

O. C. BILLMAN.
CAR COUPLING.
APPLICATION FILED JULY 20, 1905.

1,045,365.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

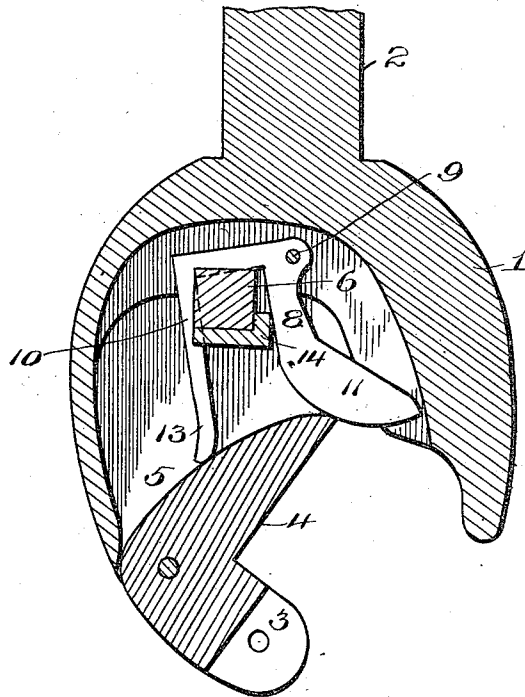


Fig. 3.

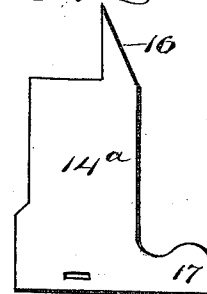
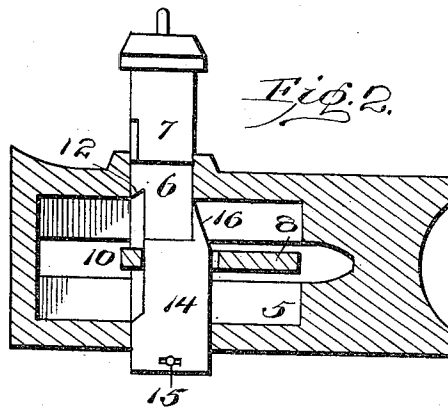


Fig. 2.



Obed C. Billman *Inventor*

Witnesses

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2 SHEETS—SHEET 2.

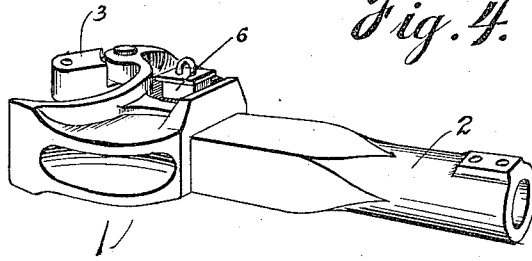


Fig. 4.

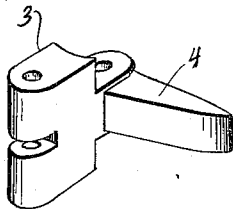


Fig. 5.

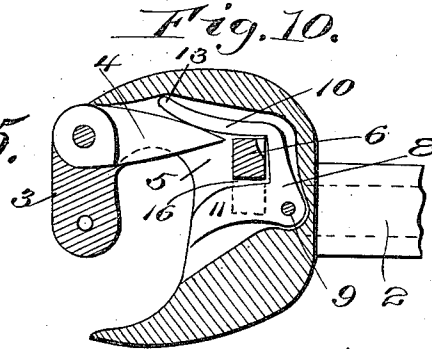


Fig. 10.

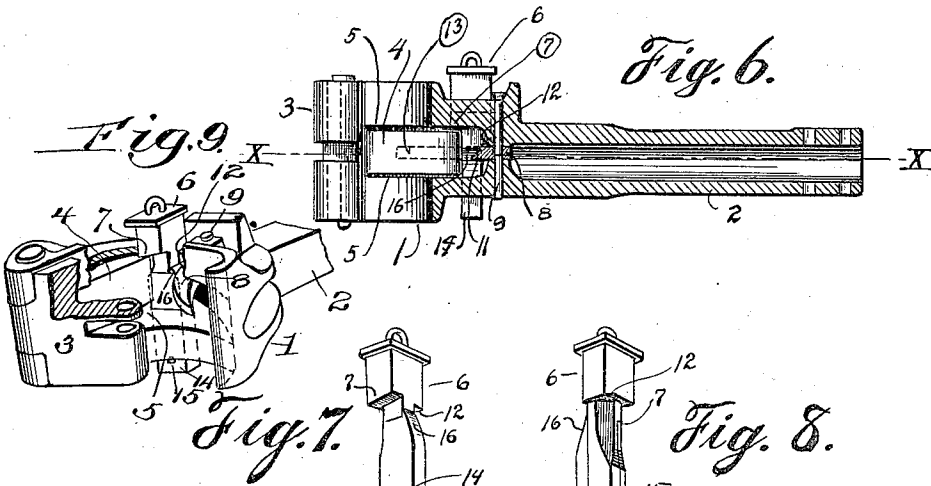


Fig. 6.

