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Patented Dec. 2, 1902.

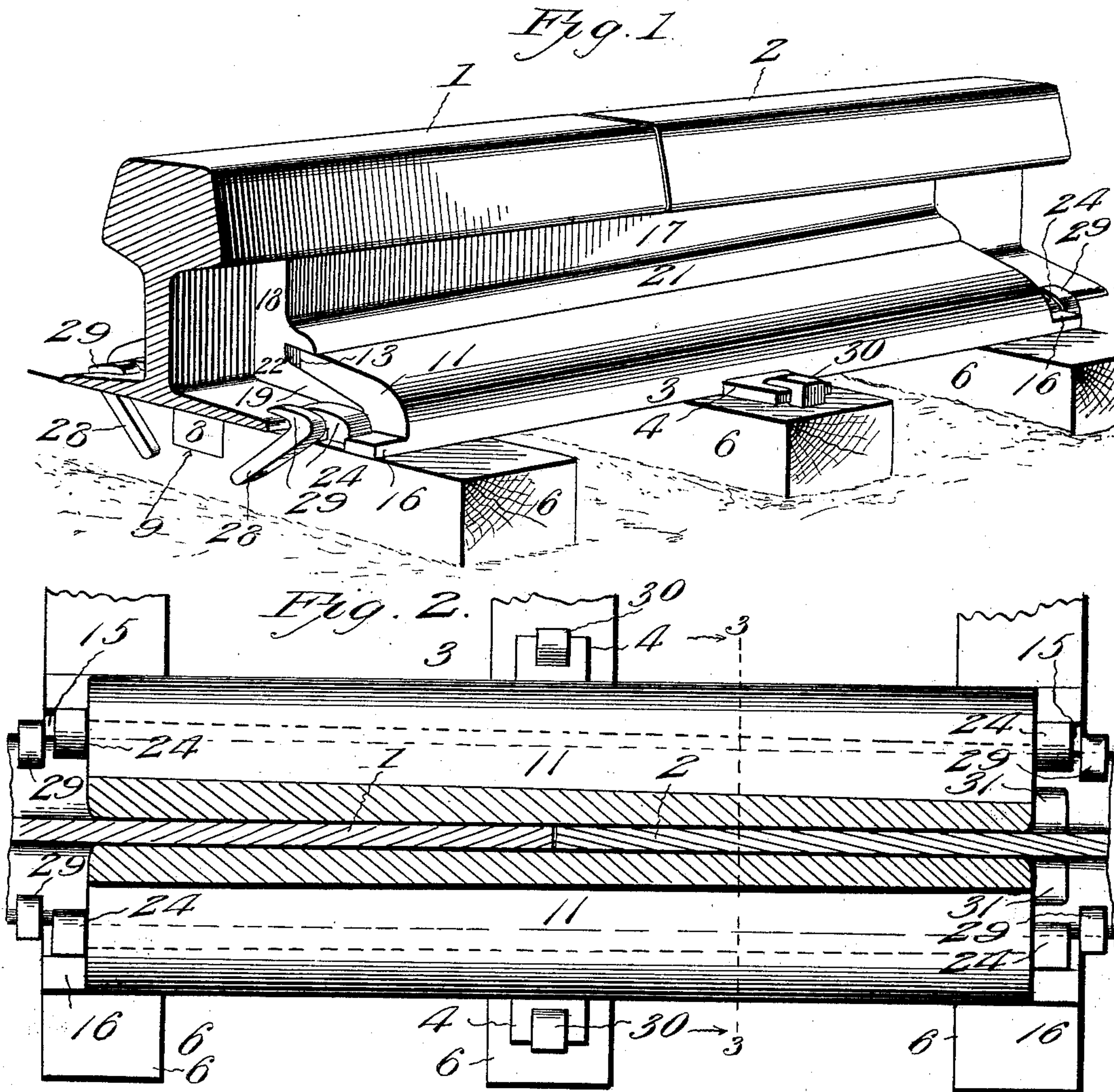
J. PRICE.

