J. TURNBULL.

Railway Car Coupling.

No. 92,126. Patented June 29, 1869.

Fig. 1.

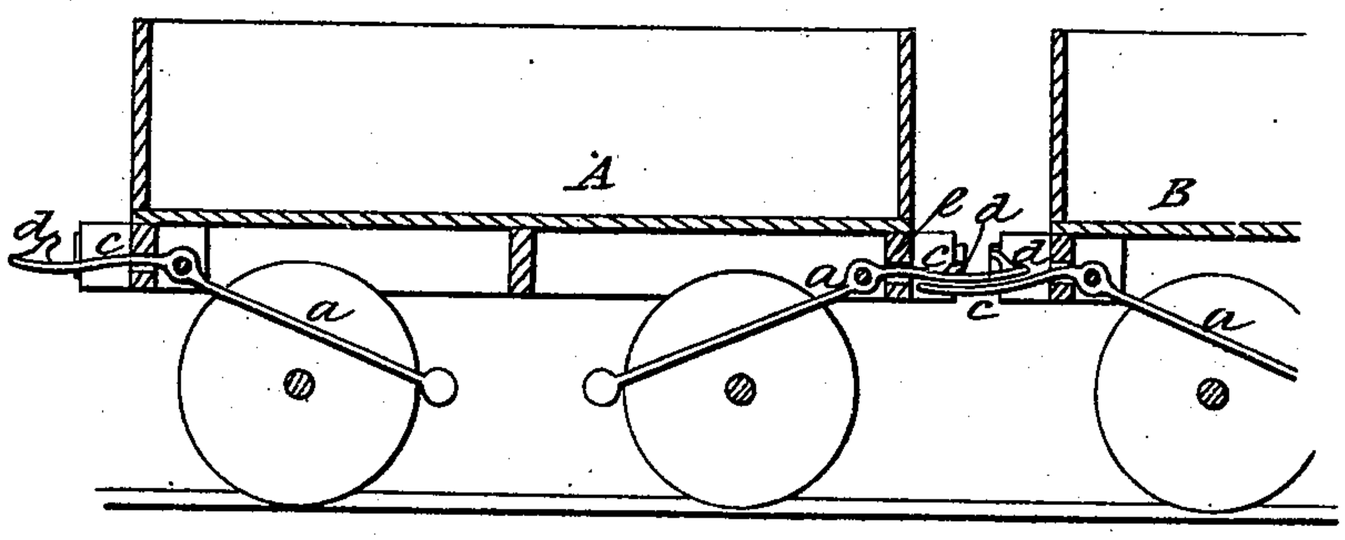


Fig. 2.

