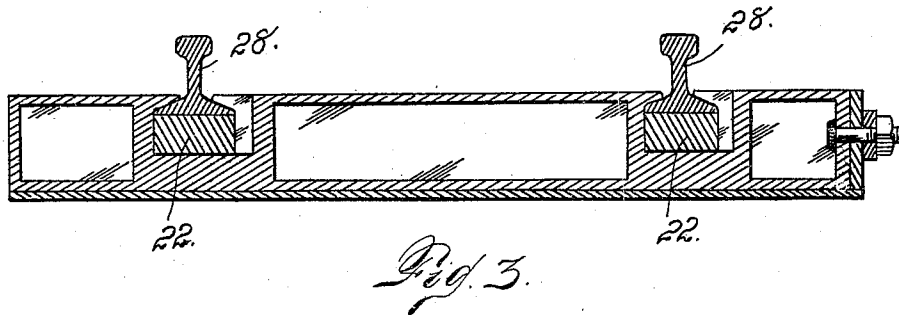
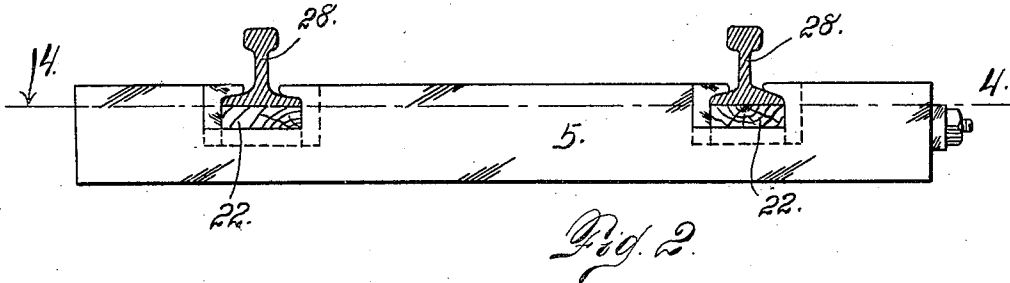
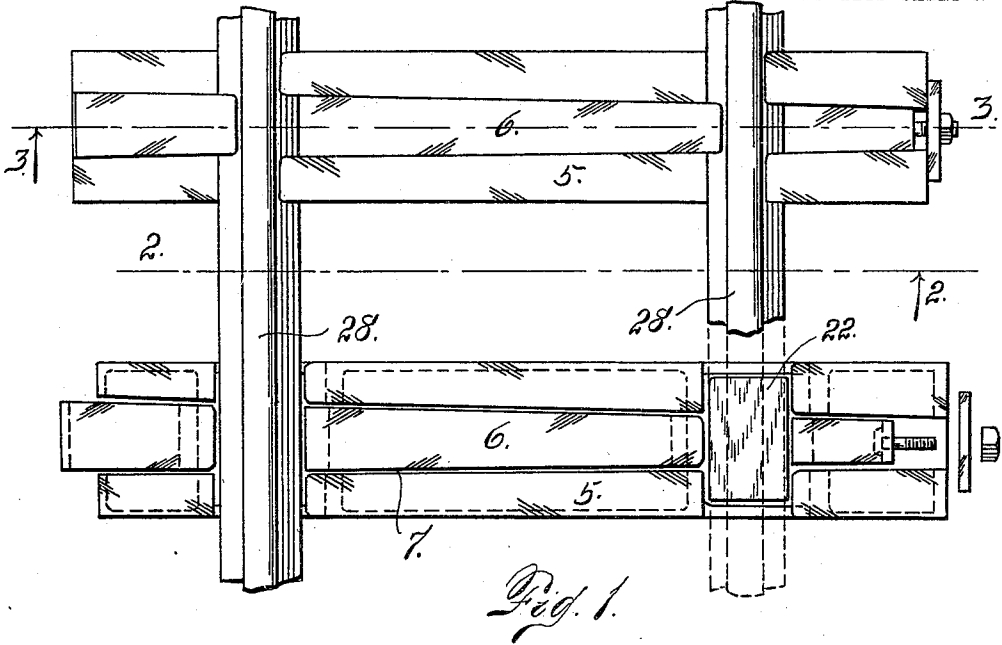


G. E. HALL.
RAIL CUSHION METAL RAILWAY TIE.
APPLICATION FILED DEC. 8, 1909.

961,071.

Patented June 7, 1910.

2 SHEETS—SHEET 1.



Witnesses
Otto E. Haddick.
J. D. Thornburgh.

