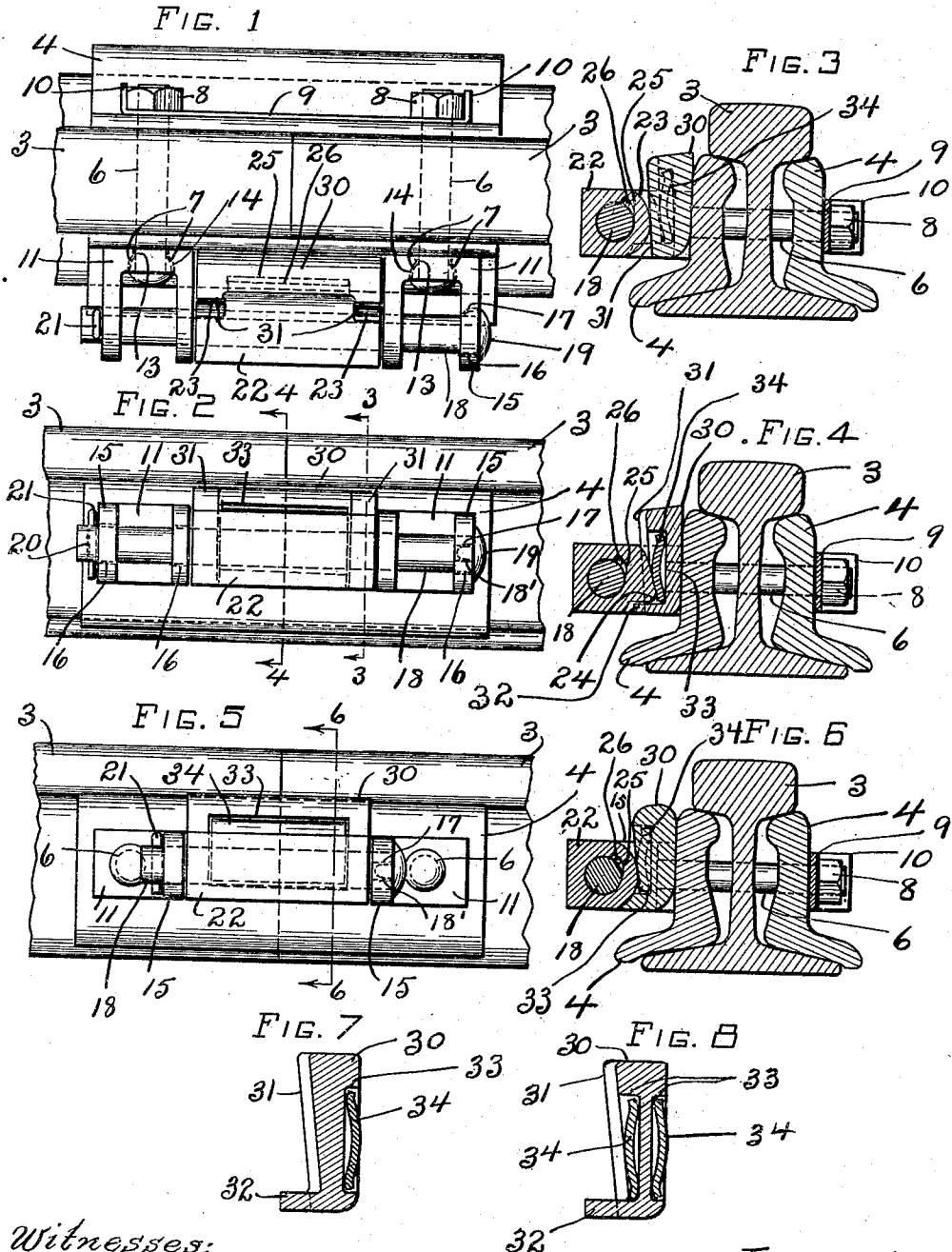


J. WOLFE.
RAIL JOINT.

APPLICATION FILED APR. 24, 1909.

980,383.

Patented Jan. 3, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

980,383.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed April 24, 1909. Serial No. 491,943.

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 and particularly to an improvement on the joint set forth and described in my application Serial No. 460,432.

The object of this 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.

In the application above referred to I have shown and described an abutment which is supported by the bolts which clamp the fish-plates on the joint and a movable cam block which is arranged between the abutment and the adjacent fish-plate and which is free to adjust itself to any change in distance between the abutment and the fish-plate. A facing or locking wedge is also provided between the cam block and the fish-plate and my present invention consists primarily in mounting a spring plate in the locking wedge, the purpose of which is to draw the bolts through the fish-plates and the rails to compensate for the stretching of the bolts.

