No. 744,629. PATENTED NOV. 17, 1903.

C. G. SCHMIDT & P. F. WERNER.

SWITCH FOR OVERHEAD TROLLEY TRACKS.

APPLICATION FILED SEPT. 4, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

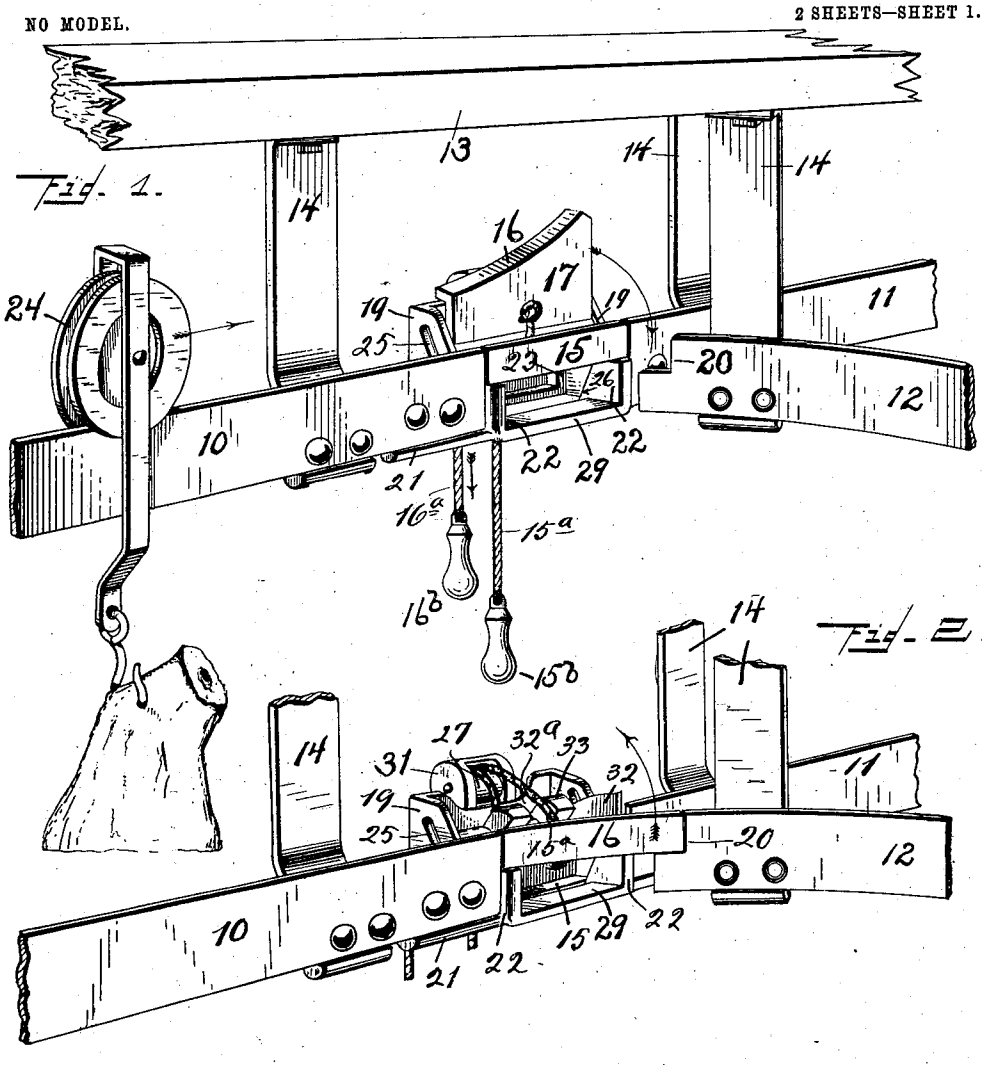
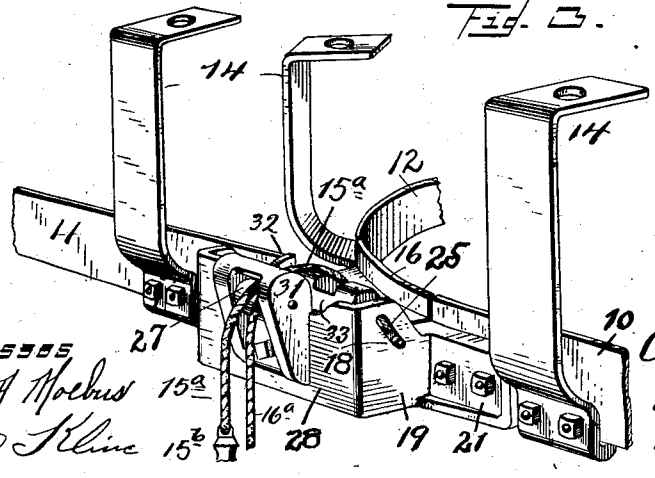


Fig. 2.

