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R. B. OLDER

ROUND TRACK TONGUE SWITCH

Filed July 25, 1921

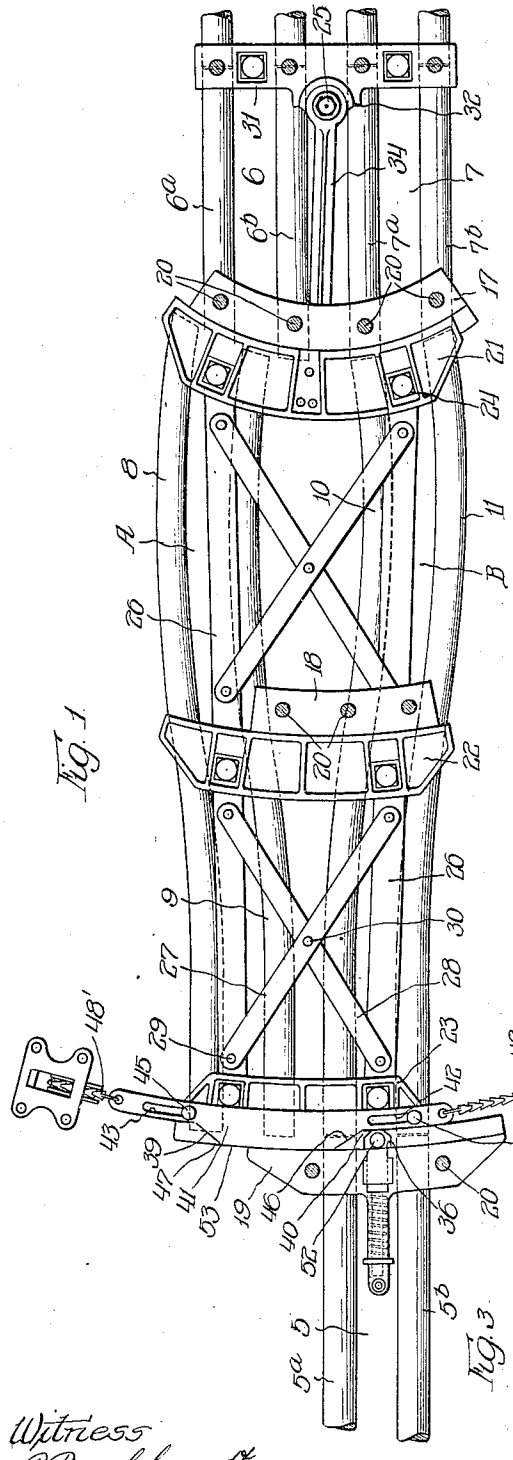


Fig. 1

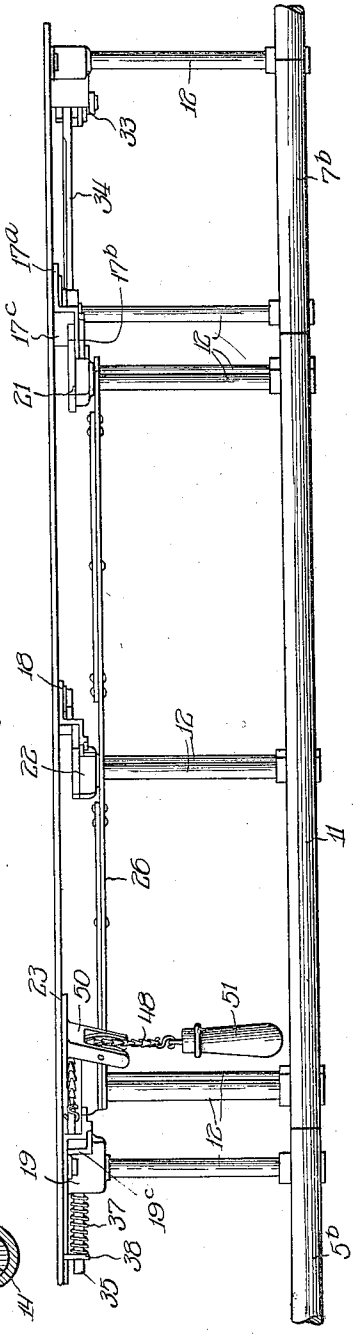


Fig. 2

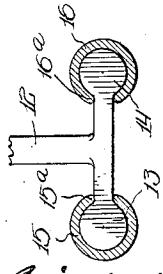


Fig. 3

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UNITED STATES PATENT OFFICE.

