

C. JENKINS.
RAILROAD TIE AND RAIL JOINT.
APPLICATION FILED JULY 8, 1907.

911,242.

Patented Feb. 2, 1909.

2 SHEETS—SHEET 1.

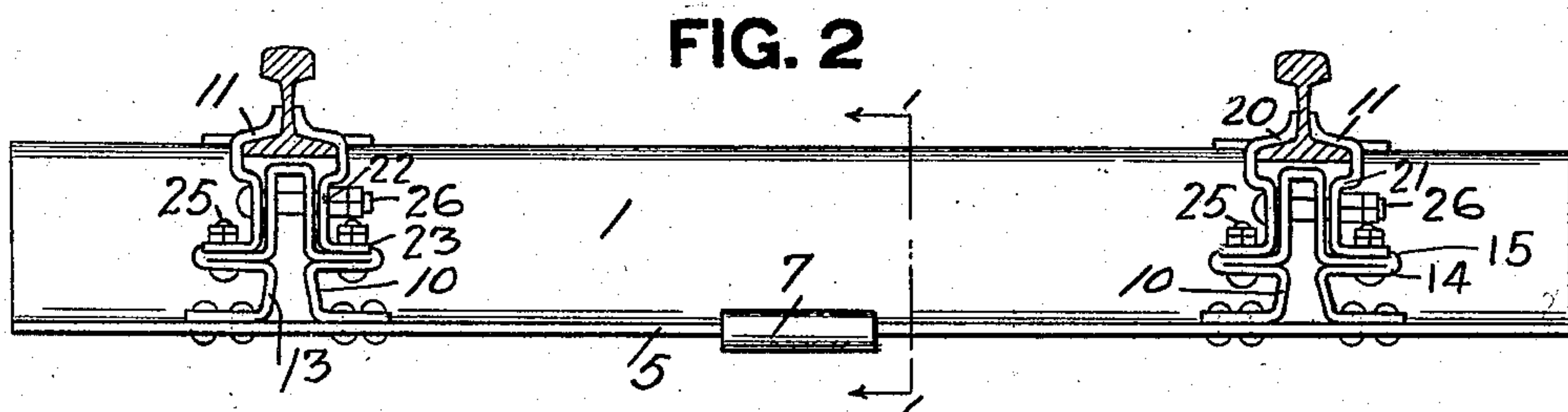
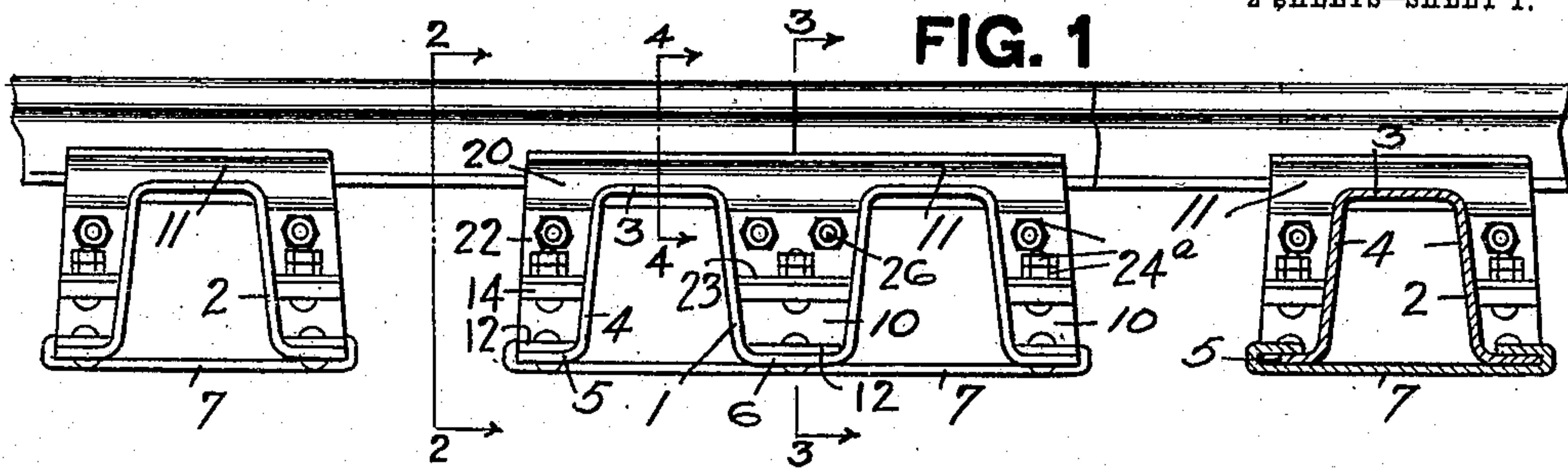


