

(No Model.)

3 Sheets—Sheet 1.

J. H. MCGURTY.
ELEVATED ELECTRIC RAILWAY.

No. 560,917.

Patented May 26, 1896.

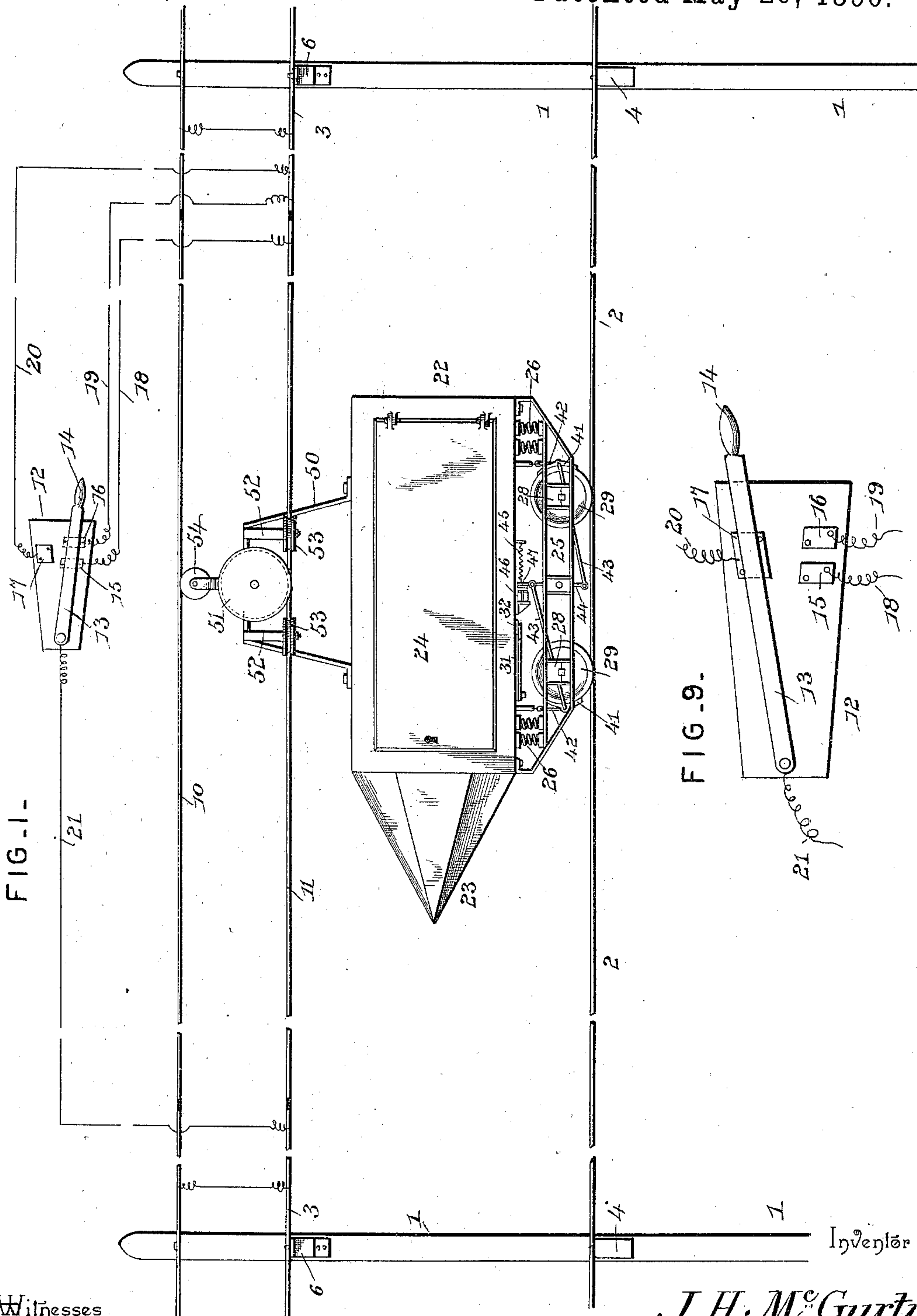


FIG. 1-

FIG. 9.

Witnesses

Jas. K. McCathran
U. B. Hillyard.

By His Attorneys,

J. H. McGurty

C. A. Snow & Co.

(No Model.)

3 Sheets—Sheet 2.

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FIG. 2.