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ROUND-TRACK TONGUE SWITCH.

Application filed July 25, 1921. Serial No. 487,353.

To all whom it may concern:

Be it known that I, ROY B. OLDER, a citizen of the United States, residing at Danville, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Round-Track Tongue Switches, of which the following is a specification.

My invention relates to switches for overhead carrier systems and has particular reference to a tongue switch for round track carrier systems.

An object of my invention is to provide a tongue switch for round track overhead carrier systems.

Another object of the invention is to provide a round track tongue switch adaptable for use with overhead carrier systems.

A further object is to provide a switch for overhead carrier systems which will be easy to manufacture and install and which will be positive in operation.

A still further object is to provide a tongue switch for overhead carrier systems which will be adapted for successful commercial use.

Generally speaking, I carry out the preferred embodiment of my invention by employing two or three switch members, as the case may be, for use with a two or three way carrier system. The switch members are supported from brackets secured above the track in such manner that the switch members may swing in an arcuate path while being supported by the attaching brackets.

The invention relates to tongue switches for overhead carrier systems in which the tracks are double or parallel and made of circular formation commonly known as round tracks. Such systems comprise a trackway of two parallel tracks usually supported from between the parallel tracks on suitable hangers or supports to enable the carrier hangers to run on the outside of the trackway for supporting the loads therefrom, consequently a switch tongue for round track carrier systems of the kind contemplated must necessarily comprise two track members and it is therefore manifest that a tongue switch comprising trackways each of two track members could not be hinged like a single tongue. In my invention the tongue is pivoted to the branch tracks instead of to the main track by a pivot which is behind the ends of the branch members, and furthermore the tongue tracks are bent in a slight compound or reverse curve to permit proper register of the ends of the tongue tracks with the main and branch tracks. The ends of the branch tracks are cut on a concave arc while the corresponding ends of the tongue tracks are cut on a convex arc; in a like manner the end of the main track is cut on a concave arc while the ends of the tongue tracks are cut on a convex arc, the center of the several arcs being the pivotal center of the tongue switch. By pivoting the tongue behind the ends of the branch tracks the tongue will have a sliding relation with respect to the branch and main tracks instead of a hinging action with one and a sliding action with the other. Furthermore, I provide a supporting structure for the tongue which consists of track supports depending from suitable shelf brackets which co-operate with shelf brackets fastened overhead. The switch and overhead brackets are arranged to slide in an arcuate path the center of which arc is the pivotal center of the switch. Furthermore the several switch brackets are connected with longitudinal brace members and if desired by cross brace members. I also provide a lock for preventing displacement of the switch when in selected switching position which co-operates between the main track and the corresponding end of the tongue switch. The lock is operated in such manner by a chain so as to not only be unlocked but also to swing the switch laterally into non-switching position.

The various novel features of my invention will be apparent from the following description and drawings, and will be particularly pointed out in the appended claims.

In the accompanying drawings—

Figure 1 is a top plan view of a two way switch embodying the preferred form of the invention.

Figure 2 is a side elevation of the arrangement of Figure 1.

Figure 3 is a cross section showing one manner of supporting the track members forming the switch.

The embodiment of the invention herein

selected to illustrate my invention shows a two way switch in which 5 is a main single track comprising parallel track members 5^a and 5^b. The hangers not shown adapted to run on the track comprise laterally spaced wheels or rollers on the track members 5^a and 5^b, the load being supported by portions of the hangers depending from the wheel axles outside of the track members 5^a and 5^b. 6 and 7 are two branch track ways comprising track members 6^a, 6^b and 7^a, 7^b of the same form and construction as described with reference to the single track 5. For switching a carrier from track 5 to either tracks 6 or 7, or from either tracks 6 or 7 to track 5 the novel switch of my invention is provided.

The switch members are designated generally by the reference characters A and B, and comprise track members 8, 9 and 10, 11, respectively. The track members A and B being formed on round track portions 8, 9, 10 and 11 supported in a manner to be hereinafter described and preferably are formed as compound curves in plan, the curve being symmetrical with respect to a center through the switch. Each of the track members A and B comprises round track members 8, 9 and 10, 11 of the same contour and size as the round track members of the track ways 5, 6 and 7. In Figure 3 one manner of supporting the round track members is shown and includes a depending bracket 12 with laterally extending portions 13 and 14 which are adapted to fit within the round track members, designated in this figure as 15, 16, it being understood, however, that the reference characters 15, 16 are used for the purpose of explanation with respect to this particular figure. As it will be observed, the round track members 15 and 16 have openings 15^a, 16^a extending through the length thereof, so that the bracket members as many as desirable may be fitted at the ends of the members 15 and 16 and slid therealong to whatever position may be desirable for properly supporting the track.

