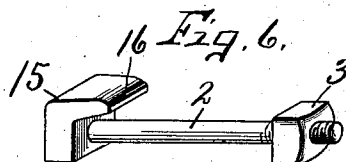
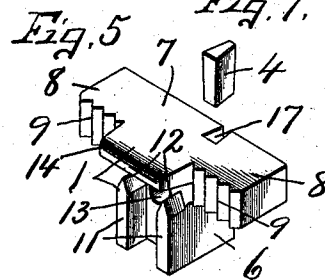
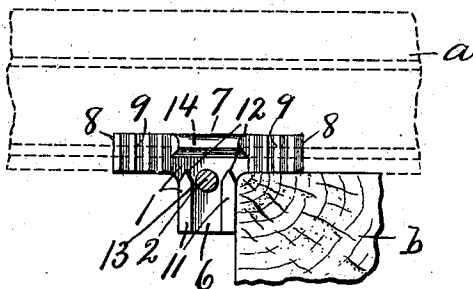
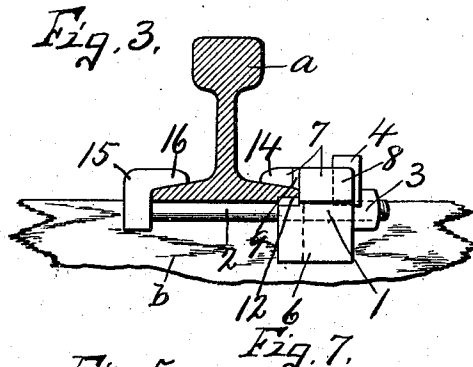
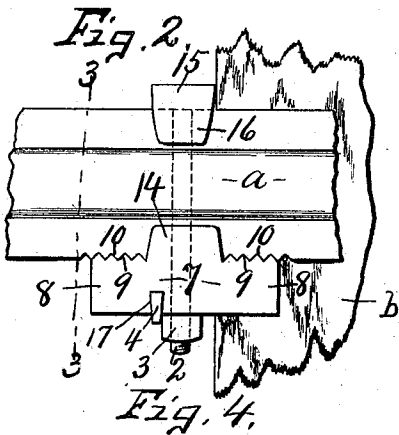
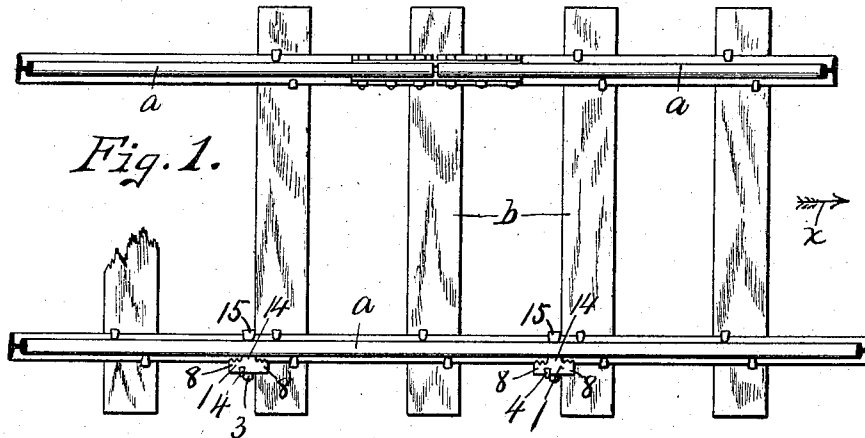


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RAILWAY RAIL STAY.
APPLICATION FILED JAN. 2, 1909.

981,650.

Patented Jan. 17. 1911.



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GEORGE C. HICKS, OF SYRACUSE, AND MICHAEL E. HAGEN, OF UTICA, NEW YORK.

RAILWAY-RAIL STAY.

981,650.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed January 2, 1909. Serial No. 470,384.

To all whom it may concern:

Be it known that we, GEORGE C. HICKS and MICHAEL E. HAGEN, residents of Syracuse and Utica, respectively, in the counties of Onondaga and Oneida, respectively, in the State of New York, have invented new and useful Improvements in Railway-Rail Stays, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in railway rail stays, the object of which is to prevent creeping of the rails.

It is well known that under the present system of fastening rails to the ties by means of spikes, the movement of the heavy rolling stock thereon, causes a perceptible longitudinal movement or creeping of the rails relatively to the ties which in time becomes sufficient to buckle the rails either vertically or transversely which tends to loosen the spikes thereby allowing the rails to spread and resulting in excessive loss of life and property. This creeping of the rails is usually due to their greater or less depression immediately under the wheels so that the train is always riding against greater or less inclines just in advance of the wheels resulting in gradually crowding the rails longitudinally in the direction of movement of the train. This is particularly true on double track systems in which a large majority of the trains move in the same direction thereby causing a more rapid creeping of the rails in such direction.

The purpose, therefore, of our present invention is to reduce this tendency to creep to a minimum and thereby prolong the life of the rails and to increase the safety of transportation.

Other objects and uses will be brought out in the following description.

In the drawings—Figure 1 is a top plan of a portion of a single track system showing our improved rail stay adjusted to resist creeping of such rails in the direction in which the strain is most excessive. Fig. 2 is an enlarged top plan of one of our improved rail stays showing the adjacent portion of the rail and tie. Fig. 3 is a sectional view taken on line 3—3, Fig. 2 showing the rail stay in end elevation. Fig. 4 is an inner face view of the same rail stay showing the rail in dotted lines. Figs. 5, 6 and 7 are perspective views of the stay plate; the clamping bolt and the nut locking key.

