J. S. SKAALA & E. H. HILLIARD.

RAILWAY JOINT.

APPLICATION FILED NOV. 5, 1908.

944,157. Patented Dec. 21, 1909.

Fig. 1.

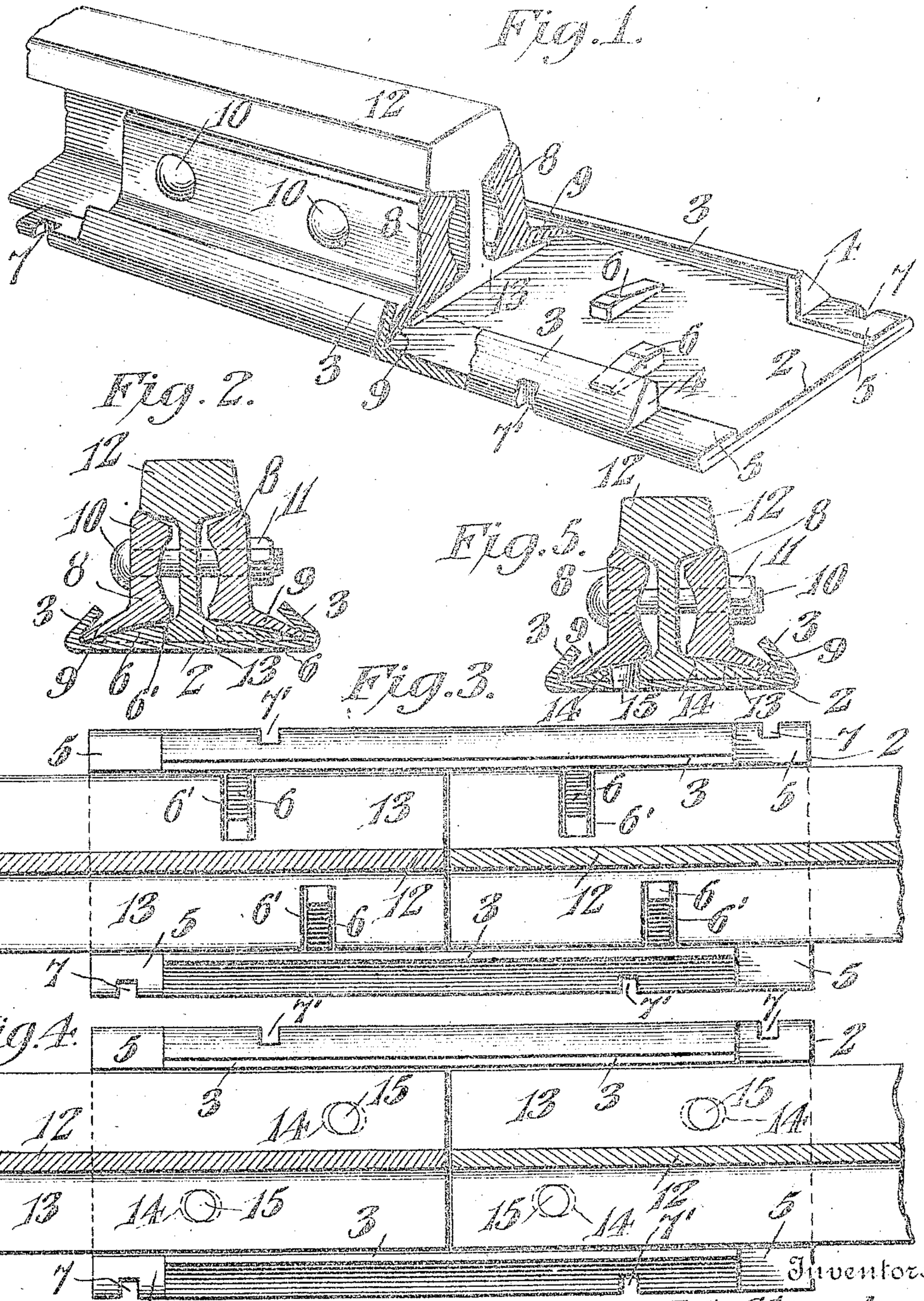

Fig. 2.

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN S. SKAALA AND EZEKIAL H. HILLIARD, OF PORTLAND, OREGON.

RAILWAY-JOINT.

944,157. Specification of Letters Patent. Patented Dec. 21, 1909.

Application filed November 5, 1908. Serial No. 461,215.

To all whom it may concern:

Be it known that we, JOHN S. SKAALA and EZEKIAL H. HILLIARD, citizens of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Railway-Joint, of which the following is a specification.

Our invention relates to improvements in rail joints, and particularly to those joints in which the confronting ends of the two rails are supported in a chair, the object of our invention being to provide a rail joint and chair plate of this character, in which the rails are absolutely prevented from any lateral movement and prevented from creeping, a further object being to provide means for more securely holding the fish plates in engagement with the rails, and preventing them from any longitudinal movement.