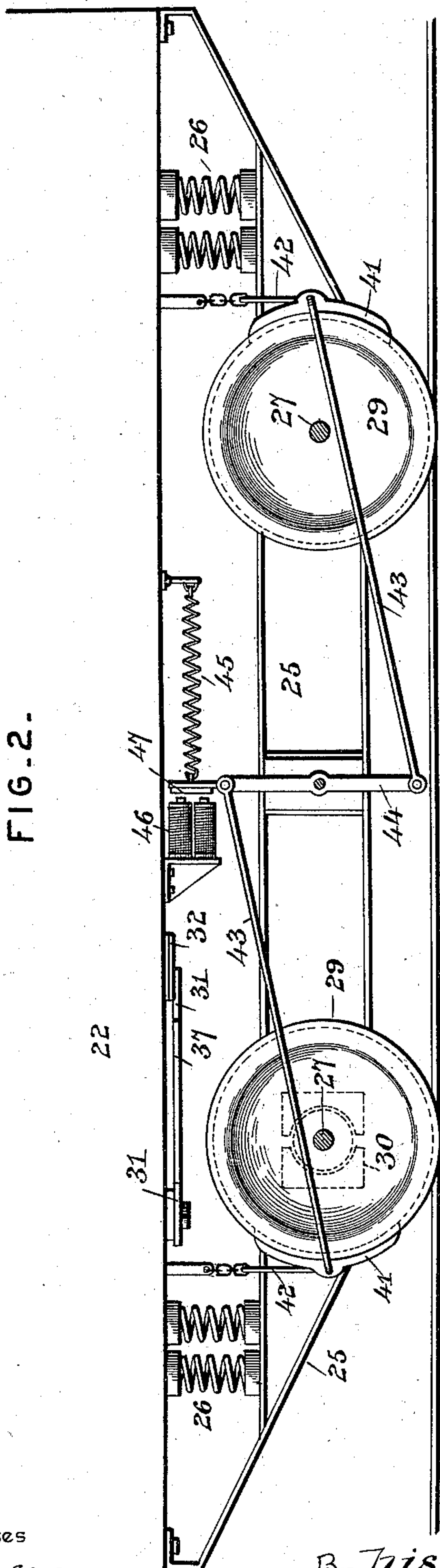


FIG. 8.

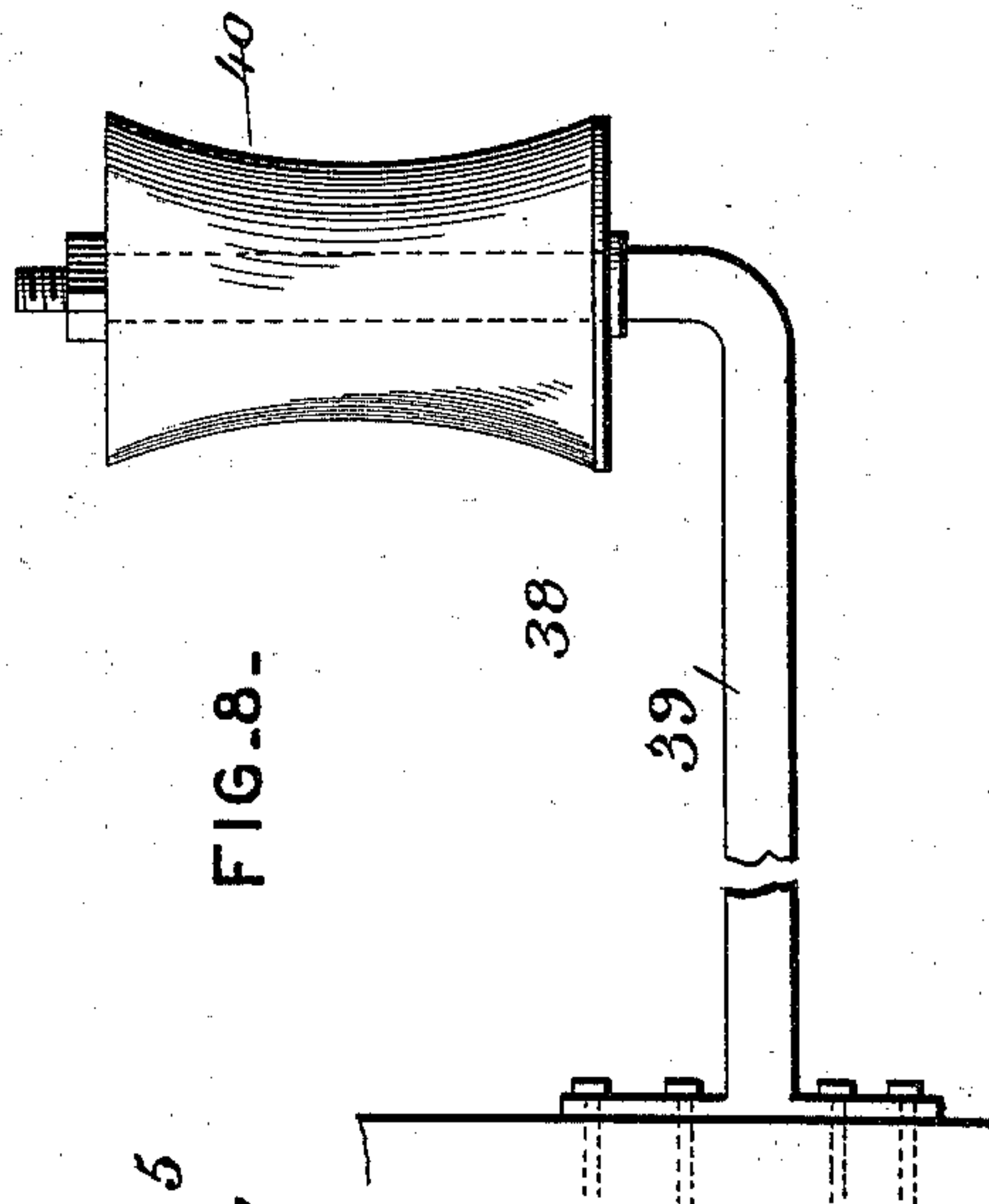


FIG. 7.