Fig. 3.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

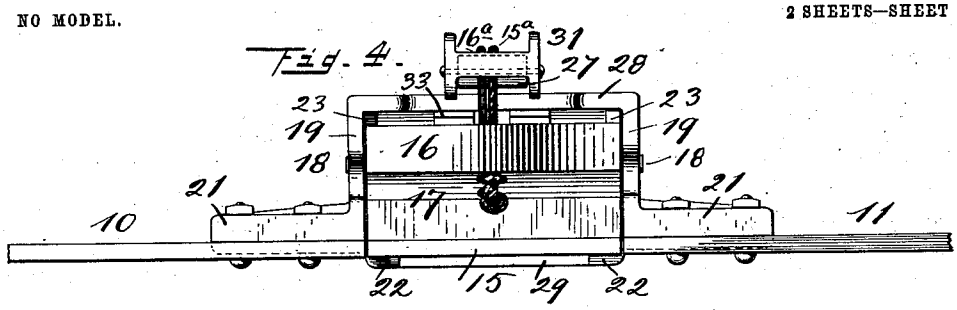


Fig. 5.

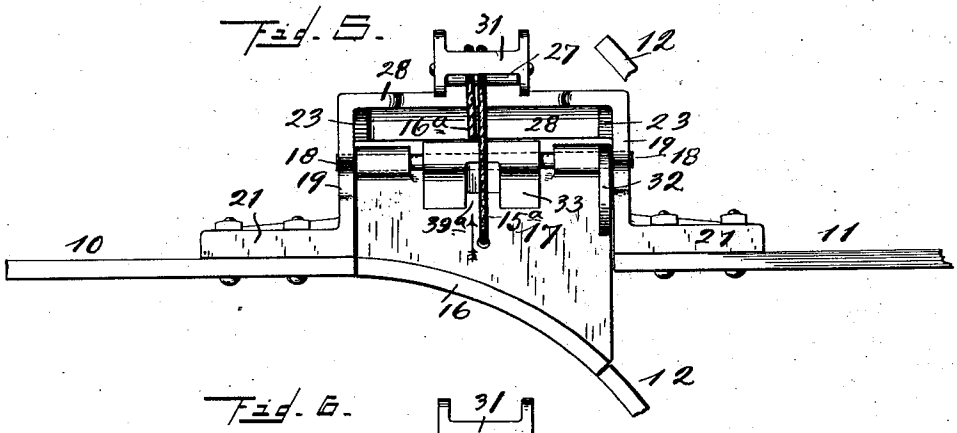


Fig. 6.

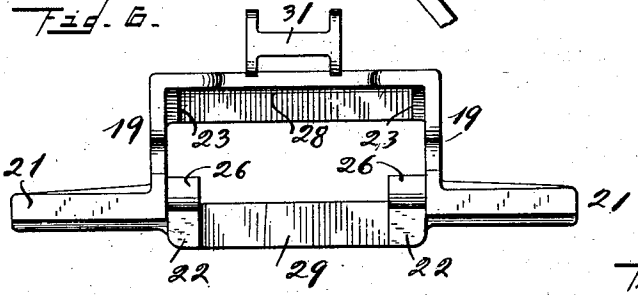


Fig. 7.

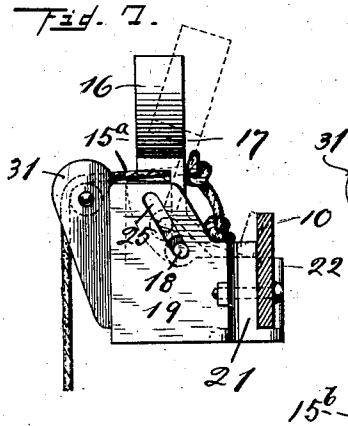


Fig. 8.

