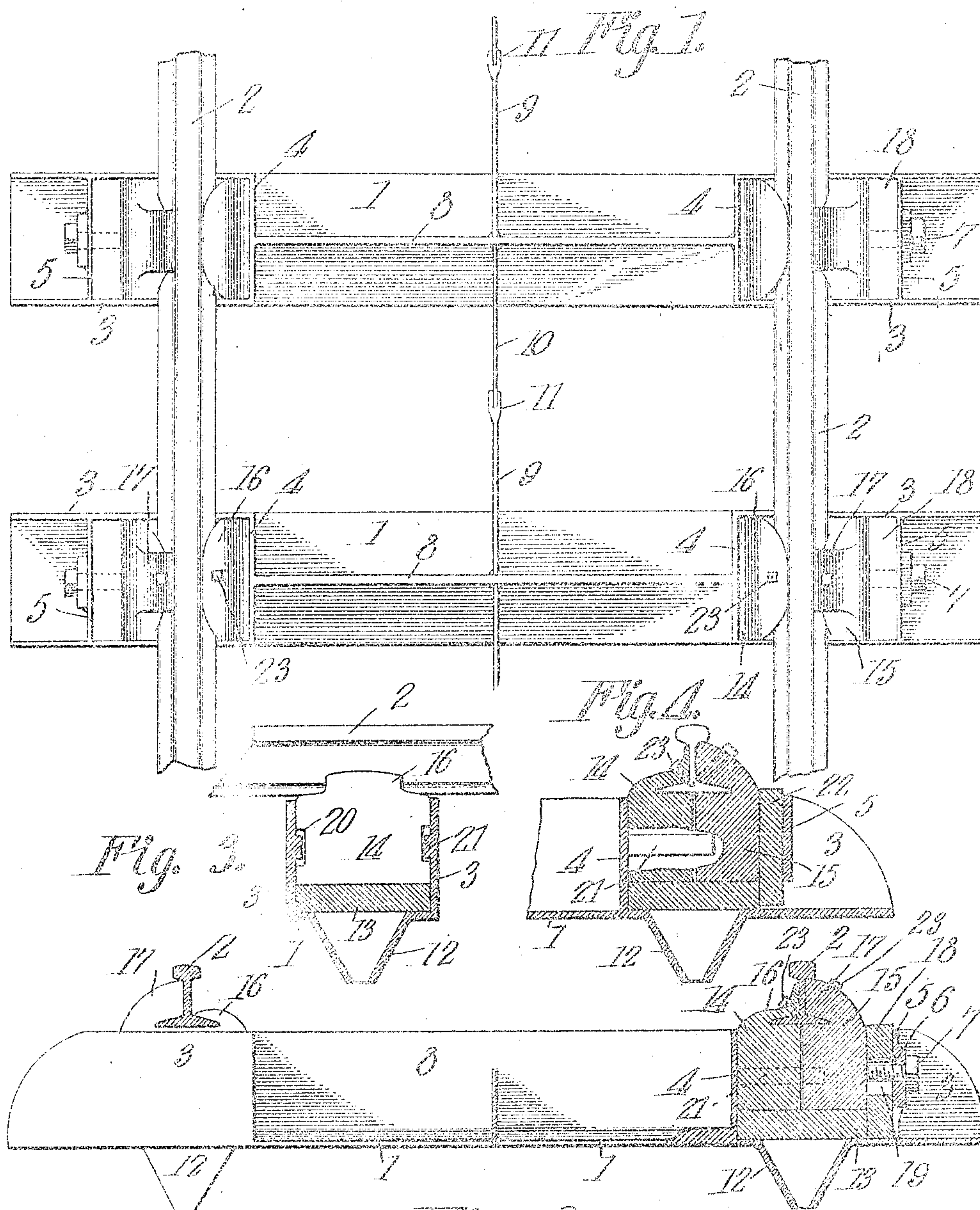


J. G. SMITH.

METALLIC RAILWAY TIE AND FASTENER.

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WITNESSES.

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JULIUS GREGORY SMITH, OF LIBERTY, NEW YORK.

METALLIC RAILWAY-TIE AND FASTENER.

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To all whom it may concern:

Be it known that I, JULIUS G. SMITH, a citizen of the United States, residing at Liberty, in the county of Sullivan and State of New York, have invented a new and useful Metallic Railway-Tie and Fastener, of which the following is a specification.

This invention relates to metallic railway ties and to fasteners for use in connection therewith.