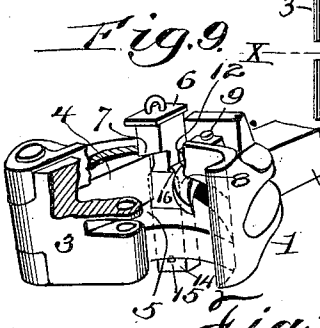


Fig. 9.

Fig. 7.

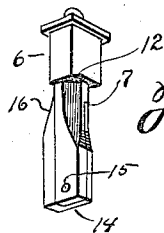
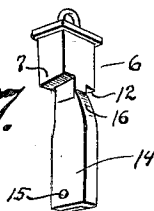


Fig. 8.

WITNESSES

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CAR-COUPLING.

1,045,365.

Specification of Letters Patent.

Patented Nov. 26, 1912.

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To all whom it may concern:

Be it known that I, OBED C. BILLMAN, a citizen of the United States, residing at Lodi, in the county of Medina and State of Ohio, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings and more particularly to that class known as the "Janney," or "M. C. B." type, and the paramount object of the invention is to produce a generally improved device of this class which will be exceedingly simple in construction, cheap of manufacture and efficient in use, and which, by reason of perfection in details to meet the varying demands of actual service, will be better adapted to its intended purposes than any other device of the same class with which I am acquainted.

The "perfection in details," above referred to, consists, first, in providing a "knuckle-opener," by extending the inner or rear arm of "a substantially U-shaped pin-support," like that disclosed in patent granted to me May 21, 1895, No. 539,606, for engaging the arm or tail of the knuckle, combined with "a vertically movable locking-pin," provided at one of its sides with means (in the present instance an incline) adapted to engage one side of the pivotally mounted "U-shaped pin-support," when the locking-pin has been raised to or above its unlocked position, whereby said pin-support is moved to automatically rotate the knuckle to its "open position." Second, to provide means, whereby the locking-pin may be raised to its unlocked position and sustained in that position when the knuckle has been moved out of its closed position, and which will, at the same time, permit the locking-pin to be raised still farther and thus open the knuckle automatically and hold the same in its open position preparatory to automatic coupling.

With these ends in view, the invention consists in the novel construction, arrangement and combination of parts, hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

Referring now to the accompanying drawings, forming a part of this specification, Figure 1, is a horizontal sectional view of a draw-head provided with my improved

locking-pin and "pin-support and knuckle-opener." Fig. 2, is a transverse sectional view of the same. Fig. 3, is a detail view of a modified form of the "stem attachment," for the locking-pin. Fig. 4, is a perspective view of the improved car coupling, showing the parts in unlocked position. Fig. 5, a detailed perspective view of the knuckle. Fig. 6, a vertical longitudinal section of the improved car coupling, showing the parts in unlocked position. Fig. 7, a detail perspective view of the front or shoulder portion of the improved locking-pin. Fig. 8, a detailed perspective view of the rear or notched portion of the improved locking-pin. Fig. 9, a perspective view of the improved coupler, having a portion of its walls broken away, showing the locking-pin in its open or elevated position. Fig. 10, a horizontal sectional view, taken on line X—X of Fig. 6 with the pin-support and knuckle-opener and tail of the knuckle in plan.

Similar numerals of reference, designate like parts throughout all the figures of the drawings.

Referring now to the drawings, 1 designates a draw-head, provided with a draw-bar 2, and designed to be connected to a car in the ordinary manner, and having pivoted to it a knuckle 3, which is provided with an arm 4, arranged to swing in a horizontal recess or cavity 5, of the draw-head. The knuckle is locked in its connected position, which it occupies when coupled, by a vertically movable locking-pin 6, mounted in suitable openings in the top and bottom of the draw-head. The locking-pin is provided at its front with a vertical shoulder 7, arranged to engage the end of the arm of the knuckle.

The pin is arranged, in the present instance, within the opening of a substantially U-shaped pin-support 8, pivoted horizontally in the draw-head by means of a vertical pin 9, and having its sides 10, and 11, which extend forward from the pivot, located at opposite sides or straddling the locking-pin. The side 10, and the rear portion of the substantially U-shaped pin-support are arranged to engage shoulders 12, of the adjacent sides of the locking-pin, to support the latter in an elevated position preparatory to automatic coupling; and the side 10 extends forward beyond the locking-pin, and when the arm of the knuckle

swings into the recess or cavity of the draw-head incident to coupling, it engages the side 10, and carries it out of engagement with the locking-pin, thereby withdrawing the support from the locking-pin and causing the same to fall, and the shoulder 7, to engage the arm of the knuckle to lock the latter in its closed position.