FIG. 3

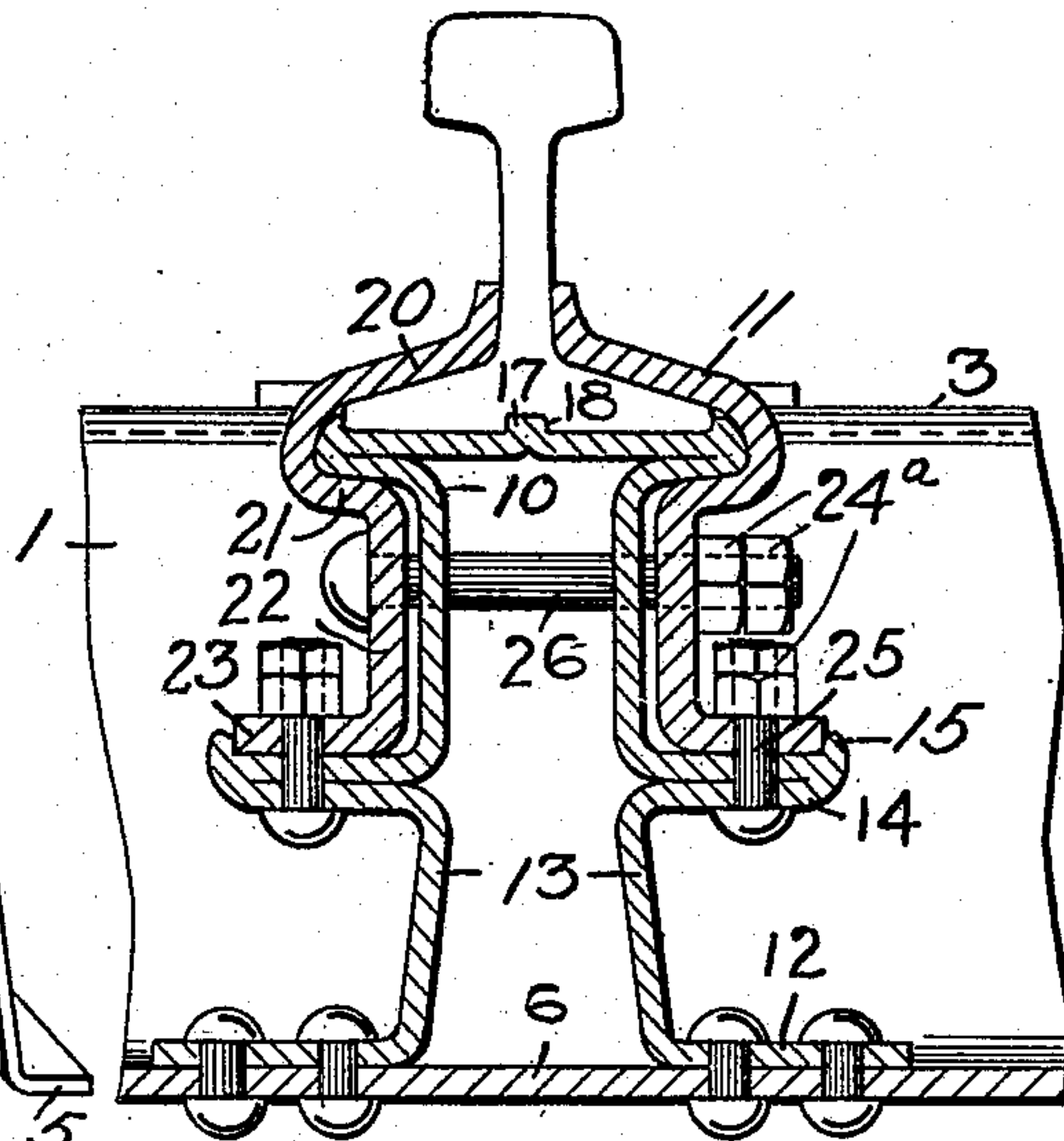
