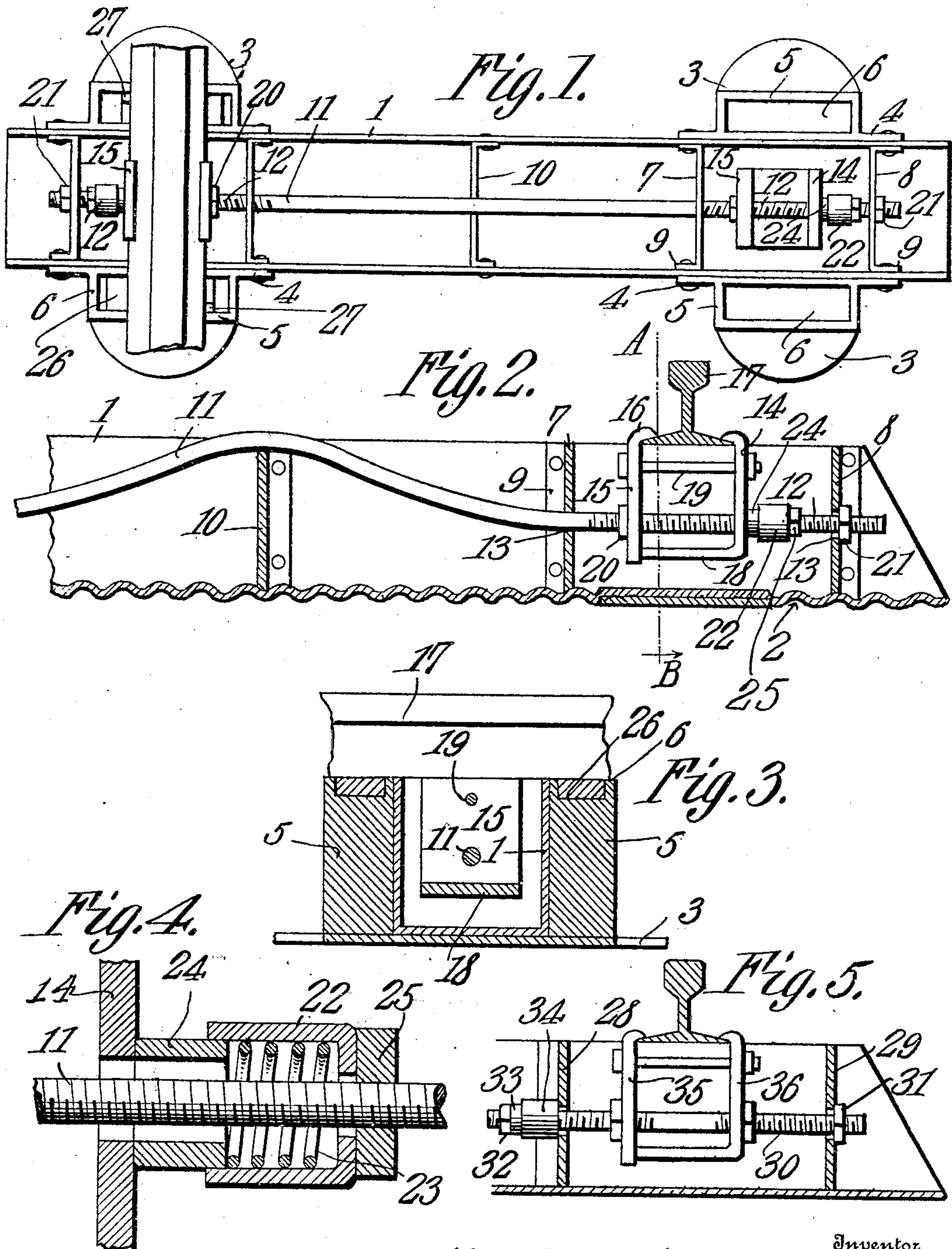


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RAILROAD TIE.
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Patented Aug. 3, 1909.



Witnesses

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RAILROAD-TIE.

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To all whom it may concern:

Be it known that I, CHARLES M. SHEELEY, a citizen of the United States, residing at Grand Island, in the county of Hall and State of Nebraska, have invented a new and useful Railroad-Tie, of which the following is a specification.

This invention relates to metallic railway ties and to means for fastening rails thereto, and its object is to provide means whereby expansion or contraction of the tie due to climatic changes will not affect the relative positions of the rails mounted on the tie.

Another object is to provide means for rigidly holding the rails in place upon the tie, said means being easily accessible and designed to be readily placed in or out of engagement with the rails upon the tie.

A further object is to provide a tie having an increased bearing surface for the rails.

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 a tie embodying the present improvements, a rail being shown upon one end thereof. Fig. 2 is a vertical longitudinal section through a portion of the tie. Fig. 3 is an enlarged section on line A, B, Fig. 2. Fig. 4 is an enlarged section through one of the cushions of the tie rod. Fig. 5 is a longitudinal section through one end portion of a modified form of tie.

Referring to the figures by characters of reference, 1 designates a trough-like tie body formed of heavy sheet metal and the bottom thereof may, if desired, be provided with corrugations as shown at 2, said corrugations extending transversely of the tie so as to prevent it from creeping longitudinally. Extending under each end portion of the tie body is a transversely extending chair or base plate 3 on which are arranged supporting blocks 5 designed to rest against the side faces of the tie body and having laterally extending flanges 4 riveted or otherwise secured to the tie body. Each of these blocks 5 has its upper face flush with the upper edges of the tie body and provided with a rectangular recess 6 designed to receive rail retaining plates of novel form.

