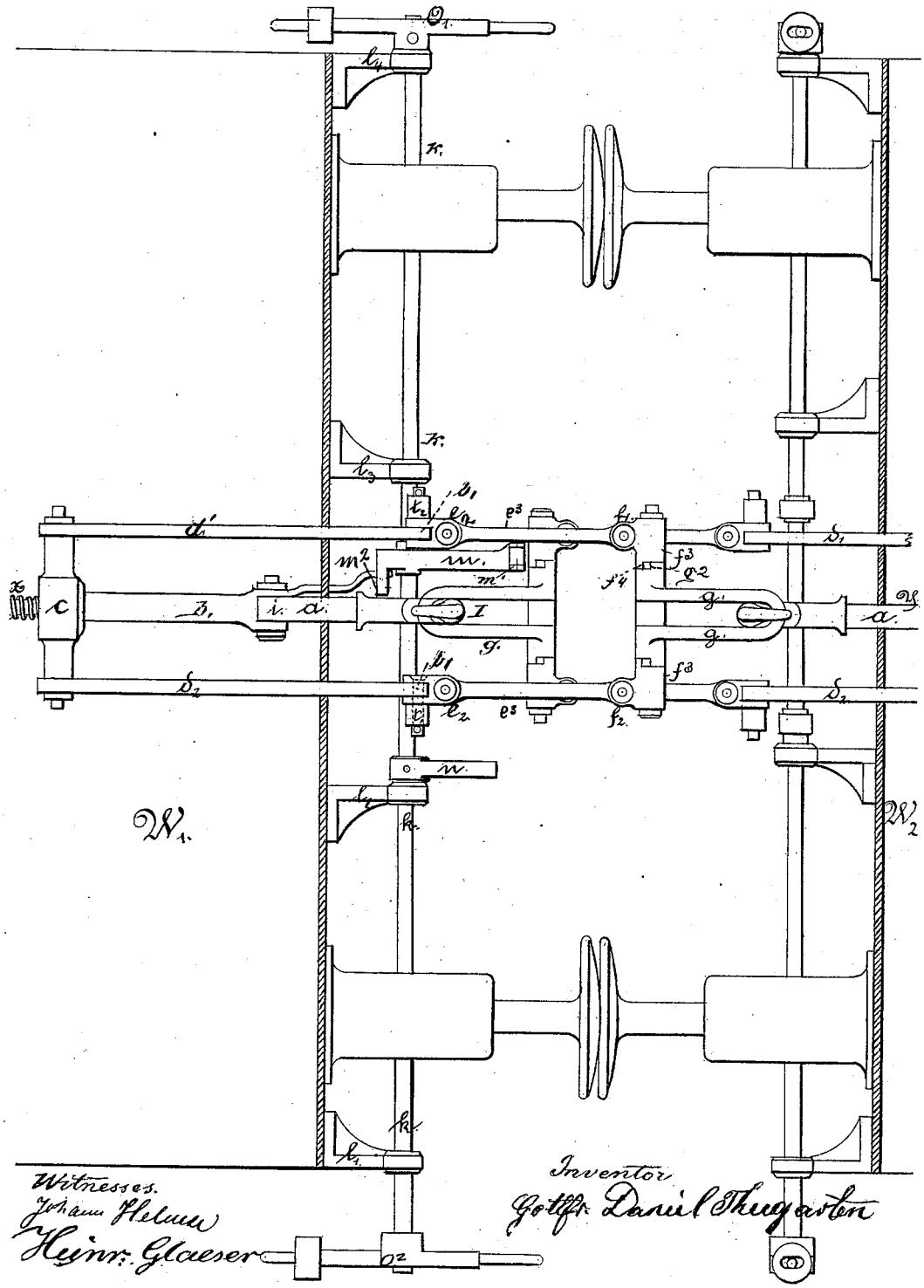
3 Sheets—Sheet 1.

G. D. THEEGARTEN.

Car-Coupling.

No. 196,267. **Patented Oct. 16, 1877.**

Fig. 1.



Witnesses.
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Car-Coupling.

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Fig. 2.

