

No. 641,261.

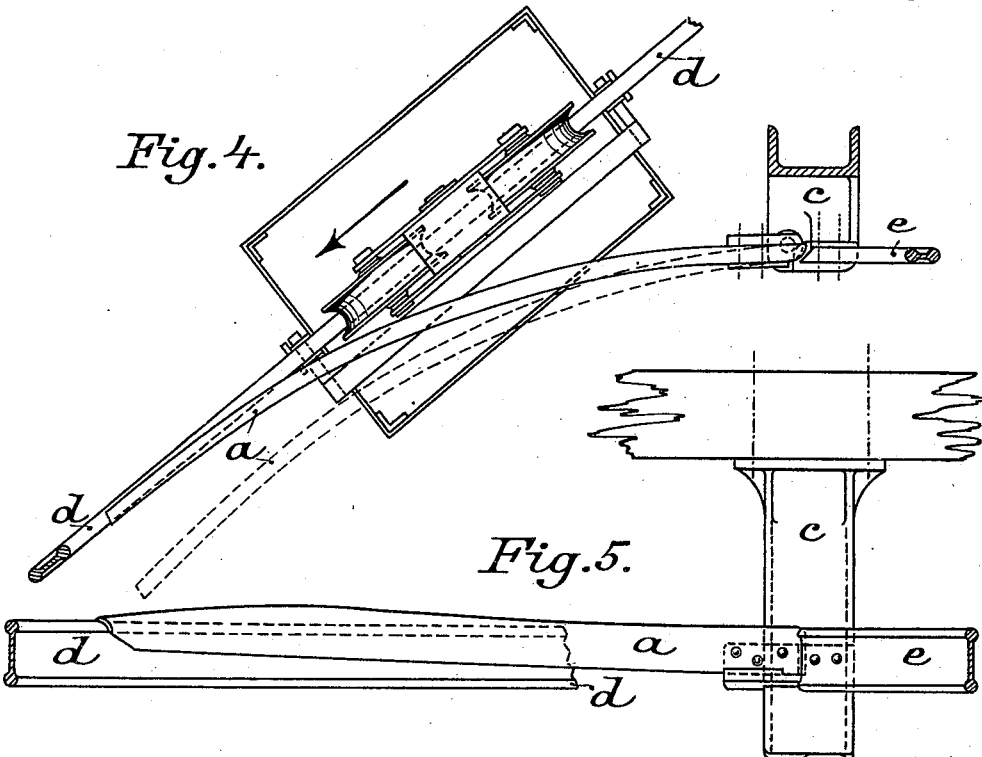
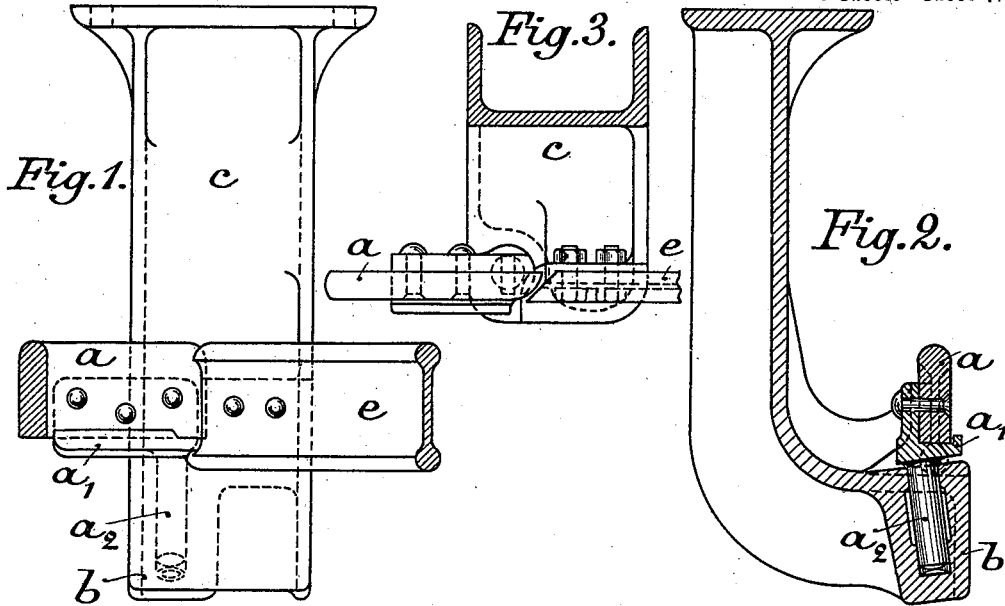
Patented Jan. 16, 1900.