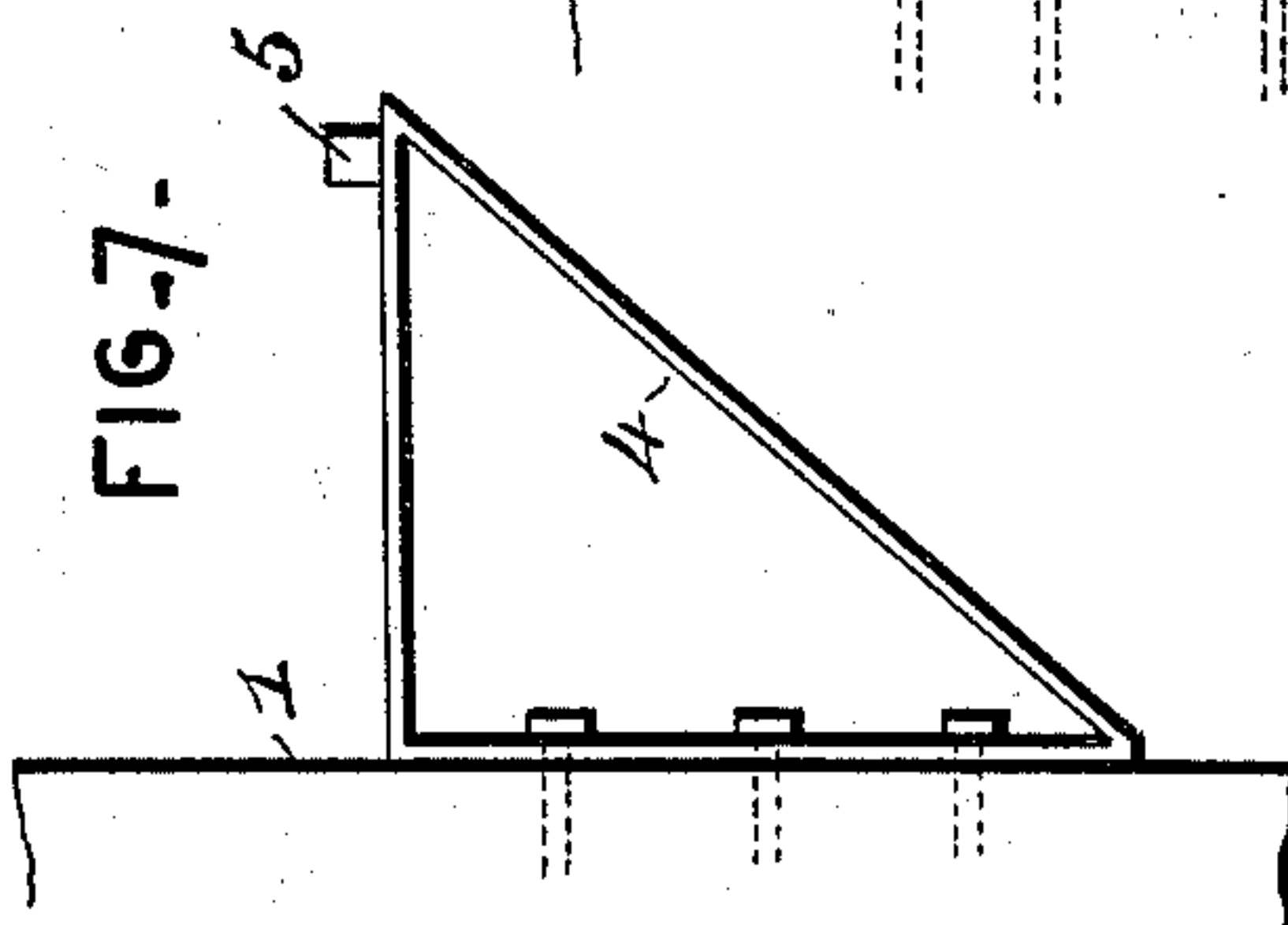
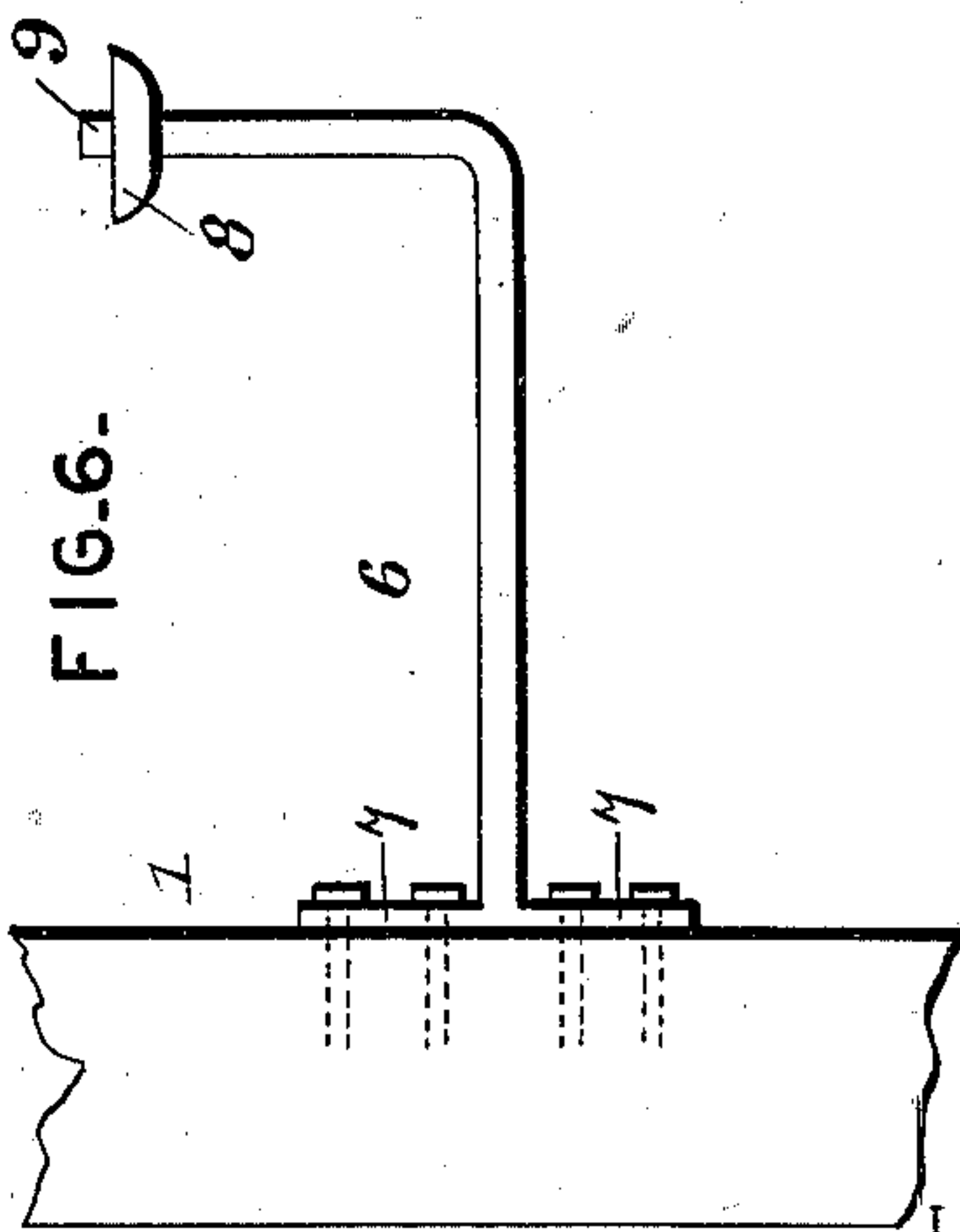


