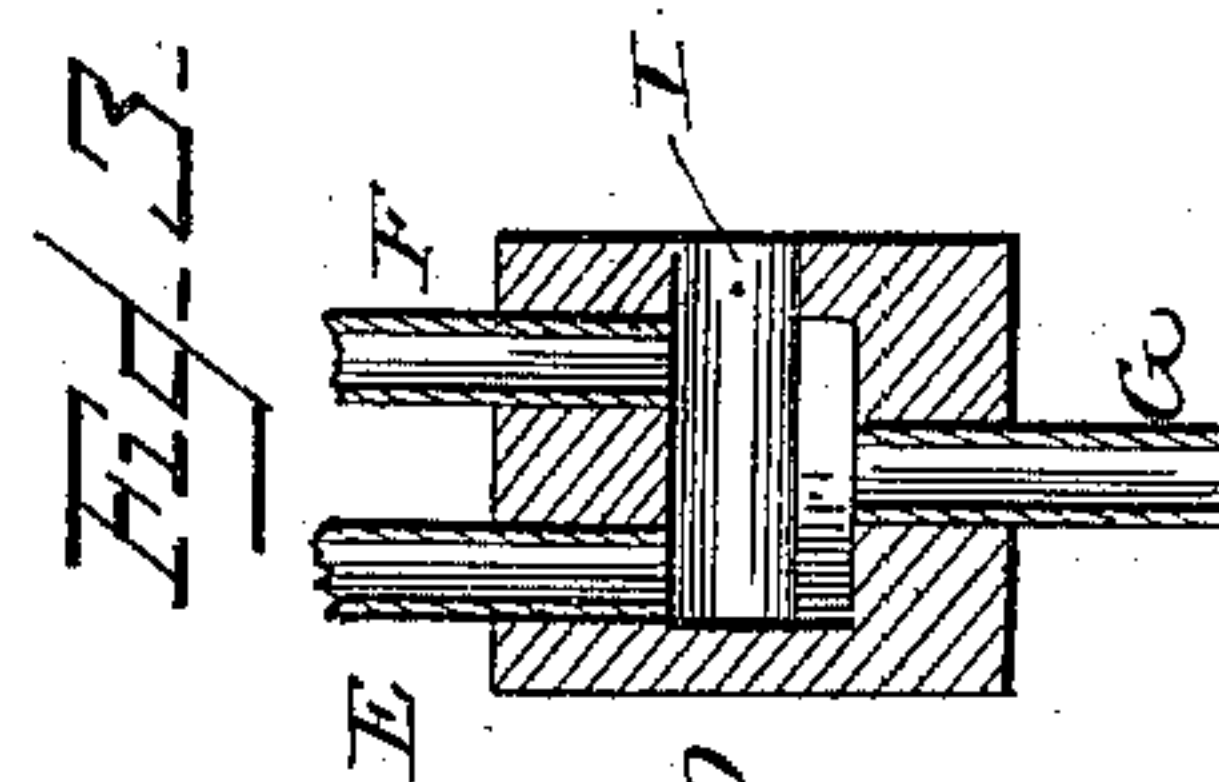
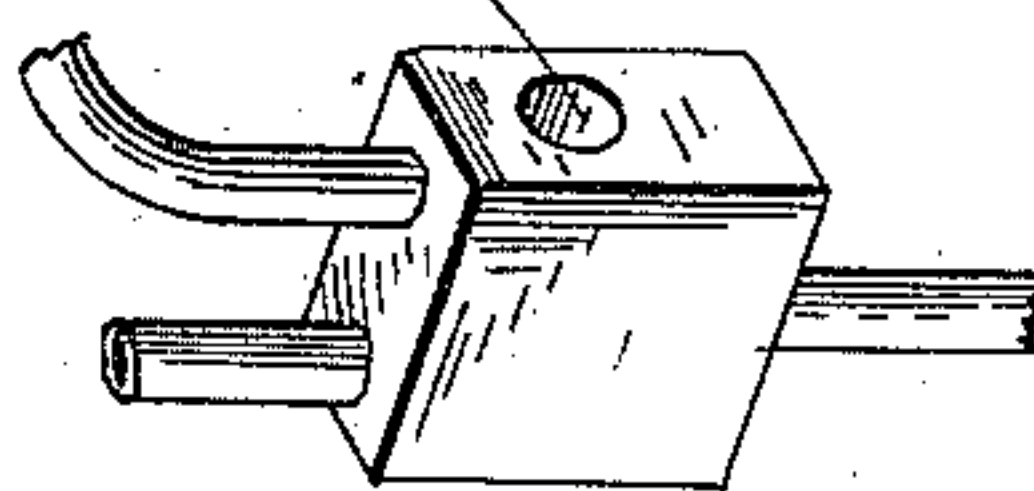
