T. B. NUTTING & D. U. GRAVELINE.

Car-Coupling.

No. 197,883. Patented Dec. 4, 1877

Fig. 4.

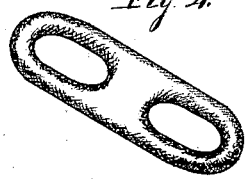


Fig. 1.

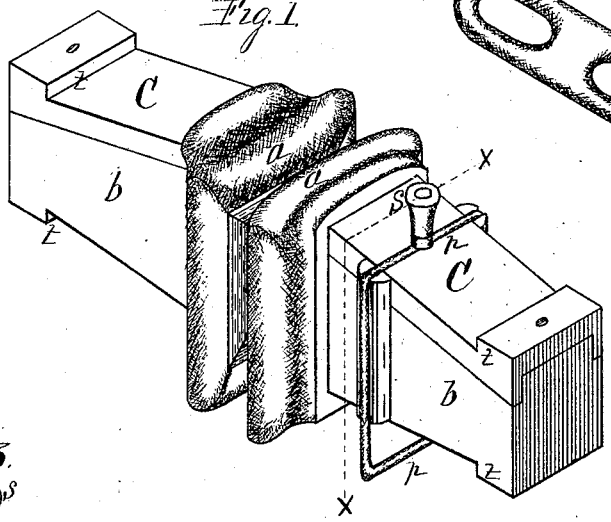


Fig. 3.

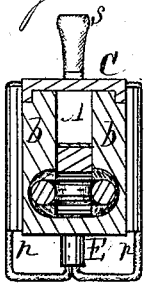


Fig. 5.

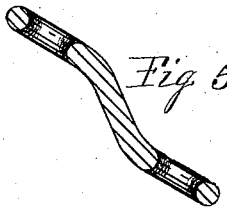
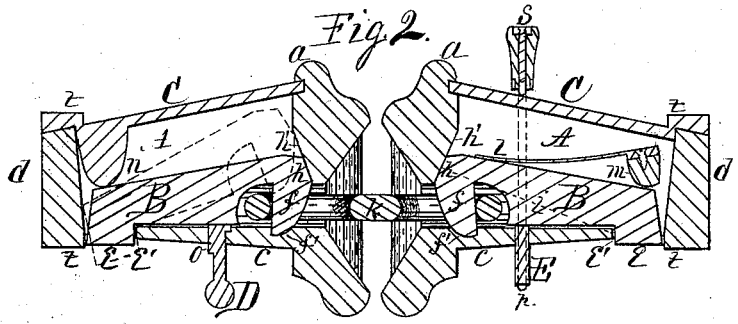


Fig. 2.



Witnesses.

C. C. Hill

A. O. Behel

Inventors.

Thomas B. Nutting

David U. Graveline

Per Jacob Behel

Atty.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS B. NUTTING AND DAVID U. GRAVELINE, OF BYRON, ILLINOIS.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **197,883**, dated December 4, 1877; application filed October 29, 1877.

To all whom it may concern:

Be it known that we, THOMAS B. NUTTING and DAVID U. GRAVELINE, of the town of Byron, in the county of Ogle, and State of Illinois, have invented a new and useful Improvement in Car-Couplings, of which the following is a specification:

This invention relates to that class of car-couplings known as "self-couplers;" and it consists of the devices, their construction, and arrangement, as represented in the accompanying drawings, in which—

Figure 1 is an isometrical perspective of a car-coupling embodying our invention; Fig. 2, a longitudinal vertical central section; and Fig. 3, a transverse vertical section on dotted lines *x*. Fig. 4 represents a coupling-link; and Fig. 5 a longitudinal vertical central section of a bent coupling-link, to be employed to couple cars when the bumper-heads differ in height.

In the drawings we have represented the main outer casing of a car-coupling known as the "draw-head," its outer enlarged end *a* forming the bumper. This casing may be constructed of any proper material, such as cast or malleable iron; and, in this instance, is constructed with the vertical side walls *b*, the bottom *c*, the rear end wall *d*, and the bumper-head *a* solid, and of proper thickness of material to insure sufficient strength, leaving a central lengthwise opening or chamber between the side walls, open on the upper side, extending the length of the draw-head from the rear end wall to the rear face of the bumper-head, as seen at A in the sectional views.

The outer face of the bumper-heads *a* are in form a hollow pyramid, provided with a transverse elliptical opening in their centers, which extends into the chambers A, and are adapted to receive the ends of the coupling-link, and the hollow pyramid form of the face of the bumper will direct the link to the central opening.

