

RAILWAY SWITCH STRUCTURE.

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1,007,437.

Fig. 1.

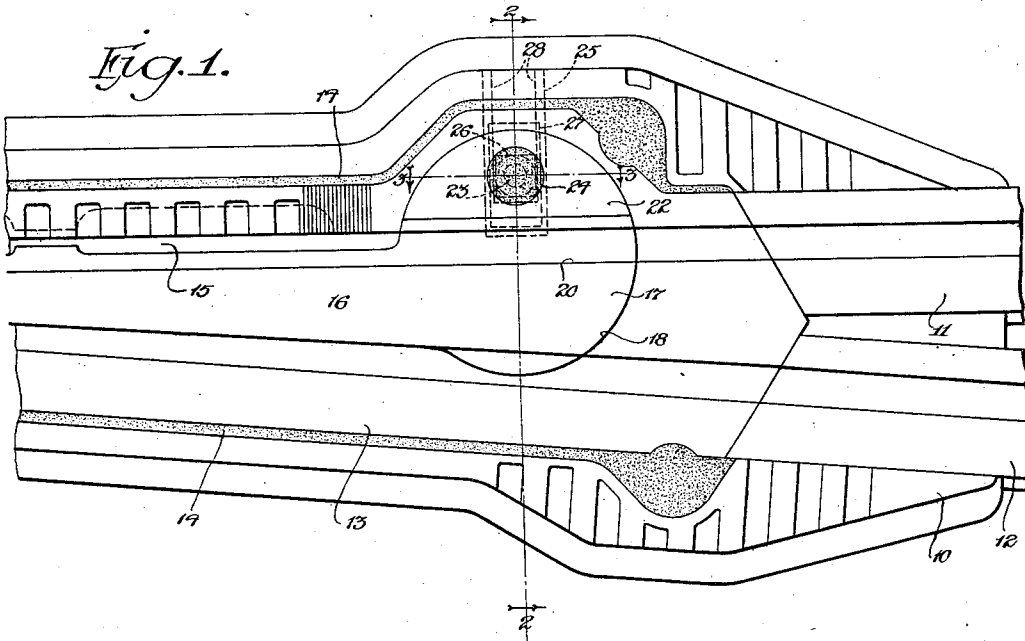


Fig. 2.

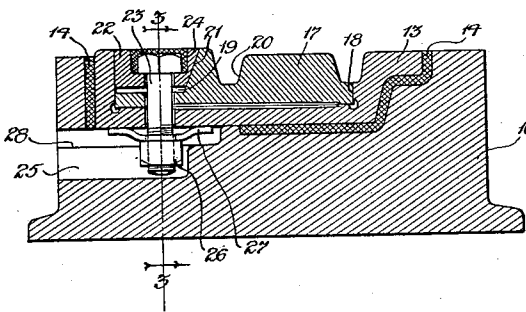
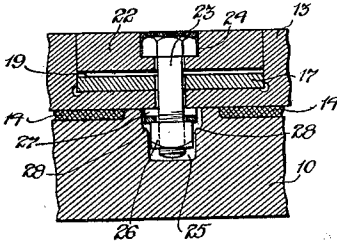


Fig. 3.



Witnesses:-

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UNITED STATES PATENT OFFICE.

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RAILWAY-SWITCH STRUCTURE.

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To all whom it may concern:

Be it known that I, HOWARD S. EVANS, 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 wear upon 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 a recess 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 a portion of the switch structure embodying the present invention. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a detail section on the lines 3—3 of Figs. 1 and 2.

The body of the switch structure is provided with the usual tread and guard surfaces and is formed in any suitable manner. In the construction shown, the body part comprises a casting 10 into which sections 11 and 12 of the main and branch track rails are secured in the casting operation and a plate 13 of hard steel inserted into the face of the casting 10. The insert plate is held in place in any suitable manner as, for example, by securing bolts and an intermediate layer 14 of zinc or spelter. The insert plate is provided with track surfaces in line with the tread and guard surfaces of the main and branch rails and with a recess or bed 15 for the switch tongue 16.

