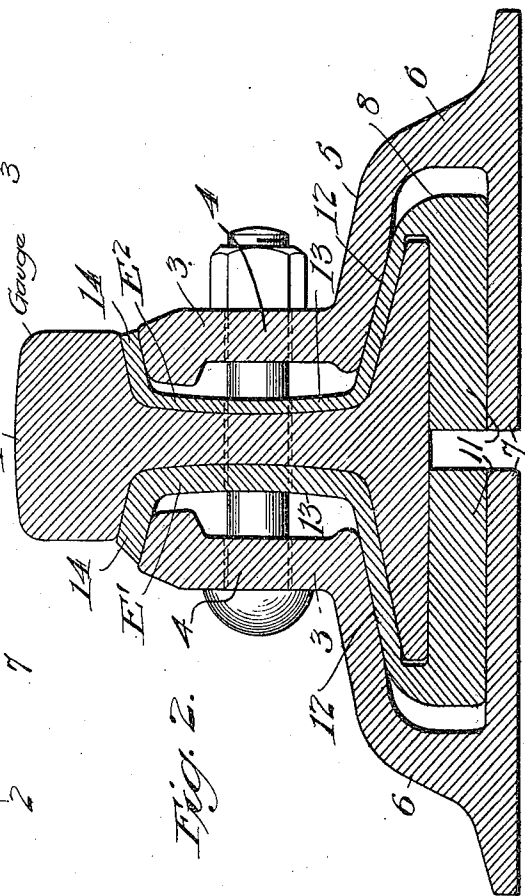
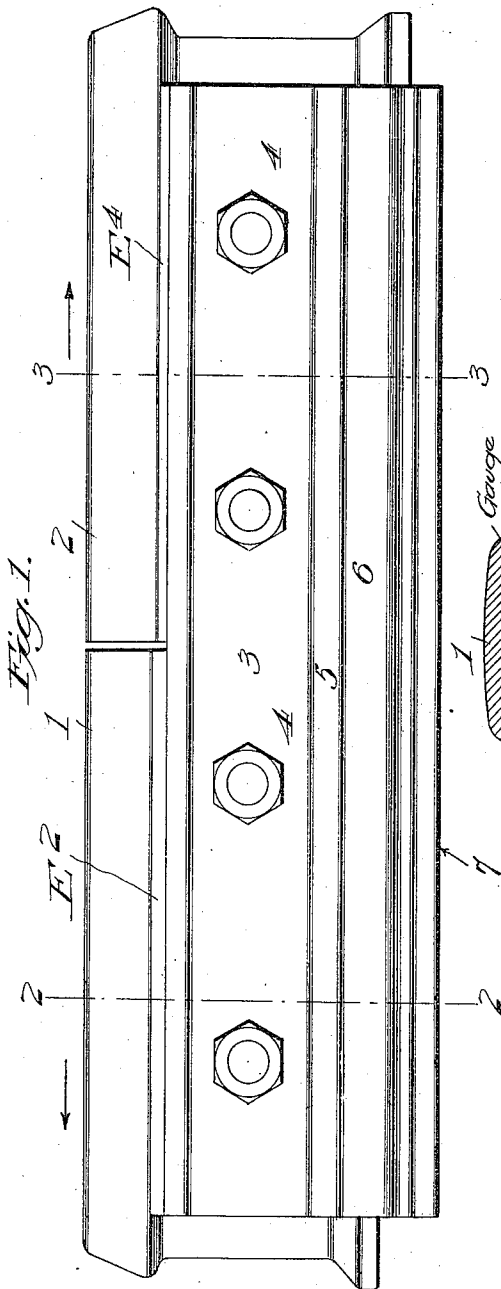


