

S. E. MOORE.
RAIL JOINT.
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1,055,207.

Patented Mar. 4, 1913.

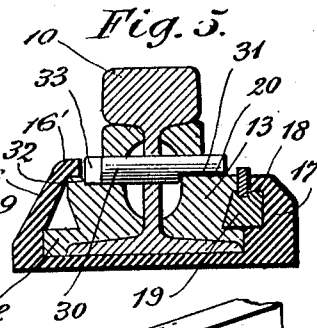
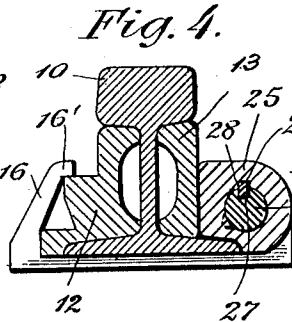
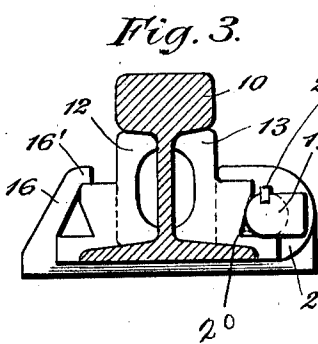
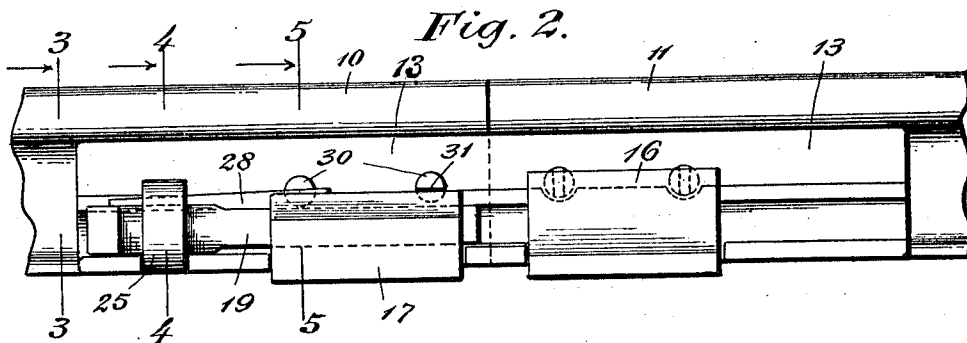
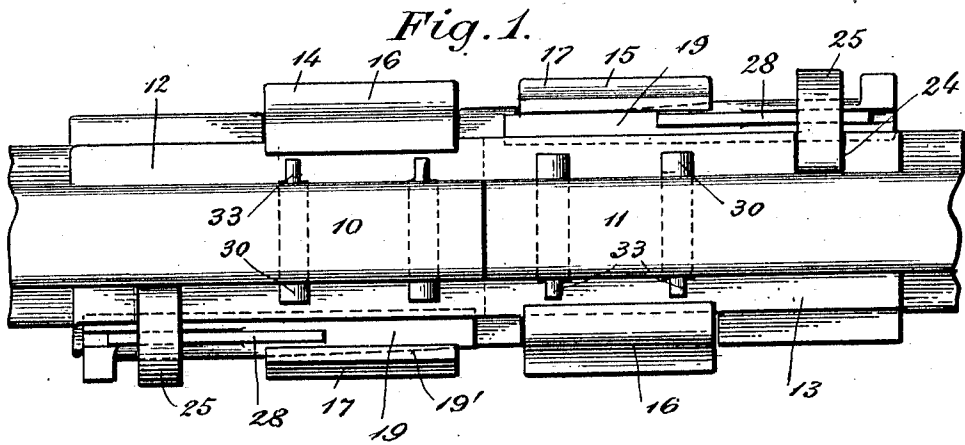
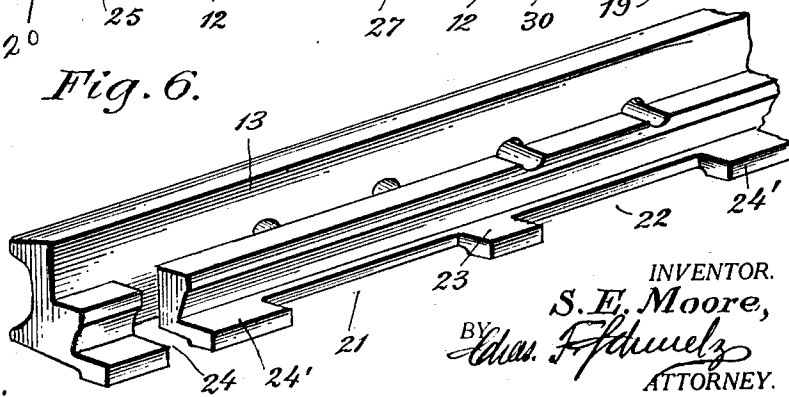