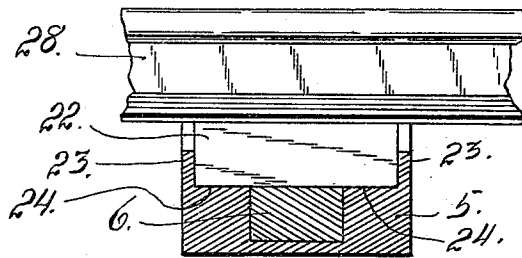
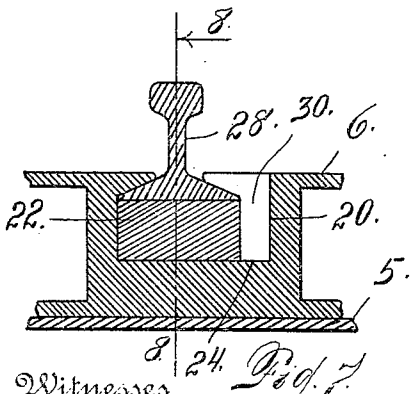
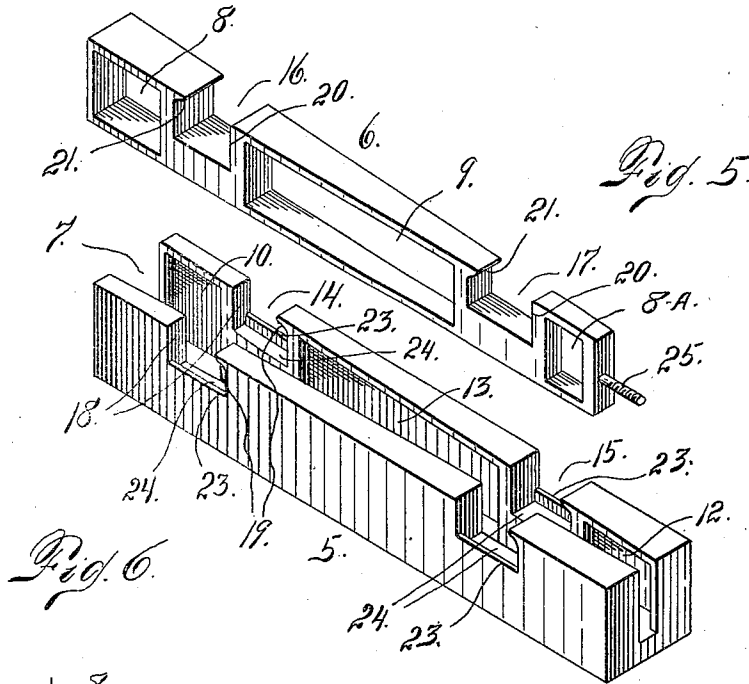
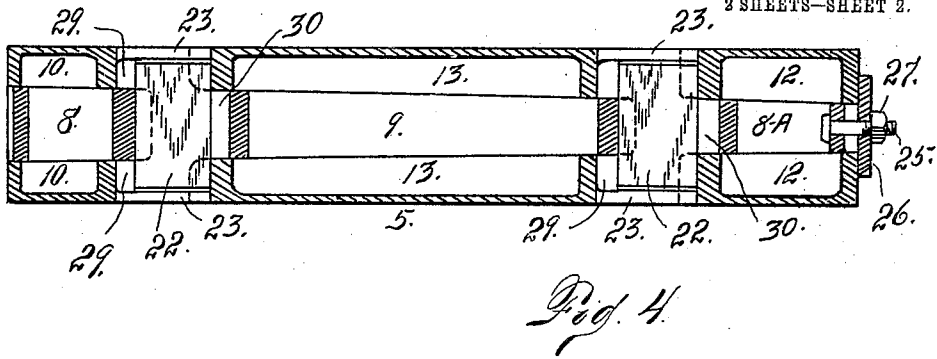
Inventor
Geo. E. Hall
By J. O'Brien.
Attorney

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2 SHEETS—SHEET 2.



Witnesses
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J. W. Thornburgh

Inventor
Geo. E. Hall
By *A. J. O'Brien*
Attorney

UNITED STATES PATENT OFFICE.

GEORGE E. HALL, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO GEORGE L. RICE.

RAIL-CUSHION METAL RAILWAY-TIE.

961,071.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed December 8, 1909. Serial No. 532,126.

To all whom it may concern:

Be it known that I, GEORGE E. HALL, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Rail-Cushion Metal Railway-Ties; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates, generally speaking, to improvements in metal railway ties but more specifically to means whereby the rails which are supported by the ties, are directly cushioned by wood or other suitable material, whereby the jar or vibration incident to the passage of trains is practically overcome.

