(No Model.)

H. W. & A. H. SCHEELE.

RAIL JOINT.

No. 411,064. Patented Sept. 17, 1889.

Fig. 1.

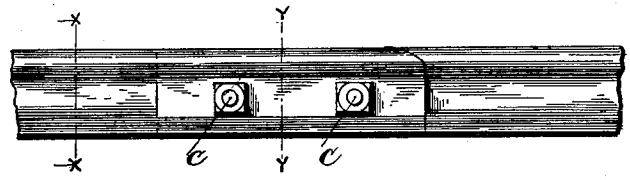


Fig. 2.

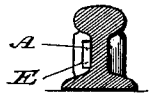


Fig. 3.

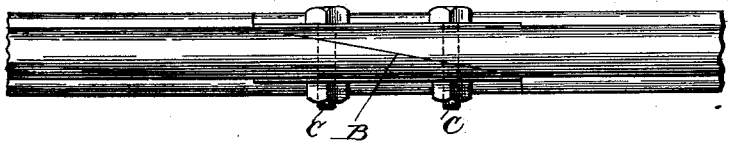


Fig. 4.

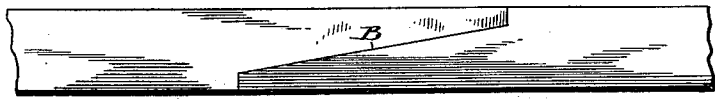


Fig. 6.

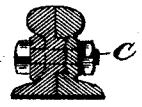
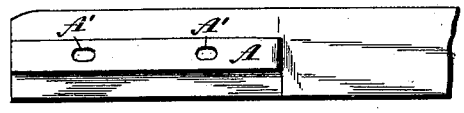


Fig. 5.



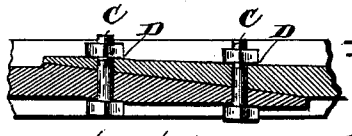


Fig. 8.

Fig. 7.

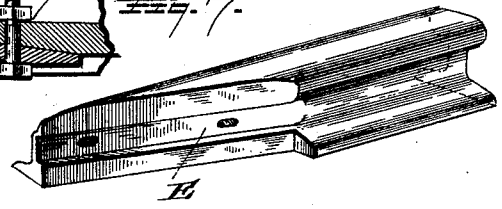
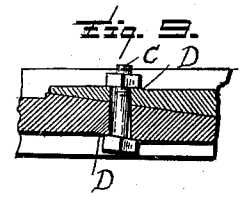


Fig. 9.



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UNITED STATES PATENT OFFICE.

HENRY W. SCHEELE AND AUGUST H. SCHEELE, OF CROSS PLAINS, WISCONSIN.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 411,064, dated September 17, 1889.

Application filed March 16, 1889. Serial No. 303,524. (No model.)

To all whom it may concern:

Be it known that we, HENRY W. SCHEELE and AUGUST H. SCHEELE, citizens of the United States, residing at Cross Plains, in the county of Dane, State of Wisconsin, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention has relation to a novel form of rail especially adapted for jointing the same without fish-plates; and the object of our improvement is to provide a means of laying rails quickly and easily and at the same time to provide an automatic and inseparable lock for the bolts to be used in holding the rails together at the joints.

In the drawings, Figure 1 is a side elevation of the ends of our rails when brought together to form a joint. Fig. 2 is a transverse vertical section of the same, showing a front view of the swells which are formed at the ends of our rail for the purpose hereinafter specified. Fig. 3 is a plan of the same parts as are shown in Fig. 1. Fig. 4 is a bottom plan of the same, showing the bevel-joint. Fig. 5 is a side elevation of the inside of one of the bevel ends of our rail. Fig. 6 is a transverse vertical section of one of our joints, taken on *y y* in Fig. 1 in the grooved portion of our rail end. Fig. 7 is a perspective of the opposite rail end to that shown in Fig. 5 and used in contact with the rail end shown in said figure in the jointing of the rails. Fig. 8 is a longitudinal horizontal section of one of our joints, showing the form of the swell and the mode of locking automatically the bolts used in fastening. Fig. 9 is an enlarged sectional detail.

Like letters of reference indicate the same parts in all the figures.

The two ends of our rail are specially adapted to be brought together for the purpose of jointing at intervals, and are therefore rather differently formed, as shown in Figs. 5 and 7.

In Fig. 5 is shown the ridged end of our rail, and, as seen in that figure, this end of our rail is provided on the inner side with a ridge A, through which the bolt-holes are bored. These holes are preferably of greater diameter in the direction of the length of the rail than in the vertical direction. This is to allow for the expansion and contraction of the rails under the influences of the changes of temperature. These holes are shown at A'.

The cutting of the rails at the ends is shown in Fig. 4 at B, where the bevel-cut may be seen, and also the short cut at right angles to the edges of the rail with which the two ends of the bevel terminate. This bevel is carried through the whole height of the rail, as shown in Fig. 3.

Fig. 2 shows a section on the line *x x* of Fig. 1, and therefore there is seen in this figure on each side of the rail the swell, more clearly shown in Figs. 6, 8, and 9. As seen in the latter figure, this swell is provided with sloping faces upon certain parts of the swell, through which are bored the holes for the reception of the bolts C. Not only does this swell strengthen the rails just where there is the greatest strain—namely, at the joints—but the further use of these sloping surfaces at the exits of the bolts is to lock them by the mere action of screwing them into place. This is accomplished by the tendency of the bolts to flatten into close contact with the bevel or sloped surfaces and thus to twist the bolts a little out of the perpendicular to the length of the rails. This is made possible by the elliptical or oblong shape of the holes for the reception of the bolts. Once in this position the tendency of the bolts to come unscrewed is neutralized by the jamming together of the threads incident to this mode of skewing of the bolts. Thus the locking of the bolts may be accomplished without extraneous pieces, which are so liable to become lost. These bevels are shown clearly at D in Fig. 9.

The end of the rail opposite to the ridge A is provided with a groove E, into which said ridge may be made to slide snugly into place, and thus the exact level of the upper surface of the track may be preserved all along the whole length of the same. This keeping of the upper surfaces of the tracks at the same level is very valuable in long lines of track, as it saves a great deal of wear otherwise incident to the passage of the wheels over the joints in the rails. This wear is found to be as great upon the rails themselves as upon

the wheels, causing the "brooming" and frequently the fracture of the rails by the simple impact of the wheels upon the same, where one rail becomes a little higher or a little lower than the next one. This accident is rendered impossible by our device.

The groove is shown at E in Fig. 7. The insertion of the ridge into the groove is shown in Fig. 6.

What we claim is—

1. A rail having its end beveled and interiorly grooved and provided with an inclined swell, combined with a second rail having beveled end and an inclined swell, and the transverse bolts and nuts for securing said rails, substantially as described.

2. A rail having its end beveled and interiorly grooved and provided upon its outer face with a beveled swell, combined with a second rail having its end beveled and provided with a ridge fitting the groove of the other rail and having formed upon its outer face a swell and the transverse bolts passed through said rails and through the ridge and groove, substantially as described.

3. The combination, with the two beveled ends of two adjacent rails, one formed with a ridge and the other with a groove to receive said ridge, both of said rails being provided with elongated holes and inclined swells, of the bolts passed through said holes and provided with nuts adapted to bear flat against said inclined swells, substantially as and for the purpose specified.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY W. SCHEELE.
AUGUST H. SCHEELE.

Witnesses:
CHARLES N. GREGORY,
HUGH LEWIS.