

No. 786,636.

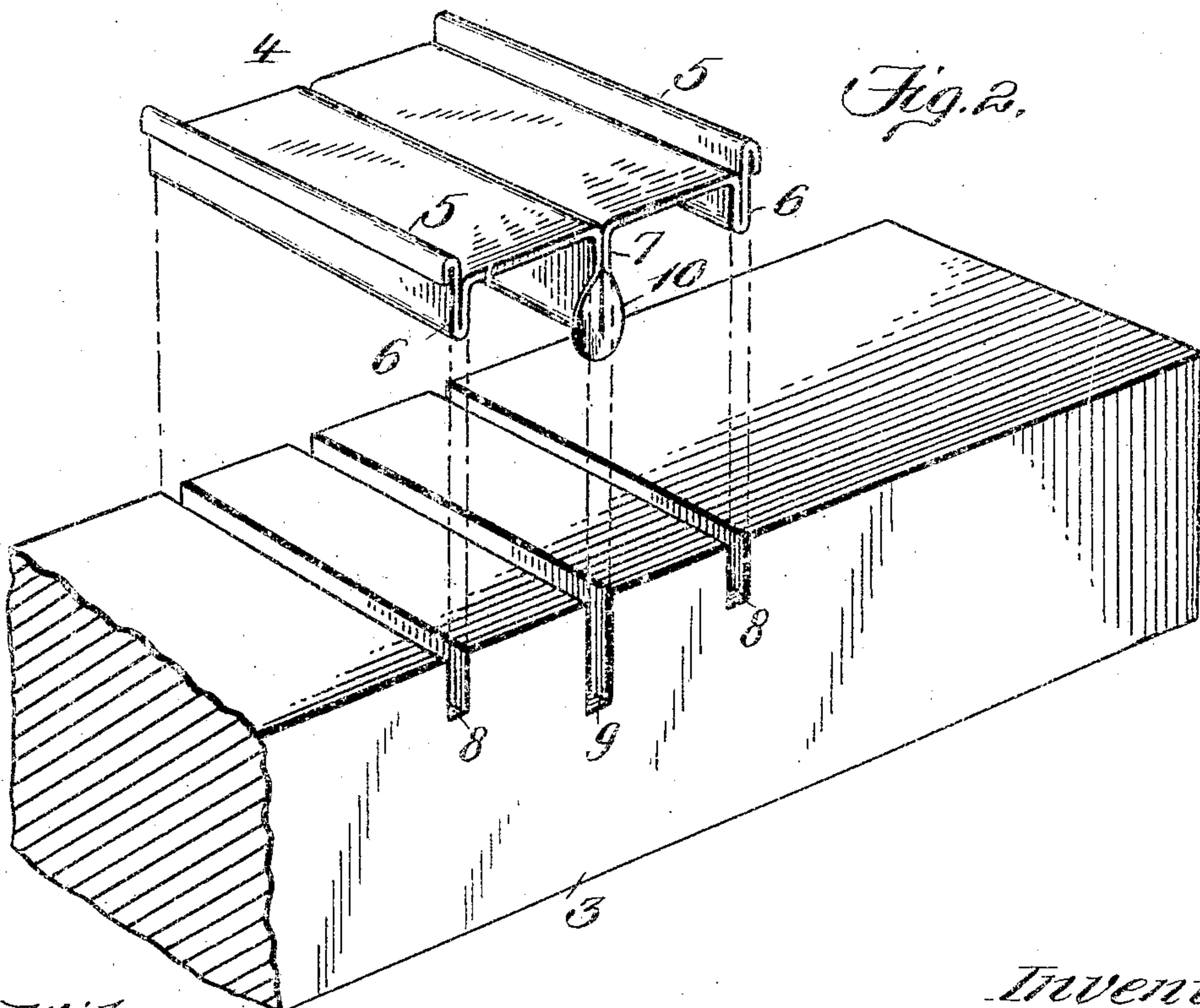
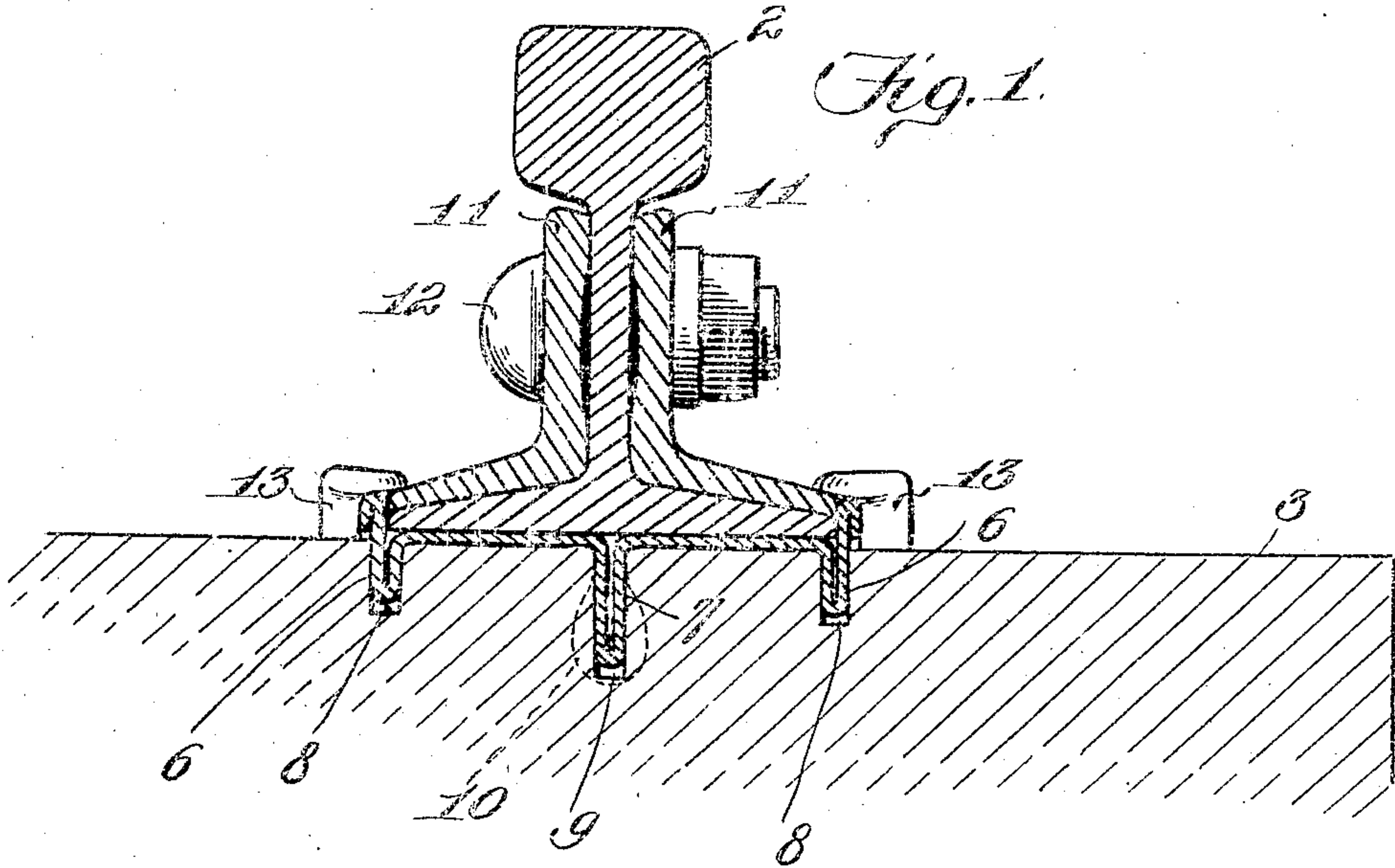
PATENTED APR. 4, 1905.

