

(No Model.)

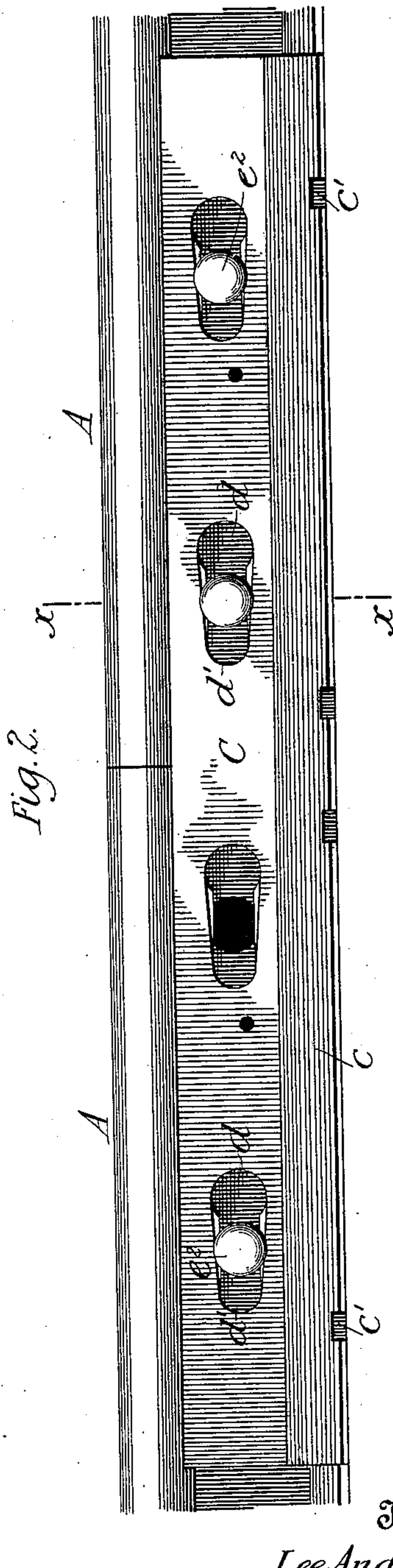
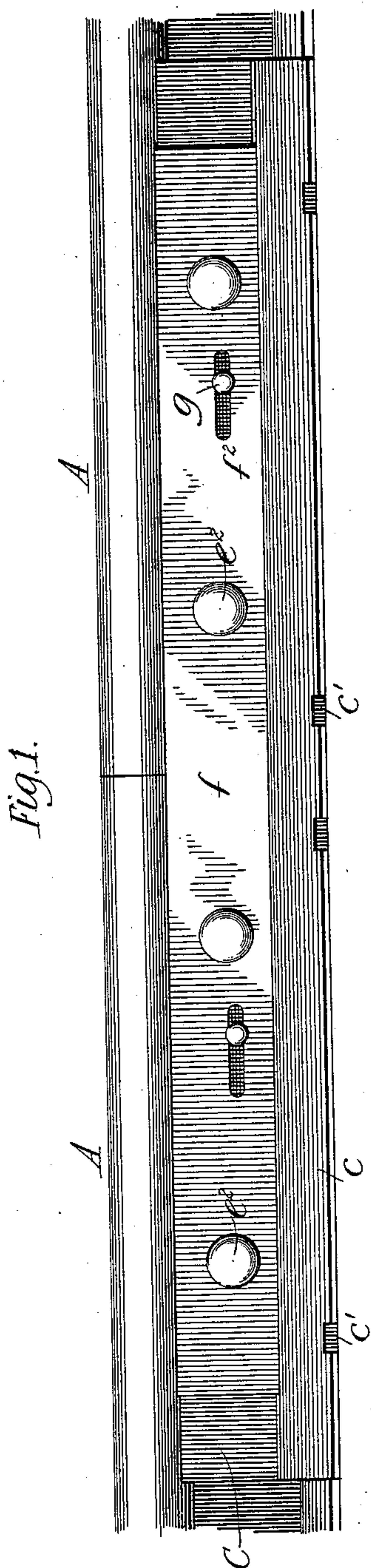
2 Sheets—Sheet 1.

L. ANDERSON.

LOCKING DEVICE FOR RAILWAY RAIL JOINTS.

No. 564,267.

Patented July 21, 1896.



