Mar. 6, 1923. 1,447,167

W. E. BEE ET AL

TROLLEY SWITCH

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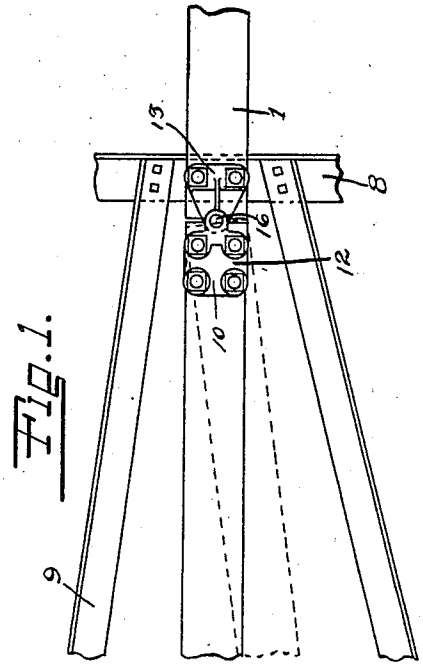


Fig. 1.

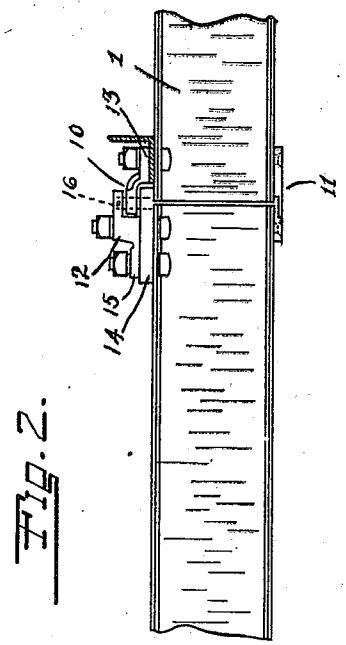
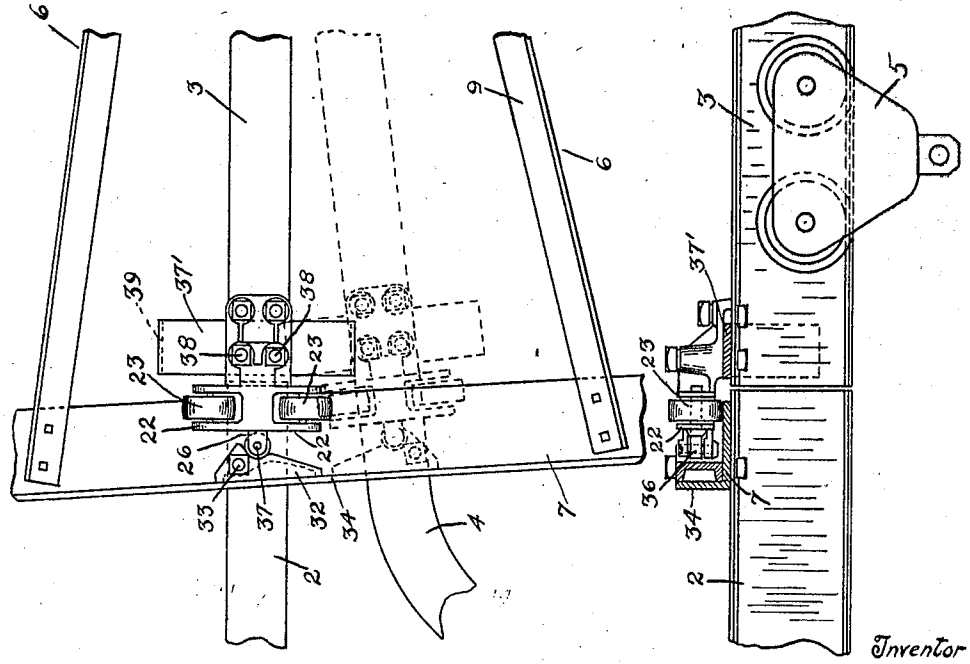


Fig. 2.



