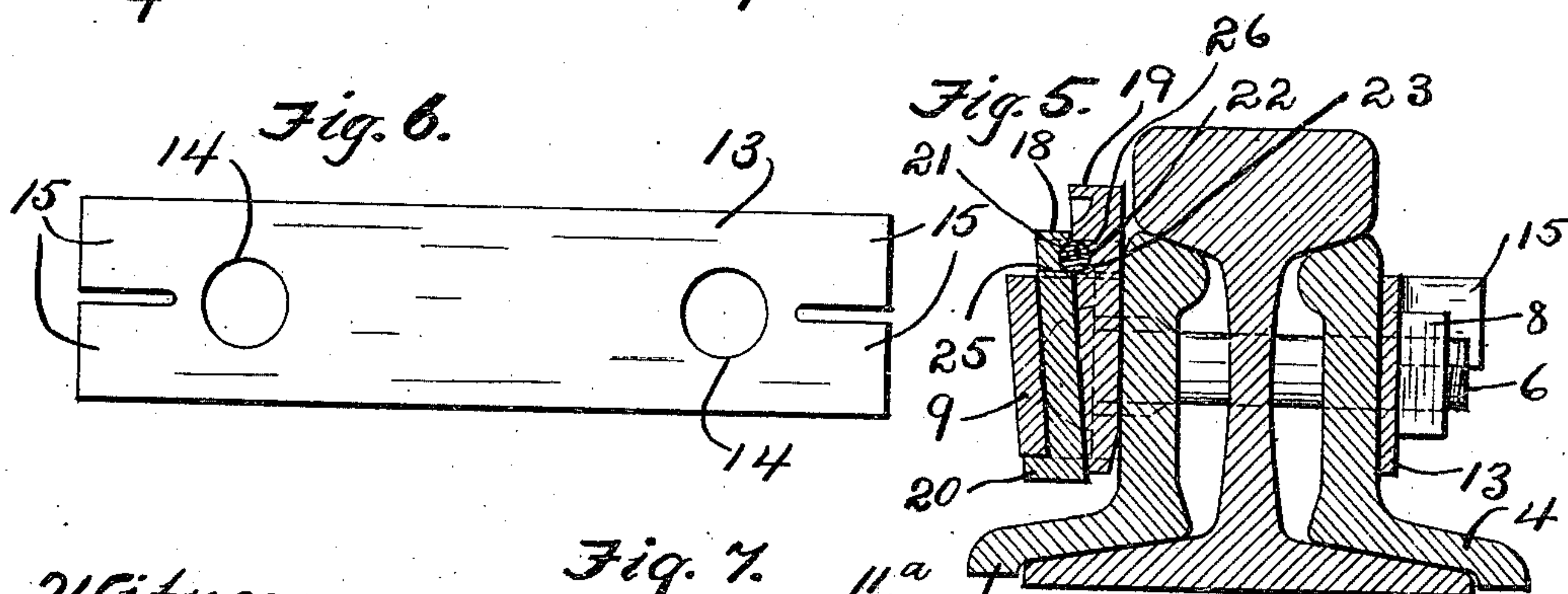
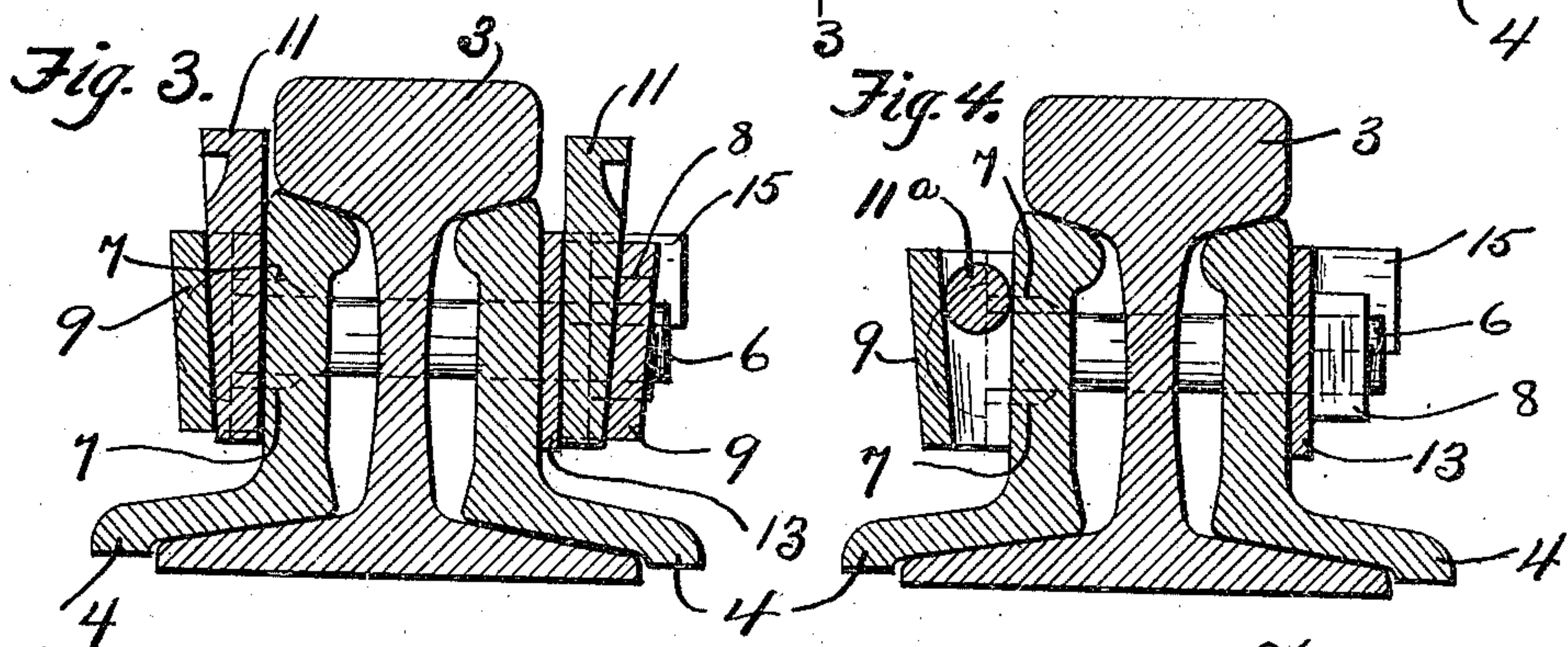
