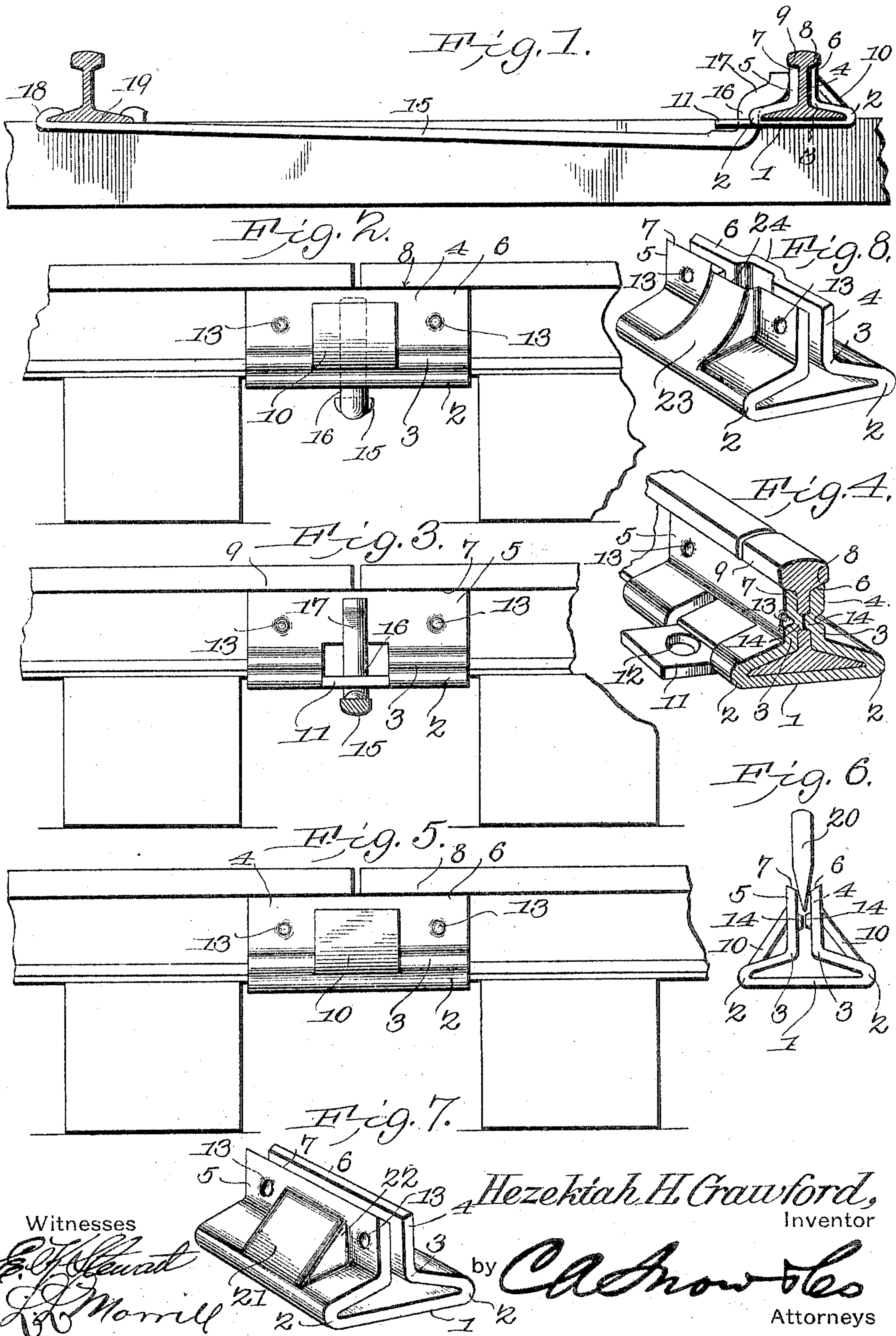


No. 817,161.

PATENTED APR. 10, 1906.

H. H. CRAWFORD.  
RAIL JOINT CHAIR.  
APPLICATION FILED JULY 18, 1905.



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# UNITED STATES PATENT OFFICE.

HEZEKIAH H. CRAWFORD, OF EL PASO, TEXAS.

## RAIL-JOINT CHAIR.

No. 817,161.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed July 18, 1905. Serial No. 270,260.

*To all whom it may concern:*

Be it known that I, HEZEKIAH H. CRAWFORD, a citizen of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented a new and useful Rail-Joint Chair, of which the following is a specification.