A. BLEICHERT & R. PFAFFENBACH.
SWITCH FOR SUSPENDED TRAMWAYS.

(Application filed Feb. 1, 1899.)

3 Sheets—Sheet 1.

(No Model.)



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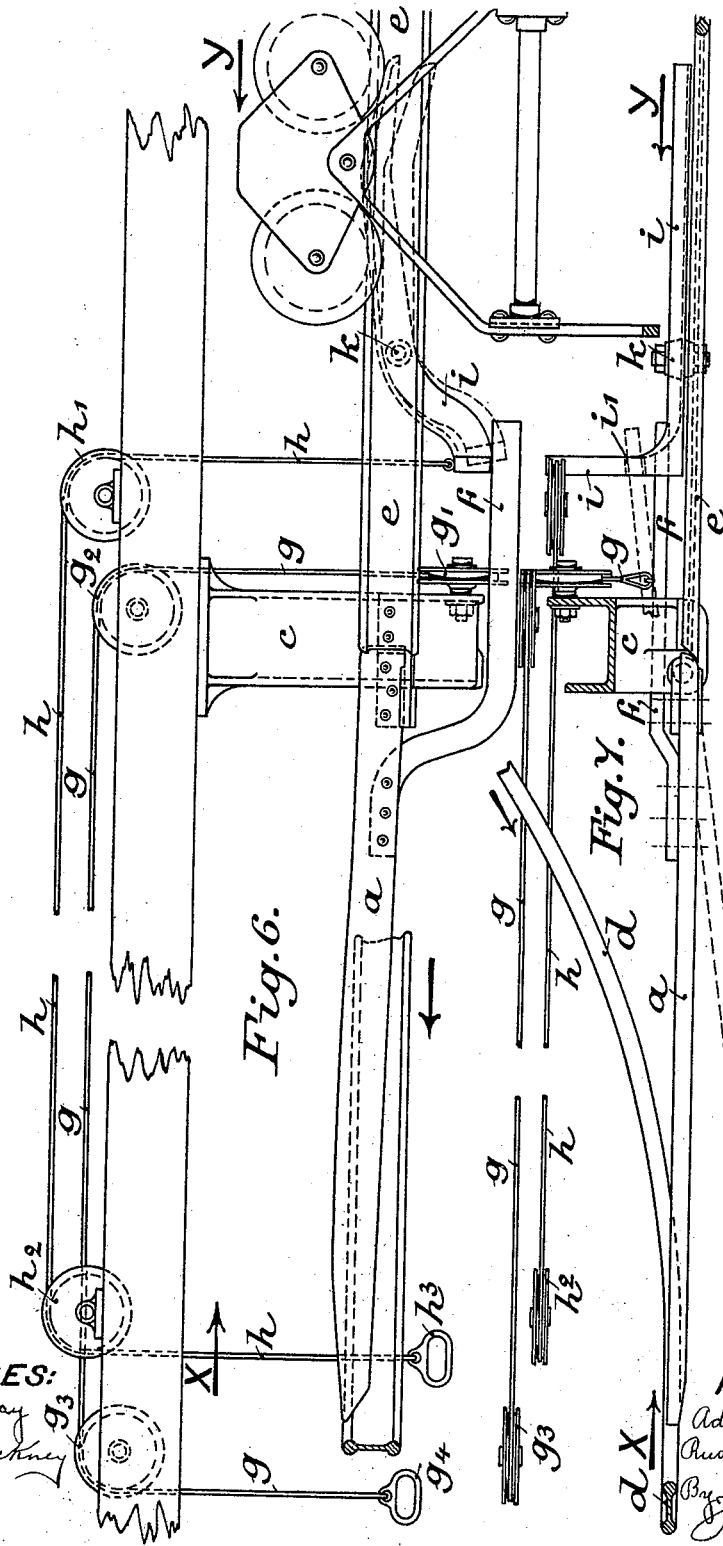


Fig. 6.

Fig. 7.

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Fig. 10.

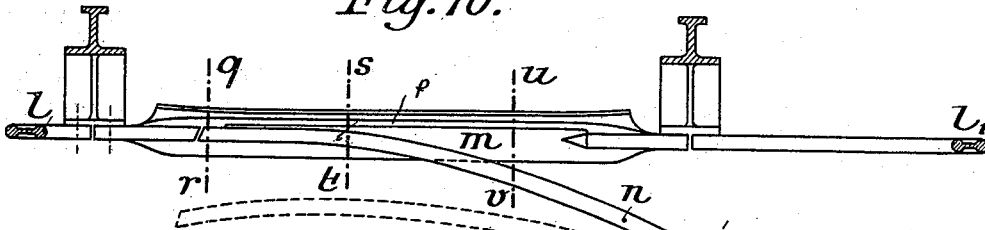


Fig. 11.

