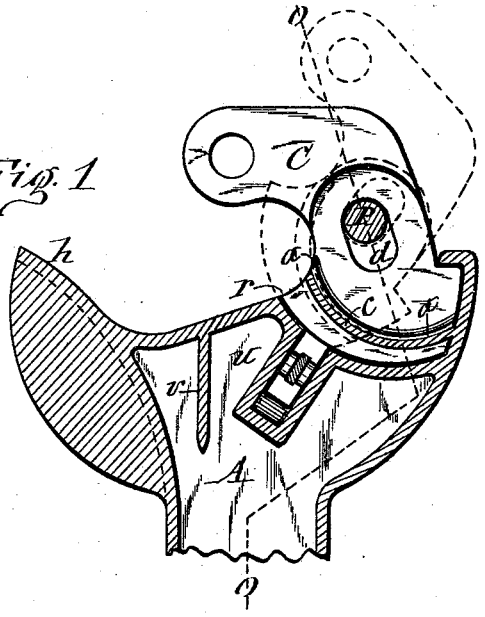
(No Model.) 2 Sheets—Sheet 1.

L. BARNES, Sr., & C. O. BARNES.

CAR COUPLING.

No. 455,500. Patented July 7, 1891.

Fig. 1



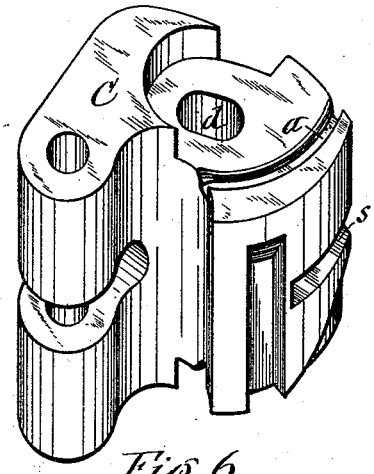


Fig. 6

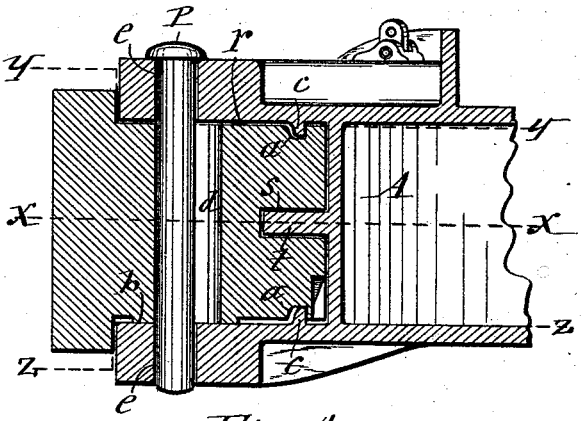


Fig. 4

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CAR COUPLING.

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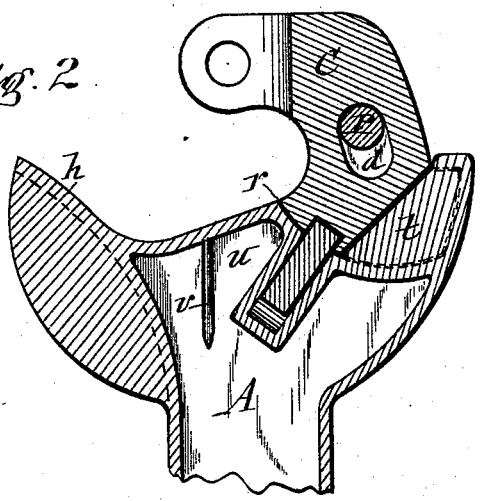
Fig. 2.



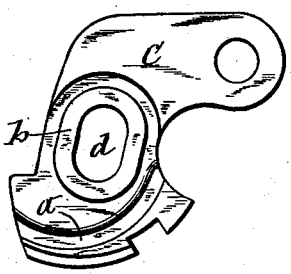


Fig. 7.

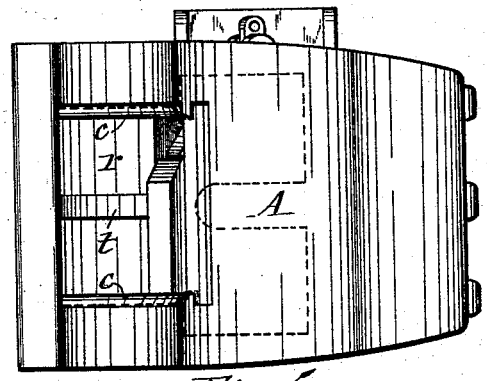
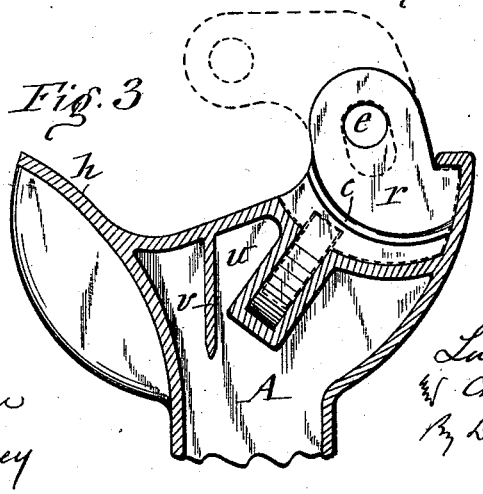


Fig. 5.