The tongue is provided with an enlarged, offset, circular heel 17 which extends completely across the flange-way on the gage side of the tongue and which is seated or journaled in a correspondingly shaped recess 18 in the switch structure. In the form shown, the bearing recess of the switch structure is formed in the hard metal insert plate 13. The enlarged heel 17 and the circular recess 18 form a pivot or journal bearing for the tongue that holds the latter against both lateral and longitudinal move-

ment and provides a large bearing surface which reduces the wear at the tongue heel.

The enlarged circular heel 17 is provided with a segmental recess 19. This recess is preferably located on the gage side of the tongue and beyond the flange-way 20 that extends across the heel. The outer wall of the recess 19 is formed by a portion of the circular bearing face of the recess 18 in the switch structure. The opposite wall of the recess 19 is formed by a plane, outwardly inclined, beveled face 21 formed on the switch heel and extending preferably in a direction lengthwise of the tongue. A segmental wedge block 22 is seated within the recess 19 and is provided with an outer segmental face engaging the wall of the circular recess 18 in the switch structure and with an inner beveled face engaging the beveled face 21 on the tongue heel. Suitable means are provided for securing and adjusting the wedge block 22 so that the latter exerts a hold-down action in the tongue heel and serves to take up wear between the heel and its bearing. The take-up or hold-down wedge block 22 forms in effect a part of the heel or journal portion of the tongue and moves with the heel as the switch is shifted, and the hold-down means for the wedge block is provided with a spring, so that it can move with the tongue heel.

The hold-down means preferably comprises a bolt 23 which extends downwardly through openings in the wedge block, tongue heel and through the portion of the insert plate 13 forming the floor of the recess 18. The head of the bolt 23 seats within a recess 24 in the upper face of the wedge block 22 and its lower end extends into a recess which opens laterally through one of the side faces of the casting 10. Within the recess 25 are arranged a nut 26 and a spring washer 27 which engage the lower end of the bolt for securing the wedge block 22 in position and for exerting a downward pressure thereon. The spring washer 27 is preferably rectangular, as shown, and the upper portion of the recess 25 is expanded to receive the washer and to provide ledges or shoulders 28 whereon the washer rests when the bolt 23 is withdrawn. The side walls of the recess below the shoulders 28 prevent the nut 26 from turning and the bottom wall of the recess upholds the nut when the bolt 23 is withdrawn and in such position that it can be picked up by

the bolt. In assembling the parts, the washer and nut are placed within the recess 25 and the bolt is inserted downwardly from the upper face of the switch to engage the nut. The head of the bolt is of proper form to receive a suitable tool so that it can be rotated to adjust the tension of the spring washer 27 and adjust the wedge 22 to take up the wear upon the bearing of the switch tongue and can also be engaged and disengaged with the nut 26 from the upper face of the switch to permit the removal and renewal of the switch tongue. This arrangement of the hold-down device for the tongue obviates the necessity of employing a box or chamber on the side of the switch structure. If desired, the recess 25, after the washer and nut are placed therein, can be filled with soft material, such as putty or the like and its outer end closed with a plug to prevent the entrance of dirt. When the bolt is properly adjusted, the space within the recess 24 and about the head of the bolt is preferably filled with easily removable cement or the like, as shown. This filling material can be readily removed if it becomes necessary to adjust the bolt to take up wear.

The wedge block 22, as stated, forms part of the journal or heel of the tongue and shifts with the tongue heel within its bearing as the tongue is shifted. This movement of the wedge block is permitted, inasmuch as the openings in the block, the tongue heel and in the floor of the insert plate 13 are larger than the bolt and inasmuch as the spring washer 17, which engages the under side of the insert plate and the nut 26, yieldingly holds the bolt in position. Preferably, also, the opening in the washer for the bolt is somewhat larger than the bolt.