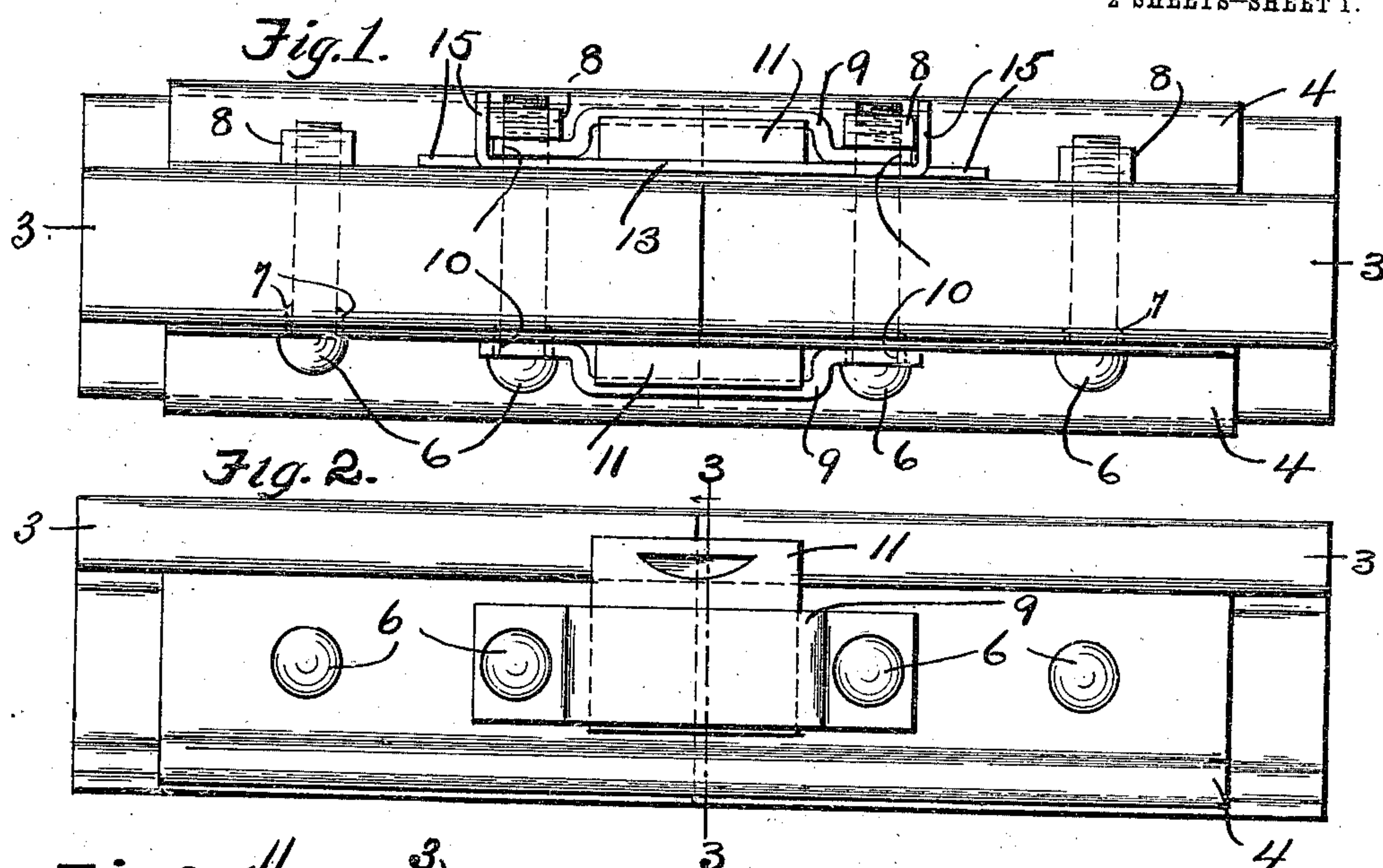


