

No. 720,523

PATENTED FEB. 10, 1903.

L. HORINKO.
SWITCH DEVICE.

APPLICATION FILED OCT. 4, 1902.

NO MODEL.

3 SHEETS—SHEET 2.

Fig. 2. *A*

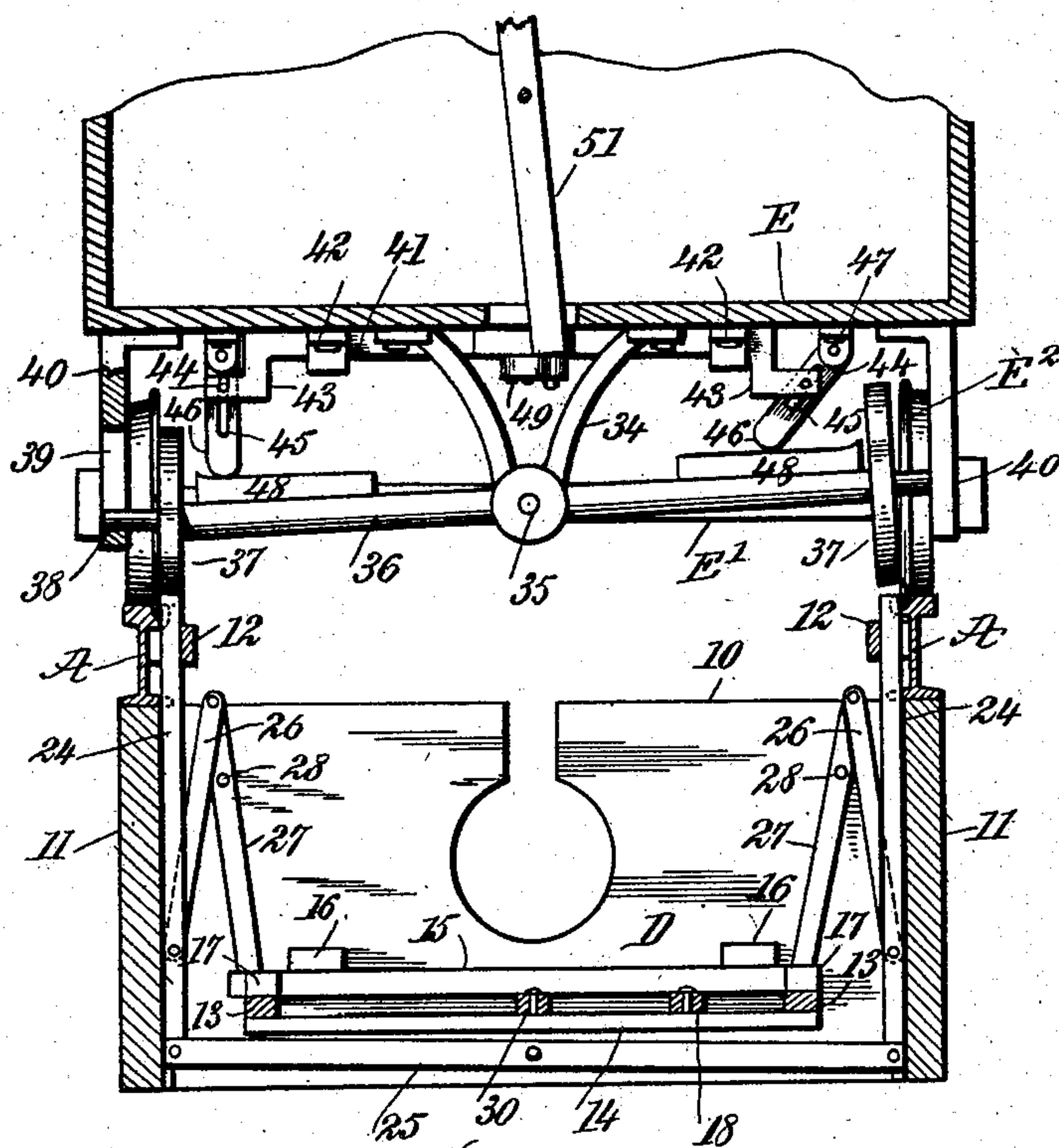
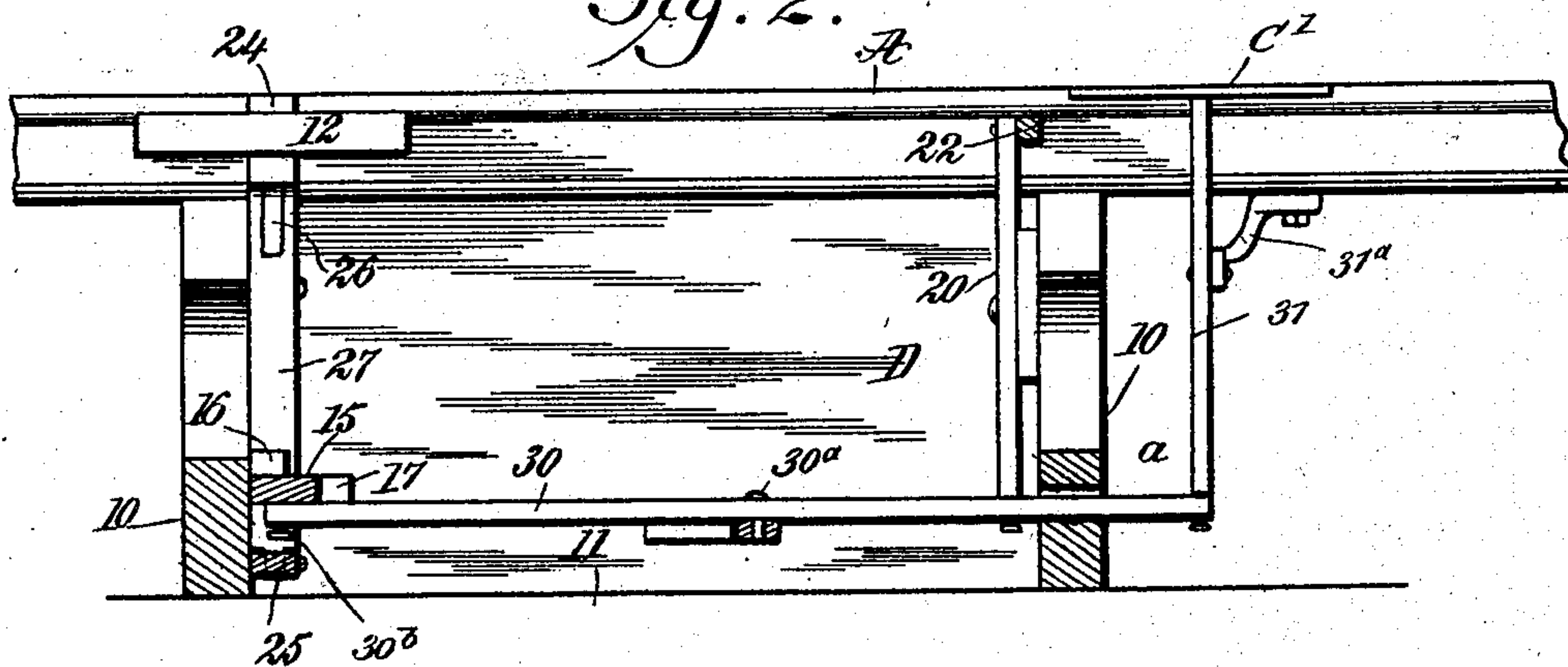


