J. C. PEPPERS.

RAIL JOINT.

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1,167,109. Patented Jan. 4, 1916.

Fig. 1.

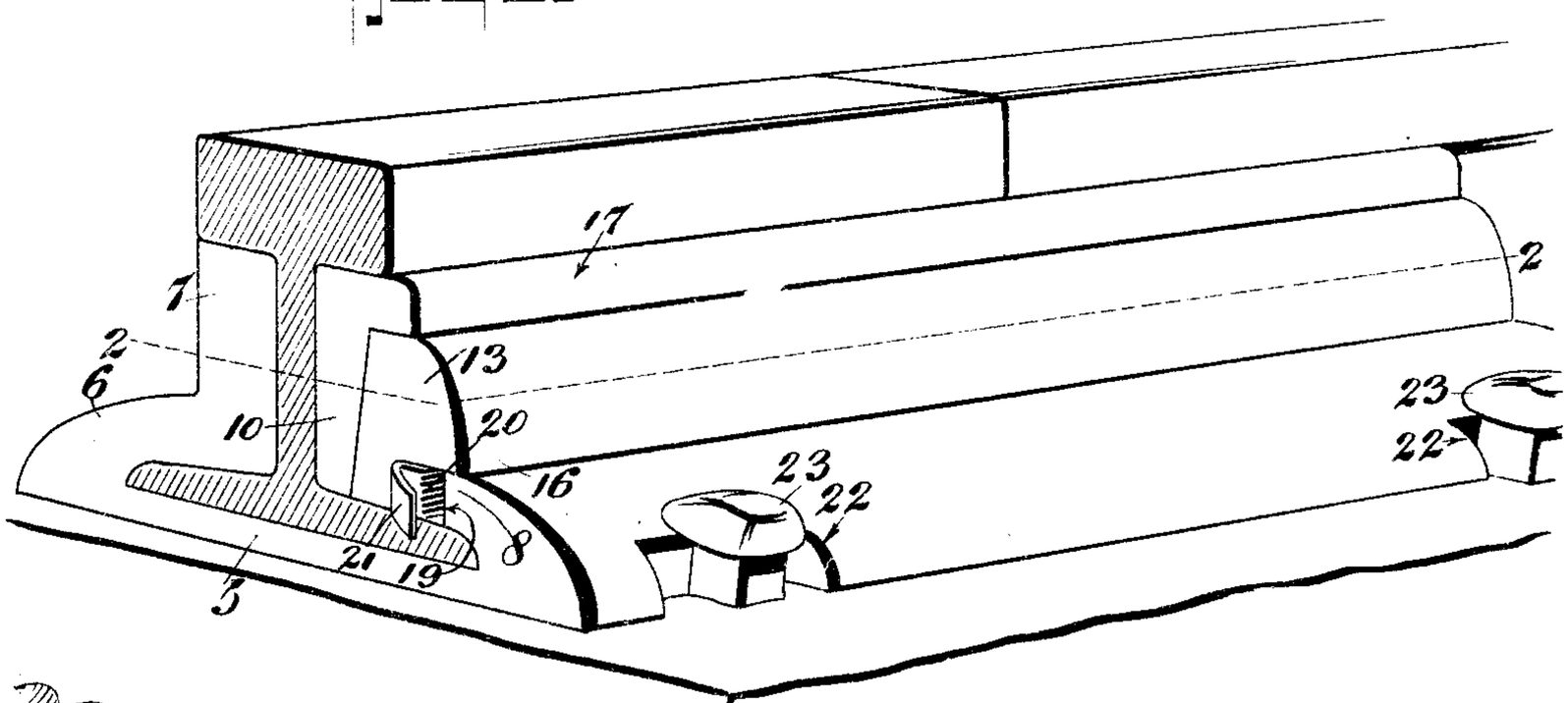

Fig. 2.

