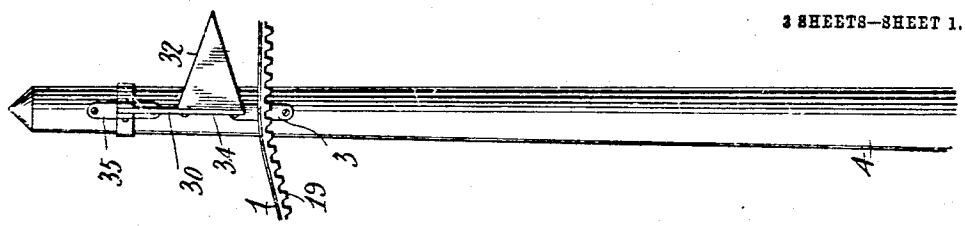
J. SAULESBERRY.

AUTOMATIC MAIL DELIVERY APPARATUS.

APPLICATION FILED APR. 6, 1908.

903,009. Patented Nov. 3, 1908.

2 SHEETS—SHEET 1.



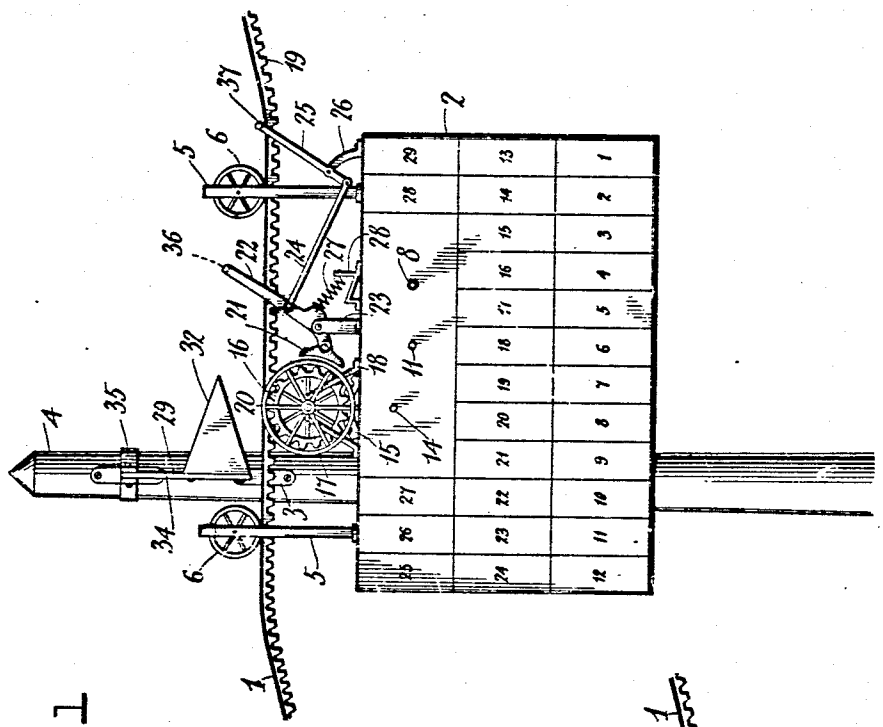
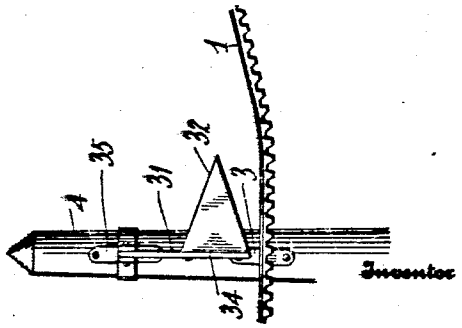


FIG. 1



Witnesses

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3 SHEETS—SHEET 2.