B are draw-bars, made of the form represented in the drawings, with a depending hook, *e*, on their lower edge and rear end, adapted to enter a corresponding opening, *e'*, in the bottom of the draw-head at the rear end of the chamber A. These draw-bars are also constructed with a draft-hook, *f*, on their lower edge and forward ends, having their forward ends beveled, in latch form, to cause them to rise when the link is forced inward against them, and to drop into the link when it has passed the hook. These hooks are of sufficient length to drop through the links into a depression, *f'*, made in the bottom of the draw-head for their reception. The upper portion of the forward end of these draw-bars, at *h*, are cut on a bevel, about at right angles to the dotted lines *i*, Fig. 2, drawn from the center of the forward edge of the rear hook *e* to the center of the beveled portion *h*. The inner portion of the bumper-heads *a*, at *h'*, are beveled downward and outward, to meet the beveled ends *h* of the draw-bars.

K represents a coupling-link, substantially the same as coupling-links now in general use, and is represented in place in the draw-heads, with draw-bars hooked therein.

By an inspection of Fig. 2 in the drawings, it will be seen that the plane of contact of the coupling-link *k* with the draft-hooks *f* is above the plane of contact of the rear hooks *e* of the draw-bars with the bottom *c* of the draw-heads. This feature, when force is applied to draw on the coupling-link, will tend to draw the outer hooking ends of the draw-bars downward, and hold the hooks in the coupling-link; and it will also be seen that the draft on the coupling-link will hold the beveled end *h* of the draw-bar against the beveled portion *h'* of the bumper-head, which will tend to force the forward hook end of the draw-bar downward, to hold the draft-hook *f* in the link.

In use, it will be found that the draft action will soon bring these parts to equal bearings, so that their joint action will be employed to hold the draft-hook in the draft-link when under strain; and this tendency will increase with the increase of the draft-strain.

In this construction of self-couplers, the draw-bar is designed to drop into position in the coupling-link by the action of gravity, which, in most instances, will be found sufficient; but, for the purpose of guarding against any contingencies, we have provided for the employment of a spring, which is represented at *l*, fixed in the rear end of the chamber, above the draw-bar, in such a manner that the cross-bar *m*, to which the spring is secured, is in

such relation to the draw-bar as to prevent its rear end from being thrown from its connection with the draw-head, and the free end of the spring acts on the forward portion of the draw-bar, to give prompt action to its downward movement to engage the coupling-link. These draw-heads are provided with covers C, fitted in grooves on the upper sides of the draw-heads, to which they may be secured in any proper manner, and are designed to protect the inner parts from being clogged by snow, ice, or other substances accidentally dropping into the chambers and interfering with the free action of the parts.

When the spring *l* is omitted I have provided the lid with a pendent portion, (represented at *n*,) which enters the chamber A above the rear end of the draw-bar in place.

D represents a pin, provided with a feather, *o*, on one side, and is fitted to slide vertically in a suitable opening through the bottom of the draw-head, to operate on the draw-bar, to lift the draft-hook out of the coupling-link into the position represented in dotted lines in Fig. 2. When the pin D is moved up to raise the draw-bar into the position represented in the dotted lines, it can be turned so that the lower end of the feather *o* will rest on the upper side of the bottom *c*, to hold the draw-bar elevated in the draw-head. This device is employed for uncoupling by an attendant on the ground.

E represents a shaft fitted to slide vertically in a suitable opening through the bottom of the draw-head, and to operate on the draw-bar to raise the draft-hook out of the coupling-link. The lower end of this shaft E is connected with bars *p*, which are bent into rectangular loop form, to embrace or surround the draw-head, and, at their junction on the upper side of the draw-head, are provided with a handle, *s*, by which the attendant on the platform can raise the draw-bar and disconnect it from the coupling-link, to uncouple the cars.

The rear ends of the draw-heads are provided with projections *t* on their upper and under sides, designed to be employed in connecting the draw-heads with the cars.

We claim as our invention—

1. The combination, with a draw-head, constructed with an opening, *e'*, at its rear end, and having the inner surface of the bumper-head outwardly beveled at *h'*, of the draw-bar, formed with a rear projection, *e*, and its forward portion beveled at *h*, substantially as described.

2. The combination, with a draw-head, having an opening, *e'*, in its rear end, and its forward portion beveled at *h'*, of a draw-bar loosely arranged therein, the same constructed with a depending rear portion, *e*, a hook, *f*, at its forward end, and the beveled portion *h*, substantially as described.

3. The combination, with a draw-bar constructed with a depending portion, *e*, and a hook, *f*, at its forward end, of a draw-head, provided with an opening, *e'*, and a lid, having the pendant *n*, substantially as described.

4. The combination, with a draw-head, constructed with an opening, *e'*, and beveled portion *h'*, the draw-bar, formed with a depending portion, *e*, and beveled portion *h'*, of the shaft E and loop-connection *p*, substantially as described.

THOMAS B. NUTTING.
DAVID U. GRAVELINE.

Witnesses:
TOM BEDWELL,
J. R. CROWELL.