Fig. 3.



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UNITED STATES PATENT OFFICE.

LUCIEN BARNES, SR., AND CHARLES O. BARNES, OF SYRACUSE, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 455,500, dated July 7, 1891.

Application filed April 4, 1891. Serial No. 387,585. (No model.)

To all whom it may concern:

Be it known that we, LUCIEN BARNES, Sr., and CHARLES O. BARNES, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Car-Couplings, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention pertains to the class of car-couplers which are usually designated "twin jaw" couplers or "Janney type" couplers, and in one respect it has special reference to the species of car-couplers in which the swinging coupling hook or knuckle is provided on its top and bottom with segmental ribs entering corresponding grooves in the top and bottom of the knuckle-seat in the draw-head.

The chief objects of our present invention are to reduce to a minimum the friction between the swinging knuckle and draw-head in the operation of throwing the same into its open position, preparatory to receiving and coupling with a similar knuckle on the draw-head of an approaching car; and the object of the invention is also to re-enforce that portion of the draw-head which is formed with the recess for the reception of the heel or rear end of the knuckle; and to that end the invention consists in the improved construction and combination of parts hereinafter fully described, and specifically set forth in the claims.

In the annexed drawings, Figures 1, 2, and 3 are horizontal transverse sections, respectively, on lines *y y*, *x x*, and *z z* in Fig. 4. Fig. 4 is a vertical longitudinal section on line *o o*, Fig. 1. Fig. 5 is a front end view of the draw-head minus the knuckle or coupling-hook. Fig. 6 is a perspective view of the coupling-knuckle, and Fig. 7 is an inverted plan view of the same.

Similar letters of reference indicate corresponding parts.

A represents the draw-head, which is formed with the usual horn *h* on one side of its front and with the cavity *r* opposite said horn, and is provided with the eyes *e e* for the reception of the pin P, by which the knuckle C is pivotally connected to the draw-head.

For the purpose of strengthening the portion of the draw-head which is provided with the cavity *r*, we form the draw-head with a tie or brace *t* horizontally across the cavity *r*, and to accommodate the knuckle C we provide the rear end thereof with the transverse slot *s*, as shown in Figs. 4 and 6 of the drawings. The draw-head is usually formed hollow or with the cavity *u* in its main portion for the purpose of reducing the weight of the draw-head. This obviously weakens the same to a certain degree and renders the front wall of the draw-head liable to be broken by the concussions received from the draw-head of another car coupled thereto. To obviate this defect, we form the draw-head with the vertical rib *v*, extending from the front wall of the cavity *u* rearward, as shown in Figs. 1, 2, and 3 of the drawings. The top and bottom of the knuckle are provided with the segmental grooves *a a*, into which enter correspondingly-shaped tongues *c c*, formed on the top and bottom of the cavity *r*, said tongue-and-groove connection affording a more positive and more secure hold for the knuckle C on the draw-head. The tongues and grooves have heretobeen made concentric in relation to the pivot of the knuckle, and in consequence of this the knuckle was subjected to so much friction in turning the same on its pivot as to render it difficult to swing the knuckle into its uncoupled position when desired to prepare the same for coupling with the knuckle of another draw-head. This defect we overcome by disposing the tongues *c c* and grooves *a a* eccentric to the pivot of the knuckle, as shown in Figs. 1, 3, 6, and 7 of the drawings, and we also preferably form the tongues and grooves with sloping outer walls and abrupt inner walls and with a space between them, as illustrated in Fig. 4 of the drawings. If desired, the tongue-and-groove connections may be reversed—*i. e.*, the grooves may be in the draw-head and the tongues on the knuckle. The eccentricity of said tongues and grooves is in such a direction as to cause outer ends thereof to be nearer to the pivot of the knuckle than the inner ends of the tongues and grooves, and thus in the operation of throwing the knuckle into its uncoupled position, as represented by dotted lines in Fig. 1 of the drawings, the tongues become relieved from frictional contact with the walls of the grooves.

We further guard against undue friction

between the knuckle C and draw-head by making the hinged end of the knuckle slightly smaller in depth than the cavity *r* of the draw-head and forming either the under side of the knuckle or adjacent surface of the cavity *r* with a boss *b* around the pivotal portion or slot *d* of the knuckle, on which boss the knuckle rides.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the draw-head formed with the tie *t* across the cavity *r*, and the knuckle C, formed with the slot *s* for the reception of said tie, as set forth.

2. The combination of the draw-head and knuckle formed on their adjacent top and bottom faces with segmental tongue-and-groove connections disposed eccentric in relation to the pivot of said knuckle, as set forth.

3. The combination of the draw-head and knuckle formed on their adjacent top and bottom faces with segmental tongue-and-groove connections eccentric in relation to the pivot of the knuckle, the tongue and groove being sloped on their outer walls and abrupt or vertical on their inner walls, substantially as described and shown.

4. The draw-head formed with the cavity *r*, segmental tongues *c c*, and tie *t*, in combination with the knuckle C, provided with the grooves *a a* and slot *s*, substantially as set forth and shown.

In testimony whereof we have hereunto signed our names this 1st day of April, 1891.

LUCIEN BARNES, SR. [L. S.]
CHARLES O. BARNES. [L. S.]

Witnesses:
MARK W. DEWEY,
H. M. SEAMANS.