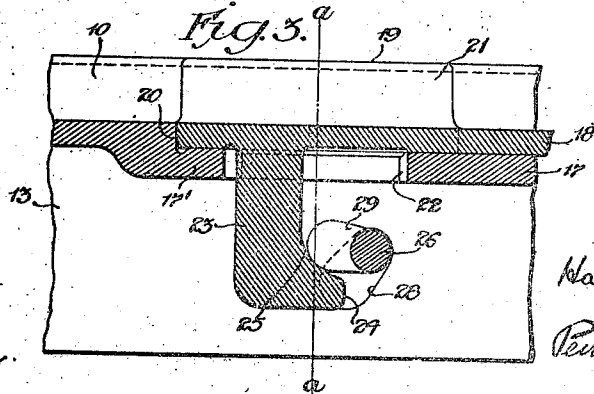
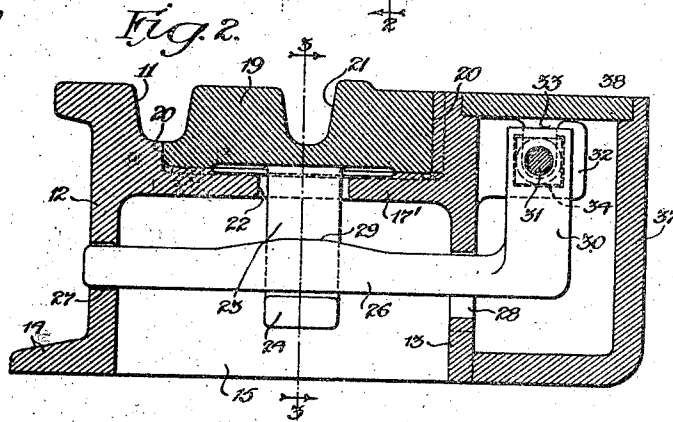
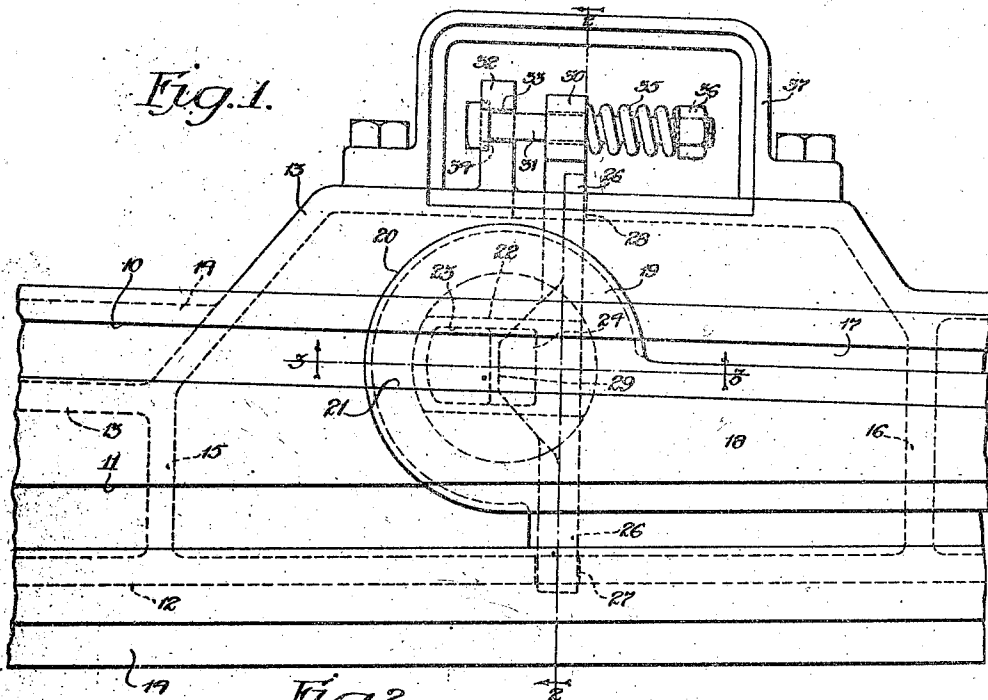


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RAILWAY SWITCH STRUCTURE.
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1,007,371.

