

Dec. 28, 1926.

1,612,635

W. F. HART

METHOD OF MAKING RAIL BONDS

Original Filed Sept. 22, 1922

Fig. 1.

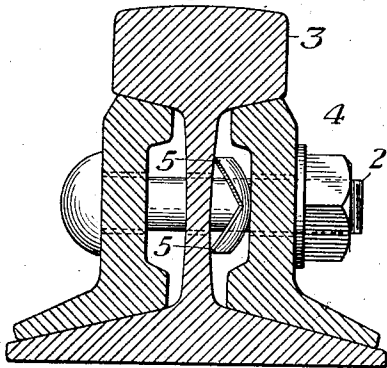


Fig. 2.

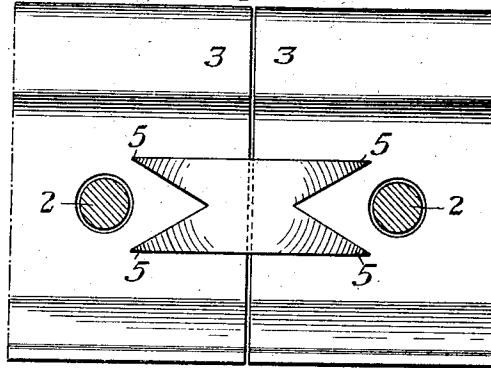


Fig. 3.

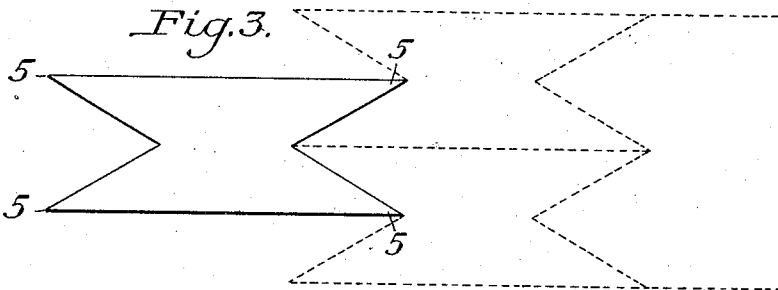


Fig. 4.

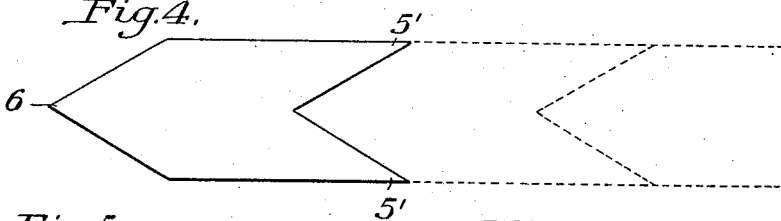


Fig. 5.

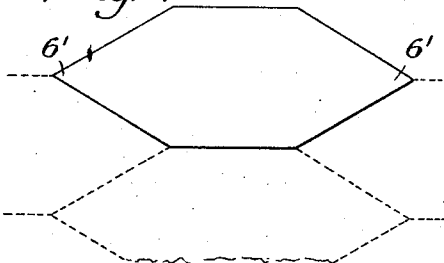


Fig. 6.

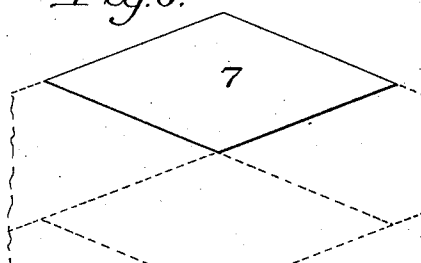


Fig. 7.

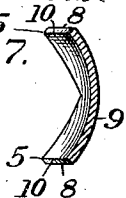
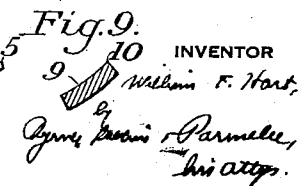


Fig. 8.



Fig. 9.



INVENTOR

William F. Hart,

By *James J. Parmelee*,
his atty.

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING RAIL BONDS.

Original application filed September 22, 1922, Serial No. 589,790. Divided and this application filed July 5, 1924. Serial No. 724,290.

The present invention relates broadly to railway track bonds, and more particularly to a method of making bonds of this character having such resilient properties that they are adapted to be clamped in position between the webs of the rail ends to be bonded and the fish plate for the rail joint, and having terminal portions adapted to penetrate any coating on the webs.

In my copending application Serial No. 589,790, filed September 22, 1922, of which the present application is a continuation, I have disclosed and claimed certain forms of rail bonds having characteristics adapting the same for use in bonding rails. In the present application there is disclosed a preferred method of making these bonds whereby the number of operations is reduced and the construction of the bonds greatly improved.

In the accompanying drawings I have shown, for purposes of illustration only, certain embodiments of the present invention, it being understood, however, that the drawings do not define the limits of the invention, as changes may obviously be made in the construction and mode of use disclosed without departing from the spirit of the invention or scope of my broader claims.

In the drawings:

Figure 1 is a vertical sectional view through a portion of a rail joint, showing one form of track bond in position;

Figure 2 is a side elevation of the construction illustrated in Figure 1, one of the fish plates being removed and the clamping bolts being shown in section;

Figure 3 is a plan view illustrating one manner of producing bonds of the construction shown in Figures 1 and 2;

Figures 4, 5 and 6 are views corresponding to Figure 3, illustrating slightly modified forms of bonds;

Figure 7 is a transverse sectional view through the bond illustrated in Figures 1 and 2;

Figure 8 is a longitudinal sectional view through the bond of said figures; and

Figure 9 is a detail sectional view on an enlarged scale on the line IX—IX of Figure 8.