For securing the switch to the superstructure, I have provided a plurality of brackets 17, 18 and 19, all of which have apertures 20 through which bolts, lag screws or other attaching means may pass for securing the brackets in overhead position to support the switch. The brackets 17, 18 and 19 are substantially Z-shaped in vertical section, the upper lateral extension being that which is fastened to the superstructure, and the lower lateral extension serving as a lip or projection for supporting members carrying the track supporting brackets 12. This construction may be observed from the drawings and is indicated in Figure 2. There the bracket 17 has upper lateral extension 17^a and lower lateral extension 17^b with a substantially vertical connecting portion 17^c. The upper ends of the several brackets 12 are secured in heads 21, 22 and 23, which are substantially flat in end view and which have at suitable intervals apertures 24 for receiving the upper ends of the brackets 12 which may be secured in any desirable manner. As will be noted from the drawing, the attaching brackets 17, 18 and 19 and also the co-operating members 21, 22 and 23, have the contacting edges formed as arcs of circles, the center of which is at 25, so that the whole switch may be swung in an arcuate path to effect perfect alignment of the selected switching connections. Extending in the direction of the length of the switch are reinforcing strips 26 or a plate secured to the members 21, 22 and 23 by means of the track brackets 12. For lateral strengthening purposes, cross members 27, 28 may be provided, these being attached at their ends by suitable means such as rivets 29 and at the meeting points with rivets 30, the construction being intended to provide a rigid, strong and easily moved switch tongue. The bracket 19 supports the ends of the round track members 5^a and 5^b of the main track way 5, while the bracket 17 supports the ends of the round track members 6^a, 6^b and 7^a, 7^b of the track ways 6 and 7. Another bracket 31 is secured to the superstructure in the manner described with reference to brackets 17, 18 and 19 and supports by means of track brackets 12 the round track members of the track ways 6 and 7. The bracket 31 has a laterally extending lug 32 with an aperture therein through which passes a bolt 33 which secures an arm 34 thereto, the other end of the arm being secured to the member 24. The securing may be by means of rivets or other means, or if desirable the arm 34 may be cast integrally with the member 24. This construction ties the switch to the bracket 31 so as to secure the switch in position for alignment at all times with the track ways 5, 6 and 7, and the bolt 33 serves as a pivot 25 about which the switch may be swung as a center. As shown in the drawings, the switch is swung to such position that the track way 5 is connected with the track way 7 by means of the switch member B, so that the carrier may be transferred from the track way 5 to the track way 7 or vice versa. This construction is sufficiently strong to support any load on the switch which may be supported by any of the track ways of the carrier system.

It is desirable to provide means for locking the switch in switching position so that a carrier passing thereover will not be displaced by reason of failure of either of the switch members A or B to register with the track ways of the system. I have shown one form of locking means for accomplishing this purpose. In the bracket member 19 I provide a plunger 35 having a head 36

with a spring 37 surrounding the stem of the plunger. The bracket carries a depending lug 38 against which one end of the spring 37 engages, this construction forming a spring pressed plunger which is maintained normally in outward position. In the bracket 23 and in the face thereof which contacts the vertical member 19ᵉ thereof, are provided pockets 39 and 40 to be engaged respectively by the plunger under certain conditions. In Figure 1 it may be observed that the plunger is in engagement with the pocket 40, thus preventing lateral displacement of the switch member with respect to the track way 5. For retracting the plunger 35 to permit the switch to be swung to bring the track way 6 into co-operation with the track way 5, a slidable member 41 is supported on top of the member 23. This member has slots 42 and 43 formed therein, through which slots pins 44 and 45 project. The heads of the pins are enlarged to prevent displacement of the member 41 from engagement with the member 23. The member 41 is a cam and has at each end inclined portions 46 and 47. The inclined portions 46 and 47 of the cam 41 and the slots 42 and 43 are so arranged that when the plunger 35 is in engagement with the recess 40 the member 41 will be in the position shown in Figure 1. For moving the member 41 to retract the plunger when the switch is in the position of Figure 1 there is provided a chain or other flexible member 48 which is secured to the member 41 as shown and which for convenience may pass over a pully 49 supported in a bracket 50 and may have a handle 51 for grasping by the operator, so that when the handle 51 is pulled downwardly the member 41 will slide towards the bottom of the sheet as viewed in Figure 1, bringing the cam 46 in engagement with a roller 52 mounted on the top of the plunger 35, whereupon continued pulling of the chain will cause the plunger to be retracted until the face 53 of the cam 41 engages the plunger whereupon the switch may be swung so that the switch member A will connect track ways 5 and 6. When the switch has been swung to this position the plunger will then engage the recess 39 and maintain the switch in position. To swing the switch back so that track ways 5 and 7 may be connected, a chain 48′ is secured to the other end of the member 41 and is actuated to pull the member 41 against the roller 52 to withdraw the plunger from engagement with the recess 39, whereupon the switch may then be moved to the position shown in Figure 1.