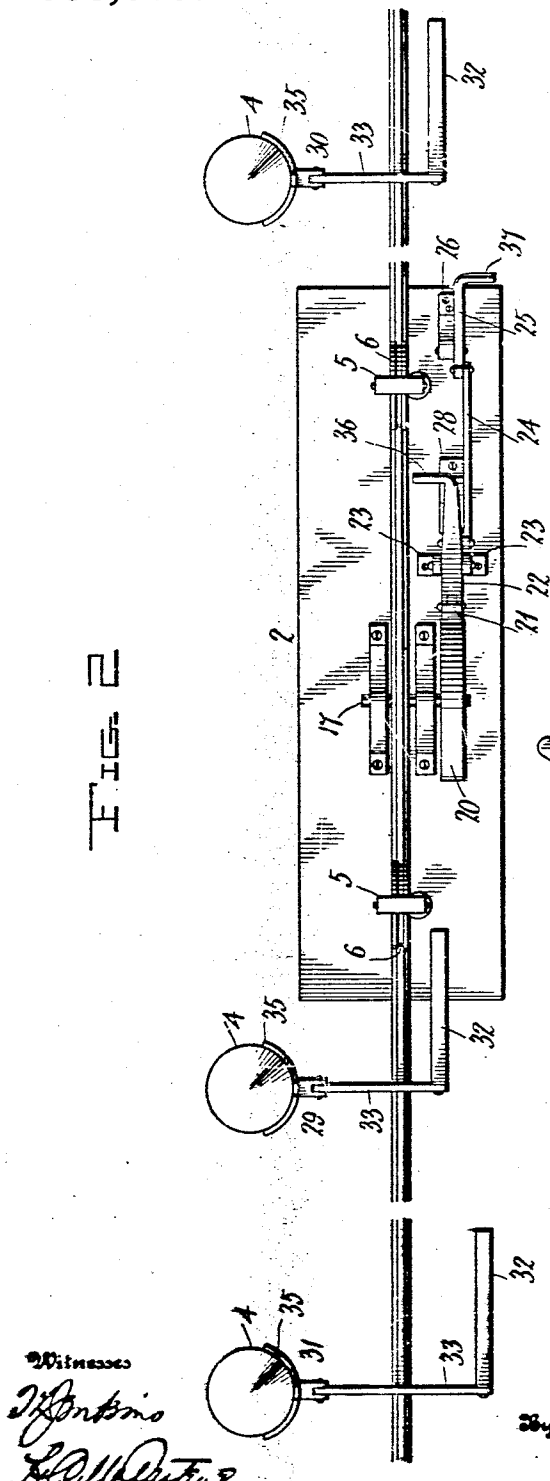

FIG. 2

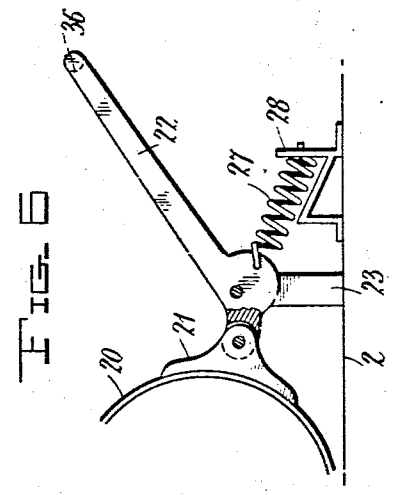

FIG. 6

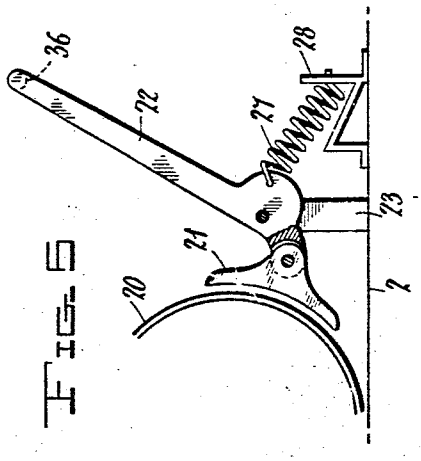

FIG. 5

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3 SHEETS—SHEET 3.

