(No Model.)

J. S. STERRETT.

CAR BRAKE.

No. 382,013. Patented May 1, 1888.

Fig. 1.

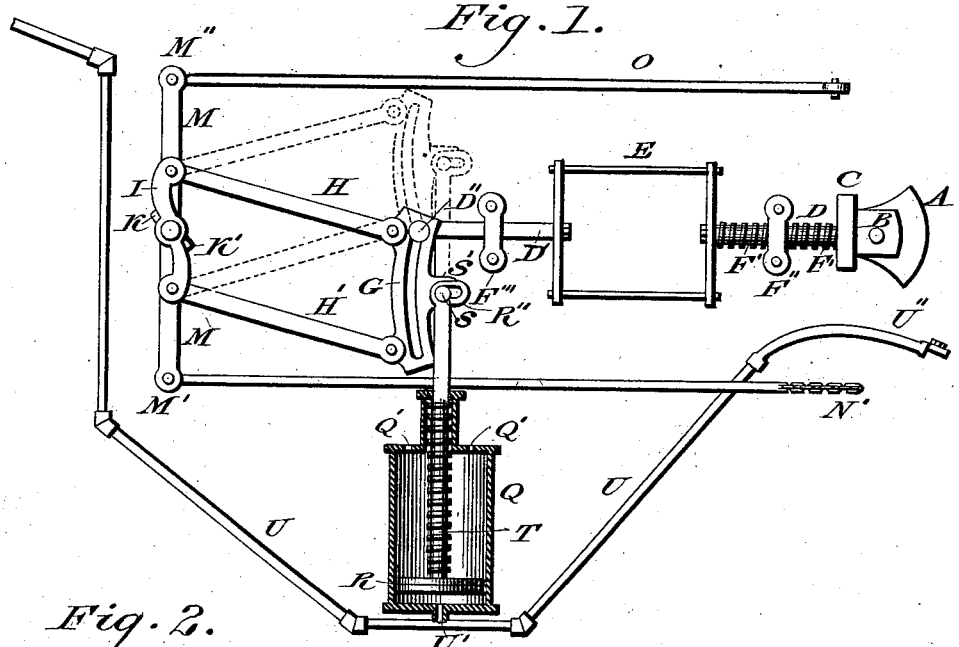


Fig. 2.

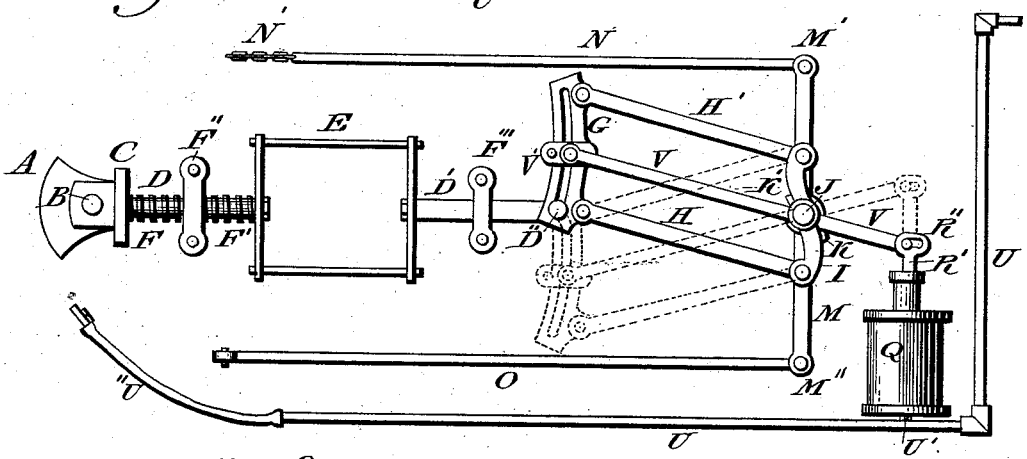


Fig. 3.

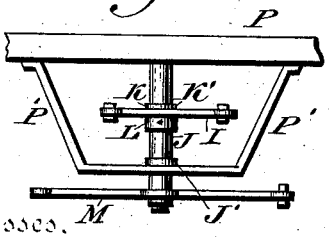
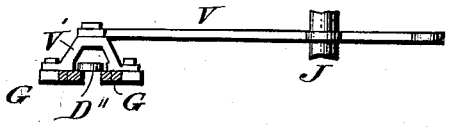


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 382,013, dated May 1, 1888.

Application filed December 16, 1887. Serial No. 258,082. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. STERRETT, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part hereof.

The nature of my invention will fully appear from the following description and claims. Its object is to enable the engineer or engine-driver of the train to control or regulate the brake pneumatically from his "cab," so that the automatic brake can operate, whether the train moves backward or forward.

In the drawings, Figure 1 is a plan view of my device, showing the air-cylinder in longitudinal sectional view; Fig. 2, a similar view of one modification of my device; Fig. 3, an elevation of the hanger which supports the reversing-levers; Fig. 4, a side view of lever used for reversing shown in Fig. 2.

