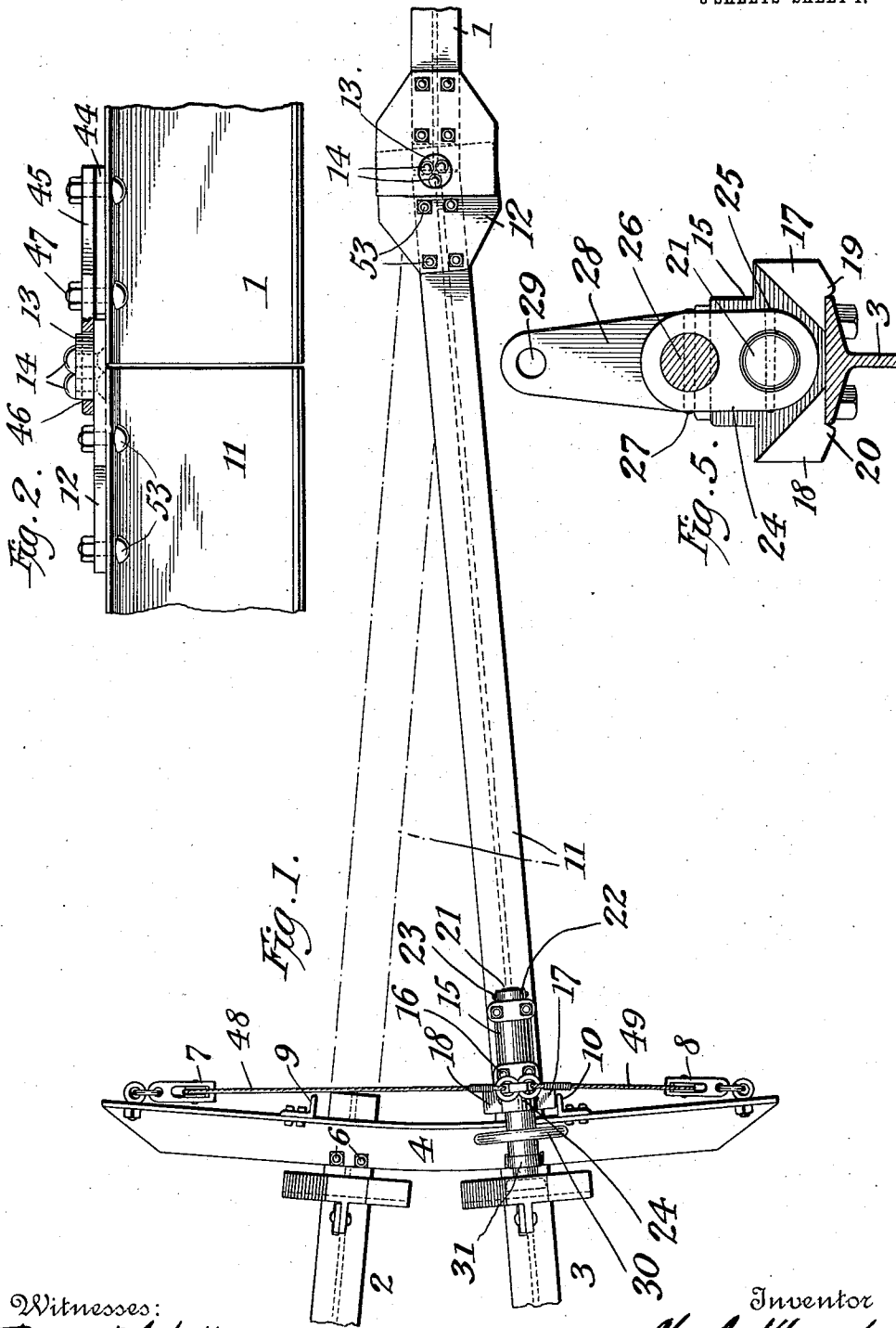


C. MESSICK.
I-BEAM TRACK SWITCHING DEVICE.
APPLICATION FILED FEB. 11, 1909.

1,014,503.

Patented Jan. 9, 1912.

3 SHEETS-SHEET 1.



Witnesses:
Raphael Ketter
A. Rappelman

Inventor
Charles Messick

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3 SHEETS-SHEET 2.

Fig. 3.