A. C. FLETCHER.

RAIL JOINT.

APPLICATION FILED JAN. 18, 1905.

2 SHEETS—SHEET 1.



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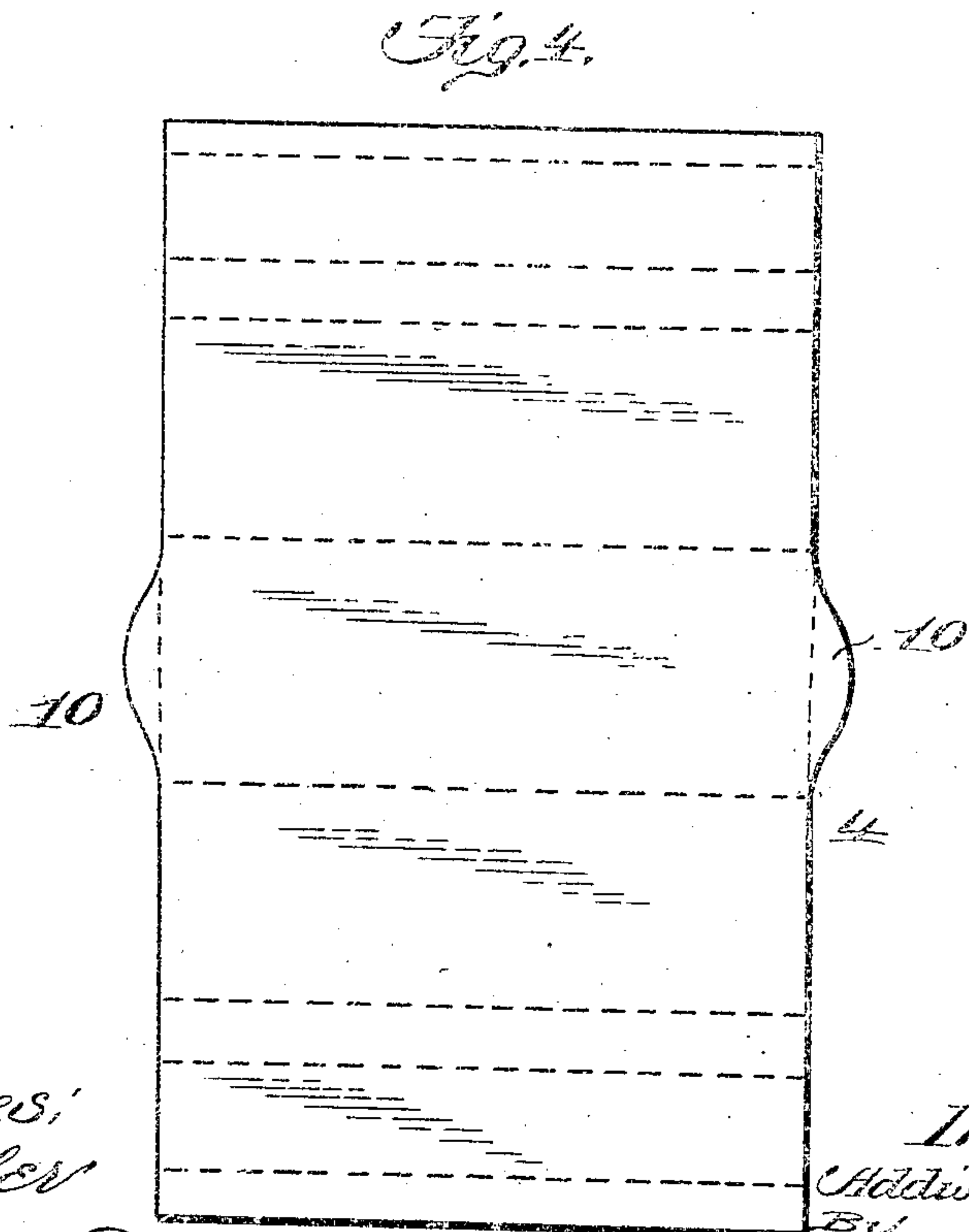
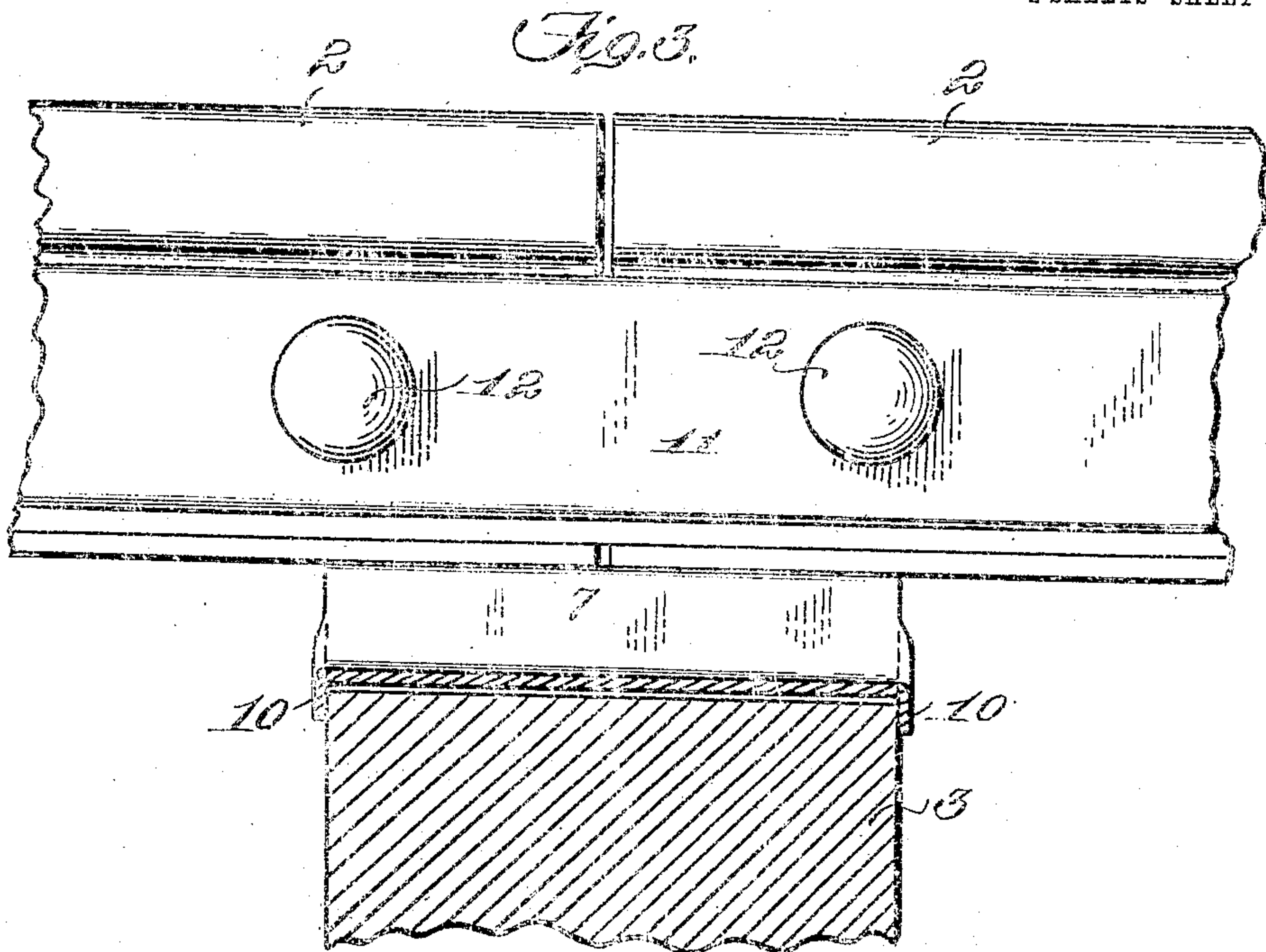
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A. C. FLETCHER.