B. WOLHAUPTER.
RAIL JOINT.
APPLICATION FILED MAY 26, 1911.

1,045,349.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

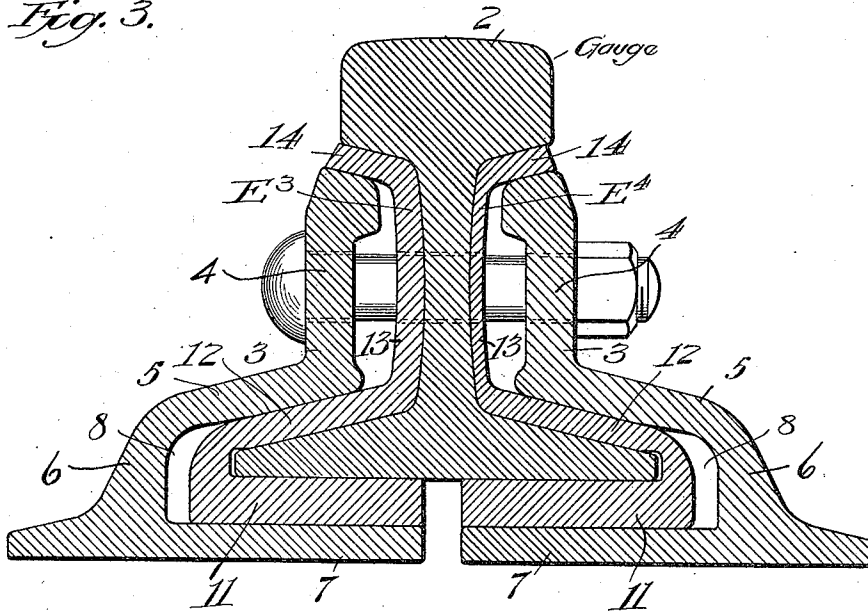
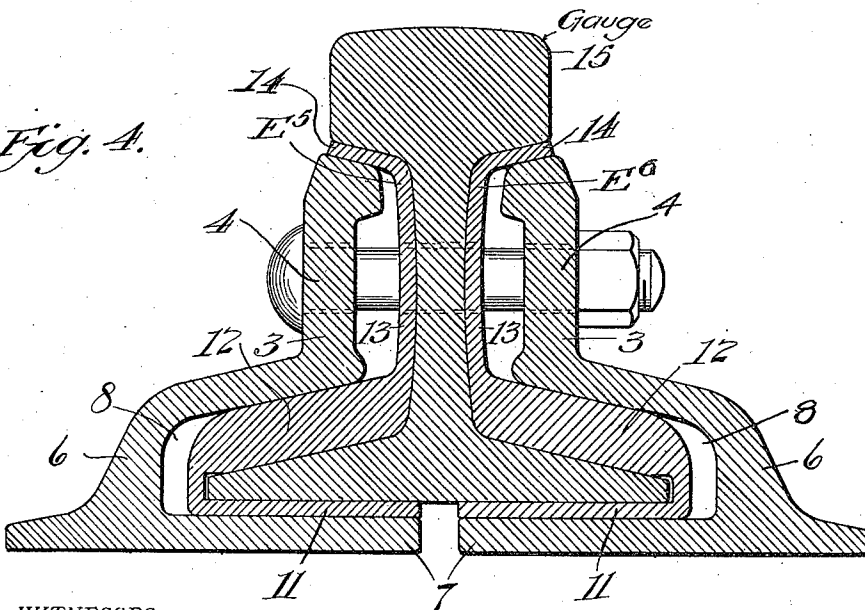


Fig. 4.



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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

1,045,349.

Specification of Letters Patent.

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Application filed May 26, 1911. Serial No. 629,670.

To all whom it may concern:

Be it known that I, BENJAMIN WOLHAUPTER, a citizen of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to improvements in step or compromise rail joints for connecting the abutting ends of rails of different heights and sections in such a manner that the tops and inner sides thereof shall be in alinement.

The primary object of the invention is to provide a joint of this character which admits of the practical use of joint bars of the same cross-section throughout their length, and interchangeably employed on either side of the rails for either a right-hand or left-hand joint, and whereby a single size of joint bar may be employed in connection with a variety of combinations of rail sections.

