

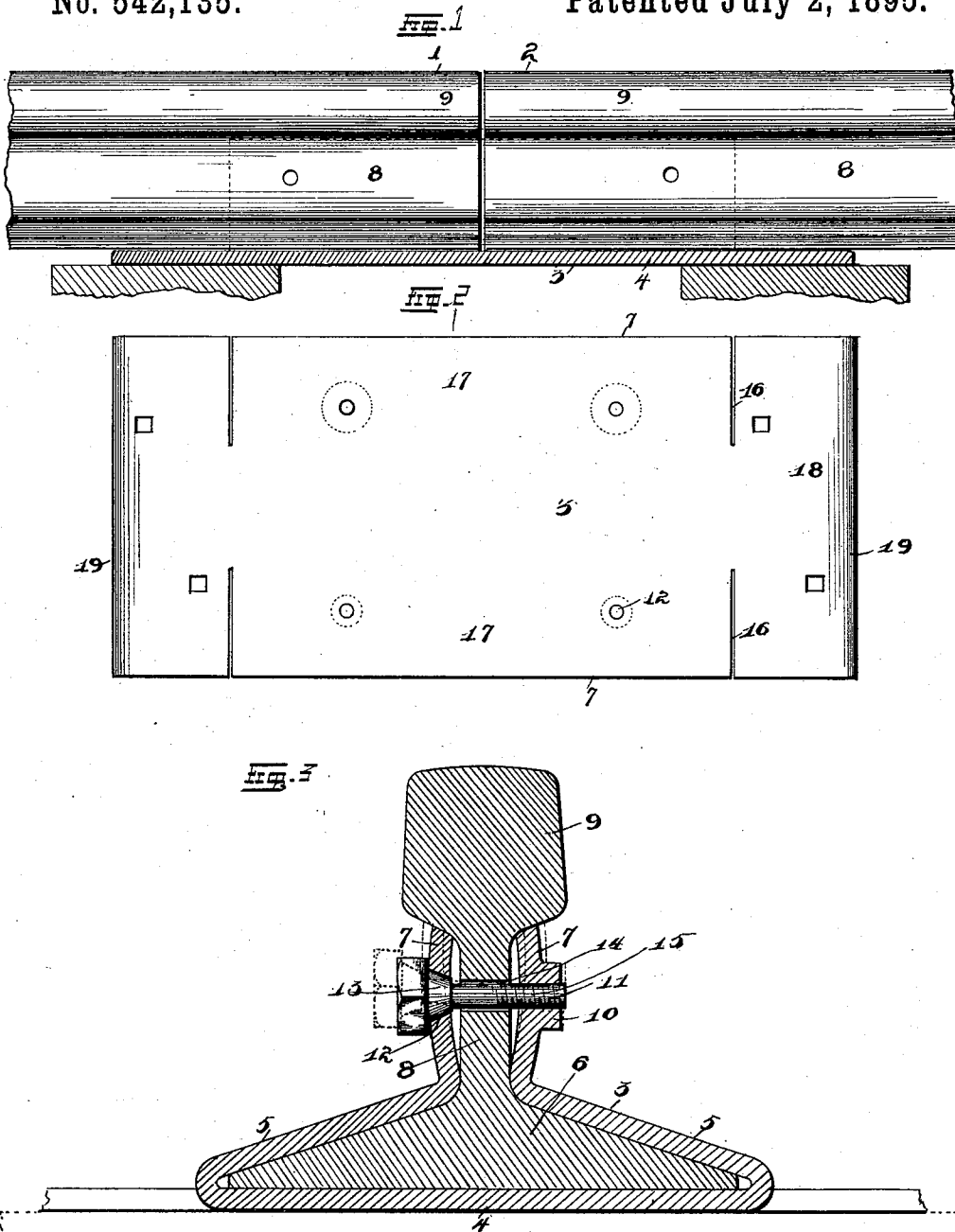
(No Model.)

2 Sheets—Sheet 1.

F. W. BOND.
RAILWAY TRACK JOINT.

No. 542,135.

