

(No Model.)

R. B. MUEHLFEITH & C. J. IBEL.
JOINT FOR RAILWAY RAILS.

No. 515,785.

Patented Mar. 6, 1894.

Fig. 1.

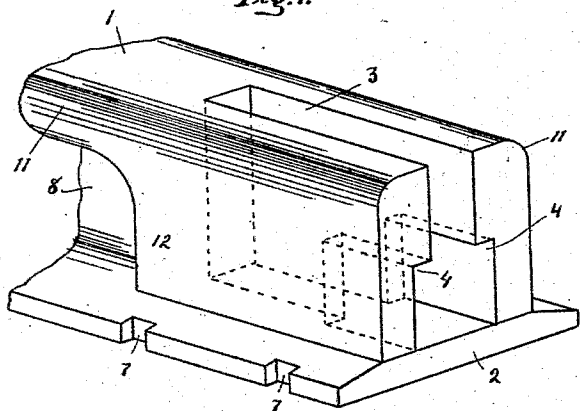


Fig. 2.

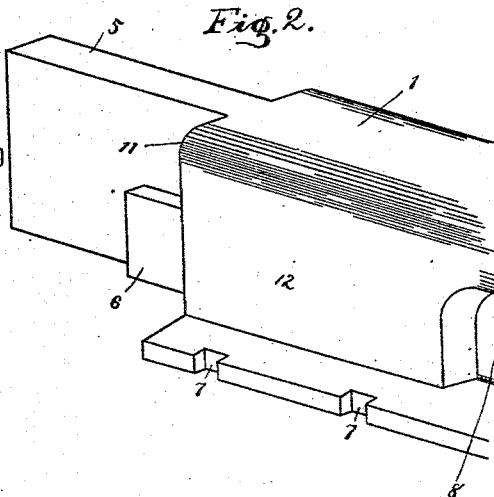


Fig. 3.

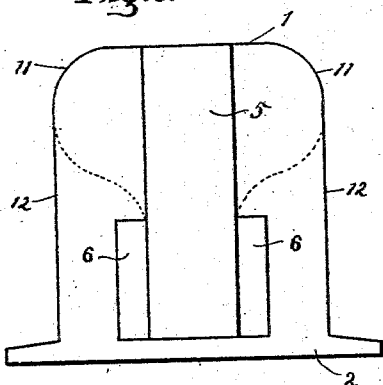
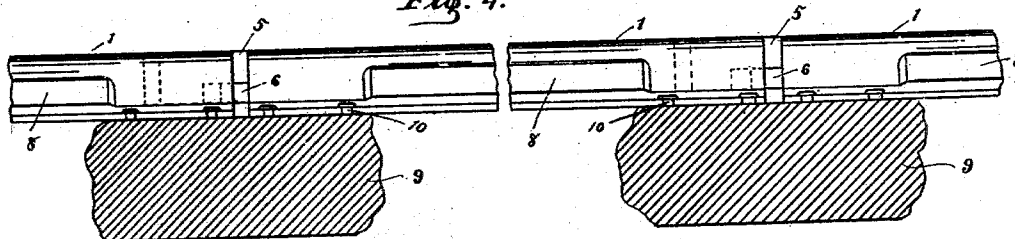


Fig. 4.



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UNITED STATES PATENT OFFICE.

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JOINT FOR RAILWAY-RAILS.

SPECIFICATION forming part of Letters Patent No. 515,785, dated March 6, 1894.

Application filed November 2, 1893. Serial No. 489,783. (No model.)

To all whom it may concern:

Be it known that we, ROBERT BLOOM MUEHLFEITH and CHARLES JOHN IBEL, citizens of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Joints for Railway-Rails; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to improvements in joints for railroad rails.

The object of our invention is to provide a rail-joint for railroad rails so constructed and arranged that the abutting ends or sections of the rails, rigidly secured to the cross ties, are adapted for an interlocking union which will admit of proper longitudinal movement of the rail due to expansion and contraction or other natural causes, but which at the same time rigidly secures the said abutting ends or sections against either lateral or vertical movement under the heaviest strains.

Another object of our improvement is to provide an interlocking joint so united as to form practically one continuous rail and an unbroken smooth tread surface, thus avoiding the jar and disagreeable sensation incident to passing over the uneven joints of the rails at present in use.

Another object of our improvement is to provide a rail-joint by which the rails are so firmly and securely connected that the inconvenient and expensive use of fish plates and clamping bolts, nut-locks or equivalent devices is avoided, and at the same time so constructed that when the rail is released from its fastenings to the cross-ties it can readily be removed for repairs or other purposes without disturbing the abutting and interlocking rails.

Our invention consists of a joint for railroad rails having one end of the abutting rail provided with a longitudinal vertical central slot or mortise extending from the tread

of the rail to the upper surface of the foot thereof, the said slot having proper recesses for the interlocking shoulders. The end of the other abutting rail is provided with a central and forwardly projecting tenon or registering arm having laterally and forwardly projecting shoulders, the said tenon and said shoulders being adapted for engagement with the mortised end of the abutting rail, the said recesses and the said shoulders forming the interlocking sections.

The novel feature of our invention is the construction and arrangement of the interlocking sections whereby the use of fish plates and bolts is avoided.

The object of our invention is accomplished by the mechanism illustrated in the accompanying drawings in which similar figures of reference indicate corresponding parts throughout the several views.

Figure 1 is a perspective of the abutting end of a railroad rail having the slotted and recessed portion of our improved interlocking joint. Fig. 2 is a perspective of the other abutting end of a railroad rail having the forwardly projecting tenon or registering arm and the interlocking shoulders adapted for engagement with the slotted and recessed portion of said joint. Fig. 3 is an end view of Fig. 2. Fig. 4 is a side view of a railroad rail broken in section, provided with our improved joint, secured in position on proper cross-ties and interlocking at each end with an abutting rail.

