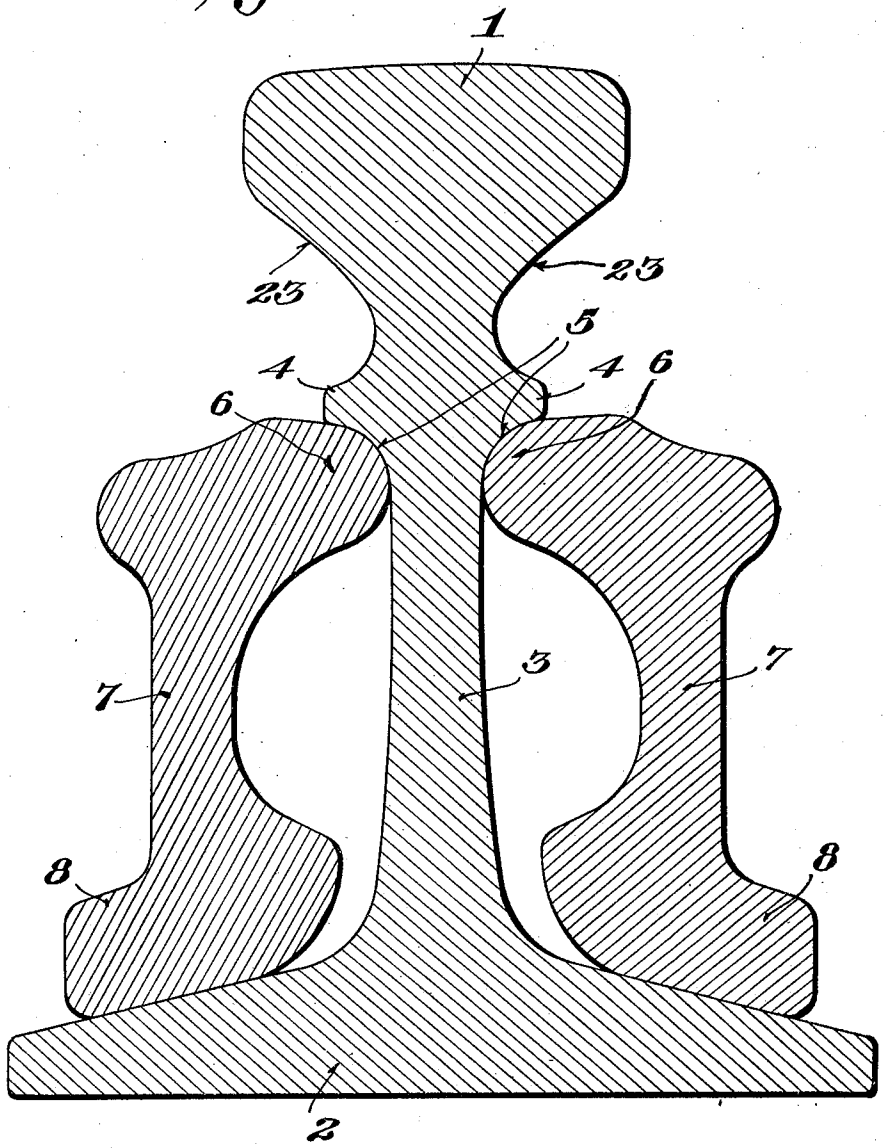
Aug. 18, 1931. McLEOD THOMSON 1,819,980

RAILWAY RAIL

Filed Feb. 18, 1930 3 Sheets-Sheet 1

Fig. 1.