My improved construction, with the exception of the cushion feature, is substantially the same as that set forth in my previous application, Serial Number 508,523, filed July 17th, 1909, allowed Nov. 9th, 1909.

In my present construction I employ cushion blocks which form the direct support for the rails, the said blocks being retained in place by side flanges with which one of the metal members of the tie is provided. These blocks may be made of wood, wood-fiber or any other suitable material that is sufficiently firm for the purpose and which at the same time will relieve the concussion or jar incident to the passage of trains.

It has been found in actual practice that metal alone is too solid and has not the necessary yielding capacity to properly perform the rail supporting function and the object of my present improvement is to overcome the aforesaid difficulty and to this end the invention consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a top plan view of two of my improved ties, showing the rails in place. In the case of one of these ties, the members are shown adjusted for use, while the other tie is shown with

its members in position just previous to the final adjustment of the central wedge-shaped member. Fig. 2 is a section taken on the line 2—2, Fig. 1, viewed in the direction of the arrow. Fig. 3 is a central longitudinal section taken through one of the ties on the line 3—3, Fig. 1. Fig. 4 is a horizontal section taken on the line 4—4, Fig. 2. Fig. 5 is a perspective view showing the central wedge-shaped tie member in detail. Fig. 6 is a similar view, illustrating the main member. Fig. 7 is a fragmentary longitudinal section of one of the ties shown in connection with a rail, the latter being shown in cross section. Fig. 8 is a section taken on the line 8—8, Fig. 7, the rail, however, being shown in side elevation.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the main or body member of the tie and 6 the wedge-shaped or clamping member thereof. The body member of the tie is provided with a centrally located wedge-shaped groove 7, the wedge-shape extending longitudinally of the member, since the inner sides of the tie taper from one extremity toward the other, whereby the planes of these sides approach each other, thus leaving the groove considerably wider at one end of the tie than at the other. This groove, however, is not wedge-shaped from top to bottom and it thus becomes practicable to drop the member 6 into the groove from the top if desired previous to the tightening operation. The groove of the body member is closed at the bottom, which forms a support for the clamping member when the parts are assembled.

In order to save metal and reduce the weight of the tie and also to relieve the rigidity of the structure and diminish concussion or jar, the clamping member of the tie is cored out, forming chambers 8 and 8^a at its opposite extremities and a central chamber 9. For the same purpose the opposite ends of the body member of the tie are cored out from the inside as shown at 10 and 12, while its central portion is also cored out as shown at 13.

Each member of the tie is provided near its opposite ends with rail-base receiving recesses, those of the main member of the tie being designated 14 and 15, while those of the other member are designated 16 and 17. The walls of the recesses of the main

member are straight on one side as shown at 18, while they are under-cut on the opposite side as shown at 19; while the corresponding recesses of the clamping member are straight on one side as shown at 20 and under-cut on the opposite side as shown at 21. The under-cut and vertical walls of the recesses of the two members are, however, oppositely arranged, the under-cut walls 21 of the wedge-shaped member being adapted to engage the base of the rail on one side, while the corresponding under-cut walls 19 of the body member are adapted to receive the opposite side of the base of the rail when the two members are adjusted to lock the rails in place. The rail-base receiving recesses of both members of the tie are made of such depth in my improved construction as to make room for a cushion block 22. For this purpose the recesses of the clamping member extend entirely therethrough in a transverse direction, while these recesses in the body member do not extend transversely therethrough entirely, vertical flanges 23 being left on opposite sides and extending above ledges 24 upon which the opposite ends of the cushion blocks 22 rest. These flanges serve to maintain the cushion blocks in place.

To the smaller extremity of the wedge-shaped member 6 is applied a bolt 25 whose protruding extremity is adapted to pass through an opening formed in a fastening block or washer 26, the bolt having a threaded protruding extremity to which a securing nut 27 is applied.

In using my improved ties, the two members are first placed in the position shown in the lower part of Fig. 1, the member 6 being placed in the central groove of the body member and adjusted therein until the two members occupy the position shown, that is to say with the straight walls of the rail-base receiving recesses of each member alined with the inner extremities of the under-cut walls of the opposite member so that the rails 28 may be set into the recesses of both members and rest on the cushion blocks 22, the said blocks being then in engagement with the straight walls of the body member. When this is done, the member 6 is moved longitudinally until its under-cut walls are caused to engage the base of the rail on one side, while the opposite side of the base of the rail is forced into engagement with the under-cut walls of the recess 8 of the body member or rather the latter is shifted to produce this result, since it is assumed that the rail will remain stationary and that as soon as the clamping member is stopped by the base of the rail, the turning of the nut 27 upon the bolt 25, will force the main member of the tie in a direction to cause its under-cut walls to engage the base of the rail on the opposite side

