J. M. VAIL.

RAIL STAY.

APPLICATION FILED OCT. 30, 1908.

912,334. Patented Feb. 16, 1909.

Fig. 1

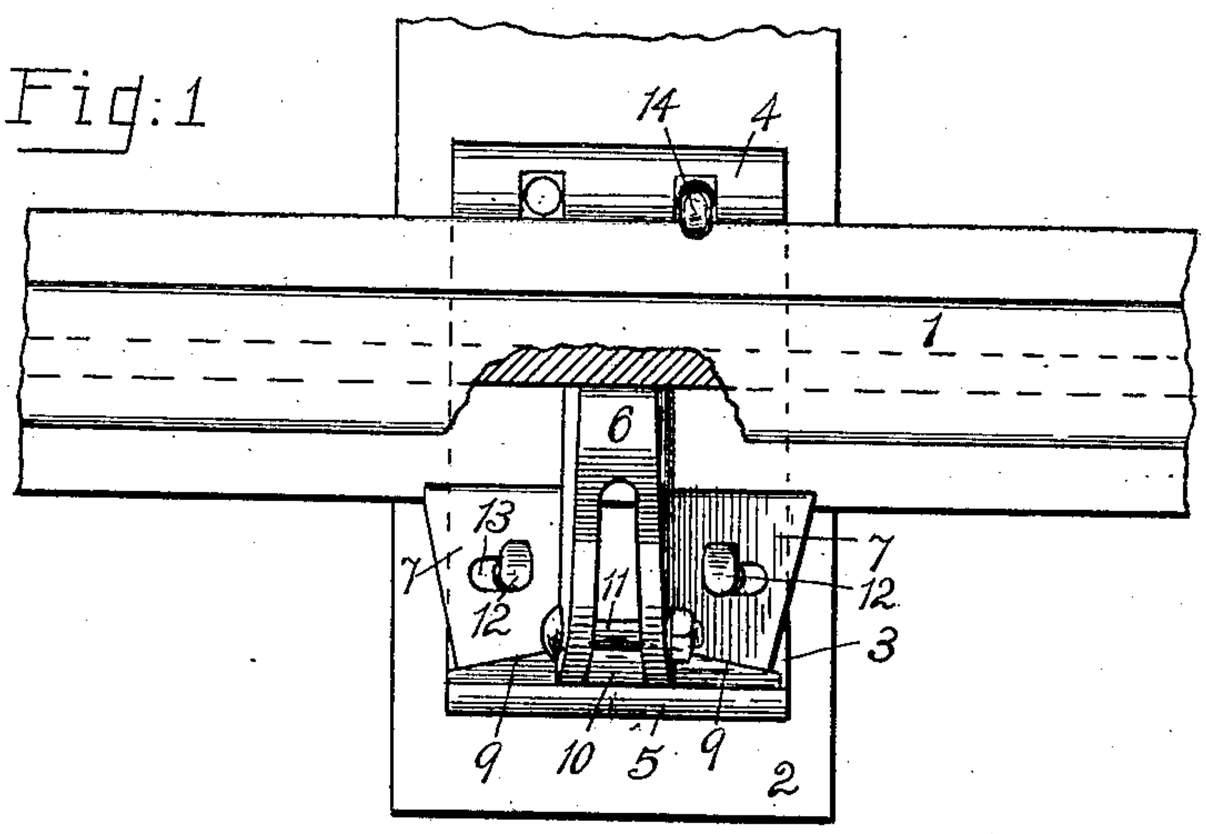


Fig. 2.