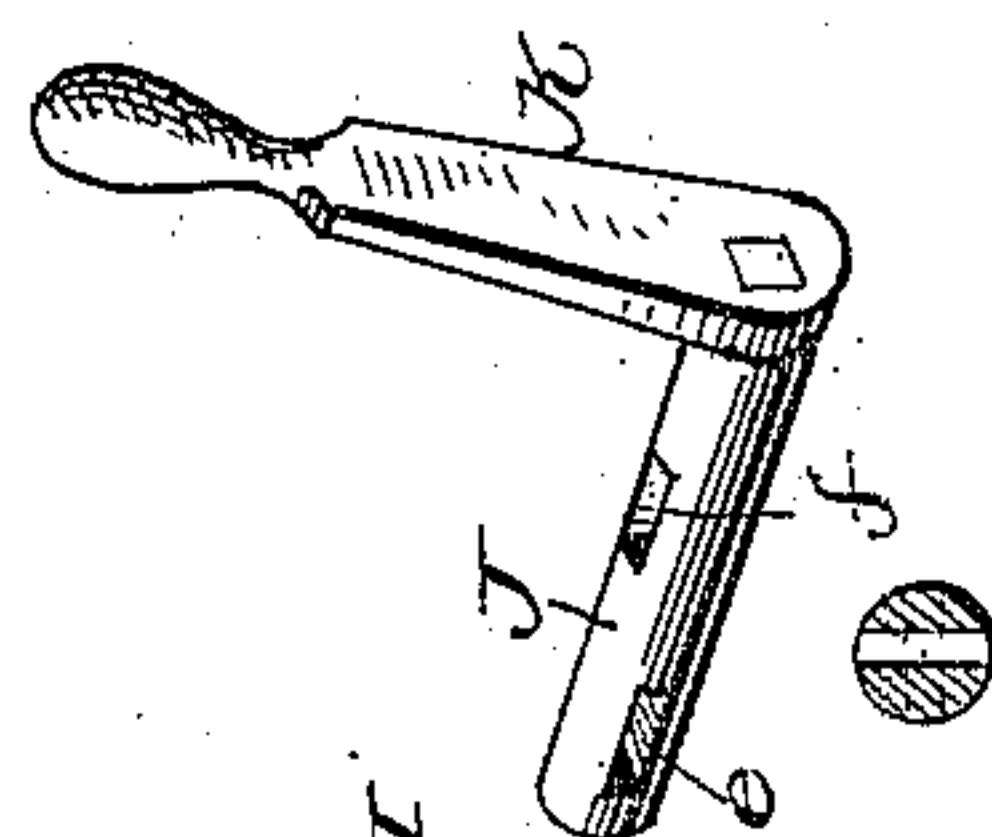
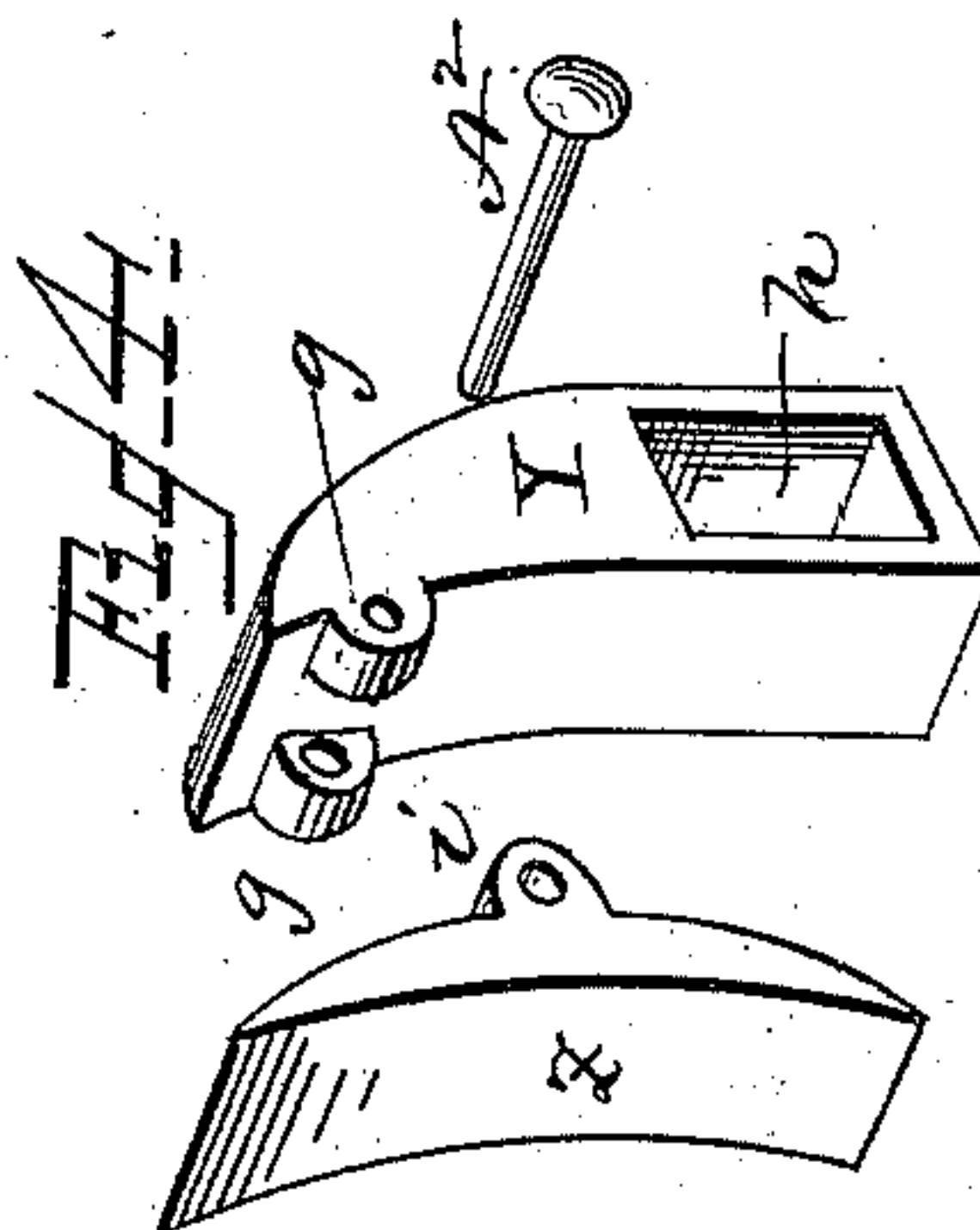


