

A. T. KRAMER.
RAIL BRACE AND FASTENER.
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1,004,441.

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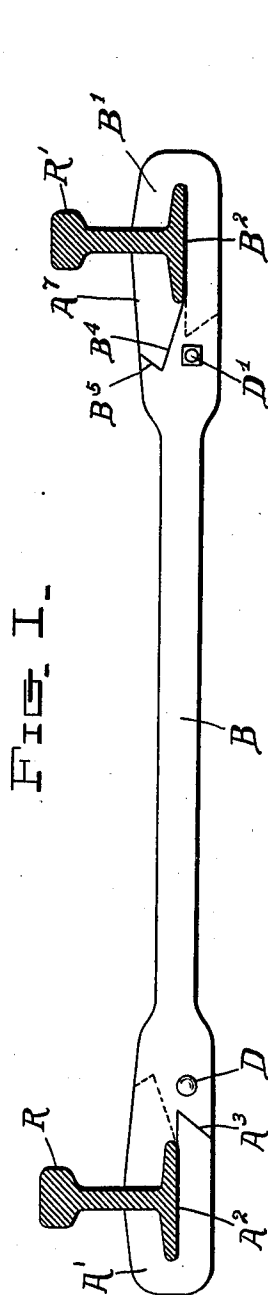


FIG. 1.

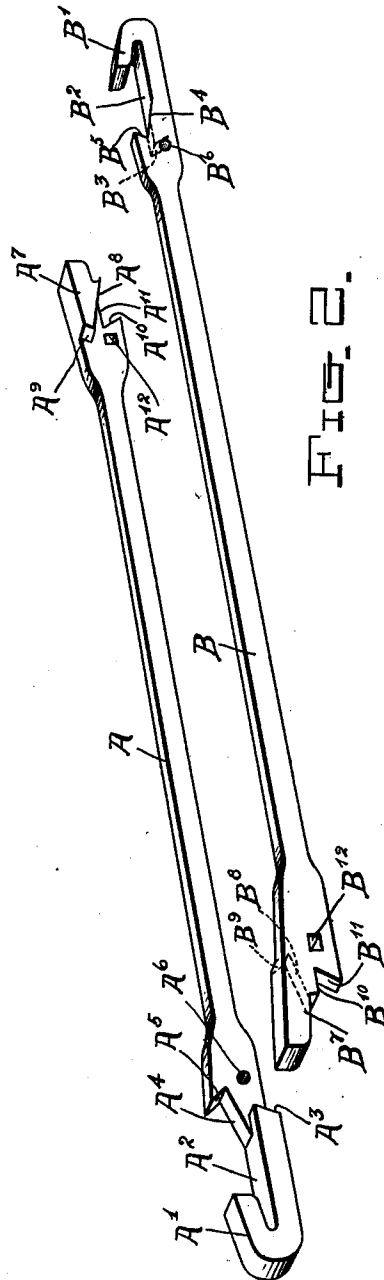


FIG. 2.

Witnesses.

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RAIL BRACE AND FASTENER.

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To all whom it may concern:

Be it known that I, ADAM T. KRAMER, a citizen of the United States, residing at Bluffton, in the county of Ottertail and State of Minnesota, have invented certain new and useful Improvements in Rail Braces and Fasteners, of which the following is a specification.

This invention relates to certain improvements in rail braces for railway rails.

The improvements have special reference to a construction embodying a two-part brace rod or bar wherein each member is a counter-part of the other, and the members are provided with cooperating rail engaging portions, and with interlocking shoulders that permit them to be engaged, or disengaged, by lateral movement, and when engaged the members serve to hold the rails against spreading in a very reliable manner. The interlocking shoulders of the mating members of the brace are so constructed that when the parts are assembled the rails are tightly locked together, and any tendency of the rails to "cant" or tilt due to pressure from the inside is effectively prevented, and all strains in a direction to spread the rails, or to cause them to cant, are resisted by the interlocking shoulders of the brace members, rather than by bolts, or similar fastenings.

