(No Model.)

J. H. WILLIAMS.

CAR COUPLING.

No. 306,449. Patented Oct. 14, 1884.

Fig. 1.

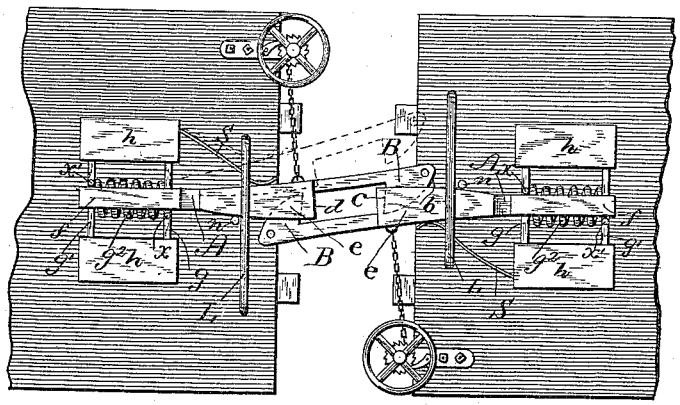


Fig. 2.

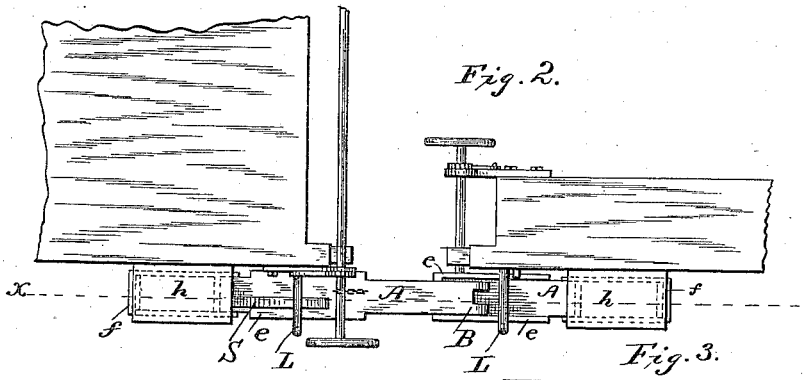


Fig. 3.

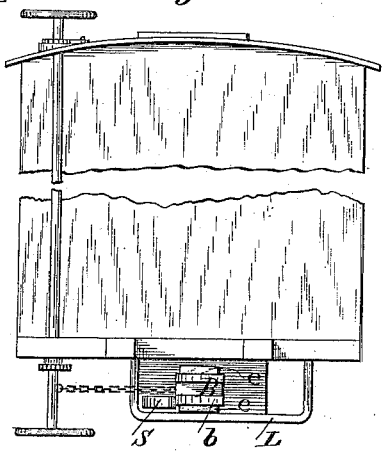
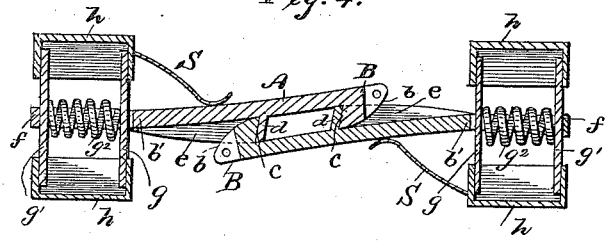


Fig. 4.



WITNESSES

Chas. R. Burr

R. F. Stewart.

INVENTOR

John H. Williams

by Church & Church

Attorneys

UNITED STATES PATENT OFFICE.

JOHN H. WILLIAMS, OF BRATTLEBOROUGH, VERMONT, ASSIGNOR TO HIMSELF AND GEO. W. HOOKER, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 306,449, dated October 14, 1884.

