement without exerting any strain or ill effect upon the coupling-pin. The lever is so balanced that the pin drops down of its own weight when ready for coupling, that is when all the parts are in proper position. The opposite coupling-pins have, by preference, their levers running outwardly in opposite directions, so that the uncoupling may be accomplished on either side of a train of cars, if needed.

In order to keep the pin raised until such time as it is desired to have the coupling effected I make use of a stop L, which consists of a plate having a central hole l with lateral grooves l' similar to and adapted to register with the holes G G′ G² and the grooves g. This plate is made to fit in the recess a' into which it slides longitudinally. It is heated before inserting and after it has been inserted its rear end is bent upwardly as shown at Figs. 1 and 6 so as to project into and engage with a slot or mortise M made in the upper part of the draw-head, back of the coupling-pin. Thus arranged the plate may slide back and forth in the draw-head but is prevented from coming out by the bend at its rear end. It is, however, controlled in its movements by a spring N located in a chamber a^2 formed in back of the recess a'. This spring drives it outward when the coupling-pin is raised, in such a position that the hole l and grooves l' no longer register with the corresponding holes and grooves of the draw-head and the pin is therefore prevented by the plate from dropping back to the place it previously occupied in the draw-head and through the link, after the lever is released. The pin then stands in the position illustrated at the right-hand side of Figs. 1 and 6. The coupling is automatically effected by the impact of one draw-head against the other, which forces back the plate L its full length into the draw-head, as represented at the left-hand side of Figs. 1 and 6. The spring N is thereby compressed, the holes l and G G′ G² and grooves l' and g register once more, and the pin is then free to drop down through the draw-head and the link projecting into it.

O represents a lid which I provide for covering the chamber a^2 and the spring therein, to keep the same free from the effects of the weather, especially in cold countries where the fall of snow or formation of ice might interfere with the proper working of the spring and the stop actuated thereby. This lid may be made in any suitable shape and secured to the draw-head in any suitable manner. In the present instance it has been represented as hinged to a boss or curb a^3 bordering the opening through which the coupling-pin enters the draw-head. It comes down and fits over a rim or raised border P formed around the outer edge of the mortise or slot M.

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

1. The combination of a draw-head having a hole with side grooves, a coupling-pin provided with lugs sliding through said hole and grooves, and stops in some of said grooves whereby the said pin can be prevented from being withdrawn from said hole in certain positions, substantially as set forth.

2. The combination of a draw-head provided with an open chamber, a coupling-pin, a stop for said pin, a spring bearing upon said stop and resting within said chamber, and a hinged lid covering said stop and spring, substantially as set forth.

3. The combination of a draw-head, a coupling-pin, a clevis pivotally secured to the head of said pin, a substantially **Z**-shaped lever oscillating in a vertical plane and having a slotted end engaged by said clevis, a post affording a fulcrum for said lever oscillating in a horizontal plane, and a bracket on which said post is supported and free to turn, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN BONNANS. [L. S.]

Witnesses:
R. R. STRAIN,
JAS. A. REED.