The invention also contemplates a novel construction of two-part rail brace, having the features above referred to, and, in which each brace member is formed of a continuous piece and is adapted for connection with its mating member without the use of wedges, or other means to draw the members into longitudinal engagement with the rails.

Other important features will be made to appear more fully in the following description, and will be particularly pointed out in the claims.

Referring to the drawings; Figure 1 represents in side elevation a two-part brace rod or bar, embodying the present invention, in position to engage a pair of rails which are shown in transverse section; and Fig. 2 is a perspective view of the two members of the brace rod or bar in the position they respectively occupy prior to being assembled.

In the embodiment of the invention as herein illustrated the brace bar comprises

the two members A and B, the member A being provided near one end with a support A² to receive the base of a rail R and as a continuation thereof a hook A' which is shaped to fit snugly over and embrace the top of the outside flange of the rail base, the end of the hook A' abutting against the outside of the web of the rail. The rail support A², which is thicker in transverse section than the main or intermediate portion of the member A, terminates inwardly in a beveled shoulder A³ which is offset laterally from the body portion of the member, and the said body portion is provided with a notch formed by the beveled surfaces A⁴, and A⁵, which are arranged at an acute angle to each other, as shown. A bolt hole A⁶ is preferably located in the member A near the notch A⁴, A⁵. At the opposite end of the member A is formed a laterally extending lug A⁷ whose outer extremity is shaped to fit over the edge and top of the inside flange of the base of a rail R' and also to abut against the inside surface of the web of the rail. The lug A⁷ also has an upwardly inclined lower surface A⁸ and an inclined surface A⁹ forming an acute angle therewith. On the lower side of this end of the brace member a notch is formed, having a horizontal surface A¹⁰ and an inclined surface A¹¹, and a square, or other non-circular hole A¹² is formed through the member A to receive a bolt, as will be hereinafter described.

The mating brace section B, which is a counterpart of the section A, has at one end a rail-support B² for the base of the rail R', and as a continuation thereof a hook B' shaped to fit snugly over and embrace the top of the outside flange of the rail base, the end of the hook B', being arranged to abut against the outside web of the rail. The rail support B² is thicker in transverse section than the intermediate or body portion of the member B, and terminates inwardly in a beveled shoulder B³ which is offset laterally from the main body portion of member B, which latter is formed with a notch having beveled surfaces B⁴ and B⁵, arranged at an acute angle to each other. A bolt hole B⁶ is shown as being located near the notch B⁴, B⁵. At its opposite end the member B is formed with a laterally extending lug B⁷ having its outer end shaped to fit the edge and top of the inside

flange of the base of rail R and also to abut against the inside surface of the web of the rail. The lug B⁷ also extends laterally and has an upwardly inclined lower surface B⁸ and an inclined surface B⁹, forming an acute angle therewith. On the lower side of this end of the brace member B a notch is formed having a horizontal surface B¹⁰, and an inclined surface B¹¹, and the member is also provided with a square, or other non-circular hole B¹² to receive a bolt.

In applying my improved brace to the rails the hooked ends A' and B' are first slipped over the outside of the base portions of the rails which will rest upon the supports A² and B², the brace members being preliminarily slightly separated laterally. The members A and B are then moved together, and the parts are so shaped that the extremities of the lugs A⁷ and B⁷ will fit against the base and web of the rails, the shoulders B³ and B⁹ of the member B will fit into the notch A⁴, A⁵, of member A, and the shoulder A³ will fit in the notch B¹⁰, B¹¹, while the shoulders A⁸ and A⁹ of the member A will fit in the notch B⁴, B⁵ of member B, and the shoulder B³ will fit in the notch A¹⁰, A¹¹. Bolts D, and D', having rectangular shanks may now be passed through the alined bolt holes, B¹², A⁶, and the alined bolt holes A¹², B⁶, and nuts applied to the threaded outer ends of the bolts, and turned thereon to firmly clamp the members A and B against lateral separation, the squared portions of the bolts fitting the square openings in the members, and thereby being held against rotation.