Inventor

McLeod Thomson,

By D. P. Wolcott

Attorney

WITNESSES:-

Chas. L. Greenbauer

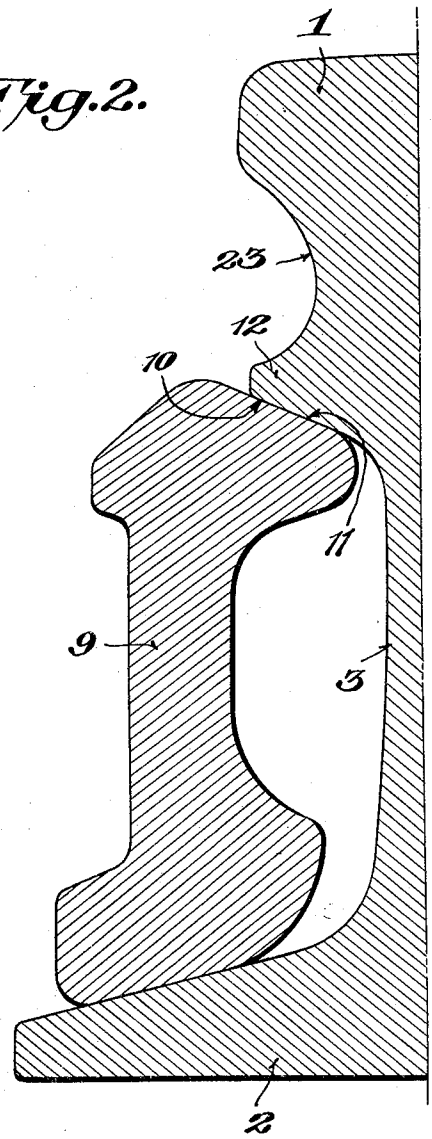
Emory L. Groff

Aug. 18, 1931. McLEOD THOMSON 1,819,980

RAILWAY RAIL

Filed Feb. 18, 1930 3 Sheets-Sheet 2

Fig. 2.



Inventor

McLeod Thomson,

By D. P. Wheeler

Attorney

WITNESSES:-

Chas. L. Gristhauer

Emory L. Groff

Aug. 18, 1931. McLEOD THOMSON 1,819,980

RAILWAY RAIL

Filed Feb. 18, 1930 3 Sheets-Sheet 3

Fig. 3.

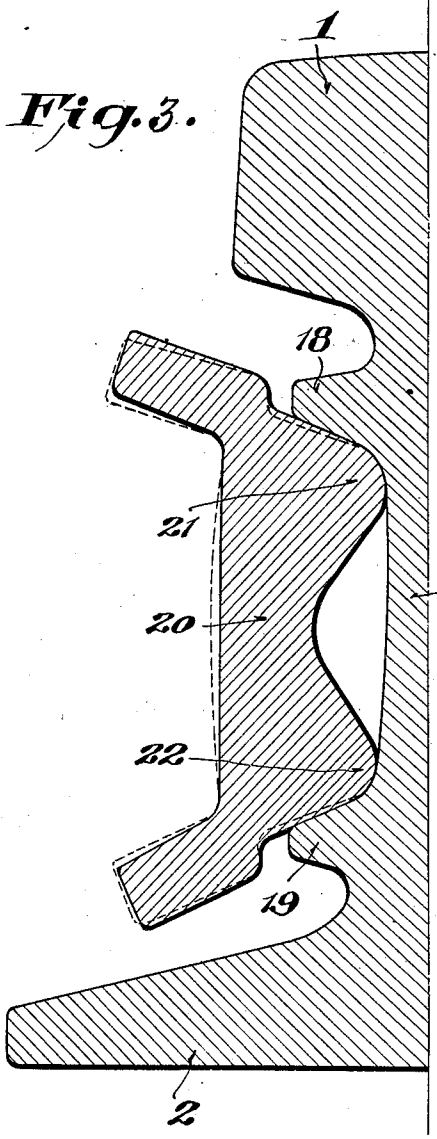
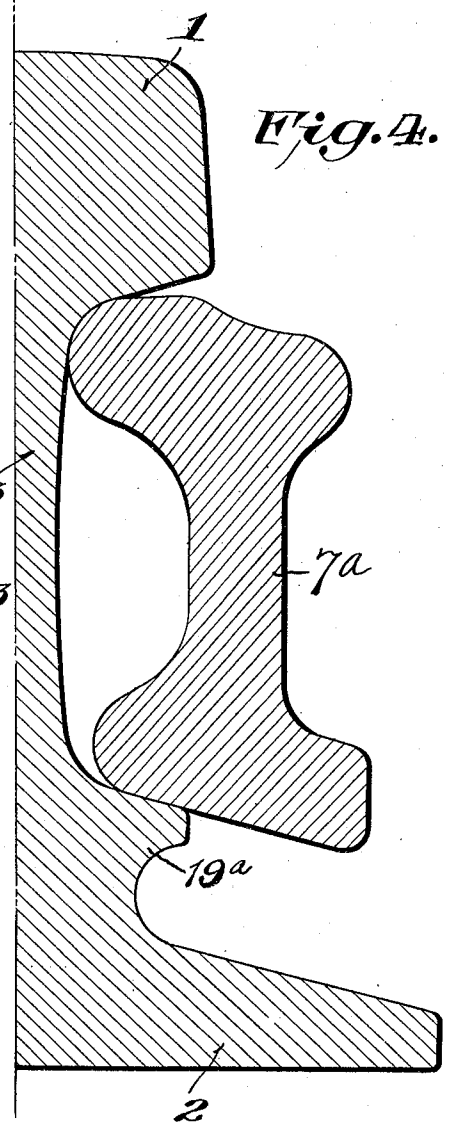


Fig. 4.