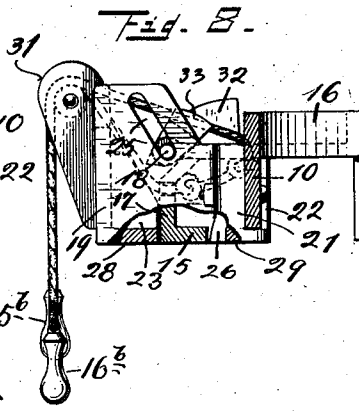
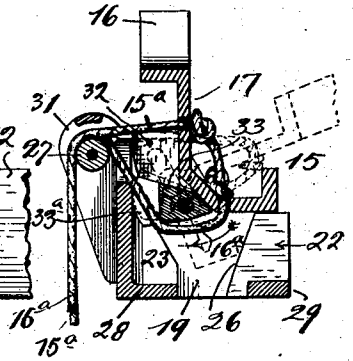


Fig. 9.



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No. 744,629. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

CHARLES G. SCHMIDT AND PAUL F. WERNER, OF CINCINNATI, OHIO, ASSIGNORS TO THE CINCINNATI BUTCHERS' SUPPLY CO., OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

SWITCH FOR OVERHEAD-TROLLEY TRACKS.

SPECIFICATION forming part of Letters Patent No. 744,629, dated November 17, 1903.

Application filed September 4, 1903. Serial No. 171,855. (No model.)

To all whom it may concern:

Be it known that we, CHARLES G. SCHMIDT and PAUL F. WERNER, both citizens of the United States, residing in the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Switches for Overhead-Trolley Tracks; and we do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying two sheets of drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to improvements in switches for overhead-track systems, such as are used in slaughter and packing houses, warerooms, cold-storage houses, commercial and manufacturing establishments, where these systems serve to move sides of beeves, merchandise, &c., such articles being suspended on trolley-wheels which travel upon said tracks. The switches in these track systems are used to enable the convenient arrangement, collection at one point for shipment, or distribution for storage from and to the different compartments of a building, the cooling-rooms in packing plants, annexes of main buildings, &c.

The object of our invention is to provide a switch constructed on practical lines which may be quickly adjusted to either one of its positions by a convenient operation from below and which is reliable in operation and durable in wear and without requiring a complicated and expensive construction to obtain these results.

In the following specification, and particularly pointed out in the claims, is found a full description of the invention, together with its operation and manipulation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows in perspective view the switch provided by our invention, the same attached in position so as to form part of an overhead-track system, a main track and a branch track being shown. The switch is set for uninterrupted travel through on the main track, which position for convenient reference and distinction we call hereinafter the "normal" or "first" position, although it is of course not any more important than the position shown in the next figure. Fig. 2 in a similar view shows the switch set for travel from the main track onto the branch track, a position which we call hereinafter the "second" position. Fig. 3 in a similar view shows the switch in the second position, as shown in Fig. 2, but viewed from the other side. Fig. 4 shows a top view of the switch in the first position. Fig. 5 shows it in a similar view in the second position. Fig. 6 shows a top view of the switch-supporting frame. Fig. 7 is an end view of the switch in the first position. Fig. 8 is a similar view of it in the second position. Fig. 9 is a vertical section of it between its ends and in a position as shown in Fig. 7.

In the drawings, 10 is part of the main track on this or nearest side of the switch, meaning thereby that part and side of it which approaches the switch. On the other side of the switch there are two tracks, which may be considered as two branches leading in different directions, or one, 11, may be a continuation of the main track, while 12 only is considered a branch track. These tracks are usually supported from the ceiling 13 by means of hangers 14, some of which are arranged near the ends of the tracks with a sufficient number of them between. To bridge the gaps between the opposite ends of these three tracks, we provide two short track-sections or rails fitted so as to fill the gaps mentioned, one rail, 15, to bridge the space between the ends of rails 10 and 11 and one, 16, to close the space between the ends of rails 10 and 12. These two track-sections or rails are structurally and by preference integrally combined by an angular frame 17, called the "switch-frame," the entire combined structure constituting the switch and consisting of the two angular branches of this switch-frame, each branch having formed at its outer edge these short tracks or switch-rails 15 and 16, they appearing thereat substantially in shape of two upturned lips, one lip angularly arranged at the edge of each branch of the switch-frame. This compound switch structure is supported in a manner to permit of

