

Patented Dec. 7, 1909.

942,437.

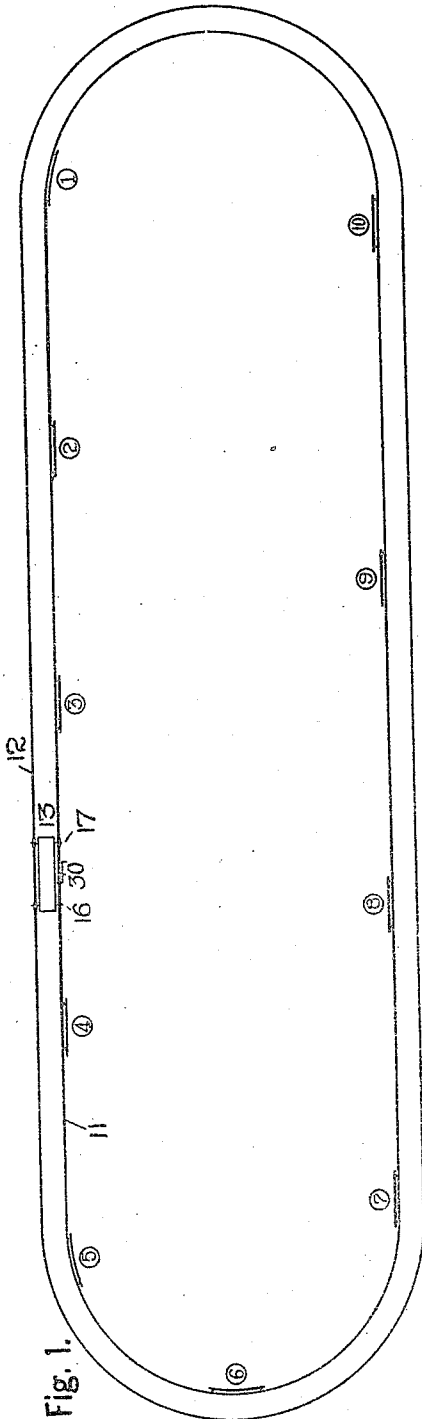


Fig. 1.

Witnesses.

L. M. Baugster.
George A. Neubauer.

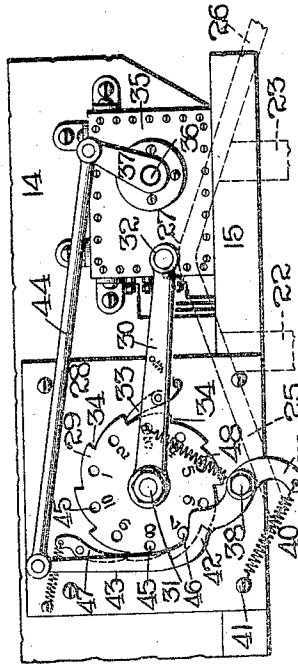


Fig. 3.

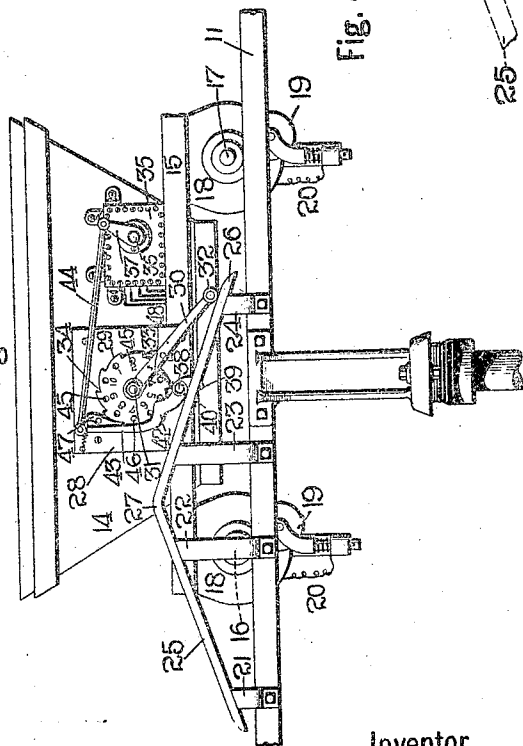


Fig. 2.

