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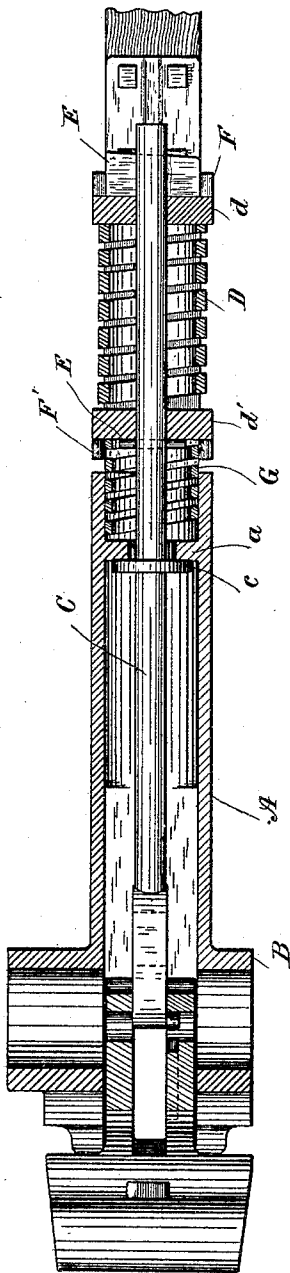
3 Sheets—Sheet 1.

W. B. GUERNSEY.
CAR COUPLING.

No. 464,866.

Patented Dec. 8, 1891.

Fig. 1.



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(No Model.)

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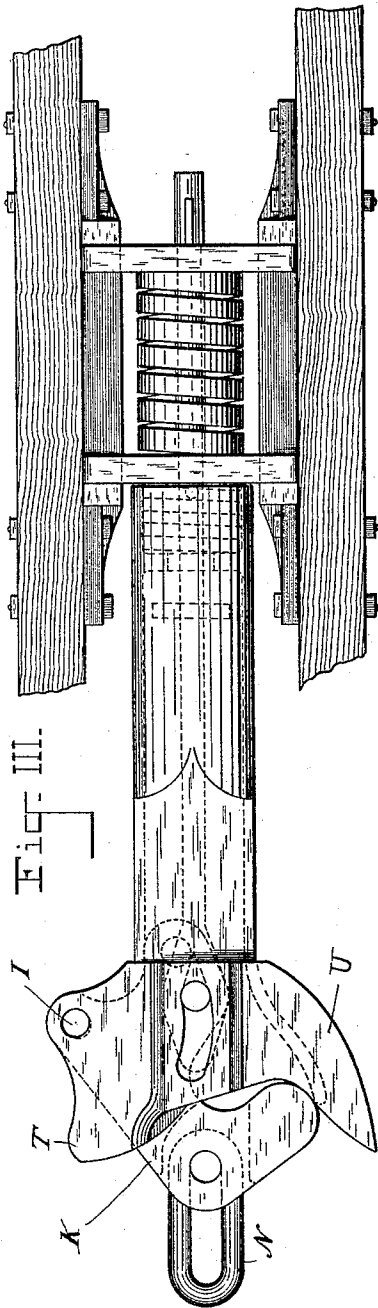
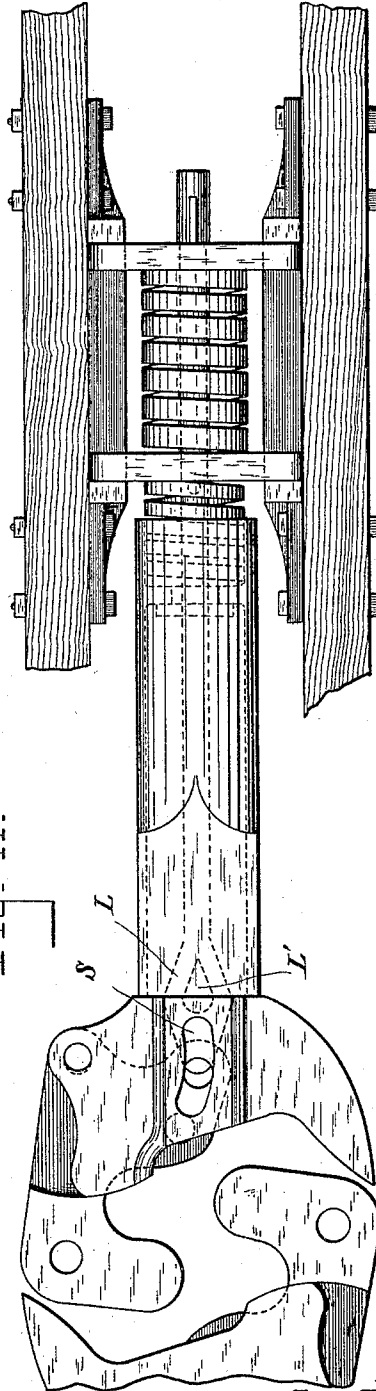