FIG. 4

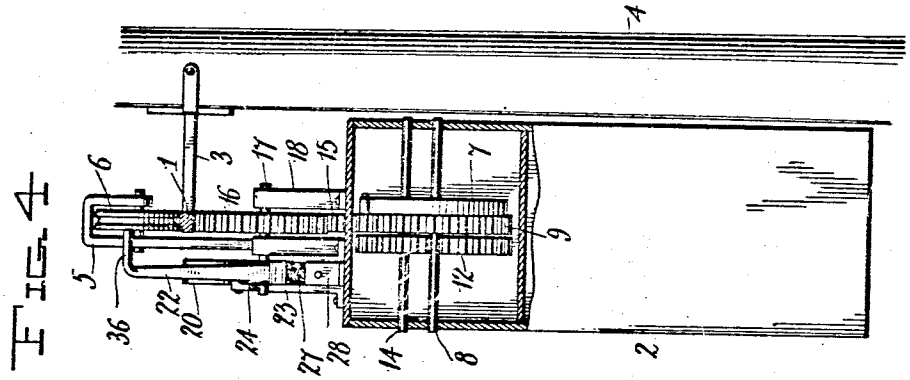


FIG. 3

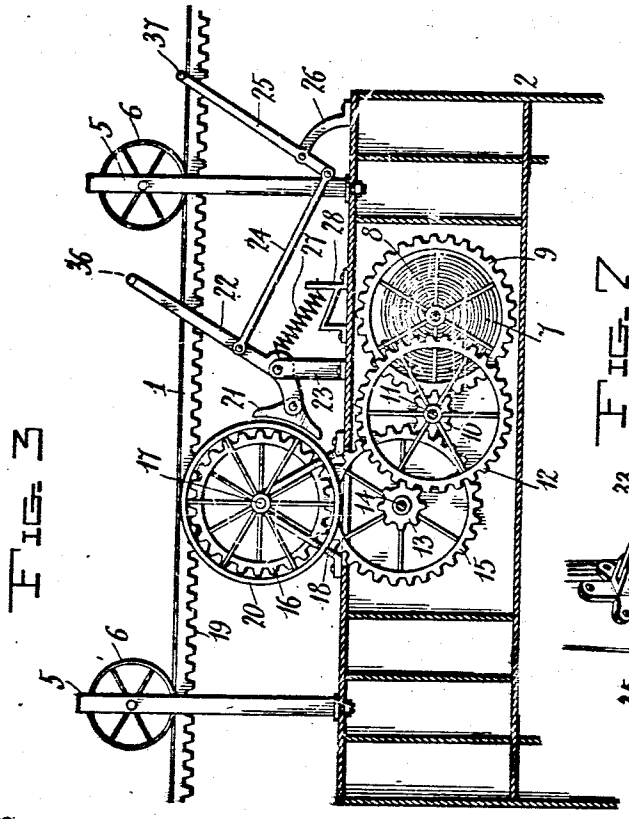
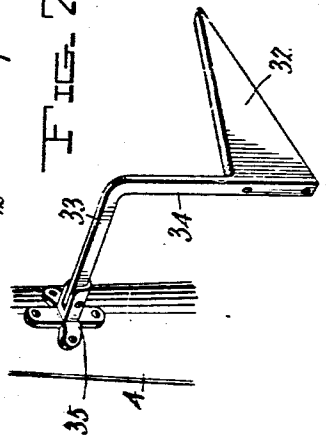


FIG. 7



Witnesses

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AUTOMATIC MAIL-DELIVERY APPARATUS.

No. 903,009. Specification of Letters Patent. Patented Nov. 3, 1908.

Application filed April 6, 1908. Serial No. 425,537.

To all whom it may concern:

Be it known that I, JOSEPH SAULESBERRY, a citizen of the United States, residing at East Peoria, in the county of Tazewell, State of Illinois, have invented certain new and useful Improvements in Automatic Mail-Delivery Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has reference to automatic mail-delivery apparatus, and it aims, primarily, to provide an exceedingly simple, inexpensive, and effective automatically-operated apparatus, for delivering mail from a central station to the various sub-stations along a delivery route, the apparatus being of that general type which includes an elevated track and a traveling motor-driven car suspended therefrom.

More especially, the invention resides in the provision of an automatically-operated brake mechanism which is fully set as the car reaches each successive station along the route, and is partially set as the car reaches the top of each downgrade, the car being completely stopped in the former instance and its speed materially decreased in the latter instance. To this end, there is mounted upon the shaft which carries the traction wheel a brake-wheel with which engages a brake-shoe secured to a lever automatically operated by its contact with the lateral brake arms secured to certain of the poles which support the track, the invention residing in this respect in the particular construction of the brake arms, and the brake-lever, and in the specific devices employed for returning the latter to its normal position from which it has been shifted by its contact with said brake-arms.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts or features are designated by the same reference numerals in the several views.