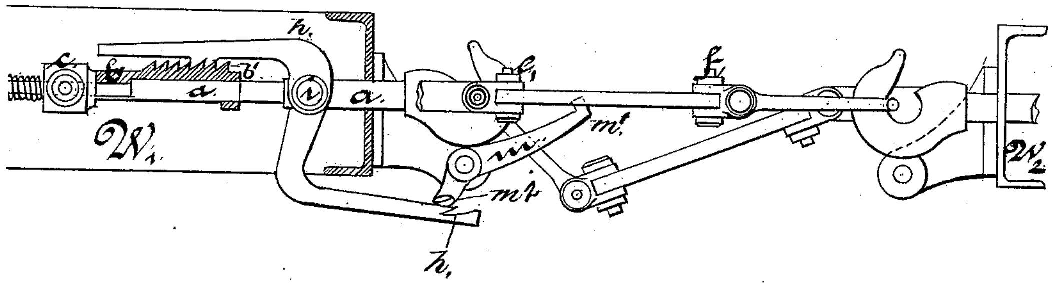


Fig. 3.

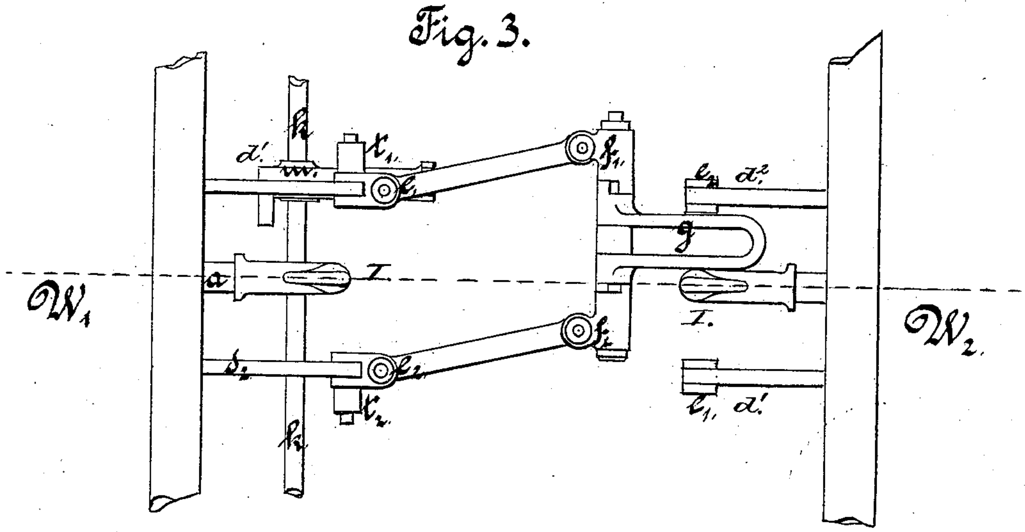
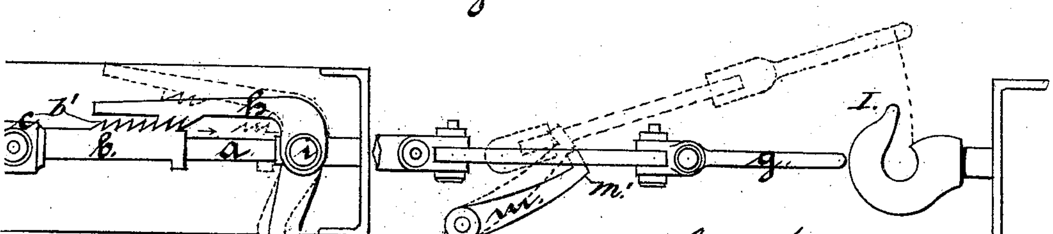


Fig. 4.



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3 Sheets—Sheet 3.

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Car-Coupling.

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Fig. 5.

