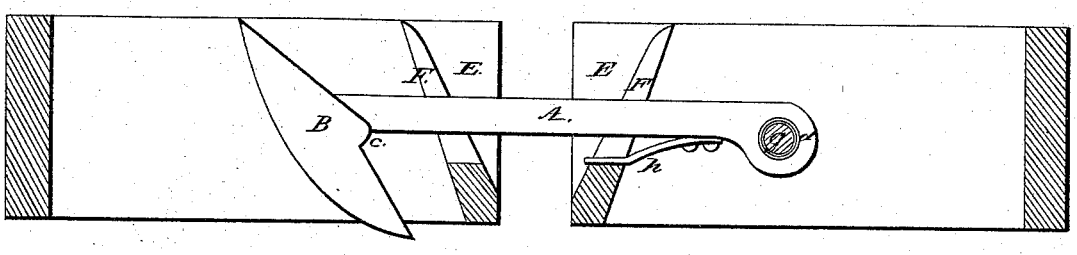
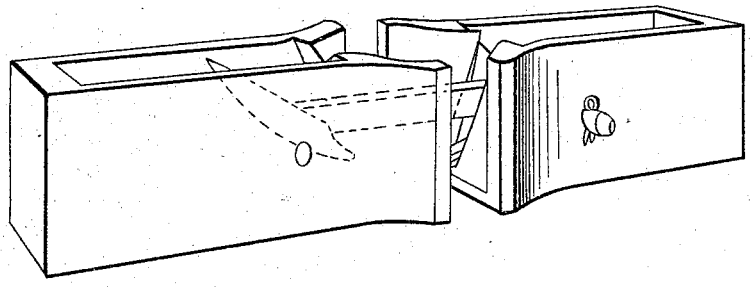
G. C. LAWTON.

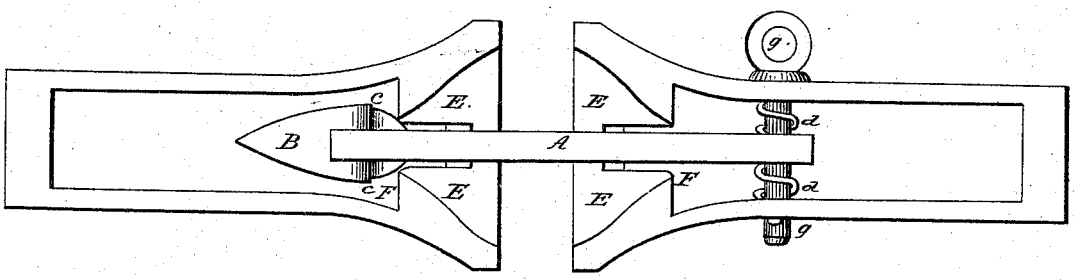
Car Coupling.

No. 48,076. Patented June 6, 1865.

Vertical Section







Plan.

Witnesses:

R. Griffin, Jr.
L. W. Conkey.

Inventor:

G. C. Lawton.

UNITED STATES PATENT OFFICE.

G. C. LAWTON, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **48,076**, dated June 6, 1865.

To all whom it may concern:

Be it known that I, GEO. C. LAWTON, of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement on Couplings for Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The upper figure on the drawings represents a vertical section of the improved coupling connected and ready for the movement of the train. The lower figure on the drawings represents a top view in the same condition; but it shows only the upper or top half of the head-hook.

The nature of my invention consists in providing the draw-rod A with a peculiar shaped and positioned head-hook, B, with its shoulders *c c*, and the head of the buffer E E, with a beveled opening inclining inward from the sides to the center and upward and backward from the bottom to the top, and a gain or slot and shoulders F, by which, when two cars are brought together for the purpose of being connected, the head-hook B readily and surely slips to the center of the mouth of the buffer-head and up the inclined plane to the top of the shoulders, over and behind which it drops, although the cars be not exactly on the same direct line or on the same level, without manual aid, thus insuring in all cases a sure and permanent connection without manual assistance, and relieving the employés of the road from the hazardous and often fatal consequences of being obliged to stand between the cars to hook or connect them by hand, as is the case with the coupling now in general use.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

