

No. 883,601.

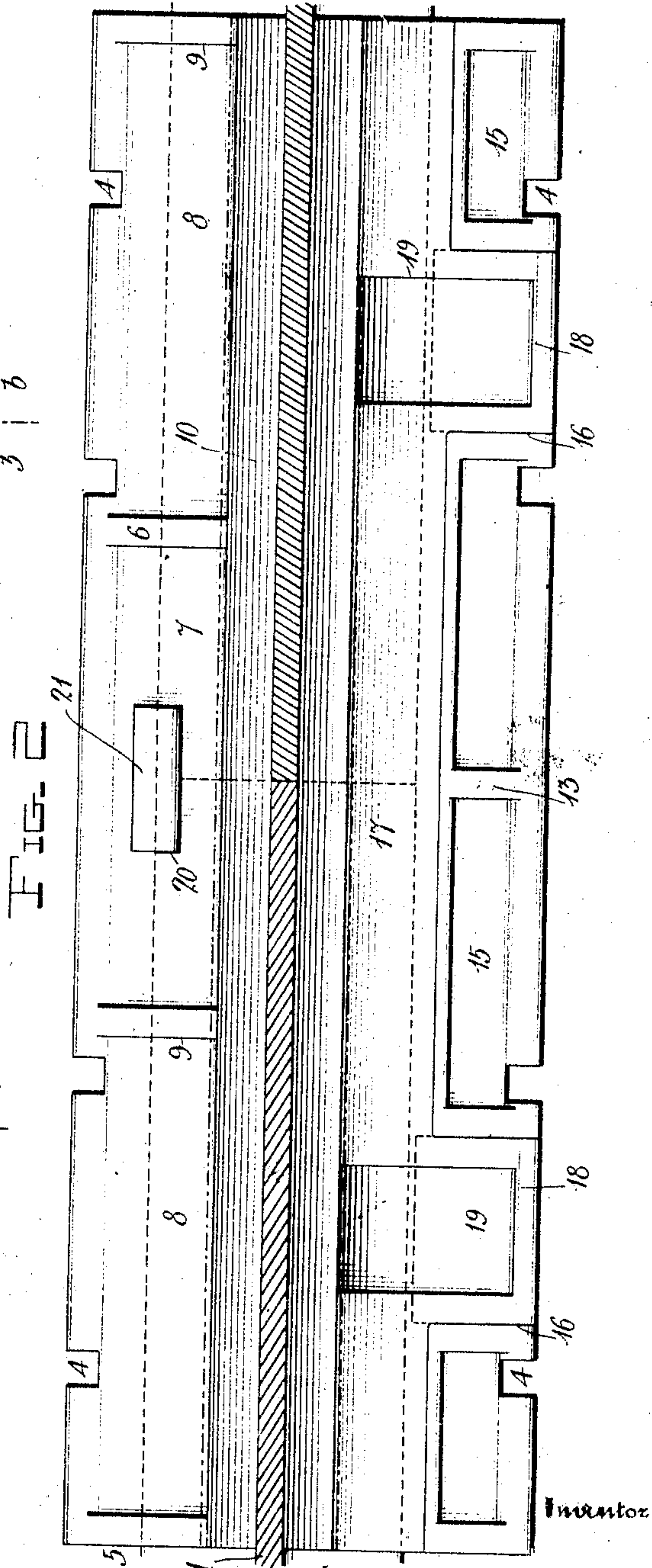
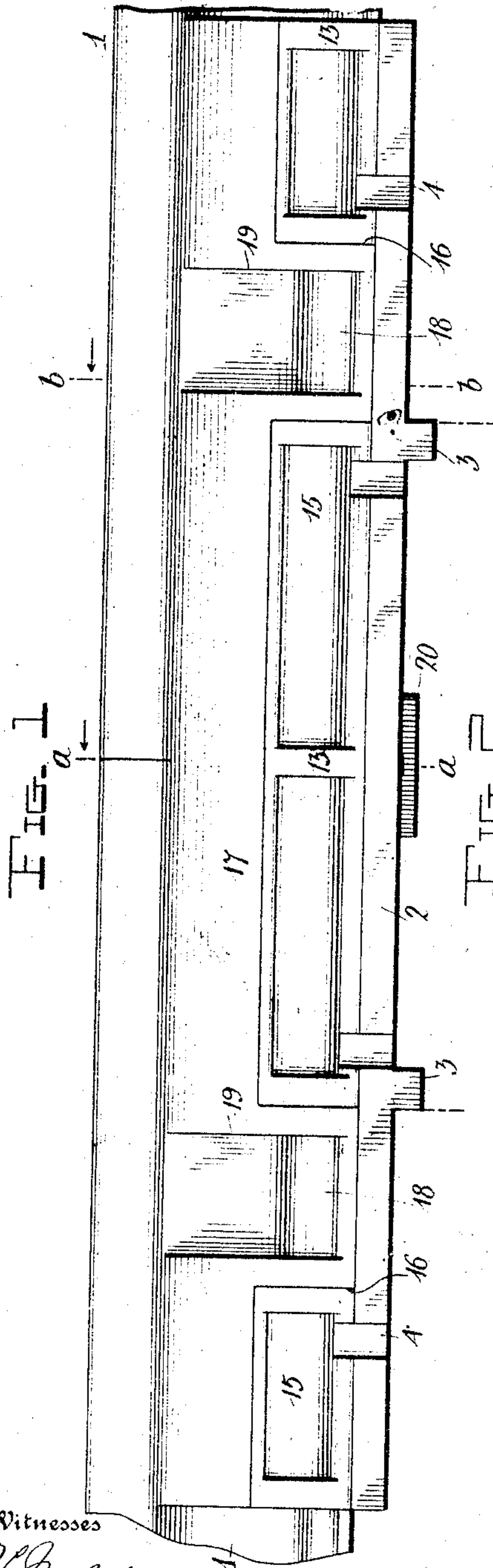
W. D. WILLIAMS.

