

No. 764,766.

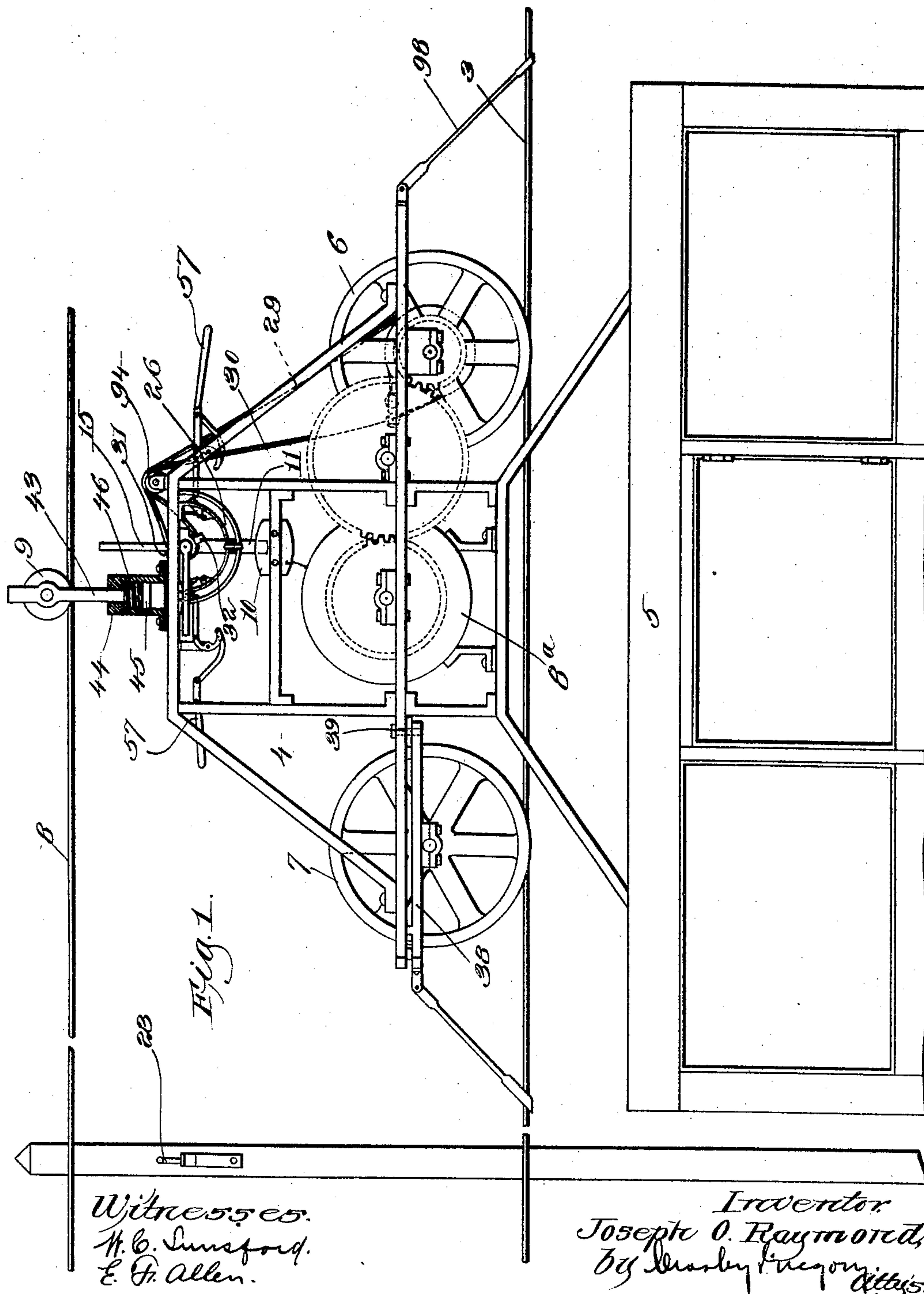
PATENTED JULY 12, 1904.

