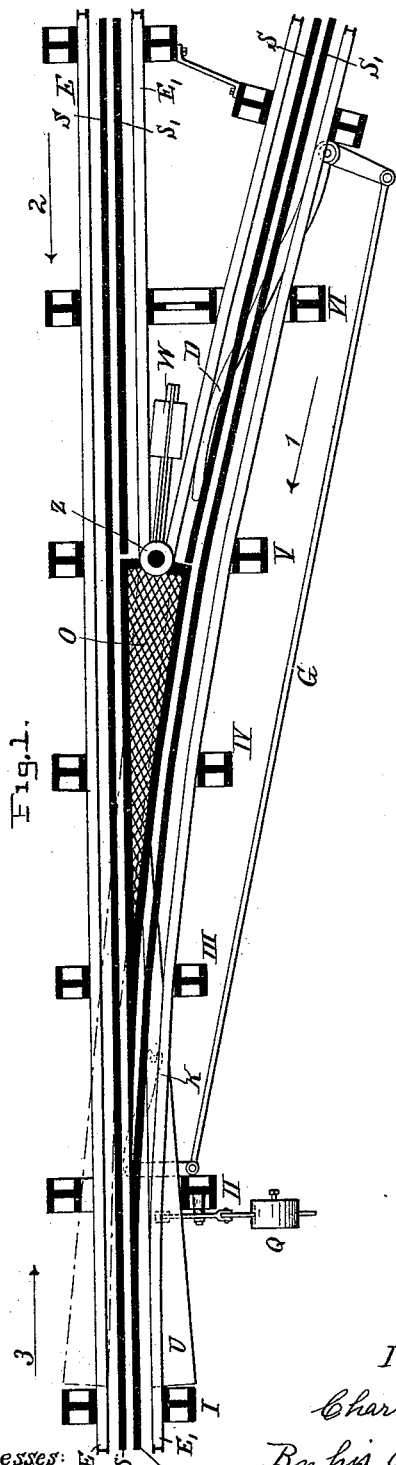


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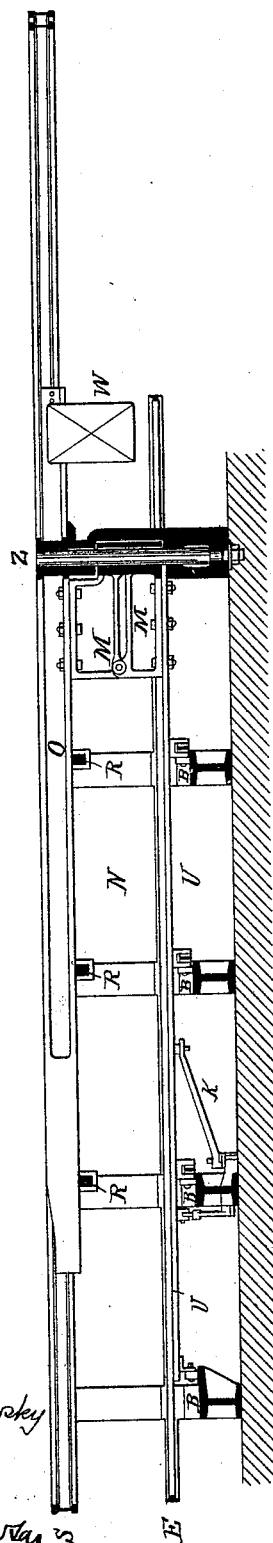
SWITCH FOR RAILWAYS WITH VERTICAL TRACKS.

No. 421,848.

Patented Feb. 18, 1890.



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Witnesses: E. J. Griswold
John Revell

Inventor:
Charles Zipernowsky
By his Attorneys
Howar and Howar

(No Model.)