Fig. 6.



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RAIL-JOINT.

1,055,207.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SIMON E. MOORE, a citizen of the United States, residing at Clarinda, in the county of Page and State of Iowa, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to rail joints, and it has for one of its objects the provision of a rail fastening the use of which obviates the necessity of employing the usual bolts and nuts whereby the adjoining ends of a pair of rails are generally connected to fish-plates disposed at opposite sides thereof.

A further object of the invention resides in the particular construction and organization of some of the component elements, as for instance the fish-plates and the member in which they are seated.

Further objects of the invention will hereinafter appear and be particularly defined in the claims.

The invention has been clearly illustrated in the accompanying drawings in which similar characters denote similar parts, and in which—

Figure 1 is a top view of the adjoining ends of a pair of rail-road rails joined by my improved device. Fig. 2 is a side view thereof. Figs. 3—4 and 5 are respectively cross sections on lines 3—3, 4—4, and 5—5, indicated in Fig. 2, and Fig. 6 is a fractional perspective view of one of the fish-plates used in my improved device.

It may be stated at this time that the present invention constitutes an improvement on the railway rail fastening for which U. S. Letters Patent No. 1,008,185 were issued to me on Nov. 7, 1911, to which reference may be had.

Referring to the present drawings, 10, 11 denote the adjacent ends of a pair of railway rails the opposite sides of which are engaged by fish-plates 12, 13 which are substantially alike in construction and adapted to receive the fastening means which comprise a pair of chairs 14—15 which constitute the principal holder members of the device. Each chair has an upwardly extending flange 16 (see cross sectional views),

and it has at its opposite side a vertical flange 17 which is grooved, as shown at 18 to receive a wedge 19 (see Fig. 5). Each chair is intended to straddle the under side of both fish-plates, each of the latter being provided with a groove 20 which is undercut to correspond with the cross-sectional shape of the wedge 19, it being understood however that this wedge is free to move only longitudinally of the fish-plates, this movement resulting in crowding the wedge between the flange 17 and the fish-plate 13, due to the taper formed of said wedge, as indicated by 19', in Fig. 1.

In order to maintain the chair and fish-plate against sliding movement of one member relatively to the other, the fish-plate is notched out as shown at 21, 22, leaving a ledge 23 whereby the chairs are spaced, it being understood that while the flange 17 is lodged within the notch 21, the flange 16 of the adjacent chair will be lodged in the cut-out portion 22. The same condition exists on the other side of the rail in the companion fish-plate on that side. From this it follows that each chair is held against longitudinal movement relative to both fish-plates, and vice versa.

By referring to Fig. 6 it will be noted that the wedge-receiving portion of the fish-plate 13 is cut out at 24 to receive a washer or lock member 25 the outside shape of which is such as to conform with the contour of the fish-plate and the rail (see Fig. 4) at that particular point, and it also has a vertically tapered groove 26 coöperative with a straight groove 27 formed in the upper face of the wedge 19. A vertically tapered friction key 28 is seated within the grooves 26 and 27, and serves to hold the wedge 19 against outward movement (toward the left of Fig. 2). If it is now considered that when the wedge 19 has first been driven toward the right to bind the fish-plate, rail, and chair tightly together, and the key 28 is then driven home, all movement on the part of the wedge will be prevented, and that furthermore any movement of said wedge toward the left would only tend to tighten the wedge and collar more

firmly together. The latter being locked against longitudinal movement, it is evident that the entire end of the rail-joint becomes a rigid and stiff structure which cannot become loose except by the use of a hammer for first driving the key 28 out of its locking position.

