No. 846,210. PATENTED MAR. 5, 1907.

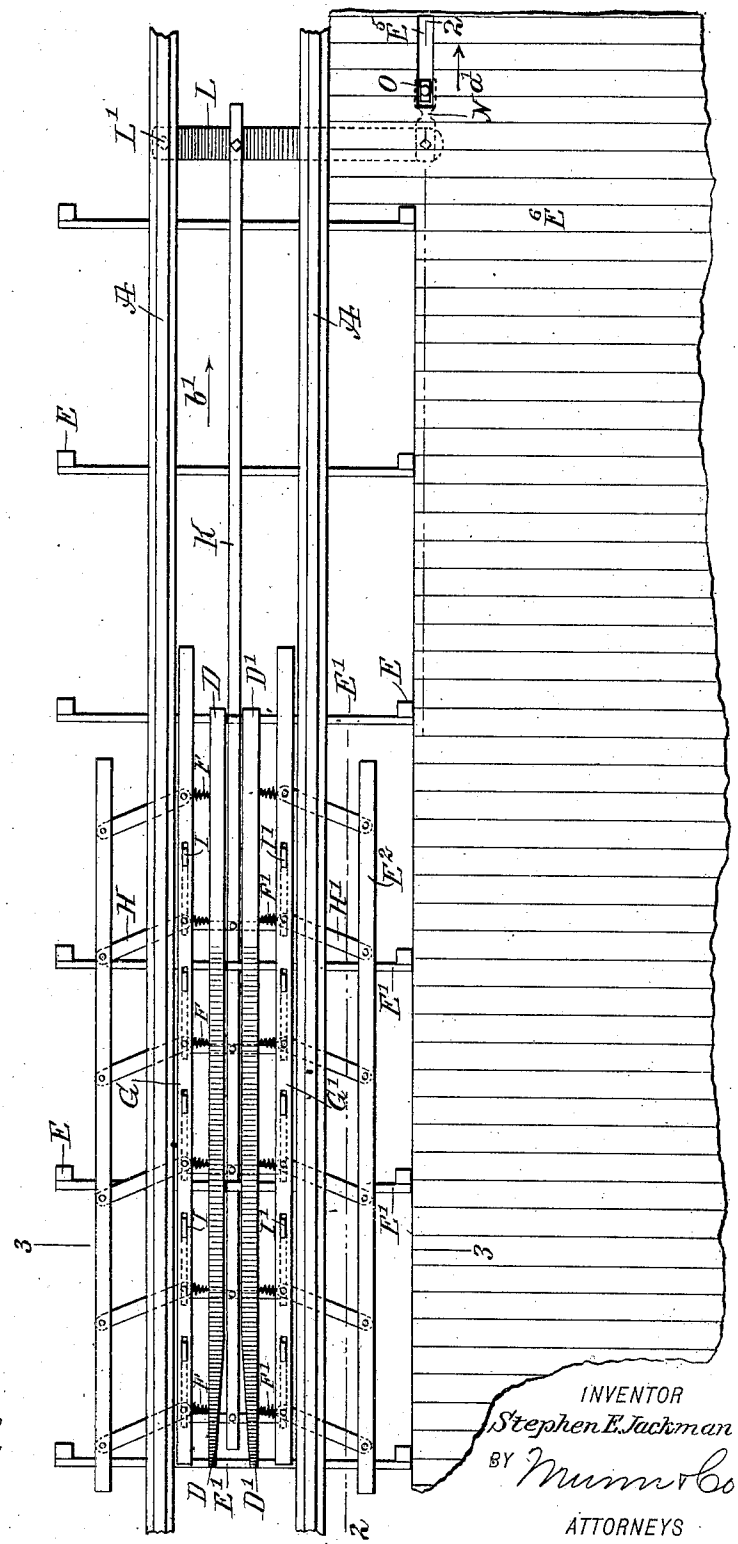
S. E. JACKMAN.

BRAKE MECHANISM FOR INCLINED RAILWAYS.