Application filed March 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. WILLIAMS, of Brattleborough, in the county of Windom and State of Vermont, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

My invention has for its object to provide an improved coupling for use upon railroad-cars, and particularly for use upon freight-cars, which shall be simple, strong, durable, and inexpensive, and which shall be automatic in its action and dispense entirely with the necessity of going between cars, either for the purpose of coupling or uncoupling, and which, furthermore, shall be so constructed as to automatically uncouple when from any cause the car to which it is attached becomes derailed, and thus prevent unnecessary damage to the car derailed, and at the same time prevent the derailed car from dragging the other cars from the track.

I will first describe my improvements in detail, and will then point out the particular points of novelty in the claims at the end of this specification.

In the accompanying drawings, Figure 1 represents a bottom plan view of the ends of two cars provided with couplings constructed in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation of one of the cars, and Fig. 4 is an enlarged detail view of two couplings in engagement.

Similar letters of reference in the several figures indicate the same parts.

The letter A indicates the draw-bar of the coupling. This draw-bar is formed with a hooked outer end or head, B, having, preferably, a rounded or curved surface, *b*, and a slightly undercut shoulder, *c*, as shown. It is further provided with a second shoulder, *d*, also preferably undercut, and with upper and lower flanges, *e e*, as shown. The inner end of the draw-bar terminates at *b'*, and to it is connected a strap, *f*, which incloses suitable cross-heads or plates, *g g'*, which are arranged within suitable guides or hangers, *h h*, secured to the under side of the car, so as to slide freely back and forth therein. A spring, g^2, is interposed between the cross-heads *g* and *g'*, said spring being preferably of spiral form. When there is a forward draft upon the draw-bar, the rear plate, *g'*, is drawn forward and causes a compression of the spring g^2; but when there is an inward thrust upon the draw-bar the forward plate, *g*, is pressed backward and likewise compresses the spring. The draw-bar is mounted so as to be capable of swinging laterally backward and forward without causing the strap *f* to bind upon the cross-heads or plates or the plates to become cramped in their guides. Pins *x x'* on the front of the rear cross-heads or plates, respectively, serve to limit the lateral motion of the draw-bar. A yoke or hanger, L, is secured to the under side of the car, and serves to support the draw-bar in a horizontal position, and while it prevents the draw-bar from vertical movement, it does not prevent its lateral vibration, but serves as a guide to facilitate such vibration. A spring, S, of any suitable form or construction, is applied to the back of the draw-bar at any suitable point, and serves to keep the latter pressed inward against a suitable stop, *n*, and in position for engagement with the draw-bar of an adjoining car.

When two cars provided with couplings constructed as above described approach each other on the same track, the forward inclined or curved faces of the hooked ends of the draw-bars come in contact, and each of the draw-bars yields laterally until the shoulders *c* pass each other, whereupon the draw-bars spring in toward each other, and thus as the cars further approach the hooked end of each draw-bar rides over and behind the shoulder *c* on the opposite draw-bar, as shown in full lines in Figs. 1 and 4, thus completing the coupling in an automatic manner and without the necessity of an attendant going between the cars for the purpose, or of giving any attention whatever to the matter.

When two of my draw-heads are coupled as described, it will be seen that there is allowed a play or lost motion between them equal to the distance between the forward faces of the shoulders *d* of the opposite draw-heads. This amount of play corresponds to the play which is found in an ordinary link-and-pin coupling, and is necessary in any coupling that is designed particularly for use upon freight-cars, for that class of couplings which tend to make the train solid cannot be practically applied

to freight-cars, which are in practice made up in trains of twenty, thirty, forty, or more heavily-loaded cars, because the amount of weight required to be started at the outset is too great for the capacity of any locomotive that is used. It is because of this that such couplings as the Miller coupling have never been practically applied to freight-cars.

In my coupling, as in the ordinary link-and-pin coupling, the play between the draw-heads enables the locomotive to start each car in succession, and the inertia of those cars which are first started assists the locomotive in effecting a starting of the succeeding cars, and in this way long and heavy trains which could not be moved at the start *in solido* are enabled to be started with facility.