In the step joints heretofore used, the joint plates have of necessity been limited to use on the particular combinations of rail sections for which they were specially made, being usually offset both laterally and vertically to give the proper surface and alinement to the rails, and they could not be used for any other sections of rails. Furthermore, the only practical method of making these offset joint plates has been by casting, which is both slow and expensive and results in a product which is inferior in strength to joint plates which are formed by rolling processes. With the present invention the joint bars have a uniform cross-section throughout their length, and can accordingly be made of rolled steel by any of the processes employed in rolling mills, thus obviating the well known weaknesses and disadvantages of cast steel or iron. Furthermore, a single size of joint bar can be employed for connecting a variety of combinations of different rail-sections, which feature is of great practical and commercial importance.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts

hereinafter more fully described, illustrated and claimed.

The essential features of the invention involved in carrying out the objects above indicated, are necessarily susceptible of embodiment in various forms of construction without departing from the scope of the invention, but certain preferred and practical embodiments are exemplified by the accompanying drawings, in which—

Figure 1 is a side elevation of a compromise or step rail joint constructed in accordance with the present invention. Fig. 2 is a transverse sectional view (on line 2—2 of Fig. 1) through the joint at that end thereof which engages the smaller of the two connected rails. Fig. 3 is a similar view (on line 3—3 of Fig. 1) through that end of the joint engaging the larger of the two rails; and Fig. 4 is a transverse sectional view showing suitable filler members for a still larger rail section.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the present embodiment of the invention which has been selected for the purpose of illustrating the essential features thereof, the numerals 1 and 2 designate the abutting ends of the two dissimilar rails. The rail 1 is shown as smaller than the rail 2 and may be, for example, an eighty-five pound rail, while the rail 2 may be, for example, a ninety pound rail.

Duplicate joint bars 3 are applied to opposite sides of the abutting rail ends. These bars are of the conventional continuous design; that is, each of the same is provided with an upright splice member or girder 4 which is received within the fishing-space of the rails, and an integral foot flange 5 which projects outwardly from the bottom of the splice member 4 and extends over the base flanges of the rails, the outer edge of the foot flange 5 being extended downwardly at 6 and carrying an integral inwardly extending horizontal rail-supporting base plate 7 underlying the base flanges of both rails.

With this construction a continuous flange receiving pocket 8 is provided between the foot flange 5 and the base 7 for the reception of the base flanges of the rails. This

flange receiving pocket 8 is uniform in size throughout the length of the joint bar and is comparatively large, having a vertical height sufficiently great to permit the same to accommodate the base flanges of two rails differing greatly in height and section. It will also be observed that the upper edge of the splice member 4 is continuous and straight throughout its length and is free from the usual offset portion. Side joint bars are thus obtained which are interchangeable and can be used upon either side of the joint, and which have a uniform cross-section and can accordingly be readily produced by the usual rolling processes.

Each of the rail ends 1 and 2 has a pair of filler members applied to opposite sides thereof, all of the filler members being of different cross-section so as to suitably chock the rails within the joint bars 3 to bring the tops and one side of the rail heads in alignment. The filler members E^1 and E^2 , respectively, on opposite sides of the eighty-five pound rail, designated by the numeral 1, are shown clearly in Fig. 2, while the filler members E^3 and E^4 , respectively, on opposite sides of the ninety-pound rail, designated by the numeral 2, are shown in Fig. 3. Each of the filler members comprises a base portion 11 that fits between the bottom of the rail and the base plate 7, and an upward extension which is inclined inwardly at 12 from the outer edge thereof, between the inclined upper face of the base flange of the rail and the foot flange 5 of the joint bar, and then projects upwardly along the web of the rail at 13 and has the upper end thereof deflected outwardly at 14 to provide a top flange which lies between the top edge of the splice member 4 of the joint bar and the under side of the rail head. The various portions of these filler members E^1 , E^2 , E^3 and E^4 , are so proportioned and shaped as to support the rail at the proper elevation, to bring its top to the same level as the top of the next adjacent rail, and in such position, that the inner side of the head thereof will be in alignment with the inner side of the head of the next adjacent rail. The base portions 11 of the two filler members E^1 and E^2 , applied to the eighty-five pound rail 1, have the same thickness and form a solid metallic support for the bottom of the rail, while the inwardly inclined portion 12, the vertical portion 13, and the top flange 14 of the filler member E^1 are necessarily somewhat thicker than corresponding portions of the filler member E^2 in order to inset the outer side of the rail from the corresponding side of the other rail.

