RAILWAY TRACK SKATE

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BY

HIS ATTORNEY
My invention relates to railway track skates, and particularly to railway track skates of the spring tail type.

In railway hump yards and other places wherein trains are made up, the individual freight cars are successively cut loose from a switch engine and permitted to run freely down the track, the cars being shunted into predetermined sidings. To prevent damage to a car or cars already in a siding from impact, a freely running car should be moving too fast, track skates are placed upon the rails, usually by automatic means, ahead of the moving car to retard the car before impact. Skates are also used at the lower end of classification tracks to stop the cars at this point and prevent them from running out onto the departure track leads.

A track skate normally comprises contoured surfaces on which the wheel of a car rides and whereby the car wheel is held, the skate being pushed along the track with the car wheel riding thereon. When the car wheel rides on the skate, both wheels frequently turn; one turning on the skate, the other turning in a normal manner on the track rail. Under these circumstances the skate is subjected to the turning action of the wheel on its upper surface and the sliding action with the rail on its lower surface. The increased friction between the skate and the wheel thereon stops the rotation of the skate supported wheel, both wheels then being held against rotation, the wheel on the track rail sliding along the rail. Due to the friction between the skate and the one rail and between the sliding wheel and the other rail, the speed of the car is retarded.

One type of a railway skate comprises a cast steel member having an elevated portion, one side of which is arcuate and tapers down to a stub or toe end. Fixed to the top surface of the toe end of the skate is a spring tail, the free end of which is beveled and adapted to rest upon the top of the rail to form an inclined plane for the car wheel to roll up and onto the track skate. The spring tail of the skate is flexible to avoid the shearing off of the tail when the skate is slid over uneven track joints. It has been found that the flexible spring tail had a tendency to conform to the contour of the wheel as the car wheel rolled thereover.

To offset this tendency and to provide a more rigid inclined plane capable of supporting the weight of the car and yet retain the desirable feature of the spring tail, another type of track skate was provided in Letters Patent of the United States No. 2,002,217 issued to me on May 21, 1935, for a Railway Track Skate in which a supporting wedge is fixed to the underside of the spring tail. It has been found that at times the wheel of a car will roll up the spring tail and ride between the supporting wedge and the skate body toe. It has also been found that the wear caused by the turning of the car wheel on the skate will eventually permit the rotating car wheel to bear against the spring and thereby affect the temper of the spring due to the frictional heating of the spring.

An object of my invention is to provide a spring tail for a railway track skate which will insure the rolling of a car wheel from the spring tail onto the skate body, and which will not be distorted by the passage of a car wheel from the spring tail onto the skate body.

According to my invention, the spring tail comprises a rectangular piece of spring steel riveted at one end to the underside of a steel wedge. The riveted end of the spring extends slightly beyond the edge of the wedge and is beveled to form a leading edge for the wedge. The other end of the spring is riveted to the underside of the skate body within a recess therein provided. The recess is of sufficient depth so that the spring is clear of the rail head and will not ride on the rail when the skate is carrying a car wheel. The end of the recess in the underside of the skate body is flared to permit limited upward deflection of the spring when the skate rides over uneven rail joints. The terminating edge of the wedge adjacent the toe of the skate body is made high enough for the car wheel to pass from the wedge to the skate toe without having to be raised an additional amount, thereby insuring the passage of the car wheel from the wedge onto the skate body.

Other objects and characteristic features of my invention will become apparent as the description continues.

I shall describe two forms of a railway track skate embodying my invention, and shall then point out the novel features thereof in claims.

In the accompanying drawings, Fig. 1 is a side elevational view of a railway track skate embodying my invention in position for use on a railway track, a portion of the skate being broken away to illustrate to better advantage certain features of construction. Fig. 2 is an enlarged sectional view of the track skate taken along the line II—II of Fig. 1. Fig. 3 is a bottom plan view of the railway skate illustrated in Fig. 1. Fig. 4 is an enlarged fragmentary side elevational view of a railway track skate illustrated in connection with an
uneven track joint, a portion of the skate being broken away to provide a more advantageous illustration of the construction details, while Fig. 5 is a bottom view of a railway track skate illustrating a second embodiment of my invention.

Referring to Figs. 1 to 3 of the drawings, the reference character 1 designates a rail skate embodying my invention in position for use on a track rail 2. The rail skate 1 comprises an elongated recess 12 for receiving with some clearance a spring tail 13, the spring tail being riveted at one end to the rail skate within the recess 12. The recess 12 is deep enough so that the spring tail 13 does not engage the rail 2. For purposes hereinafter appearing, the recess 12 is flared or made deeper under the toe end of the skate than at the other end of the recess.