J. WOLFE.  
RAIL JOINT.  
APPLICATION FILED OCT. 30, 1908.

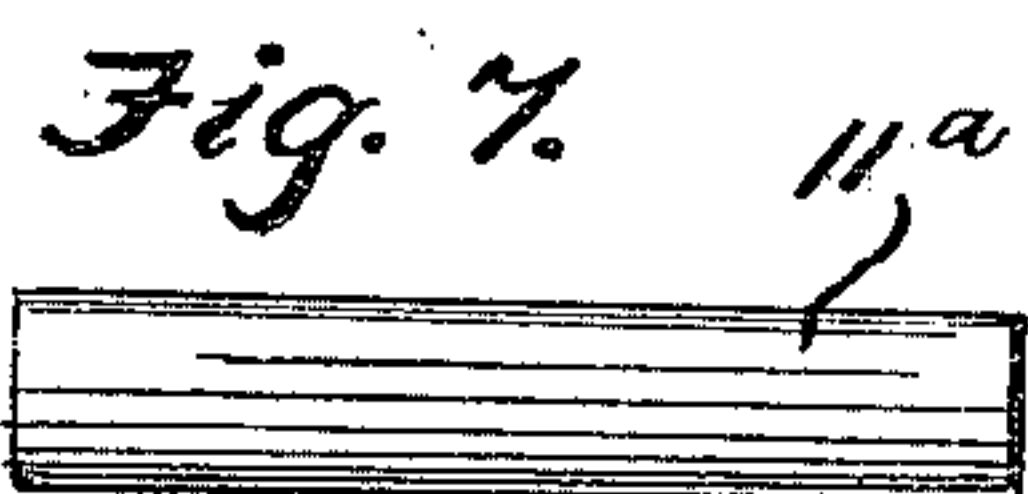
989,682.