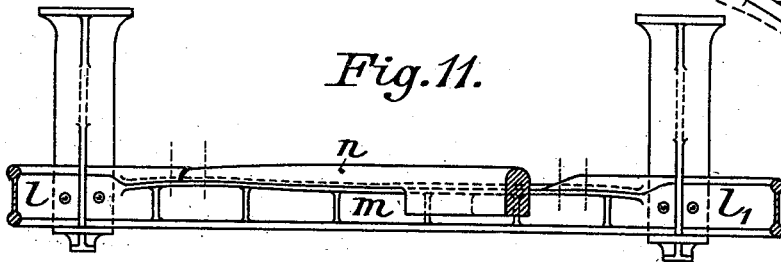


Fig. 14.

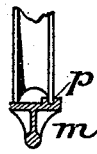


Fig. 12.

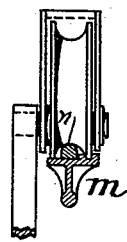


Fig. 13.

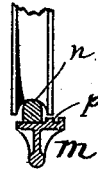


Fig. 9.

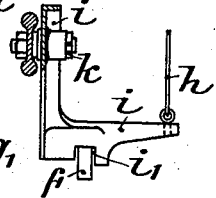
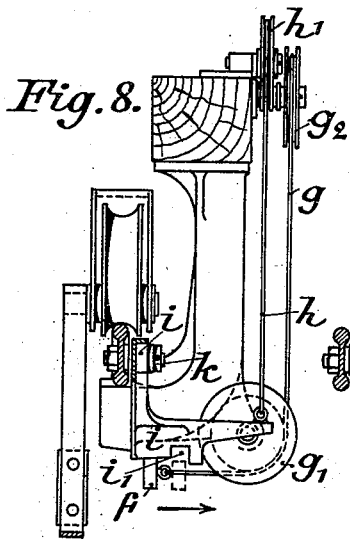


Fig. 8.



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UNITED STATES PATENT OFFICE.

ADOLF BLEICHERT AND RUDOLF PFAFFENBACH, OF LEIPSIK, GERMANY.

SWITCH FOR SUSPENDED TRAMWAYS.

SPECIFICATION forming part of Letters Patent No. 641,261, dated January 16, 1900.

Application filed February 1, 1899. Serial No. 704,097. (No model.)

To all whom it may concern:

Be it known that we, ADOLF BLEICHERT and RUDOLF PFAFFENBACH, subjects of the German Emperor, and residents of Leipsic, in the Kingdom of Saxony, German Empire, have invented certain new and useful Improvements in Automatic Pivoted Switches for Suspended Tramways, of which the following is a specification.

Our invention refers to switches for use in suspended railways.

Of the accompanying drawings, Figure 1 is a side elevation showing the arrangement by which the parts of the rails forming the switch are supported. Fig. 2 is a vertical section through Fig. 1. Fig. 3 is a horizontal section through Fig. 1. Fig. 4 is a plan view of the complete switch, partly in section. Fig. 5 is a side elevation of the complete switch, parts being cut away for the sake of clearness. Fig. 6 is a side elevation of the complete switch, showing details. Fig. 7 is a plan view, partly in section, of the arrangement shown in Fig. 6. Fig. 8 is an end view of the same, partly in section. Fig. 9 shows details. Fig. 10 is a plan view of the switch, showing a modification of the arrangement illustrated in Figs. 1 to 9; Fig. 11, a side elevation of the modification shown in Fig. 10; and Figs. 12 to 14 are detail sections on lines *q r*, *s t*, and *u v*, respectively, of Fig. 10.

The same letters of reference indicate corresponding parts in all the figures.

c is a hanger supposed to be fastened to the beams from which the railway is suspended and preferably made of cast-iron.

e is a rail of suitable section firmly bolted in the usual way to the said hanger *c*, and *a* is the movable piece of rail forming the tongue-piece of the switch. The rail-piece *a* is bolted to a piece *a'*, provided with a journal *a²*, pivoted in a bearing *b*, shaped in the lower end of the hanger *c*. The bearing *b* and the journal *a²* are placed in an inclined position, so that the rail-piece *a* will be made to return into the closed position by the action of gravity.

d, Figs. 4 and 5, is a continuous rail, from which the rail *e* is made to branch off by means of the herein-described switch.