By comparing the filler members E^3 and E^4 of the ninety-pound rail 2 with the filler members of the eighty-five pound rail, it will be observed that the base portions 11 of the filler members E^3 and E^4 are of less

thickness than the corresponding portions of the filler members E^1 and E^2 , while the lower inclined portions 12 have a greater thickness than the corresponding portions of the filler blocks E^1 and E^2 . This is due, of course, to the fact that the rail 2 is larger than the rail 1 and the bottom thereof must be lower than the bottom of the rail 1 in order that the tops of the two rails may be in the same plane. The upwardly extending portions 13 and 14 of the filler members E^3 and E^4 are also proportioned different from each other and from the corresponding portions of the filler members E^1 and E^2 , since the axes of the rails are slightly offset to obtain the necessary alinement. It would also be possible to connect a third different size of rail, such as the one hundred pound rail 15 shown for example in Fig. 4, with either the eighty-five pound rail 1, or the ninety-pound rail 2. The filler blocks E^5 and E^6 which are interposed between the joint bars 3 and the one hundred pound rail 15 have the same general configuration as the filler blocks previously shown, although it will be observed that the various parts thereof are differently proportioned, the base portion 11 being thinner than in either of the previous examples, and the lower inclined portion 12 being correspondingly thicker, since the rail is larger than either of the previously mentioned rails, and the bottom thereof would accordingly have to be supported at a lower elevation.

By suitably varying the different proportions and forming the filler blocks in the proper manner, a number of different rail sections might be connected by means of a single size of splice bars. In certain cases it might be desirable to make the base portions 11 of the filler members separate from the upright portions 13, or the two portions of the base 11 might be made in one piece under each rail and the upright portions might be made in two pieces.

A further advantage of the invention resides in the fact that by merely interchanging the filler members upon opposite sides of the rail ends, either a right-hand or left-hand joint can be formed, thereby eliminating the necessity of employing different members for right-hand and left-hand joints, as is necessary where the joint bars are provided with offset portions. It will be further understood that each joint bar 3 is in one piece and of the same cross-section throughout, while the filler members as shown in the drawings are four in number to each joint and all of different dimensions. Several rail sections can be employed in connection with a single size of joint bar, each particular rail section having a specific set of filler members of its own regardless of the other rail section to be connected thereto. All of

the various members, however, have a uniform cross-section throughout their entire length and are free from offsets so that they can be readily formed by the usual rolling mill processes.

From the foregoing description it will be observed that one of the distinctive features of the present invention resides in the fact that the construction is of such a character that there are two points in the filler blocks which have the same position with regard to the point of intersection of the gage and surface, of all rails in the series used with the splice or joint bars. This feature is one of practical importance and permits the carrying out of the several objects of the invention hereinbefore pointed out.

Having thus described the invention what I claim as new, and desire to secure by Letters Patent, is:

1. A compromise rail joint including the dissimilar rails, a pair of duplicate joint bars having a uniform cross section throughout and arranged on opposite sides of the rails, and one piece filler members fitted between the rails and the joint bars.

2. A compromise rail joint including the dissimilar rails, opposite joint bars of uniform cross section throughout, each having a splice member adapted to engage beneath the rail heads, and a base plate which is straight and in the same plane throughout, and one-piece filler members lying over the base plates and also within the fishing spaces.