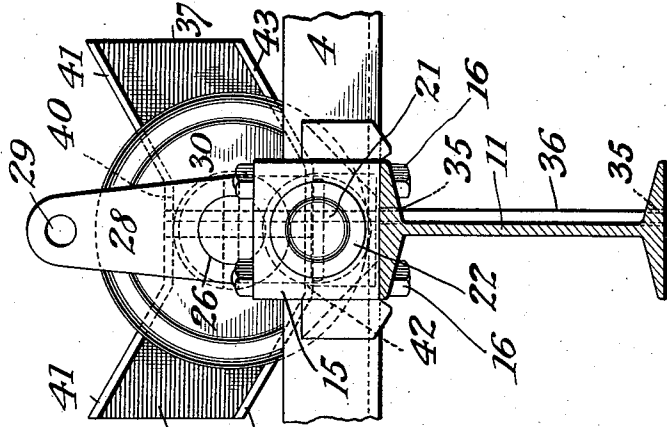
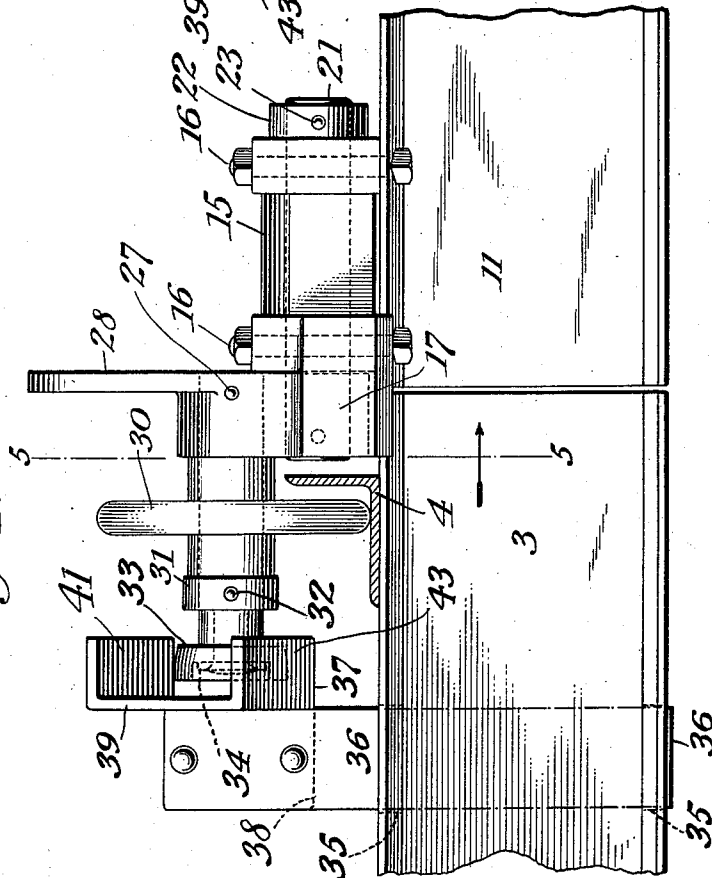


Fig. 4.



