(No Model.)

C. C. & C. BALDERSTON.

CAR COUPLING AND BUFFER.

No. 287,084. Patented Oct. 23, 1883.

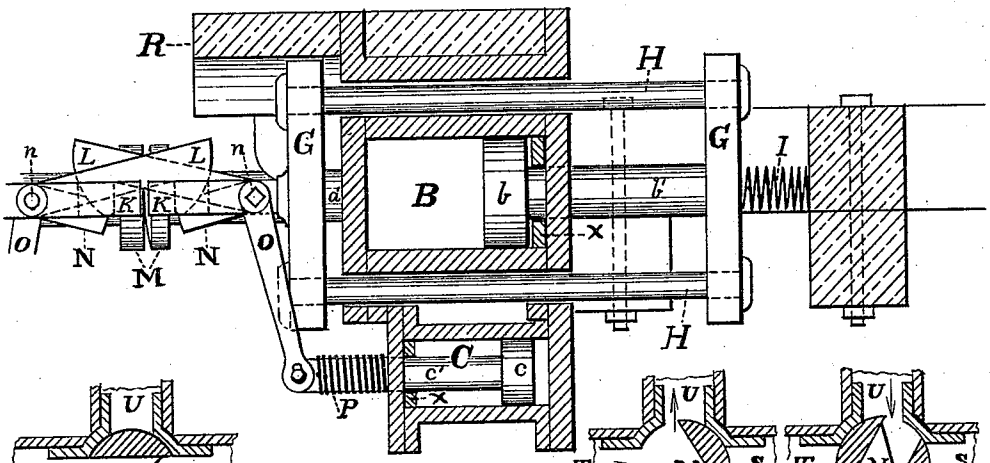


Fig. 2

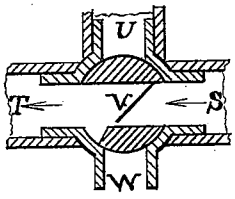


Fig. 3

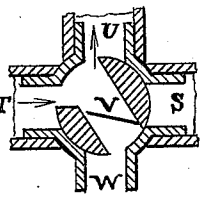


Fig. 4

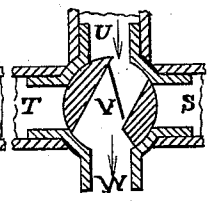


Fig. 5

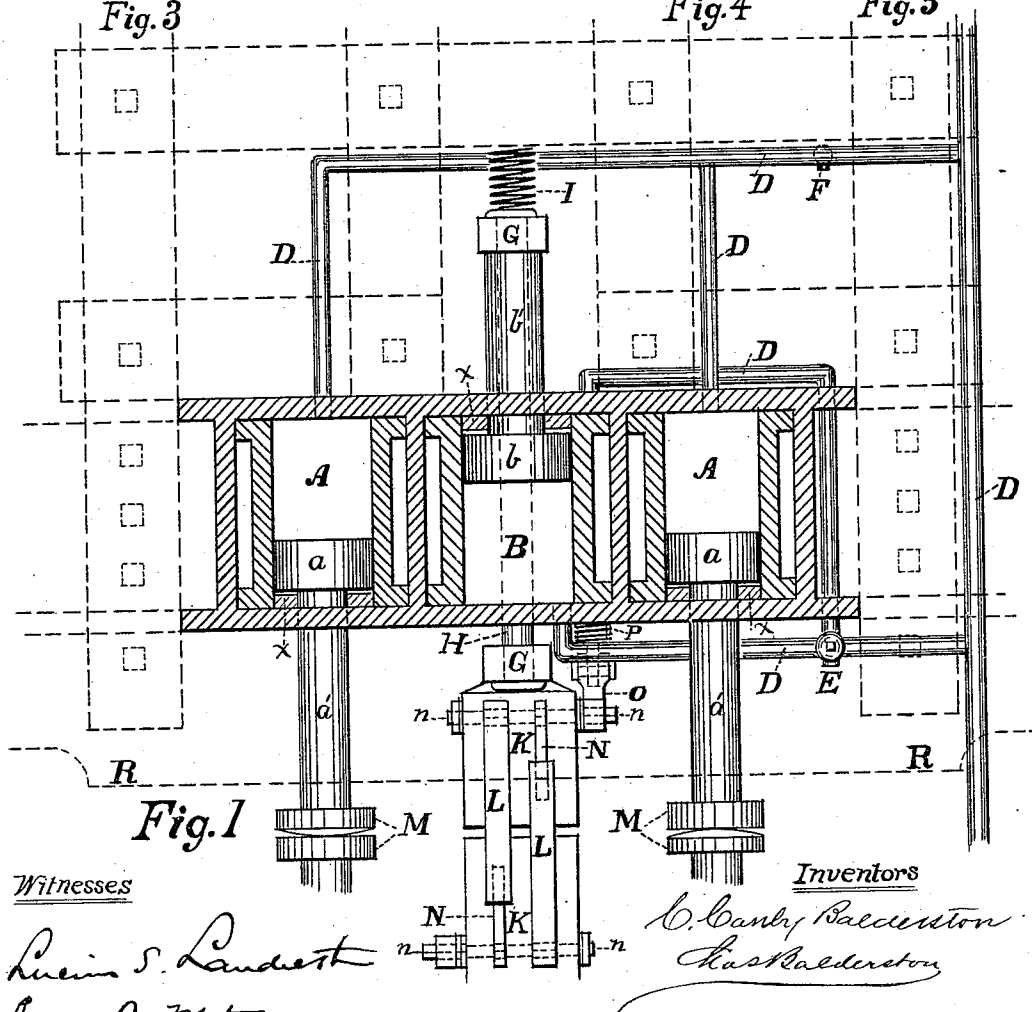


Fig. 1

Witnesses

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UNITED STATES PATENT OFFICE.

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CAR COUPLING AND BUFFER.

SPECIFICATION forming part of Letters Patent No. 287,084, dated October 23, 1883.

Application filed June 18, 1883. (No model.)

To all whom it may concern:

Be it known that we, C. CANBY BALDERSTON, of Westtown, in the county of Chester and State of Pennsylvania, and CHARLES BALDERSTON, of Philadelphia, in the county of Philadelphia, in said State, citizens of the United States, have invented certain new and useful Improvements in Car Couplers and Buffers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a horizontal section; Fig. 2, a vertical section. Figs. 3, 4, and 5 show the details of a certain part drawn to a large scale.

Our invention has for its primary object the employment of compressed air in conjunction with the couplers and buffers of cars, so as to avoid the ill effects of concussion in the stopping and starting and movement of trains, and when cars are being added to a train.

A further object of our invention is to provide means whereby the uncoupling of cars may be facilitated by the employment of compressed air.