J. O. RAYMOND.
ELEVATED RAILWAY.

APPLICATION FILED JUNE 22, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



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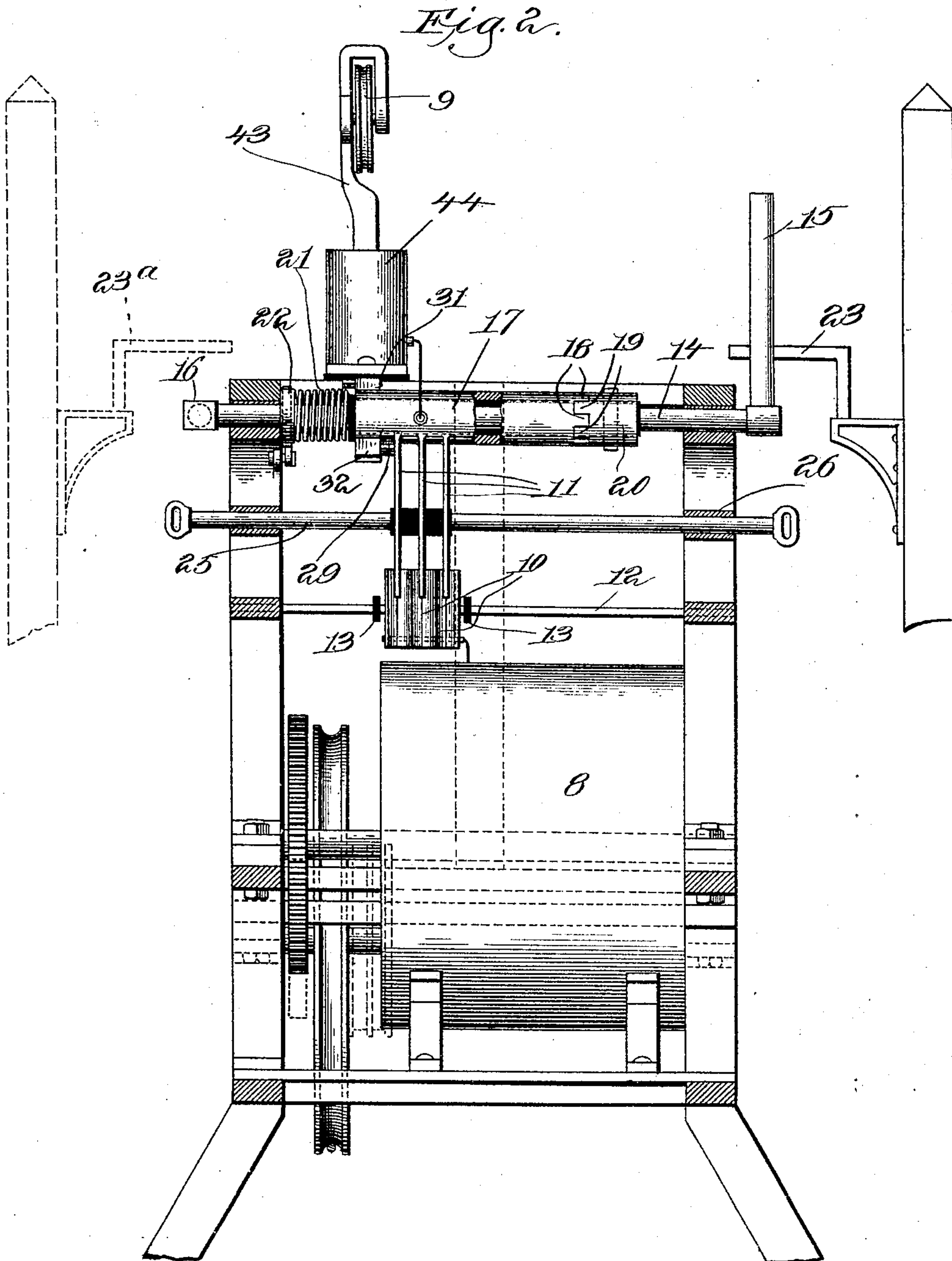
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4 SHEETS—SHEET 2.



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4 SHEETS--SHEET 3.

Fig. 3.