a rotary movement about its longitudinal axis and substantially parallel thereto, for which purpose there is provided at each end of the switch-frame and at the apex of the angle between the two angular branches of it a pivot in the shape of a trunnion-journal 18, which is fitted so as to occupy and be supported each by a bearing 19, they having each a flange 21, by which they are attached to two of the track ends or one to the end of track 10 and the other to the end of track 11. The two switch-rails 15 and 16 being properly shaped and arranged as to angular disposition with reference to each other, it will now be seen that this switch structure by being turned longitudinally about its pivotal support, may be adjusted so that either switch-rail 15 bridges the gap between the ends of rails 10 and 11 or that switch-rail 16 does the same between the ends of rails 10 and 12. In the first case one of the angular branches of the switch-frame, the one which has switch-rail 15 formed at its edge, rests upon two projecting lugs 22, reaching or projecting into the gap between the track ends. In the other case the other branch, the one which has switch-rail 16 at its edge, rests also upon these lugs and in addition is braced by the other branch resting against projections 23 on the inside of bearings 19. The outer end of rail 16 may also rest edgewise in a notch 20, cut out of the end of rail 12. In the first case and as shown in Fig. 1 carrier 24 in shape of a trolley-roller supporting the matter to be moved may travel from track 10 over switch-rail 15 onto track 11. In the other case and as shown in Fig. 2, said carrier would travel from rail 10 over switch-rail 16 onto rail 12. In order to permit the switch structure to be turned for this adjustment from the first position to the second one, switch-rail 15 must be caused to first clear lugs 22, which is done by a preliminary bodily movement of the switch, whereby said switch-rail is caused to leave its position on said lugs, and such position is shown in Fig. 9. This movement in addition to being rearwardly is also upwardly, the object being to also tilt the switch-frame, as shown in dotted lines in Fig. 7, whereby it is caused to drop into its new position as soon as lugs 22 are cleared, and such position is shown in Figs. 2, 5, and 8. This compound sliding-and-rising movement is made possible by having the openings occupied by pivots 18 in shape of upwardly and rearwardly inclined slots 25, in which the pivots may slide. The same is necessary when changing back, when again a preliminary lifting movement is necessary, whereby section 15 is lifted out of the space between lugs 22 and projections 23 (see Fig. 8 and dotted lines in Fig. 9) before the switch structure can be turned. To facilitate this movement, the rear parts of lugs 22 are inclined, as shown at 26. This compound lifting, rearwardly-sliding, and turning movement whereby the switch is thrown from one position into the other is accomplished by a rope or equivalent pliable member, one for each switch-rail, rope 15^a being used for bringing switch-rail 15 in position, the other, 16^a, being used to bring switch-rail 16 in position. While as to function there is one rope for each switch-rail, they may in reality be in one piece, which is attached, as shown, by being passed through holes in the switch-frame and held in position by knots. Each rope has a handle, they being shown at 15^b and 16^b, and these handles may be used as a means to indicate the position of the switch. Colors might be used, the one on one handle different from the one on the other, or their particular position with reference to each other may do it. We have adopted this latter method and arranged it like this: that always the shorter rope—that is, the one the handle of which is up higher than the other one—is to be operated to change the switch. The two ropes are passed over a support, preferably a roller 27, and hang down in the rear of the switch, reaching down sufficiently to bring their handles within easy reach. The point where these ropes pass over this support is sufficiently elevated with reference to the point where the particular rope to be pulled at the time attaches to the switch, so that the necessary lifting preceding the tilting is assured and always takes place. The operating motion is an oscillating or reciprocating rotary one, and no complete rotation takes place. Thus, for instance, referring to Figs. 1 and 2, switch-rail 16 moves into its position in the direction of the arrow in Fig. 1, and rail 15 passes down and out of its position in the same direction. Going back again to first position, rail 15 moves into its position up from below and rail 16 moves out in the same direction and as shown by the arrow in Fig. 2. Each rail reciprocates in its own path, rail 16 moving in the upper part and rail 15 in the lower part of the arc through which the switch swings. Slots 25 being inclined, facilitate in every instance the preliminary lifting of the switch before its turn and also the final movement, whereby after being tilted the switch drops into its new position.

