

(No Model.)

2 Sheets—Sheet 1.

J. H. WILLIAMS.
STREET RAILWAY SWITCH.

No. 413,593.

Patented Oct. 22, 1889.

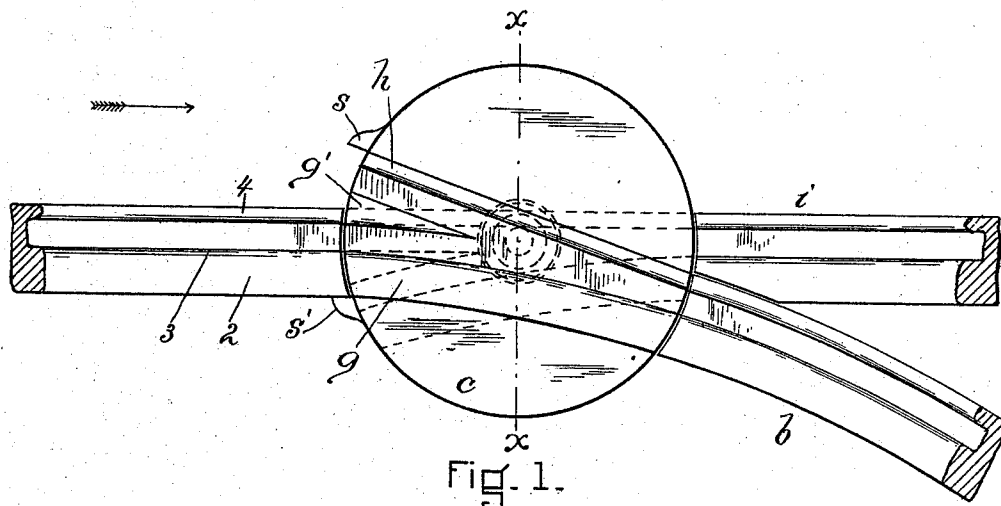


Fig. 1.

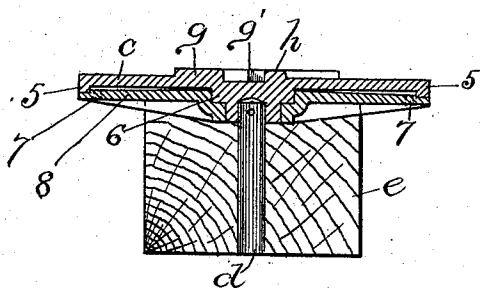


Fig. 2.

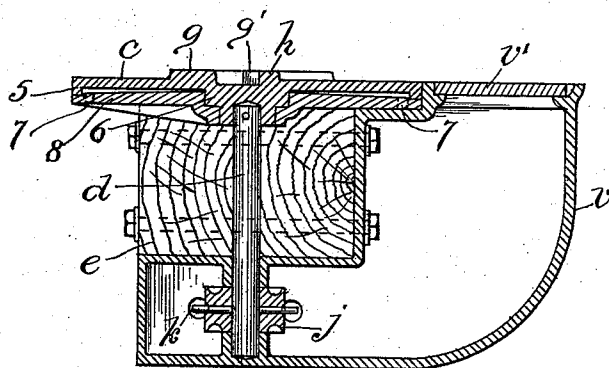


Fig. 3.