Patented July 2, 1895.



Witnesses:
Alfred A. Eichs
Herbert A. Robinson.

Inventor,
Frederick W. Bond,
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Attorneys.

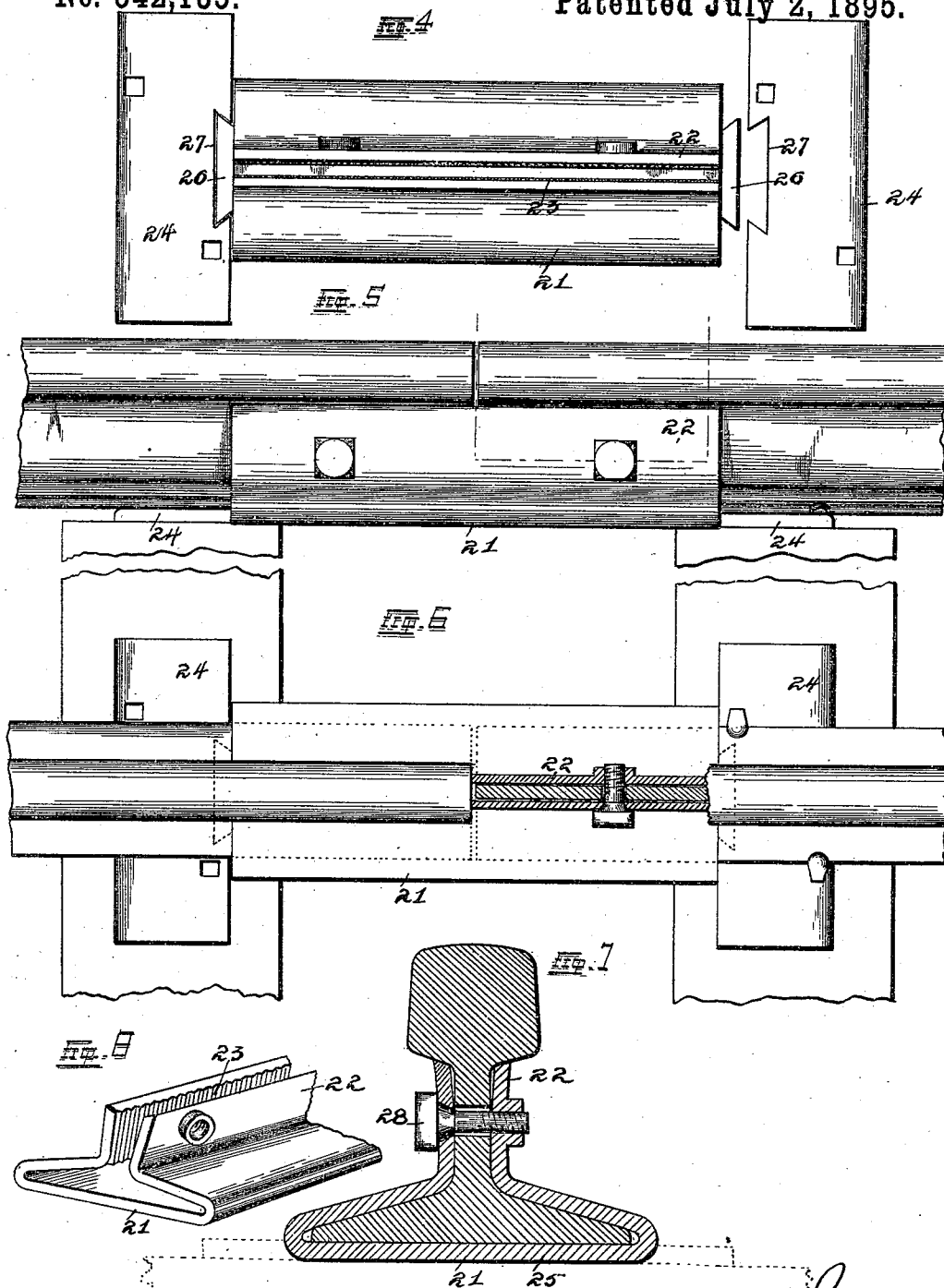
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UNITED STATES PATENT OFFICE.

