(No Model.) 2 Sheets—Sheet 1.

P. HIEN.

CAR COUPLING.

No. 305,924. Patented Sept. 30, 1884.

FIG. 1.

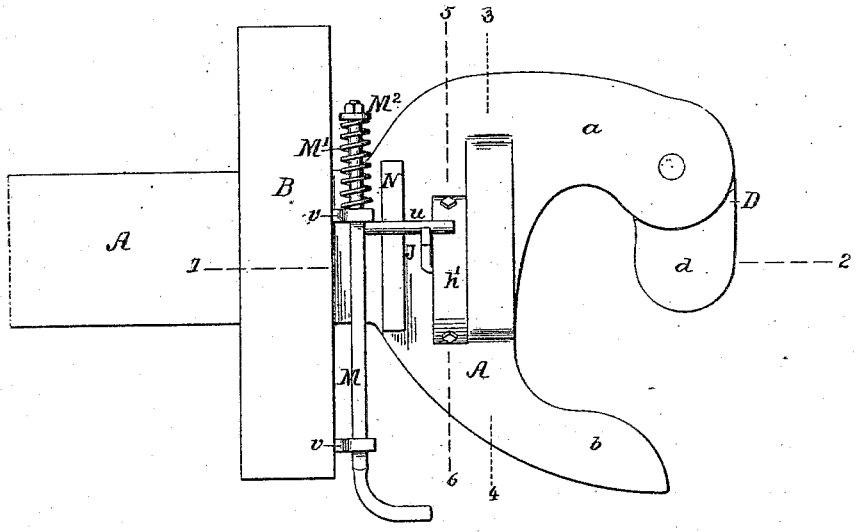


FIG. 3.

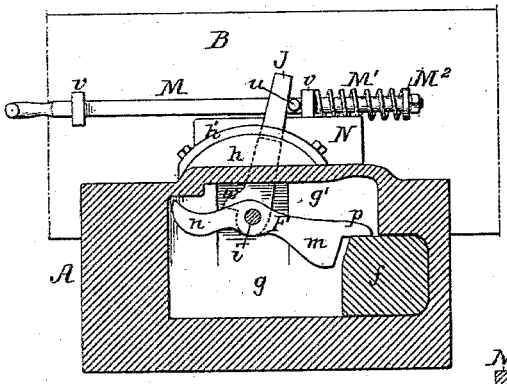


FIG. 4.

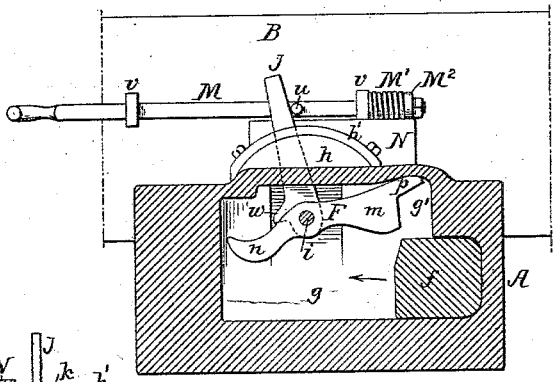
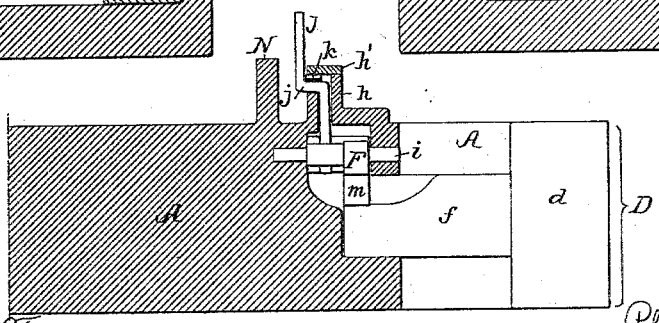


FIG. 2.



Witnesses
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Howson & Howson

(No Model.) 2 Sheets—Sheet 2.

P. HIEN.

CAR COUPLING.

No. 305,924. Patented Sept. 30, 1884.

FIG. 10.

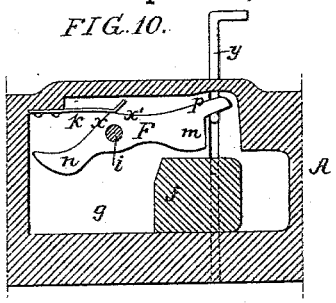
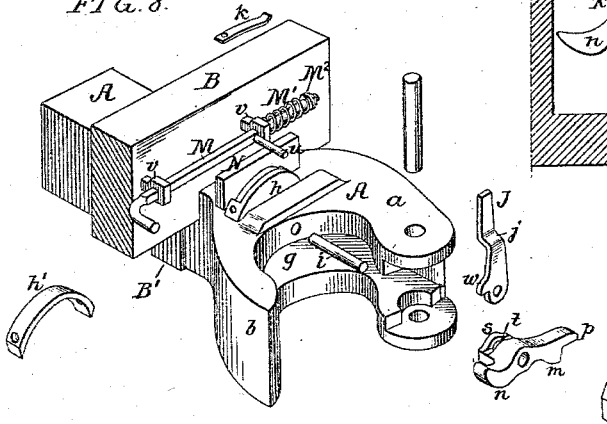


FIG. 8.