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Fig. 4.

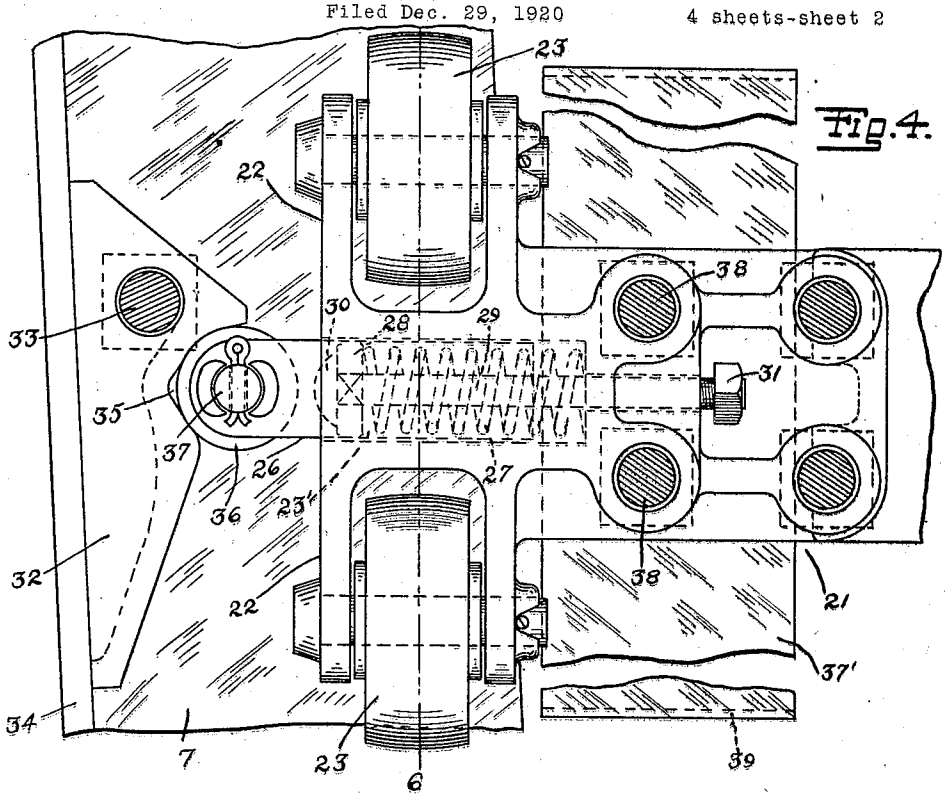
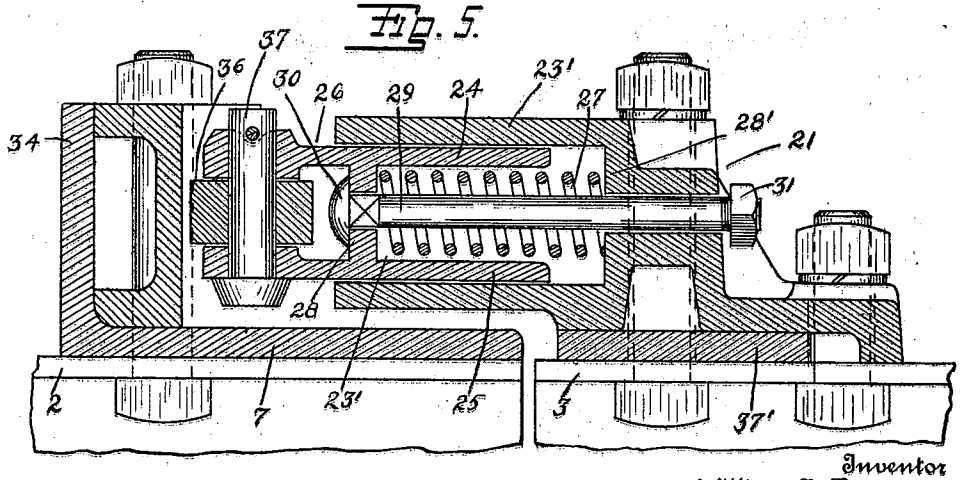


Fig. 5.