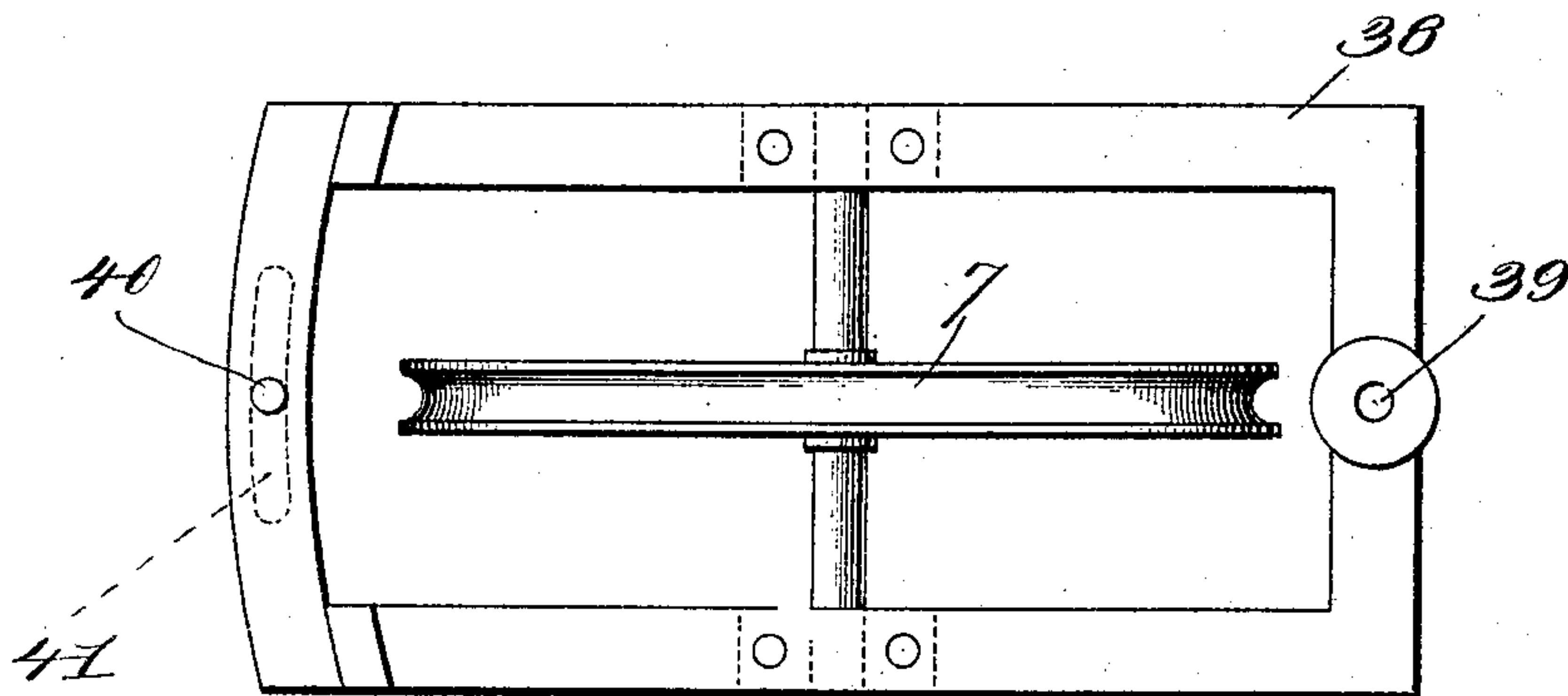


Fig. 4.