RAIL JOINT.

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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 786,636, dated April 4, 1905.

Application filed January 19, 1905. Serial No. 241,859.

*To all whom it may concern:*

Be it known that I, ADDISON C. FLETCHER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to rail-joints of that class involving a rail-supporting chair.

It is one of the primary objects of my invention to provide a chair for this use which is simple in construction and which can be readily and inexpensively made.

In designating the invention as a "rail-joint," this is simply done for convenience, as it will be evident as the nature of the invention is better understood that the chair need not necessarily be used at joints, but may be used at other places—for example, curves—to prevent dangerous spreading of rails.

The chair in practice is adapted to be connected with a cross-tie in a rigid or immovable manner. Said chair is provided with means for limiting sidewise motion of the rail with which it coöperates. In the adaptation of the invention illustrated I provide on the upper side of the chair flanges against which the side edges of the base of the rail are adapted to abut. These flanges may be of any suitable character. In the present instance they are of a resilient nature and serve to restrict the sidewise motion of the rail to the extent of safety, although they yield sufficiently in a lateral direction to prevent their being snapped from place and also to allow for the proper expansion and contraction of the rail-chair and coöperating parts without injury thereto. The lateral motion of the rail-limiting flanges is, as will be evident, almost imperceptible; but it is sufficient to secure the advantages set forth.