FREDERICK W. BOND, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
BYRON F. HOBART, OF SAME PLACE.

RAILWAY-TRACK JOINT.

SPECIFICATION forming part of Letters Patent No. 542,135, dated July 2, 1895.

Application filed March 20, 1893. Renewed May 21, 1895. Serial No. 550,144. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. BOND, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Railway-Track Joints, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in railway-track joints; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

The object of my invention is to construct an improved means for making and securing the joints of railway-track-rails.

In the drawings, Figure 1 is a side sectional elevation of the track-joint, showing a portion of the fish-plate sectioned and removed and its normal position indicated by dotted lines. Fig. 2 is a top plan view of the blank from which the fish-plate is made. Fig. 3 is a detail transverse vertical enlarged section taken through the rail and fish-plate. Fig. 4 is a top plan view of a portion of one form of the fish-plate in position to engage the tie-plate. Fig. 5 is a longitudinal side elevation of the same applied to the rails. Fig. 6 is a top plan sectional view of the same with a portion of one rail broken out and sectioned on a line A A in Fig. 2. Fig. 7 is a vertical transverse sectional view taken on the line B B in Fig. 3. Fig. 8 is a perspective view of a portion of a fish-plate, showing the corrugated surfaces.

Referring to the drawings, 1 and 2 indicate the adjacent meeting ends of two rails, which in this case are shown as of the ordinary T-tread-rail pattern.

The form of the fish-plate 3 is especially shown in Fig. 3, where it will be seen that it consists of a bottom portion 4 having two projecting and upwardly-canted sides 5 to fit along the tie-flange 6 of the rail, and two upwardly and slightly outwardly bowed flanges 7, which are adapted to fit against the sides of the rail-web 8 and engage the under side of the T-tread 9.

Located upon the outer side of one of the flanges 7 and equidistant between its ends are projecting bosses 10, provided to present

sufficient thickness for a screw-threaded opening.

A tapering opening 12 is located in the side 7 opposite to the screw-threaded opening in the boss 10, adapted to receive the bolt 11. Said bolt 12 is provided with a tapered projection 13 adjacent its head, which is adapted to fit and be wedged into an upper opening 12 in the flange 7. The rail is provided with an opening 14 in alignment with the internal screw-threaded opening in the boss 10 and the opening 12, through which the bolt is adapted to pass. The object of having the shank 15 of the bolt smaller in diameter than the projection 13 is in order that the bolt may be worked into the plate to engage in the threads of the opening in the boss 10 and to admit of the drawing together of the two flanges 7, the opposite strain of the same taking the place of a nut or lock of any kind, as the same wedge upon the threads and against the head. It will now be seen that said flanges 7 do not engage the web 8 of the rail at all, but the upper edges of said flanges engage the under sides of the tread 9.

In operation it is necessary to insert the rails 1 and 2 into the plate 3 through the openings formed by the walls 5 and flanges 7. When the rails have been fitted into position, the bolt 11 is placed through the wall 7 and through an opening 14 in the rail and turned into the internal screw-threaded opening in the boss 10. This function therefore causes the bolt to be locked in the position in which it is set, as the tension of the two flanges 7 is repellent, therefore obviating the necessity of using a nut upon the bolt 11.

Before proceeding any farther I had best give a description of how the fish-plate is constructed.

In Fig. 2 is shown a metal blank from which the same is made, and in order to allow the forming of the walls 5 and flanges 7 I have provided four slits 16, two projecting inwardly from one edge of the plate and the other two from the other edge of the plate, and two of said slits being in alignment near one end and two near the other end. The portion 17 between said slits 16 upon each side of the plate are then bent in the proper form to make the walls 5 and flanges 7, thus leaving two end

projecting portions 18, which form what I term a "tie-plate" 19. The tie-plate thus formed is provided with openings 20 for the passage of the rail-spikes, which also engage over the tie-flange of the rail.