To the draw-rod sometimes used (and which for the purpose of my invention should be an iron bar eighteen inches long, one and one-fourth inch thick, and one and one-half inch wide, except at the back end it should be three inches wide to allow of the hole and bolt *g*, which is one and one-eighth inch diameter) I attach the peculiar boat-shaped head-hook B in the vertical section of the drawings, and in attaching it to the draw-rod A, I slope the top end forward, so that it forms an obtuse angle with right line of the draw-rod of one hundred and twenty degrees opening, as shown in the vertical section of the drawings, the lower end sloping backward. This head-hook is made of wrought-iron, ten inches long, (five and one-half inches of it being above the rod,) three inches wide, two and one-half inches thick, with friction-shoulders *c c* projecting three-fourths of an inch farther out on the lower edge of the draw-rod A, as will be seen at *c*. The outer or front side of this head is beveled off on each side of the center line, so as to give it two fronts, the face-lines of which cross each other on an angle of sixty degrees. The upper and back portion of the head B, above the draw-rod, is beveled off from the shoulders *c c* upward, bringing it nearly to a point at the top, the object of which is to lessen the weight. The lower one-third of the hook is rounded off on its face and sides on a circle of about ten inches diameter. This is to make the lower portion correspond with its position toward the buffer-head as it rises up to the top of the shoulders.

The buffers, (which are alike on both ends of the car, as will be seen in the drawings,) except the heads, are made in the ordinary way, with the further exception that the bars are set edgewise four inches apart, and are eight inches wide at the head, and form the sides, instead of the top and bottom. Four inches of the front end of the sides are bent outwardly two inches, thus enlarging the mouth of the buffer to an eight-inch opening, and making the end of the buffer eight inches high and ten inches wide. These two sides are connected in front, at the lower edge, by an iron bar or cross-piece two and one-half inches deep and one and three-fourths inch thick. From the upper surface of this cross-piece are shoulder-pieces attached to the inner surface of each side and extending upward to the top, and sloping backward four inches from the front end of the buffer. These shoulder-pieces will be thick enough to fill up the space between the sides, except a gain or opening in the center of one and three-fourths inch, and is open to the top, left for the draw-rod to work in. They project from the sides at the

top one and one-eighth inch as they go down along the slope of the sides. They must be thicker to make up for flare of the side pieces, and their sloping backward prevents the rod and head from working up or out of the gain or slot. The front edges are beveled off on a line with the flaring surface of the side pieces. The rear faces of these shoulder-pieces are square, and are for the purpose of holding the head of the draw-rod. The mouth of the buffer thus made is an inclined plane from the sides inwardly and from the bottom upward and backward to the top, and when the apex or keel-line of the head-hook strikes any part of it, it easily slides inwardly and upwardly to the top of the shoulders, and the draw-rod drops down into the gain, and the head behind the shoulders and the cars are instantly connected without manual aid. The hole and bolt *g*, by which the draw-rod is fastened to the buffer, is six inches from the front end of the buffer and three and one-half inches from its lower edge. The draw-rod plays freely on the bolt *g*, and is kept in the center by two spiral springs, *d d*, one on each side of the draw-rod, and fastened to it or any spring that will produce the intended effect.

To uncouple, the head end is raised up out of the opposite buffer-head and thrown back against the end of the car. Spring *h* in the vertical section is placed on the under side of the draw-rod to facilitate its working and prevent its falling with too much force onto the base of the gain.

The buffer-head may be made of wrought-iron, or molded and cast, and the brittleness removed by annealing.

The width of the mouth of the buffer and the wedge shape of the draw-rod allow the cars a side play of about eight inches, or four inches each way from the center, and yet insures a coupling, which is more than is required on any prudently-repaired road; and the length of the perpendicular opening in the buffer-head and of the head of the draw-rod allows one car to be about seven inches above or seven inches below the other, and yet also insures a perfect coupling, which is more than is required with any of the cars now in use. The bolt in the end of the draw-rod should be keyed to keep it from working out. As both buffer-heads are alike, a hole for this bolt should be made in each, so that the draw-rod may be changed from one to the other, if required.

The parts and the combinations of the above-described work which I claim as my invention, and desire to secure by Letters Patent, are—

1. The peculiar-shaped head B of the draw-rod A, with its shoulders *c c*, and its extension above, and the sloping position at which it is attached to the draw-rod, constructed, arranged, and operating as substantially described.

2. The backwardly-sloping shoulders F in the rear of the gain or slot, attached to and projecting from the inner surface of the sides of the buffer-head.

3. The combination of the peculiarly shaped and positioned head B, with its shoulders *c c*, with the double and upwardly and backwardly inclining plane E E, and the central gain or slot, open at the top, and the backwardly-inclining shoulders F, behind the gain or slot in the buffer-head, all constructed, combined, arranged, and operating together as substantially shown and described.

GEO. C. LAWTON.

Witnesses:

GEO. W. COOK,

B. J. SWART.