(No Model.)

B. C. ROWELL.

AUTOMATIC BRAKE.

No. 356,794. Patented Feb. 1, 1887.

Fig. 1.

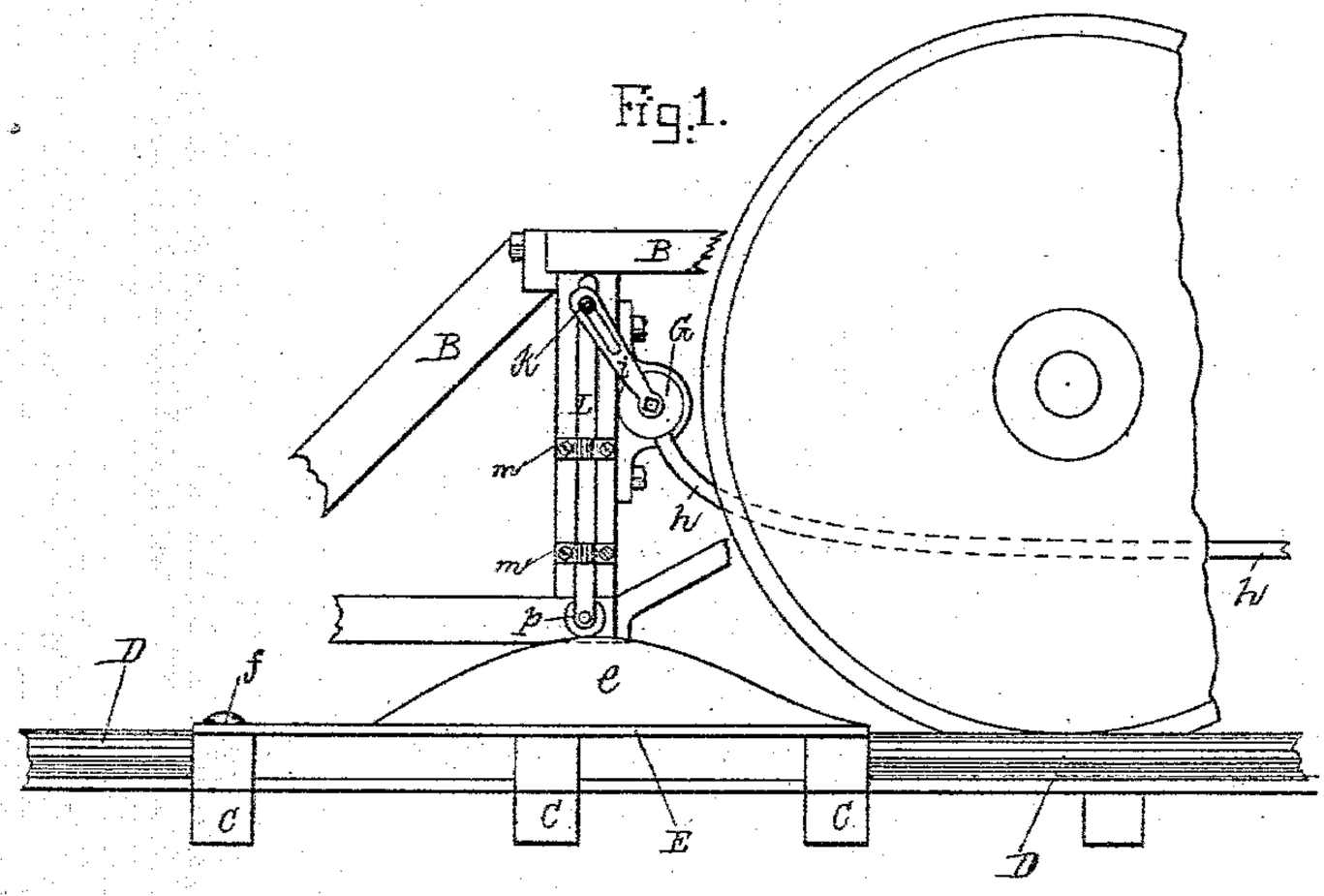


Fig. 2.