Our invention consists, therefore, in the first place, in the employment of compressed air in connection with car couplers and buffers, and, in the second place, in the specific construction and combination of parts hereinafter set forth, whereby such employment is rendered practicable.

Referring to the accompanying drawings, A A are two cylinders or chambers, one on either side of the draw-bar or coupler, and firmly secured in a frame of iron behind a timber piece, R, which forms the front of the car-platform.

B is a similar cylinder or chamber, secured in like manner at a point midway between the cylinders A A.

C is a fourth cylinder, placed at the left of the center and underneath the cylinder B.

D represents a system of pipes which extend from the air-pumps on the locomotive to the chambers A A, B, and C, and are provided with suitable valves, couplings, and connections. The pipes D, by suitable branches, connect, as shown, with the rear ends of the cylinders A A and C and with the forward end of the cylinder B.

E is a four-way cock. (Shown by Figs. 3, 4, 5.) S is toward the main supply-pipe. T is toward the cylinder B, and W is an exhaust-outlet. V is an air-tight valve. Fig. 3 shows position of cock when pressure is on the cylinder B. Fig. 4 shows the cock when turned so as to cut off the air-supply at S, thereby allowing compressed air in cylinder B to pass through opening U to cylinder C, the valve V preventing escape through the opening W. Fig. 5 shows the cock turned so as to allow air to escape from cylinder C through exhaust-opening W.

In each of the cylinders A is a piston, *a*, having a stem, *a'*, which terminates in a buffer cross-head, M.