Of the said drawing, Figure 1 is a side elevation of the complete invention, the brake arms at the top and bottom of the down grade, and at one of the stations being illustrated. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a longitudinal section through the car. Fig. 4 is a rear elevation of the car. Fig. 5 is an enlarged detail view of the brake-lever. Fig. 6 is a similar view illustrating the position assumed by the brake lever subsequent to its actuation by the brake arm. Fig. 7 is an enlarged detail view of one of the brake arms.

Referring more particularly to the drawings, 1 designates an elevated steel track rail from which the traveling car, generally indicated by the numeral 2, is suspended, said rail being supported by laterally-projecting brackets 3 secured to the poles 4 located at intervals along the road.

The car, which is preferably constructed of aluminum, and is rectangular in cross-section, has mounted upon its roof, towards each end thereof, a vertical bracket 5 whose upper end carries a lateral pin upon which one of the grooved supporting wheels 6 is rotatably mounted, these wheels traveling upon the upper face of the rail, as shown. The brackets are secured to the car in such a manner as to be capable of rotation in either direction, thus permitting the supporting wheels to accommodate themselves to the various curves in the track.

The car is propelled by a spring motor 7 disposed in an interior compartment formed in the upper portion of the car, the motor shaft 8 having secured thereto a gear 9 which meshes with a smaller gear 10 secured to a shaft 11, journaled in openings formed in the side walls of the compartment. The shaft 11 is further provided with a large gear 12 which meshes with a small gear 13 carried by a second interiorly-located shaft 14, the last-mentioned shaft carrying, in addition, a gear 15 similar to the gear 12. The gear 15 meshes, in turn, with a gear 16 secured to a shaft 17 journaled in longitudinally-arranged spaced brackets 18, mounted upon the roof of the car, the roof being slotted between said brackets, to permit the intermeshing of said gears. The gear 16 which meshes with the depending teeth 19 formed upon the under face of the rail 1, thus serves as the main traction or drive wheel.

The shaft 17 has secured thereto a friction wheel 20 whose periphery is engaged at certain predetermined periods by the shoe 21 fastened to the free end of the lower arm of an angular brake lever 22 pivoted at its apex between a pair of spaced vertical ears 23 mounted upon the car roof rearwardly of the brake-wheel, the upper arm of said lever

being connected by a rearwardly-extending link 24 with the lower end of a releasing lever 25, pivoted between its ends to a bracket 26 mounted upon the car roof. The brake-shoe is normally held out of contact with the brake-wheel by means of an expansible coil-spring 27 supported upon a bracket 28 which is likewise mounted upon the car roof, the spring being secured at one end thereto and at the other end to the apex of the angular brake-lever 22 at a point slightly above and to the rear of the pivot point of said lever, said apex having an approximately circular shape. The tension of said spring is therefore exerted upon the upper arm of the brake-lever, as will be apparent, the shoe carried by the lower arm thereof being thus held normally out of contact with the friction wheel. (See Fig. 5).

As originally stated, the brake lever is operated by the brake arms carried by the poles located at the various sub-stations and at the top and bottom of each down-grade in the track, the arm carried by each station pole, (hereinafter termed "station-pole arms"), being generally designated by the numeral 29, and those carried by the poles at the top and bottom of the grades (hereinafter termed "grade-pole arms"), by the numerals 30 and 31 respectively. Each arm, as shown in Fig. 7, comprises a triangular or wedge-shaped block 32 formed of wood or metal, as preferred, and a rod 33 having its outer end bent downwardly, as indicated by the numeral 34, the base of the block being secured to the free end of said bent portion, while its apex is directed towards the approaching car. Each rod 33 is secured at its inner end to a supporting bracket 35 which is similar to the brackets 3 and is likewise attached to the pole. The station-pole arms are pivotally secured to their supporting brackets in such a manner as to permit of their being raised and lowered as hereinafter described. The grade-pole arms may likewise be pivoted to their supporting brackets, or may be rigidly secured thereto, as preferred.