Patented Apr. 18, 1911.

2 SHEETS-SHEET 1.



Witnesses:  
H. J. Gettins.  
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Inventor:  
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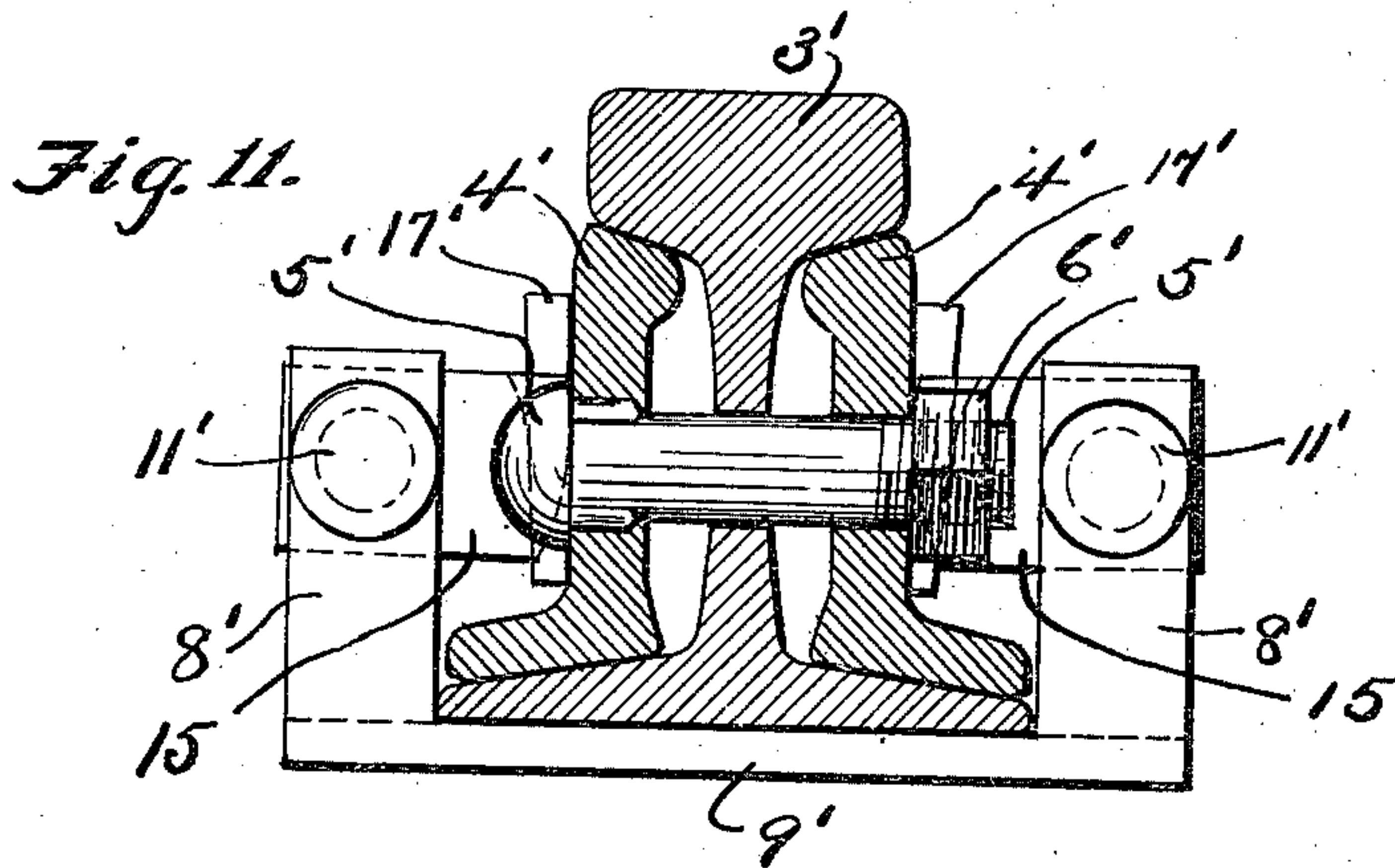
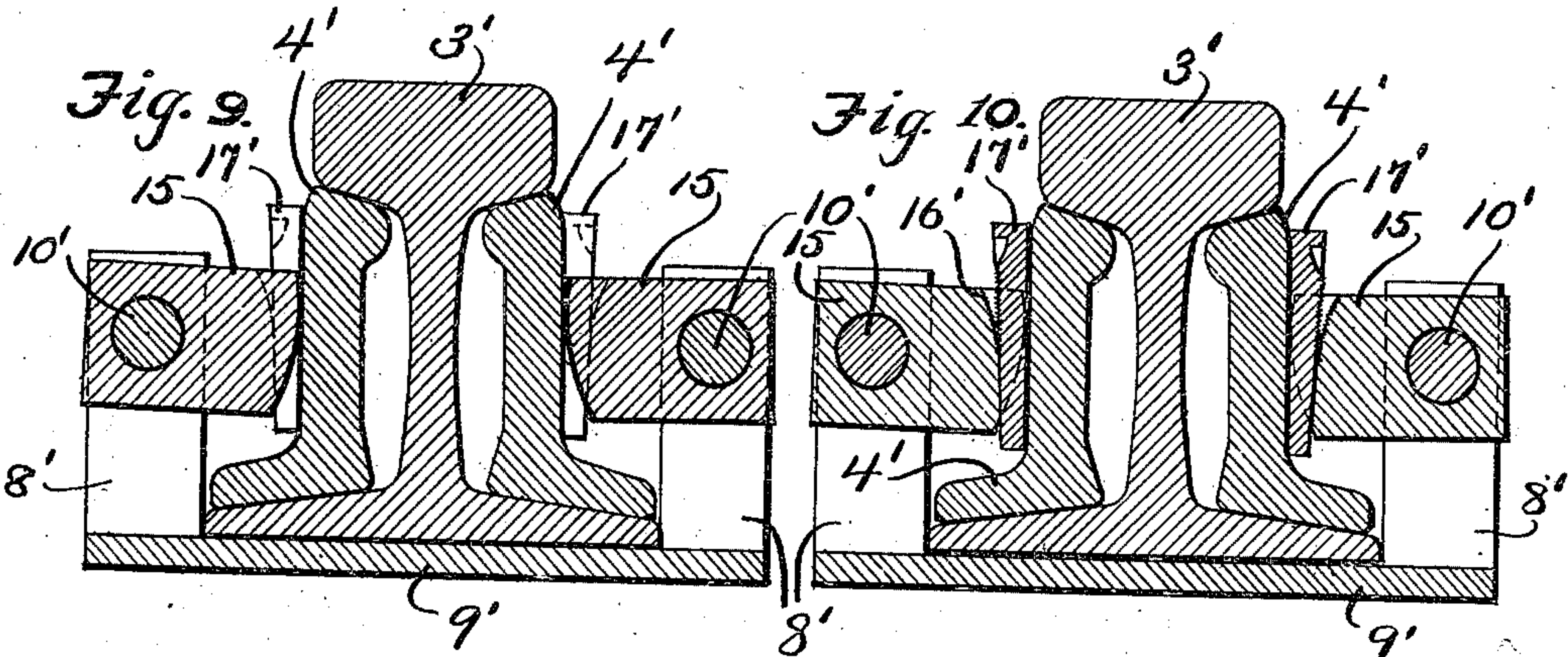
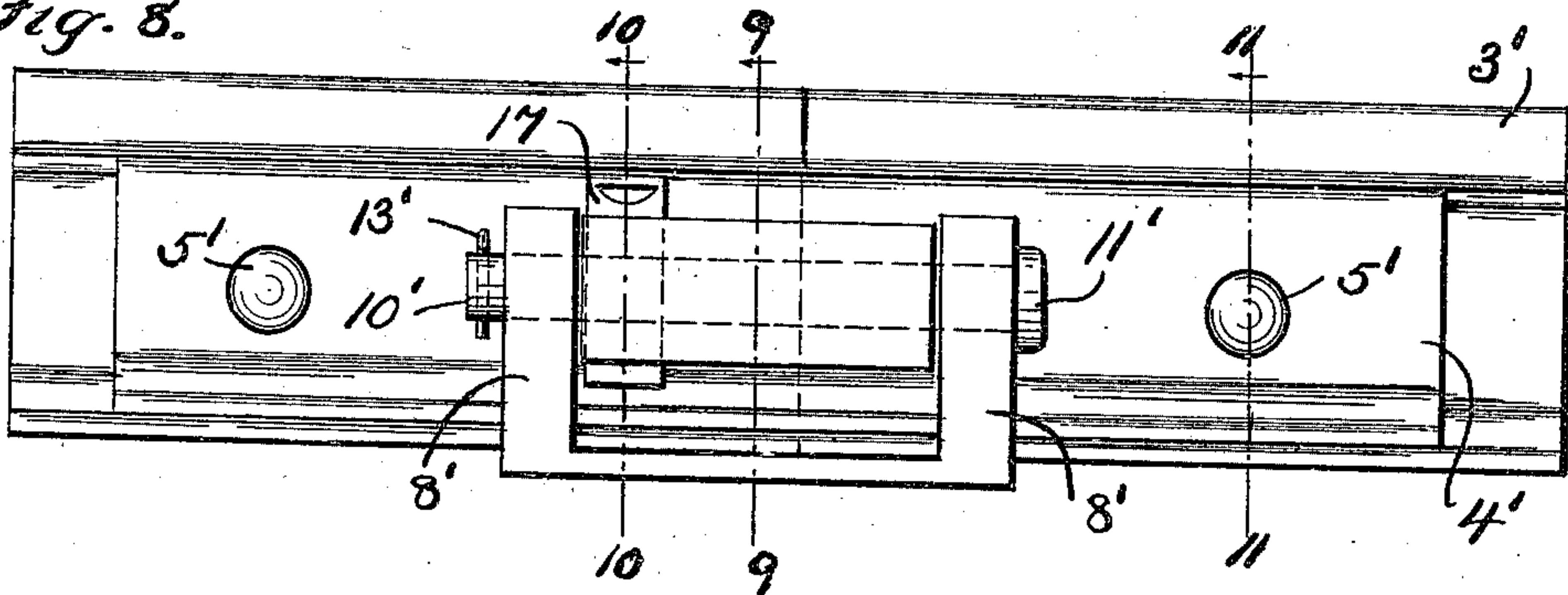
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2 SHEETS-SHEET 2.