When it is desired to uncouple or open the knuckle, the coupling-pin or locking-pin 6, is raised, and the knuckle is free to swing open, and in opening its arm engages the side 11, of the substantially U-shaped pin-support, swinging the latter and causing the other side 10, and the rear of the same to assume a position beneath the shoulders 12, whereby the operation of opening the knuckle automatically sets the parts for automatic coupling. The side 11, of the pin-support has its inner end slightly curved, and diverges from the other side forming a slight bevel, and permitting the arm of the knuckle to swing past it when the knuckle closes, in order to avoid any liability of the locking-pin being accidentally released and allowed to fall. The shoulders 12, are inclined, and the side 10, and the rear of the pin-support are set at a slight inclination transversely, to permit the pin-support to interlock partially with the inclined shoulders, to prevent the locking-pin from accidentally falling, or of being released by any other means than the action of the arm of the knuckle.

The above description of the operation of the parts refers to the ordinary movements of the same when the locking-pin is raised only to uncoupled or unlocked position and it is not desired to open the knuckle manually through the medium of the knuckle-opener, locking-pin, and the ordinary operating-lever attached to the locking-pin and journaled to the end of a car.

Referring now to the "knuckle-opener," 13, designates an extension formed with the side 10, and extending forwardly along the rear side of the arm 4, of the knuckle 3, when the same is in its closed or locked position.

14, designates a stem attachment pivotally secured to the front and side of the lower portion of the stem of the locking-pin 6, by means of a pivot-pin 15, passing through an opening in the lower portion of the same and the lower portion of said locking-pin 6.

16, designates an incline formed at the top of the stem attachment 14, to form a pointed or wedge-shaped end, adjacent to the inner side of the locking-pin, and adapted to take into engagement with the inner side of the arm 11, of the U-shaped pin-support 8, to shift the same laterally, when the locking-pin 6, is moved above its unlocked position; and by raising the same still farther, to move the U-shaped pin-support 8, known

in technical language as the "knuckle-opener," to the position shown in Fig. 1, whereby the knuckle is moved to its open position. It will also be observed that by raising the locking-pin 6, slightly the pin-support 8, or "knuckle-opener" may be shifted slightly, together with the knuckle, whereby the side 10, and the rear portion of said pin-support will engage the shoulders 12, of the locking-pin in its elevated position with the tip of the tail of the knuckle supporting the edge of the shoulder of the same as shown in Figs. 6, and 9, of the drawings. When the cars part, the knuckle is free to swing open, and in opening its arm engages the side 11, of the substantially U-shaped pin-support, swinging the latter and causing the other side 10, and the rear of the same to assume a position beneath the shoulders 12, whereby the operation of opening the knuckle automatically sets the parts for automatic coupling, as before stated. When the knuckle has been opened through the medium of the "knuckle-opener," the locking-pin 6, drops down upon the supporting portion of the same, or, in other words, the pin-support 8. While this has been found to generally take place in practice, with a stem attachment like that shown in Figs. 1 and 2, of the drawings, yet to insure its doing so at all times and under all conditions, and also as a means of giving the "knuckle-opener" an additional lateral motion, I provide a modified form of stem-attachment 14^a, shown in Fig. 3, provided at its lower end with an arm 17, adapted to come into engagement with the lower wall of the draw-head, when the locking-pin 6, has been elevated to a position slightly below that shown in Fig. 2, whereby said stem-attachment is transformed into a lever having its fulcrum on the pivot-pin, and the upper end will be moved laterally against the adjacent side 11, of the pin-support 8, or "knuckle-opener," whereby the same is moved still farther and moves the knuckle to its extreme open position, and may be securely held in that position if desired by means of the usual operating-lever.

Having thus described my invention, although without having attempted to set forth all the forms in which it may be made or all the modes of its use, I declare that what I claim and desire to secure by Letters Patent, is,—

1. A car coupling, consisting of a draw-head, a knuckle pivoted to the draw-head and having an arm, a locking-pin arranged to engage the arm and retain the knuckle in its closed position, and a pivotally mounted pin-support having opposite sides arranged to be engaged alternately by the arm of the knuckle, one of the arms being arranged to support the locking-pin and open the knuckle and the other being

arranged to be engaged by the arm of the knuckle and the side of the locking-pin whereby the same may be moved laterally to support the locking-pin and open the knuckle.

