

J. T. KRIEGER.
SAFETY SWITCH.

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931,208.

Patented Aug. 17, 1909.

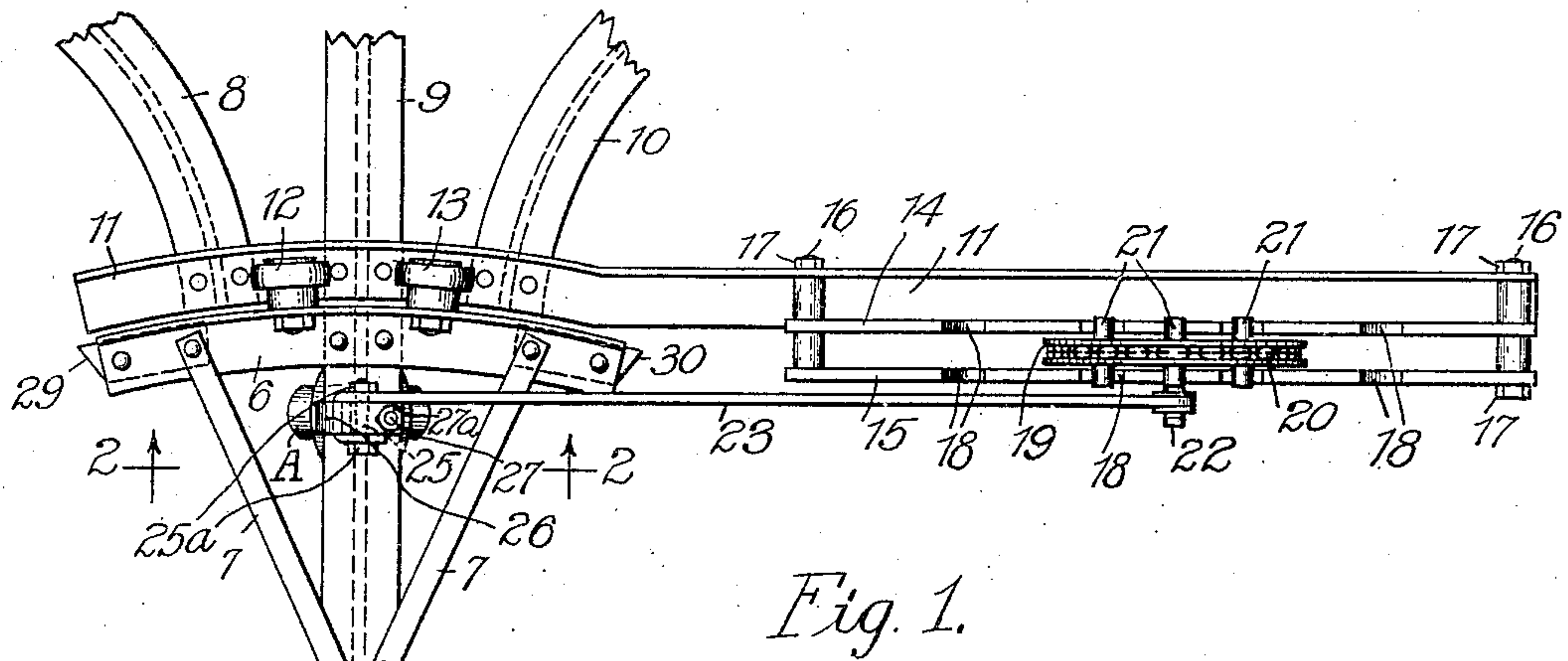


Fig. 1.

