

(No Model.)

T. W. DUFFY.

CAR BRAKE.

No. 299,526.

Patented June 3, 1884.

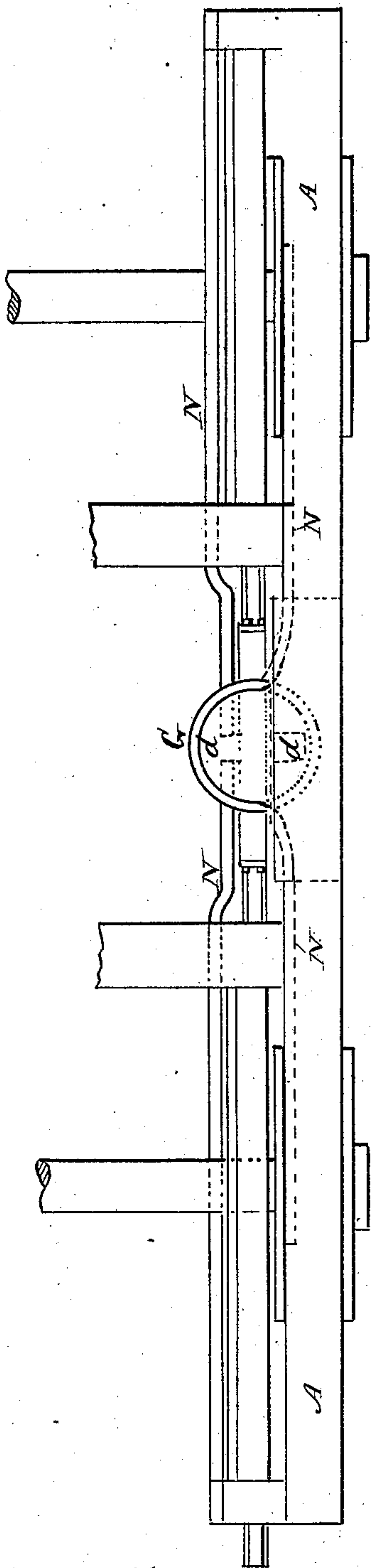


Fig. 1.

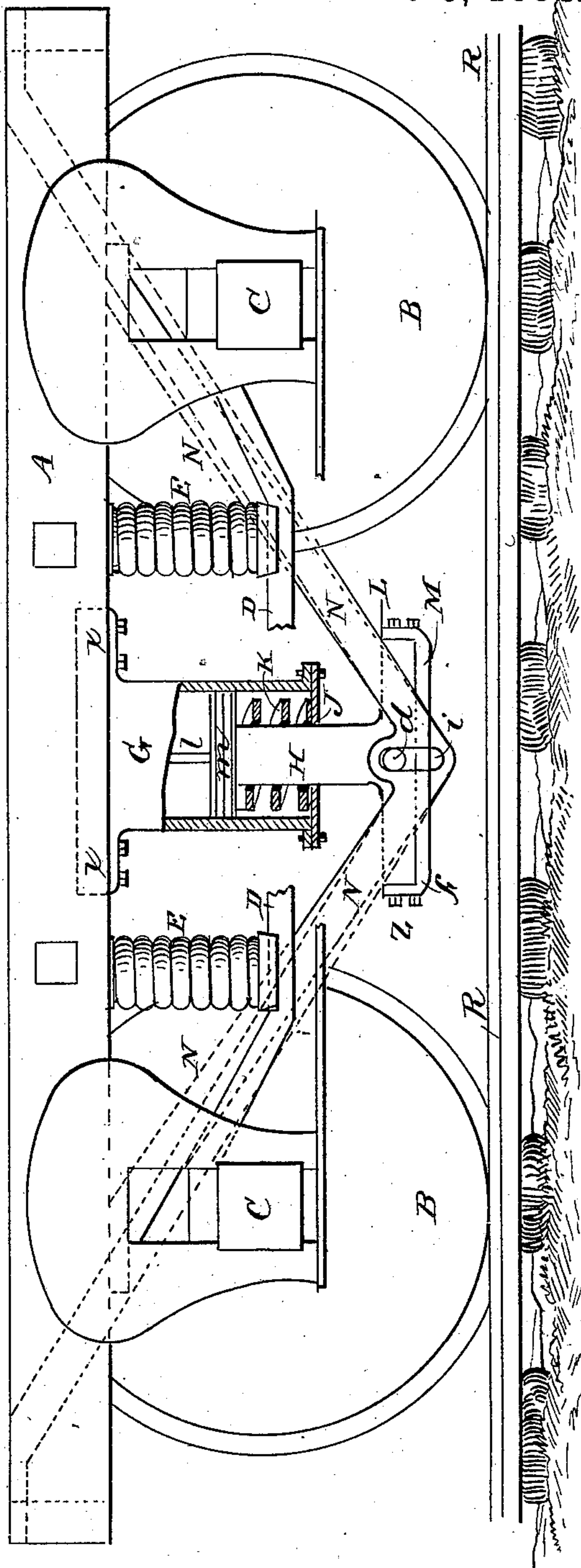


Fig. 2.