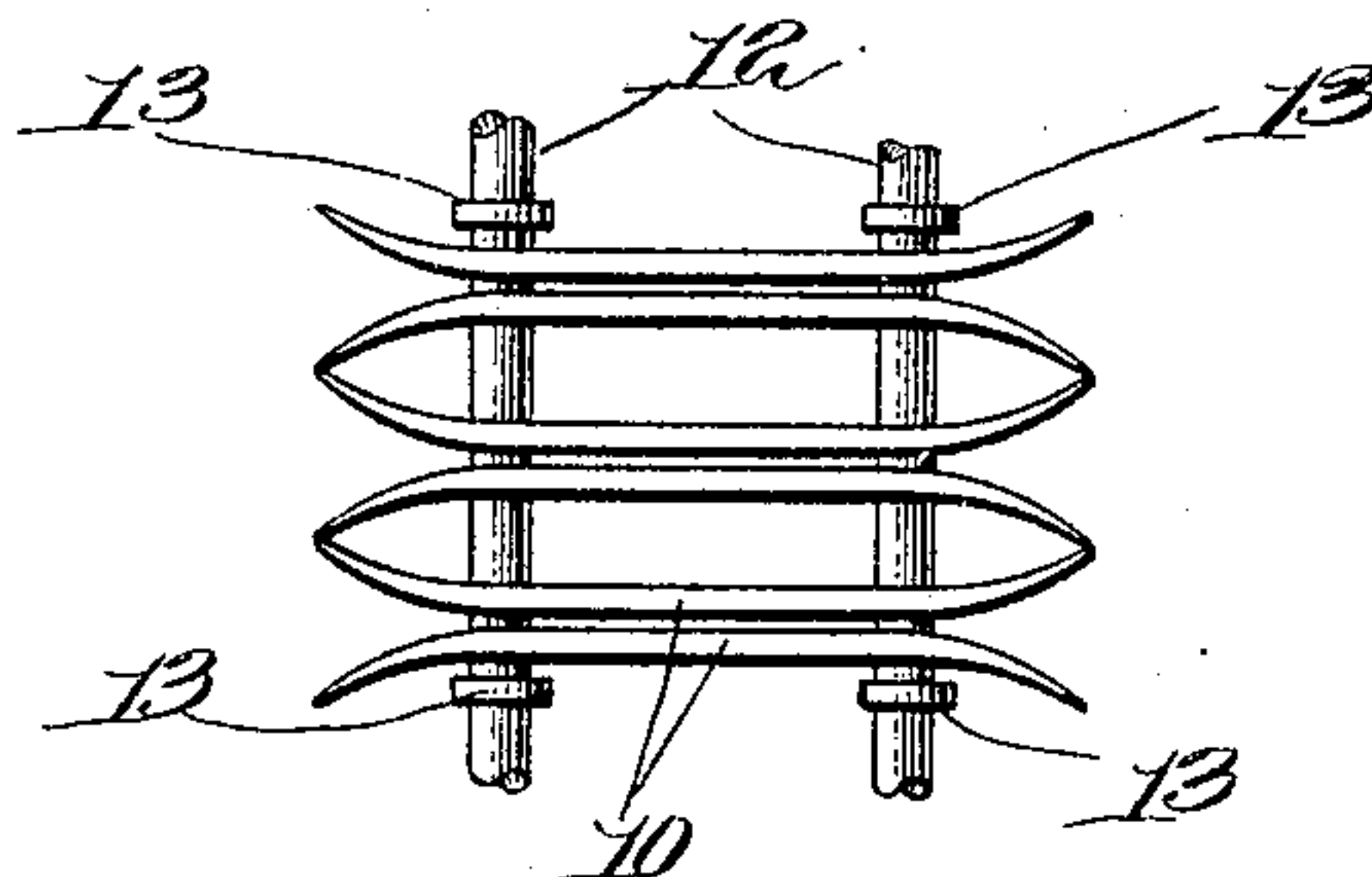
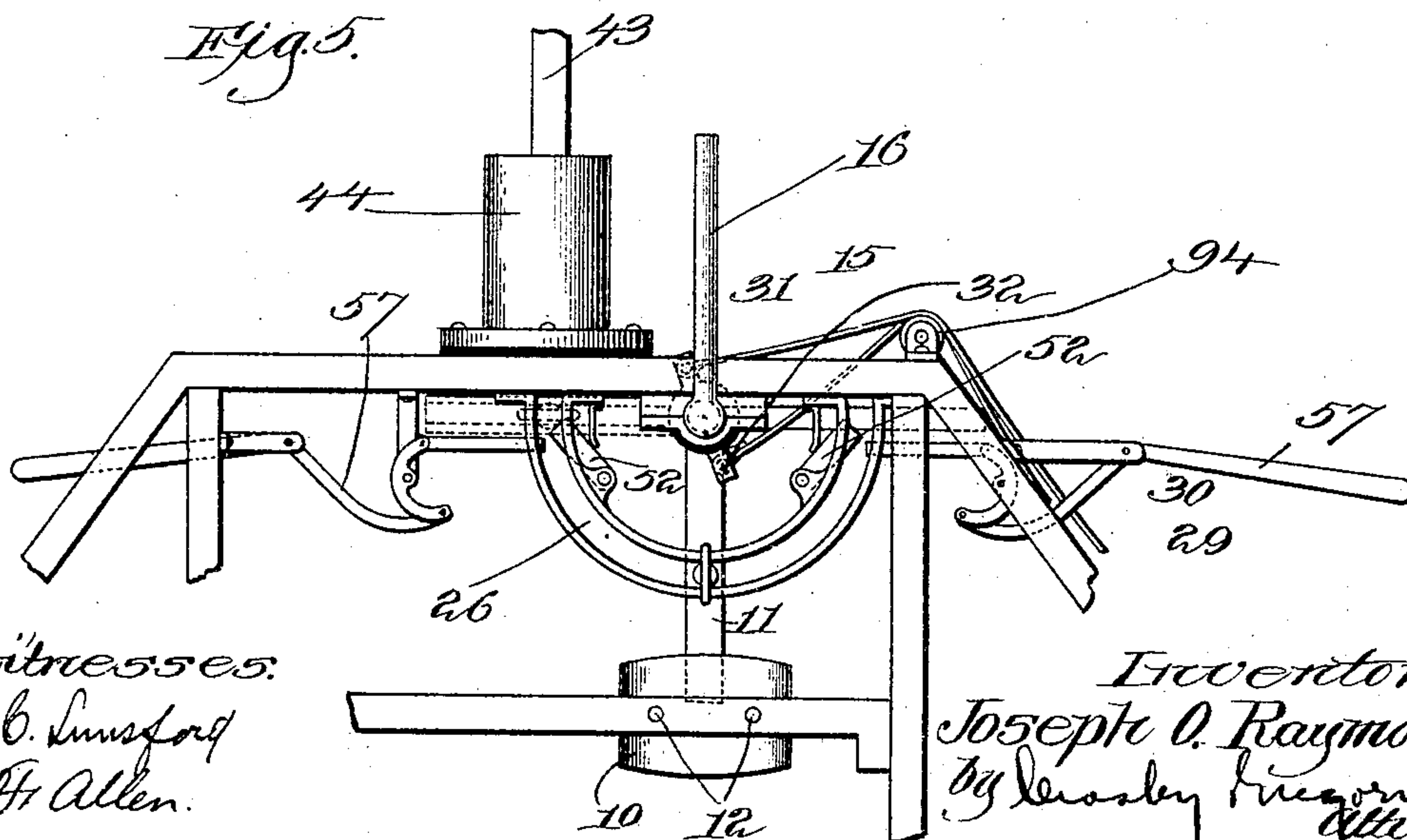