WITNESSES

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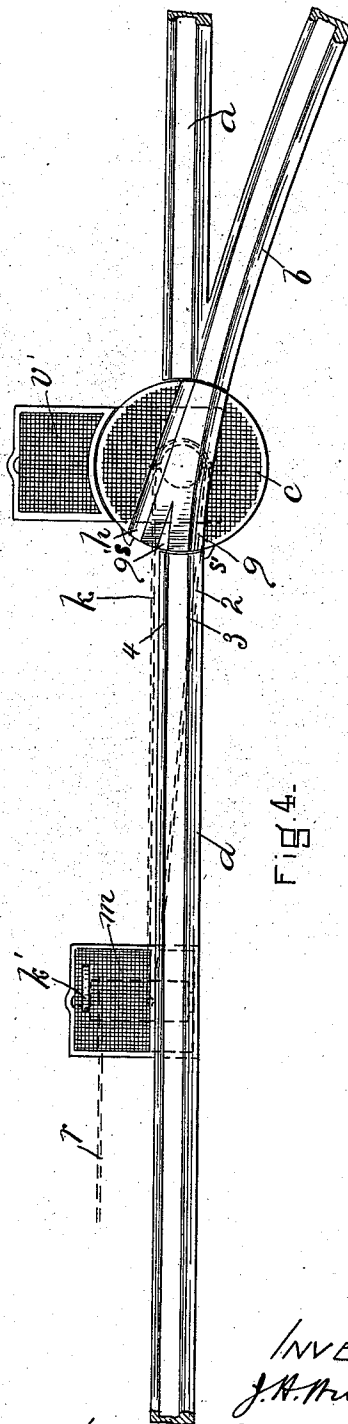
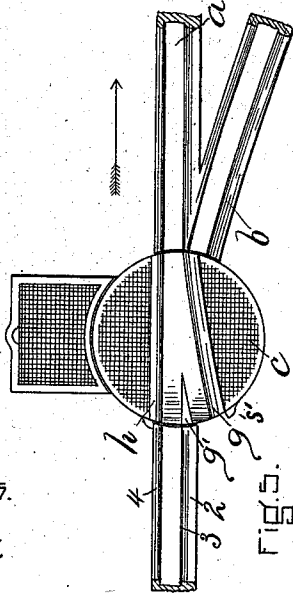
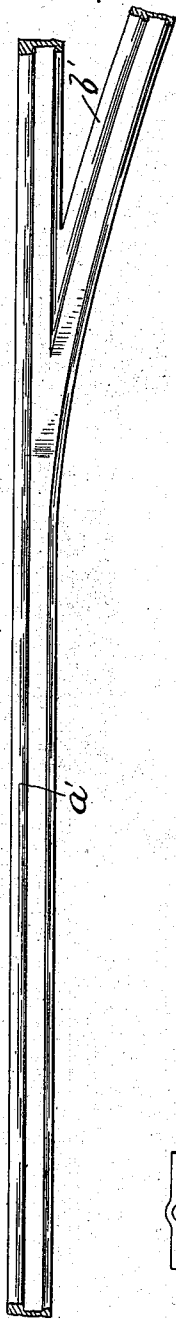


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN H. WILLIAMS, OF BOSTON, ASSIGNOR OF TWO-THIRDS TO BENJAMIN F. BARNARD, OF WAKEFIELD, MASSACHUSETTS.

STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 413,593, dated October 22, 1889.

Application filed February 11, 1889. Serial No. 299,399. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. WILLIAMS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Street-Railway Switches, of which the following is a specification.

This invention relates to railway-switches or devices which determine at a given point which of two tracks a car shall take; and it relates particularly to switches for street-railway tracks adapted to be operated or shifted by the act of the driver on an approaching car to connect the branch or side track with the portion of the main track on which the car is running; and it is an improvement on the invention described in my application for Letters Patent for an improvement in street-railway switches filed December 22, 1888, Serial No. 294,410.

The invention consists in a circular table or rotary switch located at the junction of one of the branch rails with one of the main-track rails, said table having a track-section which is adapted to make the main-track rail continuous when the table is turned to one position and to connect the main-track rail with the branch rail when the table is turned to another position, as I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top view of a portion of one of the main-track rails, a branch rail connected therewith, and the rotary table, the latter being in position to connect the main-track rail with the branch rail. Fig. 3 represents a section on line *xx* of Fig. 1. Fig. 2 represents a similar section, certain parts shown in Fig. 3 being omitted. Fig. 4 represents a top view showing both of the main-track rails and the two branch rails; also, the rotary table and certain appliances hereinafter described for operating the table. Fig. 5 represents a top view showing the switch in its normal position.

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

In the drawings, *a a'* represent the rails of the main track of a street-railway, and *b* and *b'* represent the branch or side-track rails.

c represents a circular table or rotary

switch, which is located at the junction of the side rail *b* with the main-track rail *a*. Said table or switch is attached to a vertical pivot or shaft *d*, which is journaled to rotate in a socket or bearing formed in the bed or stringer *e* under the track. On the upper surface of the table or switch are formed a curved-rail section or tread *g*, a pointed-rail section or tread *g'*, and the guard-rail section *h*, as shown in Figs. 1 and 4. When the table or switch is turned to the position indicated in Fig. 5 and by dotted lines in Fig. 1, the pointed-rail section *g'* forms a continuation of the tread and guiding-edge 3 of the main-track rail, and the guard-section *h* forms a continuation of the guard-flange 4 of the main-track rail, so that a car approaching in the direction indicated by the arrow in Figs. 1, 4, and 5 will continue on the main track. When the table is turned to the position shown in full lines in Figs. 1 and 4, the curved section *g* connects the main-track rail with the branch rail *b*, one side of the pointed section *g'* at the same time constituting a curved or diagonal extension of the guard-flange 4, so that a car approaching in the direction indicated by the arrow in Fig. 1 will be guided onto the branch rail *b*.