Witnesses:
Raphael Ketter
M. Rappaport

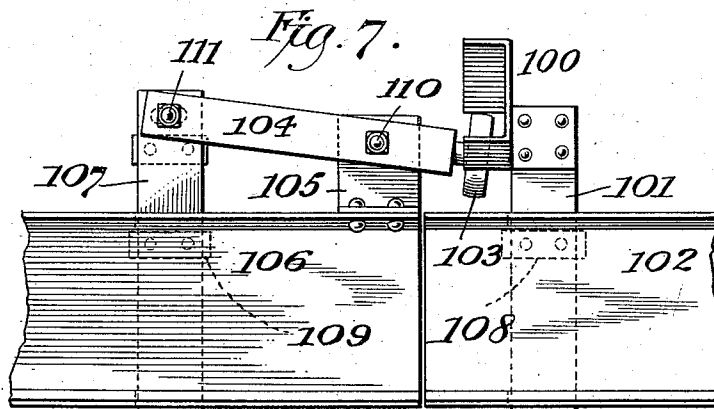
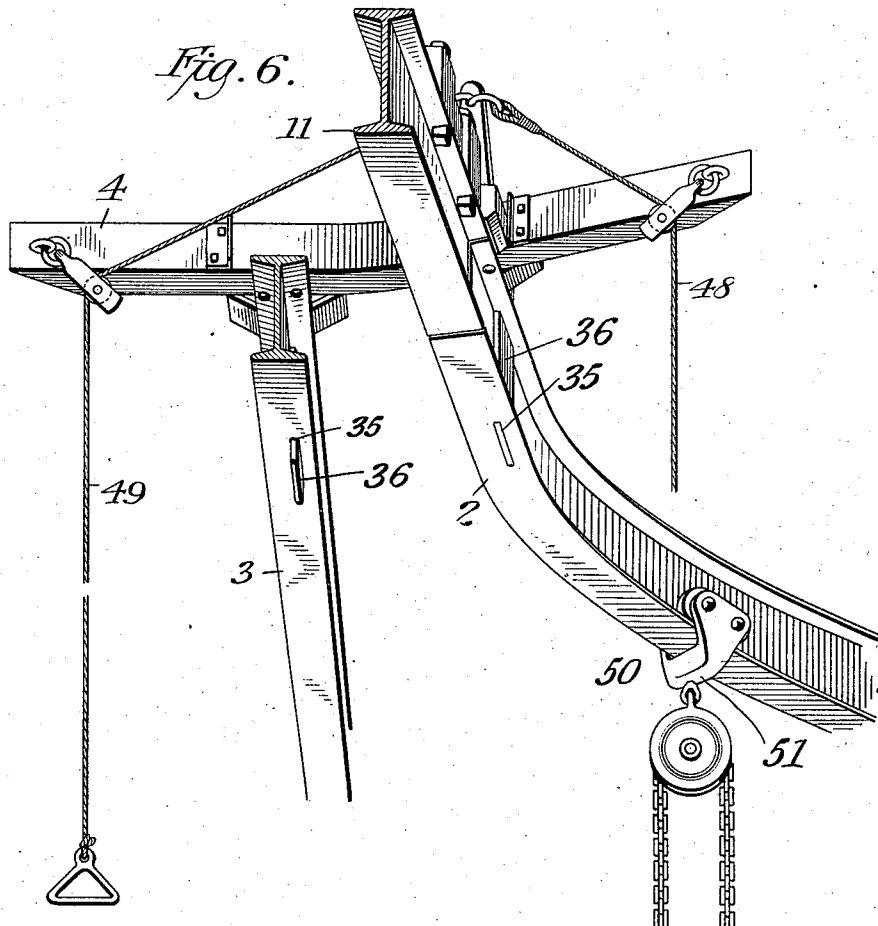
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3 SHEETS—SHEET 3.



Witnesses:
Raphael Hutter
A. Rosplman

Inventor
Charles Messick

UNITED STATES PATENT OFFICE.

CHARLES MESSICK, OF HACKENSACK, NEW JERSEY.

I-BEAM-TRACK-SWITCHING DEVICE.

1,014,503.

Specification of Letters Patent.

Patented Jan. 9, 1912.

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To all whom it may concern:

Be it known that I, CHARLES MESSICK, a citizen of the United States, residing in Hackensack, county of Bergen, State of New Jersey, have invented a new and useful Improvement in I-Beam-Track-Switching Devices, of which the following is a description.

My invention relates to I-beam track switching devices, such as are used in connection with trolley hoist I-beam tracks, etc., and more particularly to the construction of the various parts in a strong and substantial, yet inexpensive manner, of wide applicability, and easy of erection.

Referring to the accompanying drawings in which typical devices are shown, and in which similar characters of reference indicate the same parts in the several figures; Figure 1 is a top view of an I-beam track switch, attached to a main track at the swivel end and connecting two branch tracks at the head end. Fig. 2 is an enlarged side view of the swivel end of Fig. 1 partially broken away to show the swivel disk. Fig. 3 is an enlarged end view of the head end, shown in Fig. 1, looking from the swivel toward the head. Fig. 4 is an enlarged side view of the head end shown in Fig. 1. Fig. 5 is an enlarged partial end view of the head end looking from the line 5-5 in Fig. 4 in the direction of the arrow. Fig. 6 is a partial perspective view of the switch tongue and the branch tracks with a trolley hoist mounted on one of them. Fig. 7 is a view of the bumper devices applied to a transfer table with a bumper for both the transfer table track and for the branch track.

