H. M. GROVER.

CAR-COUPLINGS.

No. 195,360. Patented Sept. 18, 1877.

Fig. 1

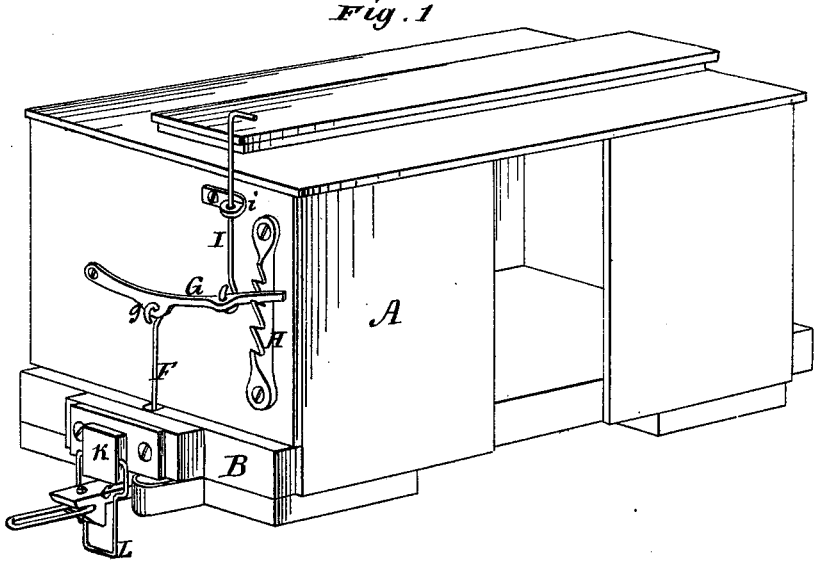


Fig. 2.

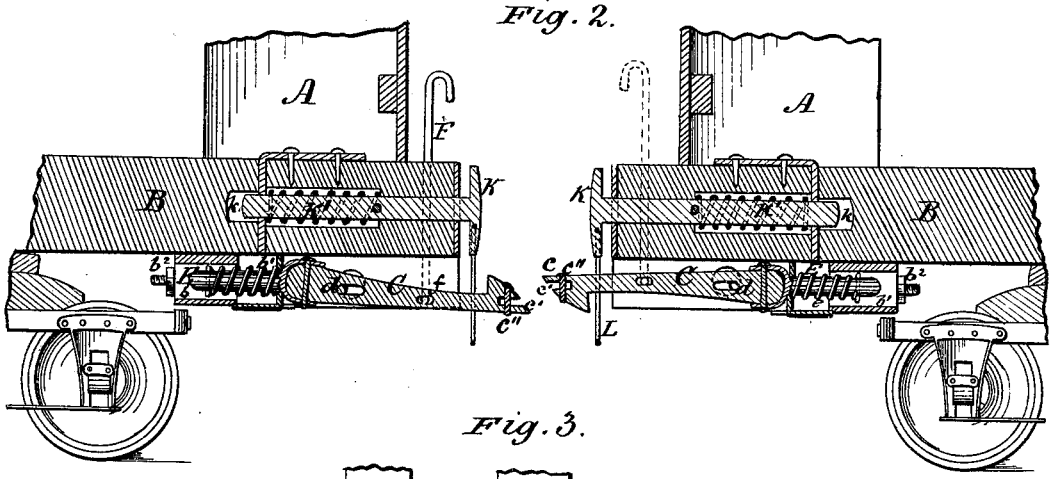
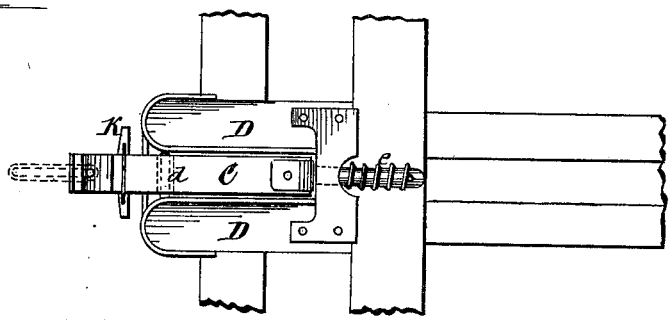


Fig. 3.



Witnesses:

W. B. Masson

E. E. Masson.

Inventor:

Henry M. Grover

by

Jno. S. Slater,

Attorney.

UNITED STATES PATENT OFFICE.

HENRY M. GROVER, OF VINTON, IOWA.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **195,360**, dated September 18, 1877; application filed September 12, 1877.

To all whom it may concern:

Be it known that I, HENRY M. GROVER, of Vinton, in the county of Benton and State of Iowa, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The objects of my invention are, first, to provide a coupling for railway-cars, the draw-bars of which are pivoted between jaws in such manner as to permit them to move, to a limited extent, either longitudinally, laterally, or vertically, and at the same time not interfere with their efficiency; second, to provide a coupling especially adapted to freight or box cars, to be operated by hand, in such manner as will obviate the danger to the operator of being crushed between the cars as they come together, and which, at the same time, shall be simple and effective; third, to provide, in connection therewith, a buffer or bumper of such construction and so arranged with relation to the coupling device as to save the latter, as well as the car, from injury from violent shocks as the cars come together as they are being coupled, or during the act of running, or on being brought to a stand-still; fourth, to provide for a certain amount of longitudinal movement on the part of the coupling or draw-bars, and thus reduce, if not altogether remove, the danger of breakage or injury from violent concussion against their heads; fifth, to so construct the draw-bars or couplings and attach them to the body of the car in such manner as will permit them to be readily adapted to be used in connection with the ordinary link and pin, and to be readily inverted when necessary, and thus save turning the car end for end.