RAIL JOINT.

(Application filed Aug. 23, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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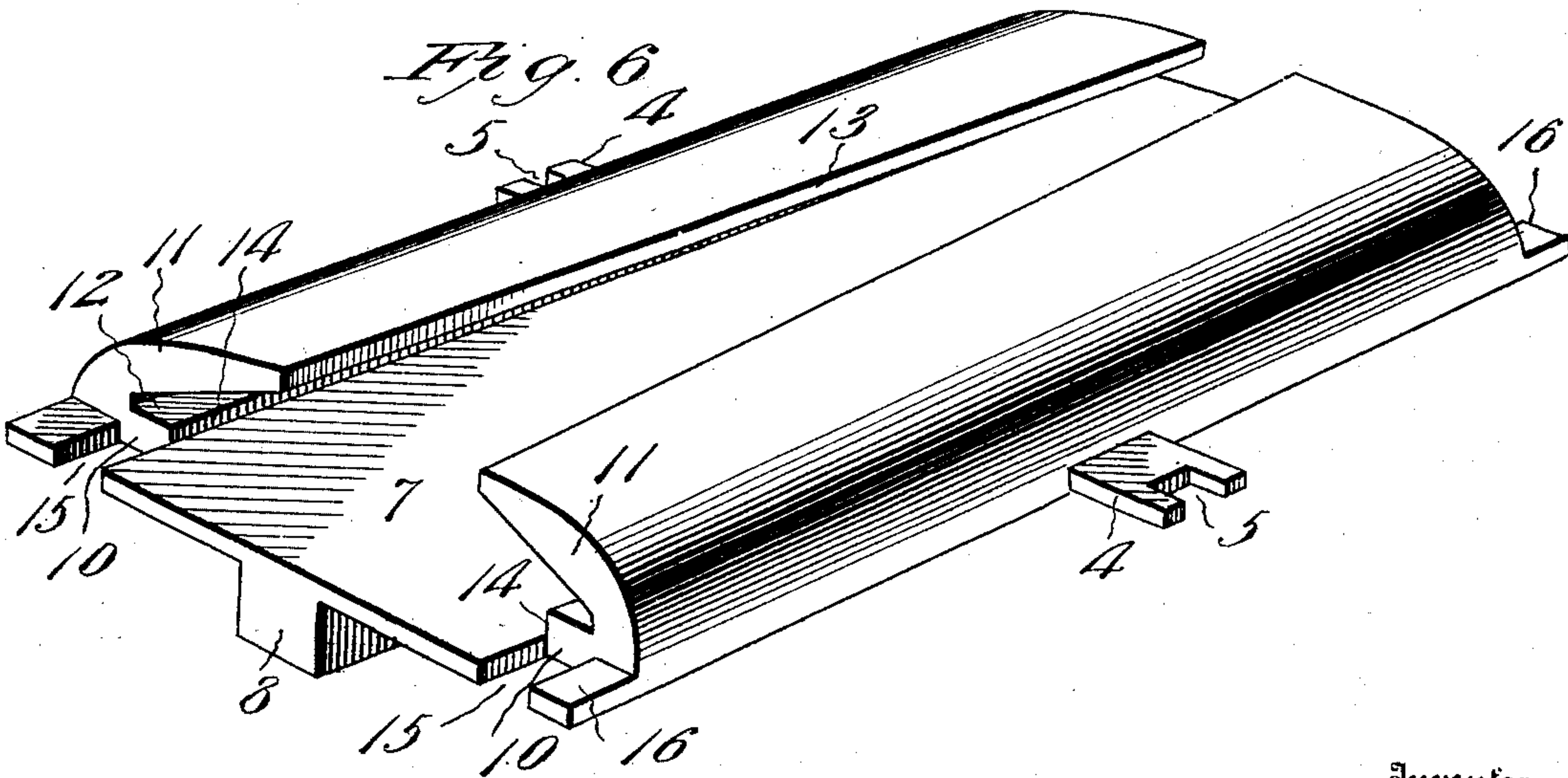
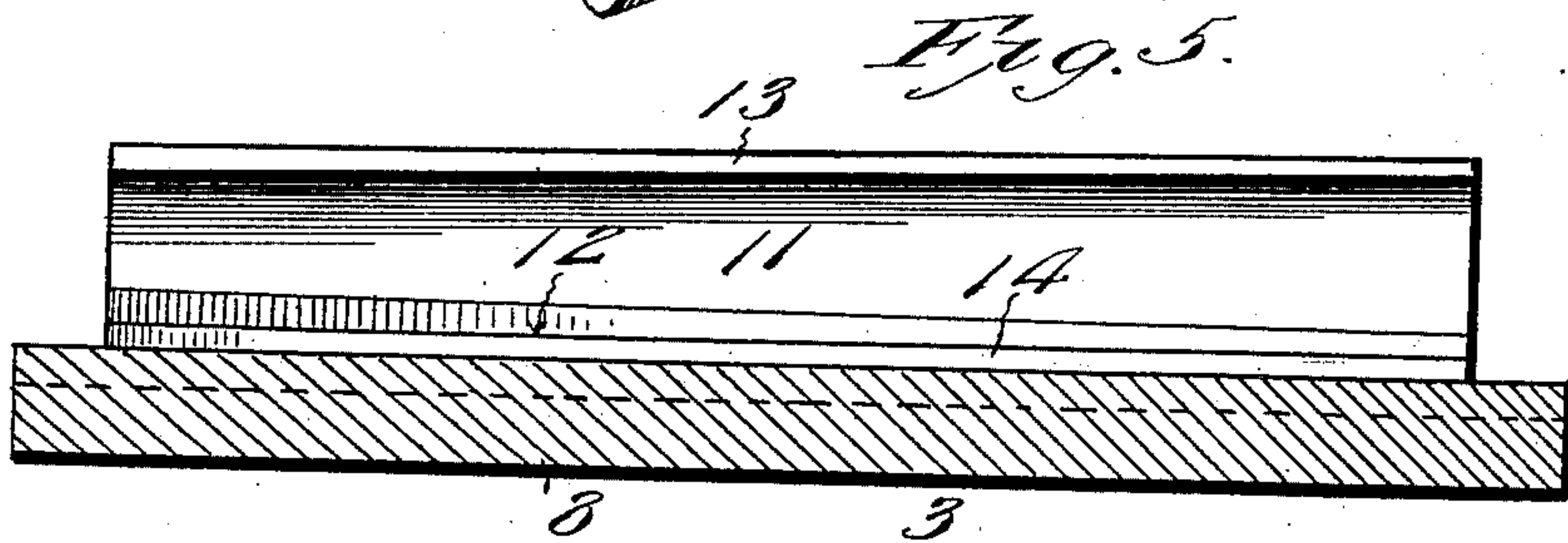
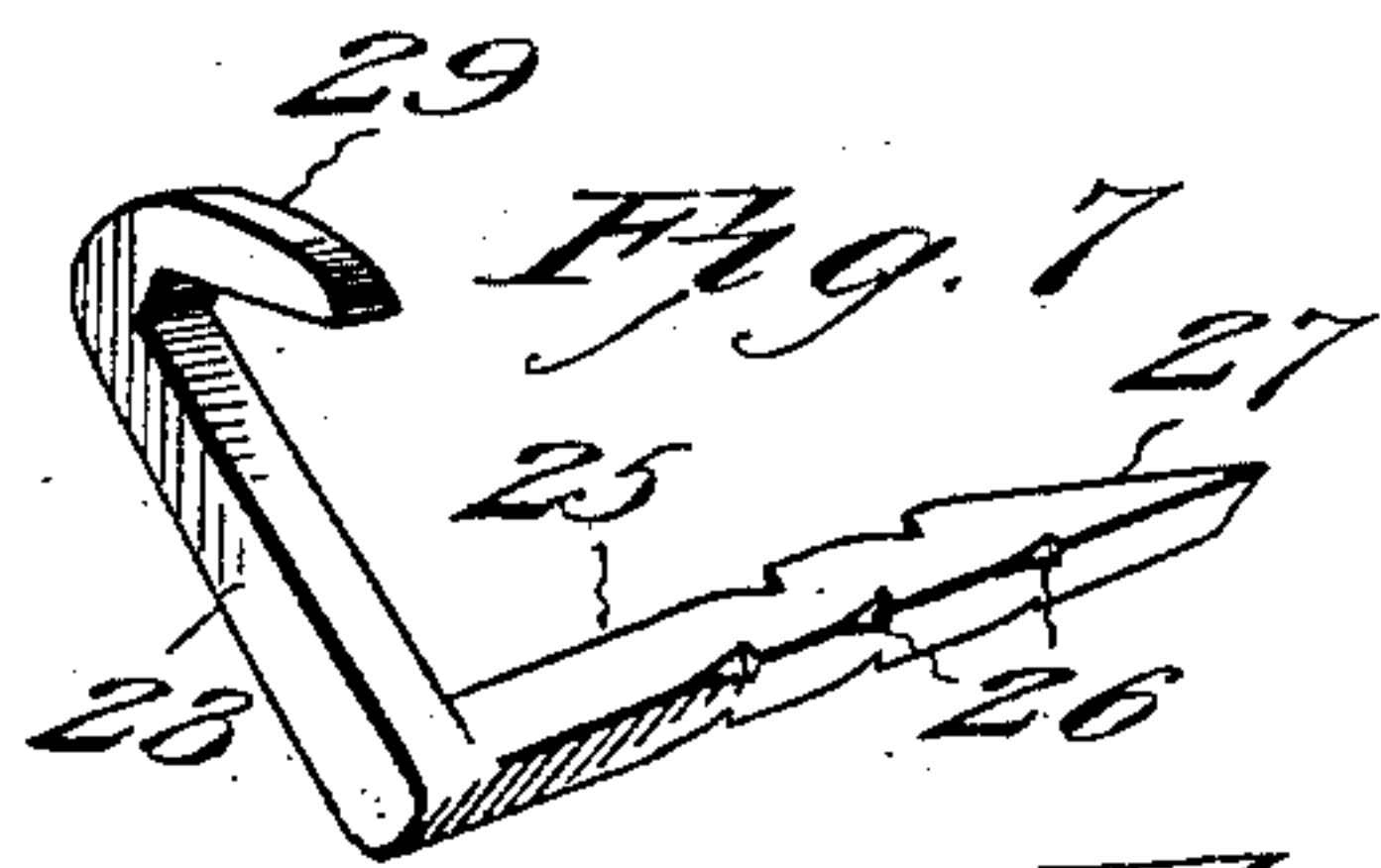