This invention relates to railroad-rail joints, and especially to those joints comprising a chair.

It is well known that it is highly desirable to produce a rail-joint which will not become loosened by the continual passage of trains and other causes.

It is an object of this invention to provide an integral-joint chair and means for clamping the chair upon the joint and without the use of any form of fastening which may or can become loosened by use. The integrality of this chair is a matter of very considerable importance, as it has not been found possible to secure separate chair members together so rigidly and securely as to prevent their becoming loosened by use and which will be overcome by making the chair integral and doing away with all joints.

A further object of the invention is to provide an integral-joint chair with an integral brace on one or both sides struck up from the material and disposed obliquely to the vertical of the rail.

A further object of the invention is to produce a rail-joint chair having vertical standing side plates engaging opposite sides of the rail for its entire height and to engage the under side of the shoulder, also to punch the material from the outside to form inwardly-disposed integral lugs engaging in openings in the rail from opposite sides.

A further object of the invention is to provide a lever for clamping the chair upon the rail and when so clamped to extend across and engage the opposite rail to prevent the spreading of the rails.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view of the improved rail-joint chair in end elevation in operative position on a rail, shown in transverse section and with the lever extending across and tying to the opposite rail, also shown in transverse section. Fig. 2 is a view

in elevation of the outer side of the improved rail-joint chair in operative position. Fig. 3 is a view of the rail-joint chair in elevation, showing the inner side and with the clamping-lever in transverse section. Fig. 4 is a perspective view, partly in section, of the chair with the clamping-lever disengaged. Fig. 5 is a view in side elevation of one form of the improved chair, wherein each side is braced and no lever is used for clamping. Fig. 6 is a view in end elevation of the form of chair used without a lever and similar to the one shown in Fig. 5 and also showing the manner of spreading to insert the rail. Fig. 7 is a perspective view of a form of joint-chair wherein the brace for one or both sides is "stamped" up without breaking or cutting the material. Fig. 8 is a perspective view of a form of joint-chair wherein the braces are stamped up and extend to the shoulder of the rail and support the corners, thereby preventing breaking, which is so common.

Like characters of reference indicate corresponding parts in all of the figures of the drawings.

The rail-joint chair forming the subject-matter of this application comprises a base-plate 1, with the material folded longitudinally at 2 and again upwardly at 3 to form integral upstanding side plates 4 and 5, so proportioned that the upper longitudinal edges 6 and 7 bear under and engage the shoulders 8 and 9 of the rail. It will be seen that the rail is thus embraced by an integral chair, and to strengthen the side plate transverse slits are formed and the material therebetween struck up, forming the brace 10, running from the base to near the top of the side plate.

The inner side of the chair may be cut to form the ear 11, turned down substantially in plane with the base 1 and provided with an opening 12. The side plates are also punched at desired positions, as at 13, to form inwardly-disposed integral lugs 14, engaging within the usual openings formed near the ends of rails.

To clamp the chair securely upon the rail, a lever 15 is provided, bent and proportioned at 16 to pass through and be pivoted in the opening 12 and with an upwardly and outwardly curved end 17, proportioned to forcibly engage and clamp the side plate 5. When the lever 15 has been placed in clamping position, the outer end 18 is hooked or bent about the outer base-flange 19 of the op-



posite rail securely, preventing the movement of the lever and tying the two rails together.

For use in positions when the traffic is light and the strain on the joint consequently little the lever may be dispensed with and the brace 10 formed upon each side of the chair, as shown in Figs. 5 and 6. To set the chair, a wedge or end of a crowbar 20 may be inserted at the top between the side plates, and after spreading the plates slightly the ends of the rails are inserted from opposite ends and the wedge removed.

Instead of cutting the brace from the material it may be stamped up, as at 21 in Fig. 7, which possesses the advantage of being weather-proof and having end portions 22 to stiffen the brace.

In the form shown in Fig. 8 the brace 23 extends to and abuts against the shoulder of the rail, forming the curves 24, which support the corners against the not infrequent breaking. The form shown in Fig. 8 also has the advantage of equal supporting strength from lighter, and consequently cheaper, material.

Having thus described the invention, what is claimed is—

1. An integral-rail-joint chair and a lever external of the chair to clamp the chair upon the rail.

2. An integral-rail-joint chair and a lever pivoted externally of the chair to clamp the chair upon the rail.

3. A rail-joint chair and a lever pivoted upon the chair to clamp the chair upon the rail.

4. A rail-joint chair and a lever pivoted upon and externally of the chair to clamp the chair upon the rail.

5. An integral-rail-joint chair having one side made rigid by a brace and means external of the chair engaging the opposite side to clamp the chair upon the rail.

