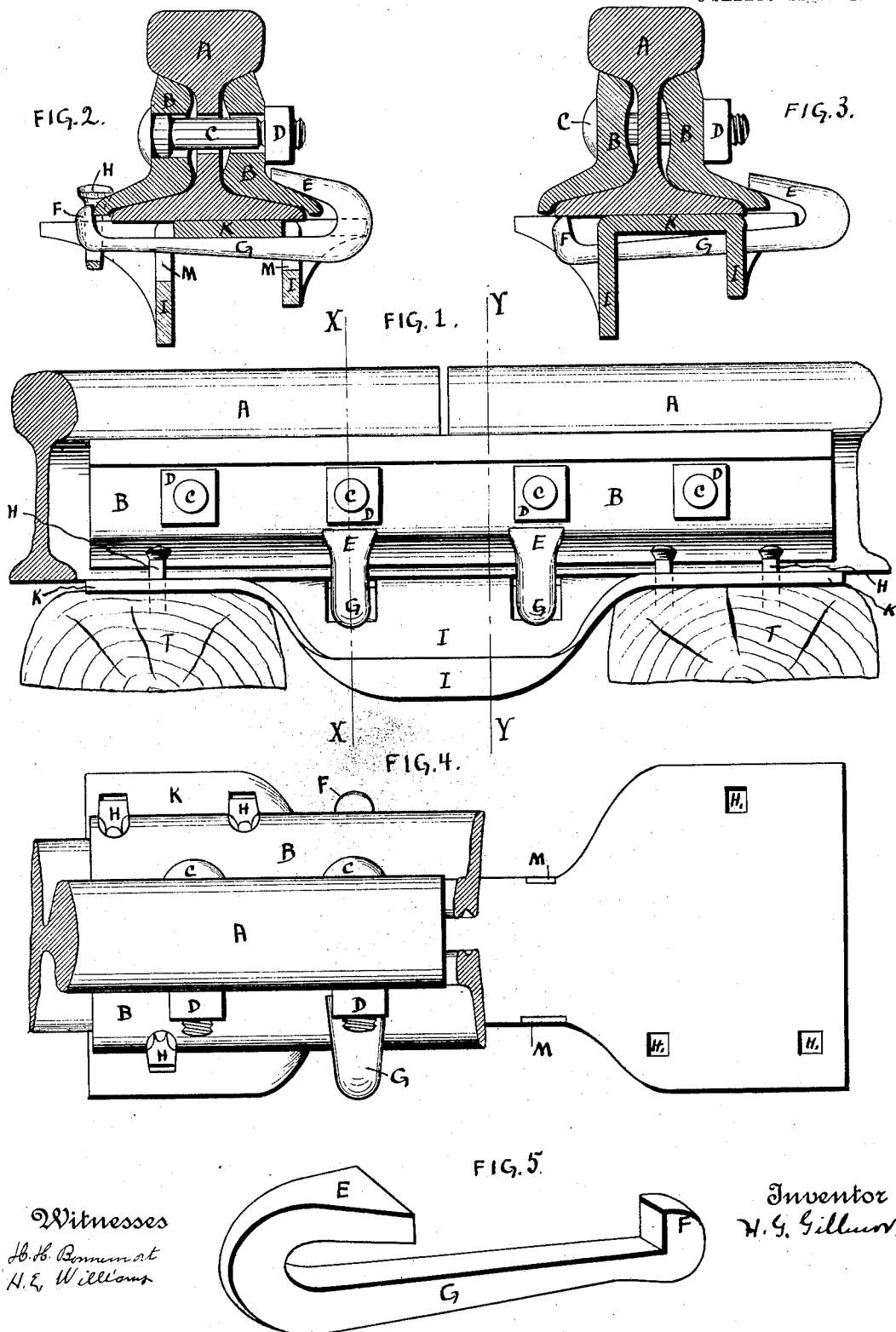


H. G. GILLMOR.
 MEANS OF FORMING JOINTS IN RAILS.
 APPLICATION FILED MAR. 12, 1906.

1,016,621.

Patented Feb. 6, 1912.

2 SHEETS—SHEET 1.



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FIG. 7.

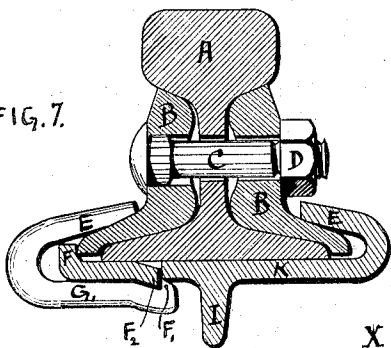


FIG. 8.

