No. 835,110. PATENTED NOV. 6, 1906.

C. J. LARSON.

COMBINED RAIL JOINT AND TIE.

APPLICATION FILED JULY 9, 1906.

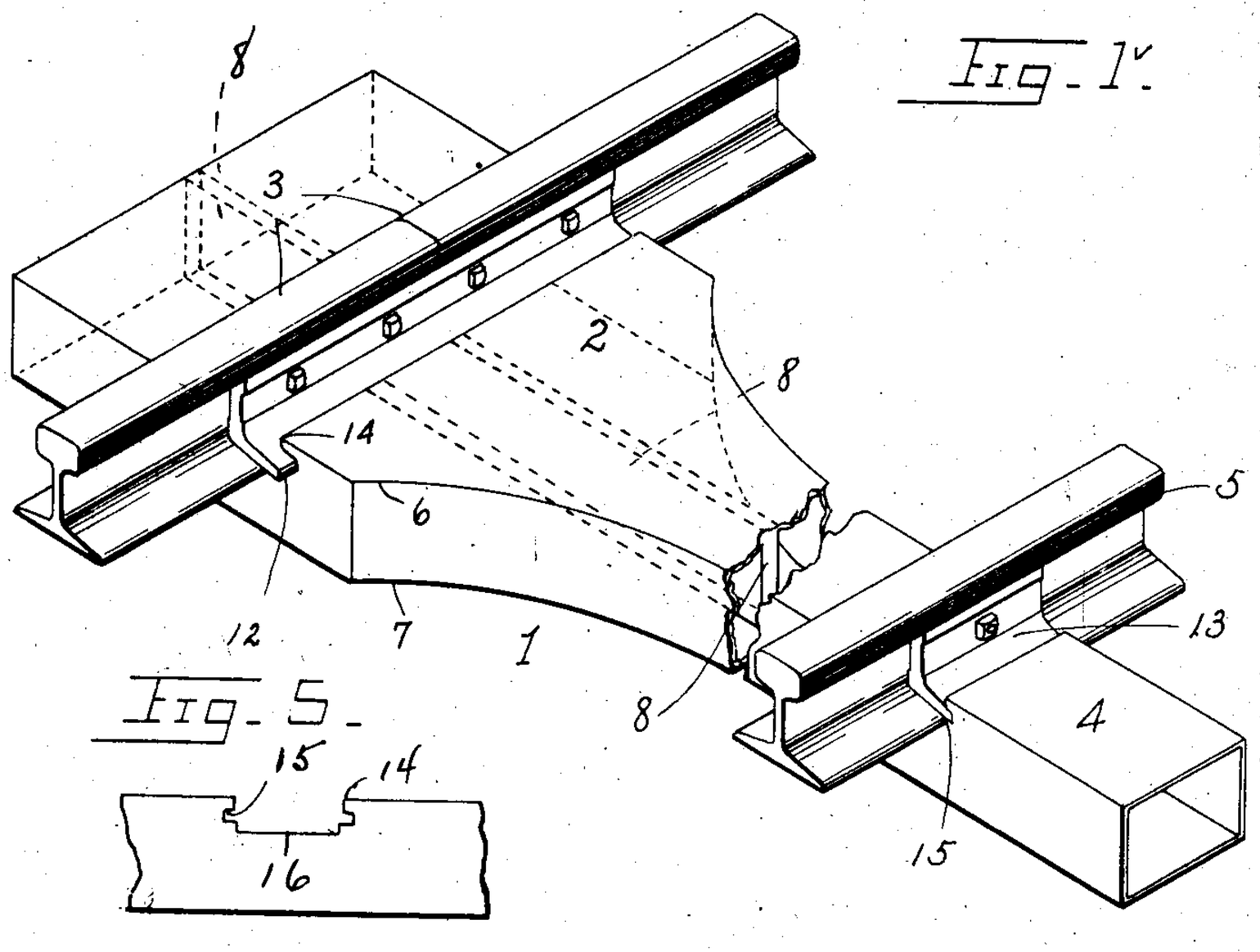

Fig. 1.

Fig. 5.