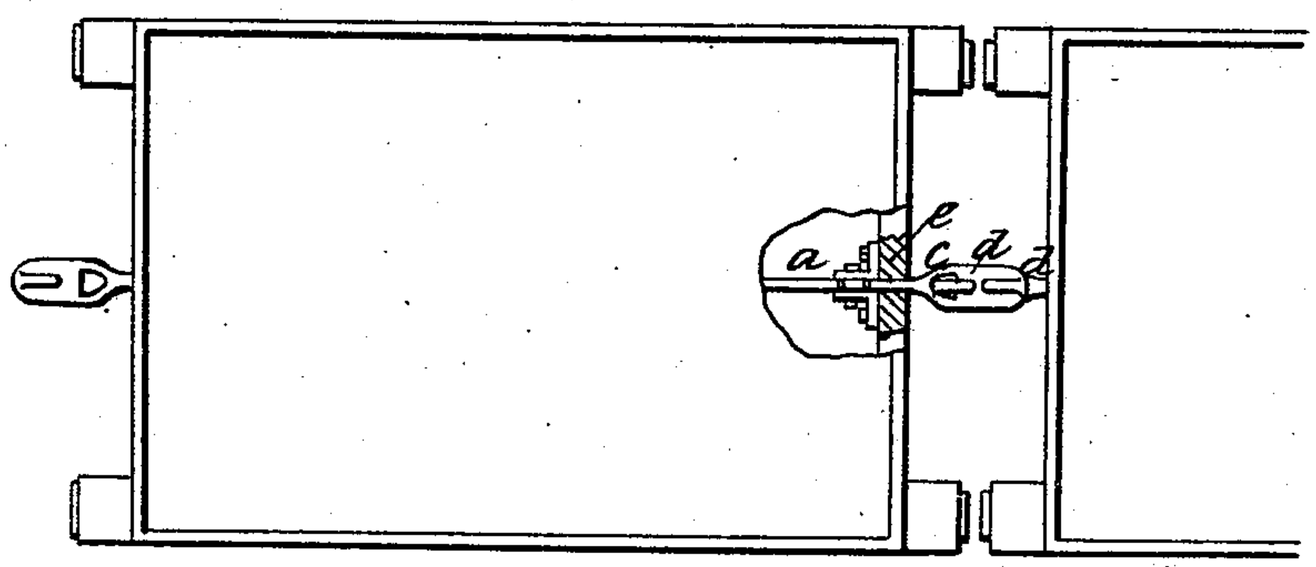
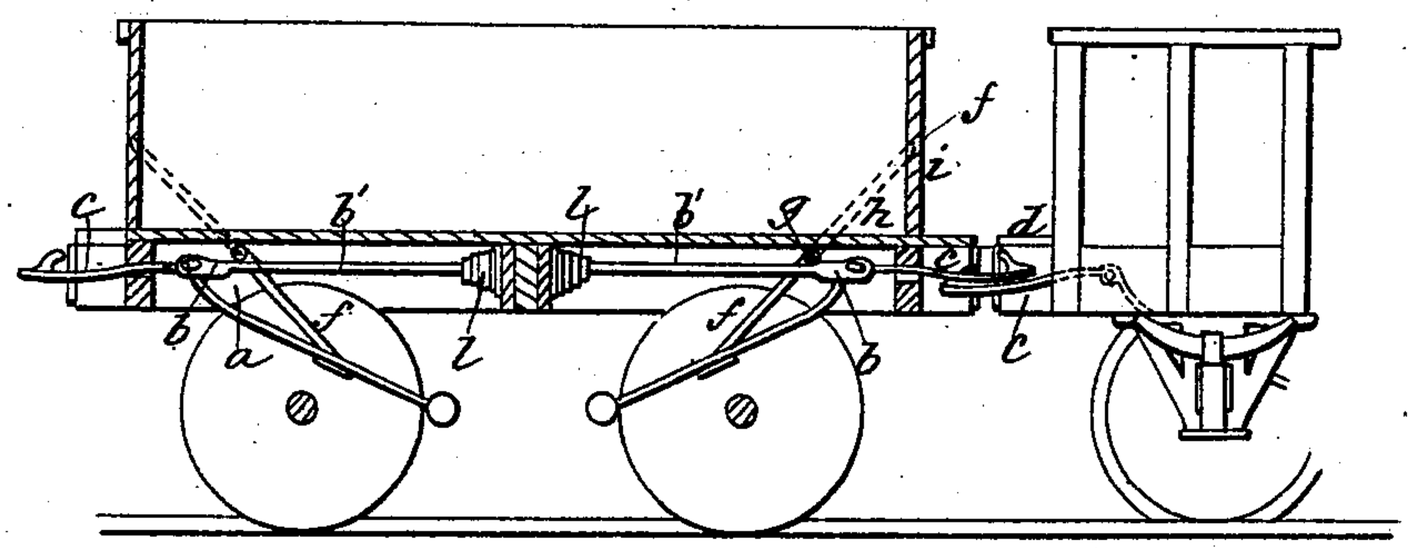


Fig. 3.



Witnesses:

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JAMES TURNBULL, OF EDINBURGH, SCOTLAND.

Letters Patent No. 92,126, *dated June* 29, 1869.

IMPROVED RAILWAY-CAR COUPLING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES TURNBULL, of Edinburgh, Scotland, have invented an Improvement in Couplings for Railway-Cars; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of car-couplings consisting of vibrating recessed levers, provided with hooks, and hung to vehicles, so as to automatically couple the latter when brought together; and

My invention consists of certain devices, fully described hereafter, for facilitating the operation of the said levers.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a sectional elevation, showing two cars A B, with my improvement;

Figure 2, a plan view; and

Figure 3, a modification.

The apparatus consists of a double-armed lever, *a*, one of which levers is situated at each end of each carriage, and it may be hinged to a cross-head, *b*, which supports one end of a draw-bar, *b'*, fig. 3.

One arm of the lever is situated underneath the vehicle, as shown, and the other arm projects beyond the end of it, and is formed into a loop or eye, *c*, terminating in a hook, *d*, which points upwards, and is elongated at the outer end, as shown. This outer end of the lever passes through the buffer-beam *e* of the carriage, and the opening in the beam is formed so that the outer arm of the lever cannot rise above a horizontal position, but it is capable of being depressed.

The arm of the lever *a*, which is situated under the carriage, is made heavier than the projecting arm, so as to balance it and maintain it in a horizontal position; and when it is necessary to depress the outer arm, the arm of the lever *a*, situated under the carriage, is raised. This may be effected by means of a lever, *f*, fig. 3, which is fixed on a transverse shaft, *g*, extending across the under side of the carriage, and provided at each end with a lever, *h*, so that it may be actuated at either side of the carriage.

The working of the apparatus is as follows:

If the carriages are separated and are to be coupled together, all that is necessary is to run them together, and, as the elongated points at the back of the hooks *d* come together, the one glides under the other until one of the hooks *d* meets the eye or loop *c* in the other lever, at which moment the heavy end of the lever under the carriage raises the hook upwards through the eye, and retains it there, therefore holding the carriages together.