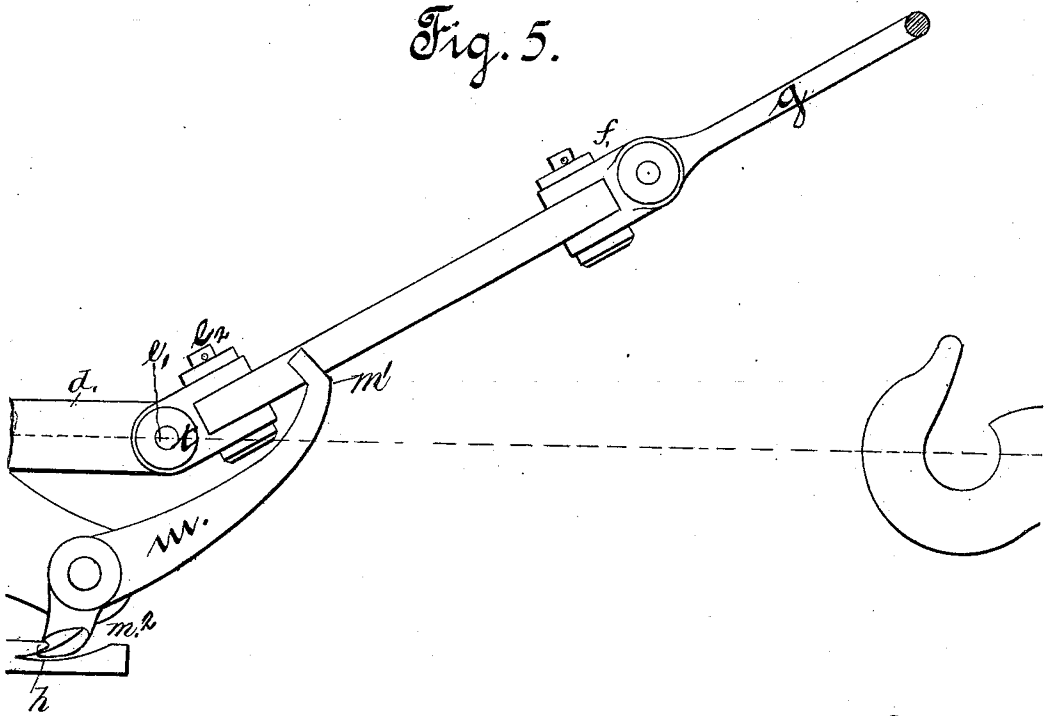
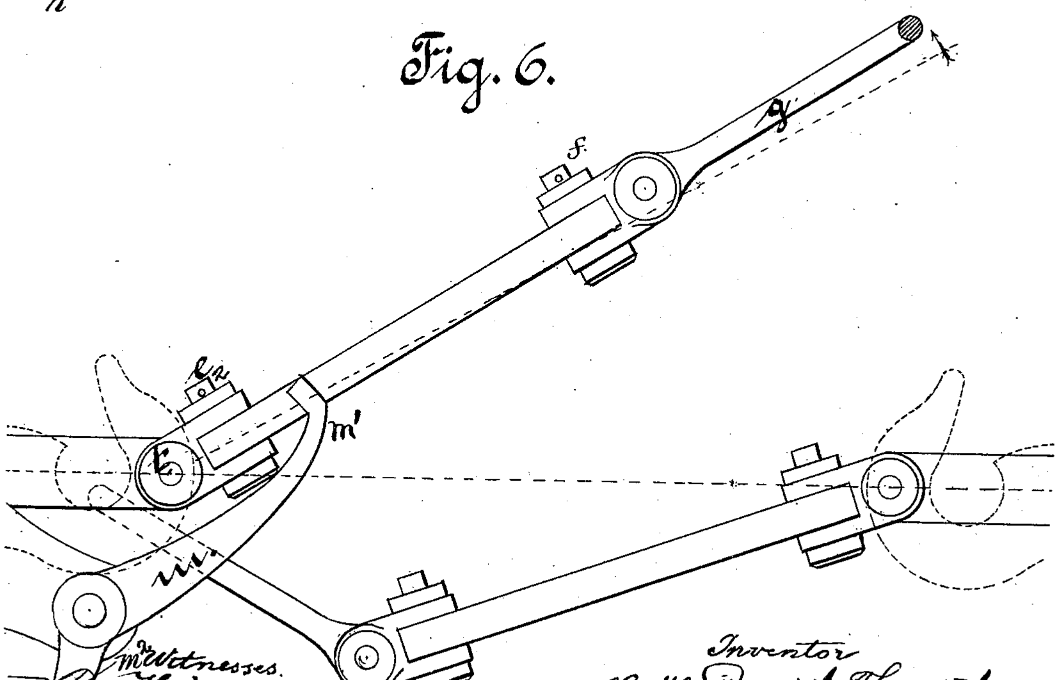


Fig. 6.