Fig. II.



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(No Model.)

3 Sheets—Sheet 3.

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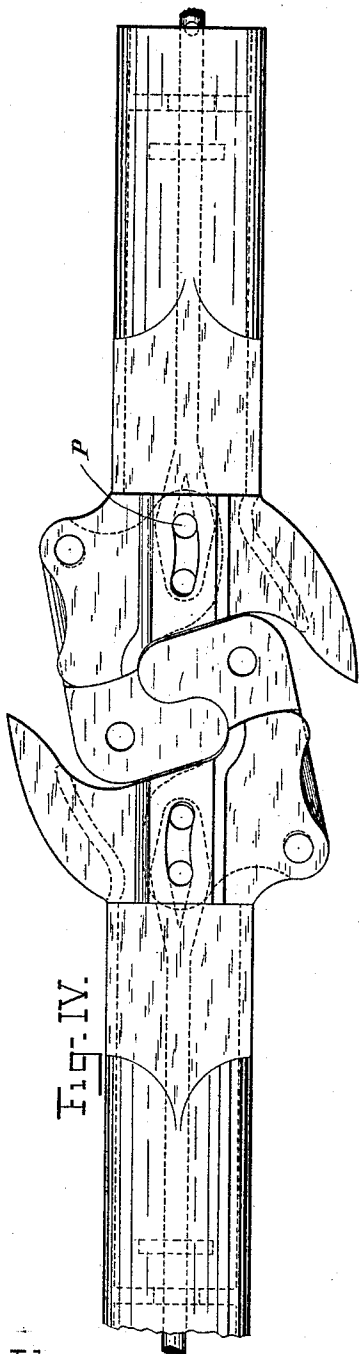


Fig. IV.

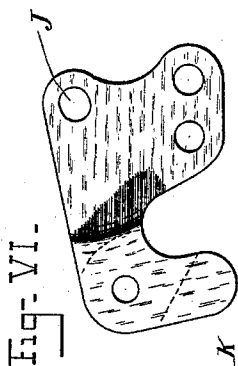


Fig. VI.

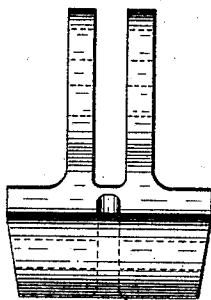


Fig. VIII.

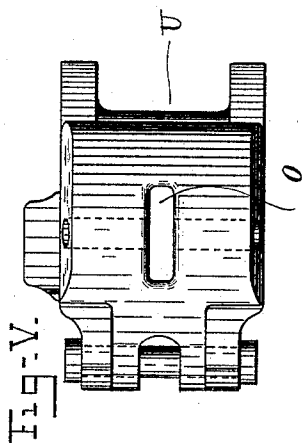


Fig. V.