1 is the end of a stationary track.
2 is the end of a branch track.
3 is the end of a second branch track.
4 is a partially radial angle iron track connecting branch tracks 2 and 3 having one leg fastened to the branch tracks by bolts 6, the vertical leg toward the swivel. The angle iron track 4 has straight extensions carrying pulleys 7 and 8; it also has fastened to it short vertical pieces of angle iron 9 and 10 to limit the movement of the switch tongue head.

11 is a switch tongue having a broad swivel plate 12, bolted to its swivel end by bolts 53. The plate 12 carries a swivel pin

in the form of a disk 13 riveted to it by rivets 14. The rivets 14 are counter-sunk into the plate 12. A head casting 15 is bolted to the end of the tongue 11 by bolts 16. The casting 15 has extensions 17 and 18 adapted to rest on the ends of either of the branch tracks 2 and 3. The extensions 17 and 18 have centering lugs 19 and 20, beveled at their inner faces at an abrupt angle, in order to clutch the branch tracks and form a lock to keep the head casting 15 centered therewith against side thrusts. The lugs 19 and 20 are beveled at a gradual angle on their outer sides in order to permit them to be easily drawn up onto a branch track. The casting 15 has a hole bored therein, in which is journaled a shaft 21. The shaft 21 is held in position against end movement by the collar 22, secured thereto by the taper pin 23 and is held against end movement at the opposite end by the casting 24, through which it passes and at which it terminates, being held therein by the taper pin 25. The casting 24 extends upward to receive a second shaft 26 parallel to shaft 21. Shaft 26 is secured in casting 24 by taper pin 27. Casting 24 extends farther upward in a portion 28 of reduced dimensions and has a hole 29 near the top.

On shaft 26 is revolvably mounted a wheel 30 held from end movement by the casting 24 and the collar 31 which is fastened to shaft 26 by the taper pin 32. The shaft 26 extends in reduced diameter through the roller 33 which is revolvably mounted thereon and is held in position by the washer 34 which is riveted on the end of shaft 26. Washer 34 is best shown in dotted lines in Fig. 4 as is also the reduced portion of shaft 26.

In the flanges of the branch tracks 2 and 3 are cut oblong holes 35 close to the web and vertically in line. Flat bumper-bars 36 are fastened at their upper ends to devices 37, which I designate as "butterflies," in order to conveniently identify them. A "butterfly" is a casting with a rearward extension 38 for attachment to a flat-bar 36 and a flat body portion 39 at right angles to the extension 38. At the forward upper portion of body 39, there is a short horizontal plane 40, (shown best in dotted lines in Fig. 3) which extends into upwardly inclined planes 41, a short distance each side of the center.

At the lower portion of body 39 is a second horizontal plane 42, (shown best in dotted lines in Fig. 3) a little longer than plane 40 and extending into upwardly inclined planes 43. The body portion 39 and the planes 41 and 43 are co-extendant on either side of the center of the "butterfly." The bumper-bars 36 are attached to the "butterflies" and dropped into the holes 35, having free vertical movement therein.

With the parts as above described, I place the complete switch with the swivel plate 12 resting on the stationary track 1 and the wheel 30 resting in the center of the radial portion of angle iron track 4. I place filler plate 44 on track 1. I place retaining plate 45 on top of filler plate 44 with the swivel hole 46 over swivel disk 13, and bolt both plates 44 and 45 to track 1 by bolts 47. Plates 12 and 45 are broad and, therefore, form a hinge between the track 1 and the switch tongue 11, free to swing laterally, but adapted to resist any twisting which may tend to occur between the switch tongue 11 and the track 1 from the operation of trolleys over the switch. I fasten a rope 48 in hole 29 and pass it over pulley 7 allowing the end of the rope to hang pendant therefrom. I fasten a second rope 49 to the opposite side of hole 29, pass it over pulley 8 and allow the end of the rope to hang pendant therefrom. I now pull on the pendant end of rope 48 which draws the head end of the switch toward branch track 2 with the wheel 30, rolling on radial angle iron track 4. As the head approaches track 2 the roller 33 enters between the upper and lower planes of the "butterfly" on track 2, and automatically starts to lift it and the bumper-bar to the indicated inoperative position (in Fig. 6) with the roller 33, supporting horizontal plane 40 of the "butterfly." As I pull the head toward track 2 the external angular surface of a lug 20 strikes the upper edge of the flange on track 2, and rides up over it until the extension 18, after it has been pulled across the top of track 2, strikes the angle iron stop 9, which prevents the head from passing beyond the center of track 2. I now release the pull on the rope 48 which allows the switch to fall by gravity into a centered position on track 2 with the internal abrupt angular portions of the lugs 19 and 20, hugging the upper flange of track 2 and positively centering the switch thereon. The head of the switch now rests its weight on the extensions 17 and 18. The switch may be now pulled to track 3 by pulling on rope 49 which first pulls over the top end of casting 24 toward track 3 which revolves shaft 21 which acts as a center, and in conjunction with shaft 26 and wheel 30 has a lever action first lifting the head and freeing the lugs 19 and 20 from their centering effect on track 2, then dragging the switch