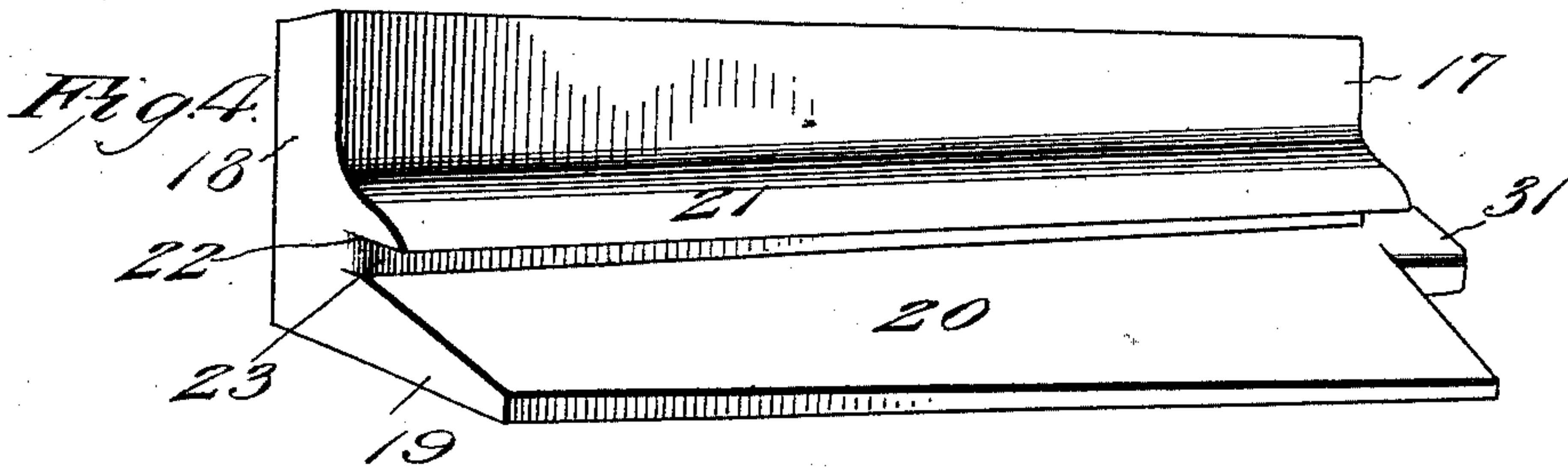
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UNITED STATES PATENT OFFICE.