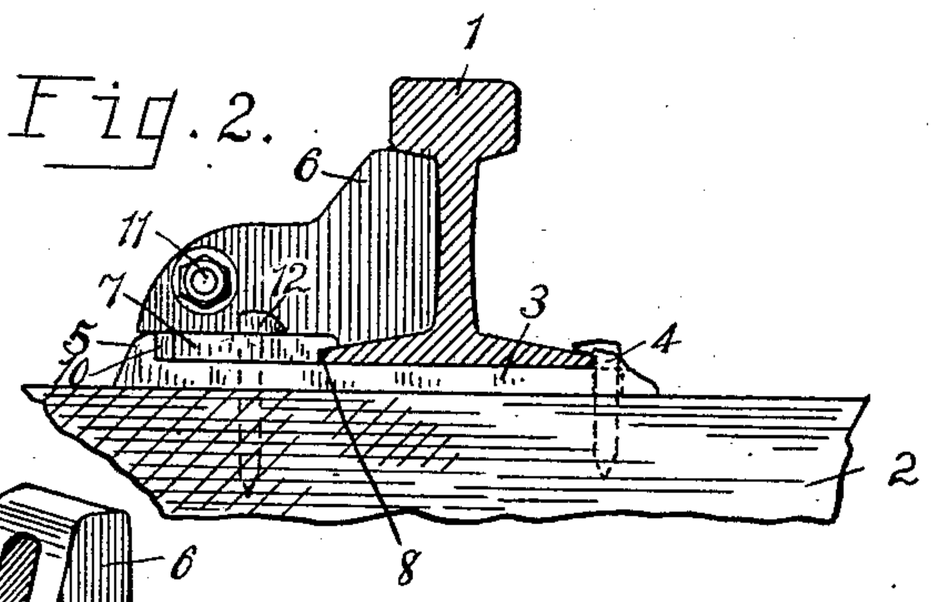


Fig. 3.

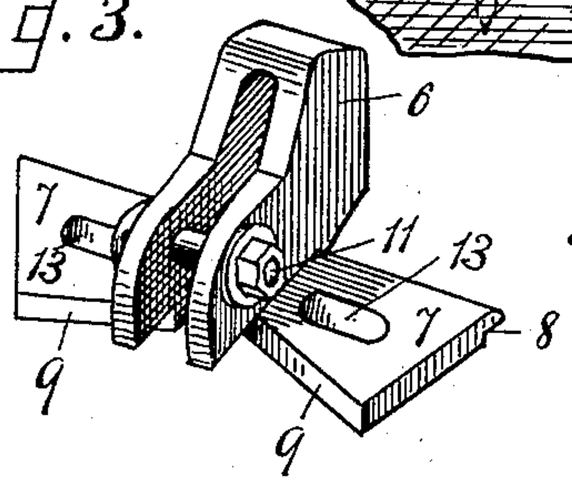


Fig. 4.

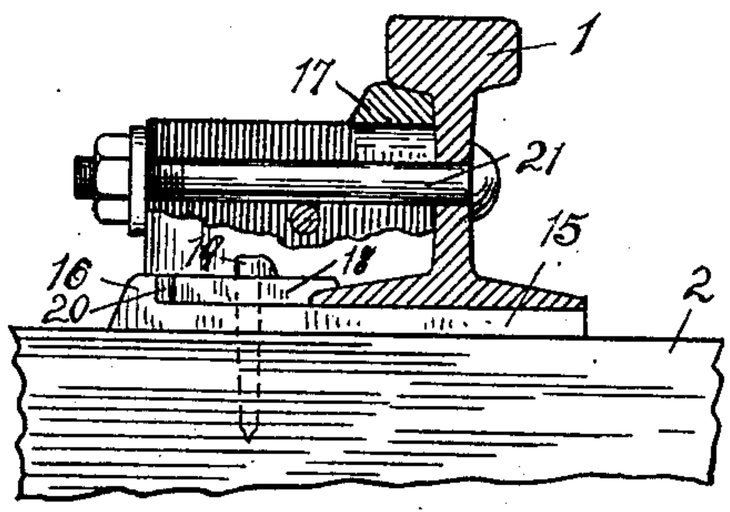
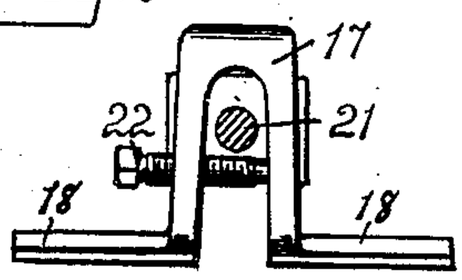


Fig. 5.



