

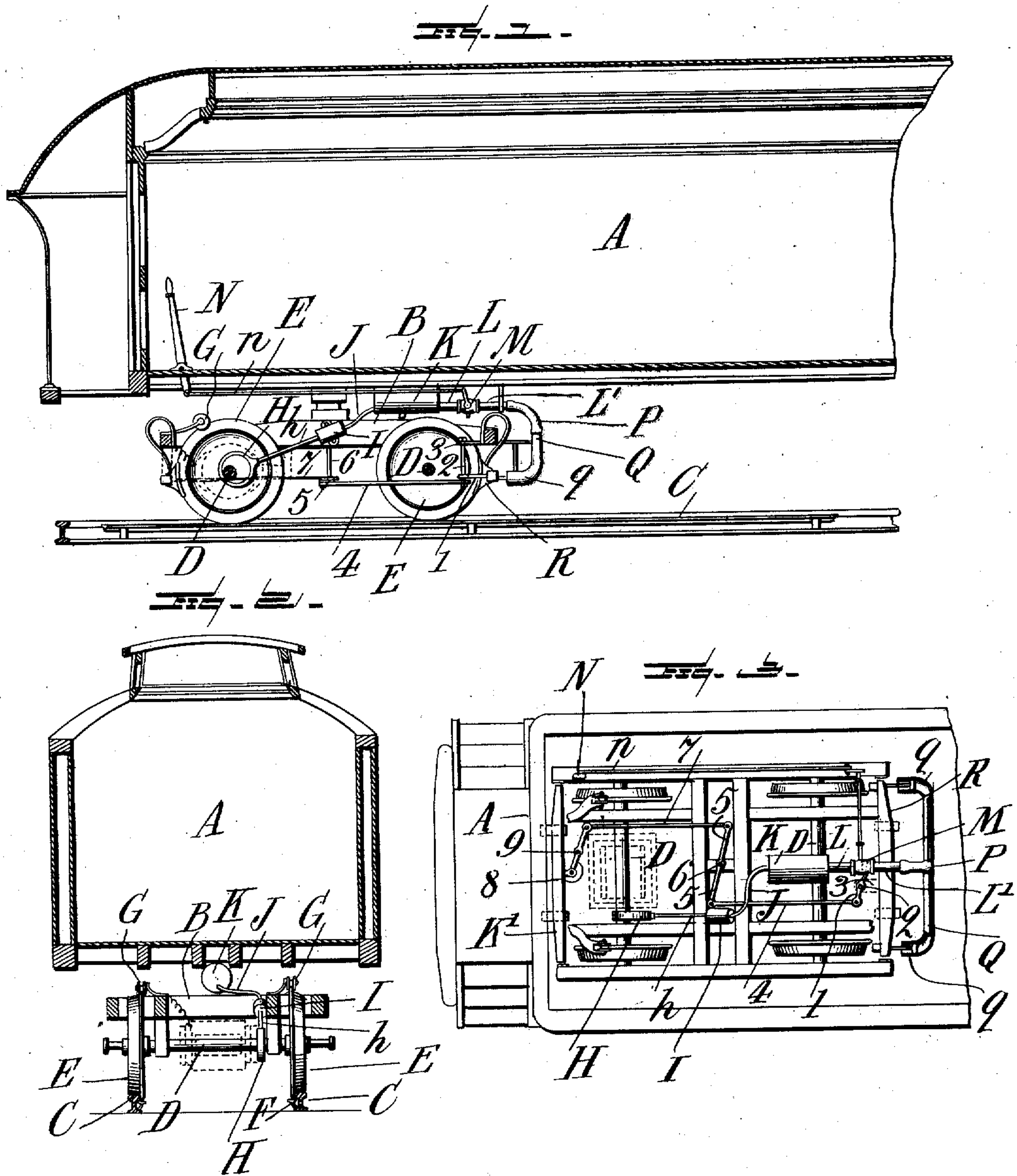
No. 652,233.

Patented June 19, 1900.

H. W. LIBBEY.
AIR BRAKE FOR RAILWAY CARS.

(Application filed Apr. 13, 1897.)

(No Model.)



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UNITED STATES PATENT OFFICE.

HOSEA W. LIBBEY, OF BOSTON, MASSACHUSETTS.

AIR-BRAKE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 652,233, dated June 19, 1900.

Application filed April 13, 1897. Serial No. 631,916. (No model.)

To all whom it may concern:

Be it known that I, HOSEA W. LIBBEY, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Air-Brakes for Railroad-Cars, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to certain improvements in air-brakes for railroad-cars, the object being to construct an apparatus that can be applied to each car for operating the brakes.

The invention consists of certain arrangement of parts, as hereinafter set forth, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a longitudinal vertical section of a portion of a car with an air-brake embodying my invention applied thereto. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a plan view.

A represents the car; B, the truck; D D, the axles; E E, the wheels, and C C the rails.

The car is preferably driven by an electric motor, which may be mounted upon one of the axles D, as shown in dotted lines, and the electricity supplied by a T-rail F, arranged by the side of the rail C, and conducted to the motor through a ring in the edge of the flange of the wheel and a trolley G, running upon same.

