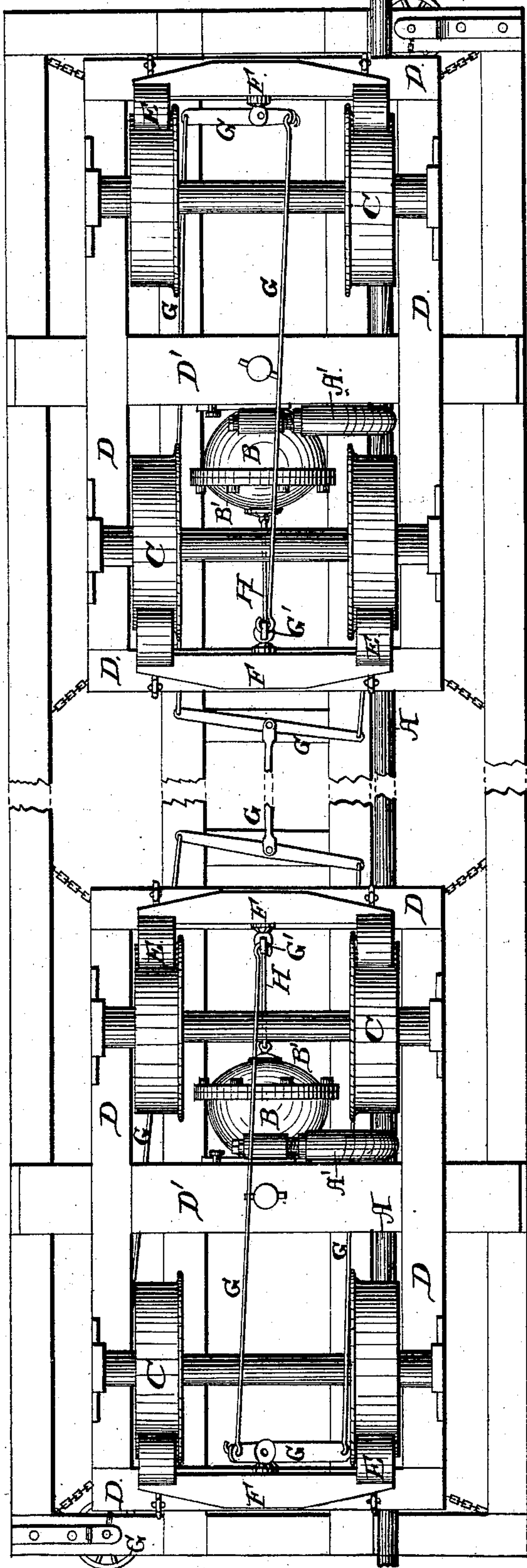


F. W. EAMES.  
Vacuum-Brakes.

No. 215,592.

Patented May 20, 1879.

Fig. 1.



Attest:  
F. P. Brock  
D. J. Stuart

Inventor:  
F. W. Eames  
by Amel...  
Atty

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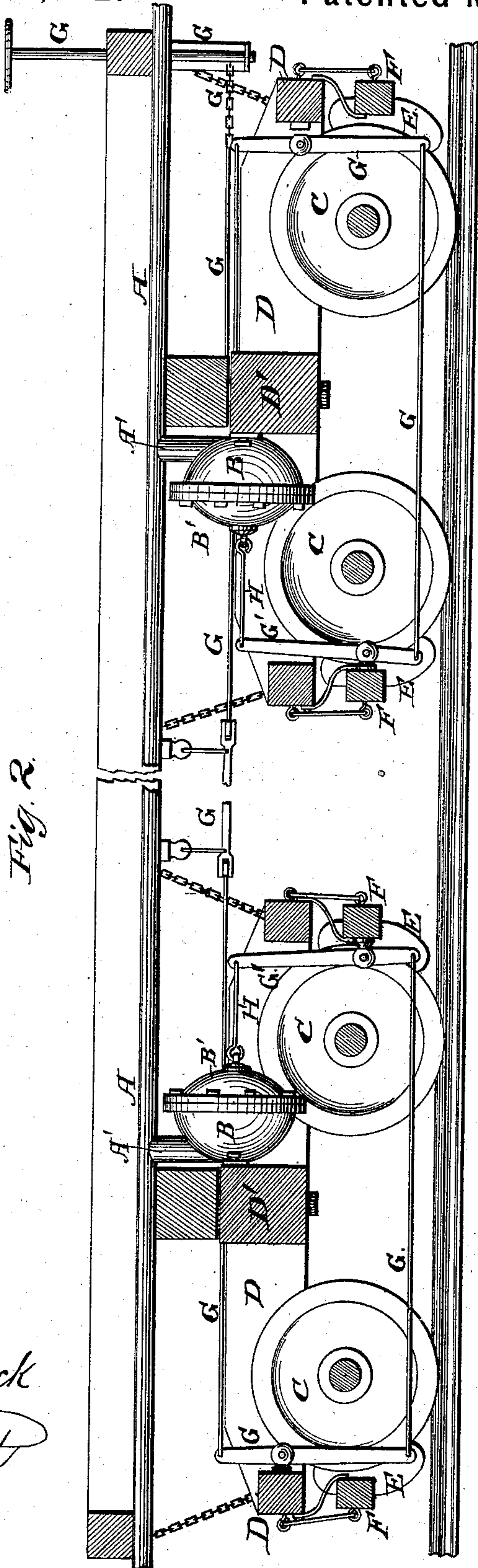


Fig. 2.