For convenience in construction and to obtain increased rigidity the two bearings 19, with their attaching-flanges 21, are connected to each other by intermediate frame-sections 28 and 29, section 28 bridging the space between bearings 19 19 and section 29 stretching between flanges 21 21, where they join bearings 19 19. By preference this connection is an integral one, all these parts being formed in one casting, the same containing also at the corners where bearings 19 and flanges 21 come together and above section 29 the supporting-lugs 22 22, which form part of the means upon which the switch-frame rests. Projections 23 23 are formed in the corners between bearings 19 19 and member 28. This united consolidated cast-

ing we call the "switch-supporting" frame. A bracket 31, in which roller 27 is mounted, is also attached to part 28 of this frame. To steady the switch-frame in its first position, as shown in Figs. 1, 4, 7, and 9, we use a lug 32 on the (at the time) upright branch of the switch-frame, being the one which has switch-rail 16, and which lug by being then in contact with the inner side of frame part 28 prevents the switch from tilting or wabbling. The switch-frame is furthermore firmly held at this time and with its pivots in the lower part of their inclined slots by means of a locking-wedge 33, hingedly attached to the switch-frame and dropping at the time into the space between the switch-frame and member 28 of the supporting-frame and as shown in Fig. 9. Pivot-journals 18, being extended inwardly and, in fact, contained in one continuous pin, are used for attaching this wedge, the switch-frame being cut out between its ends to make room for such purpose and as best shown in Fig. 5. Rope 16^a being passed around the under side of this wedge and up through a notch 33^a in it, it is clear that the first action on this rope will be to unlock this wedge, as shown in dotted lines in Fig. 9, after which continued action on this rope will act on the switch in a manner to change it to its new position. These locking and sustaining means may not be required in all cases, and particularly not when the tracks are intended only for moving articles of limited weight. Heavy goods, however, and such of considerable length—like, for instance, sides of beeves, which during their travel are liable to assume on their support a swinging or pendulum motion, which creates a possibility tending to tilt the switch—make the presence of such auxiliary means of security desirable. No such means are required to secure the switch in the second position, since then it rests firmly not only on lugs 22, but is also held by the other angular branch, the switch-rail 15 of which, with adjacent parts of frame 17, is now confined in the internal space of the switch-supporting frame, and more particularly between the rear side 26 of lugs 22 and the lower front edge of frame portion 28 or projections 23, as shown in Figs. 8 and 9. In addition there is also the notch 20 on rail 12; but this notch is not absolutely necessary.

The construction whereby the turning-center of the switch is rendered movable to permit said switch to first clear the means supporting it in position before it can turn may also be arranged otherwise—as, for instance, by pivotally-attached links supporting the pivots instead of slots 25. This permits also a flat switch-frame instead of an angular one to be used.

Having described our invention, we claim as new—

1. In a switch for trolley-tracks, the combination of three rail ends arranged near each other with a gap between them a switch having two switch-rails each adapted to bridge the gap between two of the rail ends, bearings for this switch on which it is supported with a changing pivotal connection and means to manipulate the switch to close either one of the gaps between opposite rail ends.

2. In a switch for trolley-tracks, the combination of an angular switch-frame, a switch-supporting frame, to which the former is attached with a moving, pivotal connection, switch-rails on the outer edge of this angular switch-frame and means for manipulating the same, so that either one of these switch-rails on it may be adjusted to close the space between opposite rail ends.

3. In a switch for trolley-tracks, the combination of a switch-frame having switch-rails at its edges which are angularly disposed with reference to each other and each of which is adapted to meet spaced opposite rail ends of the track system to close the gap between them, bearings in which this switch-frame is confined with a moving, pivotal connection and means to operate the same.

4. In a switch for trolley-tracks, the combination of an angular switch-frame having switch-rails at its edges, a switch-supporting frame having attaching-flanges whereby it may be connected within the track system, slotted bearings in opposite ends of this supporting-frame, pivots on opposite ends of the switch-frame which occupy these slots and means to operate the switch.

5. In a switch for trolley-tracks, the combination of three rail ends arranged with a space between them and one of them opposite the other two, a switch whereby the gap between this one end and either one of the others may be closed, a switch-supporting frame attached between this one end and one of the others, slots in opposite ends of this supporting-frame, pivots on the switch which occupy these slots and a manipulating-rope to operate the switch.

6. In a switch for trolley-tracks, the combination of an angular switch-frame having switch-rails at its edges, a switch-supporting frame, means whereby it is attached so as to form a part of the track system, slotted bearings in opposite ends of it, pivots on opposite ends of the switch-frame which occupy the slots in these bearings, supports on which part of the switch-frame rests while the switch is in either one of its adjusted positions, and a rope to adjust the switch from one position to the other one, the operation being such that the switch-frame is first lifted off of its supports and simultaneously turned while such lifting motion continues, after which it drops again into its new position, its pivots sliding and turning in the slots mentioned.

