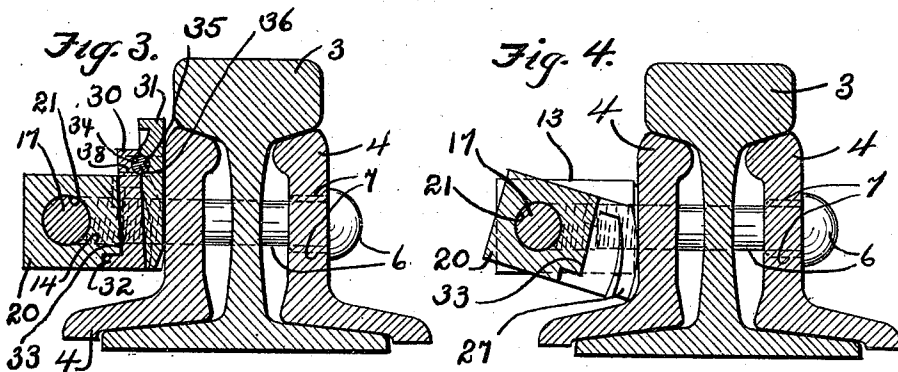
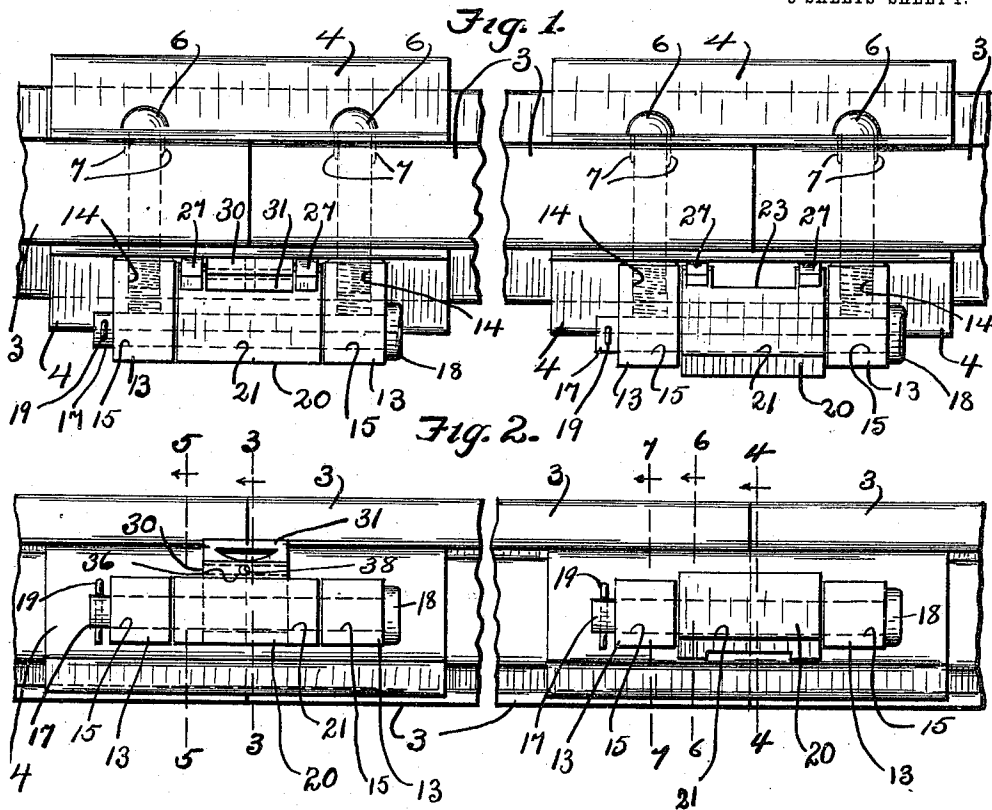


J. WOLFE.
AUTOMATIC RAIL JOINT.
APPLICATION FILED OCT. 31, 1908.

989,683.

Patented Apr. 18, 1911.

3 SHEETS—SHEET 1.



Witnesses:
A. J. Gellins.
B. L. Brown.