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TROLLEY SWITCH

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Fig. 7.

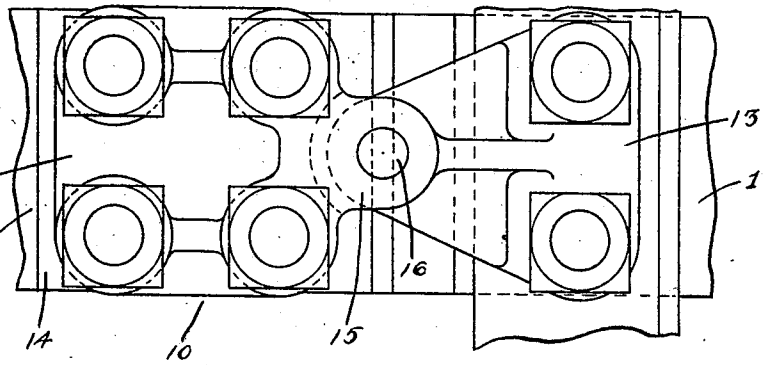


Fig. 8.

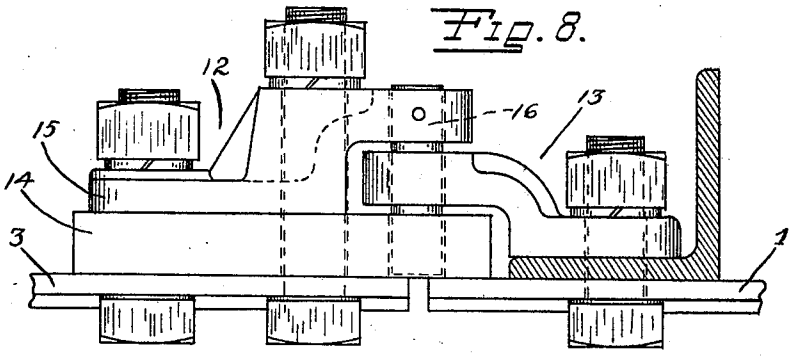


Fig. 9.

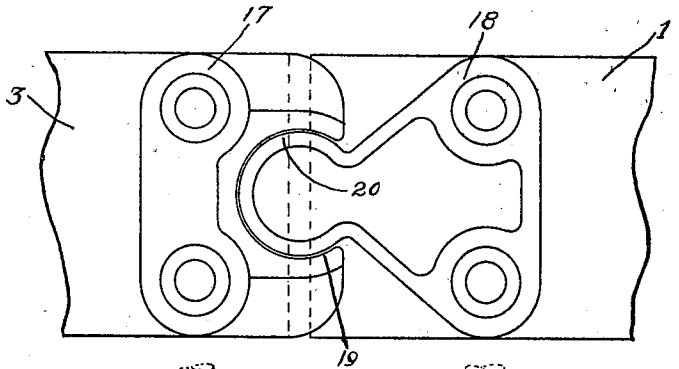
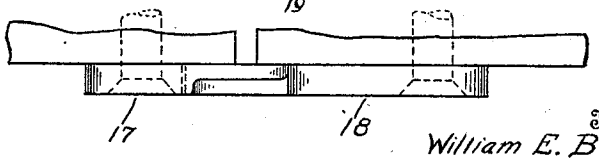


Fig. 10.



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Fig. 11.