The object of the invention is to provide a simple, durable and efficient form of tie having means whereby the same can be secured to the adjoining ties and therefore held against displacement.

A still further object is to provide a combined fastener and cushioning device disposed to be secured within the tie in a simple and efficient manner.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a plan view of two ties constructed in accordance with the present invention, said ties being shown connected and having rails fastened upon them; Fig 2 is a view partly in section and partly in elevation of one of the ties; Fig. 3 is a transverse section through the tie; and Fig. 4 is a longitudinal section through one end portion of the tie and showing a slightly modified construction.

Referring to the figures by characters of reference, 1 designates the base of the tie the same being of any suitable proportions and being designed to extend under the two rails 2 of a track. Extending upward from the longitudinal edges of this plate at the ends thereof are side walls 3 connected at their inner ends by an end wall 4, while at a point between their ends these walls 3 are connected by an outer wall 5 in which is disposed a screw threaded opening 6 designed to receive a set screw 7. The walls 3, 4 and 5 thus form boxes each of which constitutes a holder for the cushioning and fastening means hereinafter referred to. A longitudinal web 8 connects the inner walls 4 and is formed integral therewith and with the base 1 and extending in opposite directions from this web

at the center thereof are coupling arms 9 and 10 one of which has a forked end as shown at 11. Hollow conical anchoring projections 12 are formed upon the bottom of the base 1 and under the boxes and are designed to project into the road bed so as to prevent the tie from creeping, and to drain the boxes.

Fitting snugly upon the bottom of each of the boxes or holders heretofore referred to is a cushioning block 13 formed of wood or other suitable mechanism and this block is designed to support metallic holding blocks 14 and 15. One of these blocks has an integral lip 16 designed to lap one of the base flanges of a rail 2 while the other block 15 has an extension 17 thereon disposed to bear upon the other flange of a rail and to fit snugly against the web and the head of said rail. This extension 17 therefore constitutes both a brace and a fastener. A spacing block 18 of wood, metal or other material is interposed between the blocks 13 and 15 and the wall 5 and has an opening 19 through which the screw 7 is designed to project. The thickness of this block is preferably substantially the same as the width of one of the base flanges of the rail 2.

It is of course to be understood that the tie herein described is placed with the anchoring projection 12 within the road bed and with the ballast disposed above the base 1 so as to fill the spaces between the walls 4. All of the ties are coupled together by placing the end of each arm 10 in the fork of each arm 11 and securing said ends together. Assuming that each box or holder is empty and it is desired to secure a rail to the tie the screw 7 is removed and block 13 is placed in the position shown. The two blocks 14 and 15 are then placed in engagement with the base flanges of a rail and then inserted into the box and upon the cushioning block 13. If preferred, only the block 14 can be placed in the holder or box and the rail then positioned thereon after which the block 15 can be inserted into the box and then shifted laterally into engagement with the rail. After the two blocks 14 and 15 have been placed in engagement with the rail and seated in the tie in either of the ways mentioned the spacing block 18 is driven into place and screw 7 is inserted so as to bind against the block 15 and force it against the rail. The spacing block 18 can be used

either in the position shown or between the block 14 and the wall 4 or two of these blocks can be used at the same time. The block is merely utilized to hold the rails at the proper distance apart and permit the change of gage necessary at curves, etc.

It will be noted that the walls 5 are spaced from the base of the tie and the opening thus formed is sufficient to permit the drainage of moisture from the boxes. These openings are also desirable because wedges, crowbars, and the like can be inserted under the blocks 14 and 15 to raise the rails after which the tie can be forced upward until the blocks 14 and 15 are again properly seated therein. By tamping the road bed beneath the tie the same will then be securely supported in raised position. As it is thus possible to adjust the rails vertically before correspondingly adjusting the tie, the lining of the rails is greatly facilitated because the adjustment can be more readily effected. As has heretofore been stated the anchoring projections 12 serve as outlets to permit moisture to escape from the boxes downward into the road bed.

In order that the blocks 14 and 15 may be prevented from being withdrawn from the boxes, as when a car passes over and depresses an unsupported and unsecured rail end, each of the blocks 14 and 15 is provided in opposite faces with transverse grooves designed to receive holding ribs 21 which are formed upon the adjoining faces of the walls 3, said ribs extending from the walls 4 and for a portion of the lengths of the boxes in which the blocks 14 and 15 are located. Sufficient space is left between these ribs and the wall 5 of each box to permit the blocks 14 and 15 to be successively inserted into the box prior to the positioning of the block 18. Obviously after the blocks 14 and 15 have been placed in engagement with the rail as shown in Figs. 2 and 4 it becomes impossible for them to be pulled up out of the box in which they are seated.