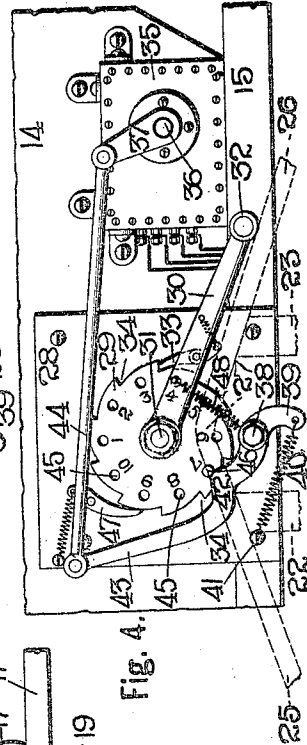


Fig. 4.

Inventor.

William C. Carr

By

Andrew B. Graham

Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM C. CARR, OF BUFFALO, NEW YORK.

TRANSPORTATION SYSTEM.

942,437.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed December 1, 1908. Serial No. 465,531.

To all whom it may concern:

Be it known that I, WILLIAM C. CARR, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improvement in Transportation Systems, of which the following is a specification.

This invention relates to transportation systems and principally to the mechanism whereby a car may be reversed and caused to return.

The object of the invention is to provide a comparatively simple, durable and positive means for reversing the direction of travel of a car at a predetermined point.

The invention also relates to certain details of construction which will be fully and clearly hereinafter described reference being had to the accompanying drawings in which an adaptation of the invention is illustrated.

Figure 1 is a diagrammatic view of a loop track with a series of stations arranged at intervals around the loop and a car on said loop track. Fig. 2 is an enlarged fragmentary side elevation of a track and one of its supports also showing a car and reversing mechanism. Fig. 3 is an enlarged side elevation of a fragment of a car showing the mechanism for actuating the reversing mechanism in the position it assumes when passing through a station without reversing the car. Fig. 4 is a view similar to that shown in Fig. 3, showing the mechanism for actuating the reversing mechanism in the position it assumes when passing through a station at which it is desired to reverse the car.

In referring to the adaptation of the invention disclosed in the drawings in detail, like numerals designate like parts.

Referring to Fig. 1, a track arranged in oblong or loop shape is shown as a typical illustration of one form of track in connection with which this invention is adapted to be utilized. The track is provided with stations or stopping places located at intervals, which in the adaptation in Fig. 1 are ten in number, and are designated by the numerals 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10. These stations are located on the inner rail 11 of the track in the drawing but may be if desired attached to or supported in proximity to the outer rail 12 or placed in any other convenient and operative position.

The car of which a diagrammatic view

is shown in Fig. 1, is designated by the numeral 13.

For the purpose of explaining the invention, an ore car is shown to which the reversing mechanism is attached although the invention is susceptible of use with other types of cars. The ore car as shown in detail in Fig. 2, consists of the flaring body 14, a frame 15 on which the body is mounted, front and rear axles 16 and 17 journaled in depending brackets 18 beneath the frame 15.

Motors are mounted directly on the axles and are operated by electric power conveyed to them by a trolley mechanism 19 connected to the motors by wires 20. For a more comprehensive description of this type of car reference is to be had to a companion application, Serial Number 465,530, filed December 1st, 1908.

The car is reversed in its direction of travel by a reversing mechanism which reverses the polarity and is preferably constructed as specifically illustrated and described in the companion application above noted of even date to which reference is to be had.

This invention relates chiefly to the means whereby the car reversing mechanism may be actuated at any predetermined station to stop and reverse the direction of travel of the car. Said means consists of mechanism located at each station and mechanism attached to the car and adapted to be actuated by the station mechanism.