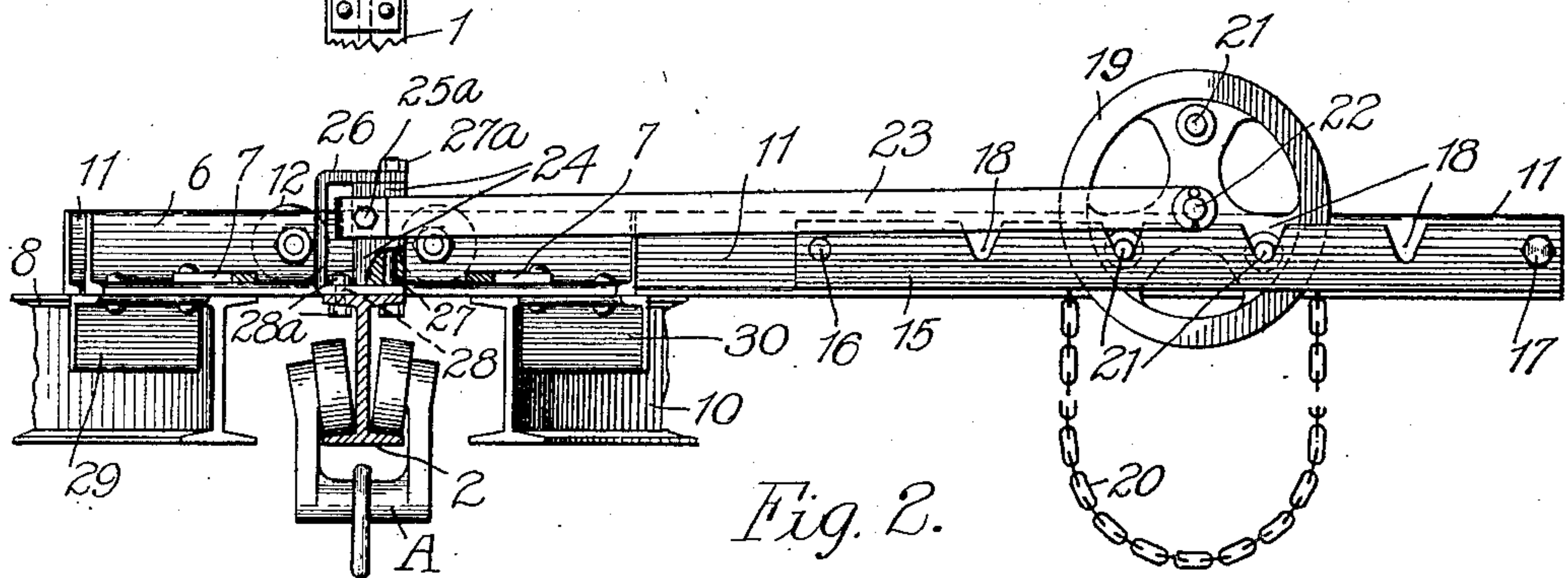


Fig. 2.

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SAFETY-SWITCH.

No. 931,208.

Specification of Letters Patent.

Patented Aug. 17, 1909.

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To all whom it may concern:

Be it known that I, JOHN T. KRIEGER, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Safety-Switches, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to safety switches and has particular reference to a form of switch which is adapted to be used in connection with I-beam tracks for overhead trolleys.

It is a matter of great importance that the switches used for I-beams should be absolutely safe and in order to insure this it is necessary that a switch should always be locked in its adjusted position. Previously it has been possible to lock a switch in either one or two positions, but no means have hitherto been provided so that such a switch may be locked in any one of three or more adjusted positions. In order to accomplish this result, I provide a section of I-beam which is pivoted and adapted to be moved into any one of a plurality of positions so that its end becomes continuous with the end of any one of a plurality of I-beams with which the said movable section is adapted to cooperate. The trolley may thus be moved from the movable section to any desired track. In order to accomplish the locking, I provide a pocket-wheel provided near its periphery with a plurality of projecting pins or lugs. The wheel is supported by means of two of these pins which rest in slots of suitable plates. A link is pivoted to the center of the pocket-wheel. It is now evident that if the wheel is rotated on either of its supporting pins as a fulcrum, the other supporting pin will be raised from its slot and a third pin will be caused to enter the third slot, thereby moving the link in the direction in which the pocket-wheel is rotated. The other end of the link is connected to the movable section of I-beam which is thereby brought into connection with one of the permanent tracks leading from the switch. It is evident that this rotary movement of the wheel may be continued as desired and the movable switch

may be made to assume as many positions as there are pins near the periphery of the pocket-wheel.

Overhead tracking of I-beams is used largely in foundries and other places where hot metal is handled. It is, therefore, of vital importance that all switching devices and, in fact, every part of the overhead trolley system should be constructed with the object of giving a maximum degree of safety. It will be evident in the detailed description which follows that such a result is accomplished by the use of my device. These and other advantages will be apparent by reference to the accompanying drawings, in which—

Figure 1 is a plan view of the various parts composing and associated with my switch, and Fig. 2 is a side elevation and partly sectional view on the line 2—2 of Fig. 1.