A is the buffer of the car; B, the tongue through which the coupling-pin is passed; C, the cross-head which holds the tongue and buffer together; D, a rod connecting the cross-head and the frame E. F F′ are spiral springs around this rod, one on each side of the collar F″, which supports the rod D beneath the car. F‴ is a supporting-collar for rod D′. One end of spring F sets against cross-head C, the other end against collar F″, and one end of spring F′ sets against frame E and the other against collar F″. The rod D passes loosely through the collar F″, as does the rod D′ through supporting-collar F‴. The frame E is practically a mere continuation of rods D D′, and its office is simply to carry the rod around the pin of the wheel-truck of the car.

G is a curved open link which engages with the pin D″ on the end of rod D′. To the respective ends of this link are hinged the rods H H′. These rods at their other ends are hinged to the respective ends of the centrally-pivoted lever I.

J is the middle pivot-pin of lever I, upon which the latter turns freely.

K K′ are two lugs set on collar L, which rigidly clasps the pin J. (See Fig. 3.) When the lever I bears against these lugs, it turns the pin J.

M is a lever-arm or cross-bar, the middle of which is rigidly attached to the lower end of pin J. To one end, M′, of this lever-arm is attached the hand-brake rod N, provided with the ordinary chain, N′. To its other end, M″, is attached the stiff brake-rod O, which connects at its forward end with a stiff lever-rod, (not shown,) which operates the brake-shoe to throw it against the wheel.

P is the bottom of the car; P′, a hanger to sustain the brake-operating levers.

J′ is a collar shrunk on pin J and resting upon the cross-pin of the hanger, to sustain pin J.

Q is an air-cylinder, one end of which is pierced with air-openings Q′ Q′.

R is a piston-head in cylinder Q, provided with a stem, R′, which terminates above in a slotted head, R″. A pin, S, passes through this slot, connecting the upper end of said stem with a lug or ear, S′, projecting from the middle of link G.

T is a spiral spring enveloping the stem R′ within cylinder Q, and adapted to be compressed by the upward movement of piston-head R and to expand when the pressure which raises the head R is released, thus returning the head R to its original position, shown in the drawings.

U is an air conduit or pipe, which connects with an air-pump in the engine. This pipe lets into one end of cylinder G below the piston-head R by short pipe U′. This pipe is provided with sections, U″, of rubber hose to couple its parts between the cars of a train.

In Fig. 2 cylinder Q is located behind the lever system, and instead of being so placed, as in Fig. 1, as to move link G by means of stem R′ by a direct shove, it moves it by the lever V, one end of which is connected with the head R″ of stem R′, and the other end of which is hinged to a bridge or span, V′, (see Fig. 4,) over the middle of link G. This lever V is pivoted loosely by a collar to the upper part of pin J. The connections of the rods N and O with the brake-shoes and hand-rods are set forth in my United States Letters Patent of October 18, 1887, numbered 371,799, and March 29, 1887, numbered 360,062, and it is therefore unnecessary for me to show them here.

The operation is as follows: When the train is in motion and it becomes necessary to apply the brakes, the train is slowed, which brings the cars together. The buffer A is pushed in, rods D E D′ and arm H are pushed back, and the lever I, acting on lugs K K, turns pin J, and so acts on levers M and O as to apply the brakes. If, on the contrary, it is desired to push or back the train, whereby all the cars will be joined one against another, it will become important to apply the brakes when it is desired to stop. In the action of slowing, after backing or pushing, the cars are thrown apart, thus inducing a pull on the tongue B instead of a push on the buffer. In order to meet this necessity the engineer opens a cock or valve to fill the pipe U and cylinder Q with compressed air from a reservoir on the engine, the piston-head R is thus raised, link G is thrown over to the position shown in dotted lines in Fig. 1, and the pull on the tongue B will draw bars or rods D E D′ and throw lever I against lugs K K′, thus applying the brakes. When the air-pressure in cylinder Q is released, the spring T forces the piston-head R back to its original position. By these means the engineer can control the action of the brakes whether the movement of the train be forward or backward.

The open link G forms a guide or guard moving on pin D″ to direct the movement of arms H H′.

My device is an automatic impact brake mechanism.

The couplings of the rubber hose U″ may have self-closing valves, which are shut when not coupled and open when coupled, or they may be open, and a cap placed on the one at the rear of the last car of the train to prevent the escape of the compressed air. The cap is not shown, but detachable caps for closing tubes are well known to mechanics and require no special description.

What I claim as new is—

1. In an automatic-impact brake mechanism, the combination of an air-cylinder provided with a piston adapted to be actuated by compressed air to shift the parts of the brake mechanism, whereby the said mechanism can be controlled by the engineer to close the brakes by either a pull or push of the buffer, substantially as described.

2. In an automatic-impact brake mechanism, the combination of an air-cylinder provided with a piston adapted to be actuated by compressed air to shift the parts of the brake mechanism, and a spring bearing against said piston to drive it back to place when the air-pressure is removed, substantially as described.

3. In an automatic-impact brake mechanism, the combination of arms H H′, lever I, guard or guide G, air-cylinder Q, piston-head R, stem R′, and air-pipes U, all arranged and operating substantially as described.

4. In an automatic-impact brake mechanism, the combination of arms H H′, lever I, guard or guide G, air-cylinder Q, piston R, stem R′, and spring T, to return the piston to place when the actuating air-pressure is removed, substantially as described.

5. In an automatic-impact brake mechanism, the combination of arms H H′, lever I, lugs K K′, rod J, lever-arm V, link G, piston-rod R′, piston-head R, cylinder Q, spring T, and air-pipes U U′, substantially as described.

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