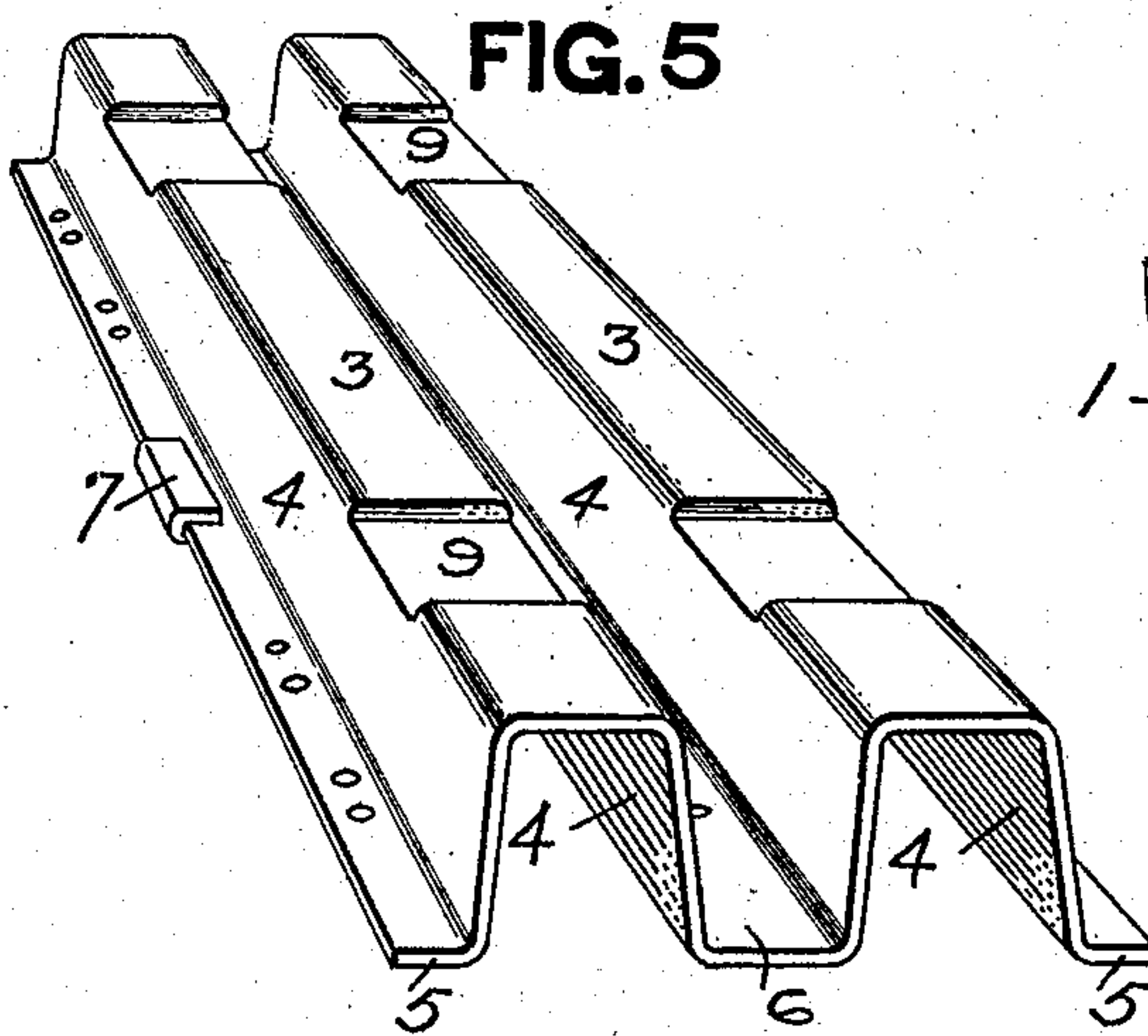
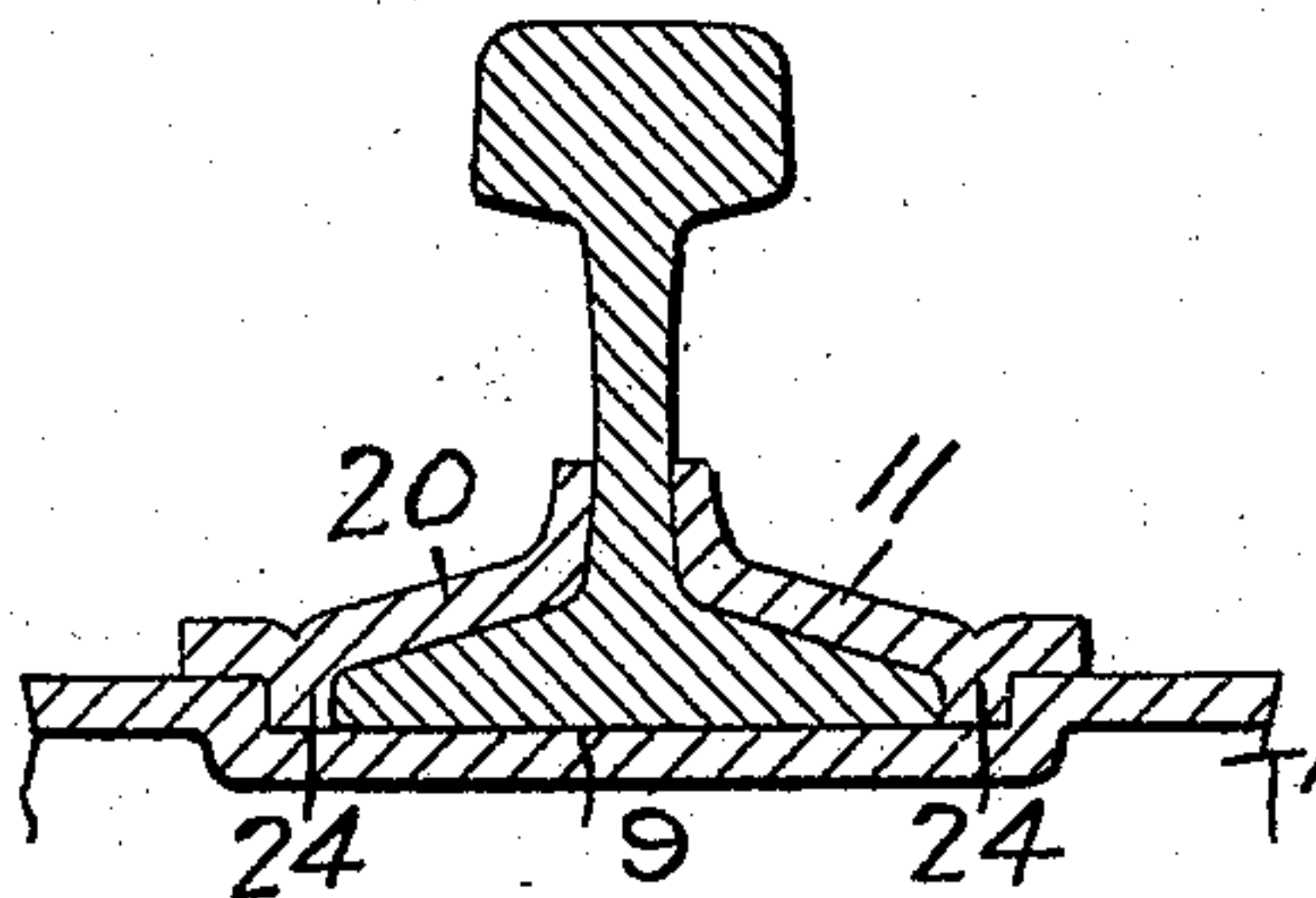