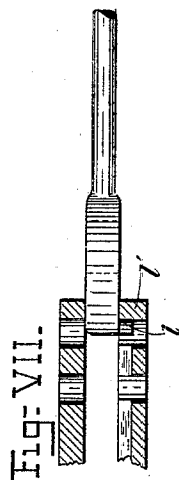


Fig. VII.

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UNITED STATES PATENT OFFICE.

WILLIAM B. GUERNSEY, OF NORWICH, NEW YORK, ASSIGNOR TO JANE M. GUERNSEY, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 464,866, dated December 8, 1891.

Application filed July 18, 1890. Serial No. 359,159. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. GUERNSEY, a citizen of the United States, residing at Norwich, county of Chenango, State of New York, have invented certain new and useful Improvements in Vertical Couplers, of which the following is a specification.

The invention as above stated relates to certain improvements in that class of railway-car couplings known as "vertical couplers," or couplers having opposed and complementary jaws moving on vertical pins or axes, which are adapted to automatically interlock and lock when brought together with a certain amount of force and which will, by reason of their peculiar construction and of the locking pin or device, prevent their separation without manual aid. This class of car-couplings is usually known as the "Janney type" or as "the master car-builders' standard," and I will speak of it as such.

My special improvements relate to the dissociation of the draw-bar or draw-head with what I term the "pull-rod draw-bolt," or spring-bolt, whereby the pulling strain heretofore directly applied from the knuckle to the draw-bar and thence transmitted to the said spring-bolt is in my invention transmitted from the knuckle directly to what I term the "pull-rod," the draw-bar or draw-head serving as a guide and support for said pull-rod, a support for the vertically-pivoted jaws or couplers, and constituting, also, a bumper to receive the inward stress or crushing force of a backing or coupling car, but transmitting no tensional strain whatsoever.

My construction is designed to dispense with many drawbacks in the operation of vertical car-couplers now in use, particularly those which are resultant from the inflexibility of a type which locks knuckles inflexibly to draw-heads when the coupling has been effected. In such couplers curves and grade apexes tend to create great friction between the opposing hooks, with frequent binding, and consequent breakages, or, perhaps, the hooks being small or worn with consequent uncoupling, or if hooks be large or bent there may be difficulty in making the coupling, all of which difficulties my invention avoids, besides making an improved pin-and-link coupler

for the transition period between said old style of link-couplers and the new style of automatic vertical hook couplers.

Referring to the accompanying drawings, 55 which form a part of this specification, Figure I is a longitudinal section of my improved coupling device. Fig. II is a plan view in its open position. Fig. III is a plan view in its closed position. Fig. IV is a plan view of two 60 couplers interlocking each other. Fig. V is an end view. Figs. VI, VII, and VIII are detail views which will be hereinafter referred to.

In the drawings, A represents an ordinary box or casing of the draw-bar, and B the head. 65

C is a draw-bolt having a collar *c*, which is adapted to bear against the annular rim or shoulder *a* in the interior of the draw-bar casing, said annular portion having a central orifice, through which the draw-bolt C extends 70 and through which it is adapted to move outwardly and inwardly. A buffer-spring is shown at D, and is locked between the followers *d* and *d'* by means of the keys E and *e*, which extend through the draw-bolt C on the 75 outer sides of the followers, the usual stops F and F' being provided to limit the travel of the followers. Supplementary spring G is provided, which rests at one end upon the collar *a* of the draw-head casing and at the other 80 end against the follower *d'*.

Pivoted to the head B is the knuckle K, it being retained in position by a hinge-pin I, which fits snugly the journals in the draw-head, but has some slight play in the journal 85 J of the knuckle, said opening or journal being slightly elongated to provide for its freedom of movement. This is shown in Fig. VI and outlines in Figs. II, III, and IV. The draw-bolt at its outer end is provided with a 90 loop L, the opening L' in said loop being adapted for the reception of a locking-pin P. The draw-bolt is also provided at its outer end with a lug or downwardly-extending pin *l*, (shown in detail in Fig. VII,) which interlocks with the corresponding shoulder *l'* upon 95 the knuckle K, to which it is thus connected. This is also shown in Fig. I. By this means the knuckle is prevented from springing outwardly and beyond the desired point, and 100 when not in use the parts will be kept in the position shown in Fig. II, all ready for lock-

ing as soon as the approaching draw-head is brought into position and pressure applied.