to track 3 and successively causing the bumper to automatically become operative on track 2 and inoperative on track 3, by the successive lowering and raising in tracks 2 and 3 of their respective "butterflies" by the roller 33. The planes 43 are normally inoperative but in the event of a bumper-bar sticking and not falling by gravity, as the roller 33 is drawn away from a "butterfly" to another branch track, the roller will strike the said planes 43 and prevent further movement of the switch head until the bumper-bar has been forced down into operative position. The plane 42 is merely to strengthen the structure of the "butterfly" and upon occasion, may be dispensed with. The trolley 50 has a yoke 51 against which the bumper-bars 36 strike.

In Fig. 7 I show "butterfly" operated bumper devices in a branch track associated with a transfer table crane bridge track also operating a bumper in the bridge track. 100 is a "butterfly" which is mounted on a bumper-bar 101 in the branch track 102. Roller 103 is mounted on a lever bar 104 which is swiveled on the head casting 105, by a bolt 110. Head casting 105 is fastened to the bridge track 106. The lever 104 at the opposite end from roller 103 is loosely fastened to bumper-bar 107 by bolt 111. As bridge track 106 is run to a centered position with branch track 102, the roller 103 lifts "butterfly" 100 and bumper-bar 101, until its stop 108 strikes the bottom of the upper flange of branch track 102, which prevents the bumper-bar 101 from being further lifted; but as the roller has not yet reached the lowest part of the "butterfly" planes, the lever 104 operates, and lifts bumper-bar 107 by tilting downward the roller end of the lever-bar 104 into the indicated position. Bumper-bar 107 is also provided with a stop 109. Both bumper-bars thus become automatically inoperative when the tracks are centered. The stops 108 and 109 also act to force the lifting to an approximately even height of both the bumper-bars, when the device operates.

I may vary these devices in accordance with the conditions to be met in all classes of I-beam switching.

This construction is particularly adaptable to heavy work as iron or steel castings or forgings of comparatively small size may be used while most of the structure is of structural steel, cold rolled shafting and other standard material.

Particular attention is called to the easy and inexpensive work in connection with building and erecting these switch devices. Attention is also called to the locking lugs on the switch tongue head which center the switch tongue with branch tracks directly. This permits switches of varying width of throw or length of tongue to be properly

centered without making any changes in the working drawings or castings for the switch devices except changing the radial portion of the angle iron track.