Secured to the top surface of the spring tail 13 as by rivets 15 is a wedge 16, the leading edge 17 of the wedge terminating just short of the beveled end 18 of the spring tail. The portion of the spring tail under the wedge 15 rests upon the track rail 2, the beveled edge 18 of the spring tail forming a leading edge for the wedge to permit the car wheel 8 to roll onto the leading edge of the wedge. The rear end 19 of the wedge adjacent the toe 4 is beveled as at 20, the height of the wedge at the upper end of the beveled surface 20 being higher than the rounded toe 4 of the skate body.

The car wheel 8 in encountering the rail skate 1 on the track rail 2 will roll up and over the beveled end 18 of the spring tail 13 and onto the leading edge 17 of the wedge 16. It will be noted in Fig. 1 that the rail skate 1 lies flat upon the track rail 2 and that the spring tail 13 under the wedge 16 lies flat on the rail so that the car wheel in rolling up the inclined plane presented by the wedge is supported by the wedge and the spring tail. The spring tail 13 is not adversely affected by the weight of the car on the wedge since the car wheel is rolling over the wedge which is still stationary with respect to the rail. As previously described the height of the rear end of the wedge at the upper edge of the bevel 20 is higher than the convex bulge of the toe 4. The continued rotation of the car will permit the wheel 8 to roll from the wedge down onto the toe of the skate.

The beveled surface 20 provided for the wedge 16 is to keep all portions of the surface of the wedge on which the car wheel rides inside the base of the wedge where it is fastened to the spring tail. If the edge of the wedge were not chamfered and the top surface of the leading edge 17 extended out flush with the end 19, there is a possibility that the instant the wheel passed off the wedge onto the toe 4 of the skate, that the free end of the spring tail might be kicked up to such an extent that it would kink the spring tail adjacent to the end 19 of the wedge.

The car wheel 8 continues to roll forward over the convex bulge of the skate toe 4 until the forward edge of the wheel abuts the reinforced boss 7 supporting the skate body and holding and supporting the car wheel. The car wheel 3 will be held on the skate in a position in which the center line of the car wheel is slightly in advance of the convex bulge of the skate toe so that the car wheel will not roll backwardly off the rail skate.

The forward motion of the car will slide the skate along the track rail, the increased friction between the skate and the rail gradually decreasing the speed of the car. As the skate is moved along the rail, the weight of the car is supported wholly by the skate body, at no time during the sliding movement of the skate does the spring tail 13 support any portion of the car weight, nor does that portion of the spring tail under the skate body engage the track rail. The location of the spring tail within the recess 12 on the underside of the skate body permits the full surface of the skate toe to support the car wheel and to take care of any wear which may occur should the wheel 8 continue to rotate while carried by the skate.

Referring now to Fig. 4, the rail skate hereinbefore described is illustrated in connection with an uneven rail joint. The skate is illustrated in position on one rail 2 which is lower than a second adjacent rail 2a which supports the wedge 16. The advantage of the deepened or flared recess becomes apparent from an examination of the flared or bowed position of the spring tail within its recess under the skate toe. The flared recess permits the upward deflection of the spring tail so that the spring tail is not subject to the upward force which would tend to bend the spring tail upwardly around the end of the skate toe as would be the case if the recess were not deepened under the skate toe end.

By providing the recess 12 for the spring tail 13 in the underside of the skate body, the area of the skate body in engagement with the rail head is reduced thus increasing the possibility of wear and heating of this portion of the skate body. To provide for these possibilities, I prefer to coat the area on the underside of the skate body between the elongated recess 12 and the dependent sides 9 and 10 with a hard, heat resisting surface such as "Stellite."

Another method for providing for the wear and heating possibilities of the toe end of the skate body is illustrated in Fig. 5 wherein the area of the spring tail 13a is reduced by a reduction in its width as at 13b where it passes under the skate toe, the width of the recess 12a being similarly reduced as at 12b whereby providing a greater contact area for the skate toe. It may be desirable to harden the skate toe, but this may be done by forced forward motion on the car. The car may be applied with a special heat and wear resistant material to the contact area. The rail skate illustrated in Fig. 5 operates in the manner hereinabove described in connection with the rail skate illustrated in Figs. 1 to 4.

One of the advantages of a rail skate embodying my invention is the assurance that the car wheel will roll from the wedge of the spring tail onto the body portion of the skate. Another advantage of my novel rail skate is that the full surface of the rail skate toe supports the car wheel, the toe surface alone receiving the wear due to
the turning car wheel held by the skate, the temper of the spring tail remaining unaffected.

Although I have herein shown and described only two forms of rail skates embodying my invention, it is understood that various changes and modifications may be made therein within the scope of the appended claims without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

1. A railway track skate comprising a body portion terminating in a toe, a recess in the underside of said body portion, a spring tail having one end within said recess and secured to said body, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion.