The amount of play allowed in my coupling can of course be regulated at pleasure by varying the distance between the forward shoulder, *c*, and the rear shoulder, *d*, of each draw-bar.

Another advantage to be derived from the use of my coupling on freight-cars is that the intervals between the cars are enabled to be made uniform, so that a brakeman in running over the tops of the cars will not be liable to fall between by reason of a miscalculation of distance.

To provide for the coupling of cars of varying heights, the rear shoulder of each draw-bar is made long enough vertically to afford a bearing for the hook of an approaching car, whether such hook be higher or lower. Not much latitude is required in this respect, as I have found from practical observation of the cars of ten different railroads that the variation between the height of the draw-heads was not more than two or three inches.

It will be observed that in my coupling the draft is applied to each draw-bar at two different points—to wit, at the forward shoulder, *c*, and at the rear shoulder, *d*. The engagement of the draw-bars at either of these points would be sufficient to answer for a safe and reliable coupling, but the double provision makes the connection doubly strong, and in case of injury to one or the other of the engaging-shoulders the remaining one would suffice.

The construction of the couplings is such that should from any cause one of the cars become derailed it will automatically disengage itself from the train, and thereby be prevented from becoming injured by being dragged along when off the track, or from tending to derail other cars of the train.

To uncouple my draw-bars it is only necessary that one or both of them should be drawn laterally, so as to disengage the respective shoulders. For the purpose of effecting this I preferably connect to the back of each draw-bar a chain that is also connected to a vertical shaft having a suitable winding-wheel and retaining-ratchet, as shown in the drawings. By winding up this shaft the draw-bar is moved laterally out of the path of the draw-bar of another car, and it may be held at any point by means of the ratchet.

Where the invention is applied to a box-car, the winding-shaft may be provided with two wheels and ratchets—one at the top and the other at the bottom—so that the draw-bar may be shifted and locked either from the top of the car or from the side of the car, and without the necessity of going between the cars for the purpose.

When the two draw-bars are placed in connection, the forward portion of the shoulders *d*, by co-operating, serve as bumpers to receive the concussion due to the coming together of the cars, the effect of such concussion being modified or taken up by the spring at the inner end of the draw-bar, as will be readily understood.

In order to adapt the coupling for connection to draw-heads of ordinary construction, I provide in the end of its head or hook a suitable slot or recess for receiving an ordinary link; and I also provide a pin-hole leading into said recess for the reception of an ordinary pin.

Having thus described my invention, I claim as new—

1. The herein-described draw-bar, having the outer shouldered hook, the inner engaging-shoulder, and the top and bottom flanges, substantially as described.

2. The combination of the draw-bar having the outer shouldered hook and the inner engaging-shoulder, with the plates or cross-heads, the springs and the guides to the cross-plates, and the strap connected to the draw-bar and inclosing the cross-plates, and the limiting-pins, substantially as described.

3. The combination of the draw-bars each having the forward shouldered hook and the inner engaging-shoulder, and with the springs applied to the draw-bars for holding them in engagement, substantially as described.

4. The combination of the draw-bars having the forward shouldered hook and the inner engaging-shoulder, and supported as described, with the winding-shaft, its wheel or wheels and ratchet or ratchets, and the chain, the whole constructed and arranged substantially as described.

5. In a car-coupling, the combination of a spring-seated laterally-swinging draw-bar having a shouldered hook at its outer end and an inner engaging-shoulder, whereby when said draw-bar is engaged with a correspondingly-formed draw-bar on another car the forward part of the inner engaging-shoulder of the latter will be adapted to operate as a buffer against the inner engaging-shoulder of the opposite draw-bar, and through the latter transfer the shock to the spring or springs behind the draw-bar, substantially as described.

JOHN H. WILLIAMS.

Witnesses:
FRED J. CHURCH,
CHAS. R. BURR.