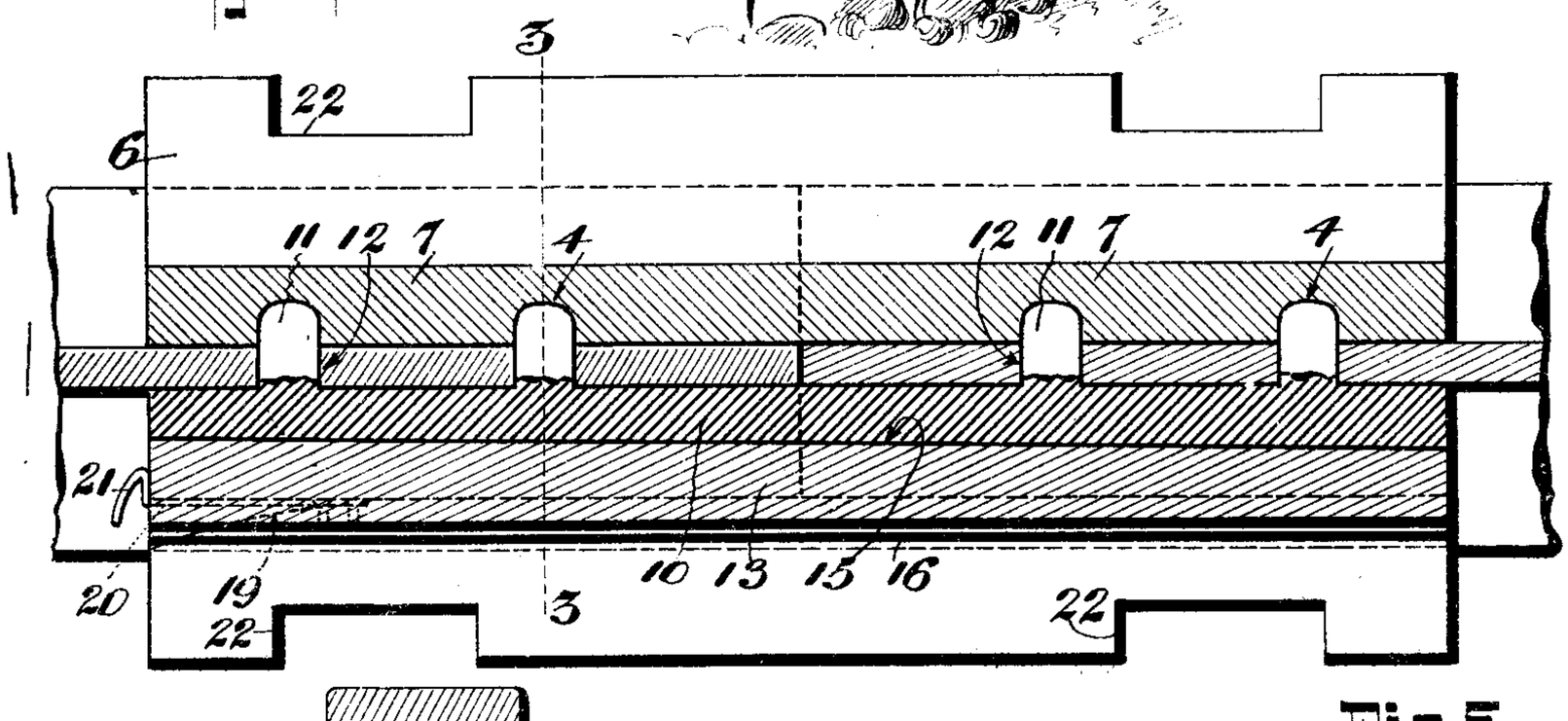

Fig. 3.

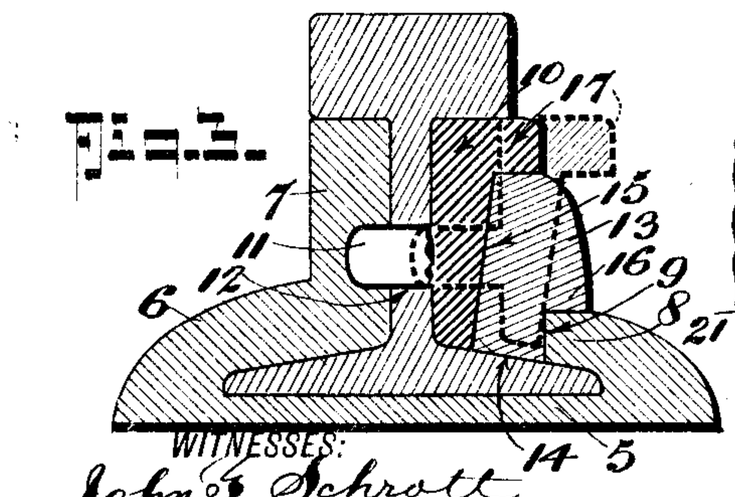

Fig. 5.