7. In a switch for trolley-tracks, the combination of an angular switch-frame having switch-rails formed at its edges, a frame on which the same is supported, means whereby this frame is attached so as to be within the track system, pivots whereby the switch-frame is attached to its supporting-frame, a

rope for manipulating the switch and a swinging wedge adapted to lock it in one of the adjusted positions by occupying a position between such switch and opposite parts of the supporting-frame, the operation being such that the manipulating-rope when used to change the switch from this particular position acts first upon this wedge to unlock the same.

8. In a switch for trolley-tracks, the combination of an angular switch-frame having switch-rails at its edges, a frame on which it is supported with a pivotal connection, means for attaching this supporting-frame within the track system, supports on which either one of the angular branches of the switch-frame rests in either one of its adjusted positions and means for tilting the switch in a manner that one of its angular branches is caused to leave these supports to be immediately occupied by the other branch.

9. In a switch for trolley-tracks, the combination of a switch-frame consisting of two branches arranged substantially at right angles to each other, switch-rails at the free edge of each of these branches, a supporting-frame to which this switch-frame is attached with a pivotal connection, supporting-lugs normally occupied by one of the angular branches of this switch-frame, the position of this particular branch being substantially a horizontal one and means for manipulating the switch in a manner that the other branch is caused to occupy these supporting-lugs.

10. In a switch for trolley-tracks, the combination of a switch-frame consisting of two branches arranged substantially at right angles to each other, switch-rails at the edge of each of these branches, a supporting-frame surrounding this switch-frame, pivots whereby it is attached thereto one at each end, supporting-lugs on which one of the angular branches of the switch always normally rests, the position being substantially a horizontal one and means whereby this switch-frame is moved on its pivots with a reciprocating, rotary motion whereby one of the angular branches is caused to leave its supports to permit the other one to occupy them thereafter.

11. In a switch for trolley-tracks, the combination of a switch-frame, a frame on which its opposite ends are supported with a pivotal connection, switch-rails on opposite sides of this switch-frame and between its supported ends, supports on which either one of these sides may rest and means for tilting this switch-frame and for moving the same on its pivots in a manner that the supported side is caused to leave its support to make room for the other side.

12. In a switch for trolley-tracks, the combination of a switch-frame supported between its ends in a manner permitting it to be tilted in a vertical plane, switch-rails projecting from the sides between its supported ends and arranged so as to project from the switch-frame in different directions and means to manipulate the switch to bring either of its switch-rails in its proper alined position.

13. In a switch for trolley-tracks, the combination of a switch-frame, pivots between which it is supported, a frame to which these pivots are movably secured, switch-rails on this switch-frame projecting therefrom in different directions and means to manipulate this switch-frame in a manner that either one of these switch-rails is caused to assume an alined position.

14. In a switch for trolley-tracks, the combination of an angular switch-frame having switch-rails formed at its edges, a supporting-frame for it, projections on this latter upon which either of these angular branches may rest, the other branch assuming then an upright position, one branch extending upwardly from the supported branch in one adjustment, while the other in the other adjustment depends downwardly from the supported branch, internal projections on the supporting-frame between which this depending branch is held at the time, bracing then the supported branch and means whereby this switch is adjusted with a reciprocating rotary motion whereby one of the angular branches is caused to leave its supports to permit the other one to occupy them thereafter.

15. In a switch for trolley-tracks, the combination of a switch-frame consisting of two branches arranged substantially at right angles to each other, switch-rails at the edge of each of these branches, a supporting-frame surrounding this switch-frame, pivots whereby it is attached thereto one at each end, supporting-lugs on which one of the angular branches of the switch always normally rests, the position being substantially a horizontal one, means whereby this switch-frame is moved on its pivots with a reciprocating rotary motion whereby one of the angular branches is caused to leave its supports to permit the other one to occupy them, the leaving branch assuming then an upright position, each branch always moving back and forth in its own path, one in the lower and the other in the upper part of the arc through which the switch-frame swings, and a lug on the branch moving in the upper part of the arc and adapted to contact when in its upright position with the switch-supporting frame so as to steady the switch.

In testimony whereof we hereunto set our signatures in the presence of two witnesses.

CHARLES G. SCHMIDT.
PAUL F. WERNER.

Witnesses:
C. SPENGEL,
HERMAN SCHMIDT.