WITNESSES.

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RAIL-STAY.

No. 912,334. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed October 30, 1908. Serial No. 460,192.

To all whom it may concern:

Be it known that I, JOSEPH M. VAIL, a citizen of the United States, and a resident of Bryan, in the county of Williams and State of Ohio, have invented a certain new and useful Rail-Stay; and I do hereby 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to devices for use in conjunction with railway rails and the supporting ties therefor to prevent a longitudinal creeping of the rails relative to the ties and to brace the rails against lateral movement.

The object of my invention is the provision, in combination with a tie-plate, of simple, strong, and durable means of this class, which may be used either as a rail-stay or as a rail-brace, or to conjointly perform both of such functions, and which is capable of being easily and quickly applied.

Further objects of my invention, as well as the operation, construction and arrangement of the parts thereof, will be apparent by reference to the following description and to the accompanying drawings, in which,—

Figure 1 is a plan view of a rail and a portion of a supporting tie with the device comprising the features of my invention associated therewith, and with a portion of the rail head broken away. Fig. 2 is a side elevation of the same. Fig. 3 is a perspective view of the rail-clamp and brace. Fig. 4 is a side elevation partly in section of a slightly modified form of my invention in association with a rail and tie, and Fig. 5 is an inner face view of the clamp and brace member shown in Fig. 4.

Referring to the drawings, 1 designates a rail, 2 a tie upon which the rail is supported, and 3 a tie-plate which is interposed between the rail and tie. The tie-plate 3 preferably has its upper face provided at its opposite ends with transversely extending shoulders or lugs 4 and 5, the former of which is intended to abut against one side flange of the rail-base, while the latter is spaced from the opposite flange edge to permit the insertion of rail-clamping means therebetween.

The rail-clamping means of my present invention comprises an inverted U-shaped member 6 which has its legs terminating in oppositely projecting feet or extensions 7 7 which are flat on their under sides to adapt them to rest on the top of a tie-plate. These feet or extensions preferably have their inner edges under-cut, as at 8, to adapt them to abut against and hook over the edge of a rail-base, and have their opposite edges reversely tapered or inclined, relative to the rail-side, as shown at 9. The inclined edges 9 of the feet 7 are intended to coact with correspondingly inclined surfaces provided on the inner face of the lug 5 of the tie-plate or on the inner face of a wedge-key 10, preferably the latter, which key is inserted between the lug 5 and feet 7, as shown, thus causing the feet 7, when moved in opposite directions, to be simultaneously moved to clamp or release the rail-base.

In order to render the feet 7 capable of relative movements laterally of the member 6, such member is preferably made from spring metal so that its legs may be relatively compressed or retracted. It is evident that the spring tension of the legs of the member 6 may be such as to normally tend to move the feet 7 either into or out of clamping engagement with the rail-base, thus making it necessary to only provide a bolt or other suitable means for imparting the reverse action to the legs.

In Figs. 1, 2 and 3 the member 6 has its legs normally sprung outwardly and acted on by a bolt 11 in opposition to the spring tension thereof whereby a relative contraction of the legs by a tightening of the bolt effects a tightening action of the feet or wedge-parts against the contiguous base-flange of the rail. The feet 7 when drawn inwardly to have the proper binding action on the rail are secured to the tie-plate by spikes 12 being passed through slots 13 in the feet and registering holes in the tie-plate and driven into the tie if it be of wood, or the feet may be secured against vertical movement relative to the plate and tie in any other suitable manner. The outer ends of the legs of the member 6 are preferably extended over the key 10, to hold it in position on the tie-plate. When a member 6 is to be used as a rail-brace the inner end thereof is extended over the contiguous base-

flange of the rail to abut against the rail web with its top fitting under the rail-head or tread, as shown, thus providing a simple, strong and durable means for bracing the rail against lateral stresses. For the purpose of both cheapening and lightening the construction of the member 6 its loop or leg connecting portion is cut away except at its inner end as shown. 14 designates spikes which pass through apertures in the inner ends of the tie-plates with their heads in engagement with the rail-base and are anchored in the tie.