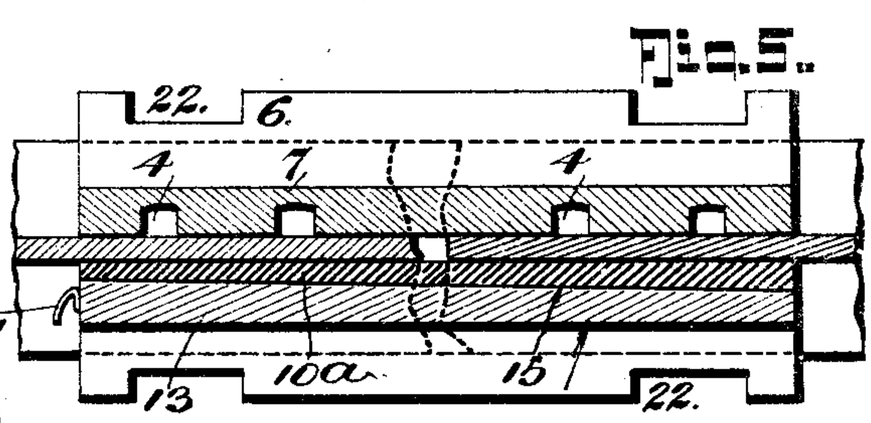

Fig. 4.

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RAIL-JOINT.

1,167,109. Specification of Letters Patent. Patented Jan. 4, 1916.

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To all whom it may concern:

Be it known that I, JERRY C. PEPPERS, a citizen of the United States, and a resident of Beaumont, in the county of Jefferson and State of Texas, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to an improved rail joint, and one of the principal objects of the invention is to provide an improved joint employing means without the use of bolts for securely connecting adjacent rail ends together and holding them in place against longitudinal and spreading movement.

Another object of the invention is to provide an improved rail joint in the nature of a fish plate and wedge bar adapted to coact with each other and with a rail chair in securing the rail ends in position, the fish plate being provided with a number of lugs adapted to engage through openings provided in the adjacent webs of the rail ends, for maintaining the rails against longitudinal displacement, the wedge bar and fish plate being so constructed as to counteract any tendency of the rail chair to spread.

A still further object is to provide such a rail joint in which the fish plate, after having been put in position and locked in place, cannot be removed and entirely disconnected from the rail ends, even after removal of the wedge bar, so that removal of the rail chair itself will be necessary before the rail ends can be disconnected from each other.

A further object is to provide a rail joint of the class described which will be extremely simiple, durable, efficient in operation, and inexpensive to manufacture.

With these and other objects in view which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawing in which like characters of reference indicate like parts throughout the several figures, of which—

Figure 1 represents a view in perspective of a rail joint constructed according to my invention. Fig. 2 represents a view in section taken horizontally on the plane indicated by the line 2—2 of Fig. 1. Fig. 3 represents a view in section taken transversely and vertically on the plane indicted by the line 3—3 of Fig. 2. Fig. 4 represents a view in perspective of the fish plate removed. Fig. 5 represents a view similar to Fig. 2, of a modified form of joint, showing the manner in which the parts may be utilized in splicing broken rail ends.

In carrying out my invention, I provide a rail chair including a base 5 upon which the base flanges of the rail ends are adapted to rest, said base 5 being provided along one longitudinal edge with an overhanging flange 6. The latter is extended vertically at its upper edge to provide a flange 7. The flange 6 overlies and engages against the base flanges of the rail ends on one side of the joint, while the flange 7 abuts against the webs of the rails on the same side, and at its upper edge bears against the ball of the rails, as clearly indicated in Figs. 1 and 3. Along the opposite side of base 5 of the chair, is provided an overhanging flange 8 which partially overhangs and engages against the outer portion of the base flanges of the rail ends on the opposite side of the joint. The inner edge 9 of flange 8 is preferably disposed in a vertical plane.