The brake and releasing levers 22 and 25 are provided at their upper ends with integral laterally-projecting fingers 36 and 37 which are adapted to contact respectively, with the under faces of the blocks 32 of the grade-pole arms 30 and 31. These fingers, however, extend in opposite directions, the finger 36 extending towards the track 1 and the finger 37 away from said track. The last-mentioned blocks lie directly in the paths of movement of said fingers, the block carried by the arm at the bottom of the grade being, for this reason, disposed at a greater distance from the corresponding pole than that carried by the arm at the top of the grade, as will be understood. It will therefore be apparent from the foregoing that as the car passes by the pole at the top of the grade the actuating finger 36 formed upon the lever 22 will contact with the inclined under face of the block, whereby the upper arm of said lever will be swung slightly rearwardly, its lower arm moving correspondingly forwardly, thus moving the brake-shoe sufficiently into contact with the friction-wheel to reduce the speed of rotation thereof but without stopping the car. As the lever is rocked, the point at which the forward end of the spring 27 is connected to the apex of said lever passes below the plane of the pivot or axis of the lever, thus shifting the tension of the spring towards the lower arm of the lever and maintaining the brake-shoe in the partially-set position above described. The car will thus travel down the grade at a comparatively low speed. On reaching the bottom of the grade, the finger 37 of the releasing lever 25 will contact with the under face of the block carried by the bottom pole arm, whereupon said lever will be rocked upon its pivot, in consequence of which the brake lever will be returned to its normal position and the brake-shoe withdrawn from contact with the friction wheel. The car will then continue its travel at its original speed. When the car reaches the first station along the route, the brake-lever will be again actuated, this time by the brake-block carried by the arm secured to the station pole, said block likewise lying in the path of the finger 36, and, in consequence, out of that of the finger 37. This block, however, is disposed far enough below the blocks carried by the grade-pole arms to rock the brake-lever to an extent sufficient to completely set the brake-shoe and bring the car to a stop. When the mail has been removed from the proper lock-boxes with which the car is provided, the brake-block is then swung upwardly upon its pivot out of contact with the finger 36, and the releasing lever then actuated manually to return the brake-lever to its normal position. The car will then resume its travel.

It will be understood that upon each move of the brake-lever, the tension of the expansible coil-spring is shifted to one side or the other of the axis upon which the lever swings, thus holding said lever in the corresponding position, until its subsequent actuation either by the releasing lever or by one of the brake blocks.

Further description of the invention and its operation is deemed unnecessary in view of the foregoing.

What is claimed is:

1. The combination, with an elevated track and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; means for propelling the car; a brake mechanism operatively connected with said propelling means; a releasing mechanism operatively

connected with the brake mechanism; means carried by one of the poles and arranged for engagement with one element of the brake mechanism, for setting the brake; and means carried by another of the poles and arranged for engagement with the releasing mechanism, for releasing the brake.

2. The combination, with an elevated track and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; means for propelling the car; a brake mechanism operatively connected with the propelling means and including a brake lever; means for normally holding said lever in inoperative position; a releasing lever operatively connected with the brake lever; means carried by one of the poles and arranged for engagement with the brake lever, to move the latter into operative position; and means carried by another of the poles and arranged for engagement with the releasing lever, for actuating the same, to return the brake lever to inoperative position.

3. The combination, with an elevated track, and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; means for propelling the car; a brake mechanism operatively connected with said propelling means and including a brake lever having a laterally-bent upper end; means for normally holding said lever in inoperative position; a releasing lever operatively connected with the brake lever and provided with a laterally-bent upper end; a brake arm carried by one of the poles and provided with a member arranged for engagement with the bent end of the brake lever, for moving the latter into operative position; and a brake arm carried by another of the poles, and provided with a member arranged for engagement with the bent end of the releasing lever, for actuating the latter, for returning the brake lever to inoperative position.

4. The combination, with an elevated track, and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; means for propelling the car; a brake mechanism operatively connected with said propelling means and including a brake lever having a laterally-bent upper end; means for normally holding said lever in inoperative position; a releasing lever operatively connected with the brake lever and having a laterally-bent upper end extending in the opposite direction from the bent end of the brake lever; a brake arm carried by one of the poles and provided with a wedge-shaped block lying in the path of the bent end of the brake lever, for moving the latter into operative position; and a brake arm carried by another of the poles, and provided with a wedge-shaped block lying in the path of the bent end of the releasing lever for actuating the latter, to return the brake lever to inoperative position.

5. The combination, with an elevated track, and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; means for propelling the car, said means including a friction wheel; a brake lever mounted upon the roof of the car and provided with a shoe arranged for engagement with the friction wheel; means for normally holding said lever in inoperative position; and means carried by one of the poles and arranged for engagement with said lever, for actuating the latter, to move the brake shoe into engagement with the friction wheel.