I now desire to include a description of a modified form of construction which slightly differs from the above detailed joint, but still involves the same principle.

The modified construction includes a fish-plate 21, which is nearly similar to the fish-plate 3, except that the flanges 22, similar to the flanges 7, are not bowed, as is the case with said flanges 7, but are slightly outwardly diverging and are provided upon their inner surface with vertical corrugations 23 to grip the rail. The tie-plate 24, instead of being formed integrally with the fish-plate 22, as the tie-plates 19 with the fish-plate 3, is detachable.

The bottom plate 25 of the fish-plate 21 is provided with a dovetail projection 26 adapted to fit downwardly in a dovetail recess 27 in the detachable tie-plates 24. Said tie-plates 24 are provided with rounded outer and upper edges, as shown by the shading in Figs. 4 and 6, as is also the case with the edges of the tie-plate 19, this construction being so formed in order to prevent the cutting of the rail by the edges of said tie-plates. The bottom plate 25 of the fish-plate 21 could, however, be provided with a recess and the tie-plates with the dovetail projections without in any way altering the idea of my invention. The flanges 22 are slightly outwardly open from each other, serving to hold the bolt 28 similar to the bolt 11 when the same is in position, as the opposite strain of each of said flanges holds said bolt against backing out by the engagement of one of the flanges against the head of the bolt and the other upon the screw-threads of same.

In the case of both of the fish-plates it is necessary to insert the rails through said fish-plates from its ends, thus giving to the joint the function above mentioned. When the fish-plate is secured to the two rails, the same is adjusted into the recess 27 and the tie-plates 24 are then secured to the ties by means of ordinary spikes.

The formation of the joint in the manner above described prevents any tampering with the rails at this point, as it would be almost impossible to raise the jointed rails from their position far enough to do any damage, even if the connection of the tie-plates with the ties were severed. In placing the parts together the rails are inserted in the fish-plate, bolted therein, the tie-plates adjusted in the proper alignment upon the ties, and the spikes inserted through the openings to secure the entire construction to the ties.

In Fig. 3 I show in dotted lines the prob-

able position which the bolt would assume when about to be placed in position. The flanges 7 are also spread outwardly in the position as designated, and the bolt has to be lifted upwardly out of its normal plane in order that the same will start in the threads, which, when said flange is slightly outwardly strained, are at an angle. The tightening in of the bolt draws the openings in the flanges into a horizontal alignment, thus enabling the proper location of the bolt.

It will now be seen by the above construction I have provided a supporting-chair over the rails and have also combined features therewith to hold the same in position and in alignment upon the ties.

Having fully described my invention, what I claim is—

1. In a railway track-joint a supporting chair having bottom and top walls, upwardly and slightly outwardly diverging bowed flanges projecting from said top walls, projecting bosses upon said flanges, internally screw threaded openings in said bosses, and a bolt having a conical shaped enlargement adjacent to its head and adapted to be inserted through and in the rail web and turned into the screw threads in said bosses, substantially as set forth.

2. In a railway track joint a supporting chair having walls adapted to embrace the tie flange, said walls provided with upwardly projecting flanges slightly bowed and outwardly diverging, projecting bosses upon one of said flanges, screw threaded openings in said bosses, outwardly tapering openings in the other flange opposite said openings, and a bolt provided with a thickened portion under its head, adapted to be inserted through a tapered opening, rail and screw threaded bosses, to hold the chair in position, substantially as set forth.

3. In a railway track joint, a supporting chair having bottom and top walls, upwardly and slightly outwardly diverging bowed flanges projecting from said top walls, projecting bosses upon said flanges, provided with internally screw threaded openings, bolts having a conical enlargement adjacent their heads adapted to be inserted through one of said flanges of the rail web and turned into the threaded openings in said bosses, and a tie plate formed integral with each end of said supporting chair and adapted to rest upon a tie and support a rail, substantially as herein specified.

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

FREDERICK W. BOND.

Witnesses:

HERBERT S. ROBINSON,

ALFRED A. EICKS.