5 The bumper-bars lie flat against the side of the track-web and take no more room than the fish-plates used to join the various rails in a straight track. The trolley wheels run freely on the outer edges of the lower
10 flanges of the I-beam without interfering with the bumper-bars. This type of bumper-bar also places a bumper where it will have the least harmful effect in operation. Bumpers which strike the wheels of the
15 trolley, tend to bend the trolley wheel shafts. The construction is such that when the track and tongue are not exactly centered and locked, the tongue will be at a higher level which acts as a visible danger signal to the
20 operator.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In I beam track switches, a tongue with
25 a broad plate bolted to the swivel end thereof, said plate carrying a swivel pin in the form of a disk riveted thereto, with the rivet heads countersunk into said plate, said plate resting on an end of a permanent track, a
30 cover plate with a center hole, said cover plate set upon a filler, said center hole over said swivel, and both said cover plate and said filler plate bolted to the permanent track, all constructed in such a manner as to
35 form a hinge, having free lateral movements, but to prevent said tongue twisting relative to the said permanent track, a casting bolted to the movable end of the tongue, said casting having projection at the free
40 end thereof, adapted to rest on the ends of branch tracks, and lugs to center it thereon, a longitudinal hole in said casting adapted to receive a shaft, a shaft journaled therein, another casting rigidly fastened to the free
45 end of said shaft with upward projection for the attachment of operating ropes, a second shaft parallel with, but above, said before-mentioned shaft, and also rigidly fastened to said last-mentioned casting, a wheel
50 revolvably mounted on said shaft resting on an angle iron, said angle iron having one of its legs resting on and rigidly fastened to the free ends of said branch tracks with the other leg thereof extending vertically upward between the second-mentioned casting and the said wheel, said angle iron being
55 curved in arc of which the radius is the distance between it and the switch tongue swivel, said arc terminating at the branch tracks and extending between them, projections of said angle iron outside of said branch tracks and pulleys mounted thereon with ropes fastened to and passing from the upward projection on the second-mentioned
60 casting over said pulleys and hanging pend-

ent therefrom adapted to be alternately pulled by hand, thereby first lifting said first-mentioned casting and said switch tongue by the lever action of said second-mentioned casting in connection with said
70 wheel and said two shafts, freeing the projection and lugs from said branch track and then throwing the switch tongue from one branch track to the other, the release of said rope dropping said casting, projection, lugs, and switch tongue to a centered position at said second branch track, an extension of said second-mentioned shaft carrying a roller, rectangular oblong holes
75 close to one side of the web of the branch track I beams with the long dimension parallel with the I beam in both upper and lower flanges, said holes being vertically one above the other, a flat bumper bar lying close against the said web passing through
80 said holes and having attached to it at its upper end a "butterfly" which is adapted to be dropped by said roller as it and the switch tongue is pulled away from a branch track and as the switch tongue is pulled
85 toward another branch track its "butterfly" and flat bumper bar are lifted, thereby dropping a bumper bar in any branch track at which the switch tongue is not centered and lifting the bumper bar at a branch track at
90 which said switch tongue is centered.

2. A switch tongue, a casting bolted to the movable end of the tongue, said casting having a projection at the free end thereof, adapted to rest on the ends of branch tracks,
100 and lugs to center it thereon, a longitudinal hole in said casting adapted to receive a shaft, a shaft journaled therein, another casting rigidly fastened to the free end of said shaft with an upward projection for
105 the attachment of operating ropes, a second shaft parallel with, but above, said before-mentioned shaft, and also rigidly fastened to said last-mentioned casting, and a wheel revolvably mounted on said shaft, adapted
110 to roll on a radial track.

3. A switch tongue, a casting bolted to the movable end of the tongue, said casting having a projection at the free end thereof, adapted to rest on the ends of branch tracks,
115 and lugs to center it thereon, a longitudinal hole in said casting adapted to receive a shaft, a shaft journaled therein, another casting rigidly fastened to the free end of said shaft with upward projection for the
120 attachment of operating ropes, a second shaft parallel with, but above, said before-mentioned shaft, and also rigidly fastened to said last-mentioned casting, a wheel revolvably mounted on said shaft, adapted to
125 roll on a radial track, the second-mentioned casting being adapted to be alternately hand pulled in each direction, thereby first lifting said first-mentioned casting and said switch tongue by the lever action of said second-
130

mentioned casting in connection with said wheel and said two shafts, freeing the projection and lugs from said branch track and then throwing the switch tongue from one
5 branch track to the other, the release of said hand pulling dropping said casting, projection, lugs, and switch tongue to a centered position at a second branch track.