The retaining bolt 23 holds the wedge block 22 in position and exerts a downward pressure thereon, so that the wedge block serves to hold down the tongue heel upon its seat. Moreover, because of the inclined abutting faces on the tongue heel and wedge block, the downward pressure upon the wedge block tends to force these parts laterally to take up wear upon the circular walls of the switch tongue bearing. Inasmuch as the retaining bolt is spring-held in position by the washer 27, the wear both upon the horizontal and circular walls of the switch tongue bearing is taken up automatically. If the wear is excessive, the bolt can be adjusted to take up the same.

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

I claim as my invention:—

1. In a railway-switch, the combination with the body part, of a tongue having an enlarged circular heel journaled in a cor-

respondingly shaped recess in said body part, a wedge block forming a part of said heel and bearing on the wall of said recess, and means for securing said wedge block.

2. In a railway-switch, the combination with the body part, of a tongue having an enlarged circular heel journaled in a correspondingly shaped recess in said body part, a wedge block forming a part of said heel and bearing on the wall of said recess, and an adjustable retaining bolt extending through said wedge block and the floor of said recess.

3. In a railway-switch, the combination with the body part, of a tongue having an enlarged circular heel journaled in a correspondingly shaped recess in said body part, a wedge block forming a part of said heel and bearing on the wall of said recess, a retaining bolt extending through said wedge block and the floor of said recess, and a spring engaging the lower end of said bolt.

4. In a railway-switch, the combination with the body part, of a tongue having an enlarged circular heel journaled in a correspondingly shaped recess in said body part, a wedge block forming a part of said heel and bearing on the wall of said recess, an adjustable retaining bolt extending downward through said wedge block and the floor of said recess, and a spring and a nut engaging the lower engaging end of said bolt, said body part having a recess opening through the side wall wherein said spring and nut are retained and said nut held against rotation.

5. In a railway-switch, the combination with the body part, of a tongue having a journal portion at its heel end seated in a bearing in said body part, a take-up wedge block forming part of said journal portion and engaging the face of said bearing and means for securing and adjusting said wedge block.

6. In a pinless railway-switch, the combination with the body part, of a tongue provided with a heel having a beveled face, said body part having a circular recess wherein said heel is journaled, a segmental, take-up wedge block engaging said beveled face and the circular wall of said recess and having a hold-down action on said heel, and means for securing and adjusting said wedge-block.

7. In a pinless railway-switch, the combination with the body part, of a tongue provided with a heel having a beveled face, said body part having a circular recess wherein said heel is journaled, a segmental, take-up wedge block engaging said beveled face and the circular wall of said recess and having a hold-down action on said heel, and an adjusting bolt having a spring washer thereon yieldingly connecting said wedge block to

said body part, said bolt and wedge block being removable from the surface of the switch.

8. In a railway-switch, the combination
5 with the body part, of a tongue having an enlarged heel, said body part having a recess wherein said heel is journaled, a take-up wedge block forming part of said heel and having a hold-down action thereon, and
10 means for securing said wedge block, said securing means and wedge block being releasable from the surface of the switch.

9. In a railway-switch, the combination
15 of a tongue having an enlarged circular heel, a body part having a recess wherein said heel is journaled, a take-up wedge block engaging said heel, a retaining bolt extending downwardly through said wedge block into said body part and a spring and nut
20 engaging the lower end of said bolt, said

body part having a recess opening through its side wall wherein said spring and nut are upheld when said bolt is removed and whereby said nut is held against rotation.

10. In a pinless railway-switch, the com- 25
bination of a tongue having an enlarged heel with a flange-way extending across its face, a body part having a circular recess wherein said heel is journaled, the portion
30 of said heel outside of said flange-way being cut away to form a segmental recess having an inclined inner wall, a correspondingly shaped wedge-block seated in said segmental
35 recess and a spring-held retaining bolt connecting said wedge block to said body part.

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Witnesses:

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