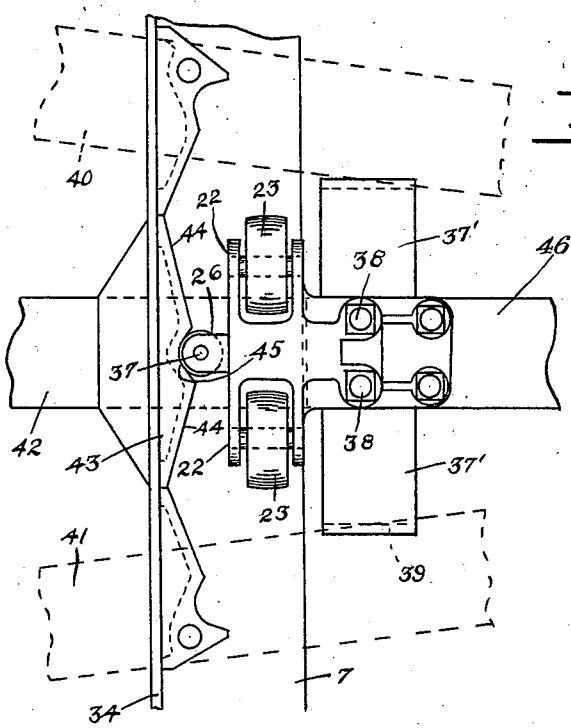


Fig. 3.

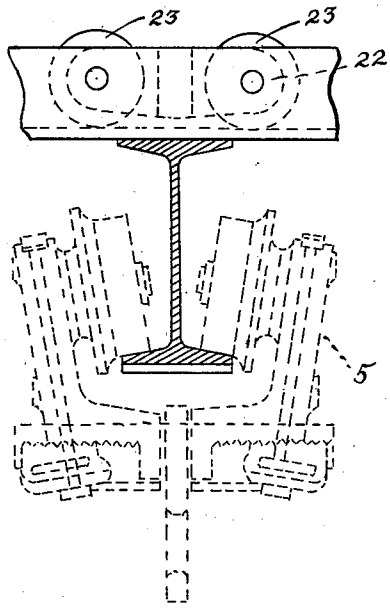
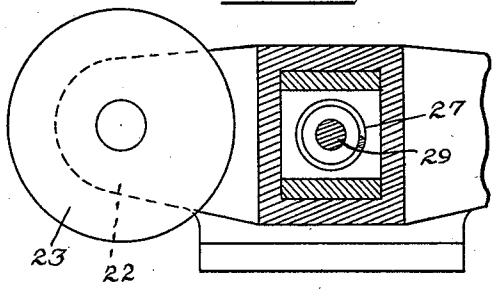


Fig. 6.



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Patented Mar. 6, 1923. 1,447,167

UNITED STATES PATENT OFFICE.

WILLIAM EDWARD BEE AND WILLIAM E. SIMPSON, OF DETROIT, MICHIGAN, ASSIGNORS TO PALMER-BEE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

TROLLEY SWITCH.

Application filed December 29, 1920. Serial No. 433,838.

To all whom it may concern:

Be it known that we, WILLIAM E. BEE and WILLIAM E. SIMPSON, a citizen of the United States of America and a subject of the King of Great Britain and Ireland, respectively, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Trolley Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to trolley switches and has for its object the provision of an improved construction by means of which a trolley may be readily moved from one track to another: in which the pivot securing the angularly adjustable track portion to a stationary track portion has its axis of rotation in registration with the gap between the angularly adjustable track portion and the stationary track portion; in which a wheeled truck supports the free end of the angularly adjustable track portion and is engageable with a keeper for registering the free end with the other stationary track portion. Another object of the invention is to provide a pivot for the angularly adjustable track portion comprising hinges at the upper and lower sides thereof, the lower hinge being flat to permit of passage of the trolley, and the upper hinge having one hinge member bifurcated and embracing the other to better take care of the stresses. A further object is the provision of a stop at the free end of the angularly adjustable track portion extending adjacent to the end of a branch track when the angularly adjustable portion is in registration with the main track to prevent accidental disengagement of a trolley from the branch track. Other objects of the invention reside in the novel features of construction and combinations and arrangements of parts as more fully hereinafter set forth.