In Figs. 4 and 5 is shown a form of my invention in which the tie-plate lugs 4 are eliminated, thus adapting it for use at switches. In this construction 15 designates the tie-plate, which has a lug or shoulder 16 at its outer end; 17 the U-shaped clamping member; 18, 18 the rail-base clamping-feet carried by said member; 19 the spikes which secure the feet 17 to the tie-plate, and 20 the wedge-key, which coacts with the lug 16 and feet 18 in the same manner as in the case of the construction above described. In order to oppose the wedging action of the feet 18 on the rail, which was effected in the first described form by the lugs 4, a bolt 21 is inserted through an opening in the rail-web and the space between the legs of the member 17 and has its head-thrust against the outer side of the rail-web and its nut-thrust against the outer ends of said legs, or vice versa, thus acting to draw the rail and member together. It is now apparent that the spikes 19, which are anchored to the tie, will oppose a tightening of the feet 18 on the rail, due to the strain being communicated thereto from the rail through the bolt 21 and member 17. In this form of my invention I have shown the legs of the clamping-member as being forced apart by a set-screw 22, which is threaded through one leg and bears against the inner face of the other leg, thus adapting the feet to clamp the rail-base by spring action and to be released therefrom by a turning in of the screw.

It is apparent that my invention is not restricted to use in connection with wooden ties, and also that if it is used on ties of metal or concrete construction the use of the tie-plate may be avoided by forming the necessary rail and wedge-key coacting lugs on the tie itself.

I desire it to be understood that my invention is not limited to any specific form or arrangement of the parts except in so far as such limitations are specified in the claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is,—

1. In association with a railway-rail and a supporting-tie, a rail-base clamping-member having relatively movable wedge-parts disposed on the same side of the rail, means coacting with said wedge-parts to cause them to clamp or release the rail-base when moved in opposite directions, and means for imparting opposed movements to said parts.

2. In association with a railway-rail and a supporting-tie, a rail-base clamping-member having yieldingly spaced parts, said parts having the sides thereof opposed to the rail oppositely tapered to form wedge surfaces, means for relatively moving said parts, and means coacting with said parts to cause them to clamp or release the rail-base when moved in opposite directions.

3. In association with a railway-rail and a supporting-tie, an inverted U-shaped member disposed at one side of the rail and having its legs terminating in oppositely projecting feet, said feet having their inner edges adapted to coact with a base-flange or the rail and their outer edges oppositely tapered relative to the rail side, means for effecting a relative movement of said feet, and means fixed against outward movement relative to the rail and adapted to coact with said feet to cause them to engage or disengage the rail when moved in opposite directions.

4. In association with a railway-rail and a supporting-tie, an inverted U-shaped clamping-member having resilient legs which terminate in rail-clamping feet, means for imparting relative movements to the legs, means for securing the said member to the tie, and a wedge-key which is fixed against outward movement relative to the rail and adapted to act on the feet of said member to cause them to clamp the rail when relatively contracted.

5. In association with a railway-rail and a supporting tie, a combined rail-brace and clamping-member having relatively movable parts, means for relatively moving said parts, means for securing said member against vertical movement relative to the rail, and wedge means coacting with the relatively movable parts of said member to cause them when relatively contracted to forcefully bear against the rail-base.

6. In association with a railway-rail and a supporting-tie, rigid means abutting against one side of the rail-base, an inverted U-shaped member having one end abutting against the rail-web and having its legs terminating in oppositely projecting feet which form wedge-blocks, means coacting with the feet to cause them, when oppositely moved, to bind or release the rail-base, means for imparting opposed movements to said feet, and means for securing the member to a tie.