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH OLIVER RAYMOND, OF CONCORD, NEW HAMPSHIRE.

ELEVATED RAILWAY.

SPECIFICATION forming part of Letters Patent No. 764,766, dated July 12, 1904.

Application filed June 22, 1903. Serial No. 162,643. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH OLIVER RAYMOND, a citizen of the United States, residing at Concord, county of Merrimack, State of New Hampshire, have invented an Improvement in Elevated Railways, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

10 This invention relates to elevated railways or carriers which comprise in their structure an overhead track on which a carrier is adapted to run; and the object of the invention is to provide a novel form of carrier which is automatic in its operation and which is adapted to transport freight, passengers, or any commodity from one point to another.

The carrier is an electrically-propelled one, and it has on it a switch so constructed that 20 when the carrier reaches the end of its journey the switch is automatically opened, so as to throw the motor out of operation. The device also has an automatically-operated brake which is applied at the same time that the 25 switch is opened, so that the carrier is brought to rest automatically either at the end of the journey or at the various stations along the track, as desired.

The novel features of the invention will be 30 hereinafter more fully described and then pointed out in the claims.

In the drawings, Figure 1 is a side view of my improved carrier. Fig. 2 is a vertical section of Fig. 1 through the switch. Figs. 3 and 35 4 are details hereinafter described. Fig. 5 is a detail of the switch mechanism. Figs. 6 and 7 are details of the brake mechanism, Fig. 7 being a plan view of Fig. 6; and Fig. 8 is a view of the bumper employed at the end of 40 the track.