The mechanism located at each of the stations is preferably a bent bar which is supported above the inner rail 11, of the track by four brackets 21, 22, 23 and 24; said bent bar consisting of two half portions 25 and 26 which extend oppositely from a common elevated central point 27 and bend down at an angle from the horizontal to incline gradually downward to form individual guiding and lifting surfaces as shown in Fig. 2. The brackets 22 and 23 are longer than the end brackets 21 and 24 as shown in Fig. 2 so that the halves of the bent bar will be supported in their inclined position.

The mechanism attached to the car is supported by a plate 28 which is fastened to the side of the car, and consists of a ratchet wheel 29, a lever arm 30 having one end supported loosely on the shaft 31 of the ratchet wheel and its opposite end having a roller 32 adapted to travel on the top surface of the angular bar, a spring ten-

sioned pawl 33, pivoted to an intermediate portion of the lever arm and adapted to engage the notches 34 of the ratchet wheel and means operated from the ratchet wheel for operating the reversing mechanism.

In the accompanying drawings the inclosing box 35 of the reversing mechanism is shown together with the rock shaft 36 and the crank arm 37 mounted thereon. An angular lever is pivoted to the lower portion of the plate 28 by a pivot 38 which is located approximately vertically beneath the shaft 31 of the ratchet. The lower and shorter portion 39 of the angular lever below its pivoting point is connected at its lower end to one terminal of a tensioning spring 40, and the opposite end of said spring is secured to one of the bolts 41 for fastening the plate to the car. The upper portion of the angular lever located above its pivotal point is composed of a nearly V shaped intermediate part 42 and a straight end part 43 extending upward from the V shaped part 42. The rod 44 is pivoted at one end to the upper termination of the end part 43 and at its opposite end to the crank arm 37 of the reversing mechanism.

The notches 34 of the ratchet wheel 29 are equal in number to the stations or stopping places located along the track and a series of openings 45 are formed in the ratchet wheel 29 which are arranged in a circle and at regular distances from each other. These openings 45 are equal in number to the notches 34 of the ratchet wheel and the stations or stopping places on the track and a pin 46 is adapted to be fitted in any one of the openings. The openings are numbered from one to ten inclusive to correspond with the numerals of the stations. A second pawl or lock pawl 47 is arranged opposite or almost opposite the pawl 33 on the lever arm 30 to absolutely lock the ratchet wheel against backward movement and also prevent downward movement of the lever arm 30 carrying the ratchet wheel with it. The lever arm 30 is returned to its normal position, shown in Fig. 1, by a spring 48 fastened at one end to the plate 28 and at its other to the lever arm, see Figs. 3 and 4.

The operation of the invention is as follows,—The mechanism is set to actuate the reversing mechanism to reverse the car at a certain station by fitting the pin 46 in that opening 45 designated by the same numeral as the station at which it is desired to reverse the car. For instance, in the illustration the pin 46 is fitted in the opening 45 designated by the numeral "seven." Now the car when started from the central station will successively pass the stations intermediate the central station and station "seven" and at each station the roller 32 of the lever arm 30 will travel on one of

the inclined halves of the bent bar and gradually move the lever arm upward from the position shown in Fig. 4 to the position shown in Fig. 3 and thereby through the pawl 33 turn the ratchet wheel one notch. The ratchet wheel is successively advanced notch by notch as the car passes each station up to the seventh station. As the car leaves the sixth station the pin 46 is in the position shown in Fig. 3 and as the car enters the seventh station the raising of the lever arm 30 turns the ratchet wheel and forces the pin 46 against the V-shaped part 42 thereby moving the angular lever and through the connecting rod 44, the crank arm 37 and rocking shaft 36 to operate the reversing mechanism to reverse the motor and thereby change the direction of travel of the car.

It will be noted by reference to Fig. 4 that but one portion of the upward movement of the lever arm 30 is necessary to bring the pin 46 to the top of the V-shaped part and that a further movement will carry the pin over the point and down the opposite side thereby permitting the angular lever and the reversing mechanism to return to their normal position. The pin can be set in any opening so that the point or station at which the car will automatically reverse itself can be determined in advance.