6. The combination, with an elevated track and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; means for propelling the car; a friction wheel driven by said propelling means; a brake lever mounted upon the roof of the car and provided with a laterally-bent upper end; a shoe attached to the lower end of said lever; means for normally holding said lever in inoperative position, with its shoe out of contact with the friction wheel; and a brake arm carried by one of said poles and provided with a member located in the path of the bent-end of said lever, for moving the latter into operative position, to bring said shoe into contact with the friction wheel.

7. The combination, with an elevated track and a series of poles for supporting the same, of a car suspended from the track, and adapted to travel therealong; means for propelling the car; a friction wheel driven by said propelling means; a brake lever; a shoe attached to the lower end of said lever and movable therewith upon the actuation of the lever, into and out of engagement with the friction wheel; means for normally holding said lever in inoperative position; a releasing lever operatively connected with the brake lever; means carried by one of the poles and arranged for engagement with the brake lever, for moving the latter into operative position to engage said shoe with said friction wheel; and means carried by another of the poles and arranged for engagement with the releasing lever, for actuating the same, to return the brake lever to inoperative position.

8. The combination, with an elevated track and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; a shaft mounted upon the roof of the car; a traction wheel mounted upon said shaft and arranged for engagement with the track; means for rotating said shaft, to effect the propulsion of the car; a friction wheel secured to said shaft; a brake lever mounted

upon the roof of the car; a shoe attached to the lower end of the lever and movable into and out of engagement with the friction wheel when said lever is actuated; means for normally holding said lever in inoperative position; and means carried by one of the poles and arranged for engagement with said lever, for moving the same into operative position.

9. The combination, with an elevated track, and a series of poles for supporting the same, of a car suspended from the track and adapted to travel therealong; a shaft mounted upon the roof of the car; a traction wheel mounted upon said shaft and arranged for engagement with the track; means for rotating said shaft, to effect the propulsion of the car; a friction wheel secured to said shaft; a brake lever mounted upon the roof of the car; a shoe attached to the lower end of the lever and movable into and out of engagement with the friction wheel when said lever is actuated; means for normally holding said lever in inoperative position; a releasing lever mounted upon the roof of the car and operatively connected with the brake lever; means carried by one of the poles and arranged for engagement with said brake lever, for moving the same into operative position; and means carried by another of the poles and arranged for engagement with the releasing lever, to actuate the same, for returning the brake lever to inoperative position.

10. The combination, with an elevated track, and means for supporting the same, of a car suspended from the track and adapted to travel along the same; means for propelling the car; a brake lever operatively connected with said propelling means; a releasing lever operatively connected with said brake lever; and separate means for actuating said levers automatically, in succession, to apply the brake and subsequently release it.

11. The combination, with an elevated track including a down grade, and means for supporting the track, of a car suspended from said track and adapted to travel therealong; means for propelling the car; a brake lever operatively connected with said propelling means; a releasing lever operatively connected with the brake lever; means located at the top of the grade and arranged for engagement with the brake lever for setting the brake; and means located at the bottom of the grade and arranged for engagement with the releasing lever for releasing the brake.

12. The combination, with an elevated track including a down grade, and a series of poles for supporting the track, of a car suspended from the track and adapted to travel therealong; means for propelling the car; a brake lever operatively connected with said propelling means; a releasing lever operatively connected with the brake lever; a brake arm carried by the pole at the top of the grade and arranged for engagement with the brake lever, for setting the brake; and a brake arm carried by the pole at the bottom of the grade and arranged for engagement with the releasing lever for releasing the brake.

13. The combination, with an elevated toothed track and means for supporting the same, of a car suspended from the track and adapted to travel therealong; a shaft mounted upon the roof of the car; a traction gear carried by said shaft and arranged for mesh with the teeth of the track; a friction wheel carried by said shaft; means for rotating said shaft, to effect the propulsion of the car; a brake lever mounted upon the roof of the car; a shoe attached to the lower end of the lever and movable into and out of engagement with the friction wheel when said lever is actuated; means for normally holding said lever in inoperative position; and means carried by one of the poles and arranged for engagement with said lever, for moving the same into operative position.

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

JOSEPH SAULESBERRY.

Witnesses:
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PETER C. KEIL.