Fig. 8.



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# UNITED STATES PATENT OFFICE.

JOHN WOLFE, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO U. S. METAL & MANUFACTURING CO., OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## RAIL-JOINT.

989,682.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed October 30, 1908. Serial No. 460,187.

*To all whom it may concern:*

Be it known that I, JOHN WOLFE, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Rail-Joints; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to new and useful improvements in rail-joints.

The object of this invention is to provide a rail-joint by means of which the rails can be more positively clamped together than by devices heretofore in use and one which will automatically tend to tighten itself while in service thus doing away with the necessity of inspecting the joints after they have been installed.

In general my invention consists in providing an abutment at one or both sides of the rails at the joint thereof and inserting between said abutment and the fish-plate which spans the joint a movable wedging device which is free to adjust itself to any change in distance between said abutment and said fish-plate. The increase in distance between the abutment and the fish-plate may be caused by the fish-plate working in under the flange of the rails or through the stretching or elongation of the track-bolts which support the abutment and therefore by the automatic adjustment of the wedging device to the change of distance between the abutment and the fish-plate, the fish-plate will always be tightly clamped against the rails. The abutment may be supported independently of the rails or may be supported on the track-bolts which clamp the fish-plates to the rails. The wedging device may have any suitable shape and may consist of a single member or a plurality of members.

