No. 889,454. PATENTED JUNE 2, 1908.

H. G. GILLMOR.

RAIL JOINT.

APPLICATION FILED NOV. 2, 1906.

FIG. 1.

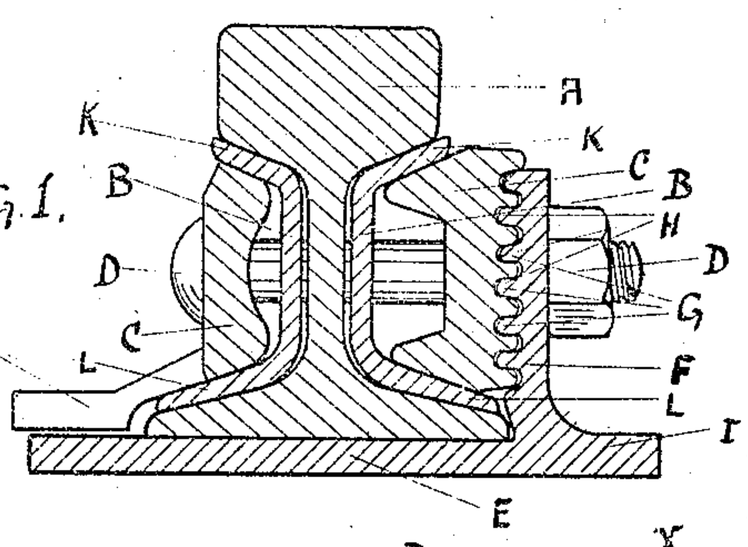
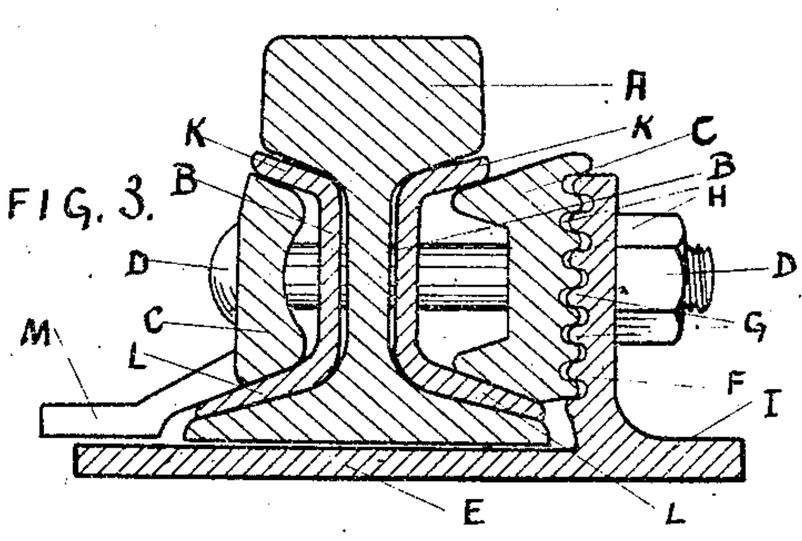


FIG. 3.