To hold the chair against bodily lateral motion, it may be provided with flanges depending from the under side thereof and adapted to be seated in channels in the tie. These last-mentioned flanges are also resilient, so as to augment the effect of the flanges on the upper side of the chair.

Means of a suitable nature, such as wings, on one of the bottom flanges of the chair are

provided for restricting endwise motion of said chair or motion in the direction of the length of the rail with which said chair coacts. When wings are provided, they are adapted to engage the side faces of the tie to secure the function set forth.

In the drawings accompanying and forming a part of this specification I illustrate a form of embodiment of the invention which I will set forth in detail in the following description; but I do not restrict myself to the showing thus made, for certain variations may be adopted within the scope of my claims. For example, while I state that the several flanges hereinbefore described are resilient, this is not essential, although resiliency is preferred in order to bring about the peculiar results briefly described.

Referring to the drawings, Figure 1 is a cross-sectional view of a rail-joint involving my invention. Fig. 2 is a perspective view of a portion of a tie and a chair, the two parts being separated in order to more clearly represent their construction. Fig. 3 is a sectional side elevation, the section being taken through the tie and chair. Fig. 4 is a top plan view of the blank from which the chair is made. Figs. 2 to 4, inclusive, are upon an enlarged scale.

Like characters refer to like parts throughout the different views.

In Fig. 3 I have represented two rails, each designated by 2, of familiar construction and which fit end to end in the customary way. These rails 2 are adapted to be sustained by a tie, as 3, the particular construction of which will be hereinafter set forth. The said rails, however, are not directly supported by the tie, but rest directly on a chair, as that denoted in a general way by 4. The chair 4 may be made of any desirable material—for example, heavy sheet metal—which is susceptible to being swaged. I will denote the blank shown in Fig. 4, from which the chair is made, also by the character 4. The blank is represented as consisting of a rectangular plate. This plate is doubled on itself along the dotted lines indicated in said Fig. 4 to produce the several flanges shown in Fig. 2 in the finished chair. In other words, there are two flanges,



each designated by 5, on the upper side of the chair, and three flanges, as 6 and 7, depending from the under side of the chair, the latter flanges constituting anchoring-flanges.

5 I have used different characters to denote the depending flanges, for the reason that the intermediate one is deeper than the two outside flanges 6, the latter being located, as will be evident, near the side edges of the body of the chair. All the flanges extend the complete length of the chair. When I speak of the "length" of the chair, I mean that part thereof which extends longitudinally of the rails 2. The parallel flanges 5, which rise

10 above the upper face of the body of the chair, receive between them the bases of the two adjacent and substantially abutting rails 2, the under face of the body being adapted to fit flatwise and solidly upon the upper flat

20 face of the tie. In the tie and extending downward from the upper face thereof I form in some suitable manner the channels 8 and 9, the intermediate channel being denoted by the character last employed and being

25 deeper than the other channels. The ends of the channels, as will be clearly evident upon an inspection of Fig. 2, open into the side faces of the tie. The flanges 6 and 7 are adapted to be driven into and to snugly fit the

30 several channels 8 and 9, the intermediate flange 7, as will be evident, being arranged to enter the intermediate and deeper groove or channel 9. By driving the flanges into the receiving-grooves therefor it will be obvious

35 that when the chair 4 rests upon the tie it will be effectually prevented from bodily lateral motion, although the several flanges hereinbefore described may operate, by reason of their spring-like form, laterally.

40 Referring now to the blank shown in Fig. 4, it will be seen that on what might be considered the side edges thereof are two wings, each denoted by 10. Simultaneously with the formation of the central crease in the blank,

45 which is to produce the downwardly-depending flange 7 in the finished article, I bend back these wings 10 at right angles to the flange 7, so that in the finished article they will assume the relation shown in Fig. 2. As

50 the several flanges 6 and 7 are driven in the corresponding grooves the wings 10 upon the end of the intermediate flange will ride down the side faces of the tie until the end face of the chair strikes the tie, indicating that the

55 chair is in proper position. The flanges, as stated, prevent bodily rocking or lateral motion of the chair, while the end wings 10 of the intermediate flange effectually prevent endwise motion of the said chair. There is

60 no possibility, therefore, of the latter of itself bodily moving in any direction. In addition to the means illustrated to bring about this result the spikes hereinafter described also aid in securing same and take off naturally

65 some of the strain put upon the holding parts.