The present invention relates broadly to a resilient bond of the character adapted to be utilized between the center bolts 2 of ad-

jacent rail ends 3, the bond being held in position by the fish plates 4 through which the bolts 2 pass. In a bond of this type it is desirable that it be provided with points of such nature as to effectively penetrate any foreign material, such as rust, to which the rails are subject, to thereby contact with the metal of the rail and form an efficient electrical connection therewith. It is furthermore important that the bonds be constructed from a minimum amount of metal and that they have resilient properties such that they may yield as the fish plates are drawn into position without any danger of permanent setting of the metal or cracking thereof.

From a structural standpoint, I have found that the foregoing advantages may be obtained in a bond of the type shown in Figures 1, 2, 3, 7 and 8, in which the bond has a pair of spaced rail engaging points 5 at each end thereof, the bond being curved both transversely and longitudinally, as clearly illustrated. This bond may be formed with a minimum waste of metal, as clearly shown in Figure 3, as the points of one bond interfit with those of an adjacent bond.

In Figure 4, there is illustrated a similar bond having points 5' at one end and a single centrally located point 6 at the opposite end. Bonds of this configuration are also adapted to be economically produced from a sheet or strip of suitable material.

In Figure 5, there is illustrated another modification in which the bond has a single point 6' at each end thereof, while in Figure 6 the bond 7 is illustrated as being of elongated diamond shape.

In the manufacture of the bond, I preferably heat the material from which they are to be formed to a suitable temperature and then punch the same to form an individual blank of any one of the types heretofore described. At this same temperature I then subject the punched blanks to a forming operation to impart thereto either a transverse curvature, a longitudinal curvature, or both. The formed blanks are then preferably immediately conducted to an oil bath in which they are quenched to temper the same, as is well understood in the art. Thereafter the bonds may be conducted from the oil bath through a second furnace

in which the temperature conditions are such as to draw the temper to the desired amount, after which the blanks are sprayed or cooled in any suitable manner.

5 From an operating standpoint the foregoing process is of decided advantage for the reason that it enables a blank to be punched, formed and quenched at a single heat, thereby saving a supplemental heating and increasing the production of the articles. The punching prior to the curving is also of considerable importance, as under ordinary operating conditions the punching forms a bond having sides extending at substantially right angles to the plane of the body. In this condition the opposite faces of the bonds lie in substantially flat parallel planes. By subsequently forming the bond, the angular relationship between the edges 8 and the surfaces 9 is not materially changed, but the surfaces 9 are bent out of a flat plane in such manner that corners 10 are presented toward the rail webs. This construction is clearly shown in Figures 7 and 9, in which portions of a bond are illustrated after it has been subjected to a forming operation. The presentation of edges or corners as contrasted with flat sides is of considerable importance, as it provides sharp points or lines of contact between the rails and the bonds, thereby insuring more efficient penetration of any coating on the rails. The treating of the bonds by quenching and drawing then imparts such resilient characteristics and hardness that these penetrating points and edges are not destroyed when the bond is used.

The advantages of the present invention arise from the method of making bonds by which a minimum amount of metal is required and a single heat required for the punching and forming.

Further advantages of the invention arise from the method of first punching the blanks and thereafter bending the same in such manner as to provide more efficient rail penetrating points and edges.

I claim:

1. The method of manufacturing rail bonds comprising punching a sheet to form an individual blank of decreasing width toward the ends thereof to form rail engaging points in the plane of the blank and then bending the blank to cause the ends thereof to extend at an angle from the original plane of the blank so that all of the faces of the ends of the bent bond lie in planes at an angle to a plane touching the extreme corners of the bond.

2. The method of manufacturing rail bonds comprising punching a sheet to form an individual blank of decreasing width toward the ends thereof to form rail engaging points in the plane of the blank and then bending the blank transversely to cause the ends thereof to extend at an angle from the original plane of the blank so that all of the faces of the ends of the bent bond lie in planes at an angle to a plane touching the extreme corners of the bond.

3. The method of manufacturing rail bonds comprising punching a sheet to form an individual blank of decreasing width toward the ends thereof to form rail engaging points in the plane of the blank and then bending the blank longitudinally to cause the ends thereof to extend at an angle from the original plane of the blank so that all of the faces of the ends of the bent bond lie in planes at an angle to a plane touching the extreme corners of the bond.

4. The method of manufacturing rail bonds comprising punching a sheet to form an individual blank of decreasing width toward the ends thereof to form rail engaging points in the plane of the blank and then bending the blank longitudinally and transversely to cause the ends thereof to extend at an angle from the original plane of the blank so that all of the faces of the ends of the bent bond lie in planes at an angle to a plane touching the extreme corners of the bond.

5. The method of manufacturing rail bonds comprising punching a sheet to form an individual blank of decreasing width toward the ends thereof to form rail engaging points in the plane of the blank and then curving the blank to cause the ends thereof to extend at an angle from the original plane of the blank so that all of the faces of the ends of the bent bond lie in planes at an angle to a plane touching the extreme corners of the bond.

6. The method of manufacturing rail bonds comprising punching a sheet to form an individual blank of decreasing width towards the ends thereof to form rail engaging points in the plane of the blank and then curving the blank in two directions to cause the ends thereof to extend at an angle from the original plane of the blank so that all of the faces of the ends of the bent bond lie in planes at an angle to a plane touching the extreme corners of the bond.

In testimony whereof I have hereunto set my hand.

WM. F. HART.