G G represent two vertical cross-heads, and H H bolts or rods connecting the same. One of these cross-heads is behind the cylinder B, and the other in advance of it. Back of the rear cross-head G is a strong spiral spring, I, whose tendency is to impel the cross-heads G and bolts H forwardly. Within the cylinder B is a piston, *b*, with a stem, *b'*, the back end of which bears against the rear cross-head G. To the forward cross-head G is secured the draw-head K, which carries the pivoted coupler or latch L. When the cars are coupled, the heads of the latches L drop down into and engage with the draw-heads K, as plainly shown in Figs. 1 and 2.

N represents a dog on pivoted spindle *n*, and extending beneath the latch L, so that by moving said dog by means of the lever O the latch may be lifted. There is such a dog and lever for each latch or coupler, the latch L being attached likewise to spindle *n*, so that a forward movement of either one of the levers O will lift both the latches L.

P is a strong spiral encircling the projecting end of the piston-stem, and firmly secured to the outer end of the same, and also to the head-plate or cylinder C. When the cylinder C is exhausted through opening W, the spring P will draw back the lever O and hold the latch L in position for automatic coupling.

The operation of the aforementioned parts is substantially as follows: When cars meet end to end, they couple automatically. The latches L L enter the openings in the draw-heads provided for that purpose. Undue concussion, when such meeting takes place, is avoided by reason of the fact that the compressed air in the chambers or cylinders A A operates as a cushion. It so operates in travel when the buffers bump against each other, thus protecting the platforms and the bodies of the cars from violent shock, thereby rendering travel both safer and more comfortable than heretofore. In like manner concussion or shock through draft or jerks on the draw is avoided by reason of the compressed air in chambers B affording resistance to the forward movement or pull of the draw-bars.

To uncouple the cars, one of the levers O is moved by turning the cock E so as to allow the compressed air in the cylinder B to pass into the cylinder C, thereby operating on piston-head *c*, by this means lifting the latches out of engagement with the draw-heads with which their heads are connected. The cars now being moved apart, the uncoupling is effected, and this, as may be seen, can be accomplished by the simple operation of the cock E, which is moved by a handle (not shown on the drawings) extending above the guard-rail on the side opposite the brake-wheel. This handle will turn over a disk properly marked with keeps for securing the cock E in either position shown by Figs. 3, 4, and 5. By means of a three-way cock, F, Fig. 1, placed in the branch of air-pipes D that supplies cylinders A A, these two cylinders can be exhausted at pleasure. This cock is operated by a handle under the platform, and will never require to be touched while the cars are in motion.

The cock F will have a check-valve similar to V, Fig. 3, so that the pressure will always remain on the buffer-cylinders A A, excepting when it is desired to exhaust them for repairs or any other purpose.

X represents a ring of rubber packing in the cylinders A A, B, and C.

What we claim as our invention is as follows:

1. The combination, with a car-buffer, of an air chamber or cylinder having means of connection with a pump or air-compressor, whereby compressed air may be introduced into such chamber to form an air-cushion, substantially as set forth.

2. The combination, with a car draw-head or coupler, of an air chamber or cylinder having means of connection with a pump or air-compressor, whereby compressed air may be introduced into such air-chamber to form an air-cushion, substantially as shown and described.

3. The air chamber or cylinder C, with a piston therein having connection with cylinder B by means of cock E, in combination with lever O, whereby the cars are uncoupled, substantially as shown and described.

4. The combination, with the draw-head K, of pivoted latch or coupler L, in connection with the dog N and lever O, substantially as shown and described.

5. The combination of the cylinder B, having piston *b*, with cross-heads G, rods H, draw-head K, latch or coupler L, dog K, and lever O, substantially as shown and described.

6. The combination of cylinders A A, B, and C and their pistons with buffers M, cross-heads G G, rods H H, spring I, coupler L, dog N, lever O, spring P, cocks E and F, and pipes D, substantially as shown and described.

In testimony that we claim the foregoing we have hereunto set our hands this 16th day of June, A. D. 1883.

C. CANBY BALDERSTON.
CHAS. BALDERSTON.

Witnesses:
LUCIUS S. LANDRETH,
PERCY B. METZGER.