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B. WOLHAUPTER.

RAIL JOINT.

APPLICATION FILED SEPT. 12, 1907.

Fig. 1.

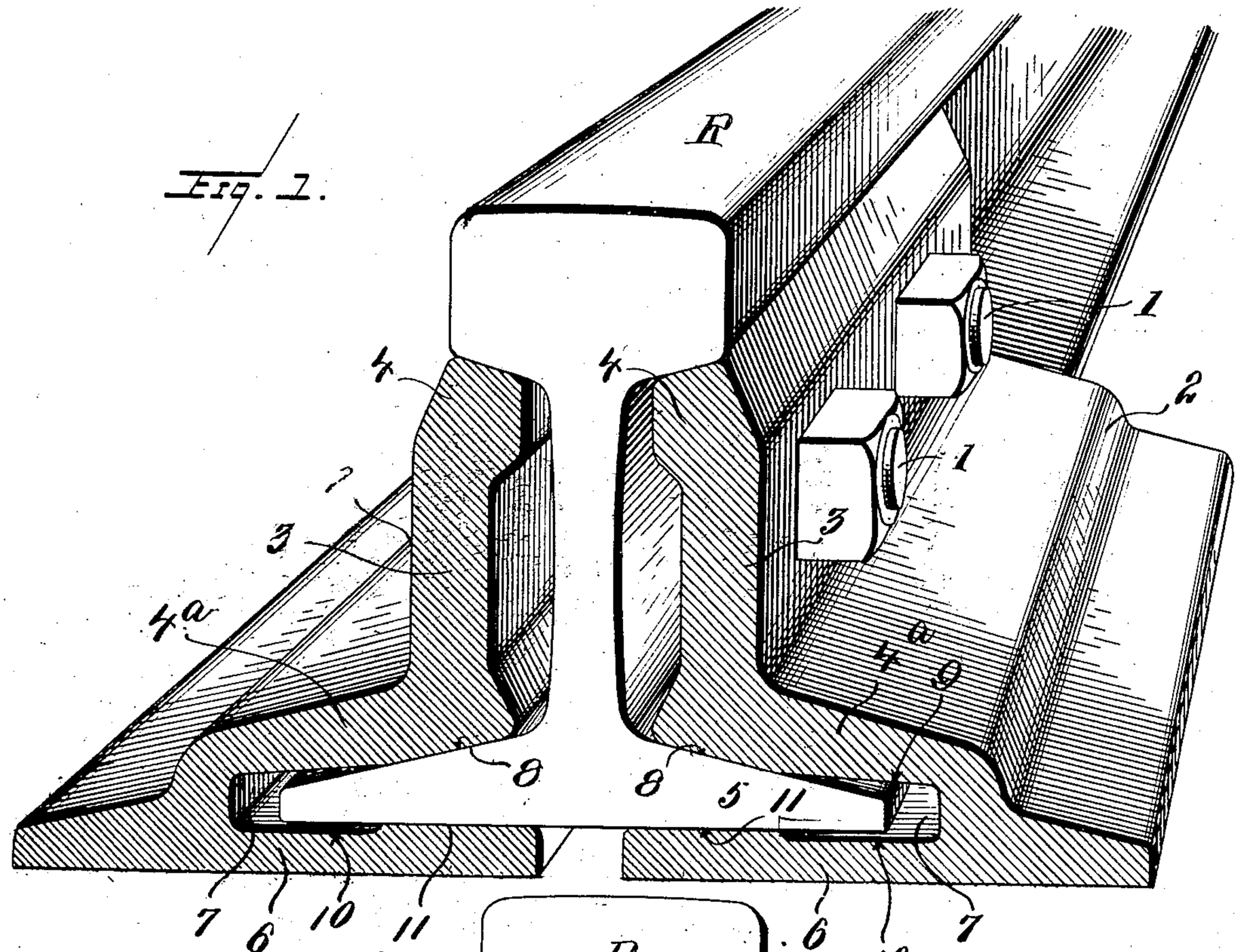
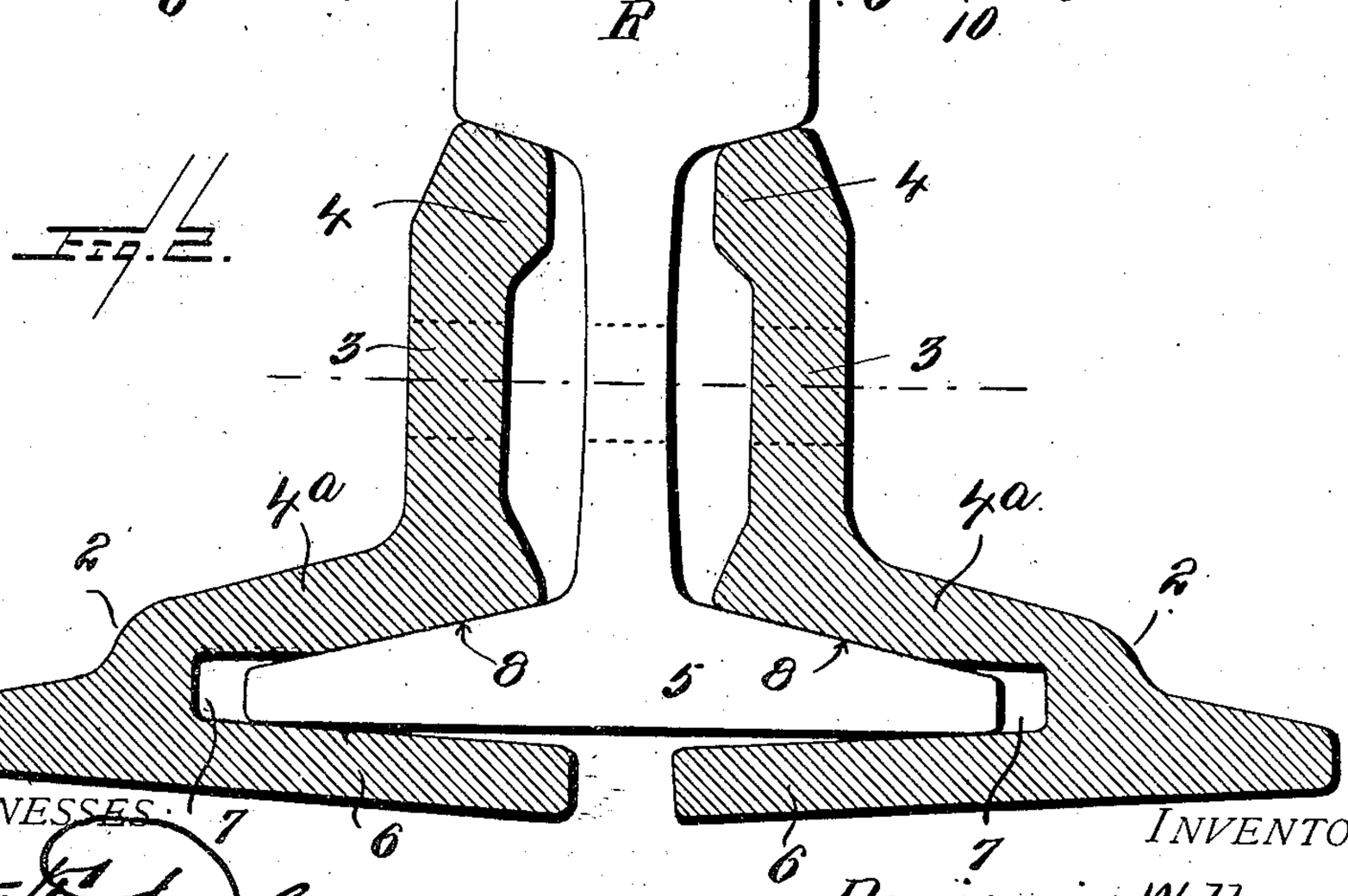