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F. B. Brock  
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# UNITED STATES PATENT OFFICE.

FREDERICK W. EAMES, OF WATERTOWN, NEW YORK.

## IMPROVEMENT IN VACUUM-BRAKES.

Specification forming part of Letters Patent No. **215,592**, dated May 20, 1879; application filed February 25, 1879.

*To all whom it may concern:*

Be it known that I, FREDERICK W. EAMES, of Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Vacuum-Brakes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention relates to pressure-brakes employed for braking or diminishing the speed and stopping the momentum of railroad trains and locomotives, and is applicable to such braking apparatus whether steam, compressed air, or the natural pressure of the atmosphere as opposed to a vacuum is the power employed to apply or release the brakes.

Heretofore the cylinders or vacuum-chambers employed for operating the brakes have been attached or secured to and beneath the body of the car, and generally, if not invariably, located about the center of the car, so that the whole strain of the braking power comes upon the car-body at that point, and consequently the tendency is to "hump" the car-body, strain and loosen the bolts and connections, and thereby seriously affect and shorten the efficiency and durability of the car.

My invention is designed to obviate this objection resulting from the use of the pressure-brake; and it consists, primarily, in securing the cylinders or vacuum-chambers directly to the frame-work of the trucks, so that the body of the car is in no way affected by the strain of the brakes.

Another important improvement resulting from my invention is the simplification of the mechanism for connecting the piston or moving member of the brake apparatus with the ordinary train-brake, whereby the power is applied directly to said braking apparatus without in any way interfering with the operation of the hand-brakes, and without requiring to alter the construction of said hand-brake mechanism, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is an inverted or bottom view of a car-body, show-

ing the trucks and the arrangement of the braking apparatus connected therewith. Fig. 2 is a vertical sectional view of the same.

The power-brake apparatus shown by the drawings is that known as the "Eames vacuum-brake," heretofore invented by me; and I make use of this particular apparatus as most conveniently illustrating my present invention and the manner in which I apply it in use.

Said vacuum-brake apparatus, so far as illustrated by the drawings, consists of the air-pipe A and branch pipes A', leading into the vacuum-chambers B, which are provided with elastic diaphragms B', and the device operates by the inward movement of the elastic diaphragm consequent upon the formation of a vacuum within the pipes and chambers.

My present improvements, however, are not confined to the use of this particular apparatus, as cylinders and pistons might be substituted for the chambers B; and such devices might be operated by compressed air, steam, or other elastic fluid under pressure or by hydraulic power, as found most convenient and desirable.

C represents the wheels, and D D' the frame-work, of an ordinary railway-car truck. E represents the brakes; F, the brake-beams, and G the system of levers and connecting-rods, chains, and windlasses which constitute the ordinary hand-brake mechanism in general use in this country, and known as the "Hodge" and "Stevens" brakes. G' is that portion of said mechanism which is generally known as the "dead-lever." All these parts are old and well-known devices, and I therefore lay no claim to their invention.

The vacuum-chamber or pressure-cylinder and piston, as the case may be, I secure to the frame of the truck, preferably to the central cross-beam, D', in any convenient and suitable manner, and at a point as near the center of the beam as practicable, and preferably on the side nearest the center of the car. This brings the piston-rod or moving member of the pressure-brake apparatus directly opposite the lever G', so that the two can be readily connected by means of a link or chain, H.

From the foregoing it will be evident to those skilled in the art that two important results are accomplished by the location of the pressure apparatus in the position shown and

described, viz: all strain of the braking mechanism is removed from the body of the car, and the power is applied directly to the hand-brake mechanism by the simple connection H.

I therefore claim as my invention, and what I now desire to secure by Letters Patent, is—

1. The combination of a railroad-truck with the cylinder, or vacuum-chamber, or diaphragm of a pressure-brake apparatus, constructed and arranged substantially as and for the purpose specified.

2. The combination of a cylinder, vacuum-chamber, or diaphragm, located substantially

as described, with the system of levers, rods, chains, &c., which constitute the ordinary brake mechanism of a railroad-car, connected together by a rod, link, or chain, H, arranged substantially as and for the purpose set forth.

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

FRED. W. EAMES.

Witnesses:

DE WITT J. CUMINGS,  
CHAS. D. BINGHAM.