APPLICATION FILED JUNE 28, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

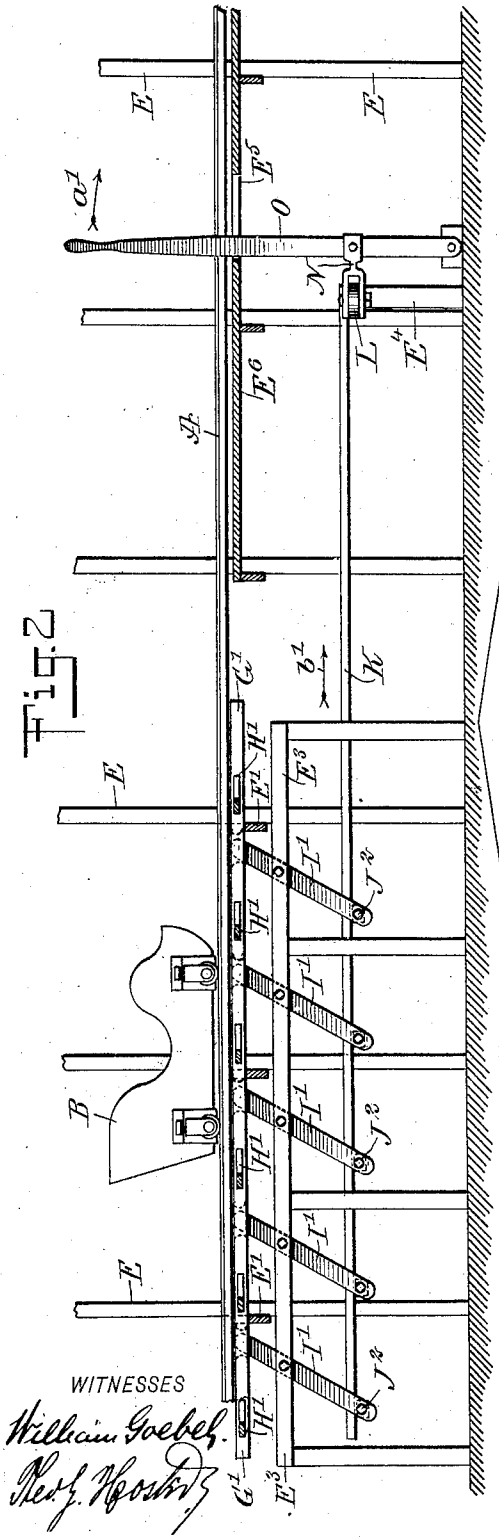
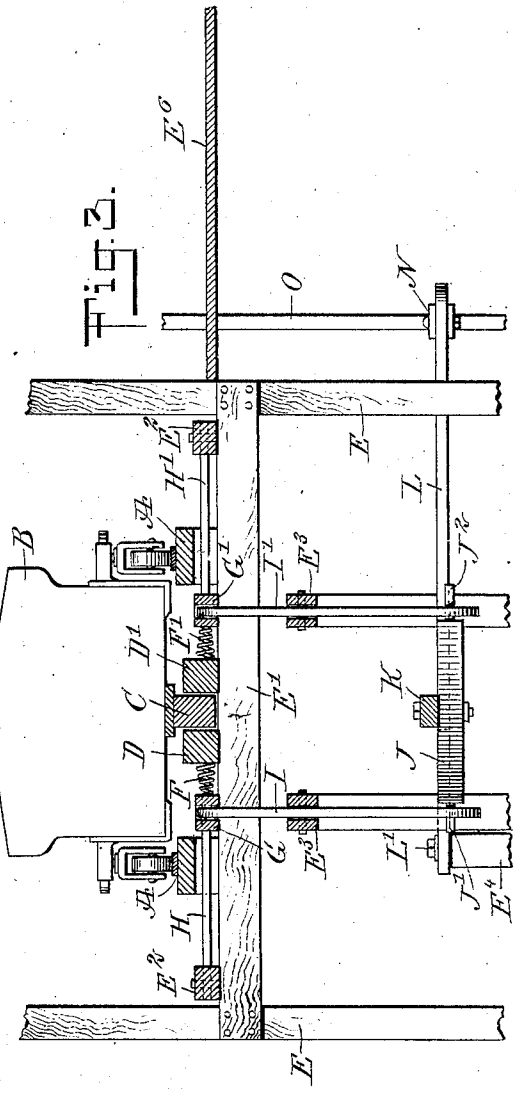


Fig. 3.