The ordinary coupling-link N can be employed in connection with my invention, and the opening O is provided for its reception, as shown in Fig. V. When the ordinary coupler is used in connection with my draw-head, the parts assume the position shown in Fig. III. The draw-bolt is in this case locked by the lock-pin P in its inmost position, and the knuckle is locked to the draw-bolt, but is independent of the draw-head, so that the pull will be transmitted entirely through the draw-bolt and that no strain will come upon the draw-head. For locking with itself or with another style of vertical coupler the continuous bearing-surfaces of the coupling-jaws are so constructed that when they are thrust against each other they will move inwardly, causing the interlocking, as desired, and this condition is further brought about by the position of the hinge-pin I, which is placed outside of the striking line, the striking line being at the outermost point of the knuckle, as shown at s in Fig. II. When the parts are in the position shown in Fig. II and the opposing draw-heads are approaching each other, the lock-pin P is standing in the curved slot S of the draw-head and is resting on the outer end of the draw-bolt. When the thrust is continued and the parts are brought together, the said lock-pin will drop into the position shown in Fig. IV, so that the moving draw-heads will be locked together by their respective hooks or knuckles, each knuckle being locked by its lock-pin to its respective spring-bolt, and the pull, when applied, will come entirely on the pull-rod, no tensional strain being transmitted through the draw-head.

In Figs. II, III, and V, I have shown clefts T and N, through which the hand can be inserted and the ordinary link-coupling can be effected without danger.

It will be noticed that in coupling with another hook the lock-pin P cannot drop into or through the hole L' in the draw-bolt L until the draw or buffer head has been compressed a short distance against the draw-spring D and that such compression of the draw-spring is maintained by the completion and maintenance of the coupling. This connection insures a close coupling—no freeslack—and is a very important feature of my improvement.

In the claims I eliminate the term "draw-bar" and employ therefor the word "draw-head" and use the term "draw-bolt" in connection with the bolt C, arranged independently of the draw-head.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a car-coupling, the combination of the draw-head, the swinging knuckle pivoted thereto, and a rearwardly-extending draw-bolt connected and locked to the knuckle independently of the draw-head, as set forth.

2. In a car-coupling of the Janney type, the combination of a draw-head, a draw-bolt arranged therein and independently thereof, a knuckle connected to the outer end of the draw-bolt, whereby the pull will be transmitted entirely through the said draw-bolt, as and for the purposes set forth.

3. In a car-coupling, the combination of the vertical coupling jaw or knuckle, the draw-head having the knuckle pivoted thereto, as shown, and a draw-bolt extending through the draw-head and connected to the knuckle at its outer end, all adapted to operate substantially as and for the purposes set forth.

4. In a car-coupling, the combination of the knuckle, the draw-head having the knuckle pivoted thereto, as shown, the draft-spring, and a draw-bolt extending through the draw-head and connected to the knuckle at its outer end and locked or keyed to the draw-spring at its inner end, as and for the purposes set forth.

5. In a car-coupling of the Janney type, a draw-head, a horizontally-swinging knuckle, and a draw-bolt arranged independently of the draw-head, whereby the latter will be relieved of all tensional strain and the pull be communicated through the knuckle and draw-bolt.

6. In a car-coupling, the combination of the draw-bar provided with a head or buffer adapted to receive concussions and pressure from the contiguous coupler, a vertical coupling jaw or knuckle adapted to lock with and be unlocked by from the draw-bolt in coupling and uncoupling, and the independent draw-bolt, as and for the purposes set forth.