The great advantage of this invention is that the car can be set to return automatically from any station desired before it is started on its journey.

I claim.

1. In a transportation system, a track having a plurality of stations at intervals along the track, a car on said track, means for reversing the direction of travel of said car, and mechanism including an element in proximity to the track and an element attached to the car and capable of adjustment relative to the reversing means whereby said reversing means may be actuated to reverse the car at any predetermined station.

2. In a transportation system, a track having a plurality of stations at intervals along the track, a car on said track, means for reversing the direction of travel of said car and mechanism whereby said reversing means may be actuated to reverse the car at any predetermined station.

3. In a transportation system, a track having a plurality of stations, a car on said track and means for reversing said car at any predetermined station.

4. In a transportation system, a track having a plurality of stations, a car on said track and automatic means for reversing said car at any predetermined station.

5. In a transportation system, a track having a plurality of stations, a car on said track and means actuated from a station for

reversing said car at any predetermined station.

6. In a transportation system, a track having a plurality of stations, a car on said track and means automatically actuated from a station for reversing said car at any predetermined station.

7. In a transportation system, a track, a car on said track, means for reversing said car and manually set means for actuating said reversing means at any predetermined point on said track.

8. In a transportation system, a track, a car on said track, reversing mechanism carried by the car, a ratchet wheel attached to the car, means located at various points along the track arranged to turn the ratchet wheel, and means whereby the ratchet wheel will actuate the reversing mechanism at a predetermined point in its rotation.

9. In a transportation system, a track, a car on said track, reversing mechanism attached to said car and actuating mechanism for said reversing mechanism consisting in part of elements attached to the track and in part of elements attached to the car; said actuating mechanism being capable of adjustment to enable the car to be reversed at any predetermined point.

10. In a transportation system, a track, a car on said track, reversing mechanism attached to said car and actuating mechanism for said reversing mechanism consisting in part of elements supported in proximity to the track and in part of elements attached to the car and including a ratchet wheel.

11. In a transportation system, a track, a car on said track, reversing mechanism attached to said car and actuating mechanism for said reversing mechanism consisting in part of a stationary bar supported from the track and in part of movable elements supported from the car and adapted to be manually adjusted at the beginning of the car's journey to actuate the reversing mechanism at any predetermined point along the track.

12. In a transportation system, a track, a

car on said track, reversing mechanism attached to said car and actuating mechanism for said reversing mechanism consisting of a bar supported in proximity to the track, a wheel supported from the car, a lever arm adapted to travel on the bar and to operate the wheel, a lever adapted to be actuated by the wheel and a rod connecting the lever to the reversing mechanism.

13. In a transportation system, a track, a car on said track, reversing mechanism attached to said car and actuating mechanism for said reversing mechanism consisting of a bent bar supported in proximity to the track, a ratchet wheel supported from the car, a lever arm adapted to travel on the bent bar and to operate the ratchet wheel, an angular lever adapted to be actuated by the ratchet wheel and a rod connecting the angular lever to the reversing mechanism.

14. In a transportation system, a track having a plurality of stations, a car on said track, reversing mechanism carried by the car, a ratchet wheel having a plurality of notches equal in number to the stations, means located at each station arranged to turn the ratchet wheel one notch, and means whereby the ratchet wheel will actuate the reversing mechanism at a predetermined point in its rotation.

15. In a transportation system, a track having a plurality of stations, a car on said track, reversing mechanism carried by the car, a ratchet wheel having a plurality of notches equal in number to the stations, and a plurality of openings also equal in number to the stations, means located at each station arranged to turn the ratchet wheel one notch, a pin arranged to be placed in any one of the openings in the ratchet wheel, and means whereby the ratchet wheel will actuate the reversing mechanism at a predetermined point in its rotation.

WILLIAM C. CARR.

Witnesses:

L. M. SANGSTER,
GEORGE A. NEUBAUER.