PATENTED MAR. 31, 1908.

RAIL JOINT.

APPLICATION FILED JULY 31, 1907.

2 SHEETS—SHEET 1.



Witnesses

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J. W. Garner

Inventor

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2 SHEETS—SHEET 2.

FIG. 5

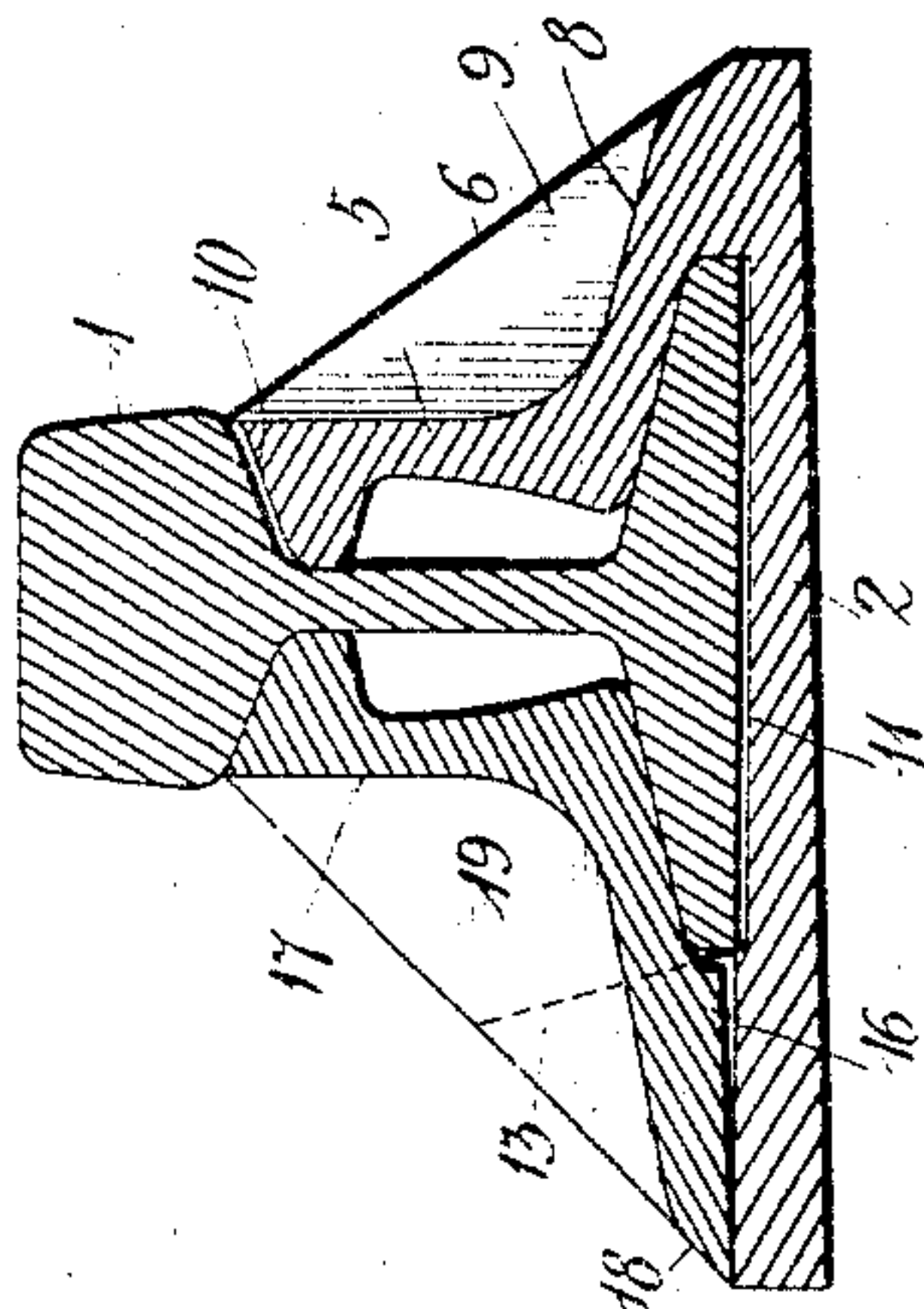


FIG. 4

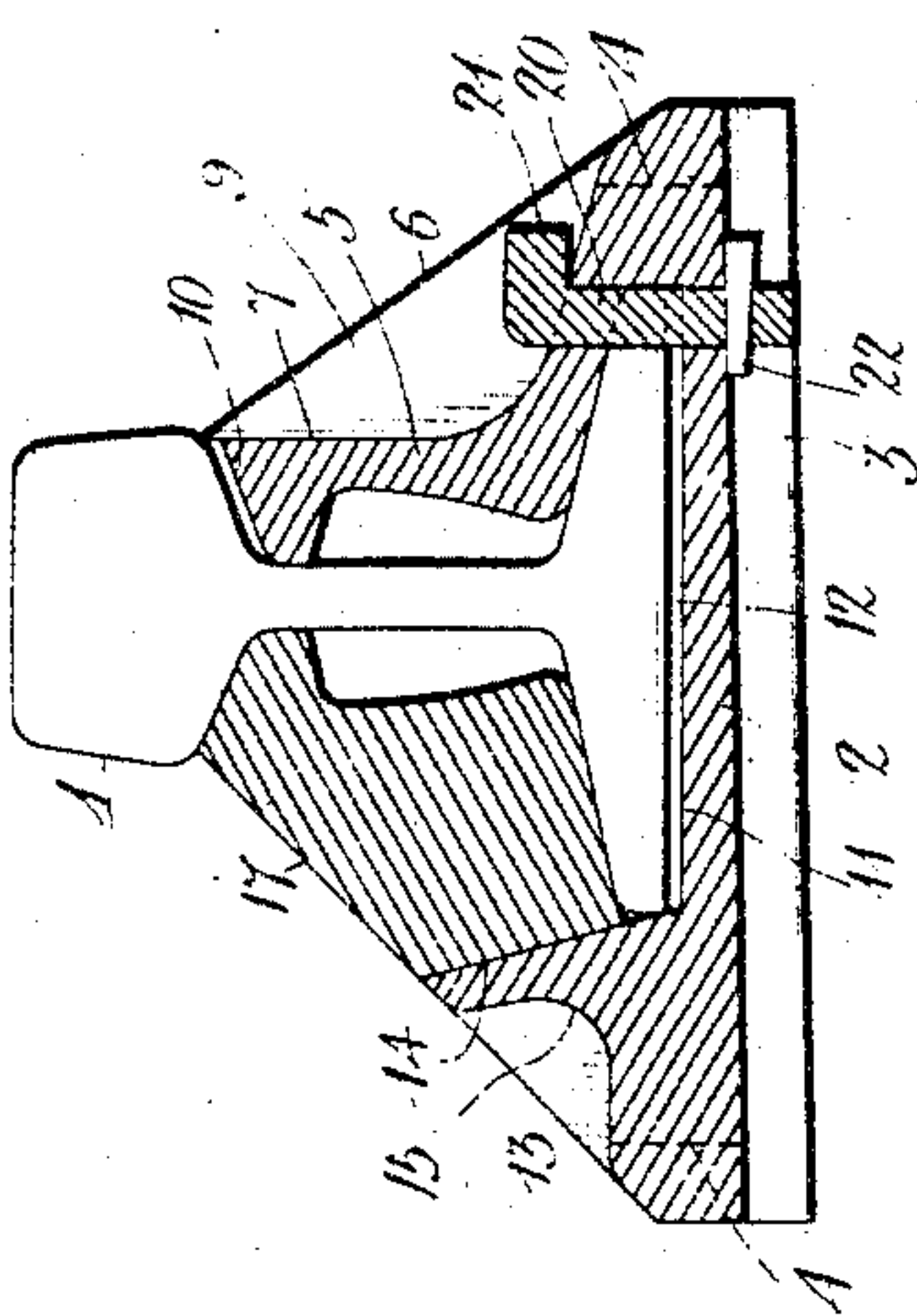
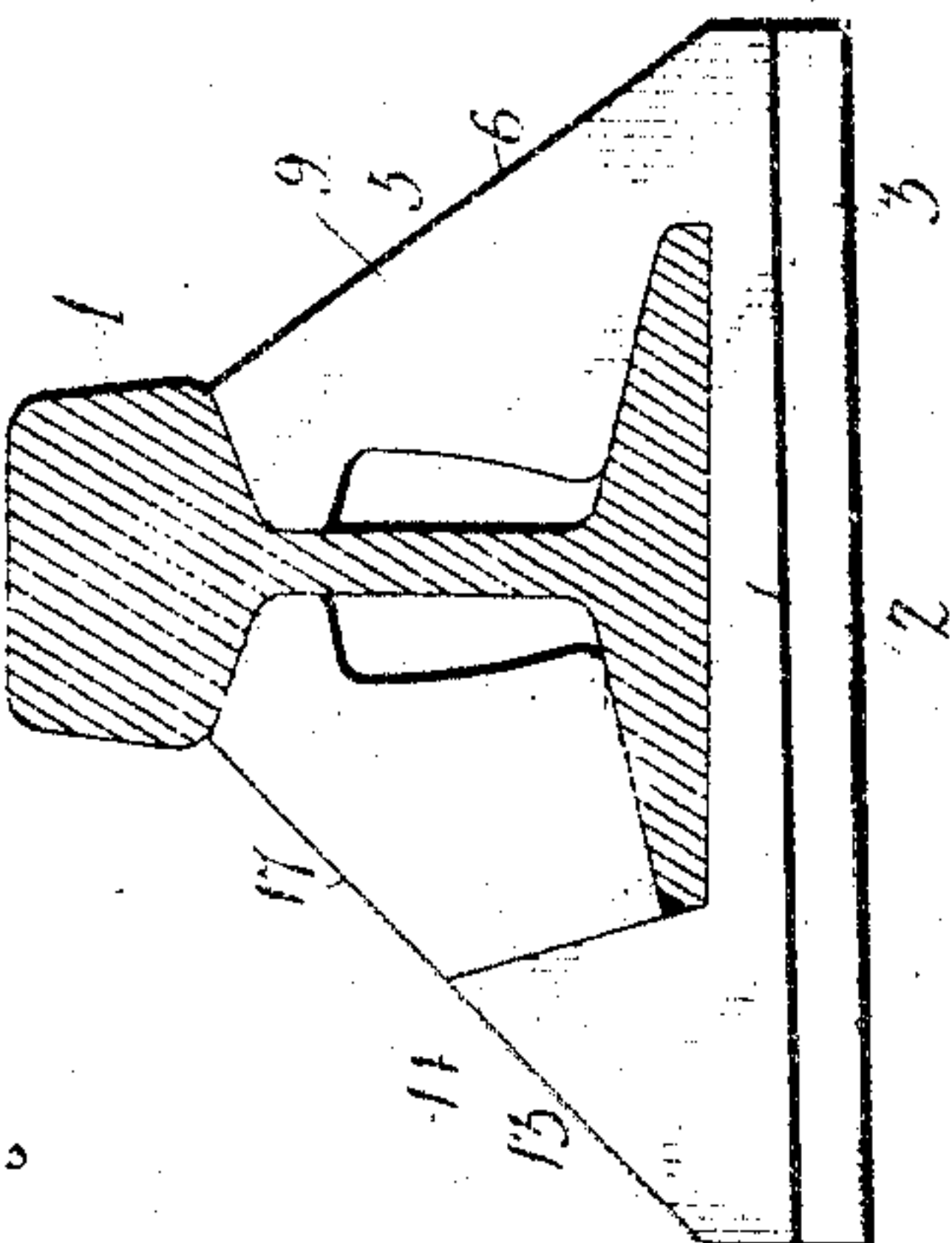