Fig. 3.

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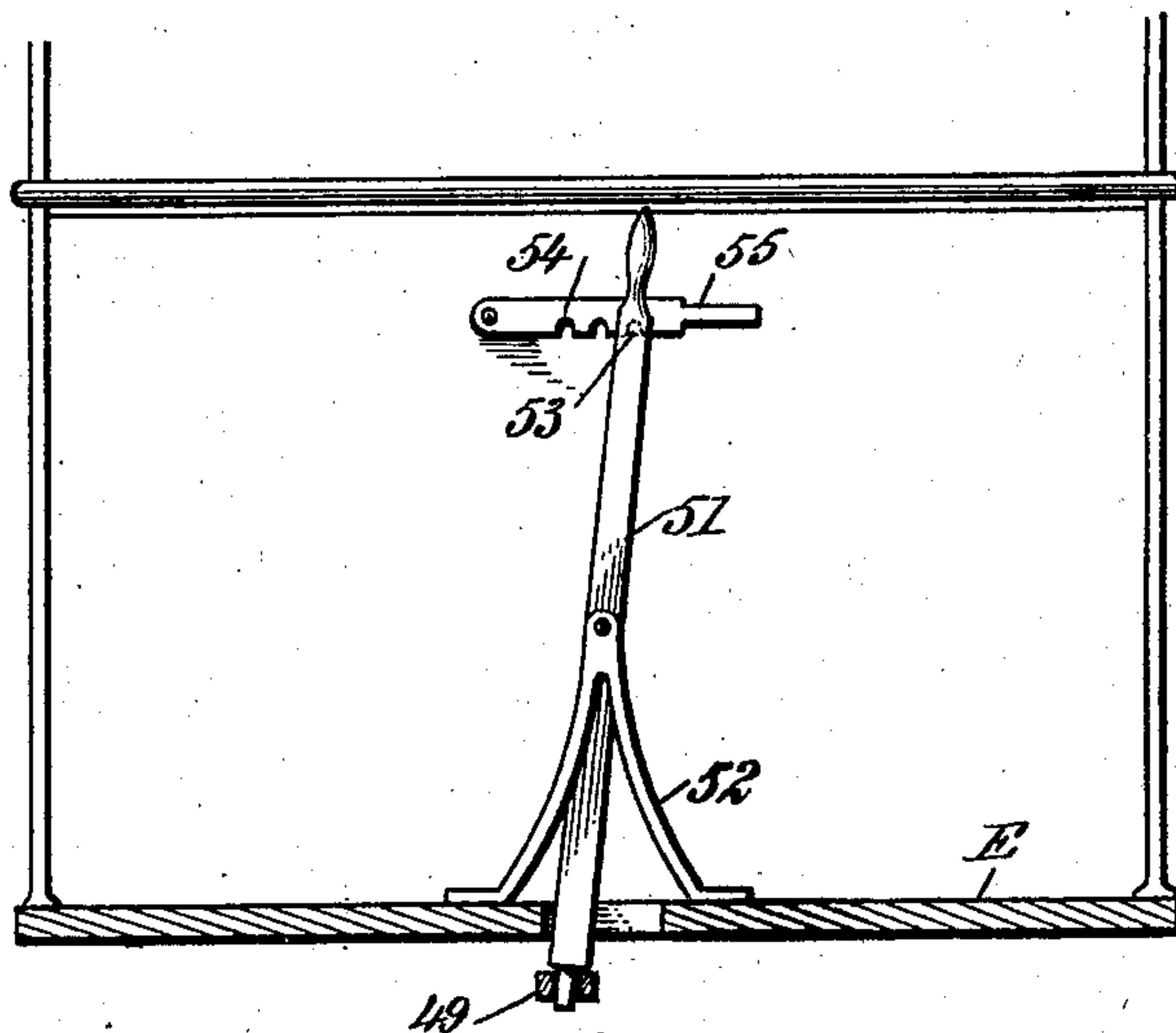
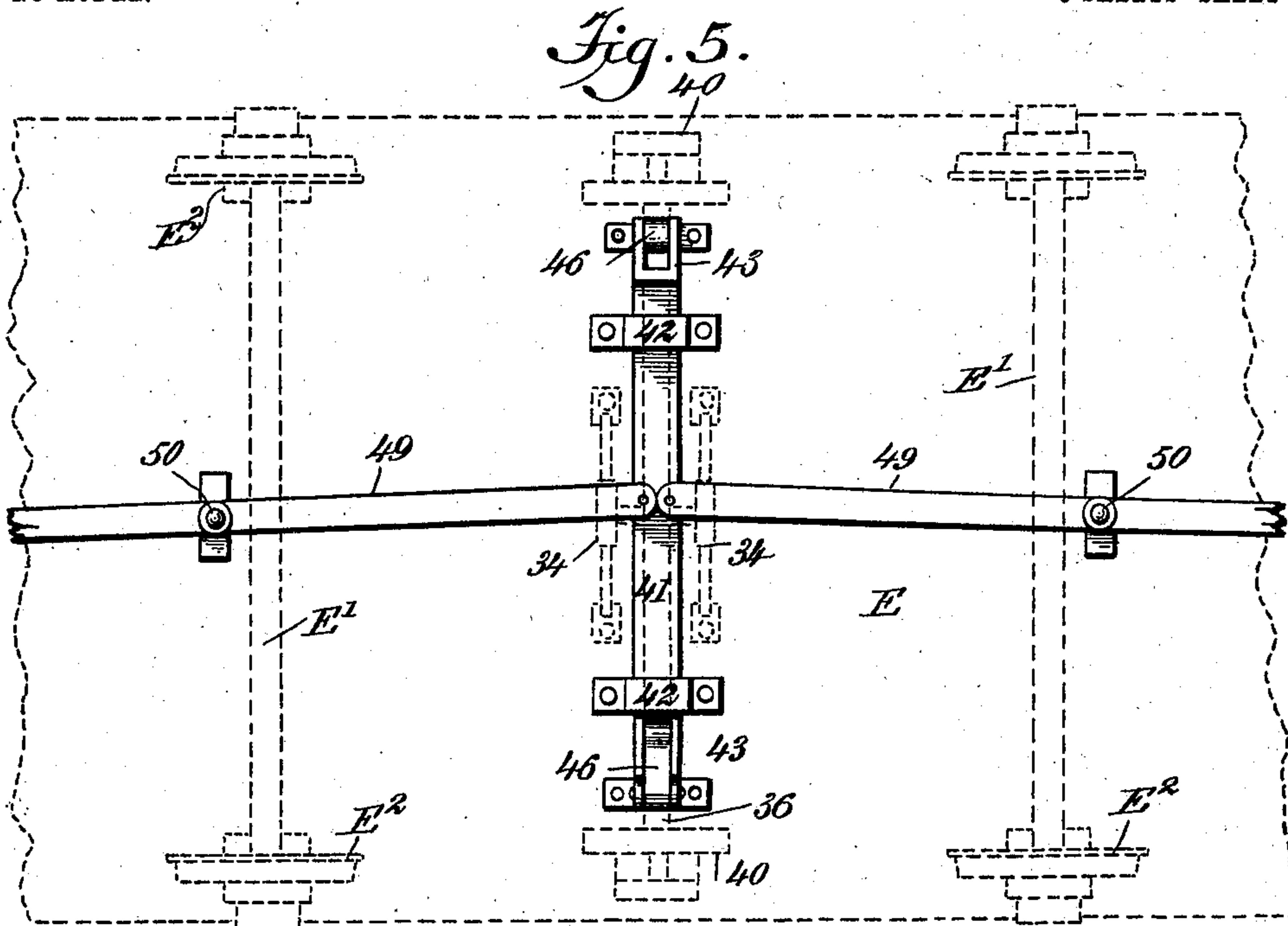


