H. W. GREEN, G. W. HOAG & T. P. CLEAVELAND.

Railway Air-Brake.

No. 198,015. Patented Dec. 11, 1877.

Fig. 1.

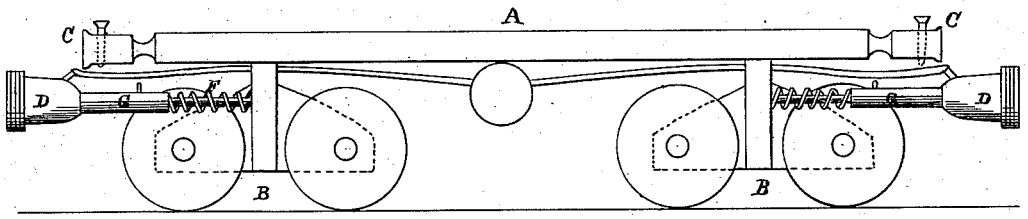


Fig. 2

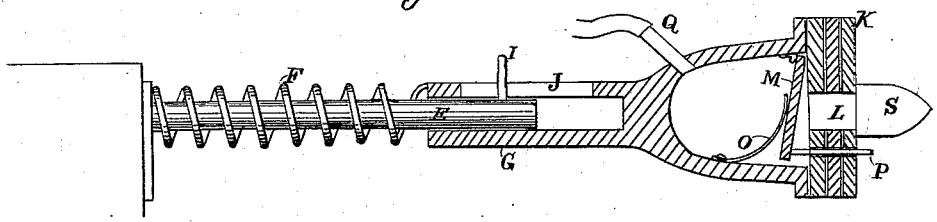
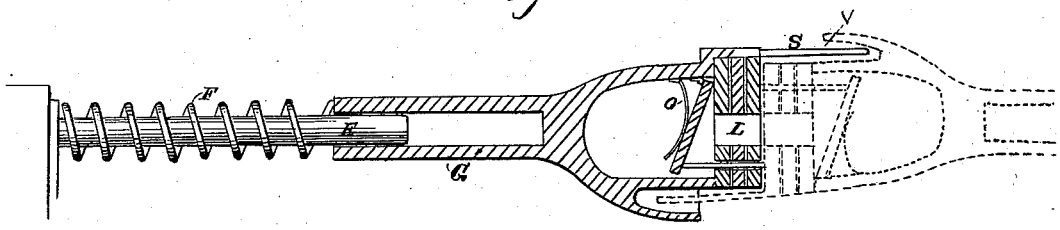


Fig. 3.



Witnesses

Jno L. Boone

Frank A. Brooks

Inventor

Henry W. Green

George W. Hoag

Timothy P. Cleveland

by Dewey & Co attys.

UNITED STATES PATENT OFFICE.

HENRY W. GREEN AND GEORGE W. HOAG, OF SAN JACINTO, AND TIMOTHY P. CLEAVELAND, OF MOUNTAIN HOUSE, CALIFORNIA.

IMPROVEMENT IN RAILWAY AIR-BRAKES.

Specification forming part of Letters Patent No. **198,015**, dated December 11, 1877; application filed November 6, 1877.

To all whom it may concern:

Be it known that we, HENRY W. GREEN and GEORGE W. HOAG, of San Jacinto, Colusa county, and TIMOTHY P. CLEAVELAND, of Mountain House, Sierra county, and State of California, have invented an Improvement in Railway Air-Brakes; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

Our invention relates to an automatic arrangement for connecting and disconnecting the air-pipes of a railway air-brake between the cars of a railway-train, so as to avoid the inconvenience of coupling and uncoupling them by hand, and the liability of their being negligently left uncoupled and the consequent danger to the train.

