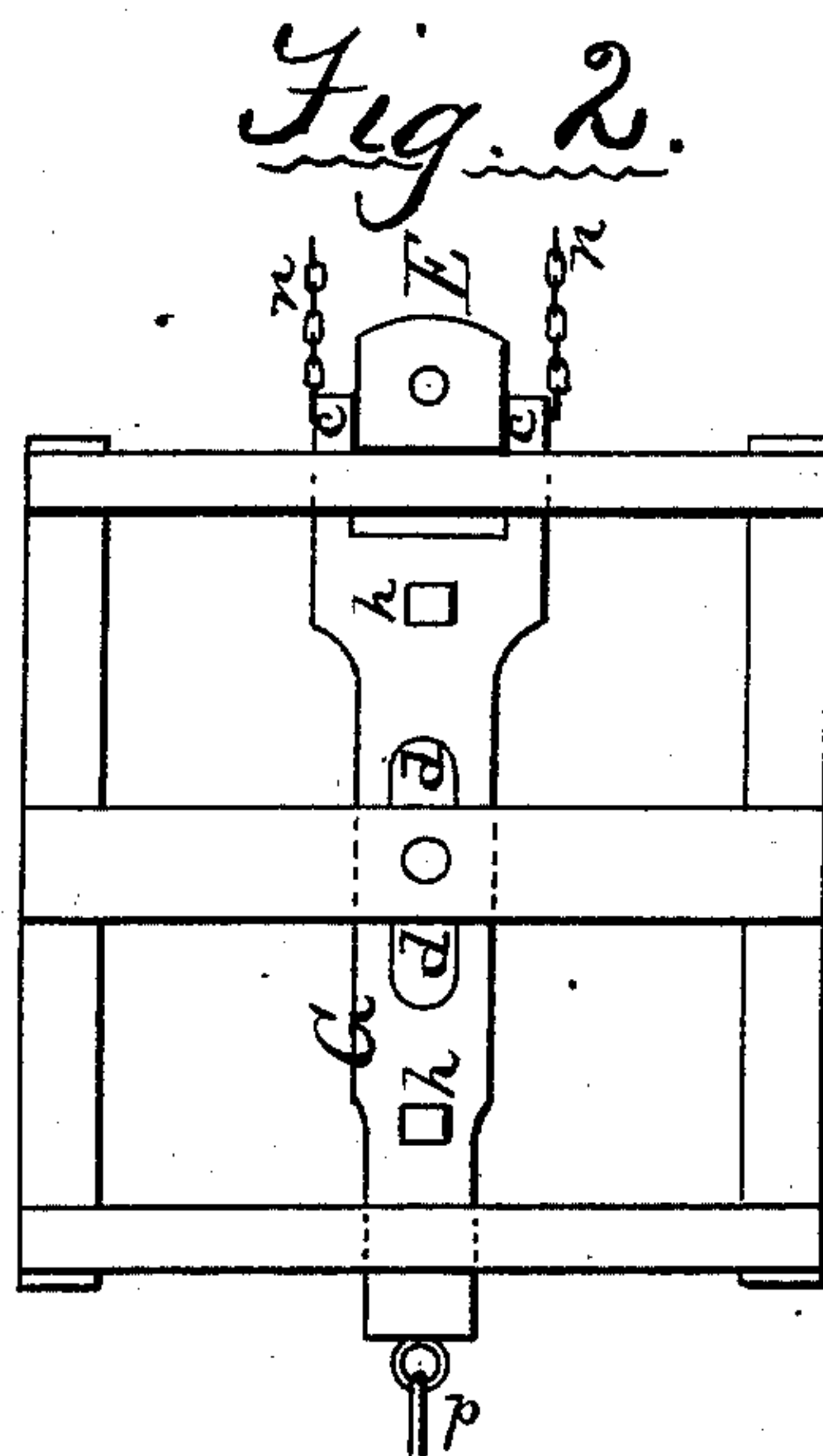
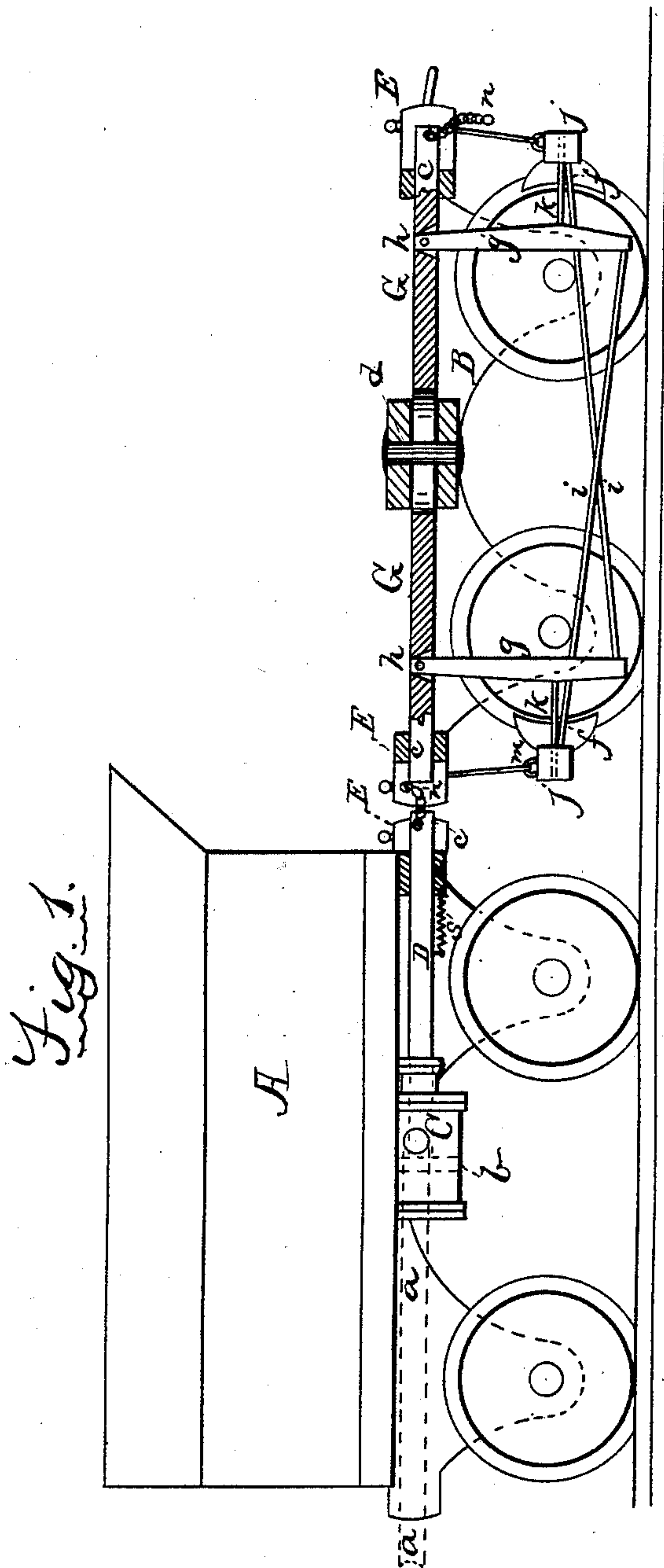