My invention also consists in the features of construction and combination of parts as described in the specification, pointed out in the claims and illustrated in the accompanying drawings.

Referring to the accompanying drawings Figure 1 is a plan view of a rail-joint embodying my invention, showing two abutments, one at each side of the rails, the abutments being in the form of straps which

span the joints of the rails and are supported on the bolts which clamp the fish-plates to the rails. In this view the wedging device is shown as consisting of a single wedge-shaped member. Fig. 2 is a side elevation of same. Fig. 3 is a section on line 3—3, Fig. 2. Fig. 4 is a section similar to Fig. 2 showing an abutment at one side of the rails only and showing a cylindrical-shaped wedging device. Fig. 5 is a section similar to Fig. 2 showing an abutment at one side of the rails only and showing the wedging device as consisting of two wedge-shaped members locked together. Fig. 6 is a view of the locking plate for preventing the loosening of the nuts. Fig. 7 is a detail view of the cylindrical-shaped wedging device. Fig. 8 is a side elevation of a rail-joint embodying my invention, showing two abutments, one at each side of the rails, the abutments being in the form of bars which are supported in standards mounted independently of the rail. Fig. 9 is a section on line 9—9, Fig. 8. Fig. 10 is a section on line 10—10, Fig. 8. Fig. 11 is a section on line 11—11, Fig. 8.

Referring to the accompanying drawings, and particularly to Figs. 1 to 7, inclusive, 3 represents rails of the usual construction with their ends abutting to form a continuous section of track. At each side of the rails are formed fish-plates 4 of the usual construction so as to span the joint and overlap the rails at each side thereof. Bolts 6 are provided for clamping the fish-plates over the abutting ends of the rails. These bolts are of the type generally known as track bolts, being screw-threaded at their ends and provided with fins 7 on their shanks which prevent the bolts from turning. The bolts 6 are provided with nuts 8 of the usual construction. 9 represents the abutments which in this case are in the form of flat U-shaped straps which are adapted to span the joints of the rails. The abutments 9 are provided with bolt holes 10 which register with the bolt holes in the fish-plates and rails. When it is desired to employ two of these abutments, as shown in Figs. 1 to 3, inclusive, an abutment is placed at each side of the rails outside of the fish-plate and the bolts are then passed through one abutment, the fish-plates and the rails and then through the other abutment and the nuts are secured on the ends



in the usual manner so that one abutment is clamped between the heads of the bolts and the adjacent fish-plate and the other abutment is clamped between the nuts on the bolts and the adjacent fish-plate. In the space between each abutment and the adjacent fish-plate is inserted a wedging device, and as shown in Figs. 1 to 3, inclusive, the wedging device is in the form of an ordinary wedge 11 having gradually tapered sides. When first inserted the wedges are driven in tightly and thereafter if the bolts stretch or the fish-plates work in under the flanges of the rails the wedges will move down between the abutments and the fish-plates thereby keeping the fish-plates firmly clamped against the rails. In order to prevent the nuts on the ends of the bolts from working loose a locking plate 13 is provided. This plate is provided with bolt holes 14 which register with the bolt holes in the fish-plates and is slipped over the ends of the bolts between the abutment and the fish-plate. The plate 13 is slotted at its ends to form ears 15 which may be bent up at the side of the nuts and thereby prevent the nuts from turning. The object of providing a plurality of ears at each end is to permit the plate to be used repeatedly and in case one ear breaks off there will be an extra ear to take its place. In Fig. 4 a single abutment is shown clamped between the head of the bolts and the adjacent fish-plate and the wedging device is shown cylindrical in form, as indicated at 11<sup>a</sup>. In Fig. 5 a single abutment is also shown and the wedging device is of the same shape as that shown in Fig. 3 but is formed in two parts, 18 and 19 respectively. The part 18 is provided at its lower end with a projection 20 which extends under the lower edge of the strap. The part 19 is inserted between the part 18 and the adjacent fish-plate and in the abutting faces of the two parts 18 and 19 are formed registering grooves 21 and 22 which are adapted to receive a locking pin 23 when the said grooves are brought into registration by driving in the section 19. As the part 18 is held against upward movement by its engagement with the abutment or strap, and as the part 19 is locked to the part 18 therefore the whole wedge will be secured against upward movement while being free to work downwardly to compensate for the stretching of the bolts or the inward movement of the fish-plates. Registering openings 25 and 26 are also formed in the parts 18 and 19 at right angle to the grooves 21 and 22 through which the locking pin 23 may be inserted if so desired instead of through the grooves 21 and 22.