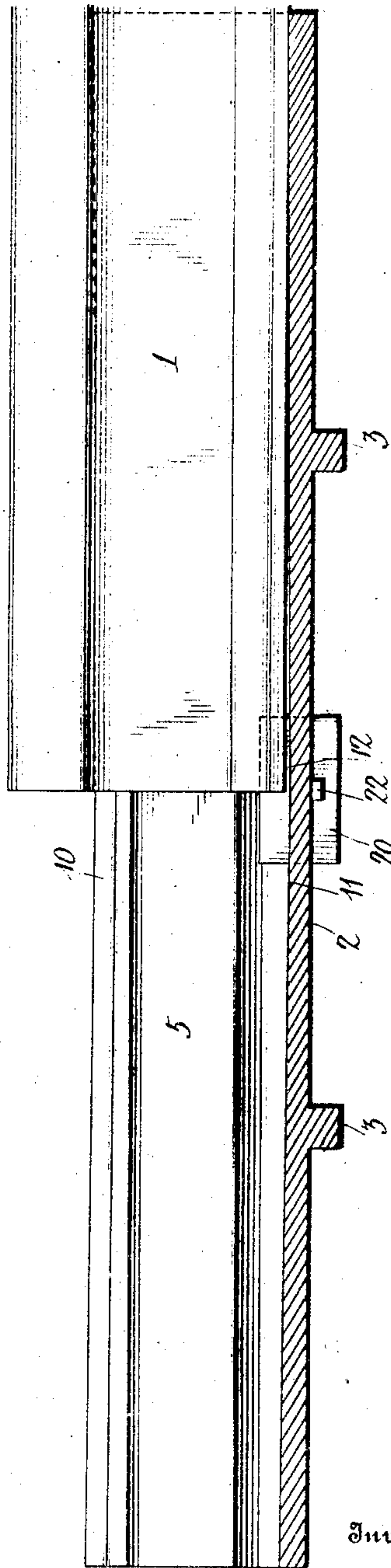
FIG. 3



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FIG. 6



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UNITED STATES PATENT OFFICE

WILLIS D. WILLIAMS, OF KIRKLAND, ARIZONA TERRITORY.

RAIL-JOINT.

No. 883,601.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed July 31, 1907. Serial No. 386,428.

To all whom it may concern:

Be it known that I, WILLIS D. WILLIAMS, a citizen of the United States of America, residing at Kirkland, in the county of Yavapai and Territory of Arizona, have invented new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to improvements in rail joints and is an improvement on the boltless rail joint for which Letters-Patent of the United States, No. 765,535, were granted to me July 19, 1904, the object of my present improvements being to provide means to allow the rail ends to move slightly in a vertical direction under the stress of a passing train so as to yield somewhat under such stress and to spring up again after the train has passed and in so doing cause the rails to yield on their inner sides to the pressure of the passing train and to more effectually lock the presser block against the back stop, as hereinafter more fully described.

A further object of the invention is to construct the base plate with depending flanges to bear against the sides of the ties and lock the base plate against movement on the ties.

A further object of the invention is to provide locking keys for insertion in alining openings in the meeting ends of the rails and in the base plate and its brace to prevent endwise movement of the rails on the base plate.

With the above and other objects in view the invention consists in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings,—Figure 1 is a side elevation of a rail joint constructed in accordance with my invention. Fig. 2 is partly a top plan view of the same and partly a horizontal section on a plane intersecting the webs of the rails at a point just below the heads thereof. Fig. 3 is an end elevation, the rail being shown in transverse section. Fig. 4 is a transverse sectional view on the plane indicated by the line *a—**a* of Fig. 1 between the meeting ends of the rails. Fig. 5 is a similar view on the plane indicated by the line *b—**b* of Fig. 1. Fig. 6 is a longitudinal sectional view through the base plate, one of the rail ends being shown in elevation and the other being omitted.