G. W. MILES.  
Steam-Brake.

No. 223,002.

Patented Dec. 30, 1879.



Witnesses:  
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J. R. Drake.

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# UNITED STATES PATENT OFFICE.

GEORGE W. MILES, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN STEAM-BRAKES.

Specification forming part of Letters Patent No. **223,002**, dated December 30, 1879; application filed September 19, 1879.

*To all whom it may concern:*

Be it known that I, GEORGE W. MILES, of Buffalo, in the county of Erie and State of New York, have made certain Improvements in Steam-Brakes for Railway-Cars, of which the following is a specification.

The object of the invention is to control the "braking up" of a train of cars from the engine by steam, but doing entirely away with steam-connections, hose, or other such devices, steam being only supplied under the tender from the locomotive, and employed nowhere else on the cars, and by its action setting all the brakes at once; and the invention consists in arranging, under the flooring of the tender to a locomotive or other convenient place, a steam-cylinder with a piston rod and head or valve, which is acted on by steam from the locomotive-boiler whenever the engineer turns it on, which pushes the piston forward in the cylinder, drawing with it an attached central brake-bar, which operates all the brakes on a train, thereby setting the brakes instantaneously, and by letting off the steam or pressure in the cylinder the brakes are released, a spring attached to the brake-bar or piston throwing it back into its inactive position, all as hereinafter fully explained.