FIG. 6.



Inventor

J. H. McGurty

By His Attorneys,

C. A. Snow & Co.

Witnesses

Jas. K. McCathran
V. B. Hillyard.

(No Model.)

3 Sheets—Sheet 3.

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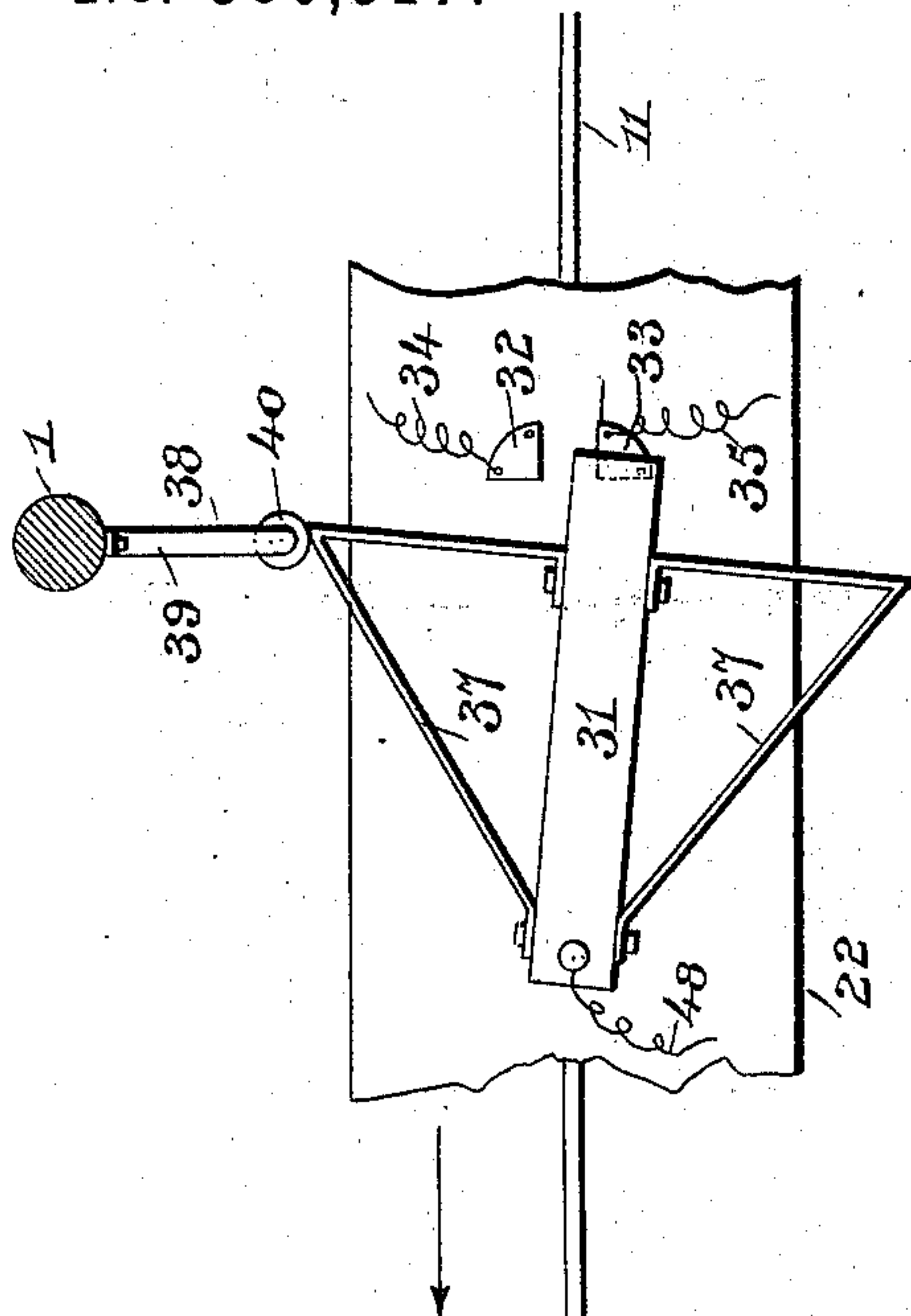