FIG. 4

WITNESSES.

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2 SHEETS—SHEET 2.

FIG. 6

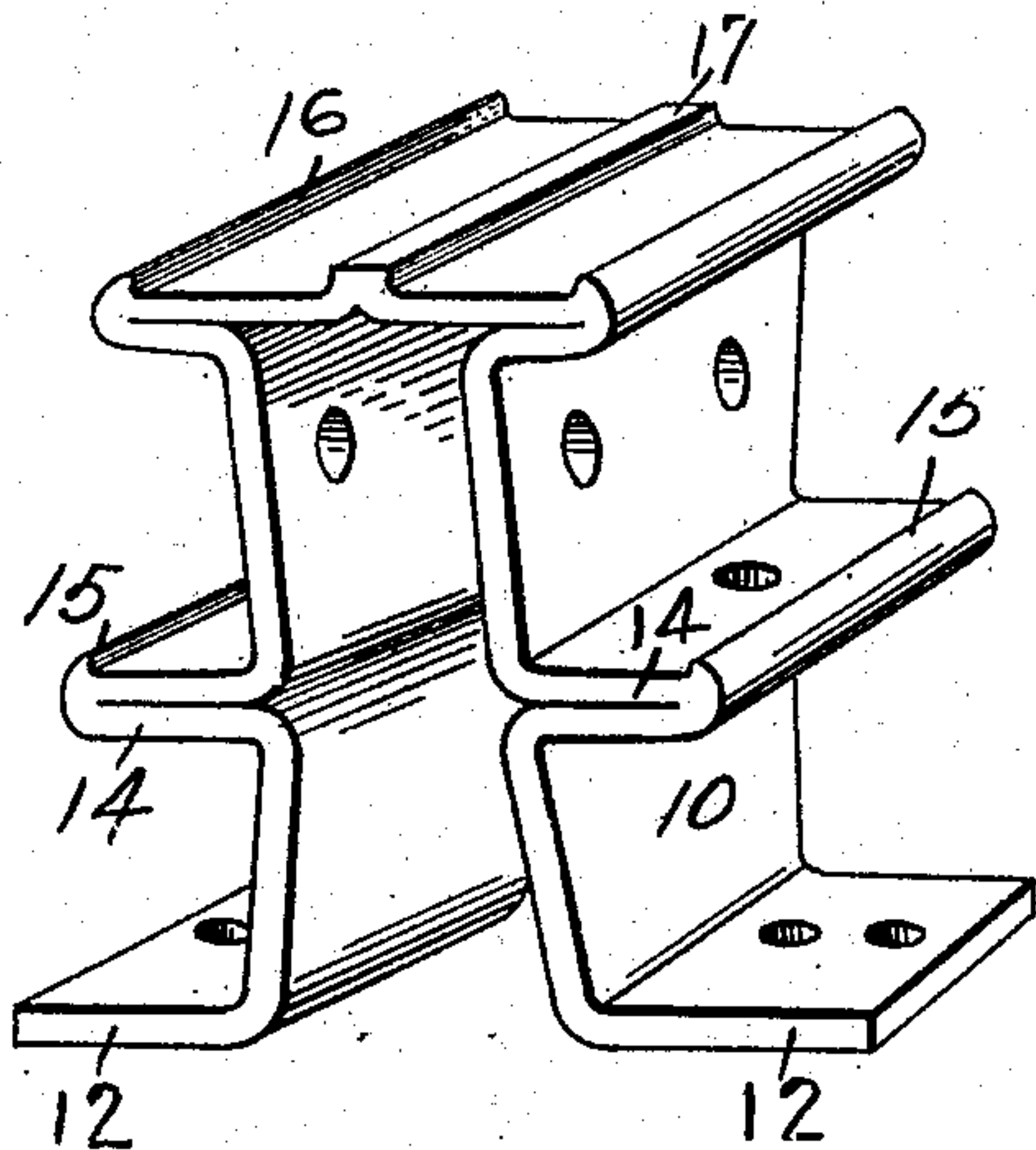