The main I-beam track 1 is provided with a laterally movable portion 2 which forms part of the switch. The trolley A is adapted to operate on the I-beam 1 and its movable portion 2, as well as on other I-beams which are described in connection with this specification. The portion 2 is pivoted at 3 and is provided on its upper surface with a plate 4 which is securely bolted to the I-beam and cooperates with plate 5 which is bolted to the upper surface of the I-beam 1. At the switch end of the movable portion 2, is provided a curved angle iron 6 rigidly secured to the member 2 by braces 7. The other portion of the switch comprises the three I-beams 8, 9, and 10. As shown most clearly in Fig. 1, I-beam track 9 forms a straight track with the main track 1, whereas I-beams 8 and 10 curve respectively to the left and right of the main track. The ends of the I-beams 8, 9 and 10 are connected by the curved angle-iron 11, which is securely bolted, or riveted to the tops of the I-beams. Rigidly bolted to the vertical portion of the angle-iron 6 are the rolls 12 and 13 which are adapted to move on the angle-iron 11 when the member 2 is swung to the right or left. As shown in Fig. 1 the angle-iron 11 extends laterally to the right. Secured to the vertical portion of this angle-iron are the parallel plates 14 and 15 which are secured in position by means of the bolts 16

and nuts 17. As most clearly shown in Fig. 2, the vertical plates 14 and 15 are provided with slots 18.

A pocket-wheel 19 adapted to be manually operated by the chain 20 is provided near its periphery with pins or lugs 21, these pins being placed in such a position that the pocket-wheel is supported by them in two of the slots 18. Through the hub of the pocket-wheel 19 extends the pin 22 rotatable within the wheel. Pivoted to the pin 22 is the link 23, the other end of which is pivotally connected to the block 24 by the bolt 25 provided with the nuts 25^a. A yoke 26 is vertically bolted to the block 24 by means of a bolt 27 provided with the nuts 27^a, this bolt extending through the upper flange of the movable I-beam 2. The yoke 26 is also bolted to the upper flange of the I-beam 2 by the bolt 28 provided with the nuts 28^a. It is now clear that the block 24 is laterally rotatable on the bolt 27 provided with the nuts 27^a, whereas the link 23 is vertically rotatable on the bolt 25 provided with the nuts 25^a. In this way a universal joint allowing motion in a vertical and horizontal plane is provided.

The operation of my switch may now be clearly understood. If it is desired to connect the main I-beam track 1 with, for example, the track 6, the pocket-wheel 19 is moved to the left by pulling on the left hand portion of the chain 20 thereby rotating the wheel 19 on the left hand pin 21 as a pivot. It is evident that the central pin 22 joined to the link 23 will pass through the arc of a circle the center of which is represented by the left hand pin 21. The upper pin 21 shown in Fig. 2 will drop into the left hand slot 18 and by means of the motion transferred through the link 23 and the block 24 the member 2 will be moved so that its end will come opposite the end of the I-beam 8 and at the same time the switch will be securely locked in this position inasmuch as lateral pressure by the link 23 would fail to rotate the pocket-wheel 19.

It is evident that when the member 2 is placed in connection with one of the I-beams 8, 9 or 10, the ends of the other two beams should be blocked in such manner that it would be impossible for a trolley to run off from these ends. In order to accomplish this result angle-irons 29 and 30 are bolted to the lower surface of the angle-iron 6. As most clearly shown in Fig. 2, when the movable member 2 is in its central position, continuous with track 9, the angle-iron 29 would prevent a trolley on the track 8 from passing off the end of the track, whereas angle-iron 30 would perform a similar function with respect to the track 10.

Let us now assume that the member 2 is moved into its left hand position coöperating with the track 6. The left hand part of

the angle-iron 30 will now occupy such a position that the end of the track 9 will be blocked and the right hand part of the angle-iron 30 will simultaneously block the track 10. Similarly if the member 2 is moved to its right hand position, in coöperation with the track 10, the angle-iron 29 will block the tracks 6 and 7.

It is apparent that many detailed changes could be made from the exact construction which I have described above without departing from the spirit of my invention.

What I claim as new and desire to cover by United States Letters Patent is:

1. In an overhead switching system, a main track, a rotatable section of track continuous with the main track, a plurality of tracks terminating at the switch, a rotatable member, means for supporting said rotatable member, a plurality of pivots attached to said member and on which the member may be successively rotated on said supporting means, and a link connecting said member with the rotatable section of track, the rotation of said member adapted to move said section of track from one to another of said associated tracks.

2. In an overhead switching system, a main track, a horizontally rotatable section of track continuous with the main track, a plurality of tracks terminating at the switch, a rotatable member, means for supporting said rotatable member, a plurality of pivots attached to said member and on which the member may be successively rotated on said supporting means, and a link connecting said member with the rotatable section of track, the rotation of said member adapted to move said section of track from one to another of said associated tracks.