from the under-cut wall of the clamping member. During this operation the relative position of the cushion block, with reference to the members of the tie is changed, whereby a space 29 is left in the recess of the main member on opposite sides of the clamping member while a similar space 30 is left in the recess of the clamping member, the spaces 29 of the main member being on one side of the cushion block, while the space 30 of the clamping member is on the opposite side of the said block. What takes place may be more easily expressed by stating that the clamping member, during its clamping movement, engages the cushion blocks on one side and shifts the said blocks in the recesses of the main member until the blocks are caused to engage the opposite sides of the recesses of the main member, during which movement the walls of the recesses of the clamping member on the opposite sides of the blocks from where the clamping member engages said blocks, move away from the plane of the adjacent walls of the main member. This position of the parts is well illustrated in Fig. 4 of the drawing, to which reference is hereby made.

From the foregoing description it will be understood that my improved construction is well adapted to relieve concussion or jar, since the solid rigidity of the metal is overcome by the use of the cushion blocks in connection with the coring out of the two metal members, thereby giving a considerable degree of elasticity to the metal members themselves.

Having thus described my invention, what I claim is:

1. A metal railway tie composed of two cooperating members, namely, a body member having a central groove and a clamping member of counterpart shape and adapted to enter the groove of the body member, the clamping member being adjustable in the groove of the body member, the two members having rail-base receiving recesses open at the top and in which are placed cushion blocks whose extremities engage ledges of the body member, the latter having flanges projecting upwardly above the ledges to retain the blocks in place, the latter being in direct engagement with the track rails when the tie is in use.

2. A metal railway tie composed of two cooperating members, namely, a body member having a central groove and a clamping member of counterpart shape and adapted to enter the groove of the body member, the clamping member being adjustable in the groove of the body member, the two members having rail-base receiving recesses open at the top and in which are placed cushion blocks whose extremities engage ledges of the body member, the latter having flanges projecting upwardly above the ledges to re-

tain the blocks in place, the latter being in direct engagement with the track rails when the tie is in use, the walls of the rail-base receiving recesses of the two members above the cushion blocks being under-cut on opposite sides whereby the under-cut walls of one member engage the bases of the walls on one side, while the corresponding walls of the opposite member engage the bases of the rails on the opposite side, and suitable means for securing the tie members in the assembled relation with each other and in interlocking relation with the track rails.

3. A metal railway tie composed of two coöperating members, one member having a groove adapted to receive its coöperating member, the two members having rail-base receiving recesses formed in the top, in the lower portions of which are located cushion blocks upon which the track rails are adapted to rest, one of the members having outer flanges projecting above the bottoms of the blocks to retain the latter in place.

4. A metal railway tie composed of two coöperating members, one member having a groove adapted to receive its coöperating member, the two members having rail-base receiving recesses formed in the top, in the lower portions of which are located cushion blocks upon which the track rails are adapted to rest, one of the members having outer flanges projecting above the bottoms of the blocks to retain the latter in place, the recesses of each member having under-cut walls on one side and vertical walls on the opposite side, the straight and under-cut walls of the two members being arranged in opposing relation.

5. A metal railway tie composed of two coöperating wedge-shaped cored members, one member having a wedge-shaped groove to receive the other member, the two members being adjustable and having rail-base receiving recesses in the lower portions of which are located cushion blocks, the tie

being shaped to secure the blocks against lateral displacement, and suitable means for connecting the two members, whereby they are caused to clamp the base of the rail.

6. A metal railway tie composed of two coöperating members, namely, a body member having a central groove and a clamping member of counterpart shape and adapted to enter the groove of the body member, the clamping member being adjustable in the groove of the body member and the two members having rail-base receiving recesses open at the top, the two members being cored out or chambered on opposite sides as well as intermediate the rail-base receiving recesses, for the purpose set forth.

7. A metal railway tie composed of two coöperating members, namely, a body member having a central groove and a clamping member of counterpart shape and adapted to enter the groove of the body member, the clamping member being adjustable in the groove of the body member and the two members having rail-base receiving recesses open at the top, the two members being cored out or chambered on opposite sides of the rail-base receiving recesses.

8. A metal railway tie composed of two coöperating members, namely, a body member having a central groove and a clamping member of counterpart shape and adapted to enter the groove of the body member, the clamping member being adjustable in the groove of the body member and the two members having rail-base receiving recesses open at the top, the two members being cored out or chambered intermediate the rail-base receiving recesses, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE E. HALL.

Witnesses:

VIRGINIA I. DAVIS,
JESSIE F. HOBART.