My invention further consists in providing a locking device between the cam block and the shaft which supports the same, which permits the cam block to rotate downwardly but prevents the upward movement of the cam block.

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

In the accompanying drawings Figure 1 is a top plan of a rail joint embodying my invention. Fig. 2 is a side elevation of same. 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 side elevation of a rail joint embodying my

invention but showing a slightly modified form of construction. Fig. 6 is a section on line 6—6, Fig. 5. Fig. 7 is a central sectional view of the locking wedge with the spring plate mounted therein so as to be adjacent to the fish-plate. Fig. 8 is a similar view but showing the wedge provided with two spring plates.

Again referring to the drawings and particularly to Figs. 1 to 4 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 the 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 of the joint. 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. The bolts 6 are provided with nuts 8 of the usual construction and any suitable locking device may be employed to prevent the nuts from turning. This locking device as shown in the drawings consists of a plate 9 having openings through which the ends of the bolts pass and a portion of the plate is bent up in contact with the nuts as shown at 10, after the nuts have been screwed into position. On each bolt between the head of the bolt and the adjacent fish-plate is mounted a bracket or standard 11 which, as shown, is approximately U-shaped and is provided with an opening 13 through which the shank of the bolt passes and communicating with said opening 13 are small recesses 14 which are adapted to receive the fins 7 on a bolt 6 thereby holding the bolt from turning. In the arms 15 of the standards 11 are formed registering openings 16 having recesses 17 communicating therewith. A shaft or bolt 18 extends between the standards 11 and the ends thereof are mounted in the openings 16 in the arms 15. One end of said bolt 18 is preferably provided with a head 19 and in the other end is formed a small opening 20 adapted to receive a pin 21 so as to hold the shaft against longitudinal movement. On the bolts 18 are formed fins 18' which fit into the recesses 17 and thereby hold the bolt against rotation. On the shaft or bolt 18 is rotatably mounted a cam block 22. The

face of the cam block at each end, as at 23, is concentric with the axis of the said cam and the axis of the supporting bolt, but the intermediate portion of the face of said cam is eccentric, curving outwardly and downwardly from the top edge of the cam so that said intermediate portion of the face of the cam has its greatest eccentricity near the lower edge of the cam face. The cam face is also cut away to form a shoulder 24. In the wall of the bore of the cam block is formed a longitudinally extending recess 25. This recess is deepest at its top and in the deep portion thereof is arranged a pin 26. It will be understood that as the cam block rotates downwardly, the pin will move into the deep part of the said recess, leaving the cam block free to rotate downwardly, but in case the cam block should for any reason be given an impulse which would tend to rotate the cam upwardly, then the pin 26 will remain in the shallow portion of the recess and thereby lock the cam block 22 to the supporting bolt 18, and prevent any upward movement thereof. Between the cam block and the adjacent fish-plate is arranged a locking wedge 30. This wedge is provided at each end, on the face thereof adjacent to the cam block, with flat surfaces 31 against which the concentric portions of the face of the cam block abut, and at its lower end with a ridge or projection 32 against which the shoulder 24 abuts. In the center of the face of the wedge is formed a recess 33 in which is arranged a spring plate 34 and the arrangement is such that the eccentric portion of the face of the cam block will be in contact with said spring plate 34 when the cam block is in its operative position. In Figs. 5 and 6 is shown a slightly modified construction. In this construction the arrangement is the same as that heretofore described with the exception that the brackets are angle-shaped and the face of the cam block is concentric from end to end with the axis of the cam block and with the axis of the supporting bolt and the lower half of the surface of the locking wedge at each side of the recess 33 which comes in contact with the cam block is curved concentrically with the face of the cam block.

In Fig. 7 is shown a sectional view of a locking wedge having the spring plate mounted on the side adjacent to the fish-plate and in Fig. 8 is shown a sectional view of a locking wedge provided with a spring plate at each side.

In assembling the joint it will be understood that the fish-plates are rigidly clamped to the rails by tightening the nuts on the ends thereof in the usual manner. The cam block is then mounted on its supporting shaft but before the cam is turned down into its operative position the locking wedge 30 is inserted between the cam block and the ad-

jacent fish-plate with the toe piece of the wedge under the shoulder on the cam block. Now as the cam block is rotated downwardly it will force down the locking wedge and the portion of the cam block in contact with the spring plate 34 will place the spring plate under tension by reducing the curvature thereof. In case the bolts 6 stretch or elongate the action of the resilient plate will draw the bolts through the rails and through the fish-plates so that the nuts on the bolts will be held tightly against the fish-plate adjacent thereto and in this way the expansion of the spring plate will compensate for the stretching of the bolts so that the fish-plates will be held tightly clamped against the rails.