Extending across the side faces of the rails at their joint are fish-plates, as 11, of ordinary construction, bolts, as 12, also of some suitable kind, passing through registering perforations in the webs of the rails and fish-plates, respectively. The side edges of the bases of the rails and of the fish-plates, it will be seen, bear against the upwardly-extending parallel flanges 5, so that not only do said flanges limit the lateral motion of the rails, but perform

70 the same office with respect to the fish-plates. To prevent the fish-plates and rails from upward displacement, I may rely upon spikes, as 13, adapted to be driven into the tie 3 at opposite sides of the chair 4, and the heads

80 of which are adapted to overlies the tops of the flanges 5 and the upper faces of the bases of the fish-plates. The spikes therefore prevent upward displacement of the chair.

It will be evident that the flanges 5 can

85 each move laterally but slightly upon vibration of the rails 2; but they effectually limit dangerous lateral motion of the rails to an extent sufficient to prevent accidents. As they move laterally, either inward or out-

90 ward, they impart corresponding motions to the depending anchoring-flanges 6, the vibrations of the latter being absorbed or taken up by the main or deep intermediate flange 7. Undue outward motion of the side flanges 5

95 is prevented by the shanks of the spikes. The lower edges of the outer branches of the doubled flanges 5 are located a short distance above the upper face of the tie, so that the latter will not affect the proper action of said

100 flanges.

It will be seen that the lower edges of the flanges 6 and 7 are located above the bottoms of the grooves 8 and 9, by virtue of which free yieldable motion of said flanges is assured. In addition to this a space is provided below each flange, into which water may drain and run off away from the tie through the ends of said grooves.

The parallel flanges 5 upon the upper side of the body of the plate or chair, it will be perceived, are perpendicular to said body, so that while I secure the advantages attending the resiliency of said flanges I also render easy the putting in place of the rails. As the flanges are perpendicular to the body or vertical, I can attach the chairs to a tie and afterward drop the bases of the rails into the spaces between the said flanges. The joints therefore can be made with rapidity. The said

105 flanges 5, as will be evident, are integral with the plate and are doubled on themselves, the outer branches of each extending short of the under face of the body of the chair or plate, which is one simple and advantageous way of securing lateral resiliency in said flanges.

Having thus described the invention, what I claim is—

1. A railroad-chair consisting of a plate doubled on itself transversely to present a



plurality of ascending flanges, each perpendicular to the body of the plate and laterally resilient.

2. A railroad-chair, consisting of a plate transversely doubled on itself to present a plurality of depending flanges and a plurality of ascending flanges, each resilient.

3. A railroad-chair consisting of a plate transversely doubled on itself to present three depending flanges, the intermediate flange being deeper than the other flange, and two ascending flanges, each flange being transversely resilient.

4. A railroad-chair comprising a plate having flanges integral therewith on the upper side thereof, said flanges being doubled on themselves to present inner and outer branches, the lower edges of the outer branches extending short of the under side of the body of the plate.

5. A railroad-chair comprising a plate having flanges on its upper side to receive between them the base of a rail, and a depending anchoring-flange, the latter being provided with means to limit endwise motion of the plate.

6. A railroad-chair, consisting of a plate having flanges on its upper side and anchoring-flanges on its under side, one of the last-mentioned flanges being provided with means to prevent endwise motion of the plate.

7. A railroad-chair consisting of a plate transversely doubled on itself to present ascending flanges and descending flanges, one of the descending flanges being provided with integral wings.

8. The combination of a railroad-tie having a plurality of grooves extending entirely across the same, and a chair provided with depending flanges to be driven into said grooves, and also provided with ascending flanges to receive between them a rail or rails, one of the depending flanges being provided with means to engage said tie to limit endwise movement of the chair.

9. The combination of a railroad-tie, a chair rigidly held upon said tie and provided with ascending flanges, rails fitted between said flanges, fish-plates associated with the rails and bearing against the flanges, and spikes adapted to be driven into the tie, the heads of the spikes being adapted to extend over the bases of the fish-plates and over the tops of said flanges.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ADDISON C. FLETCHER.

Witnesses:

HEATH SUTHERLAND,  
GEO. W. REA.