No. 869,846. PATENTED OCT. 29, 1907.

S. E. JACKMAN.

BRAKE MECHANISM FOR INCLINED RAILWAYS.

APPLICATION FILED FEB. 28, 1907.

2 SHEETS—SHEET 1.

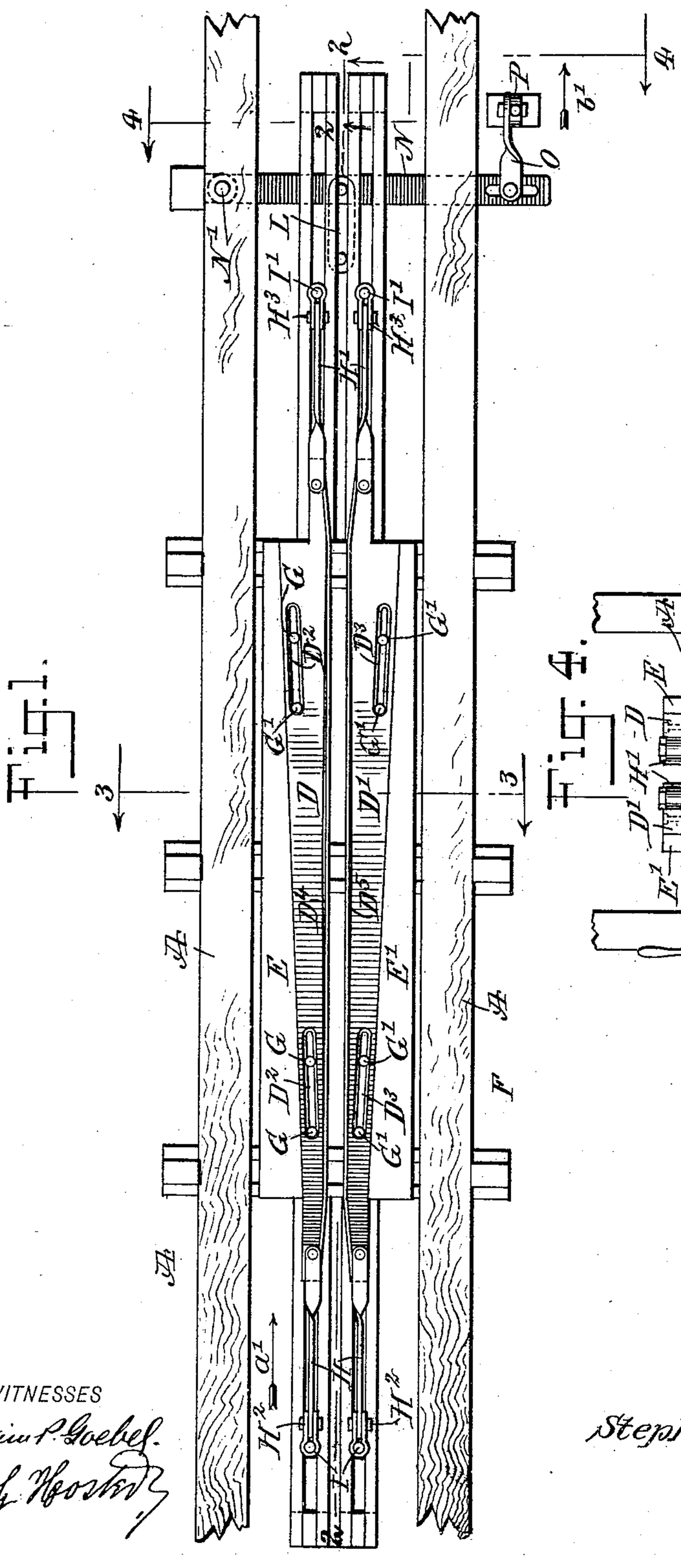

FIG. 1.

FIG. 4.

WITNESSES

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2 SHEETS—SHEET 2.