Fig. 2.



WITNESSES:

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RAIL-JOINT.

No. 886,105. Specification of Letters Patent Patented April 28, 1908.

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To all whom it may concern:

Be it known that I, BENJAMIN WOLHAUPTER, a citizen of the United States, residing at New York city, in the county of New York 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 the subject of rail joints, and particularly to that type known as the continuous rail joint.

The standard type of continuous rail joint is characterized by the employment of joint bars, each of which is rolled to provide an upright member or girder interposed between the rail-head and the upper side of the rail base-flange, an outwardly extending foot flange overlying the base flange of the rail, and an inwardly extending rail-supporting base section integrated with the outer end of the foot flange and underlying and bearing against the rail base, there being a continuous flange-receiving pocket or space provided between said foot flange and base section for the reception of the base flange of the rail. Experience has shown that it is difficult to secure absolute uniformity in the rolling of rails so as to insure a perfect fit of the joint bar to the base flange of the rail, inasmuch as the height of the rails between the under side of the head, and the upper side of the base flange frequently varies to a considerable extent so that when the joint bars are drawn on to the rails, the base flanges of the latter engaging the under surfaces of the outwardly extending foot flanges of the bars, and the upper surfaces of the inwardly extending base sections thereof, will exert a wedging action and thereby occasionally cause a breakage of the joint bars at or about the juncture or point of union between said foot flanges and base sections. Anyhow, the tendency of the said wedging action of the base flanges of the rails is to spread the flange-receiving pockets of the joint bars, that is, to force the rail supporting base sections downwardly and outwardly, and hence, out of supporting contact with the bases of the rails. Furthermore, the wedging action described has a tendency at times to break or fracture the outer edges of the base flanges of the rails themselves.

It is, therefore, the primary object of the present invention to obviate the foregoing difficulties, in the application of joint bars of the continuous type, by providing a substantial and ample clearance between the outer edge portion of the base flanges of the rails and the foot flanges and base sections of the joint bars, while at the same time providing a construction that contributes materially to the flexibility and resiliency of said base sections of the joint bars so that the base sections will effectually perform their rail supporting functions under all conditions.

In brief, a distinctive object of this invention is to relieve the pressure of the binding action of the continuous type of joint bar at the extreme outer edge of the rail base, and furthermore to make the base section of said form of joint bar more flexible at its inner end, whereby the same will more readily adjust and adapt itself to the variations in thickness in the outer edges of the base flanges of the rails.

With these and other objects in view, which will more readily appear to those skilled in the art 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.

A practical embodiment of the invention is exemplified by the accompanying drawings, in which:

Figure 1 is a sectional perspective view of a rail joint embodying joint bars of the continuous type and constructed in accordance with the present invention. Fig. 2 is a cross-sectional view of a standard construction of continuous rail joint illustrating the downward deflection of the rail-supporting base sections occasioned by the wedging action of the rail flanges, as above explained.

Like references designate corresponding parts in the figures of the drawings.

As indicated, the invention claimed herein possesses special utility in connection with the continuous type of rail joint, and, as shown in the drawings, a joint of this character includes in its construction the service rails R, the usual joint bolts 1, and the oppositely arranged continuous joint bars 2

Each of the continuous joint bars 2 is so rolled and shaped as to provide the same with an upright member or girder 3 formed at its upper edge with a thickened bearing head 4 bearing against the under side of the rail head, and at the lower edge of the upright member or girder 3, each joint bar is

formed with an outwardly extending foot flange 4ª overlying the base flange 5 of the rail and having integrated with the outer edge portion thereof an inwardly extending rail supporting base section 6 underlying and bearing against the rail base, there being a continuous flange receiving pocket or space 7 provided between said flange 4ª and base section 6 for the reception of the base flanges of the rail. These several elements are characteristic of the continuous type of joint bar and are embodied in the construction shown in both Figs. 1 and 2 of the drawings, but in Fig. 2 there is illustrated the standard or conventional construction of continuous joint bar, wherein no special provision is made for relieving the pressure or binding action of the bar at the extreme outer edge of the rail base, and hence is therefore liable to the distortion shown, that is, to have the rail supporting base section crowded or spread downward so as to be deflected away from the rail base when applied to a base of extra thickness. When the joint bars are thus distorted, the rail supporting base sections only have a bearing at the extreme outer edges of the base flanges of the rails, as clearly shown in Fig. 2 of the drawings, and to obviate this and the other objections noted, the present invention contemplates the improved construction shown in Fig. 1 of the drawings.

Referring particularly to Fig. 1, it will be observed that the present invention contemplates rolling and shaping each joint bar 2 in such a manner that the same does not have a bearing contact with the upper inclined surface of the rail flange throughout the entire width of said surface, but, instead, the bar is provided at the bottom edge of its upright member or girder 3 with an inclined bearing face 8 closely contacting with the inner portion of the upper inclined surface of the rail flange, while the major portion of the under surface of the outwardly extending foot flange 4ª of the joint bar is provided with a clearance face 9 disposed at an angle of materially less degree than the angle of the upper inclined surface of the rail flange, so as to entirely clear not only the extreme outer edge of the rail flange, but also a considerable portion of the upper surface of said flange so that it is impossible for the outer edge portion of the rail flange to have any wedging action against the said upper clearance face 9 of the foot flange 4ª of the joint bar. In addition to the said upper clearance face 9 of the foot flange 4ª of the joint bar, a distinctive and important feature of the present invention resides in forming the upper surface of the base section 6 of each joint bar with what may be termed an under clearance face 10 arranged in opposite relation to the upper clearance face 9 and disposed beneath or under the rail base for a considerable portion in from the extreme outer edge of the rail flange. The said clearance face 10 at the upper side of the base section 6 of each joint bar is spaced a sufficient distance from the rail base and the outer edge or corner of the rail flange, so as to entirely obviate the possibility of said flange exerting a wedging action against the base section, such as indicated in Fig. 2, and furthermore, it will be observed that the bight of the flange receiving pocket 7 is disposed well beyond the outer edge of the rail flange so as to provide ample clearance and also ample space to accommodate the adjustment of the bar upon rails having flanges of different thickness, and hence having varying distances between the under sides of their rail heads and the upper sides of their rail flanges.