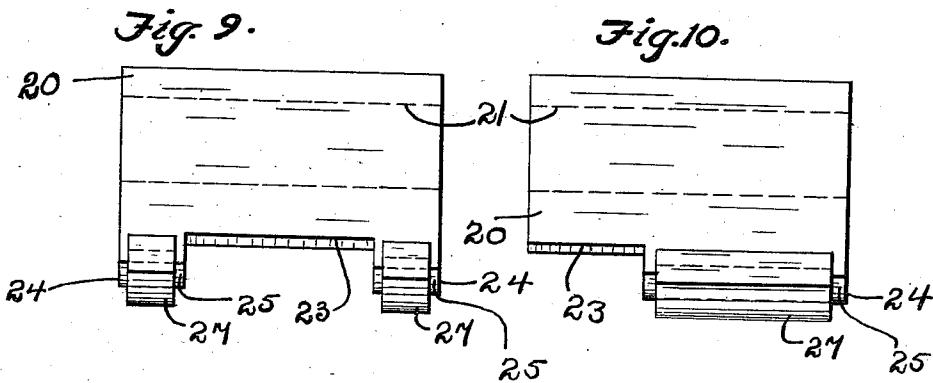
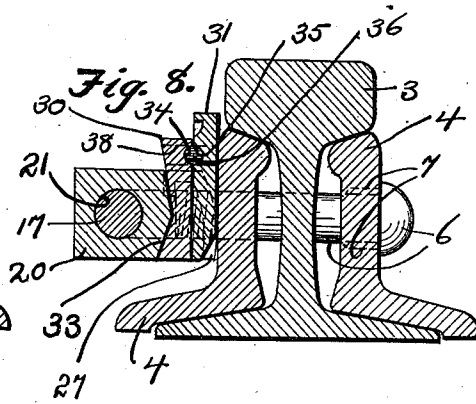
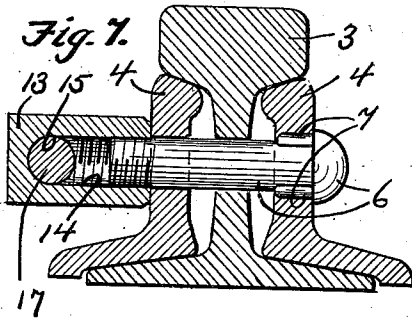
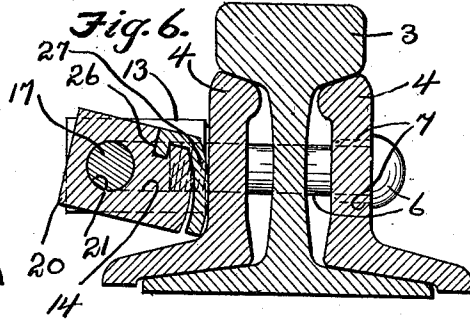
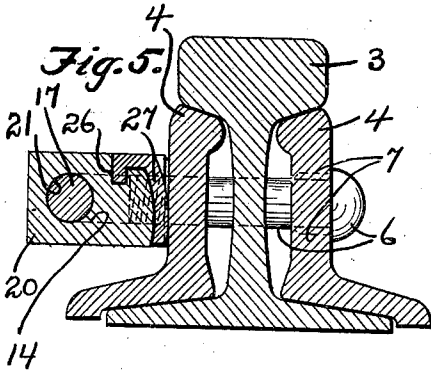
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3 SHEETS—SHEET 2.