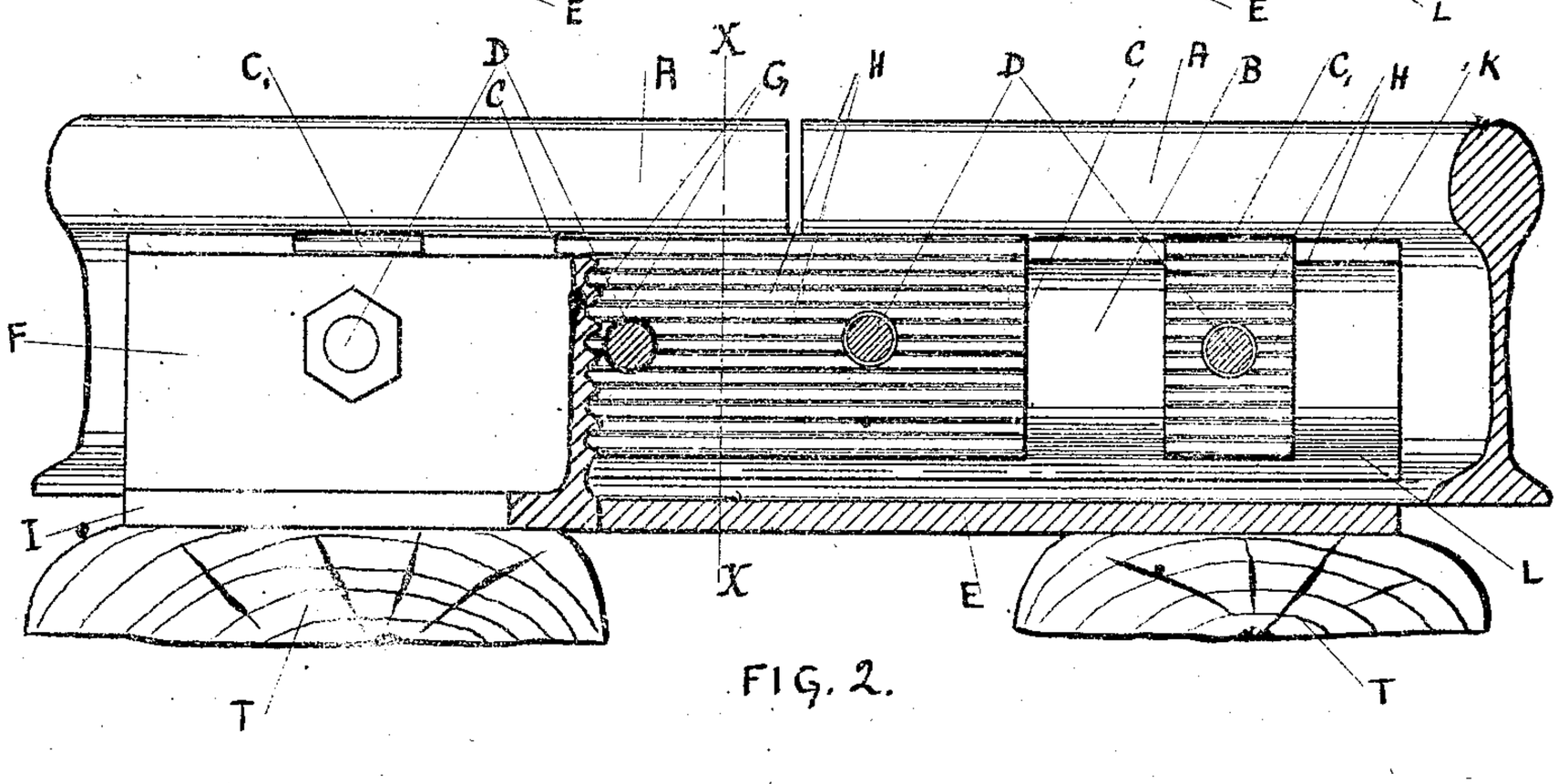


FIG. 2.

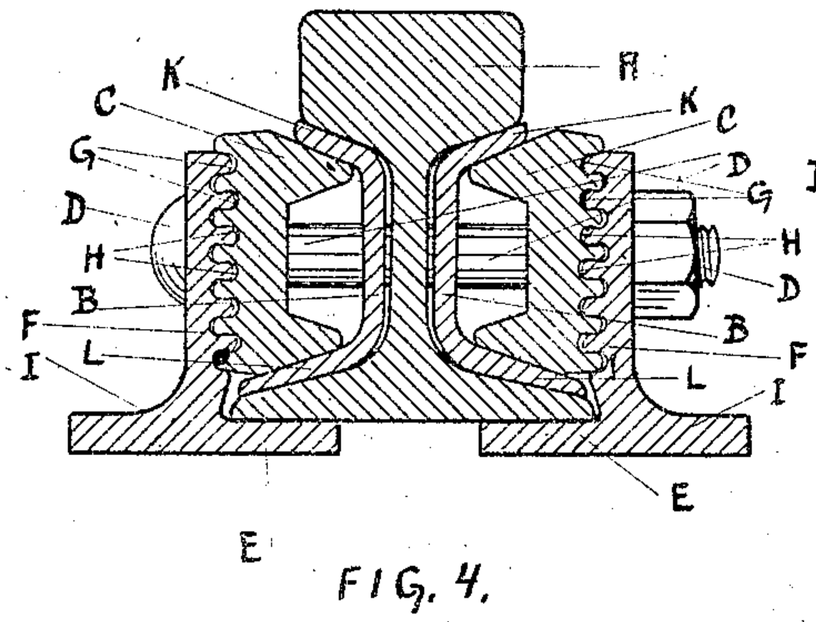


FIG. 4.