4. A switch tongue, a casting bolted to
10 the movable end of the tongue, said casting having a projection at the free end thereof, adapted to rest on the ends of branch tracks, and lugs to center it thereon, a longitudinal hole in said casting adapted to receive a
15 shaft, a shaft journaled therein, another casting rigidly fastened to the free end of said shaft with upward projection for the attachment of operating ropes, a second shaft parallel with, but above, said before-
20 mentioned shaft, and also rigidly fastened to said last-mentioned casting, a wheel revolvably mounted on said shaft, adapted to roll on a radial track, the second-mentioned casting being adapted to be alternately hand
25 pulled in each direction, thereby first lifting said first-mentioned casting and said switch tongue by the lever action of said second-mentioned casting in connection with said wheel and said two shafts, freeing the pro-
30 jection and lugs from said branch track and then throwing the switch tongue from one branch track to the other, the release of said hand pulling, dropping said casting, projection, lugs, and switch tongue to a centered
35 position at a second branch track, an extension of said second-mentioned shaft carrying a roller, rectangular oblong holes close to one side of the web of the branch track I-beams with the long dimension parallel
40 with the I beam in both upper and lower flanges, said holes being vertically one above the other, a flat bumper bar lying close against the said web passing through said holes and having attached to it at its upper
45 end a "butterfly" which is adapted to be dropped by said roller as it and the switch tongue is pulled away from a branch track and as the switch tongue is pulled toward another branch track its "butterfly" and
50 flat bumper bar are adapted to be lifted, thereby dropping a bumper bar in any branch track at which the switch tongue is not centered and lifting the bumper bar at a branch track at which said switch tongue
55 is centered.

5. In I beam track switch devices, a radial angle iron track fastened between branch I beam tracks adapted to connect said branch tracks and to support a wheel on which a
60 switch tongue is carried, said angle iron having straight extensions adapted to support operating rope pulleys with the vertical leg of said angle iron toward the switch tongue, a switch tongue and a head
65 casting thereon, carrying said wheel and

having a projection and centering lugs adapted to rest on the ends of the branch tracks.

6. In a casting for a switch tongue head end, a body adapted to be bolted to the tongue and to have a hole bored there-
70 through, a projection adapted to rest on a branch track and a lug below said projection adapted to center said casting on a branch track.

7. In I beam track switch devices, a swivel, a tongue swiveled thereon, a wheel to carry said tongue, carried by a casting at the head end thereof, a bumper to prevent a
80 car running off a branch track when the switch is not centered with it and automatic operating means to make the bumper inoperative when the switch tongue is centered with the branch track.

8. In I beam trolley, track systems and
85 bumper devices therefor, a tongue with a movable end casting carrying a roller, a slanting approach plane adapted to automatically lift a bumper when operated by said roller, and to thereby permit free pas-
90 sage of a car when the tracks are centered, but to prevent the passage of a car when the tracks are not centered.

9. In I beam bumper devices, a "butterfly" adapted to operate a bumper bar with
95 normally inoperative release planes adapted to prevent the passing away therefrom of a switch tongue and an operating roller in the event of the "butterfly" sticking and not forcing the bumper bar to a locked po-
100 sition when the tongue may be started away and uncentered with the track in which the "butterfly" may be located.

10. In I beam track switching devices, a stationary track and a movable track, a
105 head casting on the movable track carrying a shaft, and supporting a roller thereon, holes in the flanges of the stationary track to receive a bumper bar, a bumper bar therein, a butterfly attached to the upper end of
110 the bumper bar and adapted to be operated as a unit together with the bumper bar by the roller.

11. A tongue with a head casting, a branch track, a movable bumper therein
115 with a slanting approach plane, automatic operating means for said bumper, adapted to cause the bumper to assume an inoperative position when the movable and stationary tracks are centered.

12. In a track switch, a tongue, a head casting thereon carrying a wheel adapted to
120 run on a radial track composed of an angle iron with the vertical leg thereof toward the tongue.

13. In a switch, a tongue, a head casting with a wheel adapted to travel on a radial
130 angle iron track, a supporting plate at the swivel end thereof, a swivel composed of a disk swivel pin attached to said plate, and

adapted to revolve in a second plate fastened to a main track and held rigidly in a position above said first-mentioned plate.

14. An I beam track, a "butterfly" and bumper bar movably mounted therein, and adapted to be raised automatically from its normal lowered operative position, by a switch tongue, when it is brought in line with said track.

15. A track, a hole in the flange thereof, adapted to receive a bumper bar carrying a "butterfly," a "butterfly" and bumper bar mounted therein, and adapted to be raised and lowered by the movement of a roller carried by a switch tongue.

16. In locking devices for I beam transfer switches, bumper bars in both the movable and the stationary tracks, automatically liftable when the tracks are centered to an inoperative position by means of angular approach planes, mounted on one of the tracks.

