

(No Model.)

H. HANSON.
CAR BRAKE.

No. 364,646.

Patented June 14, 1887.

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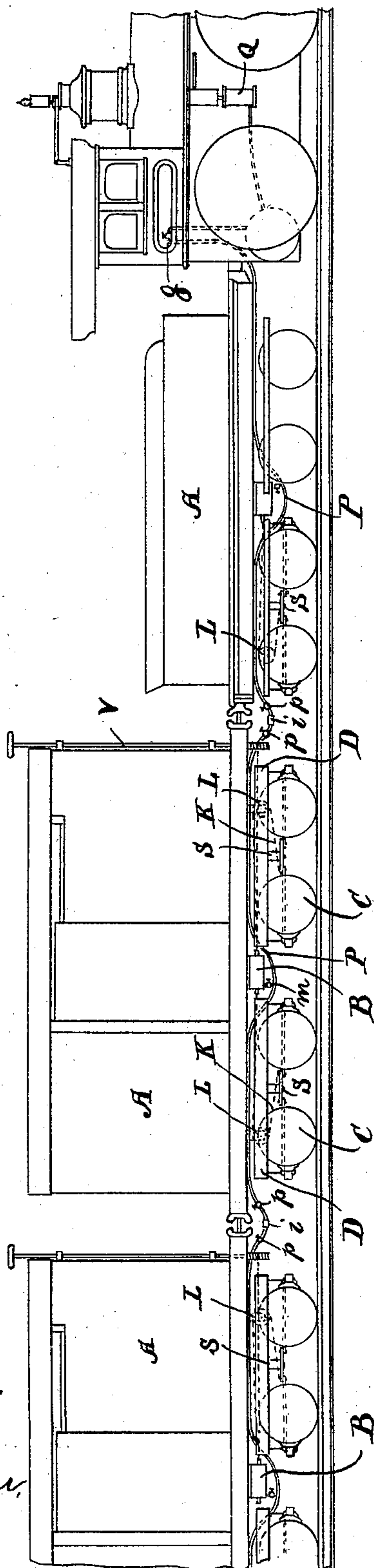
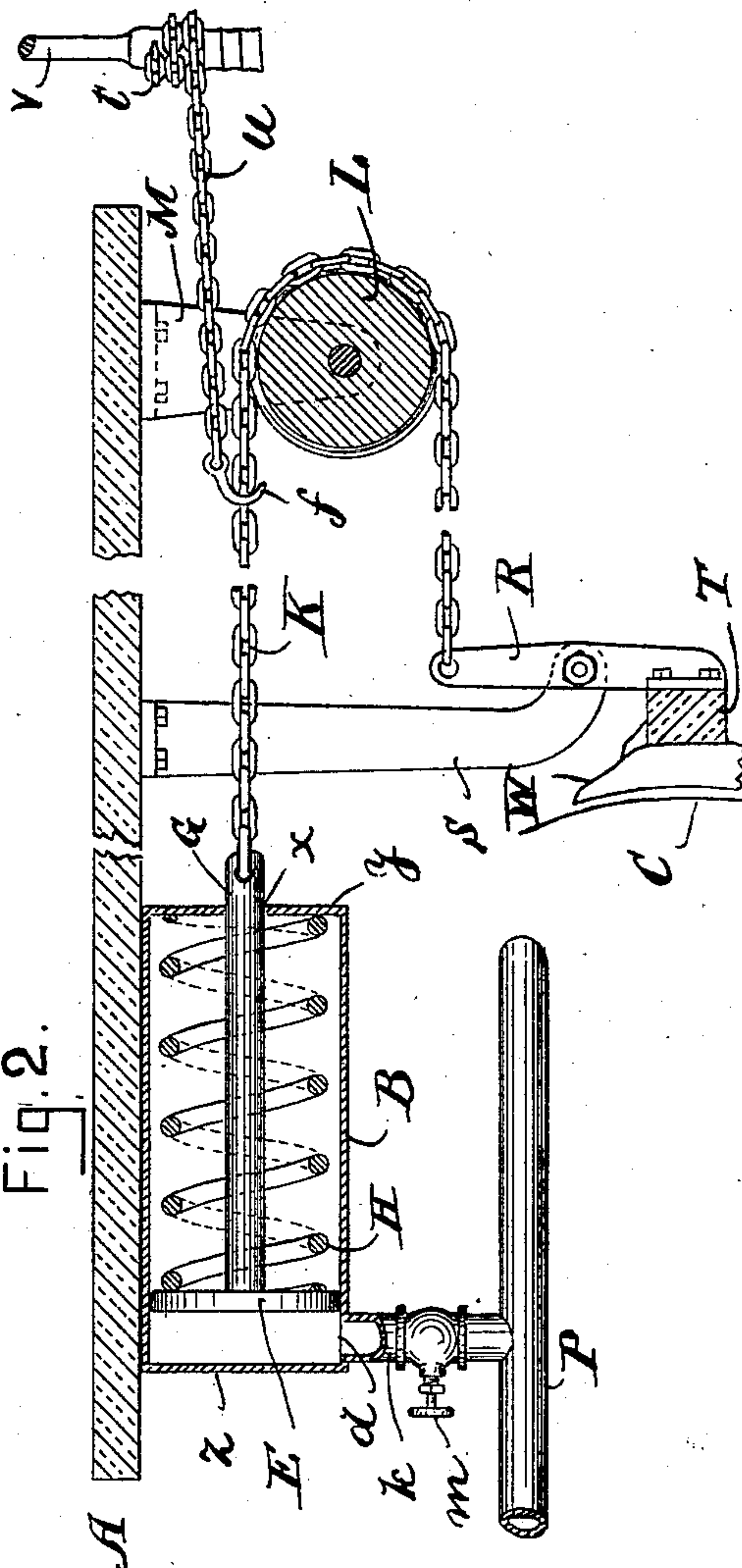