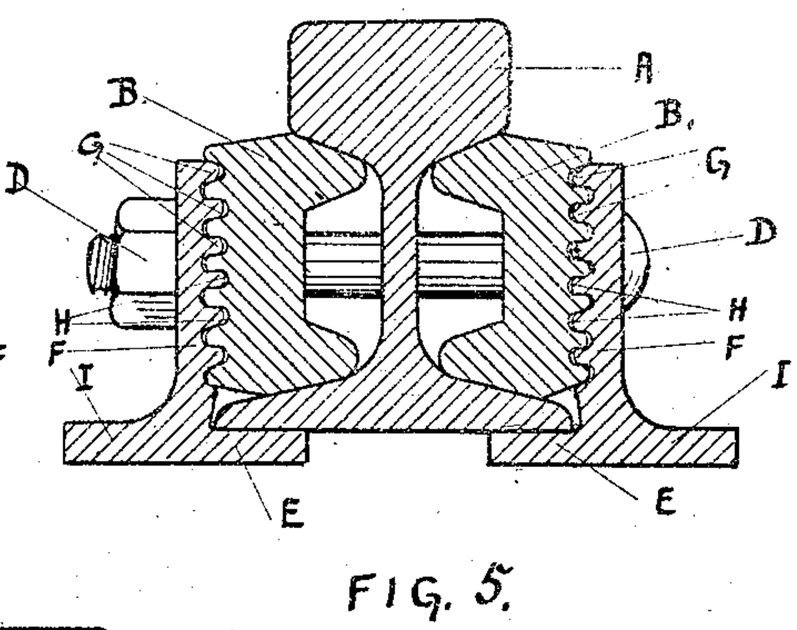


FIG. 5.

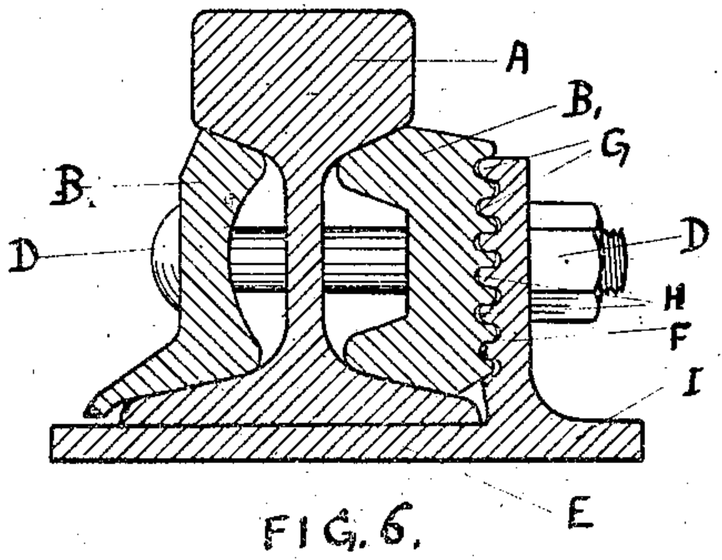


FIG. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

HORATIO G. GILLMOR, OF BATH, MAINE.

RAIL-JOINT.

No. 889,454. Specification of Letters Patent. Patented June 2, 1908.

Application filed November 2, 1906. Serial No. 341,732.

To all whom it may concern:

Be it known that I, HORATIO G. GILLMOR, a citizen of the United States, residing at Bath, in the county of Sagadahoc, State of Maine, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification accompanied by drawings.

This invention relates to rail joints and one of its objects is to so form such joints as to effectually support the rail ends and overcome the tendency to vertical movement of one rail end relative to the other as the wheels pass.

Another object is to increase the area of contact of the parts with the heads and bases of the rails; and to so combine the parts that the stresses will be so distributed among the parts, under all conditions of loading the joint, that each part will take its portion of the working stresses.

Further objects of the invention will hereinafter appear; and, to these ends, the invention consists of a rail joint for carrying out the above objects, embodying the features of construction, combination of elements and arrangement of parts, having the general mode of operation as hereinafter described and claimed in this specification and shown in the accompanying drawings in which:

Figures 1 and 2 are, respectively, a section through the parts at the plane XX and a side elevation, partly in section, of a joint embodying the invention. Fig. 3 is a section of the parts, at the plane XX, showing their relative positions before the parts are fully drawn together by the bolts. Figs. 4, 5 and 6 are sections illustrating modified forms of joints embodying the invention.

Similar letters refer to similar parts throughout the several figures.

A represents the meeting ends of the rails.

B represents fish bars provided with flanges K to engage with the under side of the heads of the rails, and L to engage with the upper surfaces of the bases of the rails.

C represents side bars engaging with the flanges K and L of the fish bars.

E is a chair constructed with an upright F and a fin or flange I.

D represents bolts for drawing together the parts of the joint and securing them in position.