3. In an overhead switching system, a main track, a rotatable section of track continuous with the main track, a plurality of tracks terminating at the switch, a rotatable member, a frame associated with said member, a plurality of grooves in said frame, a plurality of pins attached to the rotatable member, said pins adapted to engage in said grooves, thereby supporting said rotatable member and acting as pivots on which said member may be successively rotated, and a link connecting said member with the rotatable section of track, the rotation of said member adapted to move the free end of said movable section from one to another of said associated tracks.

4. In an overhead switching system, a main track, a horizontally rotatable section of track continuous with the main track, a plurality of tracks terminating at the switch, a rotatable member, a frame associated with said member, a plurality of grooves in said frame, a plurality of pins attached to the rotatable member, said pins adapted to engage in said grooves, thereby supporting said

rotatable member and acting as pivots on which said member may be successively rotated, and a link connecting said member with the rotatable section of track, the rotation of said member adapted to move the free end of said movable section from one to another of said associated tracks.

5. In an overhead switching system, a main track, a horizontally rotatable section of track continuous with the main track, a plurality of tracks terminating at the switch, a member rotatable in a vertical plane substantially transverse to said main track, a frame associated with said rotatable member, grooves in said frame, pins on said rotatable member, said pins adapted to engage in said grooves, thereby supporting said rotatable member and locking said member against lateral displacement, and a link connecting said vertically rotatable member with said horizontally rotatable section of track.

6. In an overhead switching system, a main track, a horizontally rotatable section of track continuous with the main track, a member rotatable in a vertical plane transverse to said main track, a plurality of pins rigidly attached to said vertically rotatable member, means cooperating with said pins for supporting said member, means for rotating said member on one of said pins as a pivot, a link connecting said member with said movable section of track, means for pivotally connecting one end of said link to said vertically rotatable member, and means for connecting the other end of said link to said rotatable section of track.

7. In a safety switching system, a main I-beam adapted to support a trolley, an I-beam section continuous with said main I-beam and horizontally rotatable, a plurality of I-beams terminating at the switch, a member vertically rotatable in a plane transverse to the main I-beam, a plurality of pins rigidly attached toward the periphery of said member, means for supporting said vertically rotatable member by said pins, slots in said supporting means adapted to cooperate with said pin and to prevent said rotatable member from lateral displacement, a link, means for pivotally attaching one end of said link to said vertically rotatable member, means for attaching the other end of said link to said horizontally rotatable section of I-beam, and means for rotating said vertically rotatable member on one of said pins as a pivot thereby laterally rotating said rotatable section of I-beam and bringing another pin into another slot of said supporting means.

8. In a safety switch for overhead trolleys, the combination of a horizontally rotatable section of track, a plurality of tracks terminating at said switch, a wheel rotatable in a vertical plane, a plurality of pins toward the periphery of said wheel, a sup-

porting frame, a plurality of slots in said frame, said slots adapted to receive a succession of said pins when said wheel is rotated successively on said pins in said slots, a link, means for pivotally connecting one end of said link to the center of said wheel, means for pivotally connecting the other end of said link to said movable section of track, and means for rotating said wheel thereby moving said rotatable section of track laterally and locking the track in its adjusted position.

9. In a safety switch for overhead trolley tracks, the combination of a horizontally rotatable section of track, a plurality of tracks with any one of which said movable section is adapted to be connected, a wheel vertically rotatable in a plane substantially transverse to the main axis of said horizontally movable section, a plurality of transverse pins rigidly connected to said wheel toward its periphery, a supporting frame for said wheel, a plurality of grooves in said frame, the pins of said wheel being adapted to cooperate with said grooves, a link one end of which is pivotally connected with said wheel and the other end of which is pivotally connected with said horizontally rotatable section of track, and means for rotating said wheel on one of said pins as a pivot, said grooves and said pins being suitably spaced so that said rotatable section of track is moved from one to the adjacent permanent track when said wheel is rotated from one to the adjacent set of slots.

10. In a safety switch for overhead trolleys, a horizontally rotatable section of track, a plurality of permanent tracks, a member vertically rotatable in a plane substantially transverse to said rotatable section, a plurality of transverse pins rigidly fastened to said member and projecting on each side of said member, a pair of supporting plates between which said member operates, a plurality of transverse grooves in said plates, said grooves adapted to receive said pins, thereby locking said member against lateral displacement, a link, means for pivotally connecting one end of said link to said rotatable member at a point outside of the line joining any two adjacent pins, means for pivotally connecting the other end of said link to said horizontally rotatable section of track, and means for rotating said vertically rotatable member, thereby moving said section of track into connection with any one of said permanent tracks and locking said section in position.

In witness whereof, I hereunto subscribe my name this 8th day of May, A. D. 1909.

JOHN T. KRIEGER.

Witnesses:

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HENRY M. HUXLEY.