7. In a car-coupling of the Janney type, the combination of the vertical hook or knuckle, the independent draw-bolt, a draw-head, and a buffer-spring so arranged and related to the aforesaid knuckle and draw-bolt that the said draw-head will be forced backward against the resistance of the buffer-spring in order to effect a coupling.

8. In a car-coupling of the Janney type, the draw-head and a knuckle locked to the draw-bolt and communicating draft tensions through itself and said draw-bolt independently of the draw-head.

9. In a car-coupling of the Janney type, the combination of draw-heads, swinging knuckles arranged to interlock with each other, and draw-bolts independent of the draw-heads, whereby the pull is transmitted through the knuckles and draw-bolts independently of the draw-heads.

10. In a car-coupling of the Janney type, the combination of the draw-head, of swinging knuckles acting as buffer-heads, independent draw-bolts, and locking devices for connecting the draw-bolts to the knuckles, all the parts being so arranged that the tensional stress will be communicated through the knuckles and draw-bolts and all buffer stress through the knuckles and draw-heads, as set forth.

11. In a coupler of the Janney type, a knuckle swinging inward or to a closed position until its nose comes in contact with the buffer-head, a pin-hole in or near the joint or elbow of the knuckle, whereby a coupling can be made with a link when desirable and the buffing be received and transmitted through the substance of the knuckle directly to the face of the buffer-head, as shown.

12. In a car-coupling, the combination of a vertical jaw or knuckle, a draw-head in which said knuckle is swiveled, and means, substantially as shown and described, upon the draw-bolt for restraining the outward swing of the knuckle and maintaining a definite limit of opening, as and for the purposes set forth.

13. In a car-coupling, the combination of the draw-head, the swinging knuckle swiveled thereto, a rearwardly-extending draw-bolt connected thereto and formed independently of the draw-head and provided with an opening at its outer end for the reception of the coupling-pin, the parts being so arranged that the pin will drop automatically in a locked position when the knuckle is thrust inwardly, as set forth.

14. In a car-coupling, the combination of the draw-head, the swinging knuckle swiveled thereto and provided with a groove and stop, as shown, the independent draw-bolt, the draw-spring to which it is locked, and a lug or finger upon the outer end of the draw-bolt, fitting in the groove of the knuckle, whereby the outward swing of the said knuckle is definitely limited.

15. In a car-coupling, the combination of the opposing draw-heads, the vertical coupling hooks or knuckles swiveled thereto by means of heel-pins, substantially as shown and described, independent draw-bolts adapted to receive the pull from the coupling-hooks when linked thereto, the coupler-faces and locking-toe being so constructed and related

to each other that when coupled and locked the tensional stress will tend proportionately to maintain the integrity of the couplings.

16. In a car-coupling, the combination of the opposed draw-heads, knuckles acting as buffers, draw-bolts arranged independently of the draw-heads, so as to be free from the draw-head movements, and adapted to be interlocked through the medium of the knuckles when the cars are coupled.

17. In a car-coupling of the Janney type, the vertically-faced coupling-jaws so constructed that in order to interlock the draw-spring must first be compressed, in combination with a draw-spring arranged substantially as shown and described, whereby a closed coupling is maintained.

18. In a car-coupling, a draw-head, an independent draw-bolt so constructed at its forward end as to admit of its being locked and unlocked to a vertical coupling hook or knuckle, in combination with said coupling hook or knuckle swiveled to the draw-head, and the coupling-pin, as set forth.

19. In a car-coupling, the combination of a buffer-head, a rotary or swinging vertical-faced hook or knuckle, a draw or spring bolt, with a locking-pin or other device for locking and unlocking the knuckle to the bolt in the act of coupling and uncoupling.

20. In a coupler, the combination of a buffer-head, a rotary or swinging vertical-faced hook or knuckle, a draw or spring bolt, and a locking-pin, all the parts being so related that the tensional strain will be transmitted through the knuckle and bolt independently of the buffer-head and buffer stresses will be borne by the buffer-head, to which they are transmitted through opposing knuckles.

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