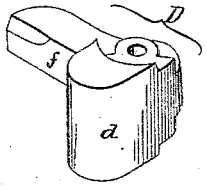
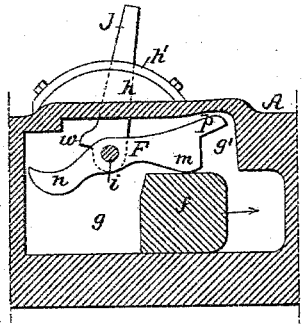


FIG. 5

FIG. 6.



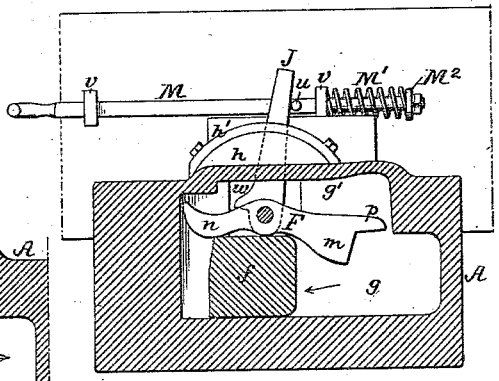


FIG. 9.

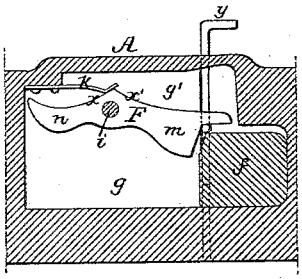
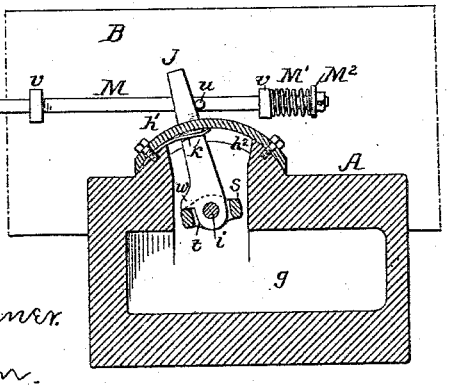


FIG. 7.



Witnesses
Hamilton O. Turner.
James F. Johns.

Inventor,
Philip Hien
by his attorneys
Howson & Sons

UNITED STATES PATENT OFFICE.

PHILLIP HIEN, OF ROCK ISLAND, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 305,924, dated September 30, 1884.

Application filed June 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, PHILLIP HIEN, a citizen of the United States, and a resident of Rock Island, Illinois, have invented certain Improvements in Car-Couplings, of which the following is a specification.

The object of my invention is to construct a simple and efficient form of self-acting coupling for railroad-cars, my improved coupling being similar in some respects to that shown and described in my Patent No. 244,895, dated July 26, 1881, but differing therefrom as regards the construction of the device for locking the swinging hook to the coupling-head.

In the accompanying drawings, Figure 1, Sheet 1, is a plan view of my improved car-coupling; Fig. 2, a longitudinal section, partly in elevation, on the line 1 2, Fig. 1; Figs. 3 and 4, Sheet 1, and Figs. 5 and 6, Sheet 2, transverse sections on the line 3 4, Fig. 1, with the movable parts in different positions; Fig. 7, a transverse section on the line 5 6, Fig. 1, with the parts in the position shown in Fig. 4; Fig. 8, a perspective view of the parts of the coupling detached from each other, and Figs. 9 and 10 views illustrating a modification of the invention.

A is the coupling-head, which may be connected to the draw-bar, as usual, and which should be vertically supported beneath the end beam, B, of the car by means of a yoke, B′, or otherwise, so that it is free to yield longitudinally. The coupling-head has an arm, *a*, and finger *b*, and to the arm *a* is hung the coupling-hook D, which is similar to that shown in my aforementioned patent, being made in the form of a bell-crank lever with two arms, *d* and *f*, the latter being struck by the arm *d* of the hook of the other coupling to cause the hook D to swing on its pivot, so as to effect the interlocking of the arms *d* of the two hooks, the finger *b* serving to prevent lateral release of the two hooks.

My present invention relates to the means employed for locking the hook D in position after coupling, and for releasing said hook when it is desired to uncouple the cars, the opening of the hook in uncoupling setting the locking device for automatic action when the cars are again coupled. The hook D swings in a chamber, *g*, in the coupling-head, and within an enlargement, *g′*, of this chamber, in the upper portion of the head, is located a transverse lever, F, hung to a longitudinal pin, *i*, in the head, the lever having two arms, *m* and *n*, from the former of which projects a finger, *p*.