FIG. 3 -

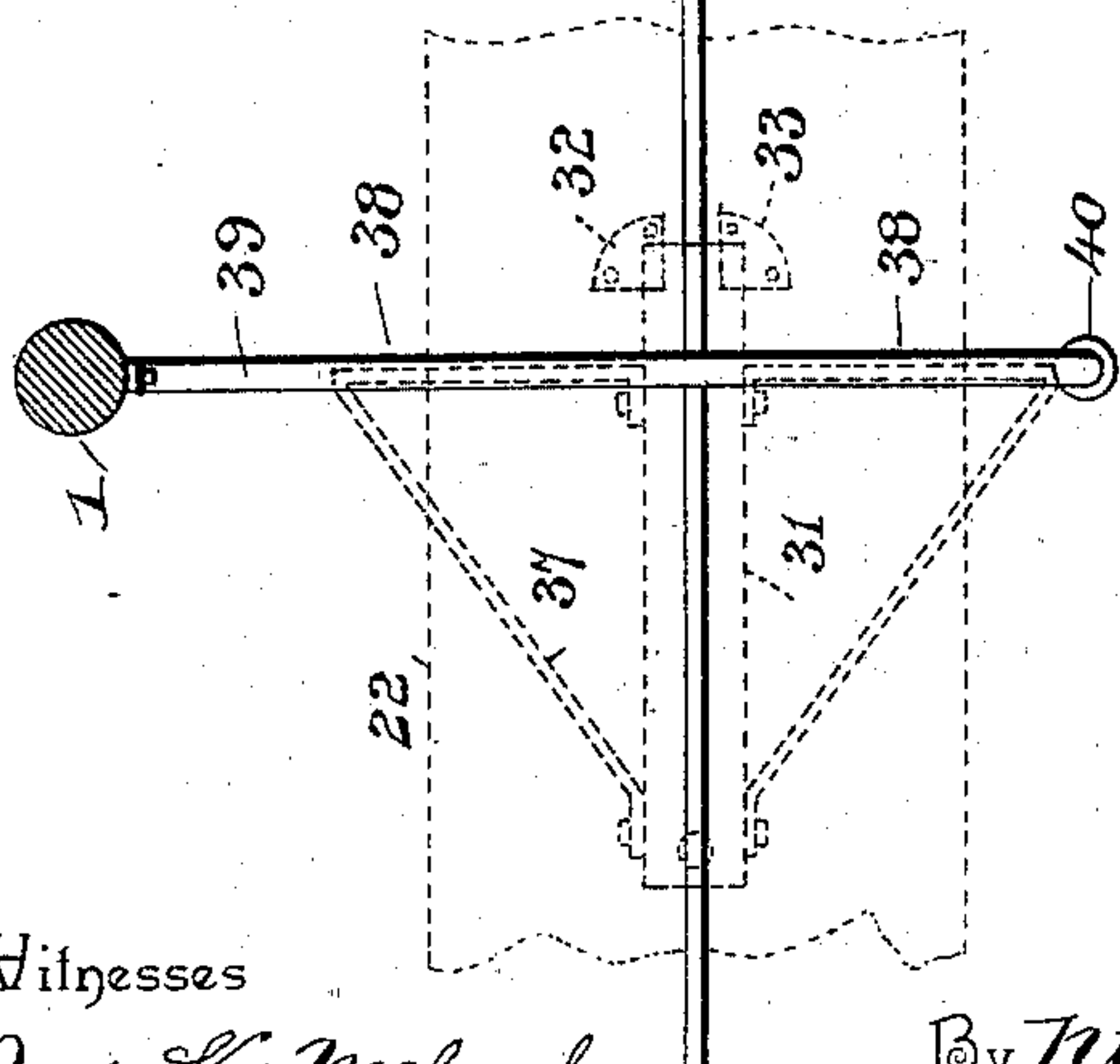
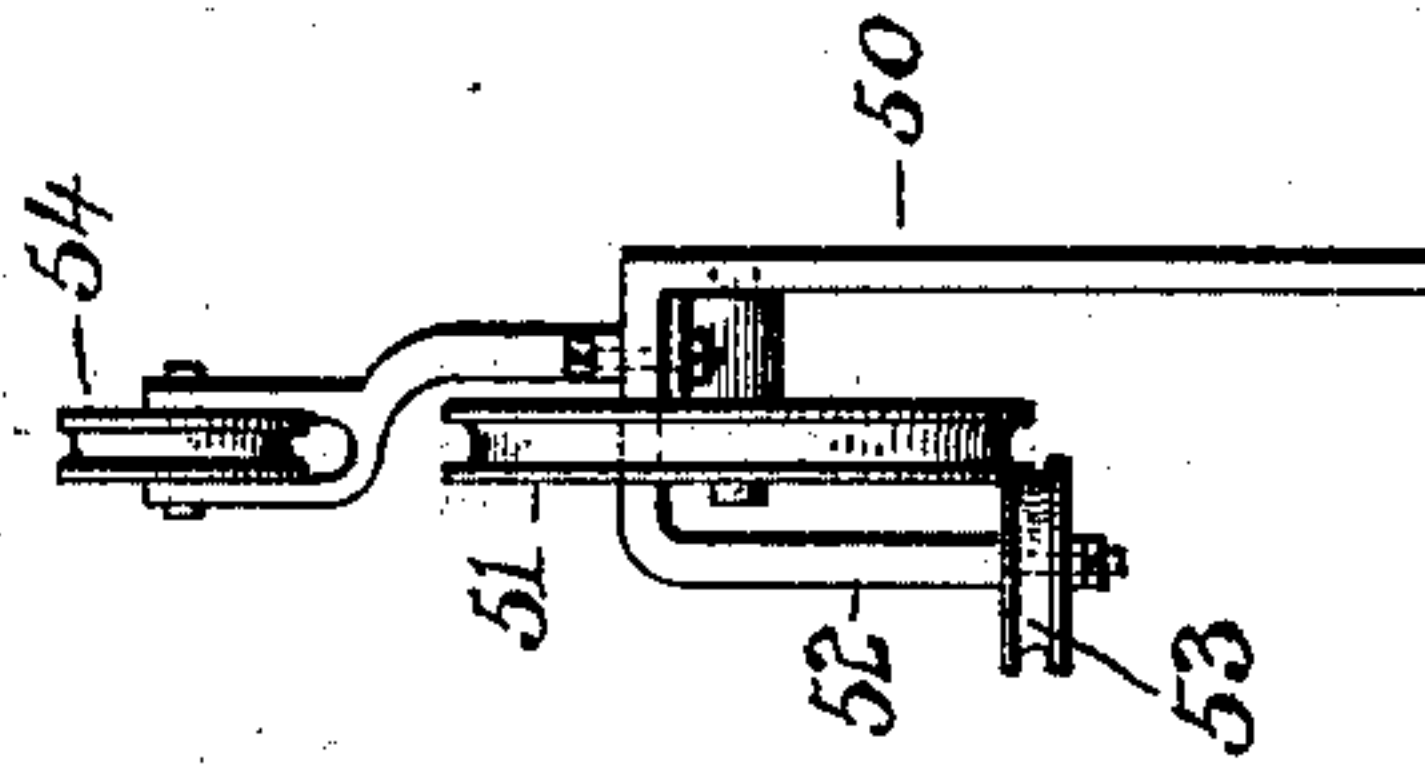