Although the screws 7 have been shown upon the ties illustrated in Figs. 1 and 2 it is to be understood that if preferred these screws may be dispensed with as shown in Fig. 4 and only the block 22 employed for the purpose of holding the blocks 14 and 15 in engagement with the ribs 21. Obviously when this block 22 is driven between the wall 5 and block 15 it will not only bind the fastening blocks tightly upon the rail but will also securely hold them against displacement from the tie.

In order to prevent the rails from creeping, particularly upon down grades, certain of the rail engaging devices 16 and 17 are formed with openings to receive inclined securing bolts 23 which extend through the rail engaging devices and into the base portions of the rails. This is shown particu-

larly in Fig. 4 although certain of the fastening devices in Fig. 1 are also shown provided with these fastening means.

Considerable importance is attached to the fact that the ties when fastened together as shown in Fig. 1 form pockets between them and at opposite sides of the arms 9 and 10 and, as the ballast is designed to be tightly packed between and over the ties and their arms, it is obvious that creeping of the ties in any direction is entirely eliminated and therefore displacement of the ties at curves is prevented when trains pass over the rails at high speeds.

What is claimed is:

1. In a metallic railway tie the combination with a base, and integral holders upon the base; of a cushion disposed flat upon the bottom of each holder, rail engaging devices insertible into the holders and disposed entirely above and upon the cushions, and means within each holder for securing said members in engagement with the rails.

2. In a metallic railway tie the combination with a base, and holders integral with the base; of rail engaging and supporting members insertible into each holder, each holder having rail engaging means, cushions disposed entirely beneath said members and upon the bottoms of the holders, means within each holder for securing said members in engagement with the rails, and a separate spacing device interposed between one wall of the holder and the cushion and one of the members.

3. The combination with a tie having a holder; of rail engaging members insertible into the holder, means for clamping said members upon a rail, and means for preventing the withdrawal of the members from the holder when in clamping position.

4. The combination with a tie having upstanding walls constituting a holder; of a cushioning block seated within the holder, rail supporting and engaging members insertible into the holder and onto the cushion, a spacing device interposed between one of said members and a wall of the holder, and means engaging a wall of the holder for binding the members upon a rail.

5. The combination with a tie having upstanding walls constituting a holder; of a cushion within the holder, rail supporting and engaging members insertible into the holder and onto the cushion, one of said members being movable within the holder out of engagement with a rail, and means within the holder for securing said member against movement.

6. A metallic railway tie comprising a base, upstanding holders integral therewith, a longitudinal web connecting the holders, depending anchoring projections integral with the base, oppositely extending connecting arms integral with the web and base,

and combined rail supporting and engaging means within each holder.

7. In a metallic railway tie the combination with a base, and integral holders upon the base; of rail engaging members insertible into the holders, and means integral with the holders for preventing the withdrawal of the engaging members from the holders.

8. In a metallic railway tie the combination with a base, and integral holders upon the base; of rail engaging members insertible into the holders, retaining ribs within the holders and disposed to engage the members to prevent their withdrawal from the holders, and means for securing said members in engagement with the ribs.

9. In a metallic railway tie the combination with a base, integral holders upon the base, and retaining elements within the holders; of rail engaging members insertible into the holders and movable laterally into engagement with the retaining elements, and means insertible between said members and one wall of each holder for securing said members in engagement with the retaining elements.

10. In a metallic railway tie the combination with a base, and integral rail fastener

holders upon the base; of a hollow anchoring device integral with the base and below each holder, said device constituting a drain for the holder.

11. In a metallic railway tie the combination with a base, and holders integral with the base, one wall of each holder being spaced from the base, and a conical anchoring device below and communicating with each holder, said device constituting a drain.

12. A metallic railway tie comprising a base, upstanding holders integral therewith, a longitudinal web integral with the holders and base, and oppositely extending connecting arms, the arms of adjoining ties being disposed to be fastened together.

13. A metallic railway tie comprising a base, holders integral therewith, rail engaging devices seated within each holder, and means detachably secured within each device for projecting into and engaging the base portion of a rail.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JULIUS GREGORY SMITH.

Witnesses:

HERMAN E. SPRAGUE,
LARRY McGRATH.