Witnesses:
H. J. Gettins.
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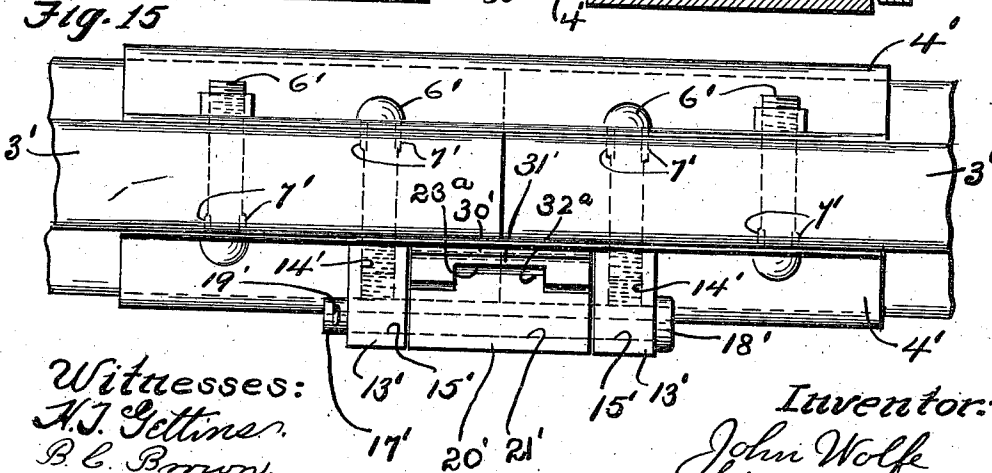
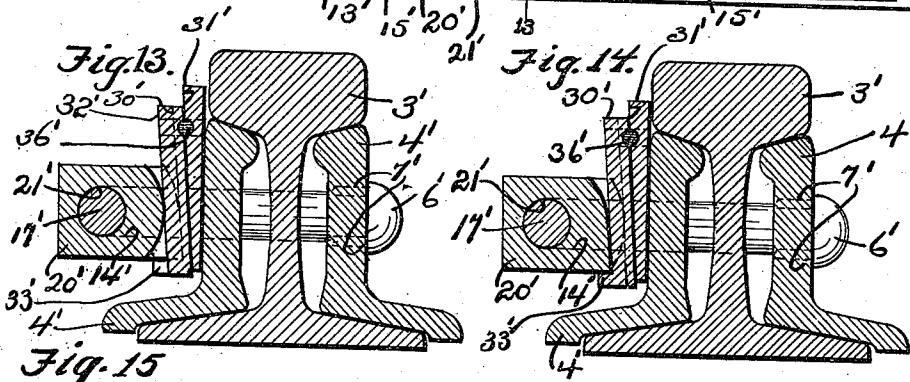
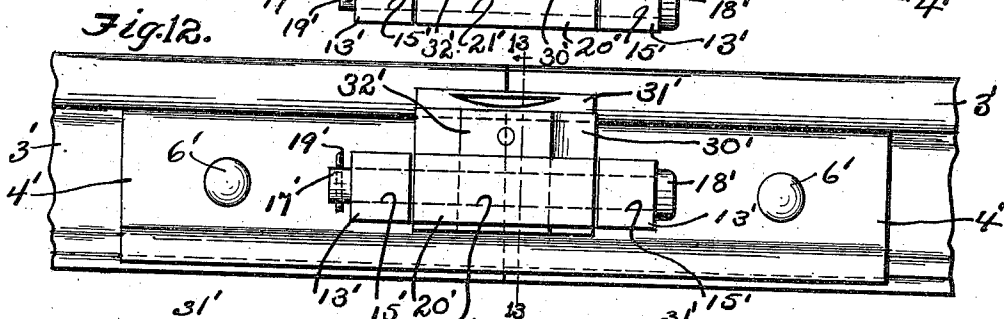
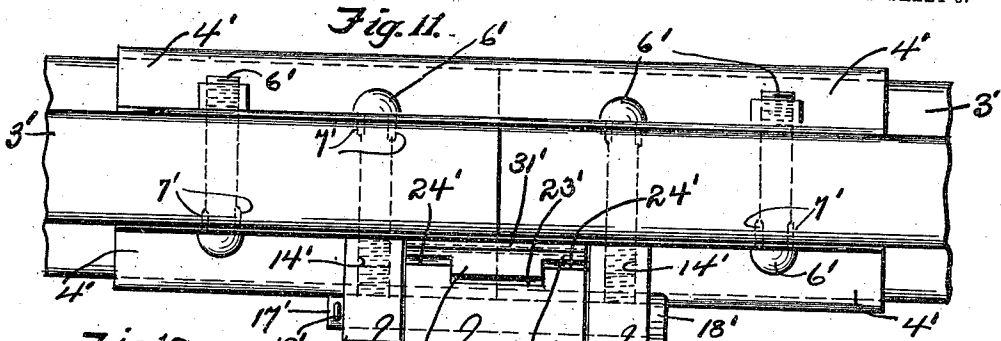
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3 SHEETS-SHEET 3.



Witnesses:
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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.

AUTOMATIC RAIL-JOINT.

989,683.

Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed October 31, 1908. Serial No. 460,432.

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 Automatic 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 my invention is to provide a rail-joint which will automatically tighten itself to compensate for the wear on the fish-plates and also for the lengthening or stretching of the bolts which clamp the rails together.