Inventor

McLeod Thomson,

By D. P. Wolcanlen

Attorney

WITNESSES:-

Chas. L. Griesbauer

Romany R. Graff

Patented Aug. 18, 1931

1,819,980

UNITED STATES PATENT OFFICE

McLEOD THOMSON, OF CHELSEA, NEW JERSEY

RAILWAY RAIL

Application filed February 18, 1930. Serial No. 429,377.

This invention relates to a novel construction for railway rail and rail splicing means having special utility in its application to the heavier deep-girder type of rails.

Because of the heavy rolling loads and high speed loads to which modern railway track is subjected the tendency among railroad engineers is to adopt and use very heavy rail ranging from 130 lbs. to the yard upwards and as the height of such rail increases new conditions naturally are set up with respect to the splicing of such rail by the rail joints. The higher the rail the more desirable it becomes to have a splice bar anchorage at a point other than immediately beneath the head of the rail or in the head fillet thereof because of the fact that the higher rails will be decidedly stiffer and have a greater moment of inertia so that the ordinate of deflection will be less at the joint so that it will not be necessary to use the full space between the head and base of the rail for adequate splice bar anchorage.

Accordingly, the present invention has in view a novel form of rail construction wherein the splice bar anchorage on the rail can be made at a point intermediate the head and base of the rail while at the same time permitting the rail construction having desirable and advantageous attributes as to better working in the mill, better and more uniform cooling and a better construction for car wheel flange wear.

With these and other objects in view which will readily appear to those familiar with the art, the invention consists in the novel construction, combination and arrangement of features hereinafter described, illustrated and claimed, and certain preferable embodiments, by way of example, are shown in the accompanying drawings, in which:—

Figure 1 is a sectional view of a rail and a pair of splicing bars illustrating the primary feature of the present invention, the view showing a rail joint of the fillet bearing type.

Figure 2 is a view similar to Fig. 1 showing a rail joint of the head fishing type.

Figure 3 is a view similar to the other figures illustrating a duplex construction of splice bar anchorage, that is, such anchorages being arranged on the web above and below the line of the bolt holes.

Figure 4 is a vertical sectional view showing a half rail section wherein the bar engaging rib may be located near the base of the rail web while the head of the bar engages the underside of the rail head.

In carrying forward the present invention it may be said that the improved rail construction is intended to retain all of the desirable advantages of the novel railway rail construction covered by the U. S. patent to W. P. Thomson, No. 1,507,870, dated September 9, 1924, particularly with reference to having the design of the rail head of such form and character that in the process of rolling the metal can be manipulated to the very best advantage, as well as providing for an effective and uniform cooling of the rail body, and also involving a distribution of metal which may be utilized to either actually reduce the weight of the rail or to permit the equivalent of the metal removed to be placed at more advantageous locations elsewhere in the rail. Furthermore, the present invention provides a novel rail design which not only lends itself readily to a successful carrying forward of the Headfree splicing structure of the Thomson Reissue Patent No. 15,773, but also lends itself to utilizing any practical form of splicing structure that may effectively be utilized in the space provided therefor between the splice bar anchorage on the web and the rail base flange.

To illustrate these features of the invention reference is first made to Fig. 1 of the drawings wherein there is shown the novel rail consisting primarily of the head 1, the base 2, and the intermediate connecting web 3. For purposes of illustration the rail selected for this view of the drawings is a 150 lb. R. E. rail and on account of the great height of this rail and the deep girder characteristic thereof the improvements contemplated by the present invention can be very well adapted thereto. That is to say, according to the present invention it is primarily proposed to form on the side of the web,

below the rail head, an outward or lateral reinforcing protuberance or rib 4 formed at its underside with a joint bar bearing 5. In the example being described this splice bar bearing may have the form and characteristic of a rib having a fillet adjoining and merging into the web 3 of the rail and adapted to form a fulcruming anchorage for the upper inner bearing corner 6 of the joint bar 7 having its foot 8 adjustably fitting the upper inclined side of the rail flange to permit of adjustment for wear in the same manner, and for the same purpose as provided for in the head-free type of joint described in the Thomson Reissue patent above referred to. In the high type of rail referred to the full fishing space between the head of the rail and the base of the rail is not necessary to be utilized for adequate splicing purposes, and consequently the present invention provides such adequate splice by interposing a joint bar between the rail flange and the intermediately located splice bar anchorage 4 which may be of any suitable form, according to requirements, just so long as it provides a substantial abutment projection against which the joint bar or splice bar is seated.

The type of joint bar is not an essential feature of the present invention because while the fillet bearing type of joint is shown in Fig. 1 of the drawings, the head contact type of joint bar may be employed as shown in Fig. 2 of the drawings, said head contact type of bar being designated by the reference number 9 and having a flat top fishing surface 10 engaging the flat fishing bearing 11 formed at the underside of the lateral protuberance or abutment projection 12 formed with and projecting laterally from the web of the rail at a point below the head thereof.