In the drawings:

Figure 1 is a top plan view of a trolley switch embodying our invention;

Figure 2 is a side elevation thereof;

Figure 3 is an end view thereof;

Figure 4 is a top plan view of the truck and a keeper engaged by the truck;

Figure 5 is a longitudinal central section therethrough.

Figure 6 is a cross-section on the line 6—6 of Figure 4;

Figures 7 and 8 are respectively a top plan view and a side elevation of the upper hinge;

Figures 9 and 10 are respectively a bottom plan view and a side elevation of the lower hinge;

Figure 11 is a top plan view of a portion of a modified construction of trolley switch.

1 and 2 are respectively the front and rear stationary track portions of the main track, and 3 is the angularly adjustable portion thereof intermediate the track portions 1 and 2. 4 is a branch track. The stationary track portions 1 and 2 of the main track and the branch track 4 are suspended after the usual manner and are preferably I-beams for supporting the trolley 5 from the lower flanges. 6 is a triangular frame work preferably formed of angle bars for maintaining the parts in fixed relation; and in detail, this frame work comprises the end angle bar 7 extending transversely of and rigidly secured to the rear track portion 2 and branch track 4, the end angle bar 8 extending transversely of and rigidly secured to the front track portion 1 and the side angle bars 9 rigidly secured to the ends of the end angle bars 7 and 8.

The angularly adjustable portion 3 has its front end registering with the front track portion 1 and is slightly spaced therefrom to permit of limited swinging to register the rear end of the angularly adjustable portion with the rear track portion 2 and branch track 4. This front end is pivotally secured to the front track portion with the axis of the pivot in registration with the gap between the angularly adjustable portion and the front track portion. This pivot comprises the upper and lower hinges 10 and 11, and as shown particularly in Figures 7 and 8, the upper hinge 10 has the pair of cooperating hinge members 12 and 13 respectively fixedly secured to the upper flanges of the angularly adjustable portion 3 and front track portion 1. For the purpose of providing a simple construction of upper hinge which is comparatively cheap to manufacture and at the same time will properly take care of the stresses, the hinge member 12 is bifurcated and comprises the lower section 14 and the

upper section 15, the former of which is formed of a good wearing material such as steel, while the latter is formed of a cheaper material such as cast iron. The pin 16, the axis of which registers with the gap between the angularly adjustable portion 3 and front track portion 1, is fixedly secured at its upper end in the upper section 15, and extends through the hinge member 13 embraced by the furcations of the hinge member 12 and into the section 14. The lower hinge 11 as shown particularly in Figures 9 and 10 is formed of the cooperating hinge members 17 and 18 which are respectively fixedly secured to the lower faces of the lower flanges of the angularly adjustable portion 3 and front track portion 1. These hinge members are flat and furthermore the hinge member 17 is provided with the circular recess 19 open on its outer side for engagement by the circular head 20 of the hinge member 18, the arrangement being such that but comparatively little space is required below the lower flanges of the angularly adjustable portion and front portion, thereby reducing the amount of clearance in the frame of the trolley 5 necessary to permit of the passage thereof. The axis of rotation of the cooperating hinge members 17 and 18 is in alignment with that of the cooperating hinge members 12 and 13 of the upper hinge and also registers with the gap between the angularly adjustable portion and the front track portion.

21 is a truck fixedly secured to the upper face of the angularly adjustable portion 3 at its free end for supporting the same. The frame of this truck has the oppositely-extending pairs of furcations 22 between which are rotatably mounted the wheels 23 resting upon the end angle bar 7 of the triangular frame 6. Intermediate the pairs of furcations 22 is the hollow longitudinally extending portion 23′ which is slidably engaged in by the upper and lower furcations 24 and 25 respectively of the plunger 26. 27 is a coil spring abutting the partition 28 of the plunger and the wall 28′ at the inner end of the hollow portion 23′ for yieldably forcing the plunger outwardly relative to the truck frame. For limiting the outward movement of the plunger relative to the frame, there is the bolt 29 extending through the partition 28 and wall 28′ and having the head 30 engageable with the outer face of the partition and the nut 31 outside the wall.