The trackway on which the carrier moves is designated by 3, and this is supported from any suitable supports, and it may either be a wire cable or a track of any other appropriate 45 construction. Traveling on the track is a carrier, comprising a carriage (designated generally by 4,) from which is suspended a cage, basket, or like device 5, in which the passengers, freight, parcels, or other commodities 50 are placed. The construction of the device is

such that the center of gravity of the entire carrier, including the carriage and the basket or cage, is below the trackway 3, so that there is no danger of the carrier falling from the track.

The carrier herein illustrated is a two-wheeled one and is electrically propelled. 55 The wheels are designated by 6 and 7, respectively, and the motor for driving the carrier may be of any suitable construction and preferably will be inclosed in a suitable casing 8^a. 60 The shaft of said motor is geared to the traction-wheel 6 by any suitable gearing. Extending parallel to the track is a conductor 8, with which a suitable trolley or current-col- 65 lector 9 engages.

One of the features of my invention relates to the means for automatically stopping the motor and the carrier when it reaches the end 70 of its journey.

Supported on the frame of the carrier are one or more stationary contacts 10, which are electrically connected to the motor in any suitable way, and coöperating with said stationary contacts are one or more swinging switch- 75 blades 11, said switch-blades and contacts forming the switch which controls the motor. I have herein shown a plurality of stationary contacts, these being in the form of plates supported by suitable rods or bars 12, and I 80 preferably mount these plates on the rods or bars, so as to permit them to have a slight movement transversely of the carrier, their movement being confined between the stops 13. I also bend the ends of each pair of con- 85 tacts away from each other, so as to form flaring mouths into which the blades 11 swing. The object in mounting the plates 10 loosely upon the bars 12 is to permit them to assume automatically the correct position for receiv- 90 ing the blades 11 between them. I have herein shown three pairs of such contacts, and co-operating with these are three switch-blades 11, one switch-blade for each pair. These switch-blades 11 are formed integral with a 95 sleeve 17, which is on a shaft 14, mounted in the frame. Automatically-operative means is employed to clutch the sleeve to the shaft, so that when the latter is turned the sleeve will be turned and the switch-blades swung 100

out of contact with the stationary plates 10. As herein illustrated, the end of the sleeve has clutch-teeth 18 thereon, which cooperate with clutch-teeth 19 on a collar 20, fixed to the shaft, and said clutch-teeth are held in engagement normally by means of a spring 21, encircling the shaft and bearing at one end against the end of the sleeve 17 and at the other end against a collar 22. The sleeve 17 is insulated from the shaft, but is electrically connected with the collector or trolley 9, so that current from the trolley will pass to the sleeve and through the switch-blades 11 to the contact-plates 10 and from there to the motor. Said contact-plates, it will be understood, are insulated from the frame of the carrier.

Situated at the end of the track or at any point along its course where it is desired to stop the carrier is a horizontally-extended tappet-arm 23, which stands in the path of one of the arms 15 or 16 at the end of the shaft.

With the parts arranged as shown in Fig. 1 and assuming that the carrier is moving to the left it will be seen that when the station or end of the track is reached the tappet-arm 23 will strike the arm 15 and turn the shaft 14 through a quarter of a revolution, thus carrying the arm 15 into horizontal position and the arm 16 into the vertical position. Since the sleeve 17 is clutched to the shaft, the turning movement of the shaft will disengage the switch-blades 11 from the contacts 10, and thus open the switch and cut the motor out. To start the motor in operation again, it is necessary to close the switch. This is accomplished by disengaging the clutch projections 18 19 and turning the sleeve about the shaft to bring the switch-blades 11 into contact with the plates 10 again, thus leaving the shaft, with the arm 16, standing vertically. In order to thus disengage the clutch projections, I have secured to the arms 11 a clutch-operating rod 25, which extends across the carrier and plays in suitable bearing-slots 26 in the frame. This rod is rigidly secured to the blades 11 and insulated therefrom, so that by pulling said rod in the direction of its length the sleeve may be moved longitudinally of the shaft 14 and the clutch disengaged. After the clutch is disengaged the sleeve may be readily swung into position to close the switch, when the spring 21 will again bring the clutch projections into engagement. It will be understood that the motor will be provided with a suitable reversing-switch, or reversing-gearing may be employed between the motor and the traction-wheel, so that when the motor is reversed and the switch closed it will proceed in the opposite direction, or to the right, Fig. 1. When it reaches its destination at the other end of the line, another tappet, 23^a, situated in the path of the vertically-arranged arm 16, will engage said arm and carry said arm into a horizontal position and the arm 15