A fish plate 10 is provided, and bears at its lower edge against the base flange of the rail ends adjacent the web of the rails, and at its upper edge bears under the ball portions of the rail ends. At its inner face, as will be noted, this fish plate rests against the web portions of the rails. Plate 10 is provided adjacent each end with a pair of laterally extending lugs 11, adapted to be extended through openings 12 in the web portions of the rails and to project into recesses 4 provided in the vertical flange 7. This arrangement is clearly shown in Fig. 2, and it is evident that by so engaging through the webs of the rails, said rails will be prevented from shifting longitudinally with respect to each other and with respect to the rail chair. The fish plate 10 is tapered longitudinally, being thicker at one end than the other, and is also tapered transversely, being thicker at its upper portion than at its lower portion. The fish plate is maintained in place through the medium of a wedge bar indicated at 13. The latter is tapered longitudinally as indicated in Fig. 2, and at its lower edge 14 is sloped to a degree to conform with the slope of the upper face of the base flange of the rail ends. The

inner edge 15 of the wedge bar is slightly beveled as indicated in Fig. 3, to conform with the outer beveled surface of the fish plate. The wedge bar is adapted to be driven in longitudinally of the rails between the fish plate 10 and the overhanging flange 8 of the rail chair. When in position the wedge bar abuts along its outer surface at the lower portion of said bar, against the flange 8. This wedge bar is provided with an overhanging shoulder or flange 16 which engages upon the upper surface of the flange 8 near the inner edge of the latter. The fish plate 10 along its upper edge is provided with an outwardly extending flange 17 which projects beyond the adjacent lateral edge of the ball of the rail ends and overhangs and engages upon the upper edge of the wedge bar 13. By thus providing the wedge bar with an overhanging chair flange engaging shoulder, any tendency of the chair to buckle along its central longitudinal line, incident to the strain placed upon the chair by insertion of the wedge bar, will be counteracted by the engagement of the overhanging shoulder upon the upper edge of the flange 8. By having the fish plate provided with the overhanging flange 17, the wedge bar is maintained against any lateral rocking movement, and at the same time the fish plate is forced firmly into engagement with the web and ball portions of the rail ends.

The overhanging flange 8 is provided at one end in its inner edge, with a recess indicated at 19, and in which a resilient detent or keeper 20 is disposed. This detent or keeper is secured at its inner end to the flange 8, in any suitable manner, and extends with the inner face of the detent, that is, the face nearest the web of the adjacent rail, flush with the inner face of the flange 8. The recess is of such dimensions that the detent at its outer end may be moved laterally whereby to withdraw the inwardly extending toothed portion 21 formed at the outer end of the detent, far enough from the path of the wedge bar, to allow the latter to be inserted between the fish plate 10 and the overhanging flange 8. This detent as soon as the bar is in place, springs back into position, in such manner that the toothed portion 21 engages against the larger end of the wedge bar, and thus maintains the latter against accidental retractive longitudinal movement relatively to the remainder of the joint. The length of the lugs 11 is so proportioned, that should the wedge bar be entirely removed and the fish plate shifted laterally away from the rail webs, from the full into the dotted line position shown in Fig. 3, to assume a position adjacent the flange 8, the lugs will still extend for a short distance into the openings through the web portion of the rails, so as to prevent removal of the fish plate, and at the same time still connect the rail ends together. In order, therefore, to remove this fish plate entirely it is necessary that the rail chair be shifted longitudinally with respect to the rails until it has cleared the end of the fish plate.

In assembling the device, the rail chair is slipped onto one of the ends of the rails and these ends are then connected together by means of the fish plate, with the lugs 11 projecting into, but not entirely through the openings in the web portions of the rails. The chair is then shifted so as to assume a position corresponding with the position of the fish plate relatively to the rail ends, that is in such position that the adjacent rail ends both rest upon the chair, and said chair is then spiked or otherwise secured to the tie upon which it rests. As indicated clearly in Fig. 1, the lateral edges of the chair may, if desired, be provided with recesses 22 for the reception of the spikes 23. The fish plate and chair having been put in place, the detent is then shifted outwardly and the wedge bar driven home, so as to lock the fish plate against the rails in the manner already set out. When the wedge bar is driven home, the detent springs back into place and prevents retraction of the wedge bar.