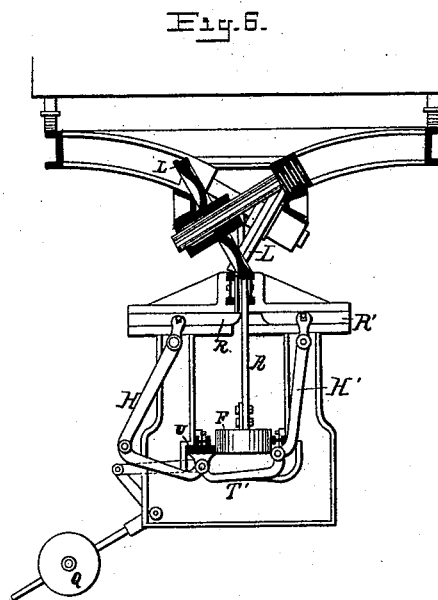
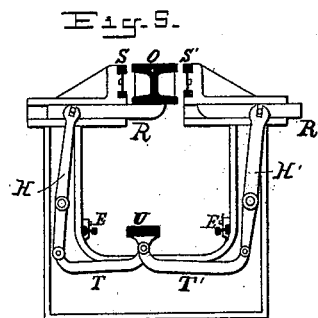
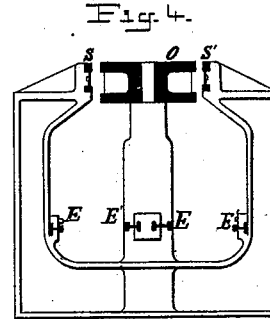
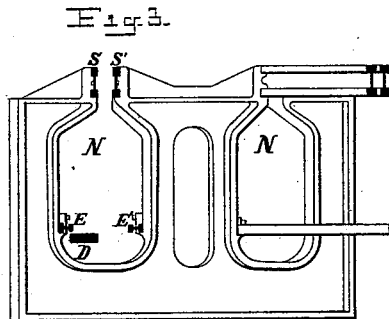
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C. ZIPERNOWSKY.

SWITCH FOR RAILWAYS WITH VERTICAL TRACKS.

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WITNESSES:

John Revell
George Baumann

INVENTOR

Charles Zipernowsky

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Horvay and Horvay
his ATTORNEYS

(No Model.)

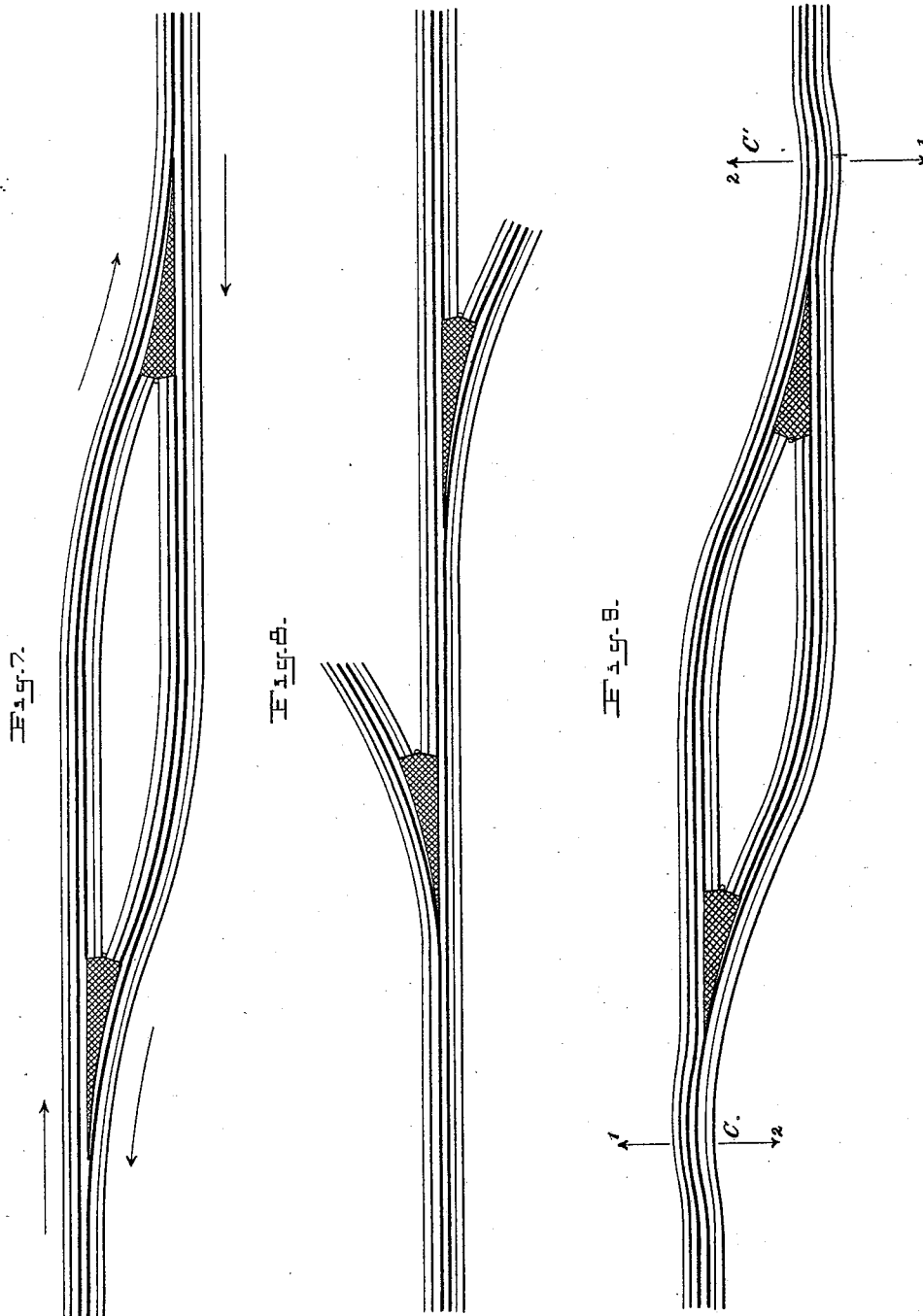
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UNITED STATES PATENT OFFICE.