FIG. 4 -

FIG. 5.



Witnesses

Jas. K. McLaughlin
V. B. Hillyard.

By this Attorneys.

J. H. McGurty

C. Snow & Co.

UNITED STATES PATENT OFFICE.

JAMES H. MCGURTY, OF JERSEY CITY, NEW JERSEY.

ELEVATED ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 560,917, dated May 26, 1896.

Application filed June 13, 1895. Serial No. 552,716. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. MCGURTY, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Elevated Electric Railway, of which the following is a specification.

This invention relates to electric railways or systems for transporting mail, express packages, and parcels or bundles, and in which the car or carrier is controlled mechanically and automatically and is stopped and started from stations along the line of railway by the telegraph-operator or other attendant at the respective stations, thereby obviating the necessity of an attendant to accompany the car.

The invention aims to provide a switch upon the car or carrier and to locate at proper intervals along the railway trips for engaging with the switch to make and break the circuit automatically, whereby the speed of the car can be controlled, so as to prevent derailment of the car or accidents resulting from the car moving at a high rate of speed. This is of vital importance on downgrades and at curves where it is desirable to slacken or diminish the speed of the car.

The invention also aims to provide a switch under the control of an attendant or telegraph-operator at the several stations along the route, by means of which the car can be brought to a stop at the required station or caused to pass by the same as desired, said switch being so connected with the conductor or line-wire as to cut a section thereof out of circuit without interrupting the main circuit and cutting off the supply of electrical energy from other cars at remote points along the line.

The invention further aims to provide a system or electric railway for the purposes aforesaid, which will be efficient in service and in which the movement of the car will be responsive to the circuit-controlling devices, so that the speed of the car can be slackened or the car stopped, as required.

Other objects and advantages of the invention will be apparent as the nature of the improvements is understood from the following description and the drawings hereto attached, in which—

Figure 1 is a side elevation showing the ap-

plication of the invention. Fig. 2 is a side elevation of the car-truck and the attached parts on a larger scale. Fig. 3 is a detail view showing the manner of automatically cutting the car in and out of circuit. Fig. 4 is a diagrammatical view showing the electrical connections and circuit. Fig. 5 is a detail view, in edge elevation, of the trolley. Figs. 6, 7, 8, and 9 are detail views.

The numeral 1 indicates the poles or supports along the prescribed line of railway, and these poles may be wooden posts or of iron, such as generally provided for electric trolley-lines or for telegraph and telephone wires. The lower supporting line or track 2 corresponds with the upper track 3, and these tracks or lines 2 and 3 extend in parallel relation and on the same side of the poles or supports 1, and are attached to the latter in any convenient manner. Triangular-shaped brackets 4 are bolted or spiked to the sides of the poles 1 and support the lower track 2 at their outer ends, which ends have vertical projections 5, which are adapted to enter corresponding openings in the track 2 and by means of which the said track is held in place against any lateral movement. The upper brackets 6 have plates 7 at their inner ends, which obtain an extended bearing against the side of the poles 1, and which receive the fastenings by means of which the brackets are firmly attached to the said poles, and these brackets 6 extend outwardly from the plates 7 and are bent or curved upwardly at their outer ends and terminate in seats 8, from which rise vertical extensions 9 for a like purpose to the projections 5 of the brackets 4. The tracks 2 and 3 are of similar construction and are metal bars of sufficient mass so as not to sag appreciably between their supporting-brackets and to support the weight of the loaded car without giving way. The upper track or line 3 is used as a conductor for conveying the electric current to the operating parts of the car in the usual manner. A duplicate set of tracks will be provided on the opposite side of the poles and they will be supported in substantially the same manner as the corresponding tracks. One set of tracks will be used for the outgoing car or carrier and the opposite set will be employed for the incoming or returning car in the usual manner.

A trolley-wire 10 extends parallel with the upper line or track 3 and is electrically connected with the latter at proper intervals, so as to keep it supplied with sufficient current to propel the loaded car, and this trolley-wire 10 is connected with the dynamo or other source or generator by means of which the electric current is created to be utilized in the manner set forth. This trolley-wire 10 will be attached to the poles 1 and have connection with the track or line 3 in any convenient manner, so as to effect the desired results in a satisfactory manner.