In the drawings, Figure 1 is a side elevation, showing a tender and one car-truck, partly in section; Fig. 2, a top plan of part of a truck, showing the brake-bar, &c.

A represents the tender, and B one car-truck. C is a steam-cylinder arranged on or under the tender, receiving steam by a steam-pipe, *a*, from the boiler of the engine in front of the piston-head or valve *b* therein. D is the piston-rod, its outer end *c c* forked to inclose the ordinary draw-head E, as shown more particularly in Fig. 2, which operates independently.

Each car-truck, at or near the top, is provided with a central brake-bar, G, the end that couples with the opposite car being forked and inclosing the buffer or draw-head E, the same as *c c* of the piston D. These bars are in each truck slotted or open in the middle at *d*, through which protrudes the usual center-pin, which attaches the truck to the car, the slot giving space for the necessary play back

and forth of the bar when acted on by the steam-piston.

The brake-bar G is connected with the usual brakes *f f* as follows: The upper ends of two vertical hangers, *g g'*, set through vertical holes or conical slots *h h* in the brake-bar, and hang therein on a pin or pivot, giving the lower end play or swing. To the lower end of each hanger is attached or hooked an iron rod, *i*, the other end of each rod being fastened to the brake cross-bar *j* at the other end of the truck, so that each rod crosses the other, the end that fastens to the cross-bar *j* taking an upward direction, as shown—that is, the rod *i* attached to the bottom of the hanger *g* will be fastened at its other end to cross-bar *j* of the brake. In addition to this, the cross-bars *j j* are each hooked or linked to the vertical hangers at *k k*, so that when the hangers are operated by the brake-bar G they will pull the brakes *f f* against the wheels. The forked heads *c c* of each brake-bar G are connected, when the train is made up, in addition to the usual link-and-pin or other coupler, by chains and hooks *n n*, each side of the draw-head or otherwise. This makes the brake-connection from one car to another, and they also act as safety-chains. If a train should be cut by the breaking of a pin or other coupler, then the strain on the chains will set the brakes and indicate to the engineer that his train is cut in two.

The brake-bars of each truck are connected (under each car) by rods *p*, chains, or in any other suitable manner which will be kept taut.

The brakes are the same as now usually employed. My improvements to be attached are only the slotted brake-bars, swinging hangers, and connecting rods and chains, and only a steam cylinder and piston under the tender.

These, it will be readily seen, can be easily and cheaply attached to any passenger or freight cars now in use.

The operation is simple. On the coming together or making up of a train, the chains *n n* of the brake-bars of one car are hooked onto the brake-bar of the opposite car at the same time that the cars are coupled.

A lever in the locomotive will let steam into the cylinder C under the tender, which will throw forward the piston D and draw with it



the brake-bars G G of all the cars, the hangers throwing the brakes against the wheels sufficiently to set the brakes. This is done instantaneously, and the steam can be let off by an escape-hole in the cylinder, and the brakes at once returned to their normal position.

The draw-heads, buffers, or couplers will always protrude beyond the ends of the brake-bars, so that when the cars are on a down grade or strike together they will not operate on the brakes. The usual springs will be used in connection with the brakes to throw them off, and a spring, s, will be arranged under the tender in connection with the piston-rod to throw that back to release the brakes. The brakes operate equally well at each end of the car, no matter which is running forward.

I claim—

In combination with a steam-cylinder, C, and piston-coupler, the slotted brake-bar G *d*, having the forked heads *c c*, inclosing the coupler, draw-heads, or buffer, and with the connecting-chains *n n*, or their equivalents, and the pivoted vertical hangers *g g'* attached to the brakes by the rods *i i*, or in any suitable manner, all constructed and arranged substantially as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

G. W. MILES.

Witnesses:

J. R. DRAKE,  
T. H. PARSONS.