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RAIL-JOINT

SPECIFICATION forming part of Letters Patent No. 715,143, dated December 2, 1902.

Application filed August 23, 1902. Serial No. 120,836. (No model.)

To all whom it may concern:

Be it known that I, JOHN PRICE, a citizen of the United States, residing at Lafayette, in the parish of Lafayette and State of Louisiana, have invented new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to railroad-joints, and particularly that class wherein the use of fish-plates and connecting-bolts are dispensed with; and the purpose of the present construction is to provide a simple and effective organization of contributing elements which bind closely against the opposite portions of rail-sections to prevent the latter from having sidewise or lateral shifting movement as well as obstruct any tendency toward downwardly-sagging movement, the several parts being firmly supported on the ties and interlocking by a wedging action. The improved joint materially reduces wear on car-wheels and avoids accidents due to derailments through spreading of the rails, and the parts thereof can be quickly assembled and have a strong and durable nature.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of portions of rail-sections contermiously arranged and showing the improved joint devices applied in operative relation thereto. Fig. 2 is a horizontal section taken in the plane of the line 2 2, Fig. 3. Fig. 3 is a transverse vertical section on the line 3 3, Fig. 2. Fig. 4 is a detail perspective view of one of the clamping members. Fig. 5 is a longitudinal vertical section through the center of the chair-plate. Fig. 6 is a detail perspective view of the chair-plate. Fig. 7 is a detail perspective view of one of the terminal angular holding-spikes.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numerals 1 and 2 designate rail-sections having their ends abutted, as in ordinary railroad construction or the methods usually pursued in laying railroad-rails. The improved joint organization includes a chair-plate 3, having opposite horizontally-disposed