FIG. 2

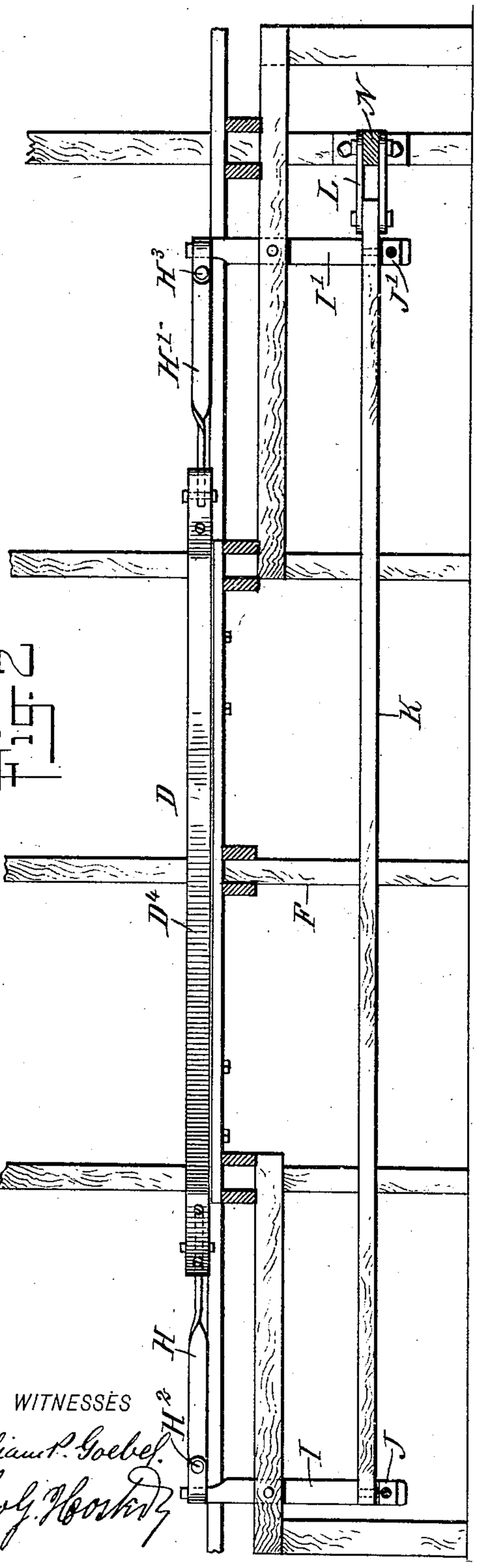
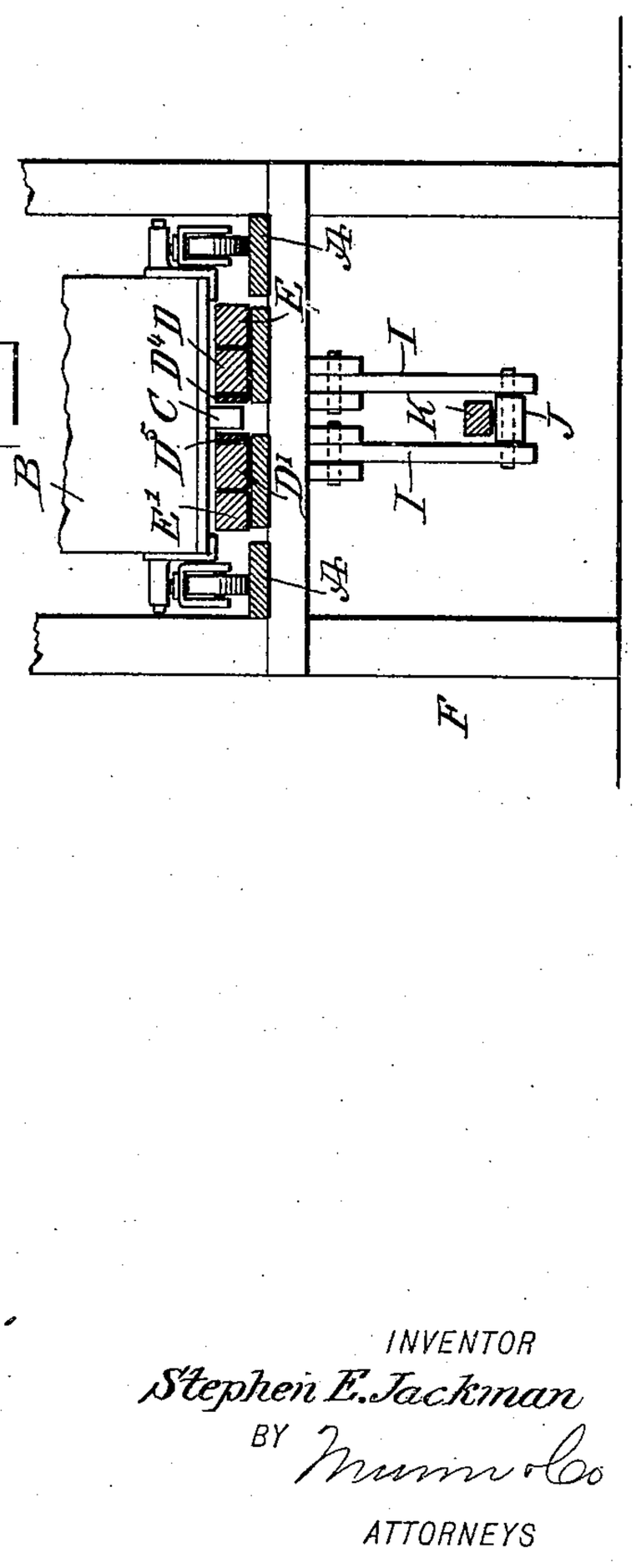