My invention consists in providing at the joint of the rails an abutment which is supported by the nuts which secure the track bolts in position 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 abutment may have any suitable cross section, but as shown in the drawing is in the form of a shaft or bar. The ends of the bar are mounted in openings formed in the nuts on the ends of the track bolts. The wedging device as shown comprises a main body portion which is hereinafter termed the cam block and an independently movable facing therefor. In the preferred form this facing extends across only a portion of the face of the block and the main body of the block extends at each side of said facing. The portion of the block which extends at each side of the facing is provided with a spring plate which extends down between the block and the adjacent fish-plate, the object of which will be explained hereinafter. In the modified form of my invention the facing extends completely across the block and the spring plates are omitted. The facing may consist of a single member or of a plurality of members secured together. This wedging device is eccentrically mounted on the abutment and is free to rotate so that the portion of the wedging device adjacent to the fish-plate will move down and in if the distance between the abutment and the fish-plate is increased.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings Figure 1 is a top plan view of a section of track showing two joints embodying my invention, on one of which the wedging device is shown in its clamped or operative position, and in the other the wedging device is shown open, which is not an operative position but is given to show that the normal tendency of the wedging device is to move down and in toward the adjacent fish-plate. Fig. 2 is a view in elevation corresponding to Fig. 1. Fig. 3 is a section on line 3—3, Fig. 2. Fig. 4 is a section on line 4—4, Fig. 2. Fig. 5 is a section on line 5—5, Fig. 2. Fig. 6 is a section on line 6—6, Fig. 2. Fig. 7 is a section on line 7—7, Fig. 2. Fig. 8 is a section similar to Fig. 3, but shows a slight modification in the form of the wedging device. Fig. 9 shows one member of the wedging device which is herein termed the cam block. Fig. 10 shows a modified form of same. Fig. 11 is a top plan view of a section of track showing a single joint embodying my invention. Fig. 12 is a view in elevation of same. Fig. 13 is a section on line 13—13, Fig. 12. Fig. 14 is a similar view to Fig. 13 but showing a slight modification in the shape of the face of the cam block, and Fig. 15 is a top plan of a joint similar to the joint shown in Fig. 11 with a slight modification in the form of the cam block and of the facing or wedge therefor.

Again referring to the drawings and particularly to Figs. 1 to 10 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, at each joint, are arranged fish-plates 4, of the usual construction, so as to span the joint and overlap the ends of the rails at each side thereof. Bolts 6 are passed through the fish-plates and the abutting ends of the rails. These bolts 6 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 in the form of blocks 13 and each nut or block is provided with a screw-threaded opening 14 for receiving the screw-threaded end of the bolt, but the said opening does not pass entirely through the

block so that when the block 13 is screwed onto the end of the bolt the end of the bolt is entirely incased in the body of the block and is therefore protected from corrosion.

5 Each of the nuts or blocks 13 is also provided with an opening or bore 15 which extends through the block from side to side thereof at a right angle to the screw-threaded opening 14. Through the bores 15 of

10 the said nuts or blocks 13 is passed an abutment-forming shaft or bar 17 which is preferably provided at one end with a head 18 and in its other end is formed a small opening adapted to receive a cotter-pin 19

15 which holds the said bar against longitudinal movement or accidental displacement. On the abutment-forming bar 17 between the supporting nuts 13 is mounted a cam block 20 preferably so it is free to turn

20 thereon. This block as shown in the preferred form in Figs. 1 to 7 inclusive is rectangular in cross section and is provided with a longitudinally extending bore 21 through which the bar 17 passes. The bore

25 21 is arranged to one side of the center line and toward the outer face of said cam block so that the said cam block is eccentrically mounted on the said bar 17, and when capable of moving will tip or incline toward

30 the adjacent fish-plate.

A portion of the side or face of the cam block 20 adjacent to the fish-plate is cut away forming a recess 23 and the wall of this recess is slightly inclined. In the form

35 of cam block shown in detail in Fig. 9 this recess is formed centrally in the face of the block leaving a portion of the cam block projecting at each side thereof, as shown at 24, and the faces of said projecting portions

40 are preferably rounded, as shown at 25. In the form of cam block shown in detail in Fig. 10 the recess is formed to one side of the center of the face of the block and the block therefore projects beyond the recess at

45 only one side thereof. In the projecting portions 24 of the cam block 20 are formed depressions 26 and in each depression is fitted one end of a spring plate 27, and said spring plate 27 is then carried down over the

50 curved face 25 between the cam block and the adjacent fish-plate. In the recess 23 between the cam block 20 and the adjacent fish-plate is inserted a wedge-shaped facing which is preferably formed in two parts

55 30 and 31. The part 30 is provided at its lower end with a projection 32 which extends under a shoulder 33 formed on the cam block 20. The section 31 is inserted between the projection 30 and fish-plate and

60 in the abutting faces of the two sections 30 and 31 are formed registering grooves 34 and 35 which are adapted to receive a locking pin 36 when the said grooves are brought into registration by driving in the section

65 31. As the section 30 is held against up-

ward movement by its engagement with the cam block 20 and as the section 31 is locked to the section 30, therefore the whole facing of the cam block 30 will be secured against upward movement while free to work down-

70 wardly to compensate for the stretching of the bolts or the inward movement of the fish-plate. Registering openings 38 and 39 are also formed in the sections 30 and 31 at right angles to the grooves 34 and 35 through

75 which the locking pin 36 may be inserted, if so desired instead of through the grooves 34 and 35.