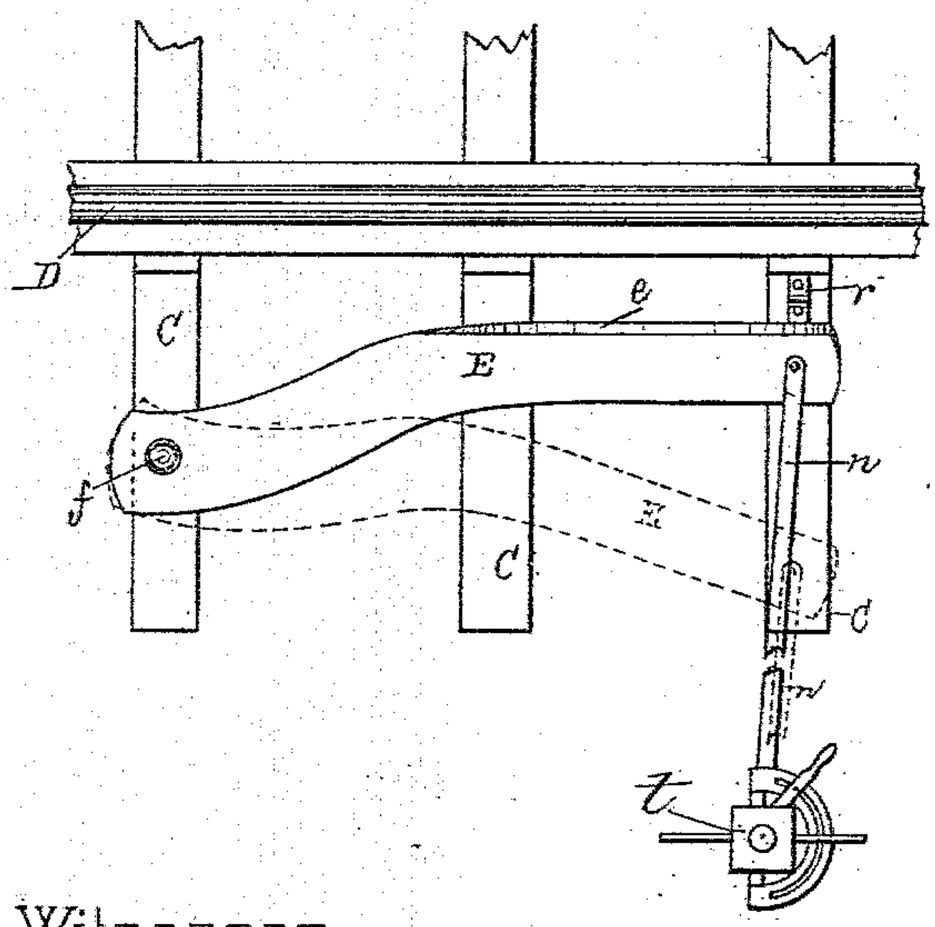
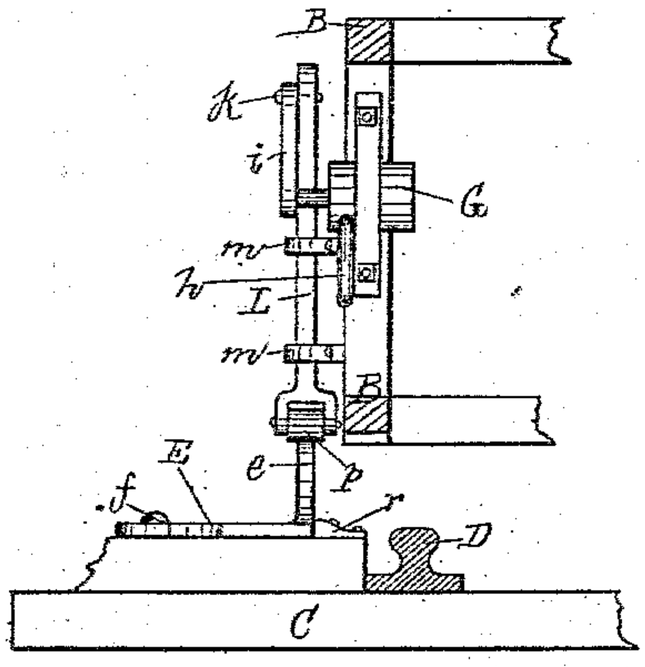


Fig. 3.



Witnesses.

Chas. F. Fife.

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UNITED STATES PATENT OFFICE.

BENTON C. ROWELL, OF BOSTON, MASSACHUSETTS.

AUTOMATIC BRAKE.

SPECIFICATION forming part of Letters Patent No. 356,794, dated February 1, 1887.

Application filed April 30, 1886. Serial No. 200,712. (No model.)

To all whom it may concern:

Be it known that I, BENTON C. ROWELL, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain Improvements in Operating Automatic Brakes for Railway-Cars, of which the following is a specification.