Our improved rail joint comprises a chair plate upon which the confronting ends of two rails are set, this chair plate having inwardly turned flanges on its longitudinal margins adapted to engage over the angular edges of the usual fish plates, which are placed upon either side of the rails, these angularly turned flanges or edges of the chair plate being closed at the ends so as to form pockets for the reception of the angular flanges of the fish plates, the chair plate being furthermore provided with studs or other means for engaging with the base of the rail.

A still further object of our invention is to provide a chair plate of this character which may be very easily constructed from heavy sheet metal, our construction not only providing a simple and economical manner of manufacturing the chair plate, but also providing for a strengthening of the marginal flanges of the plate.

In the drawings:—Figure 1 is a perspective view of our improved rail joint, one of the rails being removed and the opposed fish plates being in section. Fig. 2 is a transverse section of Fig. 1 through one of the studs. Fig. 3 is a plan view of Fig. 1, the head of the rail being broken away. Fig. 4 is a plan view of a modification in which the head of the rail is broken away. Fig. 5 is a section of the modified form.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

Our improved chair comprises a relatively thick and rigid plate 2 of sheet metal, the side edges of which are overturned to form the angularly disposed inwardly and upwardly bent opposed flanges 3—3. The chair plate is wide enough to permit a rail base 13 to be set into the chair plate between the edges of the flanges 3 so that the rail 12 may be easily removed. The ends of these flanges 3 are closed by an end wall 4 that extends down against the bottom of the chair plate.

It will be seen from Fig. 1 that the flanges 3 do not extend along the entire length of the chair plate 2, and that the chair plate is sufficiently longer than the flanges to provide end portions 5, formed each with a notch 7 through which spikes may be driven. The marginal edge of the plate along the flanges 3 may be also notched as at 7′ for the reception of spikes. The upper face of the chair plate is preferably provided with the studs 6 which are alternately set one to the other along the upper face of the plate and have outwardly and downwardly inclined upper faces. The bottom of the rail is preferably made with recesses 6′ adapted to engage with the studs, but we do not wish to limit ourselves to this feature.

It will be seen that when the rail is placed in position on the chair plate, the inclined faces of the stud 6 will be in plane with the inclined upper face of the rail base, and thus there will be no projecting portion which will interfere with the close contact between the fish plates 8 and the upper face of the base of the rail.

The fish plates 8 are of ordinary construction and have the angular flanges 9 projecting from the lower margins thereof adapted to engage beneath the inwardly turned flanges 3, these fish plates being of a length sufficient to permit them to fit beneath these flanges and between the end walls 4 thereof, the fish plates being bolted to the rail by the bolts 10 having the usual nuts 11. In place of the studs 6, holes 14 may be formed in the chair plate through which pins 15 may be passed and driven in to the base of the rail as shown in Fig. 5, the holes being preferably elongated to provide for expansion and contraction.

As will be seen from Fig. 1, the chair plate is preferably made of relatively thick sheet metal, and the end wall 4 is formed by turning over the flanges 3 and then pressing down the end portions 5 firmly on to the

bottom of the chair plate, the notch 7 being formed by making an opening through the chair plate blank, this opening being so placed that when the blank is folded on its marginal edge, the fold will cross the opening so as to form the notch 7. It will be seen that not only does the end wall 4 so formed engage with the fish plate 8 to prevent all longitudinal movement, but that it acts to strengthen the flange 3 and permits the chair plate to be made of relatively thin material and to be formed from a rolled or pressed blank, whereas were the flanges open at the end, the metal of the chair plate would have to be relatively thick in order to give any strength, and in practice, the chair plate would have to be cast. Not only would casting be more expensive than forming the chair plate of a metal blank, but it would be practically impossible to cast the plate with the end walls 4 and the pockets formed thereby for holding the fish plates from longitudinal movement.

In addition to the advantages above referred to, the end wall 4 tends to hold the flanges 3 from any upward movement or distortion under strain and, permitting the chair plate to be made of sheet metal, obviates the chance of the flanges breaking, which would be liable to occur where the chair plates are cast.

While we have described the portions 5 as being pressed down before the plate is placed in conjunction with the fish plates 8 we wish it understood that it would be possible to make the plate 2 with the flanges 3 formed thereon, before the ends thereof are pressed down. This pressing operation takes place after the chair or bed plate has been placed in position and the fish plates inserted beneath the flanges 3.

It will be seen that by having the flange 9 of the fish plates contained within lateral pockets formed on the chair plate, the studs 6 or their equivalents are not absolutely necessary as the fish plates will hold the rails from any creeping tendency.

It will be seen that our invention provides a rail chair of great simplicity both of construction and operation, wherein the rail is held rigidly from any sidewise movement but is allowed longitudinal movement sufficient to permit contraction and expansion and in which the angular flanges of the ordinary fish plates are contained within lateral pockets which prevent longitudinal movement of the fish plates and hold them down upon the chair plate.