Fig. 2.



Witnesses.

E. Blanta.
C. L. Sawyer.

Inventor.

Henry Hanson

Per C. A. Shaw & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

HENRY HANSON, OF BOSTON, MASSACHUSETTS.

CAR-BRAKE.

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To all whom it may concern:

Be it known that I, HENRY HANSON, of Boston, in the county of Suffolk, 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 part of this specification, in which—

Figure 1 is a side elevation showing a portion of a railway-train provided with my improved brake; and Fig. 2, a diagram showing the principal parts of the brake enlarged, the cylinder being represented in vertical section.

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

My improvement relates to that class of car-brakes known as "air-brakes," being more especially designed for use on freight-cars; and it consists in a novel construction and arrangement of parts, as hereinafter more fully set forth and claimed, the object being to produce a simple and more effective device of this character 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.

In the drawings, A represents the body of the car, B the brake-cylinder, and C the car-wheels. The cylinder is secured to the bottom of the body A, or to a suitable support attached thereto, preferably midway between the trucks D.

A piston, E, and piston-rod G are disposed in the cylinder B, the rod G working through an opening, *x*, in one of its heads, *y*, the other head, *z*, being closed. Around the rod G, between the head *y* and piston E, is disposed a stiff coiled spring, H, said spring acting expansively to constantly force the piston in the direction of the head *z*. Opening into the cylinder near the head *z* there is a pipe, *k*, provided with a stop-cock, *m*, said pipe being connected with a pipe, P, which extends the entire length of the car beneath the body A and projects a short distance beyond the same at either end thereof. The pipe P is provided near each end with a stop-cock, *p*, the corre-

sponding pipes in the train being connected by union-couplings *i* between the cars. A chain, K, is secured at one end to the piston-rod G and passes over a pulley, L, pivoted to an arm, M, which projects from the body A, the other end of said chain being attached to one end of a lever, R, pivoted in an arm, S, which also projects from the body A. A brake-beam, T, is secured to the other end of the lever R and provided with a shoe, W, in the usual manner.