Our invention consists in attaching a supplemental spring-bumper to the truck at each end of every car, where it will not be affected by the height of the car-body. These bumpers project out somewhat farther than the ordinary draw-head bumpers, so that the opposing ends will come together and be tightly compressed before the ordinary bumpers are connected. The heads of these supplemental bumpers we chamber out and provide each with a valve, which remains closed when the cars are disconnected, but which is opened automatically by the meeting of the two bumpers. The air-pipe of the air-brake we then connect with the chamber in the bumper-head, so that the connection of the air-passages will be automatically completed when the cars come together and are coupled.

Referring to the accompanying drawings, Figure 1 is a longitudinal section, and Figs. 2 and 3 are sections.

Let A represent the car body or frame, and B B the trucks. C is the ordinary draw-head coupling, which is attached to the frame or body A. To each of the trucks B, at each end of the car, we attach a supplemental bumper, D, directly below the ordinary draw-head C. This supplemental bumper consists of a spindle, E, which is permanently attached to the frame of the trucks, and around which a strong spiral spring, F, is secured. The shank G of the bumper-head is tubular, and slides over the end of the spindle E against the end of the spring, so that when the bumper is pressed inward the spring will be compressed. A pin, I, on the spindle moves in a slot, J, in the tubular shank, and limits the movement of the bumper-head. The head of the supplemental bumper is chambered out, and an elastic end piece or face, K, is secured air-tight over its outer end. A hole, L, is made in the center of this end piece, and a common clapper-valve, M, is secured over the opening on the inside of the chamber. A spring, O, closes this valve, and a rod, P, which is attached to the free end of the valve, projects through the elastic end piece, so that when the two bumper-heads of two cars come together each bumper-head will strike the projecting end of the rod P of the opposite bumper-head, and open its valve by pushing the rod in. This opens communication between the chambers of the two bumper-heads when they are in contact.

The air-pipe Q, which conducts the air to the cylinder underneath the car, is connected with the chamber in the head of the supplemental bumper at each end of the car, so that when the bumpers are in contact the connection is made throughout the train.

A projecting arm, S, on one side of each bumper-head enters a recess or socket, V, in the opposite bumper, each bumper-head being provided with an arm on one side and a socket on the opposite side. These arms serve as keys to prevent the bumper-heads from sliding past each other sidewise when they are in contact.

The supplemental bumper-head is made to project out farther then the upper or coupling bumper, so that the spring F must be considerably compressed before the coupling-bumpers come together. This compression of the spring forces the elastic faces of the supplemental bumpers strongly together, so as to make an air-tight joint between them. The elastic faces, in connection with the compression of the springs F, will preserve this air-tight joint even under the motion of the car in turning curves.

We are thus able to provide an automatic

coupling or connection for the air or steam pipes, which conducts air or steam for braking the train, thus avoiding the trouble of making the connection between the cars by hand, and the liability of an imperfect connection, or of leaving some of the pipes disconnected by oversight, thus endangering the safety of the train.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In combination with a railway-car having the ordinary draw-head bumper C, the supplemental bumpers D, attached to the trucks of the car, and connected with the air or steam pipes Q, and provided with intercommunicating air or other passages, which are automatically opened when two cars come together, substantially as and for the purpose above described.

2. The supplemental spring-bumper D, with its chambered head, and having the elastic face or buffer-plate K, with its opening L and spring-valve M, in combination with the air-pipe Q, which conducts air to the brake-cylinder, substantially as and for the purpose described.

3. The supplemental yielding bumper D, with its chambered head and elastic face or buffer-plate K, and provided with the projecting arm S on one side, and recess V on the opposite side, substantially as and for the purpose described.

In witness whereof we have hereunto set our hands and seals.

HENRY W. GREEN. [L. S.]
GEORGE W. HOAG. [L. S.]
TIMOTHY P. CLEAVELAND. [L. S.]

Witnesses as to Henry W. Green:
FRANK A. BROOKS,
WILL. L. TAYLOR.
Witnesses as to G. W. Hoag:
P. N. ARONSON,
A. GALLAUD.
Witnesses as to Timothy P. Cleaveland:
E. H. ANDREWS,
O. MCDONALD.