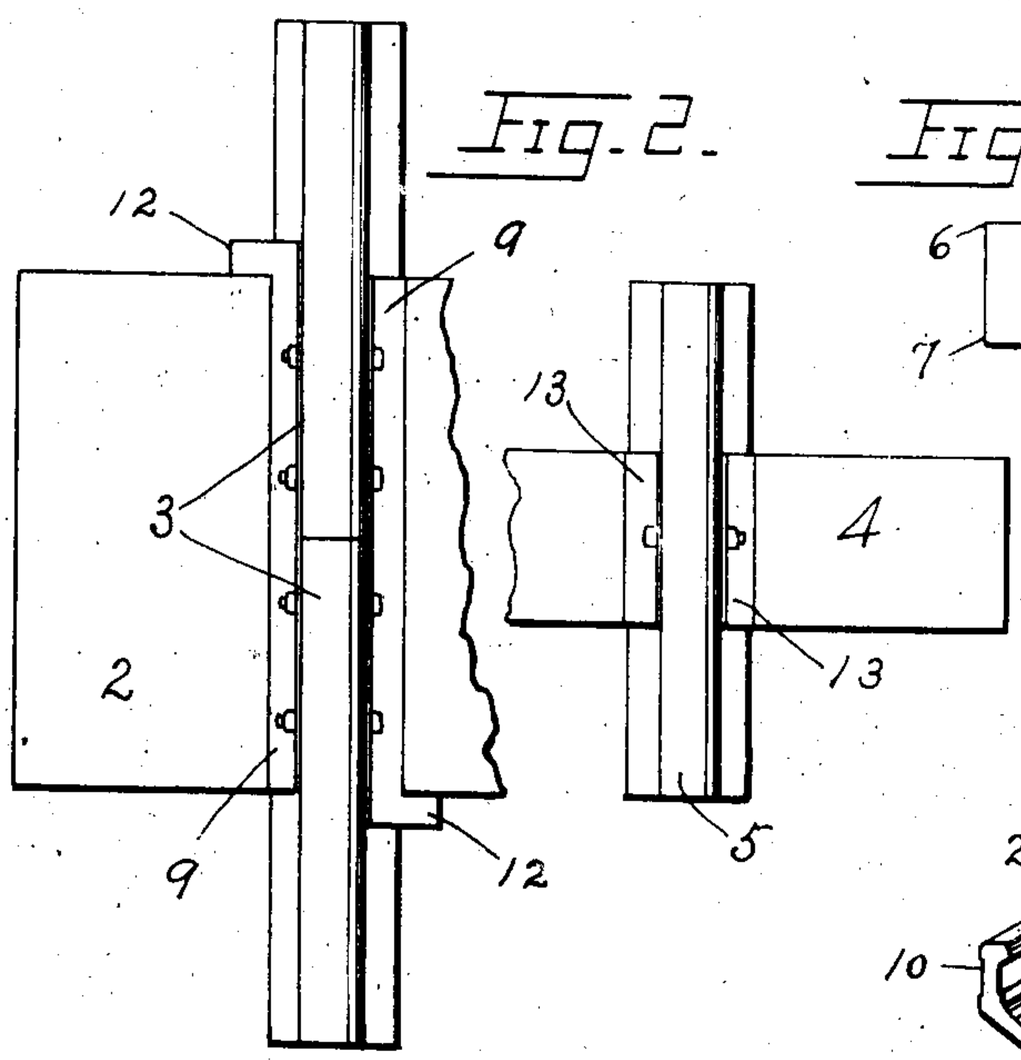

Fig. 2.

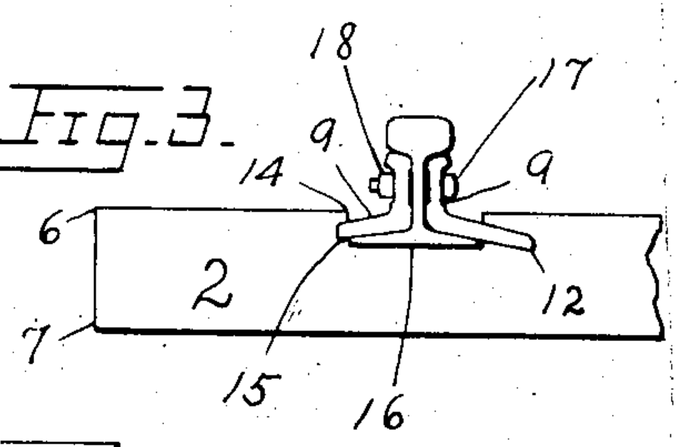

Fig. 3.

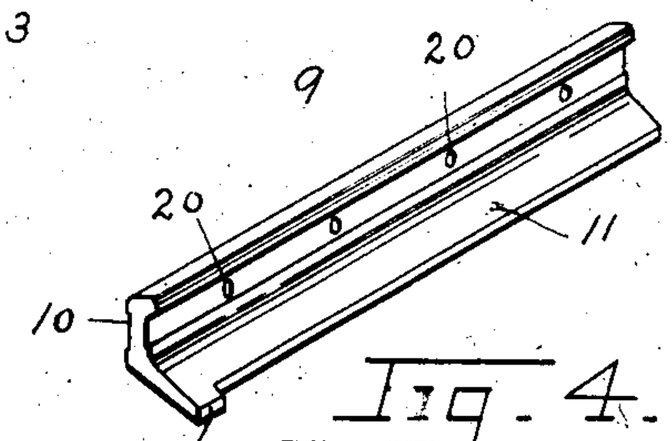

Fig. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLIES J. LARSON, OF GALESBURG, ILLINOIS.

COMBINED RAIL JOINT AND TIE.

No. 835,110. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed July 9, 1906. Serial No. 325,411.

To all whom it may concern:

Be it known that I, CHARLIES J. LARSON, a citizen of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented a certain new and useful Combined Rail Joint and Tie, of which the following is a specification.

Prefatorially I may state that while my invention pertains, primarily, to a railway-tie it has connected relation with means whereby, as will be hereinafter more fully explained, the ordinary rail may be secured thereto without the use of extra bolts, splice-bars, fish-plates, or other devices or expedients.