17. In I beam track switches, a switch tongue, a movable head thereon, adapted to travel between branch tracks, bumpers to prevent a car running into the switch when it is open, a broad plate bolted to the swivel end of the tongue, said plate carrying a swivel pin in the form of a disk riveted to said plate, with the rivet heads countersunk into said plate, said plate resting on an end of a permanent track, a cover plate with a center hole, said cover plate set upon a filler plate, said center hole over said swivel, and both said cover plate and said filler plate bolted to the permanent track, all constructed in such a manner as to form a hinge, having free lateral movements, but to prevent the said tongue twisting relative to the said permanent track.

18. In a bumper device for I beam track switching devices, a bumper adapted to normally lock the track against the passage of a car, an operating approach plane to co-act with the bumper device and automatically cause the bumper to become inoperative when the tracks are centered.

19. In I beam track switches, a head with a shaft extending from its upper free end, a wheel journaled near the free end of said shaft and adapted to travel on radial angle iron track with the vertical leg of the angle iron track intervening between the head and the lower portion of the wheel.

20. A bumper movably mounted in a stationary track and adapted to drop vertically by gravity for functioning when the tracks are uncentered, and to be automatically raised to permit free passage of the car when the tracks are centered.

21. In bumper devices a "butterfly" with an approach plane operating member and a bumper bar adapted to cooperate therewith.

22. In I beam bumper devices, a "butterfly" with operating approach planes adapted to vertically operate a bumper bar.

23. A casting for a switch tongue head adapted to be permanently fastened thereto, lugs thereon to center the tongue with a stationary track and a projection thereon to rest upon the stationary track.

24. An I beam track and switch device adapted to carry trolleys having four wheels and a connecting frame or yoke, and a movable bumper on said track to downwardly extend from the lower member of the track when a switch is open.

25. An I beam track and switch device adapted to carry trolleys having four wheels and a connecting frame or yoke, and an automatically movable bumper on said track to downwardly extend from the lower member of the track when a switch is open.

26. In I beam safety devices, an automatic bumper opposed to the yoke or frame which carries the load and connects the four wheels of the car, when the switch is open, and means to make the bumper inoperative when the switch is closed.

27. In I beam safety devices, a bumper device adapted to prevent the running of a car into an open switch by the interposing of a bumper at the lower portion of the I beam, opposed to the yoke or connecting frame of the car, when the switch is open, and means to cause the bumper to become inoperative when the switch is closed.

28. In an I beam switch tongue, a head adapted for having movement on a radial track with a vertical portion, an extension at the free end of the head with a downwardly extending portion adapted to hook over the vertical portion of the radial track.

29. In a swivel device for I beam switch tongues, a main plate 12, bolted to a switch tongue 11, with an extension resting on the end of a main track 1, a swivel disk 13, riveted by countersunk rivets on top of the main plate 12, above junction of the main track 1, and the tongue 11, and a cover plate 45, to revolvably contain the swivel disk 13, said cover plate 45 being bolted to said main track 1, thereby forming a hinge supporting the tongue 11 on the main track 1.

30. In I beam track switches, a bent structural iron radial angle iron track with the vertical member thereof toward the switch, said angle iron track extending between branch tracks and projecting beyond same to support operating rope pulleys, attachment means between the branch tracks and the radial angle iron track comprising holes formed in the flat portion of the angle iron near the outer edge, farthest away from the switch, corresponding holes in the upper flanges of the branch track I beams, and attachment bolts passing therethrough.

31. A head casting, a sustaining projection and a locking lug thereon, a lever lifting member movably mounted on the head casting and carrying a radial track wheel

adapted to be periodically operated in conjunction with the lever lifting member to unlock the locking lug and throw the switch.

32. In an I beam track switch, a main track, two branch tracks with a radial track to connect same, a wheel to run on the radial track, a tongue carried by the wheel, and a locking device on the tongue to engage the end of either of the branch tracks and center the tongue with a branch track.

33. In a locking device for I beam

switches, a stationary track, a vertical hole therein, containing a bumper bar, having vertical reciprocating movement therein and a lifting mechanism to lift it and to permit the passage of a car when the switch is closed.

CHARLES MESSICK.

Witnesses:

C. D. MORRILL,

R. NETTER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."