The nature of my invention consists in certain constructions, arrangements, and combinations of parts whereby the preceding valuable objects are accomplished, and a more complete description of which I will now proceed to give.

In the drawings, Figure 1 represents a perspective view of the body of an ordinary freight-car, showing my invention applied thereto. Fig. 2 is a longitudinal section of the opposing ends of two cars, each having my improved coupling, which latter is also shown in section. Fig. 3 is an inverted view of a portion of the bottom of the car, showing my invention and the manner of its attachment.

A represents the body of the car, and B the frame-work, which rests upon the trucks. C is the draw-bar, pivoted loosely between the wood or metal jaws or side pieces D by the bolt *d*, which bolt is made removable at pleasure.

The head *c* of the draw-bar C is made with a hook to engage with the head of the draw-bar upon the opposing car, the two draw-bars occupying the relative positions, when ready for coupling, as shown in Fig. 2. The head *c* is also provided with a horizontal slot, *c'*, and a vertical hole, *c''*, for a link and pin, whenever the use of these become necessary in order to couple the cars together. A link as applied is shown in dotted lines in Fig. 3.

The hole through which the bolt *d* passes is enlarged and elongated sufficiently to give the draw-bar C the requisite amount of freedom to yield either vertically or longitudinally when the cars are being coupled or in motion, lateral movement being permitted by having the space between the jaws or side pieces D of greater width than the draw-bar.

E is a metal loop, bolted loosely to the rear end of the draw-bar, and having a shouldered extremity, *b*, the rear end of which passes loosely through the block or beam b^1, where it is firmly kept from being drawn out by the nut b^2. Around this shouldered extremity is coiled or placed a metal or rubber spring, one end of which rests against the back of the loop or of a cross-beam just in rear of it, and the other against the forward surface of the block or beam b^1. F is a rod, one end of which hooks into a hole, *f*, of the draw-bar, in such manner as to be easily removed when desired, and the other end engages with the lever G, as shown at *g*. One end of the lever G is bolted or fastened to the car in such manner as will permit the outer end to move freely up and down along the ratchet H, the

teeth of which are calculated to hold it securely at such point as may be desired.

I is a rod hooked into the lever G, near its outer end, and which, passing up through the guide *i*, presents a handle above the top of the car, and by means of which the workman is enabled to couple or uncouple the cars at pleasure.

K is the buffer or bumper proper, arranged directly above the draw-bar, and is of the usual form, and embedded in the framework of the bottom of the car in such a manner as will permit of the requisite longitudinal movement. Around its rear end, resting in the recess *k*, is the spring *k'*, to break the force of any concussion that may chance to occur.

L is a loop, depending from the head of the buffer or bumper K, and which incloses the heads of the draw-bars C C when in a coupled position, thus guarding against its lateral displacement and the accidental uncoupling of the cars by the heads C becoming unhooked by the jostling of the cars or when going around a curve. By thus attaching the loop L to the buffer, the former is made capable of a limited longitudinal movement, and thus enabled to adjust itself to the position of the hooks upon the draw-bars C when the cars are in motion.

The operation of my invention is simple. Suppose it is desired to couple two cars approaching each other, as in Fig. 2, the draw-bars occupying the relative positions there shown, one being depressed, the other elevated. As the heads *c* impinge against each other, one passes over, the other under, and they hook, and are there held securely in place by depressing the lever attached to the upper draw-bar, and elevating the other lever along the ratchet H to the required notch.

If it should happen that two cars are to be coupled on which the hooks of the draw-bars are both upon the same surface, one bar can be easily reversed by unhooking the rod F, removing the bolt *d*, and turning over the draw-bar, after which the rod and bar may be replaced.

The manner in which the link and pin are used, when necessary in connection with my invention, is too obvious to require description.

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

1. The coupling or draw-bar C, provided on its outer end with the hook *c*, and pivoted near its inner end between the jaws D D, in combination with the shouldered loop E, having the spring *e*, substantially as and for the purposes described.

2. In combination with the draw-bar C, provided with the shouldered loop E and spring *e*, the rod F, lever G, ratchet H, and rod I, for the purpose of coupling and retaining in a coupled position and uncoupling the cars, substantially in the manner as set forth.

3. The loop L, attached to the buffer K to give the former a limited longitudinal movement along the draw-bars while retaining them in place, substantially in the manner as described.

4. The draw-bar C, having the elongated and enlarged bolt-hole, in combination with the shouldered loop E, provided with the spring *e*, pivoted loosely between the jaws D D, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I hereto affix my signature in presence of two witnesses.

HENRY MARTIN GROVER.

Witnesses:

H. B. CLINGAN,

JNO. K. VANATTA.