What I claim is,—

1. In a device of the character indicated, the combination of two rails arranged to form a joint and a fish-plate arranged to span said joint, of a block supported in proximity to said fish-plate and a wedge interposed between said block and said fish-plate, said wedge being provided with a recess and a spring plate mounted in said recess and adapted to be compressed in said recess when the said wedge is clamped between the said block and the said fish-plate.

2. In a device of the character indicated, the combination with two rails arranged to form a joint and a fish-plate arranged to span said joint, of a cam block rotatably supported in proximity to said fish-plate and a wedge interposed between the face of the cam block and the fish-plate, said wedge being provided with a recess and a spring plate arranged within said recess and adapted to be compressed in said recess when said wedge is clamped between the cam block and said fish-plate.

3. 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 rotatably supported on said abutment, said cam block having a portion of its face at each end curved concentrically with the axis of said block and having its intermediate face portion curved eccentrically to the axis of said block, a wedge interposed between the cam block and the adjacent fish-plate, said wedge having a recess, and a spring arranged in said recess.

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 an abutment, a cam block rotatably supported on said abutment, the face of said cam block being formed concentric with the axis thereof, a wedge arranged between the cam block and the adjacent fish-plate, the lower portion of the face of said locking wedge adjacent to the cam-block being curved concentrically with said cam block and means for locking said cam block

against movement while leaving it free to rotate downwardly.

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 a shaft supported in proximity thereto, a cam block rotatably mounted on said shaft and having a recess formed in the wall of the bore thereof, said
10 recess being larger at its upper end than at its lower end, a pin arranged in said recess and a wedge interposed between the face of said cam and the adjacent fish-plate.

15 6. In a device of the character indicated, the combination with two rails arranged to form a joint, fish-plates arranged to span said joint, bolts for clamping the fish-plates in position, brackets mounted between the heads of said bolts and the adjacent fish-plate, a shaft supported in said brackets, a
20 cam block rotatably mounted on said shaft and having a recess formed in the wall of the bore thereof, said recess being larger at its upper end than at its lower end, a pin arranged in said recess and a wedge interposed
25 between the face of said cam and the adjacent fish-plate.

7. In a device of the character indicated, the combination with two rails arranged to form a joint and a fish-plate arranged to span said joint, of a cam block rotatably supported in proximity to said fish-plate, said cam block having the cam face toward
30 each end curved concentrically with the axis of the cam block and the intermediate portion curved eccentrically to the axis of the cam block and a wedge interposed between the face of the cam block and the fish-plate, said wedge being provided with a recess and
35 a spring plate arranged within said recess and adapted to be compressed in said recess when said wedge is clamped between the cam block and said fish-plate.

8. In a device of the character indicated, the combination with two rails arranged to form a joint and a fish-plate arranged to span said joint, of a cam block rotatably supported in proximity to said fish-plate,

said cam block having the cam face toward each end curved concentrically with the axis
50 of the cam block and the intermediate portion curved concentrically to the axis of the cam block and a wedge interposed between the face of the cam block and the fish-plate, said wedge being provided with a recess and
55 a spring plate arranged in said recess and adapted to be compressed in said recess by the eccentric portion of the face of the cam block when said wedge is clamped between the cam block and said fish-plate. 60

9. In a device of the character indicated, the combination with two rails arranged to form a joint and a fish-plate arranged to span said joint, of a cam block rotatably supported in proximity to said fish-plate, said cam block having the cam face toward
65 each end curved concentrically with the axis of the cam block and the intermediate portion curved eccentrically to the axis of the cam block and a wedge interposed between the face of the cam block and the fish-plate, said wedge being provided with a recess and
70 a projection arranged to extend under the cam block and a spring plate arranged in said recess and adapted to be compressed in said recess when the said wedge is clamped
75 between the cam block and said fish-plate.

10. In a device of the character indicated, the combination with two rails arranged to form a joint and a fish-plate arranged to span said joint, of a cam block rotatably supported in proximity to said fish-plate and a wedge interposed between the face of the cam block and the fish-plate, said wedge being provided with a recess in each face
85 thereof, and a spring plate arranged in each recess and adapted to be compressed when said wedge is clamped between the cam block and the adjacent fish-plate.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses. 90

JOHN WOLFE.

Witnesses:

VICTOR C. LYNCH,
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