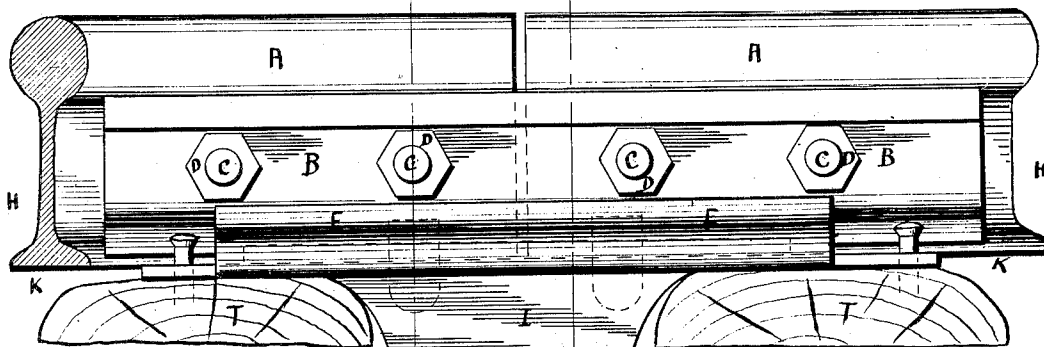
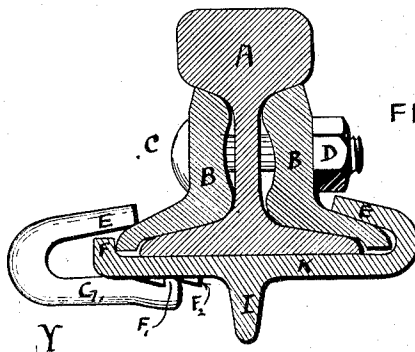


FIG. 6.

FIG. 10.

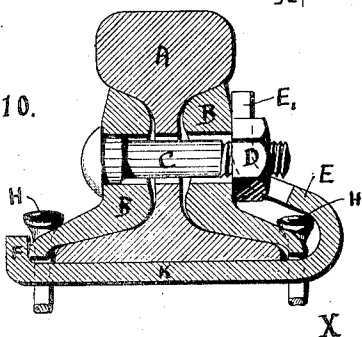


FIG. 11.

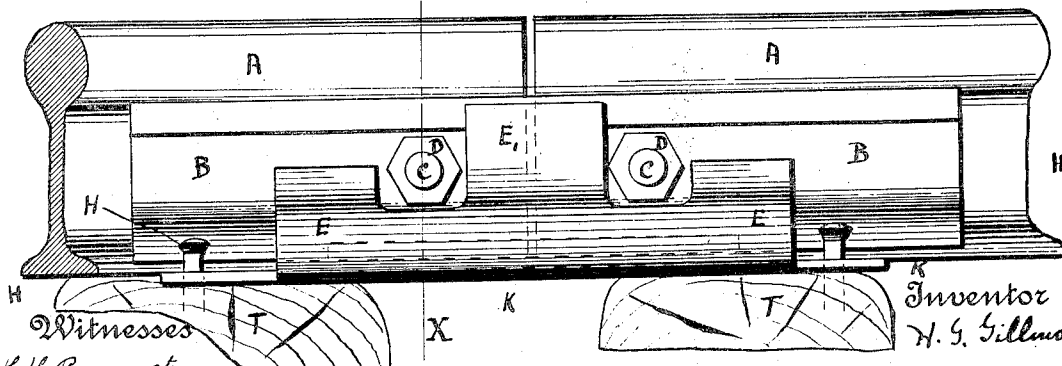
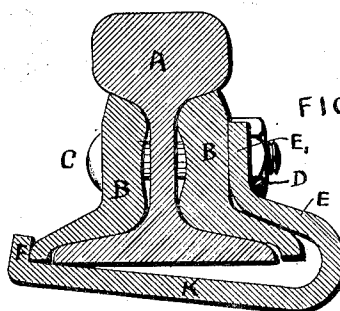


FIG. 9.

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MEANS OF FORMING JOINTS IN RAILS.

1,016,621.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed March 12, 1906. Serial No. 305,688.

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 an Improvement in the Means of Forming Joints in Rails, of which the following is a specification, accompanied by drawings.

My invention relates to railroad rail joints, although the uses of the means employed to form the rail joints are not limited to such joint for my invention may be used in any connection in which it may be found applicable.

One of the objects of my invention is to provide an efficient means of joining rails free from parts liable to work loose after having once been properly placed.

Another object of my invention is to provide such support for the rail ends as to prevent deflections of the rails at the joint under the passage of the train.