At the required stations along the line of the electric railway a section of the track or line will be electrically insulated, whereby when required the electric current can be cut off from the car and the latter brought to a stop for receiving or delivering matter or for any required purpose. This insulated section 11 will be from eight hundred to a thousand feet in length, more or less, and will be so disposed that the station will occur at a point about midway the ends thereof, and by this arrangement the car will be brought to a full stop about opposite the station and at a middle point of the said insulated section. The switches for cutting the section 11 into and out of circuit will be similarly constructed and consist of a base 12, of vulcanite or other non-conductor, a lever 13, pivoted at one end to the base 12 and having an operating-handle 14 at its opposite end, and contact-plates 15, 16, and 17, which form the terminals of the respective conductors 18, 19, and 20. The contact-plates 15 and 16 are juxtaposed and are on the same side of the base 12, so as to be electrically connected by the switch-lever 13 when it is not required to cut the section 11 out of circuit, and the contact-plate 17 is placed on the opposite side of the base 12, and when the switch-lever 13 occurs thereover the section of track or line 11 is cut out of circuit. A wire or conductor 21 connects the switch-lever 13 with the track or line 3 in proximate relation to the insulated section 11 thereof, and the wires or conductors 19 and 20 connect the said track or line 3 exterior to the section 11 with the respective contact-plates 16 and 17, and the wire 18 connects the contact-plate 15 with the insulated section 11. Thus it will be apparent that when the switch-lever 13 is in engagement with the contact-plates 15 and 16 the insulated section 11 is in circuit, and when the said lever is in engagement with the contact-plate 17 the said section 11 is cut out of circuit, and when the section 11 is not in circuit the current on the main line is not interrupted as it passes around the said section through the wire 21, switch-lever 13, contact-plate 17, and the wire 20.

A car or carrier 22 is about three feet broad, four feet high, and eight feet long, more or less, and is tapering or pointed at its forward end, as shown at 23, so as to offer a minimum amount of resistance in its rapid transit through the air. This car is substantially

built and access is had thereto through an opening in its side which is closed by a door 24, which is adapted to be securely fastened and locked when the car is started on its journey. The car will be mounted upon a truck-box frame 25 of any approved construction, and suitable buffers 26 will be interposed between it and the truck-frame, so as to relieve jolt and jar, as will be readily appreciated. The axles 27 will be journaled at their ends in boxes 28 and will have grooved supporting-wheels 29 midway of their ends, one wheel being provided for each axle, and these grooved wheels are adapted to travel upon the track 2 and support the car thereon.

Any style of electric motor usually employed for propelling cars will be adopted and applied to either axle of the car, and, as shown, this motor 30 is applied to the front axle and is arranged so as to propel the car in any of the usual ways.

The switch applied to the car for making and breaking the circuit automatically consists of a pivoted plate 31 and contacts 32 and 33, which latter are arranged to be electrically connected by the circuit-closing plate 31 when the car is running under normal conditions. The contact 32 is connected with one terminal of the motor by means of a wire 34, and the contact 33 is connected with the other terminal of the motor by means of a wire 35, and the plate 31 is at all times in circuit by means of the wire 48. Frames 37 are attached to the opposite edges of the plate 31, and their front edges are oppositely inclined and extend beyond the sides of the car so as to be engaged by trips 38, properly disposed so as to interrupt or make the circuit, as desired. The trips 38 comprise bracket-arms 39, having spools or concaved rollers 40 mounted upon their vertical ends, and these spools or rollers are constructed to engage with the inclined edges of the frames 37 and move the same so as to make or break the circuit. At points along the line of the track corresponding with downgrades and short curves these trips 38 are disposed in pairs on opposite sides of the track, one trip being located at the beginning of the grade or the curve, so as to engage with the frame 37 and interrupt the circuit, and the other trip being disposed at the end of the downgrade or curve, so as to engage with the opposite frame 37 and again close the circuit, whereby the car is propelled by positive means to the limit of its travel, as will be readily appreciated.

The brake mechanism for stopping the car may be of any suitable pattern, and is arranged to bear against the supporting-wheels 29, when the circuit is interrupted, and which is thrown out of working position when the circuit is established. Hence it will be seen that the interrupting of the circuit in any manner not only disconnects the car from its propelling mechanism, but at the same time results in an application of the brakes, thereby insuring the stopping of the same. The brake-

shoes 41 are suspended from hangers 42 pendent from the car, and are connected by means of links 43 with an operating-lever 44, pivoted between its ends to the truck-frame, said links 5 having pivotal connection with the lever 44 on opposite sides of and at points equidistant from the fulcrum of the said lever, whereby a movement of the lever 44 will simultaneously apply or release the brake-shoes from the respective supporting-wheels. A spring 10 45 is arranged and operatively connected with the lever 44, so as to apply the brakes. An electromagnet 46 is conveniently located, and its armature 47 is permanently attached to 15 the lever 44, and said electromagnet 46 when energized attracts the armature 47 and overcomes the force of the spring 45 and moves the lever 44 and releases the brakes, as will be readily comprehended.

20 When the electromagnet 46 is demagnetized by the interruption of the circuit or from any other cause, the spring 45, regaining itself, sets the brakes and brings the car to a full stop. One terminal of the electromagnet 46 25 is connected by means of a wire 48 with the plate 31 and its opposite terminal has connection with the trolley mechanism by means of a wire 49. Thus it will be seen that the electromagnet and the motor are in the same 30 circuit and are vitalized by the electric current utilized for propelling the car.

A frame or standard 50 is attached to the top side of the car and projects vertically and is adapted to support the trolley mechanism. A vertically-disposed trolley-wheel 35 51 is journaled to the frame 50 and is grooved in its periphery and is adapted to travel upon the line or track 3. Overhanging brackets 52 project from the side of the frame or standard 50, one on each side of the trolley-wheel 40 51, and small trolley-wheels 53 are journaled upon the lower ends of the said brackets 52 and are disposed in horizontal relation and are grooved in their peripheries to receive 45 the side of the track or line 3. The trolley-wheel 51 is about a foot in diameter and is located intermediate of the trolley-wheels 53, and the track or line 3 is located between the trolleys 53 and the frame or standard 50 50 and immediately below the trolley 51, and, inasmuch as the strain is in a downward direction upon the track 3, there is no possible chance for the accidental displacement of the track from the several trolleys and their supporting-frame. An auxiliary trolley-wheel 55 54 is located above the trolley-wheel 51 and is mounted upon a bracket-arm 55, attached at its lower end to the frame or standard 50. This trolley-wheel 54 is grooved in the usual 60 manner and is arranged to travel upon the trolley-wire 10 and forms a direct and positive connection between the trolley mechanism and the feed or supply wire 10, as will be readily understood. These several trolley- 65 wheels 51, 53, and 54 are in electrical connection with the wire 49 and form a group of movable contacts for receiving the current

and transmitting the same to the actuating mechanism of the car.

