(No Model.)

R. L. P. HENNE.

AUTOMATIC CATCH FOR INCLINED RAILWAYS.

No. 425,226. Patented Apr. 8, 1890.

FIG. 1.

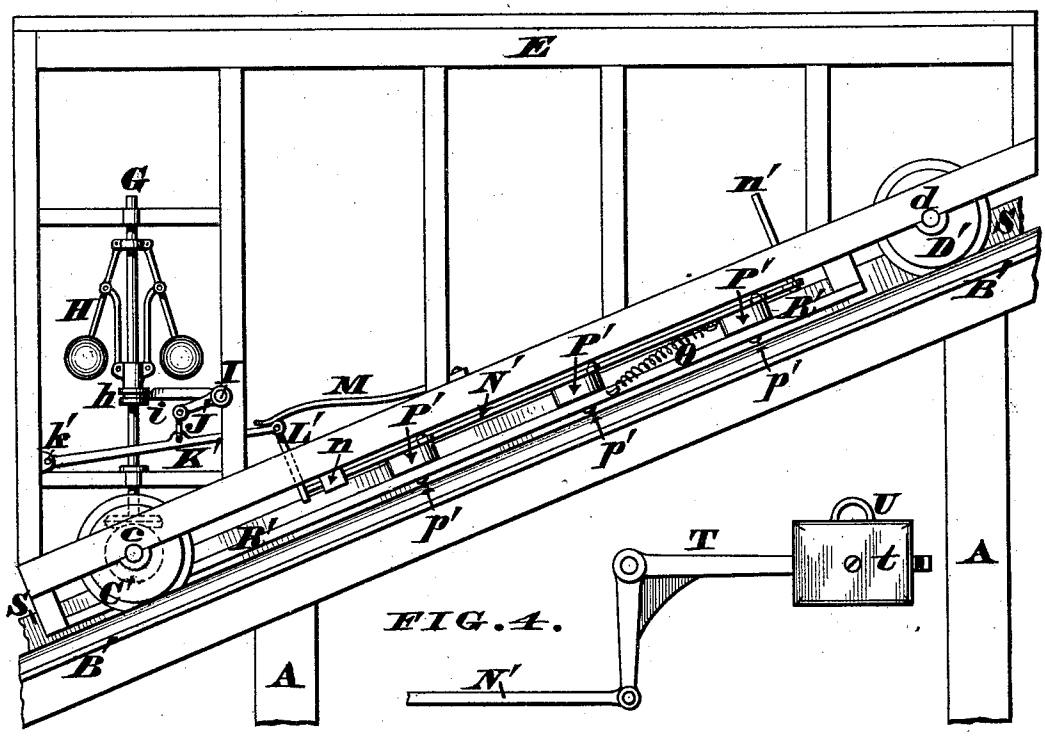


FIG. 4.

FIG. 2.

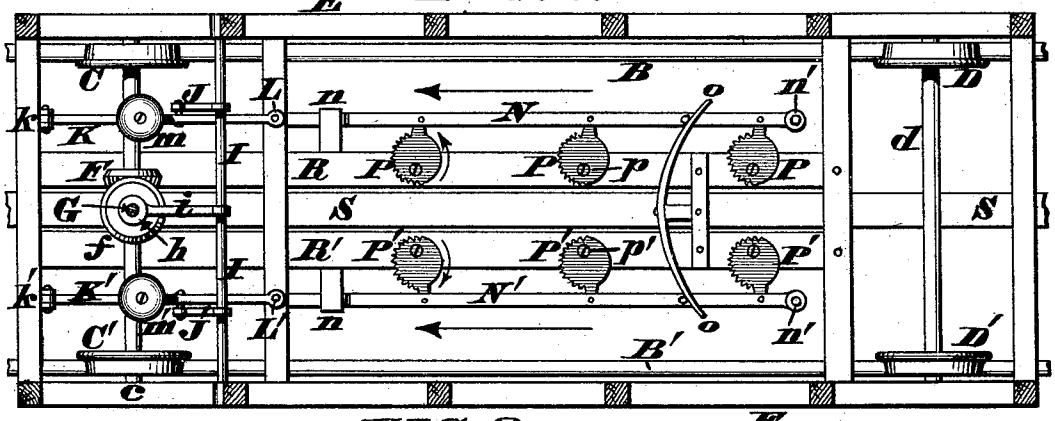
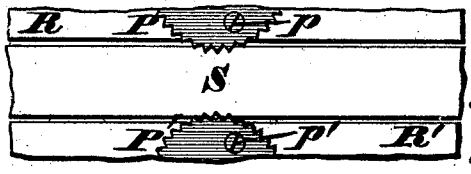


FIG. 3.



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AUTOMATIC CATCH FOR INCLINED RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 425,226, dated April 8, 1890.

Application filed December 23, 1889. Serial No. 334,618. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH L. P. HENNE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Automatic Catches for Inclined Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form part of this specification.

The object of my invention is to provide the cradle, truck, or car of an inclined railway with a safety catch or stop that will be automatically brought into service the instant the car acquires a dangerous velocity by the breaking of the hoisting cable or chain, or when the cable pulls away from its fastenings to said car. To accomplish this result I provide the car, cradle, or truck with one or more pairs of eccentrics or cams, which are retained in their normal or inoperative position by suitable stops controlled by a governor, the latter being driven by geared connections with a wheel or axle of the car. As soon, however, as the cable breaks, or when from any other cause the car commences to run back at an unusual speed, the governor liberates said stops and permits said eccentrics to be swung around and clamp against a beam or rail placed centrally between the tracks.