The upright F of the chair E is provided with ribs or serrations G and the side bars C at the corresponding side of the joint are provided with grooves or serrations H adapted to engage with the ribs or serrations on the upright F of the chair.

The bevel of the flanges K and L of the fish bars B is so arranged that, when the fish bars are in place before the parts are fully drawn into position the flange L will contact over a large portion of its lower surface with the upper surfaces of the bases of the rails while the flange K will contact with the under surfaces of the heads of the rails, first at surfaces near the webs of the rails. The side bars C are given such a bevel that when the bolts are tightened and the side bars are drawn into position, the flanges K of the fish bars will be forced upwardly into intimate contact with the under surfaces of the heads of the rails. By constructing the fish bars C in this manner contact of the fish bar flanges with a large portion of the under surfaces of the rail heads is insured even though considerable error may have been made in the bevel of the flanges K and L; the force, with which the bars C are drawn into position, being sufficient to spring the flange K into proper contact with the under surfaces of the heads of the rails.

The interlocking of the ribs or serrations G of the upright F of the chair in the grooves or serrations of the side bar as the bolts are set up, and the movement of the side bar C toward the axial plane of the rails, its surface being in contact with the flange L of the fish bar, draws the chair E slightly vertically; so that, when the bolts are fully set up, the base of the chair E is in contact with the bottom surfaces of the bases of the rails and at the same time the side bar C and the upright F in such firm contact with one another that they together with the fish bar B are virtually one piece for resisting the stresses set up by the wheels as they pass over the joint.

In the drawings the ribs or serrations of the chair and the corresponding grooves or serrations of the side bar are shown formed longitudinally upon the pieces. They might also be formed transversely upon both the chair and the side bar if desired. It will be understood also that the parts may be formed with plane surfaces of contact, instead of forming them as illustrated, the friction of the contact surfaces and the shearing stresses upon the bolts transmitting stresses to the chair from the fish bars.

The stresses to be withstood by such a joint are greatest at the opening between the

rail ends. It is desirable, therefore, that the area of the section of the parts of the joint resisting the stresses set up at this plane should be as great as possible. In the forms of rail joints ordinarily constructed the areas of the sections of the parts are approximately constant. To reduce the amount of material required in forming the joint without reduction in its strength, the side bars C, instead of being carried the whole length of the chair at each side of the axial plane of the rails, are formed as short bars, overlapping the opening in the joint at each side of the axial plane for a sufficient distance to give the necessary strength. In the vicinity of the bolts, beyond the ends of the side bars, there are employed, to form the necessary connections between the fish bars and the chair, short blocks C_1, these blocks being formed with grooves or serrations similar in all respects to the grooves or serrations on the bars C. These blocks at one side of the joint are formed with an arm or flange M provided with one or more spiking apertures to receive the spikes. The chair E is also provided with spiking apertures at both sides of the joint, those at one side being arranged to register with the spiking apertures of the lugs M.

In the form of the joint illustrated in Fig. 4, instead of employing a single chair two chairs are employed each having uprights F with ribs or serrations G adapted to interlock with corresponding grooves or serrations H on the side-bars C as above described.

In Fig. 5 is indicated a modification of the form of joint illustrated in Fig. 4; in which, instead of forming the fish bars and side bars separately as above described, they are combined in one bar B_1, this being formed with grooves or serrations H to engage with corresponding ribs or serrations G in the uprights F of the chairs E.

In the form of the joint illustrated in Fig. 6, a chair similar to that illustrated and described in connection with Figs. 1 to 3, inclusive, is employed with a side bar B_1 (such as illustrated in Fig. 5) at the side of the rails upon which the upright of the chair is, and a fish bar B_2 of the ordinary form is employed at the opposite side of the rails.

Obviously some features of this invention may be used without others and the invention may be embodied in widely varying forms.

Therefore, without limiting the invention to the constructions shown and described, nor enumerating equivalents, what I claim and desire to secure by Letters Patent is:

1. A rail chair formed with a base and an upright having ribs or serrations adapted to engage with similar grooves or serrations of a side bar.

2. A side bar for rail joints having grooves or serrations adapted to engage with the ribs or serrations of an upright of a rail chair.

3. A rail joint comprising the rails; side bars, one of which is formed with grooves or serrations upon its outer surface; a rail chair having a base and an upright with ribs or serrations adapted to engage with the grooves or serrations upon the said side bar; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

4. A rail joint comprising the rails; side bars, each having grooves or serrations upon their outer surfaces; a rail chair at each side of the joint, said chairs each having a base and an upright with ribs or serrations adapted to engage with the grooves or serrations upon the said side bar; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

5. A rail joint comprising the rails, flanged fish bars, a side bar or side bars of less length than the said fish bars constructed to engage with the flanges of a fish bar, one or more blocks engaging with flanges of the fish bar beyond the ends of the side bar or side bars, and bolts and nuts for drawing the parts together and securing them in position, for substantially the purposes set forth.