Referring now to Figs. 8 to 11, inclusive, wherein the abutments are shown as supported independently of the rails and track-bolts, 3' represents the rails, 4' the fish-

plates, 5' the bolts which secure the fish-plates to the rails and 6' the nuts on the ends of the bolts. At each side of the rail is mounted a pair of standards 8' which as shown are supported on a base-plate 9' which extends underneath the rail joint. Each pair of standards supports an abutment 10' which as shown is in the form of a shaft or bar having its ends supported in bearings formed in the said standard. The shaft 10' is preferably provided with a head 11' at one end and through the other end thereof a cotter pin 13' is passed so as to hold the said shaft against longitudinal movement. On the abutment-forming shaft 10' is mounted a wedging device 15 having a cam face so shaped that as the wedging device rotates downwardly the face thereof will have a cam action against the fish-plate. One corner of the face of the cam block is cut away as at 16' and the surface of the cut away portion from the center line to the lower edge of the block is straight and slightly inclined, while from the center line to the upper edge of the block it is slightly curved. Between the cut away portion of the block and the adjacent fish-plate is inserted a locking key 17' in the form of a wedge. The adjacent faces of the key and the curved portion of the surface of the block where it is cut away are serrated so that as the block moves down it will engage with the key and draw the key down with it.

What I claim is,—

1. In a device of the character indicated, the combination with two rails arranged to form a joint and a plate arranged to span said joint, of an abutment and a wedging device operatively mounted between said abutment and said plate to clamp said plate against said rails, said wedging device comprising two members which are free to move downwardly as the distance between said abutment and said plate increases, the outer of said members being provided with means for engagement with said abutment and means for causing an engagement between said members so that the said members will move down together.

2. In a device of the character indicated, the combination with two rails arranged to form a joint and fish-plates arranged to span said joint, of means for clamping said fish-plates to said rails, comprising bolts arranged to pass through said rails and said fish-plates, an abutment supported by said bolts and a wedging device arranged between said abutment and the adjacent fish-plate, said wedging device comprising two members which are free to move downwardly as the distance between said abutment and said plate increases, the outer of said members being provided with means for engagement with said abutment and means for causing an engagement between



said members so that the said members will move down together.

3. In a device of the character indicated, the combination with two rails arranged to form a joint and fish-plates arranged to span said joint, of means for clamping said fish-plates to said rails, comprising bolts arranged to pass through said rails and said fish-plates, a strap supported on said bolts and arranged to span the joint of said rails and a wedging device arranged between said strap and the adjacent fish-plate.

4. In a device of the character indicated, the combination with two rails arranged to form a joint and fish-plates arranged to span said joint, of means for clamping said fish-plates to said rails, comprising bolts arranged to pass through said rails, and said fish-plates, a strap supported on said bolts and arranged to span the joint of said rails and a wedging device arranged between said strap and the adjacent fish-plate, said wedging device being free to move downwardly

as the distance between said abutment and said plate increases.

5. In a device of the character indicated, the combination with two rails arranged to form a joint and fish-plates arranged to span said joint, of means for clamping said fish-plates to said rails, comprising bolts arranged to pass through said rails and said fish-plates, a strap supported on said bolts and arranged to span the joint of said rails and a wedging device arranged between said strap and the adjacent fish-plate, said wedging device comprising two wedge-shaped members, means for preventing the upward movement of one of said members and means for locking both members together.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

JOHN WOLFE.

Witnesses:

VICTOR C. LYNCH,  
N. L. McDONNELL.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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