The rails 1 are of the usual construction, each having base flanges, a vertical web and a head. The end portions of the rails are placed on the base plate 2. Such base plate is provided on its underside with depend-

ing transversely disposed flanges 3 to bear against the sides of proximate cross ties and prevent such base plate from moving longitudinally on such cross ties. The base plate is provided in opposite sides with notches 4 for the reception of spikes employed to secure the base plate on the ties. On the inner side of the base plate, that is to say, on the side thereof corresponding to the inner sides of the rails, is a brace 5 which is formed integrally therewith and shaped on its inner face to correspond with the side contour of the rails, as shown in Figs. 3, 4 and 5, so as to form an efficient support for the rail ends at one side. The said brace has an inclined outer face 6 provided with recesses 7, 8, the recess 7 being at the central portion of such brace and the recesses 8 at the ends thereof, thereby forming webs 9 at the ends of such recesses. The upper side of the brace is hollowed slightly, that is to say, the ends of such brace are slightly higher than the central portion thereof to form a space 10 between the upper side of such brace and the undersides of the heads of the rails on the inner sides of the rails to enable the rail ends to be depressed to a slight extent as a train passes over them. The base plate has its upper side correspondingly hollowed, as at 11, to provide a space 12 under the ends of the rails, said space being deepest at the point where the rails meet and also enabling the rail ends to play or yield vertically to a slight extent under the stress of passing trains. As the rail ends are thus depressed they bear on the slightly angular faces in the upper side of the base plate formed by the hollow therein, which angular faces present oppositely inclined planes engaged by the lower sides of the rail ends when the latter are depressed and operate to so firmly bind the rails on the base plate as to prevent longitudinal movement either of the rails or base plate.

The base plate is provided on the side opposite the brace 5 with a back stop flange 13 which presents an inclined face 14 opposite the outer sides of the rails. Such back stop is hollowed or recessed in its outer side, as at 15, to save material and effect a corresponding economy in the cost of the manufacture of the base and to also lessen the weight thereof, and said back stop is provided at suitable distances from its ends with openings 16.

A presser block 17 has its outer face set at

a slightly inclined angle with respect to a vertical plane to correspond with the inclination of the inner face of the back stop and bear against the same and its inner face shaped to conform to the adjacent and contacting outer sides of the rail ends, the said presser block bearing on the base flanges on the outer sides of the rail ends and the outer sides of the heads of the rail ends bearing on said presser block and wedging the latter in place between the back stop and the outer sides of the rails so that said presser block coacts with the back stop and the brace to effectually lock the rails between them. The said presser block is provided near its ends with outwardly extending arms 18 which enter the openings 16 in the back stop and coact with the end walls of such openings to effectually lock such presser block against longitudinal movement. The said arms are recessed in their upper sides, as at 19, to lighten the construction and reduce the weight of such presser block. It will be observed by reference to Figs. 4 and 5 of the drawing that when the ends of the rails are depressed by the weight of the passing train so that the rail ends are caused to close the spaces 10 and 12 the rails are caused to tilt or incline slightly towards each other and thereby more effectually exert wedge action on the presser block and lock the latter in place.

To prevent the possibility of endwise movement of the rails the ends of the latter are recessed on their inner sides, and the base plate and its brace 5 are provided with a vertical opening to register with such recesses in the ends of the rails and receive the key 20 which has a laterally extending head 21 at its upper side to bear on the brace, and the lower end of which extends below the lower side of the base plate and is provided with an opening through which extends a transverse wedge key 22 which locks such rail-locking key 20 in place.

The base plate is slightly thicker at its outer side than at its inner side, as indicated in Figs. 3, 4, and 5, the lower side of the base plate being slightly upwardly inclined so

that when the latter is on the ties the lower side of the base plate will be horizontal, and the upper side thereof will be slightly inclined to slightly tilt or incline the rails inwardly and the more effectually hold them against any tendency to spread.

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

1. The combination with rail ends, of a base plate having a brace extending upwardly therefrom at one side of the rail ends, said brace being hollowed on its upper side to present oppositely inclined faces extending from its ends to its center and form a recess under the rail heads deepening toward the center of such brace, such base plate being further provided on its upper side with a corresponding hollow forming a recess under the bases of the rails deepening toward the center of such base plate, and further provided with a back stop on the side opposite the brace, and a presser block fitted between such back stop and the opposing sides of the rail ends.

2. The combination with rail ends, of a base plate having a brace on one side to bear against one side of the rails, a back stop flange on the opposite side bearing against the opposite side of the base flanges of the rails and having an inclined inner face converging downwardly to such base flange, said back stop being further provided in its upper side with upwardly opening openings, and a presser block fitted between such back stop flange and the opposing sides of the rail, such presser block having its outer face inclined to correspond with the inclination of the inner face of the back stop flange and being further provided with outwardly extending arms disposed in the openings of the back stop flange and preventing longitudinal movement of such presser block.

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

WILLIS D. WILLIAMS.

Witnesses:

FRANK WILLIAMS,
W. M. CLARK.