The inner edge portion of the base section 6 of each joint bar, beyond the point where the clearance face 10 terminates, is provided at its upper side with a flat bearing face 11 adapted to have a firm supporting contact with the rail bottom or base, and at this point it is to be observed that the portion of the base section formed at its upper side with the clearance face 10 is reduced in thickness by the formation of such face so as to constitute the thinnest part or section of the bar, thereby contributing, in a material degree, to the flexibility and resiliency of the base section, and preventing the latter from taking a binding action on the outer edge of the thick rail base. In other words, under the divers conditions met with, the base supporting section of each joint bar will always remain in its normal position with relation to the other elements of the joint, and will exert an upward spring clamping action beneath and against the rail base.

From the foregoing it is thought that the construction and advantages of the herein described improvement in a continuous type of joint bar will be readily apparent without further description.

I claim:

1. In a rail joint, the rails, and the joint bars, each of which is provided with a rail supporting base section contacting with the rail bottom, and also having a clearance from the latter at the outer edge portion of the rail flange.

2. In a rail joint, the rails, and the joint bars, each of which is provided with an integral rail supporting base section having a clearance from the rail bottom at the outer edge portion of the rail flange.

3. In a rail joint, the rails, and the joint bars each of which is provided with an integral rail supporting base section contacting with the rail bottom, and also having a clearance from the latter at the outer edge portion of the rail flange.

4. In a rail joint, the rails, and the joint bars each of which is provided with a rail

supporting base section having a clearance portion thinner than the remainder thereof.

5. In a rail joint, the rails, and the joint bars each of which is provided with a rail supporting base section having a clearance portion thinner than the remainder thereof and arranged beneath the outer edge portion of the rail flange.

6. In a rail joint, the rails, and the joint bars each of which is provided with an integral rail supporting base section having a thick portion contacting with the rail bottom, and a thinner portion arranged out of contact with the rail bottom along the outer edge portion of the rail flange.

7. In a rail joint, the rails, and the joint bars each of which is provided with an upright member interposed between the rail head and the upper side of the rail flange, an outwardly extending foot flange overlying the rail flange, and an inwardly extending rail supporting base section integrated with said foot flange and having a clearance from the rail bottom at the outer edge portion of the rail flange.

8. In a rail joint, the rails, and the joint bars each of which is provided with an upright member interposed between the rail head and the upper side of the rail flange, an outwardly extending foot flange having at its under side a clearance face arranged above and out of contact with the upper side of the rail flange, and an inwardly extending rail supporting base section integrated with said foot flange and having a thick portion contacting with the rail bottom, and a thinner portion having a clearance face disposed beneath and out of contact with the rail bottom at the outer edge portion of the rail flange.

9. In a rail joint, the rails, and the joint bars each of which is provided with an upright member interposed between the rail head and the upper side of the rail flange, an outwardly extending foot flange having at its under side a clearance face arranged above and out of contact with the upper surface of the rail flange at the outer edge portion thereof, and a rail supporting base section integrated with said foot flange and having a portion contacting with the rail bottom and another thinner portion spaced from the rail bottom and the outer edge of the rail flange, said thinner portion of the base section and said clearance face of the foot flange being substantially co-extensive.

10. In a rail joint, the rails, and joint bars each having an upright member and a continuous flange receiving pocket for the rail base flanges, the upper and lower sides of said pocket having clearance faces respectively spaced from and out of contact with the upper and lower sides of the rail flange contiguous to and at the outer edge thereof.

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

BENJAMIN WOLHAUPTER.

Witnesses:

E. A. VAN DEUSEN,

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