securing-tongues 4 with slots 5 therein to receive ordinary railroad-spikes, whereby the plate may be firmly attached to the ties 6. 55 The plate 3 is preferably made long enough to extend over three ties and has a base-plate 7, with a central depending longitudinal rib 8, let into mortises 9, formed in transverse directions in the upper portions of the ties 6, to thereby prevent the chair-plate from slipping sidewise over the ties. At opposite side portions of the base-plate 7 are extensions 10, which are thicker than the base-plate, and each has an upwardly and inwardly projecting flange 11, which is long enough to partially overhang the base-plate below, and between the upper face of each extension and the inner side of each flange a seat-groove 12 is formed. The extensions 10 are made thicker than the base-plate 7 to reinforce and strengthen the flanges, as the clamping strain, as will presently appear, is imposed upon the said flanges. As clearly shown by Fig. 6, the inner opposing free edges 13 of the flanges 11 converge toward each other from one end of the plate completely to the other end, each of said edges being regularly straight. The increased thickness of the extensions 10 also forms shoulders 14 in relation to the upper surface of the base-plate, and the distance between the said shoulders in a transverse direction is such as to permit the base-flange of the rail-sections to be easily inserted therebetween, so that the opposite side edges of the said rail-flange will lie in close engagement with the said shoulders, and thereby prevent the flange of the rail from shifting laterally and also depress the opposite side edges thereof far enough below the upper faces of the extensions to permit the insertion of clamping members, which will be hereinafter set forth. At opposite ends of the plate spike-slots 15 are formed, and the extensions 10 and flanges 11 at opposite ends of the chair-plate form the inner walls for the said slots and are located at a distance inwardly from the base-plate 7, guards 16 extending longitudinally from the extensions and of the same thickness as the base-plate to provide for the outer walls of the said slots 16 and form supports for the heads of spike devices, which will be hereinafter specified. 100

The improved joint organization also includes a pair of clamping members 17, each having an upstanding web-engaging flange 18 and a lower foot or base flange 19 at an angle to the flange 18 and having an upper downwardly and outwardly inclined surface 20. At a suitable distance above the point of intersection of the upper surface of the flange 19 with the outer surface of the flange 18 a binding-rib 21 extends longitudinally over the flange 18 and has an under horizontally-straight surface 22. The under surface of the foot or base flange 19 and the inner surface of the web-flange 18 are each straight and precisely at right angles or approximately at right angles to each other, and the groove 23, formed between the rib 21 and the foot-flange or base-flange 19, has its inner vertical terminal wall formed in a regularly-inclined plane and straight from end to end, the plane of this wall being such that when both clamping members are in operative relation to the base-plate the combined inclination of the rear walls of the grooves 23 will be reverse to the inclinations of the inner free edges 13 of the flanges 11 of the chair-plate. The height of the web-flange 18 is just equal to the distance between the upper surface of the base-flange of the railroad-rail and the under outer terminal of the head of said rail, or, in other words, it is equal to the vertical extent of the rail-web, and the width of the foot or base flange 19 is equal to the distance between the outer surface of the rail-webs and the outer wall of the groove 12, and said base or foot flange of each clamping member is movable over the opposite side portions of the rail-flanges.

To secure the chair-plate in place and prevent longitudinal movement thereof over the ties, ordinary spikes 24 are employed and inserted through the spike-slots 15, the flanges of the heads of said spikes bearing upon opposite portions of the rail-flanges, as clearly shown by Fig. 1, and as additional safeguards to prevent longitudinal movement of the joint elements after they have been applied and which is liable to occur from loosening of the spikes securing the chair in place terminal angular spikes, similar in form to that illustrated in detail by Fig. 7, are employed. Each of these angular spikes comprises a shank 25, having notches 26 therein to form catch-shoulders and a chisel-point 27. Extending from the terminal of the shank 25 opposite that having the chisel-point is a right-angular arm 28, having a hook-shaped head 29 at its free end. These terminal spikes are driven into the outer sides of the ties 6 adjacent to the terminals of the chair-plates in the position shown by Fig. 1, and as the shanks 25 enter the ties they gradually draw downwardly on the arms 28 and cause the hook-shaped heads 29 to firmly impinge or bear upon the base-flanges of the rails. The shanks 25 are driven into the ties 6 at a distance inwardly from the opposite edges of the

base-flanges of the rails, and the heads 29 closely contact with the heads of the spikes 24. The notches 26 prevent the shanks 25 from being easily pulled out of the ties, and it will be observed by the use of the angular spikes, as set forth, both the joint elements and the rails are secured thereby.