2. A car coupling, consisting of a draw-head, a knuckle pivoted thereto and having an arm, a locking-pin arranged to engage the arm of the knuckle, and an approximately U-shaped pin-support pivotally mounted in the draw-head, one of the sides being arranged to be engaged by the arm of the knuckle to throw it out of engagement with the locking-pin and to engage the arm of the knuckle to open the same, and the other arm being arranged to be engaged by the arm of the knuckle, and the side of the locking-pin, whereby the pin-support is carried in position to engage the locking-pin and open the knuckle.

3. A car coupling, consisting of a draw-head, a knuckle pivoted thereto and having an arm, a locking-pin arranged to engage the arm of the knuckle, and a pin-support mounted in the draw-head and straddling the locking pin, one of the sides being arranged to be engaged by the arm of the knuckle to throw it out of engagement with the locking-pin and to engage the arm of the knuckle to open the same, and the other arm being arranged to be engaged by the locking-pin whereby the pin-support is carried in position to engage the arm of the knuckle to open the same and to engage the locking-pin to support the same in an elevated position.

4. A car coupling, consisting of a draw-head, a knuckle pivoted thereto and having an arm, a locking-pin arranged to engage the arm of the knuckle and provided with an inclined side, and a two-armed pin-support pivotally mounted in the draw-head, one of the arms being adapted to engage the arm of the knuckle to open the same and the other being adapted to be engaged by the inclined side of the locking-pin whereby said pin-support is moved laterally to open the knuckle and engage the locking-pin in its elevated position.

5. In a car coupling, the combination with a draw-head, a locking-pin provided with an inclined side, and a knuckle suitably mounted; of a pin-support pivotally mounted in the draw-head, and straddling the locking pin, one of the arms being adapted to engage the knuckle to open the same, and the other arm being arranged to be engaged by the inclined side of the locking-pin when the latter is elevated to unlocked position whereby to shift the pin-support to open the knuckle and support the locking-pin in its unlocked position when the knuckle is open.

6. In a car coupling, the combination with a locking pin having an inclined side, a

knuckle; of a two-armed pin-support pivotally mounted, one of the arms being adapted to open the knuckle and the other arm being adapted to be engaged by the inclined side of the locking-pin.

7. In a car coupling, an approximately U-shaped pin-support having opposite sides straddling the arm of the knuckle, one of the arms being arranged to be engaged by the arm of the knuckle to throw the pin-support out of engagement with the locking-pin and to engage the arm of the knuckle to open the same and the other arm being adapted to be engaged by the arm of the knuckle to throw the pin-support into engagement with the locking-pin when the latter is elevated.

8. In a car coupling, the combination with a locking-pin and a knuckle suitably mounted; of a substantially U-shaped pin-support and knuckle-opener pivotally mounted and having opposite sides straddling the locking-pin, one of the arms being arranged to engage the arm of the knuckle and the locking-pin when the latter is elevated, and the other arm being arranged to be engaged by the arm of the knuckle and the side of the locking-pin whereby the pin-support is moved to engage the locking-pin and open the knuckle, respectively.

9. A car coupling, consisting of a draw-head, a knuckle pivoted thereto and having an arm, a locking-pin arranged to engage the arm of the knuckle, a stem-attachment secured to said locking-pin, and a pivotally mounted pin-support and knuckle-opener having opposite sides straddling the locking-pin and arranged to be engaged alternately by the arm of the knuckle, one of the arms being arranged to support the locking-pin and open the knuckle and the other arm being arranged to be engaged by the arm of the knuckle and said stem-attachment whereby the same may be moved laterally to support the locking-pin and open the knuckle.

10. In a car coupling, the combination with a locking-pin, a knuckle having an arm, and a two-armed pin-support and knuckle-opener suitably mounted in a draw-head; of a stem-attachment suitably secured to said locking-pin and adapted to engage said two-armed pin-support and knuckle-opener whereby the same may be shifted laterally.

11. In a car coupling, the combination with a locking pin, and a substantially U-shaped pin-support and knuckle-opener suitably mounted in the draw-head; of a stem-attachment suitably secured to said locking-pin and adapted to engage one side of said U-shaped pin-support and knuckle-opener.

12. In a car coupling, the combination with a locking-pin and a pin-support and knuckle-opener having arms adapted to be

engaged alternately by the arm of the knuckle; of means secured to said locking-pin adapted to engage one of said arms to shift the same laterally whereby the other arm
5 engages the arm of the knuckle and opens the same.

In testimony whereof I have affixed my

signature, in presence of two subscribing witnesses.

OBED C. BILLMAN.

Witnesses:

J. W. DUNLAP,
EARL E. STENTZ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