My invention relates to improvements in the construction of devices for automatically operating railway car brakes where steam, air, vacuum, or other power than hand-power is employed; and it consists in connecting the steam or air valve by which the brake is operated with a lever attached to the frame of the locomotive or car, which lever is placed low enough to conveniently come into contact with an inclined plane or cam-surface located at the side of one of the rails of the track when the train passes. The plate or bar having this cam-surface is pivoted at one end to a cross-tie, and near its other end to a rod connecting it with a crank attached to a railroad signal-target or switch.

The object of my improvements is to automatically open the valve, which causes pressure to be applied to the brakes, without the necessity of relying upon the engineer, when a target is set to indicate "danger" either from an open switch or other cause.

My improvements will be readily understood by reference to the accompanying drawings, forming a part of this specification, wherein I have shown them attached to the pilot of a locomotive-engine, as being one of the most convenient locations in the present manner of using the air or steam brake; but they may be attached to any other convenient part of the locomotive or to a car.

Figure 1 is a side elevation of a portion of a locomotive-truck and the pilot having my improvements attached to the frame of the pilot and to the cross-ties of the track. Fig. 2 is a plan view of the bar containing the inclined plane or cam-surface pivoted to a cross-tie at the side of one of the rails and a signal-target by which it is operated. Fig. 3 is a rear view of my improvements in the position shown in Fig. 1, but looking toward the front of the locomotive.

In the several figures corresponding parts are indicated by the same letters.

B is the frame of the pilot; C, the cross-ties; D, the rail.

E is the bar or plate having the cam-surface *e* and pivoted to a cross-tie at *f*.

G is the steam or air valve, fastened to an upright portion of the frame of the pilot, and connected with the air or steam pipe *h*.

i is a slotted handle or lever attached to the valve G, and, by means of a pin, *k*, fastened to the end of the bar or lever L, and, projecting into this slot, the end of the handle *i* is caused to move in the arc of a circle when the lever L is moved up or down in guides *m*, fastened to the upright frame of the pilot. Near the end of the plate E, opposite to that of the pivot *f*, a rod, *n*, is pivoted. The other end of the rod *n* is connected with a crank attached to the signal-target *t*, so that when the target is turned to indicate "danger" to an approaching train the plate E will be moved into the position shown in full lines in the drawings, and as the train approaches the end of the lever L will strike the cam *e* at its lowest point and then be forced upward until it arrives at the highest portion, as indicated in Figs. 1 and 3.

In order to facilitate the operation and decrease the wear upon the parts, I hang a friction-wheel, *p*, in the lower end of the lever L. When the lever L is in the position shown at Figs. 1 and 3, the valve G is open and the pressure of the condensed air in the chambers beneath the cars is thereby made to act upon the brakes.

When the signal is turned to indicate "safety," the plate E is in the position indicated in dotted lines, Fig. 2. To assist in holding the bar E firmly in place when brought into the position shown in full lines in Fig. 2, I fasten a metal piece, *r*, to one of the cross-ties as a stop for the bar E.

It will be readily seen that instead of having the lever L attached directly to the handle *i* and slide up and down in guides, it may be pivoted to the frame of the pilot or of a car, and connected to the handle *i* by an intermediate link, and thus when the lower end of the lever L comes into contact with the cam

e it will be forced backward, thereby throwing the upper end forward, which, through the said intermediate link, would cause the handle *i* to move forward in the arc of a circle, and thereby operate the valve.

The bar E may be placed immediately opposite the signal-target and connected directly therewith, or it may be placed at any convenient distance from the target and connected therewith by a system of rods and bell-cranks.

A portable cam-plate, E, may be carried upon every train, or kept at every station, which can be constructed so as to be readily clamped to the rail by a flagman, and thus used instead of a danger-signal to stop an approaching train upon which my improved devices are employed.

I prefer to have my automatic devices attached to an independent valve, so that it will be necessary for the fireman or other person to get off the train in order to close it after it has been operated upon by the cam-surface; but if deemed advisable my devices may be attached to the valve ordinarily operated by the engineer for applying the brakes.

I claim—

1. In combination with the valve of a power car-brake, a slotted lever or handle directly connected therewith and to a sliding bar attached to the frame of a railway-car or locomotive, and a cam-surface located beside the rail to force the sliding bar upward, and thereby operate the valve to apply the brake when the signal-target or switch is set to indicate danger to an approaching train.

2. In combination with a railway signal-target or switch, a pivoted bar, E, having a projecting inclined surface adapted to be thrown into the proper position to act upon a sliding bar, L, and through its direct connection with the lever *i* operate the valve G, and thereby apply the brakes when the target is set to indicate danger to an approaching train.

BENTON C. ROWELL.

Witnesses:
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