The pivoted table may be rotated to change it from one of the described positions to the other by any suitable means.

In Figs. 1, 3 and 4 I have indicated the devices which are shown in my above-mentioned application for moving the pivoted switch-rail for which the circular table or switch *c* is a substitute, said appliances being a drum or pulley *j* on the shaft *d* and a cord or chain *k*, connecting said drum with a horizontal drum *m*, journaled in bearings in a vault or chamber under the track at a suitable distance from the table or switch *c*, and a rod *k'*, eccentrically connected to said drum *m* and extending upwardly through the cover of said chamber, its upper end being between the main rails *a a'* and projecting sufficiently above the pavement to enable it to be depressed by contact with a movable attachment on the car approaching the table *c*. Said attachment may be a standard adapted to slide in a guide on the front platform of the car and adapted to be depressed by the driver's foot. Said

standard has a roller on its lower end, which, when the standard is depressed, comes in contact with the projecting end of the rod *k'*, thereby depressing said rod and causing it to partly rotate the horizontal drum *m*. The motion thus imparted to said drum is communicated through the chain *k* to the drum *j*, which is thereby rotated with the shaft *d* and table or switch *c*. The rotation thus imparted turns the switch to the position shown in full lines in Figs. 1 and 4. The standard on the car is normally raised by a spring, so that it will not strike the rod *k* unless depressed by the driver.

Under ordinary conditions and without a special act on the part of the driver the switch *c* will stand in the position shown in dotted lines in Fig. 1, so that the main track will be normally continuous.

In case the switch *c* has been turned as above described it is restored to its normal position by means similar to those described in my above-named application for restoring the switch-rail—viz., a second drum journaled in a chamber located farther from the table *c* than the drum *m*, said second drum having a rod which extends upwardly through a slot in the main track-rail *a*, and is arranged to be depressed by one of the wheels of the car approaching the switch. The second drum, which is not shown in the drawings, is connected by a cord or chain *r* with the drum *m*, said chain being so wound as to communicate to the table *c* by the partial rotation of the second drum a motion opposite to that produced by the rotation of the drum *m*, said motion turning the table to its normal position and making the main rail continuous. My invention is not limited, however, to the described means for operating the rotary switch *c*, and said switch may be operated by any suitable means or mechanism without departing from the spirit of my invention.

The periphery of the switch *c* is provided with projections or stops *s s'*, which abut against the main rail *i* and limit the rotating movements of the switch in both directions.

To prevent clogging of the switch *c* by ice, stones, or dirt accumulating under it, I provide said switch with a downwardly-projecting lip or flange *5* at its margin and a downwardly-projecting boss *6* at its center. Said lip and boss bear on a fixed plate *8*, which is provided with seats for said lip and boss, and is formed so that it does not come in contact

with any other portions of the switch. The flange *5* and boss *6* of the rotary switch fit the seats on the plate *8* so closely that water cannot get between the plate and switch.

v represents a cast-iron chamber, which is secured under the track for the reception of the drum *j*, and is provided with a man-hole having a cover *v'*, through which access can be had to said drum.

It will be seen that the rotary table or switch herein described is less liable to be obstructed by ice, &c., and can be operated with less expenditure of power than the switch-point shown in my former application.

It is obvious that the invention is not confined to the particular wheel-guiding sections *g g' h*, formed as here shown, said sections being formed with reference to the construction of the rails with which the switch is used.

I claim—

1. The combination, substantially as set forth, with the fixed track-rails *a b*, of a fixed supporting-plate located at the point of divergence of the rail *b* from the main rail *a*, the vertical shaft *d*, passing through said plate and engaged below the latter with a flexible cord or chain, whereby said shaft may be rotated by power communicated from a distant point, and a circular table attached to the upper end of said shaft and arranged concentrically thereon, said table having suitable track-sections co-operating with the rails *a b*, as set forth.

2. The combination, with the main rail and the branch rail, of the circular table or rotary switch having the curved tread-section *g* and the pointed section *g'*, relatively arranged substantially as shown.

3. The combination, with the main rail and the branch rail, of the circular table or rotary switch having the curved tread-section *g* and the pointed section *g'* and the guard-section *h*, relatively arranged substantially as shown.

4. The combination, with the main rail and the branch rail, of the centrally-pivoted table or rotary switch having stops *s s'*, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of February, A. D. 1889.

JOHN H. WILLIAMS.

Witnesses:

C. F. BROWN,
A. D. HARRISON.