FIG. 3.



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BRAKE MECHANISM FOR INCLINED RAILWAYS.

No. 869,846. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed February 28, 1907. Serial No. 359,715.

To all whom it may concern:

Be it known that I, STEPHEN E. 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 control the car on the home stretch, independently of the occupants of the car, with a view of checking the speed of the car and bringing 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; Fig. 3 is a transverse section of the same on the line 3—3 of Fig. 1 and showing the car in position; and Fig. 4 is a like view of the improvement on the line 4—4 of Fig. 1.

The inclined railway on which the improvement is applied may be of any approved construction, preferably, however, one such as used in exhibition grounds, pleasure resorts and the like, and one having a continuous track A over which travel cars B, usually drawn up the up-track, with a view to permit the car to run by its own gravity down the down-track and home stretch back to a station leading to the foot of the up-track. 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 and to check its speed and gradually bring it to a standstill at the station, the following brake mechanism is provided, which brake mechanism is controlled wholly independently of the occupants of the car by an attendant standing adjacent to the track at the station. 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 home stretch, the said brake beam C passes between the brake shoes D and D′ in the form of wedge-shaped beams ranging in the direction of the length of the track the inner sides of the beams being approximately parallel and parallel to the corresponding sides of the car beam C. The outer sides of the brake shoes D, D′ are beveled or tapered and fit against the correspondingly shaped inner sides of beams E, E′ fixed to the framework F employed for supporting the track A, and on which framework F the brake shoes D, D′ are movably mounted. The forward and rear ends of the inner sides of the brake shoes D, D′ are preferably slightly curved outward to form a mouth at each end for the ready entrance and exit of the car beam C to and from the shoes D and D′.

The brake shoes D, D′ are provided with elongated slots D^2, D^3 ranging parallel to the contacting sides of the brake shoes D, D′ and the fixed beams E, E′, and through the said slots D^2, D^3 extend pins or bolts G, G′ attached to the framework F and serving to guide the brake shoes in their longitudinal movement.

The inner sides of the brake shoes D, D′ are provided with linings D^4, D^5, in the form of metal strips, secured at their ends to the brake shoes D, D′ and slightly bulging outward between their ends, so as to form a yielding surface when the brake shoes D, D′ engage the opposite sides of the car beam C. Besides the function mentioned the linings D^4, D^5 take up the wear and can be readily removed when worn out without requiring new brake shoes D, D′.

The forward and rear end of the brake shoes D, D′ are pivotally connected with links H, H′ provided with pivoted loops H^2, H^3 engaging the upper ends of upright levers I, I′ fulcrumed on the framework F, as plainly indicated in Fig. 2. The two levers I and I′ at each end are connected with each other by trunnion cross beams J, J′ and the two cross beams are connected with each other by a reach rod K pivotally connected with a transversely extending lever N fulcrumed at N′ on the framework F. The free end of the lever N is pivotally connected by a link O with a hand lever P extending upwardly at one side of the track, and under the control of the attendant having charge of the brake mechanism.