On one of the axles D is mounted an eccentric H, that by a rod *h* operates the piston of an air-pump I, that is by a flexible pipe J attached to an air-reservoir K, fitted with a suitable safety-valve and secured to the bottom of the car. To the reservoir K a pipe L is secured, to which is connected a two-way valve M, operated by a lever N through a connecting-rod *n*. To the valve M is connected a pipe L', to which one end of a flexible pipe P is secured, the other end of which is connected to a cross-pipe Q, each end of which is fitted with a small cylinder *q*, having a piston carrying a rod the outer end of which is attached to one of the brake-beams R, which is of ordinary construction and fitted with shoes and hung by springs in the usual manner. Motion is transmitted from the brake-beam R to the brake-beam R' by a series of levers

and rods—that is to say, to the beam R is attached a lever 1, fulcrumed on a rod 2, carried by a plate 3, secured to the truck B. To the outer end of this lever is secured a rod 4, the other end of which is attached to one end of a lever 5, also fulcrumed on a rod 6, carried by the truck B. To the other end of the lever 5 is attached a rod 7, the outer end of which is attached to a lever 8, fulcrumed on a rod 9, secured to the truck B, the other end of which lever is attached to the brake-beam R'.

The operation is as follows: When the car is in motion, the axle D, being rotated, causes the eccentric H to operate the rod *h* and piston of the air-pump I, thus forcing air through the pipe J into the air-reservoir K, and should the pressure in the reservoir exceed the desired amount then the valve will open and allow the air to escape until reduced to the proper pressure. When it is desired to apply the brakes, the lever N is moved in the desired direction, so as to open the valve M and allow air to pass out of the reservoir K into and through pipes L' P Q and into the cylinders *q*, where the pressure being exerted upon the pistons forces the brake-beam inward until the shoes are in contact with the treads of the wheels, and at the same time a corresponding motion is imparted to the other brake-beam through the levers and rods 1, 4, 5, 7, and 8. Thus the brakes are applied to all the wheels at the same time. When it is desired to remove the brakes from the wheels, the lever N is moved so that the valve M cuts off connection between the pipes L and L' and opens a connection between the pipe L' and a nipple in said valve, whereby the air in the pipes P Q escapes and the brake-beams are drawn back by springs in the usual manner.

It will be seen that by this construction each car can be fitted with an independent air-brake, and if each car is supplied with an electric motor a locomotive would not be required. It will also be seen that an air-brake constructed as described may be applied to the ordinary street-cars.

What I claim is—

1. The combination with a car, of spring-supported transverse oppositely-disposed brake-beams, a transverse pipe having cylinders at its ends, pistons working in said

cylinders and connected directly to the said
 beams at opposite ends thereof; levers ful-
 crumed to rigid portions of the truck-frame
 at opposite ends thereof, and pivotally con-
 5 nected to the centers of the respective brake-
 beams; a third lever fulcrumed to an inter-
 mediate rigid portion of the truck-frame; rods
 connecting the outer ends of the first-named
 levers with opposite ends of the intermediate
 10 lever, whereby the movement of one brake-
 beam is transmitted in an opposite direction
 to the other brake-beam, a reservoir connect-
 ed with said pipe, a two-way valve in said
 connection, and means for supplying air to
 15 said reservoir, substantially as specified.

2. The combination with a car, of spring-
 supported transverse oppositely-disposed
 brake-beams, a transverse pipe having cyl-
 20 inders at its ends, pistons working in said
 cylinders and connected directly to the ends
 of said beam, levers fulcrumed to rigid por-
 tions of the truck-frame at opposite ends
 thereof, and pivotally connected to the cen-
 ters of the respective brake-beams; a third
 25 lever fulcrumed to an intermediate rigid por-
 tion of the truck-frame; rods connecting the
 outer ends of the first-named levers with op-
 posite ends of the intermediate lever, where-
 by the movement of one brake-beam is trans-
 30 mitted in an opposite direction to the other

brake-beam, a reservoir connected with said
 pipe, a two-way valve in said connection, an
 air-pump connected with said reservoir, an
 eccentric on the car-axle, and a piston in said
 pump having its stem connected directly to 35
 said eccentric, substantially as and for the
 purpose specified.

3. The combination with the truck, the
 wheels, and brake-beams at opposite ends of
 the truck; of levers fulcrumed to rigid por- 40
 tions of the truck at opposite ends thereof,
 and pivotally connected to the centers of the
 respective brake-beams; a third lever ful-
 crumed to an intermediate rigid portion of
 the truck-frame; rods connecting the outer 45
 ends of the first-named levers with opposite
 ends of the intermediate lever, whereby the
 movement of one brake-beam imparts a cor-
 responding movement to the other brake-
 beam; and means for operating one of said 50
 brake-beams; substantially as described.

In testimony whereof I have signed my
 name to this specification, in the presence of
 two subscribing witnesses, on this 29th day of
 March, A. D. 1897.

HOSEA W. LIBBEY.

Witnesses:

CHAS. STEERE,
 EDWIN PLANTA.