The operation of disconnecting the carriages may be effected at either side of the vehicle, by an attendant depressing one of the levers *h*, at either side of the carriages, and thereby turning the shaft *g*, which action also elevates the lever *f*, and therefore lifts the weighted inner arm of the lever *a*, so that the projecting arm is depressed, and the hook of the lever on the one carriage is freed from the eye or loop of the lever on the other carriage.

In running carriages into a siding, if it is desired to prevent them from being connected to each other, this is effected by depressing one of the levers at either side of the carriage, which has the effect of depressing the projecting arm of the lever *a*, as hereinbefore described, and it is maintained in that position by sliding the shaft *g* transversely, until that lever *h*, which the attendant is operating, is pushed under a stop-pin or hook, *i*, one of which is fixed to each side of the carriage-frame.

To prepare the carriages for coupling, the attendant draws the shaft *g* towards, or pushes it from him, according to the side of the vehicle on which he is standing, until the lever *h* is clear of the hook *i*.

It may sometimes happen, in the operation of coupling, that the points of the hooks *d* would strike each other, and cause the carriages or trucks to rebound. To obviate this, an elongated and inclined hole is formed in the draw-bar, so that, on the trucks striking, the levers are drawn inwards, and by the inner end of the lever being raised on passing up the inclined hole, the outer end of the lever is slightly depressed, and to an extent sufficient to enable one hook to pass under the opposite hook, and catch into the opposite eye.

In this arrangement the other parts are the same as in figs. 1 and 2, similar parts being indicated by corresponding letters of reference, as in the preceding part of this specification the parts and their operation have been fully set forth, and it need not be here repeated.

As it may be necessary in some instances to connect railway-vehicles provided with this improved coupling-apparatus, with vehicles provided with the coupling-apparatus at present in use, a special arrangement of apparatus may be provided for that purpose; as, for instance, jointing two loops provided with hooks to the ordinary coupling-hooks, so that they may be turned up out of the way when the ordinary couplings are employed.

In place of arranging the coupling-apparatus precisely as hereinbefore described, and shown upon the accompanying sheet of drawings, the rear part of the lever *a* may be dispensed with, and a spring applied to the upper or under side of the fore part of the lever *a*, for the purpose of allowing it to yield when any two vehicles are brought together, the tension or concussion of the spring, according as it is arranged to

act upon the lever *a*, bringing the lever *a* into a horizontal position again as soon as the point of the one hook catches into the eye of the opposite lever *a*.

In the case of springs being employed, as hereinbefore described, the cross-shaft *g*, lever *f*, and lever *h*, are arranged to act either upon a short lever projecting inwards from the lever *a*; or, in place of so operating, the shaft *g*, lever *f*, and lever *h*, may be placed towards or attached to the buffer-beam *c*, in which case the lever *f* acts upon the front part of the lever *a*.

In the case of railway passenger-carriage spring-buffers, the draw-spring *l*, fig. 3, is provided with apparatus for drawing in the buffers at any time, when it is necessary to disconnect or uncouple a pair of carriages. This may consist of a pair of screws, one placed behind each end of the spring *l*, and simultaneously rotated by a cross-shaft. The screws passing through nuts in the end of the draw-spring to which the buffers are attached, it is obvious, that according to the direction in which the screws are rotated, the buffer will either be drawn inward or forced outward. Provision in such case must also be made to allow of the draw-spring yielding when pressure is applied to the buffer, without disturbing the buffer-withdrawing apparatus; and this may be effected by placing the nuts, in which the screws are operated, in links having in them slides or oblong holes. Or, in place of withdrawing the buffers, as herein last specified, the inner ends of the buffer-rods may be made hollow or tubular, with a screw-thread cut in the tubular part. Into this a screw passes, attached to the buffer-spring, and which is rotated by means of a handle placed in any convenient part of the carriage. The effect of rotating the screws in one direction is to shorten, and, therefore, draw in the buffer-rods at the time when a pair of vehicles has to be uncoupled, whilst by rotating the screws in the opposite direction, the buffer-rods are extended to their proper working length.

In place of withdrawing the buffer-rods by either of the preceding arrangements of apparatus, chains or straps, or a system of levers may be applied. It is obvious, that as the buffers are drawn in by any of the means hereinbefore specified for effecting that purpose, the carriages themselves may be brought close together, so as to allow the point of the hook *e*, on one lever *a*, to clear the eye in the opposite lever *d*, thus uncoupling the carriages.

I claim as my invention, and desire to secure by Letters Patent—

1. The weighted levers, with their recesses and hooks, in combination with the draw-bars, having elongated inclined slots for the reception of the fulcrum-pins of the said levers, all substantially as and for the purpose described.

2. The combination of the above, the shaft *g*, its arms *f* and *h*, and the pin *i*, or its equivalent, for the purpose set forth.

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

JAMES TURNBULL.

Witnesses:

CHAS. F. NEVIN, *Leith.*

E. B. STERLING, *Leith.*