By way of showing the range of modification that may be resorted to in the number and location of the splice bar anchorages reference is made to Fig. 3 of the drawings wherein a lateral protuberance or abutment projection 18 is projected from the side of the web above the bolt holes and a corresponding lower protuberance or projection 19 is formed on and projects from the web below the line of the bolt holes. In this suggested form of the invention a splice bar 20 may be provided at its upper and lower inner corners with the rounded bearing corners 21 and 22 which respectively engage with the fishing bearings formed on the abutments or anchorages 18 and 19.

Also, while the invention with respect to the splice bar anchorages on the web may be embodied in connection with any form of head construction of the rails, a preferable form of head construction is shown in Figs. 1 and 2 of the drawings wherein the lateral bottom portions of the rail head are concaved or recessed as at 23. This construction of concaving or recessing the lateral bottom portions of the rail head permits of a novel distribution of the metal to permit the addition of more metal to the wearing surface of the rail or otherwise utilizing the removed metal either for actually reducing the weight of the rail or placing the equivalent of the removed metal at more advantageous locations. This construction, as wear of the rail takes place, provides more free space for the lower edges of the wheel flanges, and as this rail cannot wear to a shelf on the high side, there is consequently less train resistance because a rolling friction is provided instead of a sliding friction.

By reason of the location of the splice bar anchorage on the rail web it will be apparent that reinforcing metal may be built up on the head of the splice bar without interference with the car wheel flange.

Fig. 4 of the drawings illustrates another example of the application of the invention wherein a standard joint bar 7*a* is applied to a rail having a standard head so that the head of the bar takes the usul bearing while the foot of the bar bears against the rib 19*a* on the web of the rail near the base and below the line of the bolt holes. Thus it will be apparent that the present invention contemplates the use of a rail-reinforcing splice bar anchorage on the rail web which may be located near the head of the rail above the line of the bolt holes as in Figs. 1 and 2, or near the bottom of the rail below the line of the bolt holes as in Fig. 4, or that a dual web anchorage may be provided as shown in Figure 3 both above and below the line of the bolt holes.

While the illustrations shown in the drawings show the application of the invention to a headfree rail constructed in accordanee with the patents previously referred to, nevertheless it will be clearly understood from Figures 3 and 4 that the feature of providing bar anchorages on the web of the rail may be applied to all rails of standard section. In other words, a primary and distinctive object of the present invention resides in providing an anchorage on the web of the rail for a splice bar, the said anchorage radiating from a point on the rail web between the head and the base of the rail and preferably above or/and below the line of the bolt holes. It will, therefore, be understood that the present invention provides a splice bar bearing or engaging surface or surfaces radiating from a point or points on the rail web above or below the horizontal neutral axis of the rail.

I claim:

1. A rail having upper and lower lateral projections from its web with which the head and the base of a cooperating splice bar are adapted to take loading engagement, respectively.

2. A rail having a rigid web through which

joint bolts are adapted to extend at points approximately midway between the head and the base of the rail, and lateral projections from the web of the rail above and below the line of the bolt holes, respectively, with which the head and the base of a cooperating splice bar are adapted to take loading engagement.

3. A rail having a projection extending laterally from the web thereof and merging with the rail through a rounded fillet, and a cooperating splice bar having base contact with the rail and having loading engagement at the inner upper corner of its head with said fillet.

4. A rail having a projection extending laterally from the web thereof and merging with the rail through a rounded fillet, and a cooperating splice bar having head contact with the rail and having loading engagement at the inner lower corner of its base with said fillet.

5. A rail having a projection extending laterally from the web thereof and merging with the rail through a rounded fillet, and a cooperating splice bar having base fishing contact with the upper face of the rail flange and loading engagement at the inner upper corner of its head with said fillet.

6. A rail having a pair of lateral projections from the web thereof between the head and the base of the rail, said projections merging with the rail web through rounded fillets, and a cooperating splice bar having loading engagement at the inner upper corner of its head with one of said fillets and at the inner lower corner of its base with the other of said fillets.

7. A rail having a rigid web, and a lateral projection from said web at one side of the horizontal center of the rail and spaced from the rail head, with which lateral projection a cooperating splice bar is adapted to take loading engagement.

8. A rail having a rigid web and a lateral projection from said web located above the horizontal center of the rail and spaced from the rail head, with which projection a cooperating splice bar is adapted to take loading engagement.

9. A rail having a rigid web and a lateral projection from said web located below the horizontal center of the rail and spaced from the rail base, with which projection a cooperating splice bar is adapted to take loading engagement.

In testimony whereof I hereunto affix my signature.

McLEOD THOMSON.