The chain K is of such length that when the spring H is in or neatly in its normal position the end of the lever R to which it is attached will be drawn forward by the spring H, and the brake-shoe W thereby forced against the wheel C. A chain, U, provided at one end with a claw-hook, *f*, adapted to engage the links of the chain K, has its opposite end secured to the ordinary brake-shaft, V, as shown at *t*.

In the use of my improvement the brakeman, when coupling the cars of the train together, also connects the pipes P by means of the union-couplings *i*, and opens the stop-cocks *p p m*, with the exception of the stop-cock *p* at the rear of the train. The engineer, by means of the pump Q, then forces air into the cylinders B through the pipes P *k*, thereby pushing the piston E backward, compressing the spring H, and releasing or "taking off" the brakes.

When it is desired to apply the brakes, the engineer opens the valve *g* in the pipe P at the engine, allowing the air to escape from the pipe P and cylinder B, thus permitting the spring H to force the piston E back, draw the chain K over the pulley L, and force the shoe W against the wheel C.

It will be obvious that should any part of the train become accidentally detached the air will escape from the cylinder, thus causing the brakes to be automatically applied and the cars stopped. It will also be obvious that when the cars are side-tracked or standing disconnected from the engine the brake is always "set" or applied by the tension of the springs.

To take off the brakes during the "making up" of the train, or whenever it may be necessary, the chain U and claw-hook *f* are provided, by means of which the brakeman oper-

ating the ordinary freight-car brake-rod, V, can compress the spring H without the aid of the pump.

From the foregoing it will be apparent that the brakes are applied by letting air out of the cylinders and relieved or taken off by forcing or pumping it into the cylinders.

The stop-cock *m* in the pipe *k* may be closed whenever it is desirable to shut a cylinder out of the circuit, or when it is necessary to keep the air in the cylinder and the brakes relieved.

In Fig. 2 the lever to which the brake-beam is connected is represented as arranged vertically and pivoted to the side of the downwardly-projecting arm S.

In Fig. 2 a two-armed lever is pivoted to the lower end of the arm S in the usual manner, said lever being connected with the brake-beams by rods in the usual manner, and also with the chain K, thereby enabling both brake-beams to be operated simultaneously to force their shoes against the wheels of the truck, the method of hanging the brake-lever and connecting the same with the beam not being essential, provided said lever is connected with the chain K.

I do not confine myself, therefore, to using two brake-beams to each set of trucks, or to applying the brake to each set of trucks when the car is provided with two sets, nor to any special means of constructing or hanging the brake-beam levers. Neither do I confine myself to any special form of hook for the chain U, as any suitable means for connecting said chain with the chain K may be employed.

Having thus explained my invention, what I claim is—

1. The combination of the cylinder, the piston-head with rod and spring, the chain K, the pulley L, the rocking lever R, pivoted to an arm, S, and connected at its upper end to chain K and at its lower end to beam T, having shoe W, and the chain U, detachably connected to chain K and secured to the brake-rod V, substantially as specified.

2. The combination, with the cylinder, the pipes P *k*, having stop-cocks *p m*, the cylinder B, with piston-head, rod, and chain, the pulley L, and the arm S, having rocking lever R pivoted thereto and connected at its lower end to the beam T, having shoe W, of the chain K, connected to the outer end of piston-rod and passing around the pulley, and having its opposite end secured to the upper end of the rocking lever, as shown and described.

3. The combination, with the cylinder, the piston-head with rod and spring, the pulley L, the arm S, having the rocking lever R pivoted thereto and connected at its lower end to the beam T, having shoe W, and the chain K, connected to rod G, pulley L, and the upper end of lever R, of the chain U, detachably connected to chain K at one end, its opposite end connected to the brake rod, substantially as specified.

HENRY HANSON.

Witnesses:

O. M. SHAW,
E. L. SAWYER.