As is well known to those skilled in the art to which this invention appertains, a great driving or striking force or percussive blow is exerted by each wheel of a train of cars, especially by the driving-wheels of heavy locomotives, upon the end of each track-rail which is most distant from said wheels in their direction of motion or line of travel as said wheels pass thereover.

One of the main objects of my invention is to provide a tie whereby this blow may be reduced to a minimum.

A second object of the invention is to provide a device of the character hereinbefore entitled in the employment of which the rails may be readily, quickly, and successfully laid on or removed from the ties, it being now understood that ties of the nature hereinafter described may be of metal, concrete, or any other suitable and preferred material.

A still further object of the invention is to provide a reinforced tie which while simple of construction and economic of manufacture is strong, durable, light in weight, and which is adapted for being laid end for end for purposes hereinafter set forth.

To these and other ends and objects my invention consists in novel structural features and combinations of devices, the operation of which devices separately and in combination will be found hereinafter set forth, and specified in the claims hereto appended.

Mechanism showing the structural features, arrangement, connection, and mutual relationship of the several parts of my improvement is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective seen from the small end of the tie; Fig. 2, a top plan; Fig. 3, an elevation seen from the broad end of the tie; Fig. 4, a perspective of one of the fish-plates, and Fig. 5 a detail showing one of the undercut grooves.

Referring to the drawings by numerals, the same one indicating the same part in the different figures thereof, 1 represents my improved tie of hollow construction and which, as before stated, may be of any suitable material, as metal or concrete. It comprises a broad end 2, upon which is seated the rail-joint 3, and a narrow end 4, upon which the median portion of the opposite rail 5 is seated. It may here be stated that rails are laid in "broken joints," as shown at Figs. 1 and 2. Extending substantially throughout the length of the part 2 and connecting the top 6 and bottom 7 is a reinforce-plate or supporting-wall 8, which, it will be evident, will take the weight of the train-wheels and their supported parts as they pass over the rail ends. I have contemplated this wall 8, which is shown in the drawings as being perpendicular, to be of inverted-V shape or of any necessary or preferred construction, or, indeed, it may be, if desired, dispensed with.

9 9 represent splice-bars or fish-plates, identical in form and each comprising a vertical wall 10, (adapted to contact and engage the web of the rail,) a flange 11, (adapted to rest on the flange of the rail,) and a lateral projection or lug 12, the latter projecting rectangularly from the flange 11. Similar plates 13, but without the lugs 12, are employed on the narrow end of the tie, it being that end whereon the intermediate portion of the rail is laid.

As shown best at Fig. 5, each end of the tie is provided with an undercut groove comprising ledges or ribs 14, channels 15, and a rail seat or chair 16.

In operation the mid-length of a rail 5 is passed downwardly through the ribs 14 on the end 4 of the tie, which ribs are spaced apart at such suitable distance that the flanges of the rail will pass therebetween. The flanges of a pair of fish-plates 13 are then slipped or interposed longitudinally of the rail and transversely of the tie, their flanges resting within and being securely retained by the wall of the channels 15 and by the ribs 14. A single bolt 17 is then passed through the ordinary orifice and threaded into a nut 18. It will be manifest that the rail will have free endlong movement on the tie and that expansion and contraction are thus provided for.

On the broad end of the tie, which end, as

hereinbefore stated, constitutes the rail-joint chair, the proximal ends of a pair of rails are seated, as described in the manner of seating the single rail. A pair of fish-plates 9 are then slipped or slid into position, each from its end contrary to that upon which the lug 12 is formed and each from opposite directions, to bring said lugs into contact with the respective sides of the tie. The usual bolts are then passed through the apertures 20 in the plates 9 and secured by nuts in the ordinary manner. It will be evident that when this last-named operation has been performed the rails will not only be held from endwise movement, but that they will, by reason of the flanges of the plates 9 being held within the grooves in the tie, be held firmly and securely from being turned to one side or from being "spread," especially when the locomotive is passing thereover at great speed, and that for the same reasons a strong and firm seat for the rail is had. It will be furthermore evident that the construction shown permits of ready laying or taking up of worn or damaged rails or broken ties; that it is strong and durable; that it is economic of manufacture, and that the broad and firm rail-chair, together with the rigid manner in which the rails are held by my improved fish-plates and mode of securing them, and thereby the rails, to the ties, provides a joint comparatively free from percussive blows from the engine and car wheels.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A railway-tie embodying a broad and a narrow end, each end provided with a transverse undercut groove.

2. A railway-tie embodying a broad and a narrow end, each end provided with a transverse undercut groove and the broad end comprising an inner supporting-wall.

3. The combination with a railway-tie provided with a transverse undercut groove and a rail-seat, of a pair of rails, their flanges resting on said seat and within said groove, and fish-plates adapted to be secured to said rails and lying partly within said groove, each plate provided at one end with means for engaging the tie.

Witness my hand and seal this 16th day of June, 1906.

CHARLIES J. LARSON. [L. S.]

Witnesses:
C. S. RICHARDS,
L. M. RICHARDS.