into vertical position, as shown in Fig. 1. This turning of the shaft 14 will again open the switch on the motor, and thus cut the motor out. In Fig. 2 I have shown the position of the tappet 23^a in dotted lines, though it will be understood that said tappet is at the opposite end of the track from the tappet 23. The tappets 23 and 23^a are so arranged that they operate to turn the shaft approximately through a quarter of a revolution, so that when the switch is fully opened the rod 25 stands at one end or the other end of the guiding-slot 26. To prevent the switch from closing again after the tappet has been passed, I have illustrated suitable spring-pressed pawls 52, which engage the rod 25. When it is desired to close the switch, the active pawl may be released in any suitable way, as by lever 57.

My invention also includes a novel brake which is automatically applied at the same time that the switch is opened. In the embodiment of my invention herein illustrated the traction-wheel is provided with two brake-surfaces 27 28, and encircling each surface is a brake-band, said bands being designated by 29 and 30, respectively. The band 29 is secured at one end to a fixed part of the frame, as at 36, and after partially encircling the brake-surface 27 it extends to an arm 31, projecting from the sleeve 17. The brake-band 30 has one of its ends similarly secured to a fixed part of the frame and its other end secured to an oppositely-disposed arm 32, rigid with the sleeve. With this construction it will be seen that when the sleeve is turned in one direction one of the brakes will be applied and when turned in the opposite direction the other brake will be applied, so that the carrier will be braked at each end of its journey at the same time that the switch is opened.

If desired, I may employ a suitable buffer 34 at the end of the track to stop the carrier in case the brakes should fail to work.

In order to facilitate the passage of the carrier around curved portions of the track, the wheel 7 is swiveled to the frame to turn about a vertical axis. As herein illustrated, said wheel is journaled in a supplemental frame 38, which is pivoted at one end, as at 39, to the main frame. At the other end of the frame 38 is a pin 40, playing in a guiding-slot 41 in the main frame. Other ways of swiveling the wheel 7 to the frame may be employed, however, without departing from my invention.

Where the trackway 3 is a cable, there will of course be more or less sag between its points of support, and consequently the distance between the trolley 8 and the track 3 will vary at different points. To accommodate this variation, I have provided a yielding connection between the trolley and carriage. As herein illustrated, the trolley-wheel 9 is journaled in a suitable arm 43, which extends

into a cap or cylindrical casing 44, fast to the frame, but insulated therefrom.

The arm 43 has a head 45 thereon, which just fits the interior bore of the casing 44, so that there is a rubbing contact between these parts, and consequently always a good electrical connection. A suitable spring 46, inclosed in the casing, permits the requisite yielding motion of the trolley. It will be understood that the casing 44 is electrically connected with the sleeve 17 in any suitable way.

I have especially designed my invention for use as a means of transporting parcels or freight from a metropolis to outlying suburban districts and have therefore so constructed it that when the switch is thrown and the motor set in operation at one end of the line the carrier needs no attention whatever until it reaches the opposite end of the line, and when it does reach the opposite end of the line it will be automatically stopped at the proper point. After the load has been discharged and a fresh load put in the basket the switch may be closed again, as above described, and the motor reversed, when the carrier will proceed to the other opposite end of the line without attention and will automatically stop when the destination is reached.

While I have herein shown one embodiment of my invention, I do not wish to be limited in all details of construction to what is herein illustrated, as various changes may be made in different parts of the apparatus without in any way departing from the spirit of the invention.

98 designates gouges or plows which are pivoted to each end of the carriage-frame and are designed to be used in winter to clear the track of snow or ice. At times when these gouges are not necessary they can be removed.

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

1. In a device of the class described, a trackway, an electrically-propelled carrier adapted to travel in either direction thereon, an electric switch on said carrier, and automatic means to open said switch when the carrier reaches either end of the track.