2. A railway track skate comprising a body portion terminating in a toe, an elongated recess in the underside of said body portion under the toe end thereof, an elongated spring tail having an end portion thereof within said recess and secured to said body portion, the depth of said recess being greater than the thickness of said spring tail, the depth of said recess increasing toward the toe end of said body portion; and a wedge secured to the top surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion.

3. A railway track skate comprising a body portion terminating in a toe, a recess in the underside of said body portion, a spring tail having one end within said recess and secured to said body, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the height of said wedge adjacent the toe end of said body portion being greater than the height of said toe.

4. A railway track skate comprising a body portion terminating in a toe, an elongated recess in the underside of said body portion under the toe end thereof, an elongated spring tail having an end portion thereof within said recess and secured to said body portion, the depth of said recess being greater than the thickness of said spring tail, the depth of said recess increasing toward the toe end of said body portion; and a wedge secured to the top surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the height of said wedge adjacent the toe end of said body portion being greater than the height of said toe.

5. A railway track skate comprising a body portion terminating in a toe and having a convex bulge adjacent said toe on the wheel supporting surface of said body portion to prevent a car wheel from rolling backwardly off said body portion, a recess in the underside of said body portion, a spring tail having one end within said recess and secured to the underside of said body, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion.

6. A railway track skate comprising a body portion terminating in a toe and having a convex bulge adjacent said toe on the wheel supporting surface of said body portion to prevent a car wheel from rolling backwardly off said body portion, a recess in the underside of said body portion, a spring tail having one end within said recess and secured to the underside of said body, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the height of said wedge adjacent the toe end of said body portion being greater than the height of said toe.

7. A railway track skate comprising a body portion terminating in a toe and having a convex bulge adjacent said toe on the wheel supporting surface of said body portion to prevent a car wheel from rolling backwardly off said body portion, an elongated recess in the underside of said body portion under the toe end thereof, an elongated spring tail having an end portion thereof within said recess and secured to said body portion, the depth of said recess being greater than the thickness of said spring tail, the depth of said recess increasing toward the toe end of said body portion; and a wedge secured to the top surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the height of said wedge adjacent the toe end of said body portion being greater than the height of said toe.

8. A railway track skate comprising a body portion terminating in a toe and having a convex bulge adjacent said toe on the wheel supporting surface of said body portion to prevent a car wheel from rolling backwardly off said body portion, an elongated recess in the underside of said body portion under the toe end thereof, an elongated spring tail having an end portion thereof within said recess and secured to said body portion, the depth of said recess being greater than the thickness of said spring tail, the depth of said recess increasing toward the toe end of said body portion; and a wedge secured to the top surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the height of said wedge adjacent the toe end of said body portion being greater than the height of said toe.

9. A railway track skate comprising a body portion terminating in a toe, an elongated recess in the underside of said body portion, said recess being of reduced width under the toe of said body portion, an elongated spring tail having one end thereof shaped to conform with the configuration of said recess, said end being received within said recess and secured to the underside of said body portion, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion.

10. A railway track skate comprising a body portion terminating in a toe, a spring tail having one end secured to the underside of said body, a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and ad-
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7 jacent to the toe of said body, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body, the edge of said wedge adjacent said toe being beveled so that the last point of contact the wheel makes with the wedge as the wheel rolls onto the toe of said body is directly over the base of the wedge.

11. A railway track skate comprising a body portion terminating in a toe, a recess in the underside of said body portion, a spring tail having one end within said recess and secured to said body, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the edge of said wedge adjacent said toe being beveled so that the last point of contact the wheel makes with the wedge as the wheel rolls onto the toe of said body is directly over the base of the wedge.

12. A railway track skate comprising a body portion terminating in a toe, a recess in the underside of said body portion, a spring tail having one end within said recess and secured to said body, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the height of said wedge adjacent the toe end of said body portion being greater than the height of said toe, the edge of said wedge adjacent said toe being beveled so that the last point of contact the wheel makes with the wedge as the wheel rolls onto the toe of said body is directly over the base of the wedge.

13. A railway track skate comprising a body portion terminating in a toe and having a convex bulge adjacent said toe on the wheel supporting surface of said body to prevent a car wheel from rolling backwardly off said body portion, a recess in the underside of said body portion, a spring tail having one end within said recess and secured to the underside of said body, and a wedge secured to the upper surface of said spring tail adjacent to the other end thereof and adjacent to the toe of said body portion, said wedge forming an inclined surface for a car wheel to roll upwardly thereon and onto said body portion, the height of said wedge adjacent the toe end of said body portion being greater than the height of said toe, the edge of said wedge adjacent said toe being beveled so that the last point of contact the wheel makes with the wedge as the wheel rolls onto the toe of said body is directly over the base of the wedge.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,851,347</td>
<td>Cameron</td>
<td>Mar. 29, 1932</td>
</tr>
<tr>
<td>2,002,217</td>
<td>Bone</td>
<td>May 21, 1935</td>
</tr>
</tbody>
</table>