2 Sheets—Sheet 1.

STEAM BRAKE.

Patented Dec. 16, 1884.



WITNESSES
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(No Model.)

2 Sheets—Sheet 2.

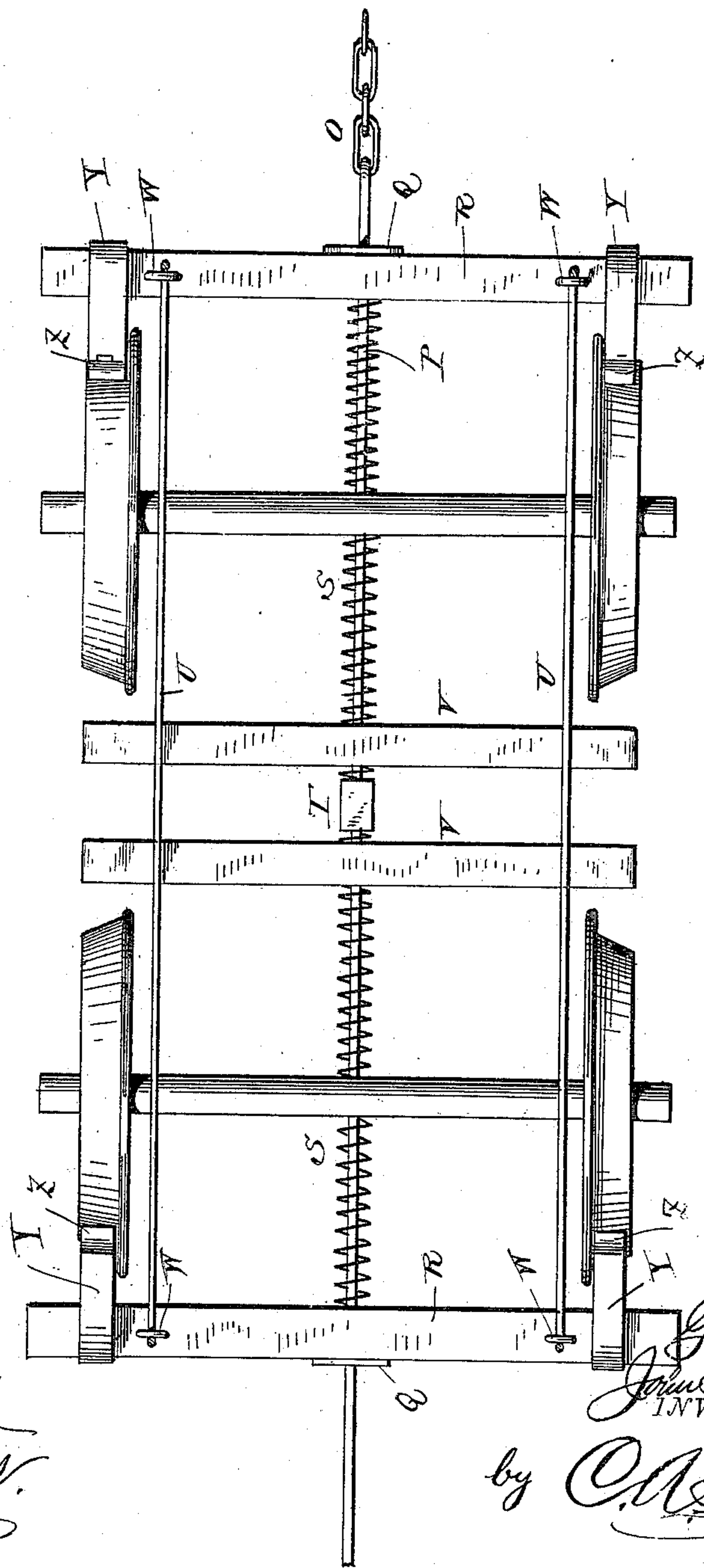
G. W. TAYLOR & J. N. SUTHERLAND.