2. In an apparatus of the class described, a trackway, a carrier adapted to travel in either direction thereon, a motor for operating the carrier, a brake for the carrier, a fixed tappet-arm, a swinging member on the carrier adapted to engage said arm, and mechanical devices connecting said member and the brake whereby the latter is continuously applied by the movement of the car.

3. In an apparatus of the class described, a trackway, a carrier adapted to travel in either direction thereon, a motor for operating the carrier, a strap-brake for the carrier, and automatic means to apply said brake when the carrier reaches either end of the track.

4. A trackway, an electrically-propelled carrier on said track, a switch on the carrier, a strap-brake for the carrier, and automatic mechanical means to apply the brake and open the switch when the carrier reaches the end of the track.

5. A track, a reversible carrier adapted to move either forward or backward thereon, a switch on the carrier comprising a swinging switch-blade, constructed to swing in both directions from its central position, and automatic means to swing said blade and open the switch when the carrier reaches either end of the track.

6. A trackway, an electrically-propelled carrier thereon, a strap-brake on said carrier, a switch comprising swinging switch-blades and stationary contacts, and automatic mechanical means to swing said blades and open the switch and also apply the brake when the carrier reaches the end of the track.

7. A trackway, a carrier thereon, two oppositely-disposed band-brakes, and automatic means whereby one of said brakes is applied when the carrier reaches one end of the track and the other of said brakes applied when the carrier reaches the other end of said track.

8. In a trackway, a carrier thereon, one of the wheels of the carrier having two brake-surfaces, two oppositely-disposed band-brakes for engaging said surfaces, a horizontal shaft having its ends bent, connections between said shaft and said brake-bands whereby the turning movement of the shaft in one direction applies one brake and in the other direction applies the other brake, and tappets at the ends of the track for turning said shaft.

9. A trackway, an electrically-propelled carrier thereon, a horizontal shaft supported by the carrier and having its ends at right angles to the shaft and also at right angles to each other, switch-blades carried by the shaft, and a tappet at each end of the track, said tappets being adapted to engage the bent ends of the shaft as the carrier moves over the track.

10. A trackway, an electrically-propelled carrier thereon, a horizontal shaft supported by the carrier, said shaft having its ends bent and standing at right angles to each other, a sleeve on said shaft, automatically-operated means to clutch the sleeve to the shaft, switch-blades connected to the sleeve, stationary contacts to coöperate with said switch-blades, tappets at the ends of the track, for engaging the bent portion of the shaft, and means to unclutch the sleeve from the shaft.

11. In an elevated-railway structure, a cable constituting a track, an electrically-propelled carrier running on the track, a conductor extending parallel with the track, a cylindrical casing carried by the carrier, a trolley-arm having a head inclosed in the casing, and a spring to permit yielding movement of the arm relative to the carrier, the rubbing con-

tact between the head and the casing maintaining good electrical connection.

12. A trackway, an electrically-propelled carrier adapted to travel both backward and forward thereon, a rock-shaft supported by said carrier, a switch-blade carried by said shaft, a stationary switch-contact with which said blade is in engagement when in its central position, means to turn said shaft in one direction to open the switch when the car reaches one end of the track, and means to turn said switch in the opposite direction when the car reaches the other end of the track.

13. A trackway, an electrically-propelled carrier adapted to travel both backward and forward thereon, a rock-shaft supported by said carrier, a switch-blade carried by said shaft, a stationary switch-contact with which said blade is in engagement when in its central position, means to turn said shaft in one direction to open the switch when the car reaches one end of the track, means to turn

said switch in the other direction when the car reaches the other end of the track, and latches to hold the switch in its open position.

14. A trackway, an electrically-propelled carrier adapted to travel both backwardly and forwardly thereon, a rock-shaft on the carrier, a sleeve on said shaft, a switch-blade secured to said sleeve, a stationary contact with which said blade coöperates, a clutch connecting the sleeve and shaft, means to turn the shaft in one direction to open the switch when the carrier reaches one end of the track, and means to turn said shaft in the opposite direction to open the switch when the carrier reaches the other end of the track.

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

JOSEPH OLIVER RAYMOND.

Witnesses:

E. LAPIERRE,
SAML. DAVIS, Jr.