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BRAKE MECHANISM FOR INCLINED RAILWAYS.

No. 846,210. Specification of Letters Patent. Patented March 5, 1907.

Application filed June 28, 1906. Serial No. 323,820.

To all whom it may concern:

Be it known that I, STEPHEN EDWARD JACKMAN, a citizen of the United States, and a resident of the city of New York, Coney Island, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Brake Mechanism for Inclined Railways, of which the following is a full, clear, and exact description.

The invention relates to brake mechanisms for inclined railways, such as shown and described in Letters Patent of the United States No. 749,691, granted to me January 12, 1904.

The object of the invention is to provide a new and improved brake mechanism for inclined railways, arranged to allow the controlling of a car on the downtrack or homestretch independent of the occupants of the car and with a view to check the speed of the car and to bring the same finally to a stop at the station.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2 2 of Fig. 1, and Fig. 3 is an enlarged cross-section of the same on the line 3 3 of Fig. 1.

The inclined railway on which the improvement is applied may be of any approved construction, preferably, however, one having a continuous track A, over which travel cars B, usually drawn up the uptrack by suitable machinery to be released on the top of the uptrack with a view to permit the car to run by its own gravity down the downtrack and homestretch back to a station-section leading to the foot of the said uptrack. This form of continuous track is well known, so that further description of the same is not deemed necessary.

Now in order to brake the car B and to check its speed and gradually bring it to a standstill at the station-section the following brake mechanism is provided, which brake mechanism is controlled wholly independent of the occupants of the car by an attendant standing adjacent to the track at the station-section. A brake-beam C is secured to the under side of the body of the car B, preferably at the middle thereof, and the said beam C extends lengthwise of the car, and when the latter nears the end of the homestretch the said brake-beam C passes between brake-shoes D and D′ in the form of beams ranging in the direction of the length of the track.

The forward ends of the inner or opposite faces of the brake-shoes D D′ are slightly curved outwardly (see Fig. 1) to form a mouth for the ready entrance of the car brake-beam C. The brake-shoes D D′ are mounted to slide transversely on cross-bars E′, forming part of the framework E for supporting the track A, and the said brake-shoes D and D′ are pressed on their outer faces by sets of springs F and F′, resting with their outer ends on longitudinally-extending bars G and G′, mounted to slide transversely on the cross-bars E′ above referred to. The bars G and G′ are pivotally connected with horizontally-disposed links H and H′, extending obliquely to the bars G and G′ and fulcrumed at their outer ends on beams E^2, secured to and forming part of the framework E. The bars G and G′ are also pivotally connected with levers I and I′, disposed in vertical planes and slightly inclined, as indicated in Fig. 2, and the said levers I and I′ are fulcrumed on beams E^3, forming part of the framework E. The beams I and I′ are arranged in pairs, and the levers in each pair are connected with each other by a cross-bar J, having trunnions J′ and J^2 at its ends for pivotally engaging the lower ends of the levers I and I′. The several cross-bars J are pivotally connected with each other by a reach-rod K, extending longitudinally and pivotally connected at one end with a transversely-extending lever L, fulcrumed at L′ on a base E^4 of the framework E, and the free end of the said lever L is pivotally connected by a link N with a hand-lever O, arranged in a vertical plane and extending through a slot E^5, formed in a platform E^6, arranged adjacent to the track A at the end of the homestretch.

The operation is as follows: When the car travels down the homestretch, its brake-beam C finally passes between the spring-pressed brake-shoes D and D′, so that the brake-beam C is simultaneously engaged at opposite sides by the said brake-shoes D and

D′. Now the operator in charge of the hand-lever O on seeing the car entering the brake mechanism imparts a gradual swinging motion to the hand-lever O in the direction of the arrow *a′*, so as to move the reach-rod K in the direction of the arrow *b′*, whereby a simultaneous swinging motion is given to the several levers I and I′, and consequently the bars G and G′ are moved lengthwise in the inverse direction of the arrow *b′*, and by their links H and H′ are shifted laterally toward each other, so as to increase the tension of the springs F and F′, whereby the brake-shoes D and D′ are pressed with more force against the opposite sides of the brake-beam C to check the speed of the car B and to finally bring the same to a standstill, if it is desired to do so. When the car has been brought to a standstill, the occupants thereof disembark and pass by way of the platform E^6 to the exit of the station. The car is then usually pushed by an attendant to the embarkation side of the station to be filled with passengers and to be finally pushed to the foot of the uptrack, at which the usual mechanism takes hold of the car and pulls the same up the uptrack.