FIG. 8

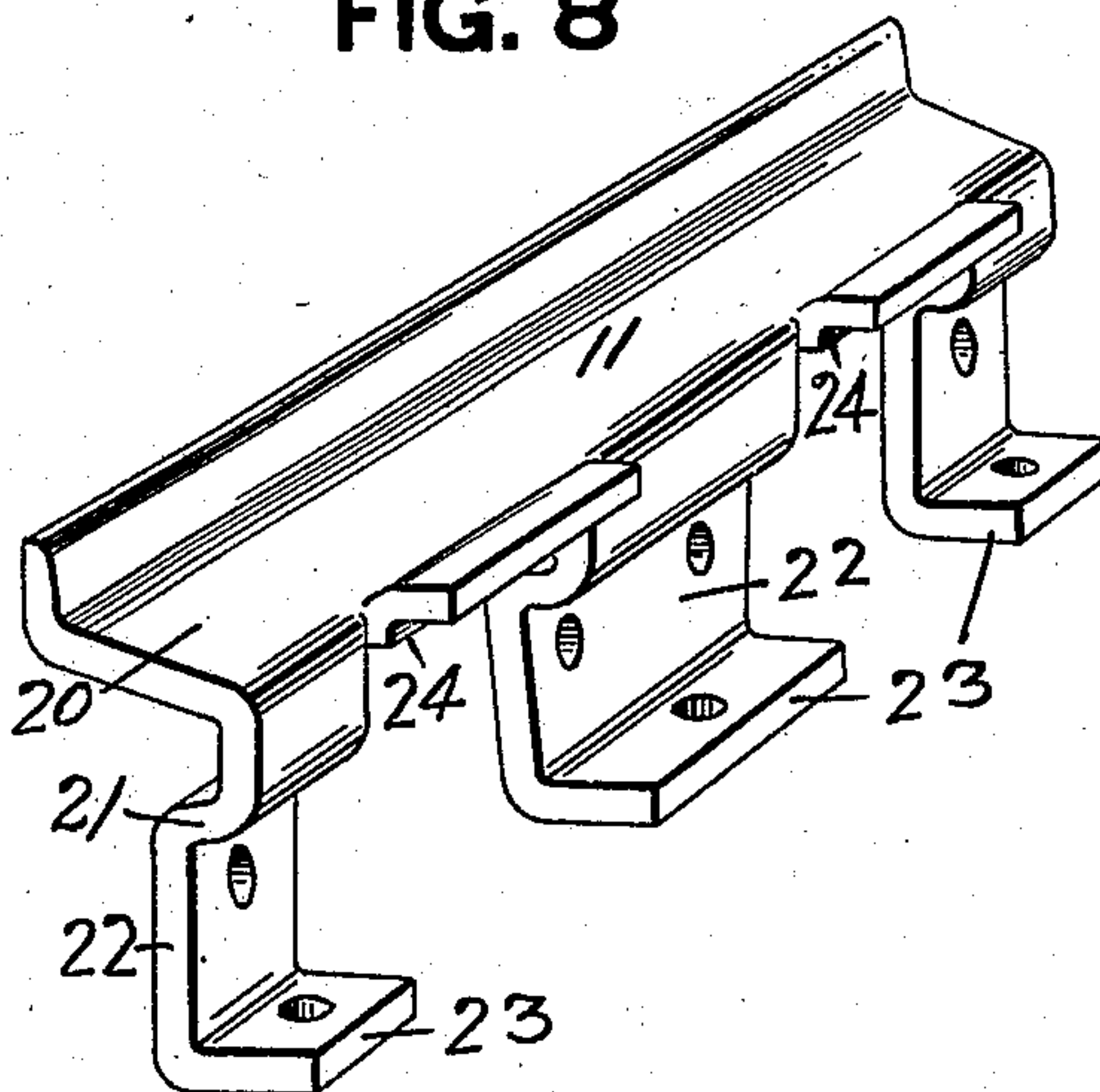


FIG. 7

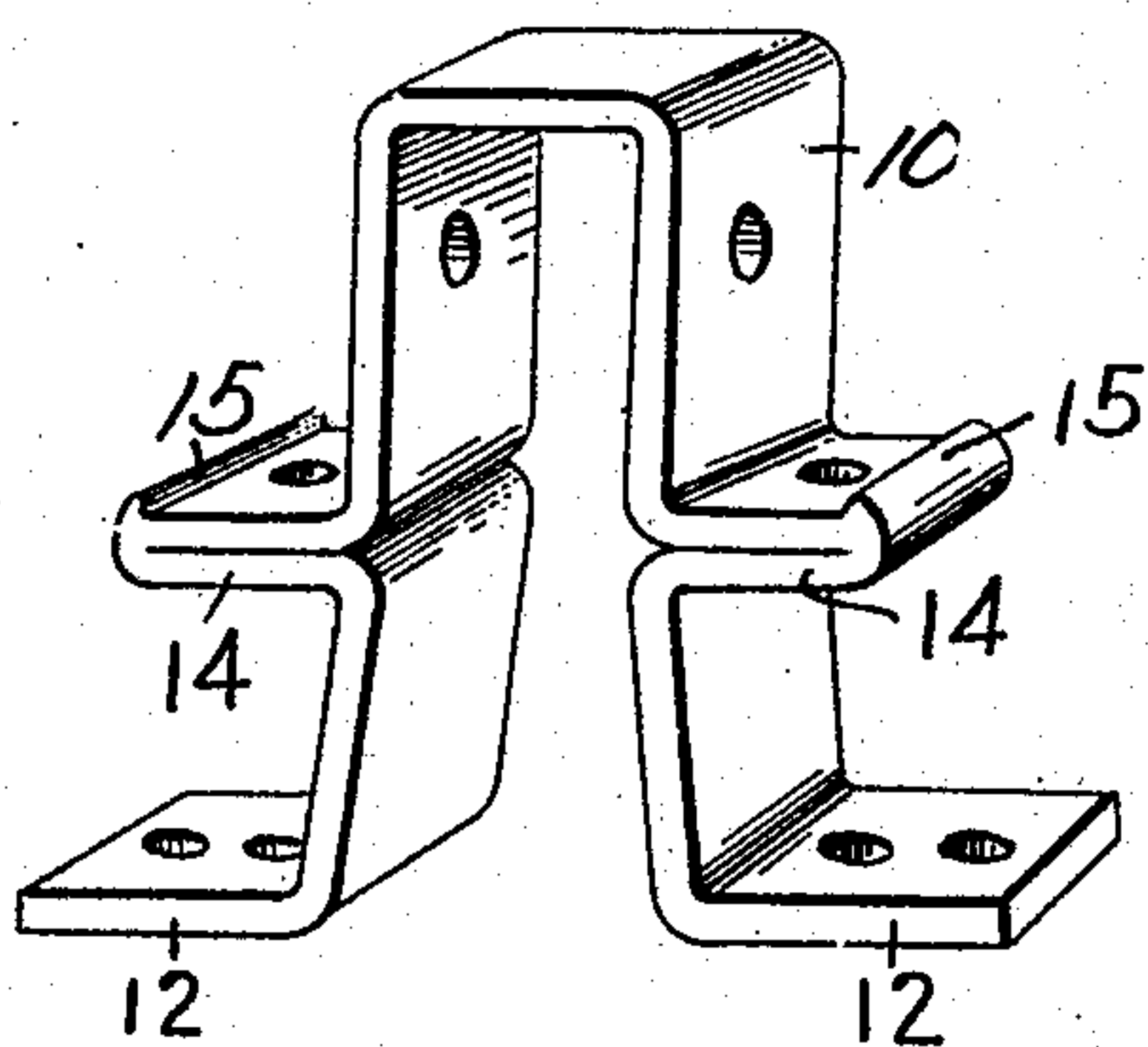


FIG. 9