STEAM BRAKE.

No. 309,261.

Patented Dec. 16, 1884.

Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE W. TAYLOR AND JOHN N. SUTHERLAND, OF BELTON, S. C.

STEAM-BRAKE.

SPECIFICATION forming part of Letters Patent No. 309,261, dated December 16, 1884.

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

To all whom it may concern:

Be it known that we, GEORGE W. TAYLOR and JOHN N. SUTHERLAND, citizens of the United States, residing at Belton, in the county of Anderson and State of South Carolina, have invented a new and useful Steam-Brake, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to brakes for cars, &c., and especially to that class of the same which are operated by steam; and it has for its object to simplify and cheapen the construction and make such devices more efficient in use.

A further object of this invention is to provide means whereby the brakes are applied to the whole train of cars by simply turning a valve, the latter being in a convenient and handy place for access by the engineer.

With these and other objects in view the said invention consists in certain details of construction and combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional view showing our improved brake mechanism applied to a locomotive. Fig. 2 is a plan view of the truck, illustrating the attachment of our improved brake mechanism. Fig. 3 is a detail perspective view of the valve controlling the admission of steam. Fig. 4 is a detail perspective view of the brake-shoe.

Like letters refer to corresponding parts in the several figures.

Referring to the drawings, A designates the boiler of a locomotive, having a dome, B, and C the tender, said parts being of the usual construction, and therefore need not be further described here.

D designates a rectangular valve-case arranged outside of the boiler and having a supply-pipe, E, leading from the valve-case to the dome B, and an exhaust-pipe, F, extending from the valve-case through the boiler to the smoke-stack. (Not shown.) A conducting-pipe, G, is fitted to the lower end of the valve-case and extends downward, so as to connect with the front end of a cylinder, H, suspended in any suitable manner below the tender. The valve-case D is provided with a central

horizontal perforation, I, in which is fitted a valve, J, provided with an operating-handle, K, said valve having two ports, *e f*, formed therein, the port *e* registering with the supply-pipe E and conducting-pipe G when the handle of the valve is turned in one direction, and the port *f* registering with the exhaust-pipe F and conducting-pipe G when the handle is turned in the opposite direction. The handle of the valve is in a convenient place for operation by the engineer, and thus there will be no time lost in applying the brakes. A piston-rod, L, having a head, *a*, works in the cylinder H, and is connected to a chain, M, of any desirable length, provided with a hook, N, to engage one of the links *d* of a chain, O, attached to a rod, P, extending the length of the truck and supported in hangers or castings Q, depending from middle portion of the brake-bar R. A coiled spring, S, is mounted upon the rod P between the hangers or castings Q and blocks T, the latter being secured rigid on the rod, so that when the said rod is drawn forward by the action of the piston, the blocks will compress the springs against the hangers or castings in the manner and for the purpose hereinafter described. It will be seen that the rod P extends the entire length of each car, the blocks T being fitted near the center of the same, and the hook-and-link connection between each car permitting any one of the cars of a train being separated therefrom or another car attached thereto at will.