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UNITED STATES PATENT OFFICE.

HARRY L. MILLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO BUDA COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

RAILWAY-SWITCH STRUCTURE.

1,007,371.

Specification of Letters Patent.

Patented Oct. 31, 1911.

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To all whom it may concern:

Be it known that I, HARRY L. MILLER, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Railway-Switch Structures, of which the following is a full, clear, and exact description.

The invention relates to railway switch structures and seeks to provide simple and effective means for holding down the heel of the switch tongue and for taking up the wear of the heel, said improved means being more particularly applicable to pinless switches in which the heel of the tongue is enlarged and pivotally mounted or journaled in the body of the switch structure.

The invention consists in the features of improvement hereinafter set forth, illustrated in the preferred form in the accompanying drawing and more particularly pointed out in the appended claims.

In the drawing, Figure 1 is a plan view of the rear end of a structure embodying the present invention. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the lines 3—3 of Figs. 1 and 2.

The body of the switch structure is formed in any suitable manner. In the construction shown, the body part is formed of cast steel and is provided with the usual tread and guard surfaces on opposite sides of the flange-ways 10 and 11 which aline respectively with the flangeways of the main and branch tracks. The body part is provided with vertical side flanges or webs 12 and 13 which extend longitudinally beneath the tread surfaces for the main and branch tracks and are provided at their lower edges with base flanges 14. The webs 12 and 13 are connected on opposite sides of the heel of the tongue by transverse webs 15 and 16 between which the side flange or web 13 is projected laterally beyond the tread surfaces for the main track.

The body part is provided with a suitable bed 17 for the switch tongue 18 and the latter is provided with an enlarged, offset, circular heel 19 which is seated or journaled within a correspondingly shaped recess 20 formed in the upper portion of the switch structure. The enlarged heel 19 extends on opposite sides of the main track flangeway 10 and is provided with a groove 21 extending across its face in line with this flangeway. The enlarged heel 19 and

the circular recess 20 form a journal bearing for the tongue that holds the latter against both lateral and longitudinal movement and provides a large bearing surface which reduces the wear at the tongue heel. The portion 17' of the switch tongue bed forms the floor of the recess 20 and is provided with a rectangular opening 22 therein. A lug 23 depending from the tongue heel extends loosely from the opening 22. This depending lug is arranged at the rear of the center of the circular tongue heel and, at its lower end, is provided with a forwardly projecting toe portion having a curved toe portion 24 having a curved upper surface 25. A crank shaft 26 extends transversely through the switch structure below the bed of the tongue and in front of the depending lug 23. This shaft is journaled at its ends in suitable openings 27 and 28 formed in the side webs 12 and 13 of the switch structure and, intermediate its ends, the shaft is provided with an offset projection 29 which engages the curved upper face 25 of the toe 24 on the depending lug 23. The rear end portion of the offset 29 is preferably cylindrical, as indicated in Fig. 3, and is somewhat larger than the shaft 26, the parts being so arranged that when in the position shown, the center of the rear end of the offset is slightly above the center or axis of rotation of the shaft 26. By reason of this arrangement, pressure exerted on the shaft tending to rotate it and turn the offset downwardly, will cause the offset to press downwardly and rearwardly on the curved face 25 of the lug 23 and thus press the tongue heel downwardly and rearwardly to hold the tongue heel down and take up wear upon its bearing. The offset 29 is preferably formed in one piece with the shaft 26 and the opening 28 in the side web 13 is shaped to correspond to the outline of the offset 29, so that the parts may be readily assembled.