3. A compromise rail joint including the dissimilar rails, opposite joint bars having a uniform cross-section throughout their length, and filler members fitted between each of the rails and the joint bars, each of the said filler members also having a uniform cross-section throughout its length.

4. A compromise rail joint including the dissimilar rails, a joint bar having a splice member adapted to engage beneath the rail heads, and a base plate, said joint bar being of uniform cross section throughout, and a filler member fitted between the rail and the joint bar and adapted to bring the gage and top surface of the rails into alinement.

5. A compromise rail joint including the dissimilar rails, opposite joint bars having a uniform cross-section throughout, and one piece filler members fitting the fishing-spaces and underlying the rail flanges.

6. A compromise rail joint including the dissimilar rails, opposite joint bars having a uniform cross-section throughout, and filler members fitting the fishing-spaces and underlying the rail flanges, said filler members being differently proportioned and interchangeable.

7. A compromise rail joint including the dissimilar rails, opposite joint bars having a uniform cross-section throughout their

length, each joint bar being formed with an enlarged flange-receiving pocket and a splice member that fits within the fishing-spaces, and filler members fitting above and below the base flanges of the rails and also between the top of the splice members and the under sides of the rail heads.

8. A compromise rail joint including the dissimilar rails, opposite joint bars having a uniform cross-section throughout their length, each joint bar being formed with an enlarged flange-receiving pocket and a splice member that fits within the fishing-spaces, and filler members fitting above and below the base flanges of the rails and also between the top of the splice members and the under sides of the rail heads, said filler members being uniform in section throughout their length.

9. A compromise rail joint including the dissimilar rails, opposite joint bars, and a pair of filler members applied to opposite sides of each rail end between the latter and the joint bars to bring the tops and one side of the rail heads in alinement, the filler members on opposite sides of the rails being interchangeable.

10. A compromise rail joint including the dissimilar rails, interchangeable duplicate joint bars arranged upon opposite sides of the rails and having a uniform cross-section throughout their length, and independent filler members applied to opposite sides of each rail end between the latter and the joint bars and bringing the tops and one side of the rail heads in alinement, each filler member having a uniform cross-section throughout its length, and the filler members upon opposite sides of the rails being interchangeable.

11. A compromise rail joint including the dissimilar rails, opposite joint bars each having an enlarged flange-receiving pocket, a splice member, and a base plate, and independent filler members applied to opposite sides of each rail between the latter and the joint bars, each of the filler members comprising a base portion which fits under the base flange of the rail, a lower inclined member which overlies the base flange of the rail, and a portion fitting the web of the rail, the upper edge of the latter portion having a top flange which fits between the under side of the rail head and the top of the splice member of the bar.

12. A compromise rail joint including the dissimilar rails, opposite interchangeable duplicate joint bars, each of the joint bars having a uniform section throughout its length and having a base plate, and four independent filler members applied to the sides of the rail ends, the filler members upon opposite sides of the rails being interchangeable, and each of the filler members comprising a base member which fits under

the base flange of the rail, a lower inclined member which overlies the base flange of the rail, and a portion fitting the web of the rail, the upper end of the latter having a top
5 flange which fits between the under side of the rail head and the top of the joint bar.

13. A compromise rail joint including the dissimilar rails, opposite joint bars having a uniform cross-section throughout, and four
10 separate filler members applied to the sides of the rail ends, said filler members fitting the fishing-spaces and underlying the rail flanges.

14. A compromise rail joint including the
15 dissimilar rails, opposite joint bars having a uniform cross-section throughout and four

separate filler members applied to the sides of the rail ends, said filler members being differently proportioned and fitting the fishing-spaces and underlying the rail flanges. 20

15. A compromise rail joint including the dissimilar rails, opposite joint bars having a uniform cross section throughout, and four separate filler members applied to the sides of the rail ends, said filler members fitting
25 the fishing spaces.

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

BENJAMIN WOLHAUPTER.

Witnesses:

E. F. SCHERMERHORN,

K. M. NALLY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