CHARLES ZIPERNOWSKY, OF BUDA-PESTH, AUSTRIA-HUNGARY.

SWITCH FOR RAILWAYS WITH VERTICAL TRACKS.

SPECIFICATION forming part of Letters Patent No. 421,848, dated February 18, 1890.

Application filed November 2, 1889. Serial No. 329,012. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ZIPERNOWSKY, a subject of the Emperor of Austria and King of Hungary, and a resident of Buda-Pesth, Austria-Hungary, have invented a Switch for Railways with Vertical Tracks, of which the following is a specification.

My invention consists of an improved switch mechanism for railways with vertical tracks of the character illustrated and described in my application for Letters Patent of the United States filed June 27, 1889, Serial No. 315,846. The characteristic features of such a railway for street or other uses are that it has a slotted conduit with a track rail or rails close to the slot and a guiding rail or rails, the track and guiding rails being arranged one above another, while the vehicle, which has wheels to run on the track rail or rails, has also an arm or arms extending into the slot and carrying a roll or rolls to run on the guiding rail or rails within the conduit.

The characteristic feature of my present invention is that two switches are used together, composed of an upper switch-tongue for the track rail or rails and a lower switch-tongue for the guiding rail or rails at the junction of two conduits or lines.

In the accompanying drawings, Figure 1 is a plan view of a switch mechanism embodying my improvements. Fig. 2 is a vertical longitudinal section. Fig. 3 is a transverse section taken at about the yoke VI. Fig. 4 is a transverse section taken at about the yoke V. Fig. 5 is a transverse section taken at about the yoke IV. Fig. 6 is a transverse section taken at about the yoke II, and showing a part of a car on the track. Figs. 7, 8, and 9 are diagrams of different arrangements of switches.

Referring to Figs. 1 to 6, S S' are two track-rails at the street-level and close to the slot of the conduit N below, these two rails being adapted to carry the vehicle by the wheels L running thereon, as illustrated in Fig. 6. In the conduit, below the street-level, are guiding-rails E E', against which bear the rolls F, carried by the arm or arms A, extending from the car, in order to support the latter in a lateral direction.

As I have before said, the main feature of my switch mechanism for use in connection

with a railway of the character described consists in the combination of an upper switch tongue or point for the upper track-rails and a lower switch-tongue for the guiding-rails within the conduits.

O is the upper pointed tongue, and U is the lower tongue, which in this instance is shown as a horizontal flat bar. Both tongues turn round a pin Z, attached to the yoke or trestle V, and are counterbalanced by a weight W. They are connected with each other, say, at M in such a way that while they move together there is a certain extent of play or lost motion between the two tongues, since the lower one has to move through a greater distance than the upper one. The upper tongue O bears with its point against the side of one or other of the track-rails, according to the position to which it is turned; but the lower tongue U, being formed as a flat bar, passes alongside of (in this case underneath) the guiding-rails E E', for in most cases the proportion between the radius of the curves of the switch and the distance between the guiding-rails in the conduit is such as to render the ordinary pointed tongue more or less impracticable. The guiding-wheels F on the pendent arms of the car are of a sufficient depth or width to bear against the lower tongue U as well as the guiding-rails, as illustrated in Fig. 6.