U designates rods, one on each side, extending over the center beams, V, of the truck, and passing through eyes or staples W in the upper faces of the brake-bars R, the rods U extending upward and secured to the bottom of the car, as at X, so as to suspend the brake-bars below the truck and adjacent to the car-wheels.

Y designates a curved arm, having a square opening, *h*, in order to fit on the outer ends of the brake-bar R, and provided at its upper ends with ears *g*, to which are pivoted the ears *i* of the brake-shoe Z by a pivot-bolt, A². An aperture, B², is formed at one end of the cylinder to allow the escape of steam. It will be readily seen should steam escape through leakage forward of the piston-head, it would accumulate and prevent the free action of the

piston, were it not allowed to escape through the aperture.

The operation of our invention will be readily understood from the foregoing description, taken in connection with the annexed drawings.

By operating the handle K of the valve J in one direction the port *e* is caused to register with the supply-pipe and conducting-pipe, and allow steam from the dome B to descend into the cylinder H, the piston being supposed to be drawn backward in its normal position. (Shown in Fig. 1.) As the steam enters the cylinder it strikes the head of the piston and forces it forward in the cylinder, causing the chains M N and rod P to belikewise drawn forward for the entire length of the train. By the forward movement of the rod the springs S are compressed and bear against the hangers or castings Q, which, being attached to the brake-bars, cause said brake-bars to oscillate rearward, imparting a corresponding movement to the arms Y, and allowing the application of the pivoted shoe Z directly against the car-wheels. Thus it will be seen that the engineer can with ease and without losing any time apply the brakes to the entire train, and when the train has stopped the brakes may be taken off the wheels by operating the handle of the valve J in the opposite direction, the port *f* registering with the exhaust-pipe F and allowing the steam in the cylinder H to escape through said exhaust-pipe and outward into the smoke-stack. As the steam escapes the tension of spring S causes the piston to recede, so as to restore the parts to their normal positions.

By means of the construction shown we are enabled to stop the train of cars by means of the steam from the boiler; but it will be apparent that we may substitute compressed air as a means for effecting the same end.

It will be seen that the connection of the rod P of the several cars of the train may be disconnected at will when it is desired to attach an additional car or place another car to the train.

The operation of our invention is simple and positive. The construction is durable and not expensive, and in practice will be found to work with precision under the full control of the engineer.

We have shown in the drawings only one set of brakes for each wheel of the truck, so

that the cars can be stopped when running in one direction only; but it will be apparent that two sets of brakes may be employed, one set being applied when the train is running in one direction, and the other set applied when running in the opposite direction.

Having described our invention, we claim as new and desire to secure by Letters Patent—

1. In a car-brake, the combination, with the piston and cylinder and operating means therefor, of rods attached to the piston, fixed blocks secured on said rods, springs encircling said rods, the brake-bar suspended loosely from the truck and carrying brake-shoes at each end, hangers or castings depending from the brake-bar and against which the springs bear, so that the pressure from the springs serves to cause the brake-bar to oscillate rearward and apply the shoes to the wheels, as set forth.

2. In a car-brake, the combination, with the piston and cylinder and operating means therefor, of rods connecting with the piston and extending the length of each truck, springs encircling the rods, brake-bars carrying shoes at each end, rods attached to the truck and connecting with the brake-bars to suspend the same loosely below the truck, and hangers or castings depending from the brake-bars, arranged and operating as set forth.

3. In a car-brake, the combination, with the brake-bar and operating means therefor, of arms secured on the ends of the same, and a brake-shoe pivoted to the said arms, as set forth.

4. In a car-brake, the combination, with the piston and cylinder, and devices operated by the engineer for admitting steam to said cylinder at will, of a chain connecting the piston with the rod running the length of each truck, springs encircling said rods, and brake-bars carrying shoes, said springs being adapted to cause the brake-bars to oscillate in a rearward direction to apply the brake-shoe, the connection between each car being disconnected as desired, as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

GEORGE W. TAYLOR.
JOHN N. SUTHERLAND.

Witnesses:

THEO. MUGEN,
E. G. SIGGERS.