The end of the crank shaft 26 outside of the side web 13 is provided with an upwardly projecting crank arm 30 having an opening in its upper end through which extends a horizontal bolt 31. The head end of this bolt also extends through a lug 32 which projects laterally from the side of the switch structure adjacent the crank arm 30. The lug 32 is provided with a slot 33 to receive the bolt and with a recess 34 in one face which receives the head of the bolt and holds it against turning. A spring 35 coiled

about the bolt 31 extends between the upper end of the crank arm 30 and an adjusting nut 36 threaded upon the end of the bolt. The pressure of the spring 35 upon the end of the crank arm tends to rotate the shaft 26 and press the offset 29 against the lug 23 to hold down the tongue heel and take up wear upon the bearing surfaces thereof.

The curved contacting surfaces of the offset 29 and lug 23 are in engagement at a point substantially in line with the center of motion of the tongue indicated by the line *a-a* in Fig. 3, so that the engagement of these parts does not interfere with the shift of the switch tongue. The arm 30 on the crank shaft is located within a box 37 which is bolted upon the side of the switch structure and provided with a cover 38, so that the hold-down devices are readily accessible in case it becomes necessary to adjust the tension of the spring 35 by means of the nut 36 or to permit the removal of the tongue by releasing the hold-down devices.

It is obvious that numerous changes may be made in the details set forth without departure from the essentials of the invention as defined in the claims.

I claim as my invention:—

1. In a pinless railway switch, the combination of a tongue, a body part having a recess wherein the heel of the tongue is journaled with an opening in the floor of said recess, said tongue having a lug at its heel depending through said opening, a transverse crank shaft journaled at its ends in said body part, said shaft having an offset projection engaging said lug and a crank arm and adjusting and securing means engaging said crank arm, substantially as described.

2. In a pinless railway switch, the combination of a tongue, a body part having a recess wherein the heel of the tongue is journaled with an opening in the floor of said recess, said tongue having a lug at its heel depending through said opening, a transverse crank shaft journaled at its ends in said body part, said shaft having an offset projection engaging said lug and a crank arm, a spring engaging said crank arm, and means for adjusting said spring, substantially as described.

3. In a pinless railway switch, the combination of a tongue, a body part having a recess wherein the heel of the tongue is journaled with an opening in the floor of said recess, said tongue having a lug at its heel depending through said opening, a transverse crank shaft journaled at its ends in said body part, said shaft having an offset projection engaging said lug and a crank arm, said body part having a lug adjacent

the end of said crank arm, a bolt extending through said lug and arm, and a spring on said bolt engaging said arm, substantially as described.

4. In a pinless railway switch, the combination of a tongue having an enlarged circular heel, a body part having a recess wherein said heel is journaled with an opening in the floor of said recess, said tongue having a lug at its heel extending downwardly through said opening and having a forwardly projecting toe at the lower end, a transverse rock shaft in front of said projection and below the tongue bed and journaled at its ends in said body part, said shaft having an offset engaging the toe of said lug and a crank arm, and adjustable means engaging said arm, whereby the tongue heel is pressed rearwardly and downwardly, substantially as described.

5. In a pinless railway switch, the combination of a tongue having an enlarged circular heel, a body part having a recess wherein said heel is journaled with an opening in the floor of said recess, said tongue having a lug at its heel extending downwardly through said opening and having a forwardly projecting toe at the lower end, a transverse rock shaft in front of said projection and below the tongue bed and journaled at its ends in said body part, said shaft having an offset engaging the toe of said lug, a crank arm at the side of the body part and a rearwardly extending offset engaging the toe of said projection at a point in line with the center of motion of the tongue, and an adjustable spring engaging said crank arm, substantially as described.

6. In a pinless railway switch, the combination of a tongue having an enlarged circular heel, a body part having a recess wherein said heel is journaled with an opening in the floor of said recess, said tongue having a lug at its heel extending downwardly through said opening and having a forwardly projecting toe at the lower end, a transverse rock shaft in front of said projection and below the tongue bed and journaled at its ends in said body part, said shaft having an offset engaging the toe of said lug, a crank arm at the side of the body part and a rearwardly extending offset engaging the toe of said projection, said offset and toe having rounded faces abutting at a point in line with the center of motion of said tongue, and means for adjusting and securing said crank arm, substantially as described.

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Witnesses:

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