It is understood that as long as the hand-lever O is in the down position the car is practically held locked by the brake mechanism, and when it is desired to release the car it is only necessary for the operator to swing the hand-lever O back to its normal vertical position illustrated in the drawings. Now when this takes place the reach-rod K and the cross-bars J return the levers I and I′, the rods G and G′, and the links H and H′ to their normal position, thus reducing the tension of the springs F and F′, and consequently the force of contact of the shoes D and D′ on the brake-beam C. The car B can now be readily pushed by an attendant over the track A to the entrance side of the station, as above mentioned.

By having the brake-shoes D and D′ in the form of longitudinal beams and pressed on by springs it is evident that a gradual braking of the car B takes place to bring the same to a standstill without undue checks or jars to the occupants of the car.

By the arrangement described it is not necessary to send an attendant with the car over the track, as the speed of the car when reaching the end of the homestretch is perfectly under the control of the operator manipulating the hand-lever O on seeing the car approaching the brake mechanism, as the homestretch of the track A is usually straight.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An apparatus of the class described provided with a track having a manually-controlled brake mechanism arranged in the track to engage and brake the car on its downward travel, the said brake mechanism comprising a brake-beam arranged longitudinally on the car, and brake-shoes arranged longitudinally in the track to engage opposite sides of the said car brake-beam.

2. An apparatus of the class described provided with a track having a manually-controlled brake mechanism arranged in the track to engage and brake the car on its downward travel, the said brake mechanism comprising a brake-beam arranged longitudinally on the car, and brake-shoes in the form of beams arranged longitudinally in the track to engage opposite sides of the said car brake-beam.

3. An apparatus of the class described provided with a track having a manually-controlled brake mechanism arranged in the track to engage and brake the car on its downward travel, the said brake mechanism comprising a brake-beam arranged longitudinally on the car and brake-shoes arranged longitudinally in the track to engage opposite sides of the said car brake-beam, springs pressing the said brake-shoes, and a manually-controlled device for placing the said springs under tension.

4. An apparatus of the class described provided with a track having a manually-controlled brake mechanism arranged in the track to engage and brake the car on its downward travel, the said brake mechanism comprising a brake-beam arranged longitudinally on the car and brake-shoes arranged longitudinally in the track to engage opposite sides of the said car brake-beam, sets of arms pivoted in the track, longitudinal bars pivotally connected with the said sets of arms, springs interposed between the said brake-shoes and the said bars, a hand-lever, and a connection between the said hand-lever and the said bars.

5. An apparatus of the class described provided with a track having a manually-controlled brake mechanism adapted to engage and brake the car on its travel in the said track, the said brake mechanism comprising a beam secured longitudinally to the car, brake-shoes in the form of beams and mounted to slide laterally to engage opposite sides of the said car brake-beam, and means yieldingly connected with the said brake-shoes and manually controlled for moving the said brake-shoes into engagement with the said car brake-beam.

6. An apparatus of the class described provided with a track having a manually-controlled brake mechanism arranged in the track to engage and brake the car on its downward travel, the said brake mechanism comprising a brake-beam arranged longitudinally in the track to engage opposite sides of the said car brake-beam, sets of arms pivoted in the track, longitudinal bars pivotally

connected with the said sets of arms, springs interposed between the said brake-shoes and the said bars, a hand-lever, a connection between the said hand-lever and the said bars, the said connection comprising sets of levers, one set for each bar, cross-bars connecting opposite levers of the said sets of levers with each other, a reach-rod connecting the said cross-bars with each other, and a lever fulcrumed on the track and pivotally connected with the said reach-rod and the said hand-lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STEPHEN EDWARD JACKMAN.

Witnesses:
CHARLES W. JACKMAN,
WILLIAM R. RAMETTA.