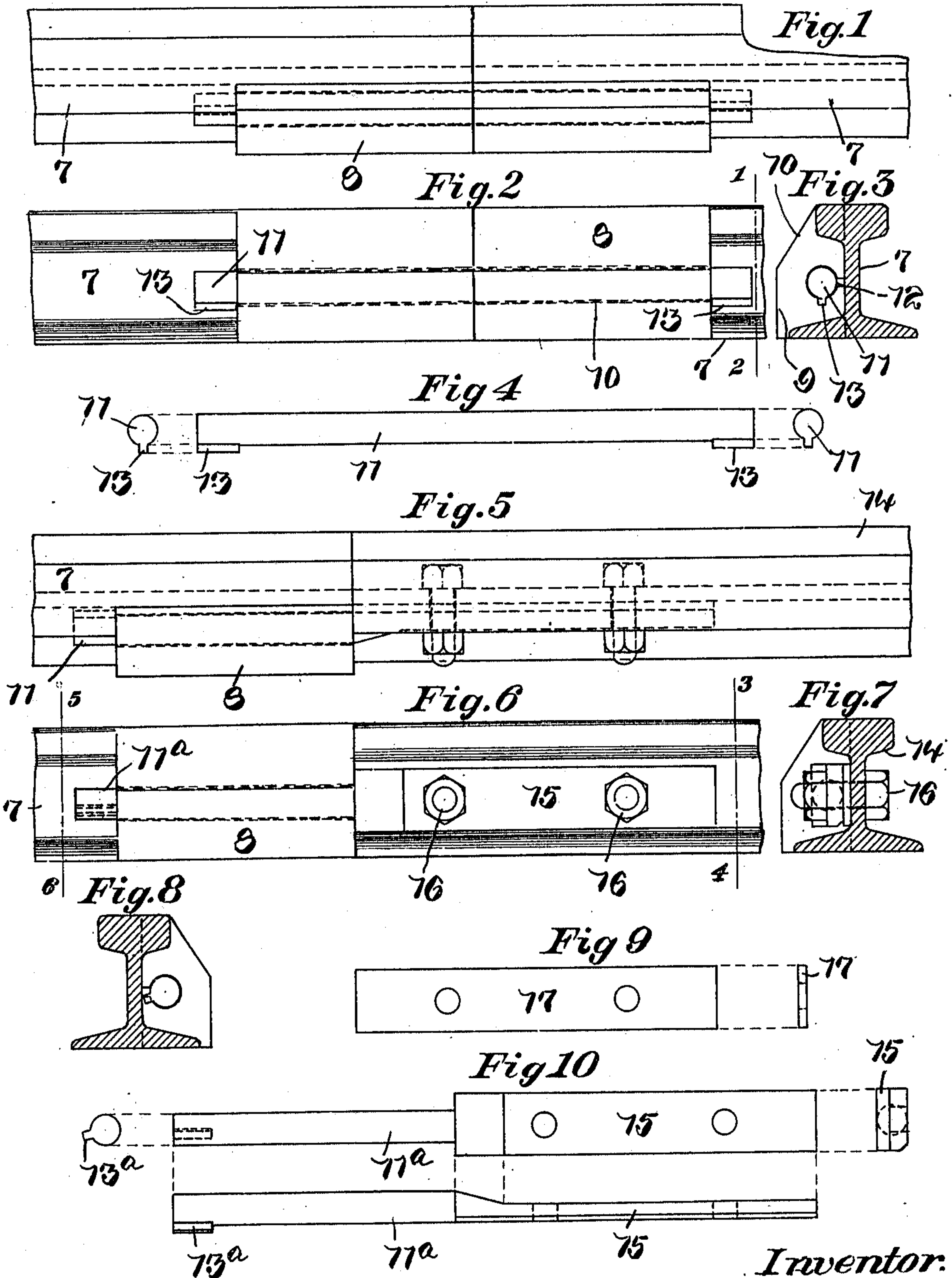


J. E. LEONARD.  
RAILWAY RAIL JOINT.  
APPLICATION FILED SEPT. 12, 1910.

978,314.

Patented Dec. 13, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES E. LEONARD, OF WALLA WALLA, WASHINGTON.

## RAILWAY-RAIL JOINT.

978,314.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed September 12, 1910. Serial No. 581,498.

*To all whom it may concern:*

Be it known that I, JAMES E. LEONARD, a citizen of the United States, residing at Walla Walla, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Railway-Rail Joints, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in railway rail joints, especially with reference to the construction of the rails at the meeting ends thereof and to the construction of means for securing the meeting ends  
15 of the rails together, the invention consisting in the construction, combination and arrangement of devices hereinafter described and claimed.