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UNITED STATES PATENT OFFICE.

GOTTFRIED DANIEL THEEGARTEN, OF MUHLHEIM ON THE RHINE, PRUSSIA, ASSIGNOR TO HIMSELF, JULIUS KRAUSE, AND JULIUS GAST, OF BERLIN, PRUSSIA, GERMANY.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **196,267**, dated October 16, 1877; application filed September 27, 1877.

To all whom it may concern:

Be it known that I, GOTTFRIED DANIEL THEEGARTEN, of the city of Muhlheim on the Rhine, Prussia, Germany, have invented certain Improvements in Car-Couplings, of which the following is a specification:

The invention relates to that class of car-couplings in which the cars are coupled together so firmly as to prevent the jar as the cars collide or jerk apart in stopping and starting.

The invention consists in the construction and combination of parts which will be hereinafter fully explained, and then set forth in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan or top view of a car-coupling embodying my improvements. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a detail plan view, showing the position of the coupling-link when uncoupled from the draft-hook. Fig. 4 illustrates the position of the parts when the coupling operation is taking place. Figs. 5 and 6 illustrate the double coupling.

The letters W^1 W^2 denote two adjoining cars, which are both provided with coupling devices of a like construction. Each car is provided with a draw-bar, *a*, having a hook, I, at the front end, and carrying a sliding rack piece, box, or sleeve, *b*, which is provided with rack-teeth *b'* on its upper side. To a rear cross-arm, *c*, of the rack-piece *b* are secured longitudinal bars d^1 d^2, which extend through the front beams of the cars. To the front ends of said bars is attached a movable link or shackle frame, made in the form of a parallelogram, and movable both horizontally and vertically. This shackle-frame may be said to consist of two side arms, e^3, which are connected with the bars d^1 d^2 by means of double hinges e^1 e^2, so that said arms e^3 can have vertical and lateral play.

The front ends of the side arms are pivoted at f^1 and f^2 to tubes f^3, forming, also, bearings for the axis rod or pintle of a vertically-movable coupling-link, *g*. Said link can move from a horizontal into a vertical, plane, or upright position, its movement in any other direction being prevented by means of stop-lugs g^2 on the link, which come in contact with similar lugs f^4 on the bearing-tubes f^3. On the draw-bar *a*, between the sliding rack-piece *b* and the front beam or head-sill of the car, is located a double-elbow catch-lever, *h*, having its fulcrum or turning-point at *i*. Rack-teeth on the under side of the rearwardly-extending arm of lever *h* engage with the corresponding rack-teeth of the slide-piece *b*, and thus the coupling-link is held rigid or locked.

Under the draw-bar, parallel with the head-sill of the car, is located a transverse shaft, *k*, which is supported by the hangers or boxes l^1 l^2 l^3 l^4, and extends to the sides of the car, where it is provided with hand-levers o^1 o^2 for turning and sliding it.

The shaft *k* carries two levers or arms, *m n*, of which *m* serves for raising, clasping, and unclasping the coupling-link *g*, and, in connection with the lever *n*, it serves to stretch the coupling.

In order to perform the coupling operation, the shaft *k* is drawn or adjusted in its bearings until the hook m^1 on the lever *m* receives the side bar e^3 of the link or shackle-frame, when the latter, together with the coupling-link, can be raised by turning the shaft *k*, this operation being assisted by a weight on one of the ends of the lever on the shaft. As heretofore stated, the strap or coupling-link can only move from a horizontal into an upright position, and vice versa, and it is therefore necessary to clear the draft-hook when the link is being raised to perform the coupling operation. This clearing of the draft-hook is effected by turning the jointed side bars of the shackle-frame to the right or left of the coupling-hook, by simply sliding the shaft *k* in its bearings, and then the link can be dropped on the draft-hook, or made to engage therewith by sliding the shaft back again.