Arranged transversely within the tie body and between the end portions of flanges 4 of the blocks 5 are partitions 7 and 8 having end flanges 9 which are also riveted or otherwise fastened to the sides of the body of the tie, the same fastening means being preferably used to attach both the flanges 4 and 9 to the tie body. A similar partition 10 is arranged transversely within the middle portion of the tie body and engaging the upper portion of the central partition is a tie rod 11 extending downward from the partition 10 and having alining end portions 12 which project through openings 13 formed in the partitions 7 and 8. These alining portions 12 of the rod 11 are screw threaded and extend through clamping plates 14 and 15 arranged in pairs between the partitions 7 and 8.

Each clamping plate has a jaw 16 at its upper edge designed to lap and frictionally engage the base flanges of a rail 17, and the clamping plate 14 has an extension 18 extending at right angles from the lower edge thereof and designed to bear against the lower end of the plate 15. A bolt 19 extends through the plates 14 and 15 close to the jaws 16 and by screwing a nut thereon these plates and the jaws can be caused to firmly engage the rail 17 resting on the tie.

A nut 20 is arranged upon each threaded portion of bar 11 and between the adjoining partitions 7 and plate 15, said nut being disposed to limit the movement of plate 15 toward the partition 7. The terminals of the bar 11 extend loosely through the partitions 8 and have nuts 21 thereon which bear against the outer face of the partitions. Interposed between each plate 14 and the adjoining partition 8 is a take-up device comprising a sleeve 22 which is loosely mounted on the threaded end portion 12 of bar 11 and has a spring 23 seated therein and designed to bear against a tubular plunger 24 which, as shown particularly in Fig. 4, bears at one end against the plate 14. Nut 25 engages the threaded portion of the rod 11 and by screwing the same against the sleeve 22 the stress of the spring 23 can be reached as desired. In order that the rails 17 may be limited in their movement relative to the tie, holding blocks 26 are slidably mounted within the recesses 6 and are provided with upstanding lugs 27 designed to lap the base flanges of the rails as indicated in Fig. 1.

When it is desired to fasten rails to the tie the holding blocks 26 are placed within the recesses 6 so that the lug of one block will extend at one side of a rail while the lug of the other block will extend at the other side of said rail. The clamping plates 14 and 15 are then adjusted toward opposite edges of the rails so as to bind thereon and the nuts 25 are tightened so as to equally compress the two springs 23. After the rails have been secured in position in this manner it will be seen that should the tie body expand or contract it would be capable of moving relative to the terminal portions of the bar 11 which may be formed of a metal, the coefficient of expansion of which differs from that of the body and by providing the spring pressed plungers 24 for pressing the plates toward the nuts 20 it is possible for the rails to spread slightly apart against the stress of springs 23 in the event of excessive contraction of the tie. This is permissible in view of the fact that the plates 14 and 15 are slidably mounted on the bar 11 and that the rails merely rest upon the tie and are not fastened to it by any means other than said plates. By permitting this sliding movement of the rails breakage of both the rails and the tie is prevented and the tie will be found safe under all climatic conditions. Obviously the springs 23 will always hold the rails normally in predetermined positions. Importance is attached to the provision of the bearing blocks 5 because they provide increased bearing surfaces for the rails and therefore fewer ties can be used than where ordinary straight ties are employed. Although these bearing blocks have been shown disposed entirely beyond the sides of the tie body it is to be understood that, if preferred, the tie can be so constructed as to bring the centers of the bearing blocks in alinement with the sides of the tie body.

Instead of utilizing the bar 11 shown in Figs. 1 to 4 the tie can be provided with modified rail fastening means such as illustrated in Fig. 5. By referring to this figure it will be noted that the inner partition 28 and the outer partition 29 have a screw threaded bar 30 slidably mounted within them, the outer end of the bar being engaged by a nut 31 while the inner end thereof has a nut 32 bearing against a plunger 33 which is similar to the plunger 24 heretofore referred to and is mounted to slide within a sleeve 34 in which a spring, not shown but which is similar to the spring 23, is located. Plates 35 and 36 similar to plates 14 and 15 are mounted on the bar 30 and are designed to clamp upon the base flanges of a rail. Obviously with this construction the rails can be shifted toward the ends of the tie and

against the action of the springs within the sleeves 34. It is of course to be understood that one bar 30 is provided within each end portion of the tie.

Obviously various changes and modifications other than those herein set forth can be made in the structure herein described without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:

1. In a railway tie the combination with a body and transverse partitions therein; of a tie bar movably supported by said partitions and extending longitudinally of the body, the coefficient of expansion of the bar and body being different, oppositely disposed rail-engaging devices supported by each end portion of the bar and between the adjoining partitions, said devices being movable upon the bar, means for limiting the movement of the bar within the body; and cushioning means upon each end portion of the bar and bearing against one of the rail-engaging devices for yieldingly limiting the movement of said devices relative to the bar.

2. A railway tie comprising a body, bearing blocks projecting laterally beyond the sides, a bar supported within the body, means carried thereby and movable relative to the tie for engaging rails supported upon the blocks, and cushioning means for controlling the movement of the rail engaging devices relative to the tie.

3. A railway tie comprising a body, bearing blocks extending laterally beyond the sides thereof and having recessed upper portions, retaining blocks slidably mounted within the recesses and having rail engaging portions, a bar supported within the tie, rail engaging devices supported by the bar and movable relative to the tie body, and cushioning means upon the bar for controlling the movement of said rail engaging devices relative to the tie body.

4. A railway tie comprising a body, transverse partitions therein, a threaded bar supported by the partitions, oppositely disposed rail clamping plates upon the bar and movable relative to the tie body and in the direction of the length of said body, spacing means upon one of the plates and below the bar, means engaging the plates for binding them upon a rail, and cushioning means upon the bar for controlling the movement of the plates relative to the tie body.

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

CHARLES M. SHEELEY.

Witnesses:

R. R. HORTH,
J. C. SCOTT.