Witnesses

S. E. Zimmerman  
W. J. Norton

Inventor

Lee Anderson

By *Richard W. Mahony*  
his Attorney

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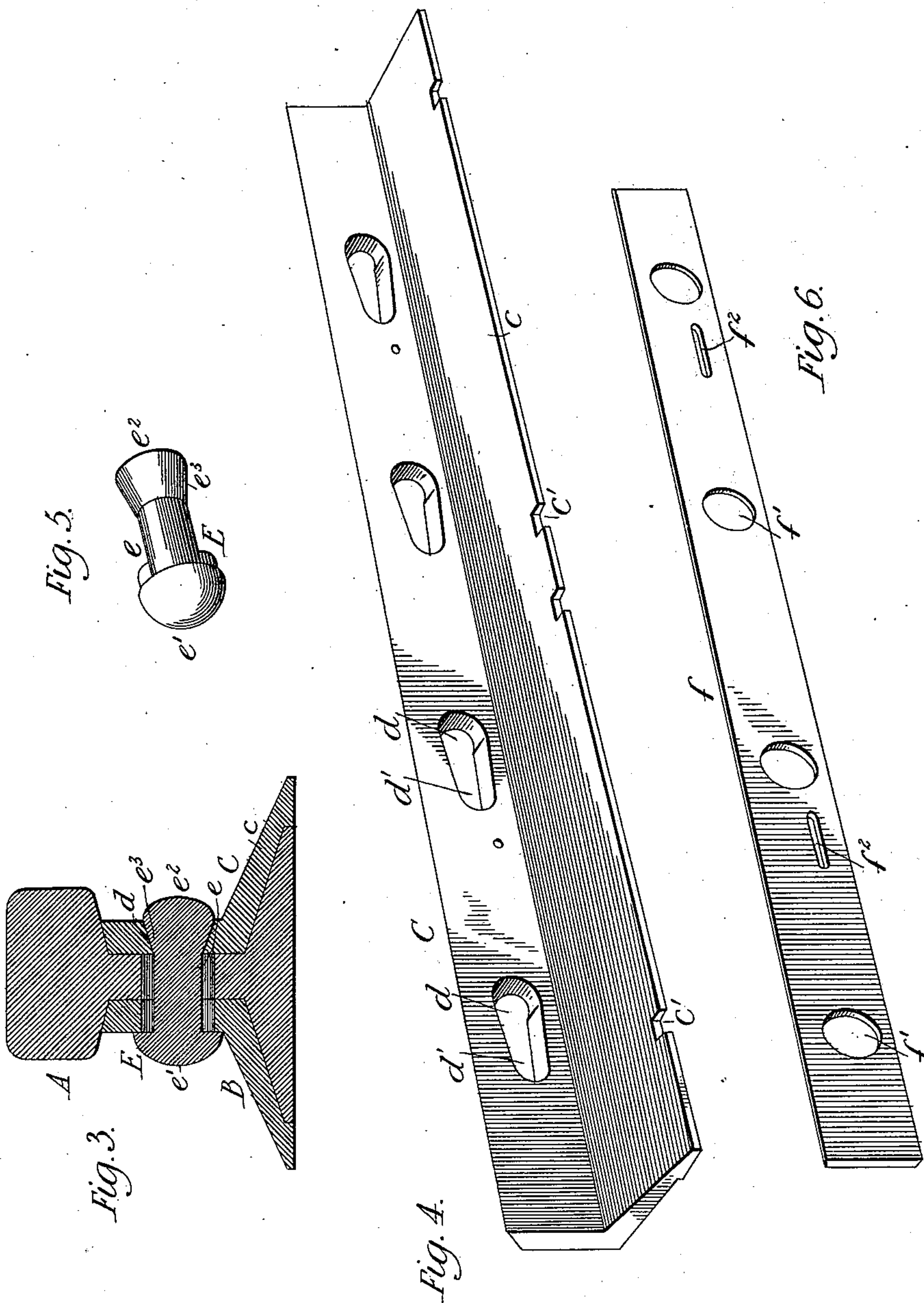
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his Attorney



# UNITED STATES PATENT OFFICE.

LEE ANDERSON, OF PARIS, TEXAS, ASSIGNOR OF ONE-HALF TO H. H. KIRKPATRICK, OF SAME PLACE.

## LOCKING DEVICE FOR RAILWAY-RAIL JOINTS.

SPECIFICATION forming part of Letters Patent No. 564,267, dated July 21, 1896.

Application filed March 31, 1896. Serial No. 585,611. (No model.)

*To all whom it may concern:*

Be it known that I, LEE ANDERSON, a citizen of the United States, residing at Paris, in the county of Lamar and State of Texas, have  
5 invented certain new and useful Improvements in Locking Devices for Railway-Rail Joints; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the  
10 art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

15 This invention relates to devices for locking railway-rail joints, and has for its object the provision of improved means for securely fastening the meeting rail ends in a manner to preclude accidental disconnection of any  
20 of the parts forming the joint.

The following description is directed to the details of construction, arrangement, and operation of my invention, in connection with  
25 which attention is called to the accompanying drawings, in which—

Figure 1 is a side elevation of a rail-joint embodying my invention. Fig. 2 is a similar  
30 view showing the face-plate and one of the bolts removed. Fig. 3 is a transverse sectional view taken on line  $xx$  of Fig. 2. Fig. 4 is a perspective view of the locking fish-plate. Fig. 5 is a perspective view of one of  
35 the bolts employed in forming the joint, and Fig. 6 is a perspective view of the face-plate.