In order to stretch the loosely-suspended coupling-link, the shaft *k* is moved until the lever *m* bears against the bearing or hanger l^3, when, by turning the shaft *k*, the levers *m n* are caused to bear against the blocks or rollers *t* t^2, and shove the shackle-frame and sliding rack in a backward direction. In doing

this the teeth of the sliding rack glide under the teeth of the catch-lever, and are arrested by the latter in various positions.

When the cars are to be coupled on a curve, it is an indispensable requirement that the shackle-frame and link be permitted to move in a horizontal direction.

The coupling operation can be performed otherwise than heretofore described, by bringing the shaft *k* into the position mentioned for stretching the coupling. This having been done, the operator shoves the shackle-frame and link in a backward direction by turning the shaft, and then the hook of the lever *m* is caused to engage with the shackle-frame for raising it. The latter, having been shoved back, is shortened, and, consequently, it can pass or clear the draft-hook without a lateral movement, as shown in Fig. 4. As soon as the link in its retracted or shortened state has arrived above the draft-hook, the lever *m*, with its arm m^1, will bear upon the catch-lever, thus disengaging the same, and throwing the shackle-frame and link forward, by means of the spring *x* encircling the draft-bar in rear of the cross-arm of the sliding rack-piece. As the link is thus thrown forward it passes over the draft-hook, and, when lowered, clasps the latter, as shown by dotted lines in Fig. 4.

When the cars are to be coupled on a short curve, the drawing in of the link is not necessary, as the latter can be raised and made to pass by that side of the hook where the ends of the car are most distant from one another.

To effect the loosening and uncoupling of the link from the draft-hook, the shaft *k* is moved until the fork-piece m^1 of the lever *m* engages with the shackle-frame; then, by turning the shaft *k*, so as to cause the arm m^1 to disengage the catch-lever, the shackle-frame is forced forward by the spring, and the coupling-link loosened from the draft-hook; then, by turning the shaft farther, the link is raised, and by sliding the shaft when the link is in this position it is made to clear the draft-hook, so that it can drop down at the side thereof.

When the links of both cars are used to produce a double coupling, the link and shackle-frame of one car are raised in the manner already described, and held in such position by causing the arm m^2 of the lever *m* to enter a notch in the end of the catch-lever *h*, as shown in Fig. 5. The coupling-link of the second car is then made to connect with the draft-hook of the first car, and stretched or made taut in the manner heretofore described. This having been done, the link of the first car is taken out of the position heretofore mentioned, and laid in the draft-hook of the second car.

The coupling can be used with both links drawn taut or stretched, or one of the links can remain hanging loosely, as shown in Fig. 2. In either case the safety-chains hitherto used are fully dispensed with.

When the coupling is to be loosened, the shaft *k* is turned and shoved in its bearings, so that the piece m^2 of the lever *m* will drop into the notch of the lever *h*; then, by turning the shaft still farther, the link is loosened and the lever *m* freed from the lever *h*, when the shackle-frame and link are free to be conducted into any position whatever, and to be lowered for coupling and uncoupling purposes.

In order to uncouple cars when both links are used, the upper coupling is first unclasped and set up, as previously described; then the lower coupling is unclasped and let down, and subsequently the upper coupling is set out of gear, and also let down.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a horizontally and vertically movable link or shackle-frame and a hinged coupling-link with suitable mechanism for raising and lowering and stretching and loosening the link, and a draw-bar or hook, substantially as and for the purpose set forth.

2. The combination of the sliding rack-piece *b* and the catch-lever *h* with the link or shackle-frame, coupling-link, draw-bar, and suitable mechanism for locking the rack-piece and releasing the same, substantially as herein described.

3. The combination of the transverse sliding and rocking shaft *k* and the lever *m*, having rear horizontal piece m^1, with the jointed link or shackle-frame and coupling-link, the catch-lever *h*, rack-piece *b*, and draw-bar *a*, substantially as and for the purpose set forth.

4. The shaft *k*, having arms or levers *m n*, in combination with the shackle-frame, having blocks *t* t^2, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GOTTFR. DANIEL THEEGARTEN.

Witnesses:

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HEINR. GLAESER.