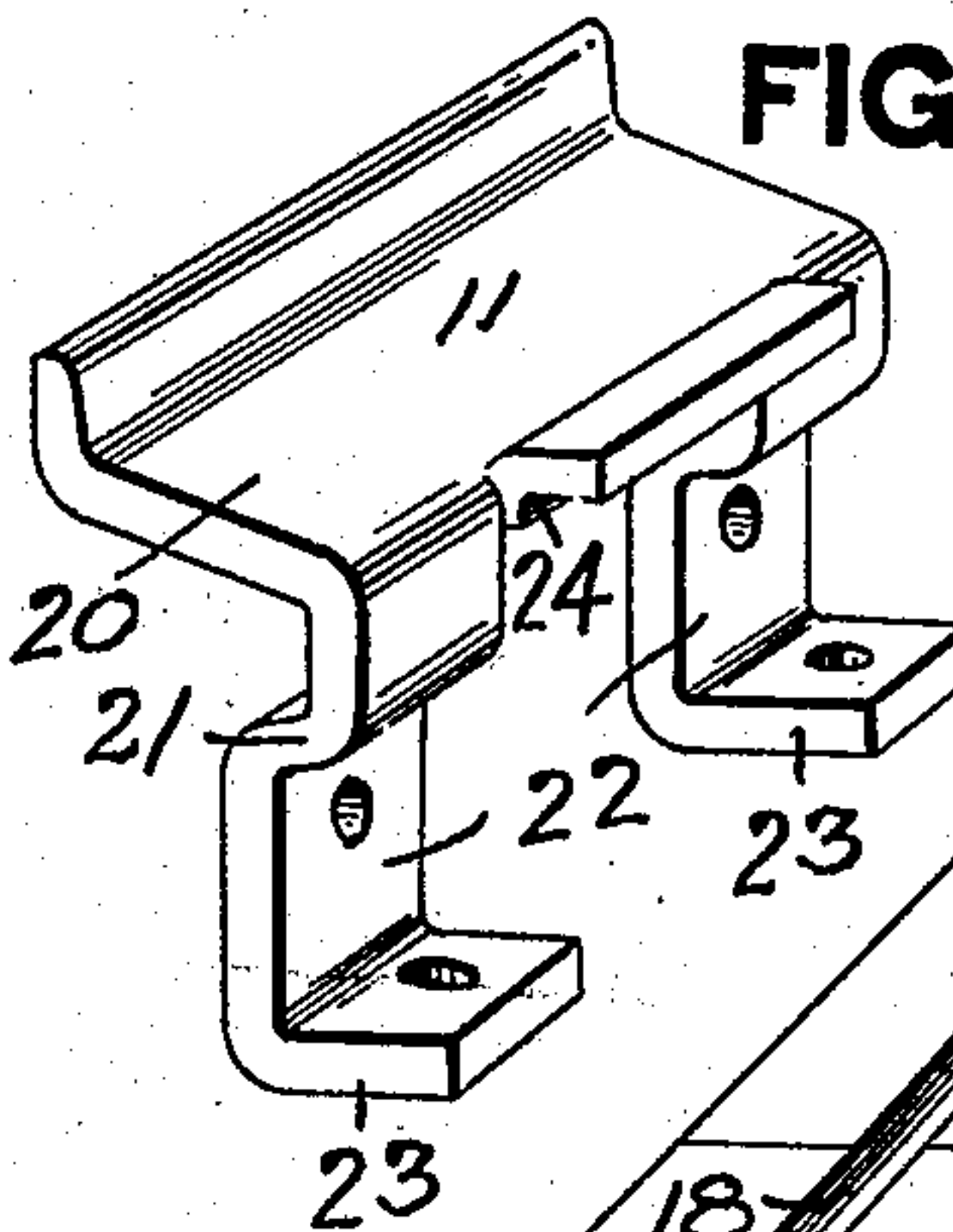


FIG. 10

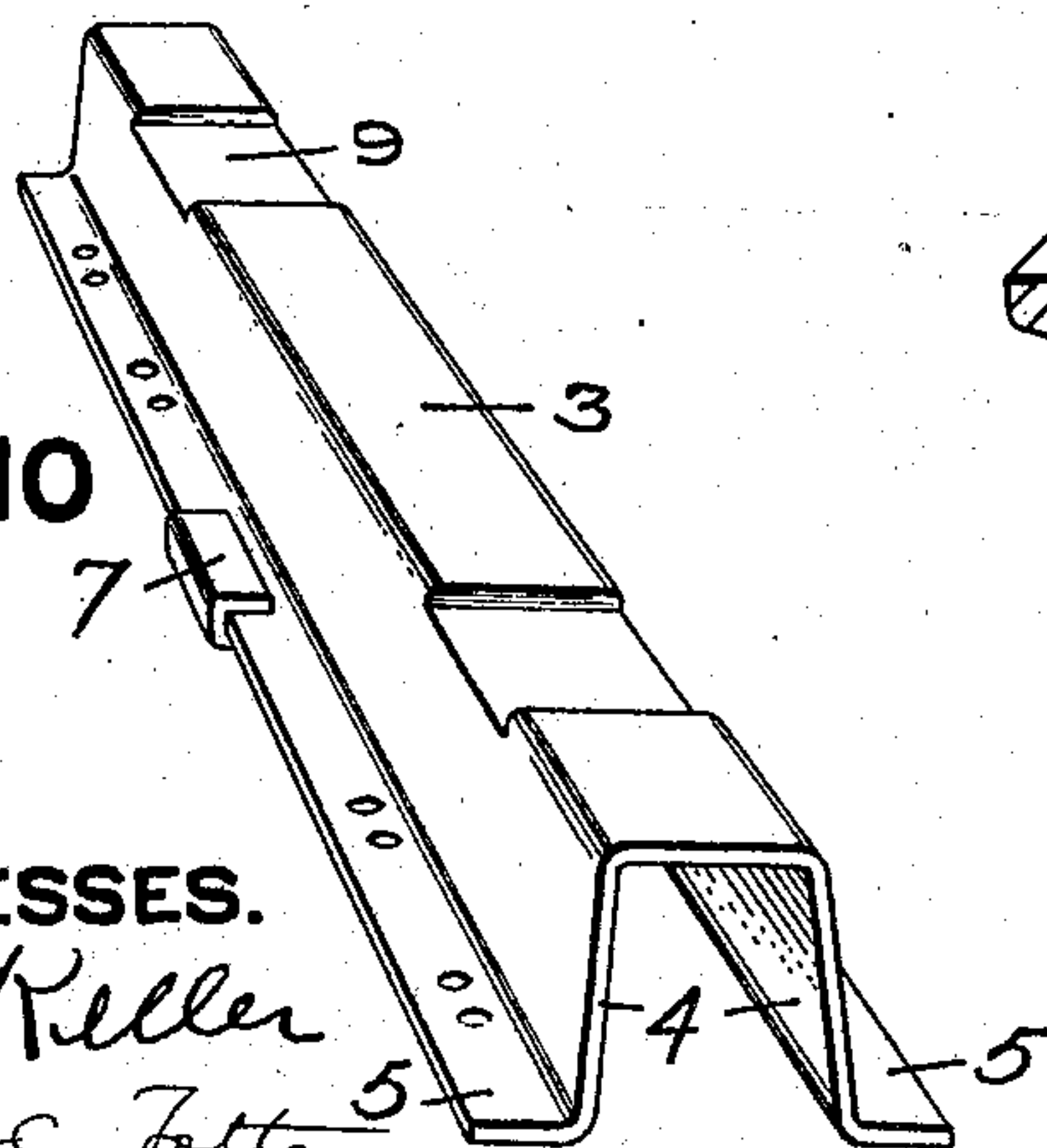
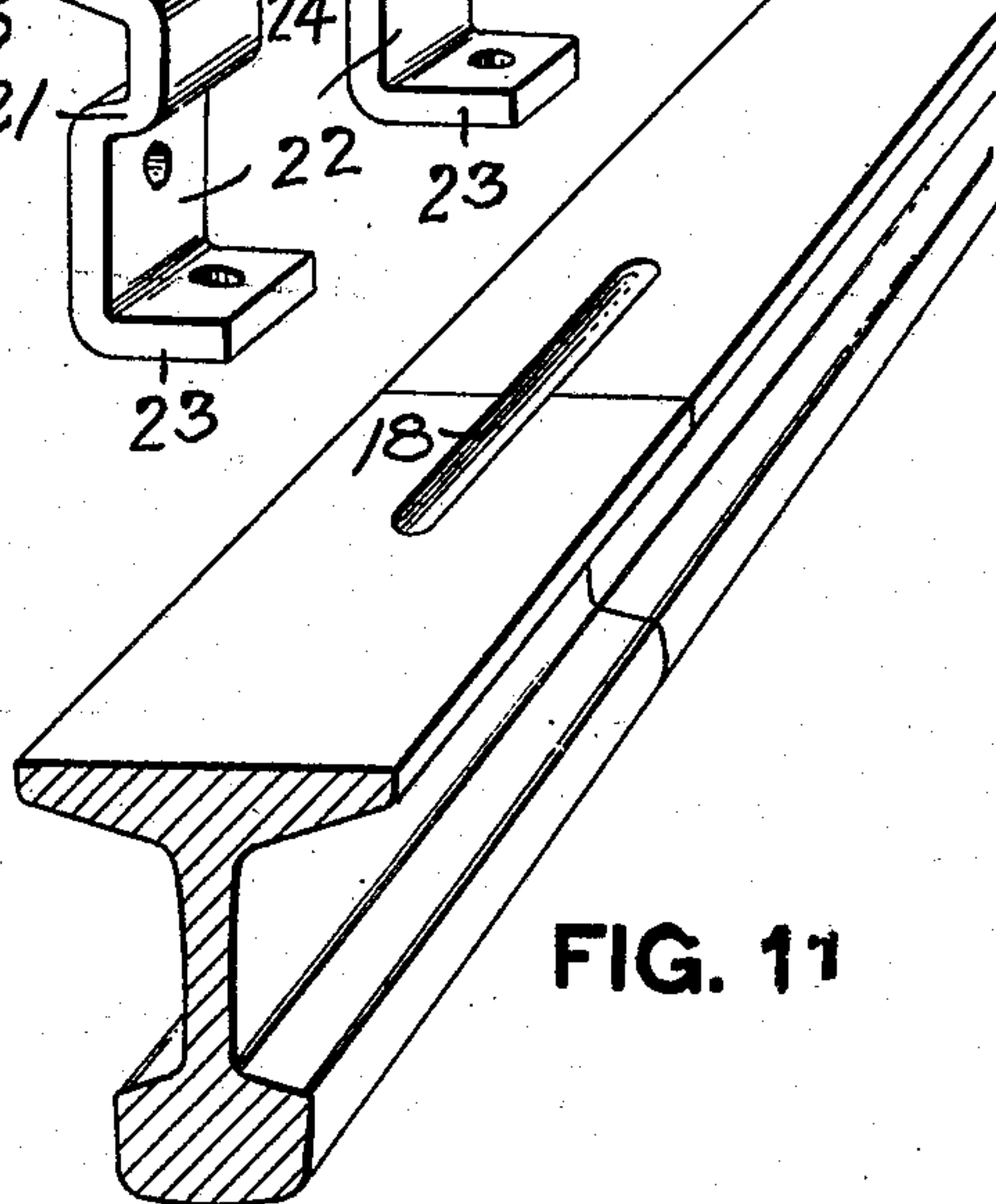