In assembling the parts of the rail-joint the chair-plate is first secured to the ties by driving spikes 30 through the tongues 4. The rail-sections are then inserted endwise into the chair-plate and the clamping members are driven longitudinally between the inner free edges 13 of the flanges 11 and the webs of the rails, and for convenience in driving these clamp members or devices striking projections 31 are formed at one end thereof, one on each. It will be seen that when the clamp members are driven into place they become tightly wedged between the flanges 11 and the webs of the rails, and at the same time the base-flanges of the rails are forced closely down against the base-flange of the chair-plate by the foot or base flanges 19 wedging into the grooves 12 and under the said flanges 11. After the parts thus far described are assembled the spikes 24 are then driven into and through the spike-slots 15 and the ties beneath, and finally the angular terminal spikes are applied, as heretofore explained. After these fastenings are fully inserted the application of the joint elements will be complete, with the advantages heretofore noted. It will be observed that the rail-sections can move longitudinally to compensate for expansion and contraction; but any tendency toward depression or lateral movement thereof is entirely obstructed, and hence a safe and reliable fastening for railroad-rails is provided.

Having thus fully described the invention, what is claimed as new is—

1. The combination with rail-sections and ties, of a chair-plate having a base-plate and opposite side extensions forming shoulders in relation to the latter, flanges extending upwardly and inwardly from the outer portions of the extensions and forming with the latter longitudinal grooves, the flanges partially overhanging the base-plate and having inner straight converging free edges, clamping members comprising vertical and foot flanges, and outer longitudinally-extending ribs above said flange, the upper surfaces of the foot-flanges being downwardly and outwardly inclined and the ribs forming therewith longitudinal grooves having inner walls converged in planes reverse to the inner free edges of the flanges of the chair-plate, the foot-flanges and clamping members entering the grooves between the extensions and the flanges of the chair-plate and the latter engaging the grooves between the ribs and foot-flanges of the clamping members, and fastening devices engaging the opposite terminals of the chair-plate.

2. The combination with rail-sections and

ties, of joint elements interlocking in relation to each other and engaging the rail-sections, spikes driven through opposite terminal portions of the said elements into the ties beneath and also bearing upon the flanges of the rail-sections, and angular spikes driven into the ties adjacent to the terminals and bearing against the heads of the first-mentioned spikes and the rail-flanges.

10 3. In a rail-joint, the combination with rail-sections and ties, of a chair-plate secured to the ties and having upwardly and inwardly projecting flanges with inner straight edges converged toward one end of the plate, and
15 clamping members comprising vertically web-engaging flanges and lower foot-flanges, the latter flanges having their upper surfaces downwardly inclined toward their outer free edges and the web-engaging flanges having
20 outer longitudinally-extending ribs above the upper surfaces of the foot-flanges to form grooves having inner vertical walls inclined in directions reverse to the inclination of the inner free edges of the flanges of the chair-
25 plate, and means for fastening the chair down to the ties.

4. In a rail-joint, the combination with rails and ties, of a chair-plate having inwardly

and upwardly projecting flanges at the opposite sides formed with inner straight edges 30 spaced apart from each other and converged toward one end of the plate, the said flanges forming grooves in relation to the plate below which they overhang, the distance between the outer terminal wall of one groove 35 and the similar wall of the other groove being greater than the width of the rail-flanges, clamping members having flanges to bear against the webs of the rails and to fit under and pass over the flanges of the chair-plate 40 and rails respectively and also provided with outer grooves to receive the free ends of the flanges of the chair-plate, the said grooves having inner vertical walls inclined in directions reversely to the inclination of the inner 45 free edges of the chair-plate flanges, and means for fastening the terminals of the chair-plate and clamping members and the adjacent portions of the rail-flanges.

In testimony whereof I affix my signature 50 in presence of two witnesses.

JOHN PRICE.

Witnesses:

FRANK H. CLARK,
GEORGE M. BOND.