In the annexed drawings, Figure 1 is a side elevation of an inclined-railway cradle provided with my automatic safety-catches, which catches are shown in their normal or inoperative positions. Fig. 2 is a sectionized plan of said cradle and its attachments, the stops being seen in the same position as in the preceding illustration. Fig. 3 is an enlarged plan of a portion of the safety appliances, the eccentric catches being engaged with the central beam or rail. Fig. 4 is a modification of my invention.

A represents the main timbers, and B B′ the tracks or rails, of an inclined railway for freight or passenger service, which rails are traversed by the rear wheels C C′ and front wheels D D′ of a car, cradle, or truck E, said wheels being secured to axles *c d*, that support said cradle, and the rear axle *c* being provided with a bevel-wheel F, gearing with a similar wheel *f* at the lower end of a shaft G of any suitable form of governor H.

h is the sliding sleeve of this governor, and *i* is a lever-arm operated by said sleeve, this lever being rigidly attached to a rock-shaft I disposed transversely of the cradle and having a pair of other arms J J′ coupled to levers K K′, the latter being pivoted to suitable bearings at *k k′*, as seen in Fig. 2. The front or free ends of these levers K K′ carry pins or other suitable stops L L′, which must be normally depressed either by a spring M, as seen in Fig. 1, or by loading said levers with weights *m m′*, as represented in Fig. 2.

N N′ are connecting-rods running longitudinally of the cradle, and having their rear ends in contact with the stops L L′, against which they are pressed by a suitable spring, a pulling-spring O being seen in Fig. 1 and a pushing-spring *o* in Fig. 2. *n* are guides for the rear ends of said rods, and *n′* are handles or levers at the front ends of the same, which rods are arranged to operate simultaneously one or more pairs of cams or eccentrics P P′, the latter being pivoted at *p p′* to stout beams or bars R R′, secured longitudinally of the cradle and quite near a central beam or rail S. This beam is secured to the same ties or timbers that support the rails B B′.

The operation of this automatic safety-catch is as follows: When all the parts are in their respective normal positions, the spring M or the equivalent weights *m m′* force down the free ends of levers K K′ and thus cause the stops L L′ to project below the main frame of the cradle, as seen in Fig. 1. In this position the stops prevent any rearward shifting of the connecting-rods N N′, which is the natural action of said rods on account of the way the springs O or *o* are applied to them. Furthermore, in this position of the stops and rods the eccentrics P P′ are so turned as to be clear of the center rail S, thereby leaving the car at liberty to ascend and descend the incline in the usual manner, during which time the governor H simply revolves at a slow velocity without actuating the catch or safety mechanism; but when the truck acquires a dangerous speed, either by the breaking of the winding-cable or otherwise, the centrifugal velocity of the governor elevates its sleeve

h, thereby rocking the shaft I in its bearings and lifting the front or free ends of levers K K′ so far as to pull the stops L L′ above the level of the connecting-rods N N′. Consequently these rods fly back instantly, as indicated by the horizontal arrows in Fig. 2, which act causes all the eccentrics P P′ to turn simultaneously in the direction of the curved arrows in said illustration and grip against or bite into the central rail or beam S. (See Fig. 3.) Owing to this secure hold of the eccentrics against the stout central beam the truck is arrested before it has slid down more than a few inches, and after said catches have got an effective grip any attempt to run the truck farther back will simply bind it more immovably to said beam. This gripping action of the eccentrics may be increased by the attendant pulling back on the handles *n′*, which are also useful for drawing the rods N N′ forward preparatory to resetting the mechanism.

In the modification seen in Fig. 4 the front end of the connecting-rod N′ is coupled to a bell-crank T, weighted at *t*, to force said rod rearwardly, said weight being provided with a pull U that performs the duties of handle *n′*.

In an inferior modification of my invention a single pair of cams P P′ may be employed; but I prefer to use a series of such devices in order that a secure hold may be obtained by some of them in case others are unable to get a good grip on account of the central beam being greasy or worn thin in places. Finally, the hoisting-cable has been omitted from the drawings, for the purpose of avoiding confusion; but it can be attached to the truck in any suitable manner, one cable being all that is necessary when my safety appliances are used.

I claim as my invention—

1. An inclined-railway truck, cradle, or car, provided with a pair of eccentrics, and a stop mechanism operated by a governor in such a manner as to cause said eccentrics to grasp an extra rail or beam of the structure when the vehicle acquires an unusual speed, said extra rail or beam being secured between the main rails, substantially as herein described.

2. An inclined-railway truck, cradle, or car, provided with a series of eccentrics arranged in pairs and united by connecting-rods, a stop mechanism that locks said bars, and a governor that operates said mechanism and causes said eccentrics to grasp an extra rail or beam of the structure when the vehicle acquires an unusual speed, said extra rail or beam being secured between the main rails, substantially as herein described.

3. An inclined-railway truck, provided with a pair of lifting-levers K K′, stops L L′, connecting-rods N N′, and a series of eccentrics P P′ arranged in pairs, said lifting-levers being elevated by a governor attachment when the truck acquires an unusual speed, whereby said eccentrics are caused to grasp an extra beam or rail secured between the main rails of the structure, all as herein described.

In testimony whereof I affix my signature in presence of two witnesses.

RUDOLPH L. P. HENNE.

Witnesses:

JAMES H. LAYMAN,

FRANCIS M. BIDDLE.