FIG. 11



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UNITED STATES PATENT OFFICE.

CHARLES JENKINS, OF ASPINWALL, PENNSYLVANIA.

RAILROAD-TIE AND RAIL-JOINT.

No. 911,242.

Specification of Letters Patent.

Patented Feb. 2, 1909.

Application filed July 8, 1907. Serial No. 382,627.

To all whom it may concern:

Be it known that I, CHARLES JENKINS, a resident of Aspinwall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Railroad-Ties and Rail-Joints; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to railway track structures, and especially to a metallic tie and means for securing the rails thereto and also forming a joint for the meeting ends of rails.

The invention comprises the construction of tie and rail supporting and clamping means hereinafter described and claimed.

In the accompanying drawings Figure 1 is a side view of a portion of a railway track structure embodying the invention; Fig. 2 is a transverse section through the track on the line 2—2 Fig. 1; Fig. 3 is a similar view taken on the line 3—3 Fig. 1; Fig. 4 is a similar section taken on line 4—4 Fig. 1; Fig. 5 is a perspective view of one of the double ties; Fig. 6 is a similar view of one of the chairs used between double ties; Fig. 7 is a similar view of one of the single chairs; Fig. 8 is a similar view of a rail clamping member used at a rail joint; Fig. 9 is a similar view of the member used intermediate the rail joints; Fig. 10 is a perspective view of a single tie; and Fig. 11 is a similar view of the bottoms of the rails at the joint.

The cross ties embodying my invention are of inverted trough shape and are formed preferably of pressed plate metal. At the rail joints double inverted trough shaped ties 1 are used while intermediate the joints single ties 2 are used. Fig. 10 shows the single tie having the horizontal top portion 3, side portions 4 which are slightly inclined from the vertical, and outwardly projecting horizontal bottom portions or flanges 5, while Fig. 5 shows the double tie used at joints, this having the same top, side and bottom portions, with the intermediate horizontal bottom portion 6 joining the two trough shaped members. Since the side portions 4 are slightly inclined from the vertical and the tie is made of pressed resilient metal, it will yield to some extent, so as to give largely the effect of a wooden tie and avoid the extreme rigidity of most metal ties, which is an objectionable feature. To reinforce and strengthen these yielding members it is preferred to connect the bot-

tom flanges at one or more points between the rail seats, such as by means of a band or strap 7 provided with hooked ends embracing the flanges 5 of the tie, the drawing showing one such strap located at the central portion of the tie. This makes the tie approximately rigid or stiff at its center but leaves the bottom edges free underneath the rails so that it will spring or yield slightly under the impact of the train.

The tops of the tie are pressed down slightly as shown at 9 to form seats for the base of the rail, such depressed portions being of a depth approximately equal to the thickness of the rail base. The means for securing the rail to the tie comprises a chair or chairs 10 and clamping members 11. The chairs are each formed of plates pressed to shape and are substantially inverted U-shape, with outwardly projecting horizontal flanges 12 resting upon and secured to the bottom flanges 5 or 6 of the tie, being shown as secured thereto by means of rivets. If desired bolts may be used. The legs 13 of the chairs are provided about midway with horizontal flanges 14 which have upwardly projecting shoulders 15 at their edges. The lower portions of the legs flare outwardly slightly so as to make the chairs slightly yielding, or springy. The chairs used at the single ties, and at the outer sides of the double ties have plane tops as shown in Fig. 7, while those used between the double ties have broad tops as shown in Fig. 6, with shoulders 16 at their side edges to embrace the edges of the rail base. They also have a rib 17 or boss on the upper face to take into holes or grooves 18 cut in the bottom of the rails, (Fig. 11) in order to prevent any lateral deflection of the ends of the rails at the joints. The chairs used between the members of the double ties have sloping side edges to fit into said space. Those used at the single ties need not contact with the rail base.

The clamping members 11 are formed to embrace the edges of the rail base, having the portion 20 lying above the rail base and bearing against the web of the rail and which may extend up to the rail head like an ordinary fish plate, and portions 21 extending underneath the rail base and having connected thereto the downwardly extending portions 22 having at their extreme lower ends the outwardly projecting flanges 23. The clamp member also has a flange or rib 24 which fits down over the edge of the rail and projects

into the depression 9 of the tie. The parts are secured in place by means of vertical bolts 25 passing through the horizontal flanges 14 of the vertical members of the chair and the horizontal flanges 23 of the clamping members, and horizontal bolts 26 connecting the vertical portions 22 of the two clamping members on the opposite sides of the rail and also passing through the upper part of the rail chair. The bolts 26 serve to draw the two clamping members on the opposite sides of the rail toward each other, thus tightly clamping the rail base and forcing the edges of the upper portions 20 of the clamps against the web of the rail, while the bolts 25 passing through the horizontal flanges of the chair and clamping members hold the clamps against rising. The upwardly turned shoulders 15 on the rail chair largely relieve the bolts 25 of shearing strain. The bolts 25 and 26 have both right and left threads with two nuts 24^a which act to lock each other.