Now when the car travels down the track A and reaches the end of the home stretch and the brake mechanism, then the car brake beam C readily passes between the now open brake shoes D, D′, and at this time the attendant pulls the lever P in the direction of the arrow *b′*, so that the brake shoes D and D′ are moved in the inverse direction of the arrow *a′*, and are thus shifted bodily in a transverse direction, to bring the linings D^4, D^5 in frictional contact with the sides of the car beam C, thus braking the car and checking the speed thereof gradually, with a view to finally bring the car to a standstill.

It is understood that by the operator pressing the hand lever P with more or less force, any desired braking effect can be had on the car beam C and consequently on the car B, to check the speed thereof.

When the car beam C has passed the brake shoes

D, D′ the operator by swinging the lever P in the reverse direction of the arrow *b′* causes the brake shoes D and D′ to slide in the direction of the arrow *a′*, so that the brake shoes D, D′ move bodily apart, that is, move into an open position.

By having both ends of each brake shoe D and D′ connected with the manually controlled actuating mechanism, it is evident that a positive movement is given to the brake shoes D, D′, so as to render the same exceedingly effective for gradually braking the car without undue shock or jar to the occupants of the car.

When the car has been brought to a standstill, the occupants thereof disembark and pass by way of the platform to the exit of the station, after which the car is usually pushed by an attendant to the embarkation side of the station, to be filled with passengers and to be finally passed to the foot of the up-track, at which the usual mechanism takes hold of the car and pulls the same up the up-track.

It is understood that as long as the hand clver P is in the applied 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 attendant to swing the hand lever P back to its normal vertical position illustrated in the drawings.

It is understood that when the hand lever P is actuated, a swinging motion is imparted to the lever N, which by the reach rod K imparts a simultaneous swinging motion to the sets of levers I, I′, whereby the brake shoes D, D′ are shifted lengthwise and by the brake shoes D, D′ being wedge-shaped and riding on the fixed wedge-shaped beams E, E′ the said brake beams D, D′ move bodily transversely in and out of engagement with the beam C on the car B.

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 home stretch is perfectly under the control of the operator manipulating the hand lever P on seeing a car approaching the brake mechanism, as the home stretch 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 brake mechanism arranged in the track, for braking a car traveling on the track, the said brake mechanism comprising a beam on the car, and a brake shoe on the track for engagement with the said beam, manually controlled means connected with the ends of the said shoe, to move the latter in the direction of its length, and means for bodily moving the brake shoe transversely in and out of engagement with the said beam.

2. An apparatus of the class described provided with a brake mechanism comprising a beam on the car, a brake shoe in the track of the apparatus, for engagement with the said beam, manually controlled means for shifting the brake shoe in the direction of its length, and means for moving the brake shoe transversely on shifting it lengthwise, to move it in or out of engagement with the said car surface.

3. An apparatus of the class described provided with a brake mechanism comprising a wedge-shaped brake shoe in the track of the apparatus, for engagement with a surface on the car traveling over the said track, a wedge fixed in the track on which slides the said brake shoe, to move into and out of engagement with the said car surface, and manually controlled means for shifting the said brake shoe in the direction of its length.

4. An apparatus of the class described provided with a brake mechanism comprising a wedge-shaped brake shoe in the track of the apparatus, for engagement with a surface on the car traveling over the said track, a wedge fixed in the track on which slides the said brake shoe, to move into and out of engagement with the said car surface, the said brake shoe having a lining on its brake face, the lining being fastened at the ends and capable to bulge, and manually controlled means for shifting the said brake shoe in the direction of its length.

5. 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, wedge-shaped brake shoes arranged longitudinally in the track and adapted to engage opposite side faces of the said brake beam, wedges fixed in the track and engaged by the said brake shoes, and manually controlled means for imparting a lengthwise sliding motion to the said brake shoes, to move the same in and out of engagement with the said side faces of the 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 on the car, wedge-shaped brake shoes arranged longitudinally in the track and adapted to engage opposite side faces of the said brake beam, wedges fixed in the track and engaged by the said brake shoes, links connected with the ends of the said brake shoes, upright levers connected with the said links, a reach rod connecting the said upright levers with each other, a transverse lever connected with the said reach rod, and a hand lever under the control of the operator and connected with the said transverse lever.

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

STEPHEN E. JACKMAN.

Witnesses:
F. W. HANAFORD,
JNO. M. RITTER.