Our improved railway chair is adapted for use with rails and fish plates such as are ordinarily used on railways to-day, and it does not require any special construction of rail or of fish plate.

While we have described our chair as being made of pressed sheet metal we do not wish to be limited thereto, so we regard this as preferable, as the chair might be made of cast metal without departing from the broad idea of our invention.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is:—

In a rail joint, a chair plate having pockets on both edges closed at the ends and adapted to receive the outwardly projecting flanges of angular fish plates, said pockets being formed by bending the longitudinal edges of the plate inwardly from opposite sides.

2. In a rail joint, a chair plate consisting of a single thickness of sheet metal of such length as to rest at its ends on two adjacent ties and having opposed longitudinally extending inwardly turned lateral flanges extending the full length of the plate, and fish plates having angular outwardly projecting flanges adapted to extend beneath the said lateral flanges of the chair, each of said lateral flanges having a wall at both ends extending downward to the main body of the plate and adapted to engage against the ends of the fish plates.

3. In a rail joint, fish plates having angular outwardly projecting flanges, a chair plate longer than the fish plates having opposed longitudinally extending inwardly turned lateral flanges adapted to extend over the outwardly projecting flanges of the fish plates, each of said lateral flanges having a wall at its ends extending downwardly to the main body of the plate and adapted to engage against the end of the fish plate, rails resting on the chair plate, and members on the chair plate arranged to enter sockets in the bases of the rails.

4. In a rail joint, fish plates having angular outwardly projecting flanges, and a chair plate longer than the fish plates and having opposite marginal portions bent inwardly toward each other on two parallel lines to form opposed longitudinal inwardly turned lateral flanges, the ends of said flanges being forced downward into contact with the upper face of the chair plate to form pockets of the same length as and adapted to contain the angular flanges of the fish plates.

5. A chair plate for rail joints having opposed inwardly and upwardly turned lateral flanges, the ends of said flanges being forced downward against the upper face of the

chair plate and the remaining portions of the flanges being spaced from the said upper face to form pockets adapted to engage with the base flanges of angular fish plates.

6. A chair plate for rail joints made of a single piece of sheet metal having opposed inwardly and upwardly turned lateral flanges, the ends of said flanges being forced downward against the upper face of the chair plate to form pockets closed at its ends and adapted to engage with the base flanges of angular fish plates, the said chair plate having studs projecting upwardly therefrom adapted to engage with a rail.

7. In a rail joint, a chair plate having opposed longitudinally extending upwardly and inwardly turned lateral flanges, the ends of said flanges being provided with a wall extending downward to the body of the plate and the bottom of said plate being formed with studs having inclined upper faces, in combination with rails, the base of each rail being slotted to accommodate said studs, and fish plates adapted to be engaged with said rails having outwardly projecting base flanges engaging beneath the lateral flanges of the chair plate, said chair plate having means whereby it may be attached to ties or sleepers.

8. A chair plate for rail joints having opposed inwardly and upwardly turned lateral flanges, the ends of said flanges being forced downward against the upper face of the chair plate to form pockets adapted to engage with the base flanges of angular fish plates, the said chair plate having studs projecting upwardly therefrom adapted to engage with a rail, the rail having elongated slots for this purpose.

9. A chair plate comprising a single piece of bendable sheet metal of rectangular form having its opposite longitudinal marginal portions bent inwardly toward each other on two parallel lines to form flanges, the ends of the flanges being bent to a greater extent than the intermediate portions, and spike-receiving notches arranged in the plate coincident with the bends between the flanges and body portion of the plate.

10. As an article of manufacture, a chair plate constructed of a piece of rectangular sheet metal having a body portion provided with flat top and bottom surfaces, the longitudinal edges of the plates being bent inwardly over the body portion on two parallel lines to form opposed flanges, the ends of the flanges being doubled flat against the body portion and the remaining portions of the flanges being spaced therefrom to form pockets closed at their ends, a plurality of spaced members projecting upwardly from the flat top surface of the body portion for interlocking with the rails, and spike-receiving notches arranged in the flanges adjacent the ends thereof and at intermediate points whereby the spikes prevent the flanges from bending open.

11. In a rail joint, the combination of rail sections, fish plates connecting the same and having base-engaging flanges, a chair plate under the rail sections having pockets extending along both edges and closed at their ends to receive the said flanges of the fish plates, said pockets being formed by bending the longitudinal edges of the plates inwardly from opposite sides, and means for interlocking the chair plate and each rail section together, said means including members connected with one of such interlocked parts and engaging in sockets in the other interlocked part.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

JOHN S. SKAALA.
EZEKIAL H. HILLIARD.

Witnesses:
LINDA THOMPSON,
L. E. THOMPSON.