Fig. 6.

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UNITED STATES PATENT OFFICE.

LEONARD HORINKO, OF NEW YORK, N. Y.

SWITCH DEVICE.

SPECIFICATION forming part of Letters Patent No. 720,523, dated February 10, 1903.

Application filed October 4, 1902. Serial No. 125,969. (No model.)

To all whom it may concern:

Be it known that I, LEONARD HORINKO, a subject of the Czar of Russia, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Switch Device, of which the following is a full, clear, and exact description.

My invention relates to that class of switches which is operated from a moving car; and the purpose of the invention is to provide a simple and economic mechanism for shifting a switch-point, which mechanism is located below the road-bed and is protected against the inclemency of the weather, initial points only of such mechanism appearing at the tread of the rails.

A further purpose of the invention is to provide a rocking roller-trip device for the switch-shifting mechanism, which device is carried by the car-motor or engine and is conveniently operated therefrom to engage with either exposed initial point of the switch-operating mechanism to automatically throw the switch point or points in the desired direction.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a section of tracks in which switch-points are located and a plan view of the mechanism for operating the switch-points. Fig. 2 is a longitudinal section taken practically on the line 2 2 of Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 1 through the bottom portion of the car and through the well in which the switch-point mechanism is located, illustrating the trip device carried by the car as about to engage with one of the exposed points of the switch-operating mechanism. Fig. 4 is a transverse section taken substantially on the line 4 4 of Fig. 1. Fig. 5 is a bottom plan view of the mechanism at the bottom of a car for operating the device for communicating proper motion to the switch-operating mechanism; and Fig. 6 is a transverse section

through the platform of a car, illustrating a hand-lever in side elevation adapted to communicate motion to the devices shown in Fig. 5. 55

A represents the main rails of a track; A', the central or slot rail for the cable or underground-trolley road; B, the switch-rails from the main rails, and B' the switch-rails connecting with the slot-rail, while C represents the switch-point for one of the main rails, and C' the switch-point for the slot-rail. 60

A well D is formed beneath the rails A and A', extending from the switch-points C and C' any desired distance in an opposite direction or in direction of the movable ends of the switch-points. This well D consists, preferably, of end members 10, which extend across and below the rails A and A', and side members 11, upon which the outermost rails of the main track may be laid, if desired. Longitudinally of the said well D, parallel with the side sections of the bottom of the said well, bars or stringers 13 are firmly secured at their ends to the end sections 10 of the well, and a cross-bar 14 centrally connects the said stringers 13, the cross-bar being preferably secured to the under surfaces of the said stringers. 70 75

At that end of the well D farthest removed from the switch-points C and C' a shifting-bar 15 is held to slide on the stringers 13, as is shown best in Figs. 1 and 3. This shifting-bar 15 is held in position by cleats or guides 16, located just above its upper surface and secured to the adjacent end wall 10 of the well, and other cleats or guides 17, which are secured upon the upper faces of the stringers 13, as is also best shown in Figs. 1 and 3. 80 85

A horizontal lever-arm 18 is pivoted about centrally between its ends upon the cross-bar 14 adjacent to one of the stringers 13, as is shown at 19 in Fig. 1, the stringer adjacent to which the said lever-arm 18 is located being adjacent to the switch-point C. The end of the lever-arm 18 which is farthest removed from the switch-point C is pivotally attached to the under surface of the shifting-bar 15, and at the opposite end of the said lever-arm 18 a bar 20 is attached, pivoted, as shown at 21 in Fig. 4, upon the end wall of the well D adjacent to the switch-point C, and at the upper end of this extension 20 from the lever-arm 18 a horizontal bar 22 is attached, held 90 95 100

to slide in suitable guides, if desired. This upper member 22, connected with the lever-arm 18, is pivotally attached at one end to the switch-point C, as shown at 23 in Figs. 1 and 4. Thus when the shifting-bar 15 is given end movement the upper member 22 of the lever-arm 18, connected with the said shifting-bar, is given corresponding movement, and therefore the switch-point C is moved to the right or to the left, as occasion may demand.