7. In combination, a railway-rail, a supporting-tie, a member having a part for laterally bracing the rail and also having relatively movable wedge-parts for engaging the rail-base, means for oppositely moving said wedge-parts, means for holding the member

to the tie, and means carried by the tie and coacting with the wedge-parts to force them against the rail-base when oppositely moved.

8. A railway-rail stay comprising a plate adapted to underlie a rail-base and having a shoulder for coacting with one side of the rail-base, a member having relatively movable wedge-parts for coacting with the opposite sides of the rail-base, said wedge-parts having their outer edges oppositely tapered relative to the rail side, means for imparting opposite movements to said wedge-parts, means for retaining the said member to the plate, and means at the end of the plate opposed to said shoulder with which said wedge-parts coact whereby, as they are moved in opposite directions, they are either forced against the rail-base or released from engagement therewith.

9. A railway-rail stay comprising a plate adapted to underlie a rail and having a shoulder at one end for coacting with one side of the rail-base, a rail-clamp and member having yieldingly spaced parts, said parts having the sides thereof opposed to the rail oppositely tapered to form wedge-surfaces, means for imparting opposed movements to said parts in opposition to their spring tendency, and wedge means carried by the plate and intended to coöperate with said clamping-parts to cause them when moved in opposite directions to either clamp or release the rail-base in opposition to the plate-shoulder.

10. In a railway-rail stay, a plate adapted to underlie a rail-base and having a shoulder at one end for abutting against a side of the rail-base, a member carried by said plate and having a part adapted to coact with the rail-web to laterally brace the same, and relatively movable wedge-parts to coöperate with said shoulder to clamp the rail-base, means for imparting opposed movements to said wedge-parts, and means carried by the plate for coacting with the outer sides of said wedge-parts to cause them when relatively contracted to clamp the rail-base.

11. A railway-rail stay, comprising a plate adapted to underlie the rail and having a shoulder for coacting with one side of the rail-base, an inverted U-shaped member carried by said plate, said member having one end projected to adapt it to coact with a rail-web to laterally brace the rail and having its legs resilient and terminating in oppositely projecting wedge-parts, the outer edges of which are oppositely tapered relative to the rail-base, means for imparting opposed movements to the legs of said member, and a wedge-key carried by said plate and having oppositely tapered surfaces adapted to coact with the tapered surfaces of the wedge-parts to cause said wedge-parts when relatively contracted to coöperate with the plate-shoulder to clamp the rail-base.

12. In association with a railway-rail and supporting-tie, a tie-plate on which the rail rests, a member carried by the plate and having relatively movable wedge-parts adapted to coöperate with one side of the rail-base, said parts having their outer edges reversely tapered relative to the rail-base, means for imparting opposed movements to said wedge-parts, and means carried by the plate and having tapered surfaces which coact with the tapered surfaces of said wedge-parts to cause them when oppositely moved to forcefully bear against the side of the rail-base.

13. In combination, a railway-rail and supporting-tie, a tie-plate interposed between the rail and tie, a member carried by the plate, said member having a part which projects from the rail-base and coacts with the rail-web to laterally brace the same, and having yieldingly spaced relatively movable wedge-parts for coacting with one side of the rail-base, means for holding the member to the plate, means for imparting spaced movements to said wedge-parts, and a wedge-key carried by the plate and adapted to coact with the outer edges of said wedge-parts to cause them, when oppositely moved, to grip or release the rail-base.

14. In combination, a railway-rail, a supporting-tie, a tie-plate interposed between the rail and tie and having a shoulder at one end for coacting with a side of the rail-base, an inverted U-shaped member carried by said plate, said member having its inner end coacting with the rail-web to laterally brace the same, and having its legs resilient and terminating in oppositely projecting wedge-parts which coact at their inner edges with the rail-base in opposition to said shoulder, means for imparting opposed movements to the legs of said member, means for holding the member to the plate, and means coacting with the outer edges of said wedge-parts to cause them when oppositely moved to either grip or release the rail-base.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH M. VAIL.

Witnesses:
C. W. Owen,
Hazel B. Hiett.