Our improved rail-joint is formed by making a lateral enlargement of the web of the ends of the abutting sections in such a manner that the said lateral enlargement will be flush with the ball of the rail upon both sides thereof as seen in Figs. 1, 2, and 3, the said enlargement having a proper longitudinal extension preferably about eight inches in length. The said lateral enlargement of the web upon one of the abutting sections is provided with a vertical central longitudinal slot or mortise 3, Fig. 1, which extends through the top or tread 1 of the rail to the top of the base or foot 2 of said rail, thus forming a bifurcated web and slotted tread. The said

slot 3, preferably the width of the thickness of the web 8 and about six inches in length, is provided at its forward extremity with the lateral recesses 4 upon both sides thereof, as seen in Fig. 1, the said recesses being of proper length for the purposes hereinafter described. Upon the abutting end of the other interlocking section of a rail, the said lateral enlargement is provided with a forwardly projecting tenon or registering arm 5 in alignment with the web 8 and the tread 1 of said rail, adapted for engagement with the longitudinal slot 3. The said arm or tenon 5 is cast integral with said rail, and is provided at its base and upon both sides thereof with the interlocking shoulders 6 adapted for engagement with the said recesses 4 above described. The upper surface of the said registering arm or tenon 5 when in position is under all circumstances in perfect alignment with the tread of both of the interlocking rails, and its lower surface is a proper distance above the lower surface of the base of the rail, as seen in Fig. 3. The base or foot 2 of the said rail is provided with a suitable number of vertical slots 7 for proper spikes 10 adapted to firmly secure said rail to the supporting cross ties 9, as seen in Fig. 4.

The operation and manner of using our improved interlocking rail-joint, thus described, is, briefly stated, as follows: When the said abutting rail sections are placed in position in engagement, as seen in Fig. 4, proper allowance being made for a limited longitudinal movement of said rails thus connected caused by or due to expansion and contraction, the registering arm or tenon 5 will then be in engagement with the said slot 3, its lower surface resting upon the base or foot 2 of the rail, and its upper surface being in alignment with the tread of the engaging rail, thus forming one even surface, and when the ends of the abutting rails are thus arranged the shoulders 6 will be in engagement with the recesses 4, thus rendering either lateral or vertical displacement or disarrangement of the abutting sections impossible as they will be securely interlocked, longitudinal displacement being prevented by the spikes 10 in the slots 7. It is thus seen that no fish plates, nut-locks, bolts or other similar devices are necessary with the use of our improved interlocking joint, and that the expense and inconvenience of such devices are thus avoided.

When it is desired to remove one of the rails forming our improved joint, for repairs or other purposes, it is apparent that it can readily be done without in the least interfering with the abutting rails with which said rail is interlocked, in the following manner: The said rails are so placed as to allow for maximum expansion, which will thus leave a space between the abutting ends thereof at each joint, as seen in Fig. 4, and when the said spikes are all removed the operator can

by pushing or crowding the said rail lengthwise the distance of one of the said spaces readily raise the other extremity from the cross ties, as the locking shoulders will then be out of engagement with the said recesses, and the other extremity can then also be readily disengaged. It is apparent that in placing the said rails in position upon the ties when forming our improved rail-joint, a proper allowance of space at each of the said joints must be made to permit of this removal, in the manner described. It is also evident that the said spaces at each end of the said joints when in position will not cause any jar, as the said spaces are so bridged over by the registering arm or tenon 5 as to form one continuous and even surface or tread in perfect alignment throughout.

It is apparent that the use of our improved rail-joint in no wise weakens the rail, for each of the bifurcated portions are of equal strength with the web, and when the tenon 5 is in position the slotted portion of the tread will be stronger than that part supported by a single web.

We are aware that rail-joints having a slotted tread in various forms have been devised employing springs, bolts and other devices, but no rail-joint has been heretofore invented of which we are aware, in which a registering arm is provided with interlocking shoulders adapted to prevent either vertical or lateral displacement of the said interlocking sections without the use of clamping bolts or other similar devices.

Therefore, what we claim as our invention, and desire to secure by Letters Patent, is—

1. A rail-joint for railroad rails consisting of two sections of rails adapted for an interlocking engagement, the interlocking end of one of said sections having a bifurcated web provided with internal lateral recesses and a vertically and longitudinally slotted tread, the abutting or interlocking end of the other section having a laterally enlarged web provided with a forwardly extending arm or tenon adapted for engagement with said slot and the interlocking shoulders as described, adapted to engage the said recesses, all substantially as set forth and described.

2. The combination, of two abutting rails, one having one end longitudinally slotted and provided with a bifurcated web having internal recesses as described, the other rail having one end provided with a laterally shouldered web and a forwardly projecting and registering arm having upon both sides thereof an interlocking shoulder, the said arm and the said shoulder being adapted to engage the said slot and said mortise, respectively, all substantially as described.

3. A railroad rail provided at one end with a longitudinally slotted tread and a bifurcated web flush with the ball of the rail, and having internal lateral recesses, as described, and provided at the other extremity with a

laterally enlarged web flush with the ball of the rail and provided with an integral registering arm having the locking shoulders, as described, the said arm and said shoulders
5 being adapted for an interlocking engagement with the said slotted and recessed end of the said abutting rail, all substantially as described.

Signed by us, at Fort Wayne, in the State of Indiana, this 27th day of October, 1893.

ROBERT BLOOM MUEHLFEITH.
CHARLES JOHN IBEL.

Witnesses:

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