The shifting-bar 15 is operated from a moving car in a manner to be hereinafter described, but directly through the following mechanism, consisting of shifting-bars 24, which are located adjacent to the inner faces of the main rails. The said shifting-bars are vertical. They extend down within the well and are guided at their upper ends by suitable horizontal bars 12, which are secured in any approved manner adjacent to the inner faces of the rails of the main track, as is shown in Figs. 1 and 3. These shifting-bars are of equal length, and when one of them is flush with the tread of one outer or main rail the opposing shifting-bar will extend above the tread of the opposing outer main rail, as is clearly shown in Fig. 3. These shifting-bars 24 are connected at their lower ends by a rocker-arm 25, (best shown in Fig. 3,) pivoted about centrally between its ends to the adjacent end wall 10 of the well D. A link 26 is pivotally connected with each shifting-bar 24 at a point between its center and lower end, as is also best shown in Fig. 3, and the upper ends of the links 26 are pivotally attached to levers 27, pivoted, preferably, between their centers and upper ends by suitable pins 28 to the adjacent end wall 10 of the well D, and the lower ends of these levers 27 are made to enter recesses 29, produced in the end portions of the sliding bar 15, as is shown in Fig. 1, so that when the upper portion of an upwardly-extending shifting-bar 24 is pressed downward the switch-point C is moved in one direction and the opposing shifting-bar 24 is moved upward to be pressed downward when necessary to carry the switch-point C in the opposite direction. The switch-point C' is operated from the sliding bar 15 in the following manner and as is best shown in Figs. 1 and 2: A lever-arm 30, corresponding to the lever-arm 18, is fulcrumed by a suitable pin 30^a between its center and one end upon the cross-bar 14, and one end of the lever-arm 30 is pivotally attached at 30^b to the bottom portion of the sliding bar 15. This lever-arm 30 is located just below the slot-rail A', as is shown in dotted lines in Fig. 1. Said lever-arm extends longitudinally and horizontally through the well D, and one end thereof is prolonged or extended through a slot *a* in the end piece 10 below the movable switch-points. The extended end of this lever-arm is connected loosely to the lower portion of an upright lever 31, (see Fig. 2,) said upright lever being fulcrumed at a point intermediate its

length to a hanger 31^a, fixed to a suitable part of the track, so as to depend into the well. The upper end of this upright lever 31 is connected in any approved way to the bottom of the switch-point C'. Thus it will be observed that the two switch-points C and C' by reason of both being connected with the sliding bar 15 are moved simultaneously in the same direction.

A pivotal connection is provided between the upright lever 31, connected with the switch-point C', and the lever-arm 30 to provide for a proper movement of the said switch-point C' when actuated by the lever-arm 30 and the upright lever 31.

E represents the bottom portion of a car provided with the usual axles E' and wheels E² to travel on the rails of the track A, and from each side of the center of the bottom of the car parallel hangers 34 extend downward. In these hangers trunnions 35 from the side portions of a shaft 36 are journaled, whereby the shaft 36 may be given a rocking movement, the said trunnions 35 being at the center of the said shaft, as is shown in Fig. 3. Near each end portion of the shaft 36 a wheel 37 is mounted to turn on the said shaft, and these wheels occupy such a position relative to the car and the track on which it travels that the wheels 37 will be immediately over the shifting-bars 24 when such shifting-bars are reached, each wheel 37 being arranged to ride or impinge squarely upon the exposed end of the proper shifting-bar, so that one of the shifting-bars 24 will be pressed downward with certainty and effectively to move the switch-points C and C', according to which end of the shaft 36 is given a downward inclination. The shaft 36 is provided with end extensions 38, and these end extensions are given a slight upward inclination, being at an angle to the body portion of the said shaft. The extensions 38 of the rock-shaft 36 have vertical movement in vertical slots 39, produced in pedestals 40, which extend down from the side portions of the car, as shown in Figs. 3 and 5. The inclination above specified is given to the extensions 38 from the shaft 36 in order that when the shaft 36 has one end inclined downward the projection at that end will rest firmly at the bottom of the slot 39, while the projection at the opposite end will rest firmly against the upper wall of the slot in the opposing pedestal.