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 substantially as hereinafter described and claimed in this specification and shown in the accompanying drawings in which:—

Figure 1 is a side elevation of the rail joint. Fig. 2 is a partial sectional view through the joint at the plane indicated by X X in Fig. 1. Fig. 3 is a section at the plane indicated by Y Y in Fig. 1 showing a dog or clamp being forced into position. Fig. 4 is a plan view of the joint with one rail removed and the fish bars broken. Fig. 5 illustrates the self-locking dog or clamp. Figs. 6 and 7 are, respectively, a side elevation and a partial sectional view at the plane indicated by X X of a modified form of the joint, in which the clamps or dogs are combined with the chair and secondary dogs or clamps are used. Fig. 8 is a sectional view of this modified form of the joint at the plane indicated by Y Y, indicating a position of a secondary dog or clamp when being forced into position. Figs. 9 and 10 are, respectively, a side elevation and a partial sectional view at the plane indicated by X X of another modified form of the joint. Fig. 11 is a sectional view of this modified form of the joint, in-

dicating a position of the chair when being forced to its final position.

Similar letters refer to similar parts throughout the several views.

A represents the rails and B the fish bars secured with bolts C and nuts D. The rail ends rest upon a chair K, which is stiffened by ribs or flanges I, and self-locking dogs or clamps G, which traverse the ribs or flanges of the chair and are constructed with an arm E and a locking catch F, and clamp the rails rigidly between the chair base and the fish bar; while, at the same time, the engagement of the arm E of the clamp with one fish bar and the catch F with the other fish bar, exert upon these forces which would retain them in position even if the bolts were broken or removed; and prevent slackening of the nuts D on the bolts C.

The dog or clamp G is formed of resilient material and the arm E is arranged at such an angle to and distance from the body of the dog that the whole requires to be driven to its final position from a position similar to that indicated in Fig. 3; and, while being driven into position, the dog or clamp will yield sufficiently to permit the catch projection F to pass; and, when the proper position is reached, spring into engagement with the fish bar, as illustrated in Fig. 2. In this final position of the dog or clamp, illustrated in Figs. 1, 2 and 4, it exerts forces which cause the chair and fish bar to clamp the rails and the engagement of the catch F with the other fish bar effectually locks G in position so that G would hold the fish bars in place even though the bolts were removed or broken.

In the final position of G, as illustrated in the figures, the arm E occupies such a position with respect to the nut D as to prevent any movement of this latter with respect to the bolt C beyond that necessary to bring the nut D into contact with E at some point and so effectually prevents slackening of the nut upon the bolt.

It will be obvious from the figures that the dog or clamp G may be formed to be used without the chair for the purpose of locking the nuts upon the bolts and clamping the fish bars in position. It will be understood also that it might equally be employed for the attachment of electrical bonds or for other purposes.

The chair K may be made in a great va-

riety of forms. In the form illustrated in Figs. 1 to 4, inclusive, it is made from a plate, the end portions of which, resting upon the ties T, are left flat to provide large surfaces for contact with the ties; and provided with spiking apertures H, designed to register with notches in the fish bars, so that spikes H of the usual type engaging with the notches in the fish bars may be driven through the spiking apertures into the ties and effectually secure the whole to the ties and provide against "creeping". The edges of the plate between the ties are bent downward, as illustrated, to form two ribs or flanges I and greatly stiffen the chair and increase its resistance to deflection of the joint. The apertures M for the dogs or clamps G may conveniently be formed in the flat plate, by punching or otherwise, before the edges are turned over to form the ribs.

While, in Figs. 1 to 4, inclusive, the dogs or clamps are shown driven from the same side, it will be understood that they might equally be driven from opposite sides to produce a clamping of the rails between the chair and fish bars at both sides of the rails.

In Figs. 6, 7 and 8 a joint substantially like that described above is illustrated but the dogs or clamps are here combined with the chair and secondary dogs or clamps G₁ are employed to clamp one side of the rail flanges between the chair and the fish bar. The dogs or clamps G₁ are here entirely similar to the dogs or clamps G in Figs. 1 to 5, inclusive, and are driven into position in the same manner. To lock G₁ in position there is a catch F₁ (here formed with its point about in the line with the top of G₁) and the chair is formed with the projection F₂ suitably situated so that as the clamp G₁ is forced to its final position F₁ and F₂ spring into engagement and lock G₁ in position.