In Fig. 5 I have represented a method whereby the adjacent ends of a broken rail may be readily spliced. In the figure the parts are exactly the same as has been set out, with the exception that the fish plate is devoid of the lugs 11, being entirely smooth on its inner face. The fish plate is indicated in the modification by the numeral 10^a, the remaining portions of the device being indicated by the numerals already given them. In making such a splice, the wedge bar 13 will by engaging and wedging the fish plate against the adjacent broken rail ends, maintain them temporarily against lateral displacement, until a permanent joint can be made.

Although I have described the preferred embodiment of my invention, I may desire to make such changes in the construction, combination, and arrangement of parts thereof, as do not depart from the spirit of the invention and the scope of the appended claims.

1. A rail joint comprising a chair having a base portion upon which the base flanges of adjacent rail ends are adapted to rest, said base portion being provided along one edge with an overhanging flange engaging upon the base flanges of the rails on one side of said rails, said flange being extended and provided with a vertically extending flange engaging against the web, and ball portions of the rail ends on the same side of the joint, an overhanging flange provided along the opposite edge of the rail

chair and overhanging partially the opposite portions of the base flanges of the rail ends, a fish plate of a longitudinally and transversely tapering formation, and being provided adjacent its ends with pairs of laterally extending lugs, said lugs adapted to be engaged through openings in the web portions of the rail ends and extended into recesses provided in said vertical flange, said fish plate being provided along its upper edge with an overhanging flange, a wedge bar adapted to be extended between the fish plate and the second overhanging flange of the rail chair, and being provided with an inner inclined face adapted to engage against the outer face of the fish plate, said bar adapted to be engaged between the overhanging flange provided on the fish plate and the base flanges of the rail ends, a shoulder provided on the wedge bar and engaging against the upper portion of the second overhanging chair flange, and a spring detent carried by the chair and adapted to engage said wedge bar, for preventing accidental removal thereof, said lugs being of a length to engage within the openings in the rail webs when the fish plate is moved laterally into engagement with the said second overhanging chair flange, whereby to prevent removal of the fish plate from the rail ends prior to the removal of the chair.

2. A rail joint including a rail chair having an overhanging flange and adapted to receive rail ends, a fish plate provided with engaging elements adapted to be extended through openings in the web portions of the rail ends, a wedge bar adapted to be engaged between the fish plate and overhanging flange for maintaining the former in position, said engaging elements being of such a length as to engage partially within the openings in the web portions of the rail upon removal of the wedge bar and lateral movement of the fish plate into engagement with said overhanging flange.

3. In a rail joint, the combination with a rail chair having an overhanging base flange engaging flange, of a fish plate, and a wedge bar, said wedge bar adapted to be engaged between the fish plate and overhanging flange for binding the former into engagement with adjacent rail ends, said bar being provided with an overhanging shoulder engaging against the overhanging chair flange, said plate being provided with an overhanging shoulder engaging against the said wedge bar.

4. In a rail joint, a chair adapted to receive adjacent rail ends and being provided with a flange overhanging the base flanges of the rail ends, a fish plate engaged against the adjacent rail ends and being provided with an outwardly extending flange disposed adjacent the ball portions of the rail ends, and a wedge bar arranged between the outwardly extending flange and the base flanges of the rail ends and engaging against the fish plate and said overhanging flange.

5. In a rail joint, a chair adapted to receive adjacent rail ends and being provided with a flange overhanging the base flanges of the rail ends, a fish plate engaged against the adjacent rail ends and being provided with an outwardly extending flange disposed adjacent the ball portions of the rail ends, a wedge bar arranged between the outwardly extending flange and the base flanges of the rail ends and engaging against the fish plate and said overhanging flange, and an outwardly extending flange provided on the wedge bar and engaging upon the overhanging flange of the chair.

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