The flange 16 is provided with an overhanging lip 16' adapted to engage the ledge or main body of the fish-plate, the parts fitting comparatively snugly so that practically all vertical movement between the rail, the fish-plate, and the chair bottom, will be avoided on one side, while a similar condition exists on the other side of the rail.

Located in suitable apertures provided in alinement in the two fish-plates and the interposed rail, are locking members or pins 30 whereby longitudinal movement of these parts relative to each other is prevented, and which furthermore are so shaped at their ends that in case of breakage or shearing off such fact may be indicated in plain sight to the track-walker. For this purpose one end of the pin is cut away for substantially one-half of its diameter as shown at 31 adapted to rest upon the ledge portion of one fish-plate (see Fig. 5) while its other end is cut away substantially at right angles and abuts against a shoulder 32 provided therefor in the face of the fish-plate. In case of breakage, the pin-end 31 would remain substantially in its position on account of its rest on the ledge above referred to; but the other end 33 of said pin would be apt to turn around because there is no provision made to prevent it from doing so, and consequently it is at this point where the break would be indicated. From the construction illustrated it is evident that the pin 30 cannot move longitudinally of its axis and thus become lost.

The manner of assembling the joint is as follows:—The fish-plates are first placed in their respective positions on the opposite sides of the rails, and the locking pins are inserted in place. The chairs are then placed into position from below, and the collars or washers placed in position, whereupon the wedges are driven into place and tightened, and the keys are then forced home to lock the members together.

Among the differences between my former patent above referred to, and the construction forming the subject of the present patent, will be found the following:—Both ends of the hold-pin are now exposed to plain view, and yet locked against movement in either section without considering either the wedge or the chair, in any way. The chairs are spaced apart longitudinally of the rail or the fish-plates and can not move in any direction, this locking organization being accomplished by the separating

lugs 23 and the outer lugs 24' cooperative therewith so that each chair is in one sense entirely independent of the other. The collar or washer is also lodged within a recess provided therefor especially in the body of each fish-plate without requiring any provision of projecting ears or the like as shown in my former patent.

I claim:—

1. The combination with a pair of adjoining rails, of a pair of fish-plates disposed at opposite sides thereof and each having a base flange, each flange having a recess in its outer face, a pair of chairs engaging the opposite faces of said fish-plates respectively, a wedge member in each chair for binding the same tightly in place independently of the other, a collar seated in each recess and surrounding one end of said wedge member, and a device in engagement with said collar and said wedge member for holding the same against displacement.

2. The combination with adjoining rails, of a pair of fish-plates disposed at opposite sides thereof, each having a longitudinal flange provided with spaced notches, the notches of one plate being in lateral alinement with the notches of the other fish-plate, and each fish-plate having near one end thereof a recess, a collar seated in each recess, a pair of chairs seated in said pairs of alined notches respectively, a wedge member for each chair and fish-plate and movable through said collar, and a device in engagement with said collar and wedge member to hold the same against displacement.

3. The combination with adjoining rails, of a pair of fish-plates disposed at opposite sides thereof, each having a longitudinal flange provided with spaced notches, the notches of one plate being in lateral alinement with the notches of the other fish-plate, and each fish-plate having near one end thereof a recess, a collar seated in each recess, a pair of chairs seated in said alined notches respectively, a wedge member for each chair and fish-plate and movable through said collar, and a tapered key in engagement with said collar and wedge member to hold the same against displacement.

4. The combination with a pair of adjoining rails, of fish-plates disposed at opposite sides thereof, pins extending loosely through both of the fish-plates, abutments on said fish-plates to hold said pins against displacement laterally of the rail, and means for wedging said fish-plates and rail firmly together.

5. The combination with a pair of adjoining rails, of a pair of fish-plates disposed at opposite sides thereof and having apertures in transverse alinement with each other, the apertures of one fish-plate having an abut-

ment shoulder, pins extending through both
of said fish-plates and seated at one end
against said abutment shoulder, the other
end of each pin being cut away to form a
5 shoulder for engaging the inner face of the
other fish-plate, and means for holding said
fish-plates and rail together.

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

SIMON E. MOORE.

Witnesses:

C. E. MCDENELL,
LEE PENNINGTON.

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