To the pivot-pin *i* is hung an arm, J, the lower end of which is contained in an opening, *t*, in a projecting portion, *s*, of the lever F, and a toe, *w*, on said arm J is adapted to bear upon that portion of the projection forming a part of the arm *n* of the lever. The arm J is contained in a chamber, g^2, formed partly in the body of the coupling-head A and partly in a casing, *h*, on the top of the latter, this casing being provided with a removable cap, *h′*. The arm J is bent at the point *j*, so that it projects from the side of the casing *h*, no vertical opening being presented for the entrance of rain, snow, sleet, or dirt, which might tend to clog and interfere with the proper operation of the parts of the coupler. A spring, *k*, confined between the casing *h* and cap *h′*, acts upon the bent portion *j* of the arm J and tends to retain the same in the position shown in Fig. 7, the tension of the spring, however, not being sufficient to prevent the arm from being moved from this position on the exercise of a moderate degree of force.

The operation of the coupling is as follows: When the cars are coupled, the parts are in the position shown in Fig. 3, the arm *f* of the hook D being locked by the arm *m* of the lever F, the finger *p* of the latter resting on the arm *f*. The lever F is self-retaining in this position, owing to the fact that the arm *m* is heavier than the arm *n*. It should be stated here, however, that the finger *p* is not essential, as a suitable stop acting on any part of the lever F, or upon the arm J, may be used to restrict the movement of the lever. When it is desired to release the hook D, the arm J is thrown over to the position shown in Fig. 4, and is retained in this position by the spring *k*, as shown in Fig. 7. The action of the toe *w* of the arm J on the arm *n* of the lever F depresses said arm and elevates the arm *m* clear of the arm *f* of the hook D, so that the latter is free to swing outward in the direction of the arrow in order to uncouple. As it swings outward, however, the arm *f* strikes the arm

n of the lever F, as shown in Fig. 5, thereby elevating said arm, releasing the arm J from the control of the spring *k*, and restoring the parts to the position shown in Fig. 4. On again swinging inward to complete a coupling, the arm *f* strikes and raises the heavy arm *m* of the lever F, as shown in Fig. 6, and when said arm *f* passes from under the arm *m* the latter falls and locks the hook, as in Fig. 3. The opening *t* in the lever F is of such a size that the arm J is not affected by this automatic tilting of the lever, so that said arm can exercise no influence over the lever to prevent the arm *m* of the same from dropping when the arm *f* of the hook has passed from beneath the same; or, instead of adopting this construction, the arm J may be secured to and move with the lever F, the tilting movement of the latter, caused by the action of the arm *f* of the hook, not being sufficient to bring the arm J under control of the spring *k*. When the use of this spring *k* is not desirable, the arm J may be so heavy that its weight alone will be sufficient to retain the lever F. Thus when the arm is adjusted as shown in Fig. 3 its weight will aid that of the arm *m* in retaining the lever F in the position there shown, while if the arm is moved to the position shown in Fig. 4 its weight will be exerted upon the arm *n* of the lever, so as to overbalance the weight of the arm *m*.

In the modification of my invention shown in Figs. 9 and 10 the arm J is dispensed with, a lifting-pin, *y*, passing through an opening in the head A, being used in place of the arm, and the retaining-spring *k* acting directly on inclined surfaces *x x'* on the lever F, to retain the same in either of its extreme positions. In this case, also, the lift of the arm *m* by the arm *f* of the hook in coupling is not sufficient to bring the lever within the retaining influence of the spring *k*, and thereby interfere with the automatic locking of the hook.

When the arm J is used, it may be operated directly by hand; but I prefer for this purpose to use a rod, M, guided in studs *v* on the beam B, and having a projecting pin, *u*, for acting on the arm, a spring, M', being interposed between one of the studs *v* and a washer, M^2, at the end of the rod M, so that when the latter has been drawn outward it will be restored by the spring to its original position.

On the top of the coupling-head A is a bar, N, which serves, by contact with the beam B, to limit the inward movement of said head and prevent the bending of the arm J by contact with the rod M.

I claim as my invention—

1. The combination of a coupling-head and a swinging coupling-hook with a lever, F, having a locking-arm, *m*, and tripping-arm *n*, and with devices, substantially as described, whereby said lever is operated to unlock the hook, and is held in the unlocked position until tripped by the action of the hook upon the arm *n*, as set forth.

2. The combination of the coupling-head, swinging coupling-hook, and locking-lever F, as described, with an arm, J, whereby the lever is moved to unlock the coupling-hook, and held in that position until tripped by the said hook, as specified.

3. The combination of the coupling-head, the swinging coupling-hook, the locking-lever F, the operating-arm J, and the retaining-spring *k*, as set forth.

4. The combination of the coupling-head A, having a casing, *h*, the swinging coupling-hook, the locking-lever F, and the operating-arm J, bent at *j*, so as to project from the side of the casing *h*, as specified.

5. The combination of the head A, hook D, lever F, and arm J with the rod M, having a pin, *u*, and the spring M', as set forth.

6. The combination of the head A, beam B, hook D, lever F, and arm J with the operating-rod M and the bumper-bar N, as set forth.

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

PHILLIP HIEN.

Witnesses:
A. H. GRIMM,
M. M. CORBETT.