32 are keepers fixedly secured to the rear track portion 2 of the main track and the branch track 4 as by means of the bolts 33, these keepers being preferably hollow and having their rear edges abutting the upright flange 34 of the end angle bar 7 so that but one bolt for each keeper is required. Each keeper has the recess 35 in its face for engagement with the plunger 26 upon the truck, this recess being so located that when engaged by the plunger, the free end of the angularly adjustable portion 3 is in registration with the track to which the keeper is secured.

The outer end of the plunger 26 is bifurcated and embraces the roller 36 which is rotatably mounted upon the pin 37 extending between the furcations.

In order to prevent accidental disengagement of the trolley 5 from either the rear portion 2 of the main track or the branch track 4 when the angularly adjustable portion 3 is respectively in registration with the branch track or rear track portion, the stop 37 is provided upon the free end of the angularly adjustable portion 3. In detail, this stop is formed of a plate extending transversely of the angularly adjustable portion and between its upper side and the frame of the truck 21 and secured in place by a pair of the same bolts 38 which secure the truck frame to the angularly adjustable portion. 39 are depending flanges at the outer ends of the plate which extend into proximity to the ends of the branch track 4 or rear portion 2 of the main track respectively, when the free end of the angularly adjustable portion 3 is in registration with the rear portion or branch track so that upon movement of the trolley upon either the branch track or rear portion of the main track when the angularly adjustable portion is not in registration therewith, this trolley will engage the depending flange and be prevented from further movement.

In the modified construction of trolley switch shown in Figure 11, two branch tracks 40 and 41 are employed on opposite sides of the rear portion 42 of the main track and the keeper 43 upon the rear track portion has inclined faces 44 leading to the recess 45 for engagement with the plunger. In this construction, the stops upon the free end of the angularly adjustable portion 46 of the man track extend adjacent to the ends of both branch tracks when the angularly adjustable portion is in registration with the rear track portion.

What we claim as our invention is:

1. In a trolley switch, the combination with a main track and a branch track flanged at their upper and lower edges, said main track having spaced front and rear portions and an intermediate angularly adjustable portion with one end registering with and pivotally connected to said front portion and the opposite end registrable with said rear portion and said branch track, of a pivot connecting said angularly adjustable portion to said front portion, comprising hinge members fixedly secured to the flanges at the upper and lower edges of said portions and pivotally connected to each other with their axes of rotation in

alignment and registering with the gap between said portions, said hinge members at the lower edges of said portions being flat.

2. In a trolley switch, the combination with a main track and a branch track having flanges at their upper and lower edges, said main track having spaced front and rear portions and an intermediate angularly adjustable portion with one end registering with and pivotally connected to said front portion and the opposite end registrable with said rear portion and said branch track, of a pivot connecting said angularly adjustable portion to said front portion comprising upper and lower hinges formed of cooperating hinge members fixedly secured to the flanges at the upper and lower edges of said portions, the hinge members of each hinge being pivotally connected to each other with their axes of rotation registering with the gap between said portions and the lower hinge members being flat, one of said hinge members of the upper hinge being bifurcated and embracing the cooperating hinge member.

3. In a trolley switch, the combination with a main track and a branch track, said main track having spaced front and rear portions and an intermediate angularly adjustable portion with one end registering with said front portion and registrable with said rear portion and said branch track, of a truck at the registrable end of said angularly adjustable portion for supporting the same, a keeper engageable by said truck for registering said angularly adjustable portion with said rear portion and branch track, and a stop upon said angularly adjustable portion extending adjacent to the end of said branch track when said angularly adjustable portion is in registration with said rear portion.