Referring to the said drawings by letter, A  
A denote the rails, which are as ordinarily  
40 constructed, as is also one of the fish-plates B. My improved fish-plate is shown at C, and may be constructed with or without the foot-flange  $c$ . Slots are provided in the plate to receive the bolts, said slots being shaped  
45 generally after the manner of a keyhole, the wider portion  $d$  being substantially circular and having a diameter slightly in excess of that part of the bolt which in practice it receives, while the narrower portion  $d'$ , at the  
50 inner face of the plate, has a width a little in excess of the diameter of the bolt-shank. The sides of the portion  $d'$  of the slot have  
inclinations in opposite directions from the

inner to the outer face of the plate, said inclinations extending throughout the sides at the juncture of the portions  $d$  and  $d'$ , but gradually diminishing in width toward the inner end of the portion  $d'$ , as best shown in  
55 Figs. 1 and 3, thus providing a transverse and a lengthwise inclination to said latter portion of the slot.

The bolt E has its shank  $e$  terminating at each end in an integral head, one of which,  $e'$ ,  
60 has a vertical shoulder which, in practice, bears against the outer face of the fish-plate B; and the other head,  $e^2$ , which is circular or elliptical in cross-section, has a tapering  
65 shoulder  $e^3$ , the line of inclination of the taper being similar to the line of inclination of the sides of the slot previously described.

At  $f$  is shown what I term the "face-plate," the same consisting of a metallic strip perforated at  $f' f'$  to receive the bolt-heads  $e^2$ ,  
70 and serving as a guard against the entrance of dust and dirt into the slots. This face-plate also serves to hold the bolts against movement in the direction given to the locking fish-plate during the driving operation of  
75 the latter. The plate is slotted at  $f^2 f^2$  for a purpose presently to be explained.

The construction of the various parts of my invention having been fully described, I  
80 will now explain the arrangement and coöperation of the parts in practice.

The ends of the rails are brought together, the fish-plate B is placed in position, and the bolts are passed first through the said plate and then through the rail, the head  $e^2$  first,  
85 it being understood that the diameters of the holes in said plate and rail are sufficient to permit of the passage of said head. When the bolt is home, the tapering head  $e^2$  projects some distance beyond the rail, and with the  
90 parts in this condition the locking fish-plate C is placed in position against the rail, the heads  $e^2$  entering the portion  $d$  of the slots and projecting slightly beyond the plate, as best shown in Fig. 2. The face-plate  $f$  is then  
95 placed in position, the bolt-heads  $e^2$  projecting through the perforations  $f'$  therein, and said plate is firmly held in any suitable manner while the plate C is moved longitudinally  
100 by the force of blows or other power in a di-



recession from left to right or right to left, dependent upon the direction of the portion  $d'$  of the slots, which movement causes the tapering head of the bolt to enter the said narrower portion  $d'$  and to be subjected to a double wedging action due to the gradually-decreasing inclination of the sides of the slot. This double wedging action on the bolt-head subjects the bolt to a great longitudinal strain, which results in a binding action on the plates and rails and a firm and rigid joint of the latter. The locking-plate C is provided with a number of spike-notches  $c'$ , one or more of which receive a portion of a spike or spikes driven after the plate is forced to place, whereby the longitudinal play of the plate is prevented. The portion  $d'$  of the slot is of sufficient length to allow of ample movement of the plate for compensating a slack or worn joint, as will be understood. After the completion of the joint, rivets  $g$   $g$  are passed through the slots  $f^2$  of the plate  $f$  into the fish-plate to bind said plate  $f$  to place. The slots  $f^2$  are of sufficient length to enable the plate to be secured to place within a range of positions, as will be understood.

An important advantage incident to the employment of my invention is the dispensing with nuts and their locks, which, aside from the great cost incidental to their use, are constantly working off, to the great detriment and danger of the road.

By my invention the joint is effected without rotary motion of any kind, the bolt being threadless and double-headed, and in order to detach the parts the spikes which hold the locking-plate must be entirely withdrawn, which withdrawal can be effected only by the use of implements, and not in any way by

the movement or vibration of the rails while carrying a load.

My invention is very simple both as to the construction employed and as to the manner of making the joint, and in connection with this latter advantage it may be stated that the amount of time and labor involved in rail-laying is greatly reduced. The locking-rail and bolts which form my invention may be cheaply produced, as they require less material than in the devices heretofore employed, and, moreover, may be readily manufactured. The engagement of the bolt-heads with the sides of the slots operate as braces and serve to strengthen the plate at the perforations.

I claim as my invention—

1. In combination with a rail-joint, a locking fish-plate having keyhole bolt-slots, the narrow portion of the slots having inclined sides, the inclination diminishing gradually toward the end, and double-headed bolts, one of the heads being tapered, whereby the bolt is subjected to a double wedging action substantially as described and for the purposes set forth.

2. In combination with a rail-joint, a locking fish-plate having keyhole bolt-slots, the narrow portion of the slots having inclined sides, the double-headed bolts one of the heads being tapered, and a face-plate perforated to receive the tapered heads, and slotted to receive securing-rivets which are passed into the fish-plate.

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

LEE ANDERSON.

Witnesses:

W. T. NORTON,  
ARTHUR BROWNING.