In Figs. 11 to 15 inclusive is shown a modified form of my joint wherein the fac-

80 ing or wedge portion extends completely across the face of the cam block between the cam block and the adjacent fish-plate and the springs are entirely omitted. In these views 3' represents the rails and at

85 each side of the rails so as to span the joint are arranged fish-plates 4'. Bolts 6' are passed through the fish-plates and the abutting ends of the rails. The bolts 6' are provided with fins 7' which prevent the

90 bolts from turning and with nuts in the form of blocks 13' and each nut or block is provided with a screw-threaded opening 14' for receiving the screw-threaded end of the bolt. Each of the nuts or blocks 13' is also

95 provided with an opening or bore 15' which extends through the block from side to side thereof at a right angle to the screw-threaded opening 14'. Through the bores 15' of

100 the said nuts or blocks 14' is passed an abutment forming shaft or bar 17' which is preferably provided with a head 18' and in its other end is formed a small opening adapted to receive a cotter pin 19'. On the abut-

105 ment forming bar 17' is mounted a cam block 20'. The block as shown in Figs. 11, 12 and 13 is rectangular in cross section and is provided with a longitudinally extending bore 21' through which the bar 17' passes.

110 A portion of the side or face of the cam block 20' adjacent to the fish-plate is cut away as at 23' leaving shoulders or projections 24' toward each end of the cam block. The face of the cam block where it is cut

115 away is rounded or curved concentrically with the axis of the cam block while the faces of the shoulders or projections 24' from the center line to the bottom edge thereof are straight and slightly inclined

120 while from the center line up to the top edge they are curved concentrically with the axis of the cam block. Between the block 20' and the fish-plate is arranged a facing which extends the full length be-

125 tween the cam block and the fish-plate and the said facing comprises two members 30' and 31' respectively. The part 30' is arranged next to the cam block and is provided with a lip or extension 32' which

130 fits into the recess in the cam block and has

a flat face abutting against the curved face of the cam block and a projection 33' which extends under the cam block. The member 31' fits between the member 30' and the fish-plate and is locked thereto by means of the pin 36' in the registering grooves 34' and 35'.

In Figs. 14 and 15 a slight modification of the wedge and cam block is shown, the variation consisting in forming a lip 32^a on the cam block and a recess 23^a in the wedge; also the face of the lip is shown flat at its lower part and curved at its upper part, while the faces of the projections are shown curved concentrically to the axis of the cam block.

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, a cam block eccentrically supported on said abutment and free to move downwardly and inwardly toward the fish-plate as the distance between said abutment and said fish-plate increases and a facing for said cam block arranged between the cam block and the adjacent fish-plate, said facing being free to move down between the fish-plate and the cam block as the said cam block moves down, said facing comprising two sections, one of which is arranged to engage with the cam block and means for locking the said sections 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 a pair of bolts arranged to pass through said rails and said fish-plates, nuts arranged on the ends of said bolts, a cam block supported on said nuts and spring plates mounted on said cam block and extending down between said cam block and the adjacent fishplate.

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 a pair of bolts arranged to pass through said rails and said fish-plates, nuts arranged on the ends of said bolts, a shaft mounted on and extending between said nuts, a cam block rotatably supported on said shaft and spring plates mounted on said cam block and extending down between said cam block and the adjacent fish-plate.

4. 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, a wedging device operatively mounted between said abutment and said plate to clamp said plate against said rails and spring plates mounted on said wedging device and extending between said wedging device and the adjacent fish-plate.

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 a pair of bolts arranged to pass through said rails and said fish-plates, nuts arranged on the ends of said bolts, an abutment supported by said nuts, a block arranged between said abutment and the adjacent fish-plate, said block being provided with an independently movable facing in contact with said fish-plate and spring plates mounted on said block and extending down between said block and the adjacent fish-plate at each side of said facing.

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

JOHN WOLFE.

Witnesses:

VICTOR C. LYNCH,

N. L. McDONNELL.