As illustrated in Fig. 2, the flat switch-tongue U carries anti-friction rollers B, running upon the transverse portions of the yokes I, II, III, IV, while the upper switch-tongue O rests upon supporting-bolts R R'. By means of suitable rods T T', connected to the tongue U and through levers H and H', Figs. 5 and 6, to these supporting-bolts R and R', the latter are shifted alternately from right or left underneath the tongue O, according to the movement of the switch.

The movement of the switch may be obtained either by hand or automatically; but in the drawings I have illustrated the switch as moved by automatic means. Normally the switch-tongues are maintained in the positions illustrated in Figs. 1 to 6 by means of suitable weights or springs, the weight Q, shown in Figs. 1 and 6, and connected to the tongue U, serving that purpose. When a car is coming from one track to the other in the

direction of the arrow 1, Fig. 1, the guiding roll or rolls F or other attachment on the car will strike a lever D, which, by means of a rod G, moves over a bell-crank lever K, Figs. 1 and 2, to throw the switch-tongue U over to the position indicated by the dotted lines in Fig. 1, and the upper tongue O over accordingly. The car having passed the switch, the weight Q or a spring returns the tongues to their first positions, so that any car coming on the main track in the direction of the arrows 2 or 3 can pass straight along.

In the drawings I have represented only one form of mechanism for imparting movement to the different parts; but there are many other different constructions which may be adopted for the same purpose without departing from the essential features of my invention.

Figs. 7, 8, and 9 show different arrangements of switches or turn-outs for which my invention may be employed.

Fig. 7 represents a turn-out which, provided with my automatic switch mechanism, would allow the cars to pass only in the direction of the arrows.

Fig. 8 shows in diagram two simple arrangements of switches.

Fig. 9 represents a switch or turn-out similar to that in Fig. 7, except that in this instance two curves C and C' are provided just in front of the switch. This may in some cases make the employment of the lower tongue unnecessary, for the car-body being pressed outward by the centrifugal force will cause the guiding-rolls to press against the guiding-rail at the inner side of the curve in the direction of the arrow 2, Fig. 9, so that no support will be required at the opposite side.

I claim as my invention—

1. The combination, in a street or other railway, of slotted conduits, track-rails close to the slots, and guiding-rails beneath within the conduits, with a switch mechanism at the junction, comprising an upper switch-tongue for the track-rails and a connected lower tongue for the guiding-rails, all substantially as described.

2. The combination, in a street or other railway, of slotted conduits, pairs of track-rails close to the slots, and pairs of guiding-rails beneath within the conduits, with a switch mechanism at the junction, comprising an upper switch-tongue adapted to be moved up to either track-rail of a pair and a connected lower tongue adapted to be moved up to either guiding-rail of a pair, all substantially as described.

3. The combination of the track-rails of a street or other railway and guiding-rails beneath the same with switch mechanism comprising an upper switch-tongue for the track-rails and a lower tongue for the guiding-rails, the said tongues being connected to move together with a lost motion, substantially as set forth.

4. The combination of the track-rails of a street or other railway and guiding-rails beneath the same with a flat switch-bar adapted to be moved alongside of either of two guiding-rails, substantially as set forth.

5. The combination of the track-rails of a street or other railway and guiding-rails beneath the same with an upper switch-tongue for the track-rails, moving supporting-bolts for the upper tongue, and devices, substantially as described, whereby the movement of the tongue throws the bolts over accordingly, substantially as described.

6. The combination of the track-rails of a street or other railway and guiding-rails beneath the same, an upper switch-tongue for the track-rails and a connected lower tongue for the guiding-rails, with a lever D, adapted to be acted on by a part of the car and connected to one of the switch-tongues, and a weight or spring to return the switch-tongues to their normal positions, substantially as described.

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

CHARLES ZIPERNOWSKY.

Witnesses:

A. GELIXI,
D. KIRS.