It will be noted that the ends of the round track members 6ᵃ, 6ᵇ and 7ᵃ, 7ᵇ of the track ways 6 and 7 are cut on an arc in plan, the center of which arc is the pivot 25. In like manner the adjacent ends of the switch members A and B are cut to correspond to the ends of the track members 6 and 7, so as to secure a smooth joint and at the same time permit the swinging of the switch to effect switching conditions.

By reference to Figure 1, it may be noted that when the switch is in position to connect track ways 5 and 7 the track member 8 is in a position to guard the open ends of tracks and to prevent a carrier which may be on track 6 from running off of same, as the end of the member 8 lies in the path of the carrier hanger. The ends of the members A and B at the other end of the switch are so positioned as to prevent both of the track members 5ᵃ and 5ᵇ of the track way 5 from being uncovered at the same time to permit a carrier thereon from running off. The switch, therefore, serves as a means for guarding the open ends of tracks and preventing derailment of a carrier at the switch.

It will be observed that my invention provides a tongue switch for round track overhead carriers, which permits quick changing of switching conditions and which is sufficiently rigid to support the maximum load which the system is capable of carrying. Furthermore, the novel construction of the switch prevents derailment of a carrier and guards the open ends of all tracks, even though the switch members may not be in register with any two of the track ways meeting at the switch.

While I have described more or less precisely the details of construction of my invention, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit of my invention.

I claim:

1. In an overhead carrier system, in combination, a pair of ways, a single way spaced therefrom, a switch co-operating with said ways for directing a carrier from one way to another, said switch comprising a pair of tracks arranged with one end in pivotal association with said pair of ways, and the other end movable to bring either of said pair of ways into association with said single way.

2. In an overhead carrier system, in combination, a pair of ways, a single way spaced therefrom, a switch co-operating with said ways for directing a carrier from one way to another, said switch comprising a pair of tracks arranged with one end in association with said pair of ways, and the other end movable to bring either of said pair of ways into association with said single way; said parts being arranged in such manner that when said switch is in position to connect

selected ways the inoperative track serves as a stop to prevent derailment of a carrier on another way.

3. In a round track overhead carrier system, in combination, a main track and a plurality of branch tracks, a switch tongue adapted to connect said main track with any one of said branches, said tongue being pivotally connected near the ends of the branch tracks and adapted to swing in an arcuate path, the parts being arranged in such manner that said tongue may block the ends of all of said tracks while being swung from one switching position to another.

4. In a round track overhead carrier system, in combination, a main track and a plurality of branch tracks, a switch tongue adapted to connect said main track with any one of said branches, said tongue being pivotally connected near the ends of the branch tracks and adapted to swing in an arcuate path, the parts being arranged in such manner that said tongue may block the ends of all of said tracks while being swung from one switching position to another, and a lock co-operating with the main track for locking the tongue in selected switching position.

5. A switch for parallel track overhead systems, including a tongue having as many pairs of parallel trackways as there are branch tracks, said tongue tracks being supported from overhead brackets co-operating with fixed brackets on a superstructure, said tongue adapted to swing in an arcuate path the center of which is back of the ends of the branch track, the ends of the branch track and the adjacent ends of the track switches being convex concave arcs and the ends of the main track and adjacent tongue tracks being convex concave arcs, the centers of said arcs being the pivot of said tongue.

6. A switch for overhead parallel track carrier systems, including a tongue adapted to connect a main track with any one of several branch tracks, the said tongue having as many tracks of parallel members as there are branch tracks, supports for said tongue tracks depending from brackets, said brackets adapted to have sliding engagement with brackets secured to the superstructure, and said tongue brackets being joined by longitudinally extending braces for forming a unitary structure.

Signed at Danville, Illinois, this 18th day of July, 1921.

ROY BURTON OLDER.