In illustrating our invention, —a— represents the rails of a railway track along which the trains are adapted to move tending to cause the rails to creep in the direction indicated by arrow —X—, said rails being supported upon the usual ties —b— and usually break joints with each other.

The rail stays for preventing the creeping of the rails are preferably secured to each rail at points nearly opposite the joint of the opposite rail as best seen in Fig. 1 and preferably abut against the sides of the ties opposite to that toward which the rail tends to creep so as to more firmly lock the rail to the ties. Each of these rail stays comprises essentially what may be termed a stay plate —1—, a clamping bolt —2— and nut —3—, and a nut locking key —4— all of which are formed of suitable metal capable of withstanding the strains to which they are subjected.

The stay plate —1— is made in the form of a T-block having a substantially rectangular base —6— and a head —7— having laterally extending wings —8—, the inner edges of which are serrated at —9— to interlock with similar serrations —10— in the adjacent edges of the base flanges of the rail —a— as best seen in Fig. 2.

The base —6— is provided on its inner face with upright ribs —11— spaced a sufficient distance apart to receive between them the bolt —2— and having their upper ends terminating in knife edges —12— which are chilled or hardened and adapted to embed themselves into the under side of the base of the rail as the stay plate or T-block is drawn into operative position by the clamping bolt —2— which is passed through an aperture —13— in the base —6— between the ribs —11— in a manner hereinafter more fully described.

The head —7— is provided with an inwardly projecting tongue or flange —14— overhanging the upper ends or knife edges —12— of the ribs —11— and spaced apart a sufficient distance therefrom to receive the outer edge of one of the base flanges of the rail —a—, the lower face of the tongue or flange —14— being beveled to conform to the incline of the upper face of the base flange of the rail as best seen in Fig. 3. It is, therefore, evident that a recess is formed between the upper ends of the ribs —11— and lower face of the flange —14—, the distance between the base of the flange —14—

at its junction with the head —7— and knife edges —12— being slightly less than the thickness of the adjacent portion of the rail flange so as to cause the knife edges —12— to embed themselves into the under face of the rail when the rail stay is adjusted for use. In order that this latter object may be effectively carried out, the knife edges —12— project above the upper side of the aperture —13— and slightly above the bottom face of the wings —8—, one of which latter is adapted to rest upon the adjacent tie to more effectively resist any torsional strains to which the rail stay may be subjected, such strains being further resisted by bringing one side of the base —6— against the adjacent upright side of the tie as best seen in Fig. 4.

The clamping bolt —2— is provided at one end with a head —15— terminating at the top in an inwardly extending flange —16— which is spaced apart from the adjacent portion of the shank of the bolt a sufficient distance to easily receive the inner edge of the base flange of the rail —a— while the shank of the bolt lies close to and extends crosswise of the base of the rail and when adjusted for use extends through the aperture —13— of the stay plate —1—, the outer end of the bolt being threaded and engaged by the nut —3— whereby the plate —4— and head —15— of the bolt —2— may be firmly drawn against the opposite edges of the base flange of the rail as shown in Fig. 3.

The head —7— of the stay plate —1— is provided in its outer face with a vertical groove —17— which is dove-tailed in form for receiving the dove tail key —4—. The groove and, therefore, the key —4— are located just at one side of the nut —3— when the latter is adjusted for use for the purpose of engaging the side of the nut and locking it in place against accidental loosening or unscrewing.

The object in fitting the dove-tail key —4— in the dove-tail groove —17— is to lock said key to the stay plate —1— against accidental displacement and at the same time permitting it to be raised and lowered in the slot and entirely removed therefrom if desired.

In adjusting this rail stay for use, the stay plate —1— and head —15— of the bolt —2— are placed in operative position in in-

terlocking engagement with the base flanges of the rail —a—, the base —6— of the plate —1— and lower portion of the head —15— of the bolt —2— being positioned so as to abut against the adjacent upright face of one of the ties while one of the wings —8— rests upon the top face of such tie. When these parts are placed in this position, the threaded end of the bolt —2— extends through the aperture —13— and is engaged by the nut —3—. After the nut is tightened sufficiently, the key —4— is then inserted in the slot —15— and driven downward until it lies alongside of one of the upright sides of the nut to prevent turning of the latter.

As previously stated, the serrated inner edges —9— of the wings —8— interlock with corresponding serrations in the adjacent end of the rail —a—, the latter serrations being impressed therein by a suitable die, not necessary to herein illustrate or describe as this operation is performed at the time of adjusting the rail stay for use.

What we claim is:

1. In combination with the rail and tie of a railway track, a bolt extending transversely under the rail and provided with an integral head engaging one of the rail flanges, a stay plate slidable upon the bolt and engaging the other rail flange, a nut on the bolt for forcing the bolt head and stay plate into engagement with the rail flanges, said stay plate having a vertically disposed dove-tail groove and a dove-tail key slidable in said groove in close proximity to one side of the nut.

2. In combination with a rail and tie, a bolt extending transversely under the rail and provided with a flanged head engaging one of the rail flanges, a stay-plate slidable on the bolt and engaging the other rail flange, said stay-plate having a knife edge wedging against the under side of the adjacent rail flange, and a key slidably interlocked with the stay-plate and engaging said nut to hold the latter against turning.

In witness whereof we have hereunto set our hands this 18th day of December 1908.

GEORGE C. HICKS.
MICHAEL E. HAGEN.

Witnesses:

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M. J. LARKIN.