From the construction as above described it will be seen that the mating sections of the rail brace are, when assembled, firmly secured to the rails, and to each other, and in such manner that no matter to what extent the rails may tend to spread the pull exerted on the hooks A' and B' will be resisted by the engagement of the shoulders A⁹ and B⁹ of the lugs with the shoulders A⁵ and B⁵ of the notches which are engaged thereby. It will also be seen that any tendency of the rails to approach each other will be likewise resisted by the engagement of the shoulders A⁸ and B⁸, with the shoulders B¹¹ and A¹⁰, so that the members A and B, when assembled as shown in Fig. 1, constitute in effect a rigid tie to hold the two rails against relative movement in either direction transversely of the rails. It will furthermore be seen that any tendency of the rails to "cant" outwardly will be resisted by the interlocked shoulders A⁹, B⁵, when pressure falls upon the lugs A⁷, B⁷, which lie over the upper surface of the inside base flanges of the rails. The brace members are, therefore, rigidly locked against all strains tending to displace the rails from their normal positions, and such strains are

sustained by the interlocking shoulders of the brace, rather than by bolts or other fastenings which are liable to be sheared off. In view of the fact, also, that the brace members lie closely together and present but little width the device is particularly adapted to be applied to rails at curves, and it may be applied at any point and in as great numbers as may be found necessary or desirable, according to the strain upon the rails due to different conditions of the road, and the pressure exerted by the rolling stock on the rails.

Changes in form or in details of construction may be made without departing from the spirit of the invention.

Having described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. A rail brace comprising two mating members, said members having at each end a lateral lug and a notch to engage a notch and a lateral lug of the other member, said notches and lugs being arranged to prevent relative longitudinal movement in opposite directions each of said members being provided with a hook at its outer end and a lug at its inner end to fit over the bases of the rails.

2. A rail brace comprising two mating members, said members having at each end a lateral wedge-shaped lug and a wedge-shaped notch to engage and interlock with like shaped notches and lugs of the other member, said parts being arranged to prevent relative longitudinal movement of the members in opposite directions, each of said members being provided with a hook at its outer end and a lug at its inner end to fit over the bases of the rails.

3. A rail brace comprising a pair of duplicate bars each bar having at one end a rail-engaging hook, a lateral wedge-shaped locking lug and a wedge-shaped notch, and at its opposite end a rail-engaging lug provided with lateral wedge-shaped locking surfaces and a wedge-shaped notch, the locking lugs of each bar being arranged for engagement with and disengagement from the notches of the other bar by lateral movement of the bars.

4. A rail brace comprising a pair of duplicate bars each bar having at one end a rail-engaging hook, a lateral wedge-shaped locking lug and a wedge-shaped notch, and at its opposite end a rail-engaging lug provided with lateral wedge-shaped locking surfaces and a wedge-shaped notch, the locking lugs of each bar being arranged for engagement with and disengagement from the notches of the other bar by lateral movement of the bars, and clamping means for holding said bars against separation.

5. A rail brace comprising a pair of duplicate bars, each bar having at one end a

hook A', a lateral wedge-shaped lug A³, and
a notch A⁴, A⁵, and at its opposite end a
lateral lug A⁷ formed to fit the base of a
rail and having wedge-shaped surfaces A⁸,
5 A⁹, and a notch A¹⁰, A¹¹, the said lugs and
notches being arranged for locking engage-
ment and serving to resist relative longitu-
dinal movement of the bars in opposite di-

rections, and means for holding the bars
against lateral movement when assembled. 10

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

ADAM T. KRAMER.

Witnesses:

JNO. H. MANK,

A. B. HUGHES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