4. In a trolley switch, the combination with a main track and a branch track having flanges at their lower edges for engagement by a trolley, said main track having spaced front and rear portions and an angularly adjustable portion with one end registering with said front portion and movable into registration with said rear portion and said branch track, of a wheeled truck at the registrable end of said angularly adjustable portion for supporting the same, a keeper engageable by said truck for registering said angularly adjustable portion with said rear portion, and a member secured to said truck and having laterally extending portions with depending flanges at their outer ends adapted to extend adjacent to the ends of the flanges of said rear portion and branch track when said angularly adjustable portion is in registration respectively with said branch track and said rear portion.

5. In a trolley switch, the combination with a main track having spaced front and rear portions and an intermediate angularly adjustable portion with one end registering with said front portion and the other end movable into registration with said rear portion, of a truck for supporting the movable end of said angularly adjustable portion, a keeper, and a plunger upon said truck yieldably movable longitudinally of said angularly adjustable portion into engagement with said keeper.

6. In a trolley switch, the combination with a main track having spaced front and rear portions and an intermediate angularly adjustable portion with one end registering with said front portion and the other end movable into registration with said rear portion, of a truck for supporting the movable end of said angularly adjustable portion, a keeper, a longitudinally movable plunger upon said truck yieldably engageable with said keeper, and means upon said truck for limiting the outward movement of said plunger relative to said truck.

7. In a trolley switch, the combination with a main track having spaced front and rear portions and an intermediate angularly adjustable portion with one end registering with said front portion and the opposite end registrable with said rear portion, of independent hinges secured to the upper and lower edges of said front and angularly adjustable portions, each of said hinges comprising cooperating hinge members.

8. In a trolley switch, the combination with a main track having spaced front and rear portions, and an intermediate angularly adjustable portion with one end registering with said front portion and the other end registrable with said rear portion, of a hinge secured to the upper end of said front and angularly adjustable portions comprising a bifurcated member secured to one of said portions, and a cooperating member secured to the other of said portions, said bifurcated member having a lower section formed of good wearing material, and an upper section, and a hinge pin fixedly secured to said upper section and extending through said cooperating hinge member and engaging in said lower section of the bifurcated hinge member.

9. In a trolley switch, the combination with a main track and a branch track, said main track having spaced front and rear portions, and an angularly adjustable portion with one end registering with said front portion, and the other end movable into registration with said rear portion and said branch track, of a wheel truck at the registrable end of said angularly adjustable portion for supporting the same, a keeper engageable by said truck for registering said angularly adjustable portion alternatively with said rear portion and branch track, and a stop clamped between said truck and angu-

larly adjustable portion and having portions adapted to extend adjacent to the ends of said rear portion and branch track when said angularly adjustable portion is in registration respectively with said branch track and said rear portion.

10. In a trolley switch, the combination with an angularly adjustable track portion, of a truck secured to one end thereof having a frame with a hollow longitudinally extending portion and transverse bifurcated portions, wheels journalled in said bifurcated portions, a plunger slidably mounted in said longitudinally extending portion, a spring within said longitudinally extending portion for yieldably forcing said plunger outwardly, and a bolt extending with said longitudinally extending portion and engaging with said plunger to limit the outward movement thereof.

11. In a trolley switch, the combination with main and branch tracks, said main track having spaced front and rear portions and an intermediate angularly adjustable portion with one end registering with and pivotally connected to said front portion and the other end registrable with said rear portion and said branch track, of hinge members secured to the upper and lower edges of said front and intermediate angularly adjustable portions and pivotally connected to each other with their axes of rotation in alignment and registering with the gap between said portions, the lower hinge members being flat.

In testimony whereof we affix our signatures.

WILLIAM EDWARD BEE.
WILLIAM E. SIMPSON.