Figs. 1 to 5 show our improved switch in its simplest form, which can be employed

when the cars only pass over the switch in the one direction. (Indicated by the arrow in Fig. 4.) If the cars are to pass over the switch in the opposite direction, the more complete arrangement shown in Figs. 6 and 7 is provided. The rigid arm *f* is fastened to the tongue-piece *a* and projects backward over its pivot to a suitable distance. The rope *g* is fastened to this arm and is carried over the pulleys *g'*, *g²*, and *g³* and carries at its end the handle *g⁴*. A catch-lever *i* is pivoted to the rail *e* at *k* and has its center of gravity in that part which rests on the extension or arm *f* of the tongue *a*. The catch-lever *i* is provided with a notch *i'* sufficiently broad to allow the extension-piece *f* to enter it. To the end of the lever *i*, resting on the extension *f*, is fastened a second rope *h*, carried over the pulleys *h'* and *h²* and ending in the handle *h³*. The free end of the catch-lever *i* is carried along the head of the rail *e* in such a position that it can be depressed by the flanges of car-wheels passing over the said rail, thereby raising the end engaging with the arm *f* of the tongue *a*. With the arrangement as shown in these figures since it is a tongue-switch the tongue-piece *a* must be raised sufficiently above the level of the rail *d* to prevent the flanges of the car-wheels from striking the rail *d* at the turnout.

In Figs. 10 to 14 we show a self-acting switch according to our invention, but executed as a full-rail switch. At the turnout of the switch *n* a casting *m* is inserted in the rail *l l'*, which serves to support the wheels of cars passing along the rail from *l* to *l'* when the switch is open. The upper surface of this casting *m* is provided with a small groove *p*, adapted to take up and guide one of the flanges of the wheels, as will be readily seen in Fig. 14. As will be seen in Figs. 12 and 13, the end of the rail-piece *n* does not form a tongue, but the lower part of this rail is shaped so as to allow it to rest on the surface of the casting *m*, and it can thus connect rails *l* and *o*. In this case the switch-piece *n* need only be made to rise very slightly above the level of the rail *l l'* in order to prevent the flanges of the wheels from engaging with the projecting edges of the groove *p*, as will be seen in Figs. 12 and 13. All the other parts correspond exactly with the arrange-

ment shown and described in and with reference to Figs. 1 to 9.

The operation of our invention is as follows: In the simplest form of our improved switch, as illustrated in Figs. 1 to 5, all cars coming from *d* and passing on to *e*, and vice versa, will not bring the switch into play; but all cars coming from *d* and passing on in the direction of the arrow, Fig. 4, will push aside the tongue *a*, and after they have passed it will return into its original closed position. In the complete form of the switch, Figs. 6 to 14, the car can be moved along the rails in any direction. If the cars approach the switch from *x* and are supposed to be moving along the rails *d d*, the car-shifter pulls the handle *g*⁴, and thereby opens the switch. The extension-piece *f* as it passes along the catch-lever *l*, resting upon it, enters the notch *i'*, and is thereby arrested, so that the switch cannot close. If the cars arrive in the opposite direction along the rail *d d*, they will push the switch open automatically and the extension *f* of the tongue will engage with the catch-lever *i*, as shown in Figs. 6 and 7 in dotted lines and in Figs. 8 and 9, and therefore the switch will remain open as long as cars are passing regularly along the rail *d d*; but as soon as a car approaches the switch in the direction *y x* along the rail *e* it must pass the catch-lever *i* before entering the switch. The rear end of this lever will be depressed by the flanges of the wheels, as shown by full lines in Fig. 6, and the tongue will thereby be released and will return into the closed position, thus allowing the cars to pass in safety. If cars bound for rail *e* arrive along rail *d* in the direction *x y*, the switch being open, the car-shifter will pull the handle *h*³, thereby raising the catch-lever *i* and releasing the tongue, which will return

into the closed position. The action of the modified arrangement shown in Figs. 10 to 14 is the same.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In a railway, the combination of an uninterrupted chief rail, a branch, a switch connecting or disconnecting the branch rail with the uninterrupted chief rail and adapted to swing in approximately a horizontal plane, an inclined but nearly-vertical pivot for the switch, whereby the switch after having been opened automatically swings shut by gravity on said nearly-vertical pivot.

2. An automatic switch for suspended railways consisting of the combination of suitable hangers supporting the rails forming the switch, a movable rail pivoted in a bearing supported on one of said hangers, means for automatically closing the switch when said movable rail is released, a rigid arm fastened to said movable rail and extending by said bearing along one of the rails leading into the switch, a catch-lever pivoted to said rail and being provided with a notch adapted to engage with said rigid movable-rail arm and an extension of said catch-lever projecting along said rail leading into the switch and adapted to be depressed by the flanges of the wheels of approaching cars, substantially as and for the purpose set forth.

Signed at Leipsic, Germany, this 12th day of January, 1899.

ADOLF BLEICHERT.

RUDOLF PFAFFENBACH.

Witnesses:

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