The electric railway being equipped in substantially the manner herein set forth, the operation thereof may be briefly stated as follows: The car, being loaded with the packages, parcels, or like matter to be transported, and the plate 31 being set so as to 75 close the circuit, is propelled upon the tracks 2 and 3 in the manner well understood in the art of electric railways. When a downgrade or short curve is reached, one of the frames 37 is engaged by means of a trip 38 and is 80 moved so as to interrupt the circuit by shifting the plate 31, and this breaking of the circuit cuts off the motor from its energizing medium and results in the car slackening its speed, and after the curve has been passed 85 or the limit of the downgrade reached the frame 37, opposite to that previously operated, is struck by the second trip 38 and is moved so as to shift the plate 31 and again 90 make the circuit, whereby the motor is connected with its propelling medium.

When it is required to stop the car at any station along the route, the operator at said station shifts the switch-lever 13 from the 95 contact-plates 15 and 16 onto the contact-plate 17, thereby throwing the insulated section 11 at the station out of the circuit, and when the car reaches this insulated section the current will be cut off from the motor and the electromagnet 46 and the brakes will 100 be applied, so as to bring the car to a standstill. After the packages or other matter have been taken from the car and any parcels to be advanced have been loaded therein the car is closed and made secure and the 105 switch-lever 13 moved into engagement with the contact-plates 15 and 16, thereby bringing the insulated section into circuit, and the current being established the car will be 110 propelled to the required destination, its movements being controlled in the manner set forth.

By having the track 3, forming the working line, paralleled by the feed-line 10 the insulated sections of each at a required station 115 can be shunted to bring the car to a full stop when the said station is reached without interrupting the current on the remaining portion of the lines or at any other station, or two or more stations can be cut out of circuit at the same time without disturbing the 120 supply of current to the running cars.

The particular construction of the tracks 2 and 3 and the manner of supporting the same are not material, so far as the broad principles of the invention are concerned, and instead of said tracks being formed of metal bars they may be replaced by cables and the operation will be the same as that previously 125 described.

The pattern and style of the car or carrier 130 may be other than that shown, and in the embodiment of the invention it is to be understood that various changes in the form,

proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

5 Having thus described the invention, what is claimed as new is—

1. In an electric railway, the combination with a track, an electric conductor, and an electrically-propelled car, of a switch provided on the car and adapted to be moved horizontally, a trip disposed at one side of the track to engage with and move the switch laterally to break the circuit, and a second trip arranged at the opposite side of the track to engage with the said switch and move it laterally to a normal position and establish the circuit, substantially as set forth for the purpose described.

2. In an electric railway for transporting mail and express matter, the combination with a track, an electric conductor, and an electrically-propelled car, of a switch carried by the car and comprising two electrical contacts and a plate pivoted at one end and adapted to move horizontally, and provided with oppositely-inclined edges, a trip arranged at one side of the track to engage with an inclined edge of the pivoted plate and move the latter horizontally to break the circuit, and a second trip disposed at the opposite side of the track to engage with the other inclined edge of the pivoted plate and move the latter horizontally to establish the circuit, substantially as set forth for the purpose described.

3. In an electric railway, the combination of a track forming an electric conductor or working line and having an insulated section, an electric feeder extending parallel with the working line and having an insulated section corresponding with the insulated section of the working line and electrically connected therewith upon opposite sides of the insulated section to supply the working line with a current, an electrically-propelled car making electrical connection with the said working line and electric feeder, and a switch electrically connected with the working line and its insulated section and adapted to throw the insulated sections of the working line and the electric feeder into and out of circuit, where-

by the car can be cut off from its propelling medium without interrupting the current through the balance of the working line and feeder, substantially as specified.

4. In an electric railway, the combination of an electrically-propelled car, a line or track forming a conductor, a feed or trolley wire extending parallel with the track and electrically connected therewith at intervals, a trolley-wheel carried by the car and adapted to travel upon the main conductor, and an auxiliary trolley-wheel supported by and movable with the main trolley and adapted to travel upon the feed or trolley wire and electrically connected with the car, substantially as described for the purpose set forth.

5. An electric railway comprising elevated upper and lower tracks, one of the said tracks forming an electric conductor and having at required intervals in its length electrically-insulated sections, an electrically-propelled car adapted to travel upon the track and actuated by means of the current derived from the said conducting-track, a brake mechanism mounted upon the car and normally held applied when the circuit is interrupted, an electromagnet in the same circuit with the motor and constructed to unset the brakes when the current is established, a switch placed upon the car, and comprising a plate pivoted to swing horizontally, trips disposed at proper intervals in the length of and upon opposite sides of the track to engage with the pivoted plate and move it positively and automatically in opposite directions for making and breaking the circuit, whereby the movement of the car is controlled, and a switch under the control of the operator at the several stations whereby the electrically-insulated sections of the track can be thrown into and out of circuit so as to bring the car to a standstill at the station or cause it to pass by the said station, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES H. MCGURTY.

Witnesses:

C. R. JOHNSTON,

C. THROOVN WALLMENICT.