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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 299,526, dated June 3, 1884.

Application filed March 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WM. DUFFY, of Medford, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Car-Brakes, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional top plan view, and Fig. 2 a side elevation showing my improved brake attached to the truck of a car.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of car-brakes known as "air" or "vacuum" brakes; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a simpler, cheaper, and more effective device of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, its extreme simplicity rendering an elaborate description unnecessary.

In the drawings, A represents the frame of the truck, B B the wheels, C C the boxes, D the yoke, and E E the springs. These parts being all of the ordinary construction and not herein claimed, when in and of themselves considered, it is deemed unnecessary to more particularly describe them.

Projecting downwardly from the frame-work A, and securely attached thereto by the bolts *a*, there is a cylinder, G. (Represented in Fig. 2 with one of its sides partially removed.) Disposed within this cylinder there is a piston, *m*, provided with a guide-rod, *l*, and piston-rod H, the latter passing through and being fitted to work vertically in a hole in the head J. A coiled spring, K, is also disposed within the cylinder, the upper end of the spring abutting against the lower side of the piston, and its

lower end resting on the head J; the spring acting expansively to force the piston upwardly within the cylinder. The lower end of the piston-rod H terminates in a cross-bar, L, or is T-shaped, as shown in Fig. 2, the bar being provided on its lower side with the detachable brake-shoe M, which is secured thereto by bolts *z*. A double or V-shaped brace, N, provided with the vertical slot *i*, is attached at either side of the cylinder to the under side of the frame-work of the truck, and projecting laterally from either side of the bar L there is a stud, *d*, the studs being adapted to work vertically in the slots as the piston-rod H rises and falls.

It will be understood that the truck is furnished on either side with one of the cylinders G and two of the braces N, and that the brake-shoes M are so arranged as to be directly over the rails R, on which the trucks B rest.

In the use of my improvement air is forced into the cylinder G above the piston *m*, causing the rod H to descend and press the shoe M upon the track, thereby "braking" or stopping the truck and superposed car (not shown) in a manner which will be readily obvious without a more explicit description. When the pressure on the air is withdrawn, or the relief-valve (not shown) is opened, the spring K will act to raise the shoe from the rail or take off the brake. The shoe is curved upwardly at either end, as seen at *f*, thereby adapting it to brake the truck or car equally well when running in either direction.

It will be obvious that the end-thrust of the shoe, caused by its frictional contact with the rail, will be resisted by the brace N and stud *d*, and that the power necessary to overcome the friction between the shoe and rail will consequently be exerted in braking or stopping the truck.

Instead of forcing air into the cylinder above the piston, as described, a vacuum may be formed by withdrawing the air from beneath the piston and produce substantially the same result.

As the mechanism for forcing air into the cylinder above the piston, or withdrawing it from below the same, as the case may be, consists of the pipes, pumps, and other well-known

appliances for like purposes in common use with nearly all ordinary air or vacuum car-brakes, it is not deemed essential to show them in order to a full understanding of my improvement.

I do not confine myself to the use of the studs *d* and slots *i* for engaging the piston-rod and braces, as other means for the same purpose may be employed, if desired, and accomplish the same results. Neither do I confine myself to locating the brake between the wheels of the truck, as shown, as it may be placed centrally beneath the body of the car, or in any other suitable position desired.

Having thus explained my invention, what I claim is—

1. In a car-brake substantially such as described, the following instrumentalities, to wit: an air-cylinder provided with a piston, a piston-rod connected with said piston within the

cylinder and carrying a brake-shoe at its outer end adapted to engage the rail, a spring disposed within the cylinder and adapted to retract the piston-rod, and a brace, substantially as described, adapted to resist the end-thrust of the brake-shoe when said shoe is in frictional contact with the rail, in combination with suitable operative mechanism, substantially as set forth.

2. In a car-brake substantially such as described, the cylinder *G*, provided with the piston *m* and spring *K*, the rod *H*, provided with the bar *L*, shoe *M*, and stud *d*, and the braces *N*, provided with the slots *i*, constructed, combined, and arranged to operate substantially as specified.

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