6. A rail-joint chair having one side made rigid by a brace and a lever external of the chair engaging the opposite side to clamp the chair upon the rail.

7. A rail-joint chair having one side made rigid by a brace and a lever pivoted upon and external of the chair and engaging the side opposite to the brace to clamp the chair upon the rail.

8. An integral-rail-joint chair having transverse slits formed from the base to the side plate and the material between the slits struck up and forming a brace extending obliquely from the base to the side plate.

9. An integral-joint chair having a longitudinal opening conforming in cross-section to a cross-section of the rail and having an integral brace struck from the material of the chair and extending obliquely from the base to the side plate.

10. In a rail-joint chair, a side plate hav-

ing a portion of the material struck inwardly forming an inwardly-extending lug engaging an opening in the rail.

11. An integral-rail-joint chair having a portion of the material of each side plate struck inwardly forming integral inwardly-extending lugs engaging an opening in the rail from opposite sides.

12. In a rail-joint chair a lever arranged to clamp the chair upon the rail and to extend across and engage the opposite rail.

13. In a rail-joint chair a pivoted lever arranged to clamp the chair upon the rail and to extend across and engage the opposite rail.

14. In a rail-joint chair a lever pivoted upon the chair and arranged to clamp the chair upon the rail and to extend across and engage the opposite rail.

15. In a rail-joint chair a lever pivoted upon and externally of the chair and arranged to clamp the chair upon the rail and to extend across and engage the opposite rail.

16. A rail-joint having one rigid side plate and a lever pivoted upon the chair arranged to clamp the other side plate upon the rail and to extend across and engage the opposite rail.

17. A rail-joint chair having one rigid side plate and a lever pivoted to the base of the chair and arranged to clamp the opposite side plate upon the rail.

18. A rail-joint chair having one rigid side plate and a lever pivoted to the base of the chair and arranged to clamp the opposite side plate upon the rail.

19. A rail-joint chair having one rigid side plate, an ear outstanding from the base of the chair and a lever pivoted in the ear and arranged to clamp a side plate opposite the rigid side and to extend across and engage the opposite rail.

20. A rail-joint chair having a longitudinal opening proportioned to fit the rail and with one of the sides rigid, an ear outstanding from the base and a lever pivoted in the ear and arranged to clamp the side opposite the rigid side and extending across and engaging the opposite rail.

21. A rail-joint chair having a longitudinal opening proportioned to fit the rail, a portion of the material struck up to form an integral brace upon one side, an integral ear outstanding from the base, a lever pivoted in the ear and arranged to engage and clamp the chair upon the side opposite the brace and extending across and engaging the opposite rail.

22. A rail-joint chair having a longitudinal opening proportioned to fit the rail, a portion of the material struck inwardly forming inwardly-extending integral lugs engaging within openings of the rail, means for holding one side of the chair rigid, an ear outstanding from the base, and a lever pivoted in the ear



and arranged to engage and clamp the chair upon the side opposite the rigid side.

23. An integral-rail-joint chair having a longitudinal opening proportioned to fit the 5 rail, a portion of the material struck up to form an integral brace upon one side extending from the base to the side, a portion of each side struck inwardly forming inwardly-extending integral lugs engaging openings in 10 the rail and from opposite sides, an integral ear outstanding from the base on the side opposite the base, and a lever pivoted in the ear and arranged to engage and clamp the chair on the side opposite the brace and extending 15 across and tying the opposite rail.

24. A rail-joint chair comprising a base, side plates one of which is rigid with the base, an ear outstanding from the base, a lever 20 having a curved short end extending upward and pivotally through the ear and formed to engage and clamp the side of the chair oppo-

site the rigid side and a long end extending across and tying the opposite rail.

25. A rail-joint chair comprising a base, side plates one of which is rigid with the base, 25 an ear cut from the material of the chair and outstanding from the side opposite the rigid side, portions of the material struck inwardly forming inwardly-extending integral lugs, and a lever having its short end bent and 30 passed upwardly through the ear and engaging and clamping the side of the chair opposite the rigid side and extending across and tying the opposite rail.

In testimony that I claim the foregoing as 35 my own I have hereto affixed my signature in the presence of two witnesses.

HEZEKIAH H. CRAWFORD.

Witnesses:

FRANK DIFFENDERFER,  
WILLIAM VALENTINE.