In the form of joint illustrated in Figs. 9 to 11, inclusive, the clamp and chair are formed together and the arm E is extended and turned upward as in E₁ in the figures. The chair so formed can be placed in the position illustrated in Fig. 11 with the catch F engaging with the edge of one fish bar and E₁ in contact with the opposite fish bar. When K is forced upward from the position shown in Fig. 11 to its final position, as shown in Fig. 10, it will pivot about the contact of F with the edge of the fish bar; and E₁ will be forced against the opposite bar, the resilience of the materials employed permitting the parts to spring sufficiently to reach their final position; and, in such final position, forces are exerted by the chair upon the fish bars to bring them more intimately into contact with the rails and exercise a continuing pressure upon them to retain them in such contact; and, at the same time, the relative positions of E and E₁

and the nuts D are such as to prevent slackening of the nuts on the bolts. Dogs or clamps (not shown in the figures) similar to the dogs or clamps G₁, shown in Figs. 6 to 8 are driven into position at the side of the rails opposite to the flange E to serve the purpose described when referring to Figs. 6 and 8.

It will be readily understood that instead of forming these clamps with the chair they might equally be formed separately and provided with suitable means for retaining them in their final position.

In the illustrations the catch projections are shown engaging with the projecting flanges of the fish bars.

It will be understood that fish bars of any other form than that shown in the figures might be employed; and that the dogs or clamps and the chairs might be arranged to have the catch projections engage at one side of the rails with the edges of the rail bases, instead of engaging with the flanges of the fish bars.

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 construction shown and described nor enumerating equivalents, I claim and desire to secure by Letters Patent the following:—

1. A self-locking clamp constructed with a body, an arm overturned at an acute angle to said body, and a part carried by said body, adapted automatically to lock said clamp when driven into position by engaging with surfaces of an object in connection with which said clamp may be used, substantially as described.

2. An automatically locking clamp comprising; two jaws, of unequal length, adapted to engage with surfaces of other bodies to exert pressure thereon; the longer of the said jaws being provided with means adapted, automatically, to engage, when the said clamp is forced into position, with surfaces of a body, in connection with which the clamp may be used, in such manner as to lock the said clamp in position, for substantially the purposes set forth.

3. An automatically locking clamp formed of resilient material comprising two jaws formed at an acute angle one to the other, one of the said jaws being provided with means adapted, automatically, to engage, when the said clamp is forced into position, with surfaces of a body in connection with which the clamp may be used, in such manner as to lock the said clamp in position, for substantially the purposes set forth.

4. An automatically locking clamp, formed in resilient materials; comprising two jaws, of unequal length, adapted to engage with surfaces of other bodies to exert

pressure thereon; the longer of the said jaws being provided with means adapted to automatically engage; when the said clamp is forced into position, with surfaces of a body, in connection with which the said clamp may be used to lock the same in position, for substantially the purposes set forth.

5 5. A rail joint, including, in combination 10 with the rails a fish bar, and an automatically locking clamp adapted to bear upon the fish bar at one side of the rails, substantially as described.

15 6. A rail joint, including, in combination with the rails, fish-bars, and a self-locking clamp adapted to engage with said fish-bars at opposite sides of the rails and exert pressure thereon, substantially as described.

20 7. The combination in a rail joint of a fish bar and an automatically locking clamp adapted to bear upon said fish bar, substantially as and for the purpose described.

25 8. A rail joint, including, in combination with the rails, a self-locking clamp, substantially as described.

9. The combination of rails and an automatically locking clamp, substantially as described.

30 10. A rail joint, including, in combination with the rails, a plurality of automatically locking clamps.

35 11. A rail joint comprising the rails and fish-bar and a plurality of self-locking clamps, substantially as and for the purposes described.

12. A rail joint, including, in combination with the rails, fish-bars and a plurality of self-locking clamps adapted to exert pressure thereon, substantially as described.

13. The combination of rails, fish-bars 40 and a plurality of automatically locking clamps arranged to press upon said fish-bars, substantially as described.

14. A rail joint, including, in combination with the rails, fish-bars, bolts and nuts securing said fish-bars, and a resilient self-locking clamp constructed to support the rails and exert pressure upon said fish-bars at opposite sides of the rails, substantially as described. 45 50

15. A rail joint comprising the rails, a chair supporting said rails, fish-bars, and an automatically locking clamp arranged to bear upon said fish-bar and chair, substantially as described. 55

16. A rail joint comprising the rails, fish-bars, portions of which extend beyond edges of the bases of the rails, provided with spiking apertures in said projecting portions, means to prevent longitudinal movement of one rail with respect to the fish-bars, a chair having a base supporting the meeting ends of the rails provided with spiking apertures cooperating with the spiking apertures in said fish-bars, and clamps 60 65 constructed to bear upon surfaces of parts of the joint and engage in locking contact with a part of the joint when forced into position, for substantially the purposes set forth. 70

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.