6. A rail joint comprising the rails; flanged fish bars; a side bar or side bars constructed to engage portions of the edges thereof with surfaces of flanges of a fish bar without contact with the body of said fish bar; a chair having a base and an upright, one side of which bears upon the outside of one of the said side bars; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

7. A rail joint comprising the rails; flanged fish bars; side bars constructed to engage portions of the edges thereof with surfaces of flanges of a fish bar without contact with the body of said fish bar; a rail chair at each side of the joint, each of the said chairs having a base and upright, one side of which bears upon the outside of one side bar; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

8. A rail joint comprising the rails; flanged fish bars; a side bar adapted to engage with the flanges of one of the said fish bars having grooves or serrations upon its outer surface; a rail chair having a base and an upright with ribs or serrations adapted to engage with the grooves or serrations upon the said side bar; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

9. A rail joint comprising the rails; flanged fish bars; side bars, each adapted to engage with the flanges of one fish bar, one of the said side bars having grooves or serrations upon its outer surface; a rail chair having a

base and an upright with ribs or serrations adapted to engage with the grooves or serrations upon one of the said side bars; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

10. A rail joint comprising the rails; flanged fish bars; side bars, each having grooves or serrations upon its outer surface; a rail chair at each side of the rails, said chairs each having a base and an upright with ribs or serrations adapted to engage with the grooves or serrations upon the said side bars; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

11. A rail joint comprising the rails; side bars; a rail chair, of greater length than one of the said side bars, having a base and an upright the inner surface of which bears upon the outer surface of one side bar; one or more blocks each bearing upon the inner surface of the upright of the chair and engaging with another part of the joint; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

12. A rail joint comprising the rails; side bars, one of the said side bars having grooves or serrations upon its outer surface; a rail chair, of greater length than one of the said side bars, having a base and an upright formed with ribs or serrations adapted to engage with the grooves or serrations of the said side bar; one or more blocks adapted to engage with the upright of the chair on one side and with another part of the joint at the other side; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

13. A rail joint comprising the rails; side bars; a rail chair, of greater length than each of the side bars, at each side of the rails, said chairs each having a base and upright each adapted to bear upon the outer surface of one side bar; one or more blocks bearing upon the inner surface of an upright of one chair and engaging with another part of the joint; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

14. A rail joint comprising the rails; side bars, each having grooves or serrations upon its outer surface; a rail chair, of greater length than the said side bars, at each side of the rails, the said chairs each having a base and an upright with ribs or serrations adapted to engage with the grooves or serrations of one of the said side bars; one or more blocks adapted to engage with an upright of one chair at one side and another part of the joint at the other side; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

15. A rail joint comprising the rails; flanged fish bars; a side bar or side bars; a rail chair, of greater length than one of the side bars, having a base and an upright adapted to bear upon the outer surface of one of the said side bars; one or more blocks bearing upon the inner surface of an upright of the chair and engaging with another part of the joint; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

16. A rail joint comprising the rails; flanged fish bars; a side bar or side bars, one of the said side bars having grooves or serrations upon its outer surface; a rail chair, of greater length than one of the said side bars, having a base and an upright with ribs or serrations adapted to engage with the grooves or serrations upon one of the said side bars; one or more blocks adapted to engage with the upright of the chair at one side and with another part of the joint at the other side; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

17. A rail joint comprising the rails; flanged fish bars; side bars; a rail chair, of greater length than the said side bars, at each side of the rails, the said chairs each having a base and an upright the inner surface of which bears upon the outer surface of one of the said side bars; one or more blocks bearing upon the inner surface of the upright of the chair and engaging with another part of the joint; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

18. A rail joint comprising the rails; flanged fish bars; side bars, having grooves or serrations on their outer surfaces; a rail chair, of greater length than the said side bars, at each side of the rails, the said chairs each having a base and an upright with ribs or serrations adapted to engage with the grooves or serrations of the said side bars; one or more blocks adapted to engage with the upright of the chair at one side and with another part of the joint at the other side; and bolts and nuts for drawing the parts together and securing them in position; for substantially the purposes set forth.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

H. G. GILLMOR.

Witnesses:
H. H. BONNEMORT,
H. E. WILLIAMS.