At the rail joints where the double ties are used there is a single chair used between the two members of the double tie, being secured to the bottom connecting portion 6 thereof, and two chairs, one on either side of the tie and secured to the flanges 5. The ends of the middle chair are shaped to fit neatly against the vertical portions of the double tie and the top of the chair is flush with the rail seats so that the ends of the rails are supported on the chair. The clamping members in this case have the upper portion 20 of sufficient length to extend over the entire double tie and have a vertical portion 22 extending down into the trough between the two members of the double tie, and one such portion at each side of the tie, being secured to the chairs in the manner described. At the single ties a rail chair 10 is placed on each side of the tie, being riveted to the flanges 5 at the opposite sides of the tie, and the clamping members 11 have a downwardly extending portion 22 on the opposite sides of the tie in the manner described. With both forms of ties and clamping members the upper portion 20 embracing the base of the rail fits down into the depressed portion 9 of the tie.

The several parts of the track structure described can be easily and cheaply manufactured. No special shape of rails is required but any standard rail may be used. The two members of the chair and also the two members of the clamps can be readily made by die pressing, or forging, or castings may be used. The tie also can be conveniently made by die pressing, and all the parts can be readily assembled and when so assembled provide a track structure having a yielding base similar to wooden ties and having the rails fastened to the ties in a very secure manner and also providing a joint for the rails without the necessity of using fish plates, or

angle bars, and with the joint firmly supported by the chair upon which the ends of the rail rest.

What I claim is:

1. In a railway track structure, the combination of an inverted trough-shaped tie having a broad horizontal top, sides and outwardly projecting bottom flanges, and being composed of resilient wrought metal, the sides being slightly inclined from the vertical, and a transverse tie member connecting the lower edges of the trough intermediate the rail seats but leaving the edges free underneath the rails.

2. In a railway track structure, the combination of a metallic tie having a top, and substantially vertical sides and lateral bottom portions, a chair secured to a lateral bottom portion of the tie and projecting upwardly toward the top of the tie, and clamps embracing the rail base and secured to the sides of said chair.

3. In a railway track structure, the combination of a metallic tie having a top providing a rail seat, substantially vertical sides and lateral bottom portions, a chair secured to a lateral bottom portion of the tie but not projecting above the rail seat, clamps embracing the rail base and having portions projecting downwardly at the sides of the chair, and a horizontal bolt connecting the downwardly projecting portions of the clamps.

4. In a railway track structure, the combination of a metallic tie having a top providing a rail seat, substantially vertical sides and lateral bottom portions, a chair secured to a lateral bottom portion of the tie and extending upwardly to the top of the rail seat, clamps embracing the rail base and having portions projecting downwardly at the sides of the chair, and a horizontal bolt extending through said downwardly projecting portions and through the chair.

5. In a railway track structure, the combination of a metallic tie having a top, substantially vertical sides and lateral bottom portions, clamping members embracing the rail base and one lying on each side of the rail and having portions extending over the top of the tie and vertical portions extending downwardly at the side of the tie, bolts connecting said downwardly extending portions, and means connecting said clamping members to the tie.

6. In a railway track structure the combination of a metallic tie having a broad horizontal top with rail seats formed therein, and having square shoulders at the edges of said seats, rail clamping members embracing the base of the rail and having portions fitting against the square shoulders at the rail seats and also having portions extending beyond said shoulders and resting on the top face of the tie, said clamps extending inwardly to the rail web and then extending upwardly to

brace said web above its lower edge, and means for securing said clamping members to the tie.

7. In a railway track structure, the combination of a metallic tie having a top, substantially vertical sides and lateral bottom portions and having rail seats formed in the top, clamping members embracing the rail base and fitting in the seats in the top of the tie and provided with portions projecting downwardly at the sides of the tie, a bolt connecting said downwardly projecting portions, and means for connecting said clamping members to the tie.

8. In a railway track structure, the combination of a metallic tie having a top, substantially vertical sides and lateral bottom portions, a chair of substantially inverted U-shape having outwardly projecting flanges on its legs, said chair being secured to a lateral bottom portion of the tie, and clamping members embracing the rail base and having downwardly projecting portions with lateral flanges, and bolts passing through the lateral flanges of the clamping members and of the chair.

9. In a railway track structure, the combination of a metallic tie having a top, substantially vertical sides and lateral bottom portions, a chair of substantially inverted U-shape having lateral flanges on its legs, said chair being secured to a lateral bottom portion of the tie and having upwardly projecting shoulders on its lateral flanges, clamping members embracing the base of the rail and having downwardly projecting portions with lateral flanges at their lower ends and resting on the lateral flanges of the chair, bolts connecting said lateral flanges, and a horizontal bolt connecting the downwardly projecting portions of the clamping members.

10. In a railway track structure, the combination of a metallic tie of substantially inverted trough-shape with lateral projections or flanges at its lower edges, rail clamping members provided with means for engaging the rail base and extending across the tie with a downwardly projecting portion on each side of the tie, chairs secured to the flanges of the tie and connected to the vertical portions of the clamping members, and horizontal bolts connecting said vertical portions.

11. In a railway track structure, the combination of a metallic tie of double inverted trough section provided with horizontal

bottom flanges and a horizontal bottom connecting web, rail clamping members provided with means for embracing the rail base and extending across the tops of both members of the double tie and provided with vertical portions projecting downwardly between the two members of the double tie, a bolt connecting said vertical portions, and means connecting said vertical portions with the tie.

12. In a railway track structure, the combination of a metallic tie of substantially double inverted trough-section having horizontal flanges at the lower edges and a horizontal web connecting the two members of the double tie, clamping members provided with means for engaging the rail base and extending across the tops of the two members of the double tie and having a vertical portion extending downwardly between said members, a bolt connecting said vertical portions, a chair secured between the two members of the double tie, and means connecting said chair and said clamping members.

13. In a railway track structure, the combination of a metallic tie of substantially double inverted trough-section having horizontal flanges at the lower edges and a horizontal web connecting the two members of the double tie, clamping members provided with means for engaging the rail base and extending across the tops of the two members of the double tie and having a vertical portion extending downwardly between said members and other vertical portions extending downwardly on each side of said tie, bolts connecting said vertical portions, a chair secured to the flanges on each side of the tie and to the central web, and means connecting said chairs and said clamping members.

14. In a railway track structure, the combination of an inverted trough shaped tie having a broad horizontal top, sides and lateral bottom portions, a chair secured to a lateral bottom portion of the tie and extending up to the top of the tie, the top of said chair being provided with a projection to fit a depression in the rail base, and clamps for securing the rail to the tie.

In testimony whereof, I the said CHARLES JENKINS have hereunto set my hand.

CHARLES JENKINS.

Witnesses:

ROBERT C. TOTTEN,
J. R. KELLER.