A shifting-bar 41 is located over the rock-shaft 36, being held to slide at the bottom portion of the car through suitable straps or guides 42, and at each end of the shifting-bar 41 an angular member 43 is provided, each angular member having a pin 44 in its horizontal section, which pins pass through slots 45, longitudinally produced in depressing-fingers 46, which fingers are pivoted to suitable brackets 47, secured to the bottom portion of the car, and the said angular extension members 43 from the shifting-bar 41 are preferably bifurcated, as shown in Fig. 5, so that

the depressing-fingers 46 may pass between the members of the said angular end portions 43.

The lower ends of the depressing-fingers 46 are adapted to engage with shoes or blocks 48, secured upon the upper surface of the rock-shaft 36 at each side of its center and near the wheels 37, the said shoes or blocks 48 having their upper surfaces inclined upwardly and outwardly to a greater or less extent. When the shifting-bar 41 is moved in one direction—to the left, for example—as shown in Fig. 3, the depressing-finger 46 at that end of the bar will be brought to a vertical position and will ride upon the left-hand block or shoe 48 and cause that end of the shaft 36 to be depressed and bring the wheel 37 at the left-hand end of the shaft in position to engage with the left-hand shifting-bar 24 to depress the same when the said bar is reached, the opposite wheel 37 being carried up out of possible contact with the opposing shifting-bar 24 when it is elevated by the depression of the left-hand shifting-bar through the action of the depressing or shifting device.

When the shifting-bar 41 is moved in an opposite direction, the other finger 46 is brought into action, and the right-hand end of the rock-shaft 36 will be depressed to operate upon the right-hand shifting-bar 24.

A shifting-bar 41 is operated from either end of the vehicle by pivoting to the central portion of said bar the inner ends of lever-arms 49, which are pivoted between their ends to the bottom of the car, as is shown at 50 in Fig. 5, and each lever-arm 49 is pivotally attached to a hand-lever 51, which extends up through a suitable opening at the platform of the car and is fulcrumed upon any approved standard or support 52, as is shown in Fig. 6. Any means may be employed for holding the said hand-lever 51 in adjusted position. To this end the construction shown in the drawings consists of a pin 53, extending from the hand-lever 51, arranged to enter any one of a series of notches or recesses 54 made in the lower edge of a keeper 55, which is shown pivotally attached to the dashboard, but which may be pivotally connected with any available support. Thus it will be observed that by moving the hand-lever 51 to the right or to the left the switch-points C and C' may be shifted in the desired direction while the car is in transit.

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

1. In a switch device, the combination with a main track, branches therefrom, and switch-points pivotally mounted at the junction of the main and branch tracks, of shifting-bars adjacent to the rails of the main track, a rocking connection between the said shifting-bars, a slide operated by the movement of the shifting-bars, a pair of lever-arms suitably fulcrumed and each connected at one end to said slide, and at their other end having operative connection, one with one of the switch-points and the other with the other switch-point for the purpose set forth.

2. In a switch device, the combination with a main track, branches therefrom and switch-points pivotally mounted at the junction of the main and branch tracks, of vertically-disposed shifting-bars having sliding movement adjacent to the inner faces of the rails of the main track, a rocking connection between the shifting-bars, a slide operated by the said shifting-bars, a support for the slide, a lever-arm pivotally connected with the slide, and a pivotal connection between the said lever-arm and the switch-point as set forth.

3. In a switch device, the combination with a main track, a branch therefrom, and switch-points pivotally mounted at the junction of the main and branch tracks, of vertically-disposed shifting-bars having sliding movement at the inner faces of the rails of the main track, a rocking connection between the lower portions of the said shifting-bars, a slide, a support for the slide, links pivotally connected to the shifting-bars and extending upwardly and inwardly therefrom, levers pivotally connected to the upper portions of the said links, the lower portions of the said levers being in engagement with the end portions of the slide, supports for the levers connected with the said links, lever-arms pivotally connected with the said slide, and extensions from the said lever-arms, connected with the switch-points for the purpose set forth.

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

LEONARD HORINKO.

Witnesses:

H. F. BERNHARD,
JNO. M. RITTER.