20 The object of the invention is to effect an improvement in the construction of railway rails and to combine therewith an improved device for securing the ends of the rails together without the necessity of employing fish plates, bolts and the like devices.

25 In the accompanying drawings,—Figure 1 is a plan of the meeting ends of a pair of rails provided with means, embodying my invention, for securing the ends of the rails together. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical transverse sectional view of the same on the plane indicated by the line 1—2 of Fig. 2. Fig. 4 is a detail elevation of the bolt rod which connects and secures the ends of the rails together. Fig. 5 is a plan of a rail constructed in accordance with my invention secured by means of a modified form of my connecting bolt rod to a rail of ordinary construction. Fig. 6 is an elevation of the same. Fig. 7 is a vertical transverse sectional view of the same on the plane indicated by the line 3—4 of Fig. 6. Fig. 8 is a similar view on the plane indicated by the line 5—6 of Fig. 6. Fig. 9 is a detail elevation of a shim plate which may be employed in connection with my improved connecting bolt. Fig. 10 is an elevation and also an edge view of the modified form  
40 of my improved rail connecting bolt rod.

In accordance with my invention each railway rail 7 which may be otherwise of the usual form is provided at its ends, on one side, with lateral shoulders 8 which are

rolled or otherwise formed integrally with the rails, and which shoulders are of suitable length and disposed directly at the ends of the rails. Each lateral shoulder 8 extends from one side of the rail base to one side of the edge thereof and presents a vertical outer side 9 and an inclined side 10<sup>a</sup> which converges upwardly to the head of the rail. Each lateral shoulder 8, which forms a reinforce for the end of the rail is provided with an opening 11, of cylindrical form, which extends therethrough from end to end and the said openings in the said lateral shoulders at the meeting ends of a pair of rails constructed in accordance with my invention align so that a cylindrical connecting bolt rod 11 may be passed immediately therethrough. In one side of each opening 10 is a groove 12 which is disposed radially with reference thereto. The length of the connecting bolt rod somewhat exceeds the combined length of the lateral shoulders 8 at the meeting ends of a pair of rails so that the ends of the said connecting bolt when the latter has been placed in the openings 10 project beyond the outer ends of the said lateral shoulders 8, and the said projecting ends of the connecting bolt are provided with key ribs 13 which may be formed integrally therewith or otherwise constructed as may be desired and which key ribs align with each other. When passing a connecting bolt rod through the openings 10 of the meeting ends of the pair of rails, one of the key ribs slides through the grooves 12. When the connecting bolt rod reaches the required position with its ends projecting beyond the outer ends of the lateral shoulders 8, the said bolt rod is then partly turned so as to move its key ribs 13 out of alignment with the grooves 12 and dispose the said key ribs with their inner ends opposed to the outer ends of the lateral shoulders 8, thereby locking the connecting bolt rod in place in the lateral shoulders of the rails and causing the same to securely fasten the ends of the rails together, as will be understood.

In Figs. 5 and 6 I show one of my rails 7 with its lateral shoulder 8 secured to the opposing end of a rail 14 of ordinary form. When thus arranged my improved connecting bolt rod has a cylindrical portion 11<sup>a</sup> sufficiently long to engage the shoulder 8 of the rail 7 and provided with the key rib 13<sup>a</sup>,



as in the former instance, and the said connecting bolt rod is formed with a flattened and broadened fish plate portion 15 which is adapted to bear against one side of the web of the rail 14 and is secured thereto by means of bolts 16 which pass through openings in said fish plate portion of the connecting link bolt and in the shank or web of the rail 14. In this form of my invention a shim plate 17 may be employed between the fish plate portion 15 of the connecting bolt rod and the shank or web of the rail 14. It will be understood that when securing one of my improved rails to a rail of ordinary form, the cylindrical portion 11<sup>a</sup> of the form of my connecting bolt rod, shown in Figs. 5 to 10, will be first engaged with and secured to the shoulder 8 of the rail 7 and the fish plate portion 15 of the said connecting bolt rod will be then bolted to the shank or web of the ordinary rail 14.

Having thus described my invention, what I claim is:—

The combination of a pair of rails provided at their meeting ends with laterally extending shoulders, said shoulders being provided with alining longitudinal openings extending therethrough and each with a radial groove communicating with said opening, of a connecting bolt rod extending through the said openings of the said shoulders and provided at its ends with radial key ribs to engage the outer ends of said shoulders and to operate in the said grooves when said connecting bolt rod is being applied to or removed from said rails.

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

JAMES E. LEONARD.

Witnesses:

JOHN H. PEDIGO,  
E. L. CASEY.