H. C. TANABE.

RAIL JOINT.

APPLICATION FILED MAY 17, 1912.

1,062,515. **Patented May 20, 1913.**

Fig. 1.

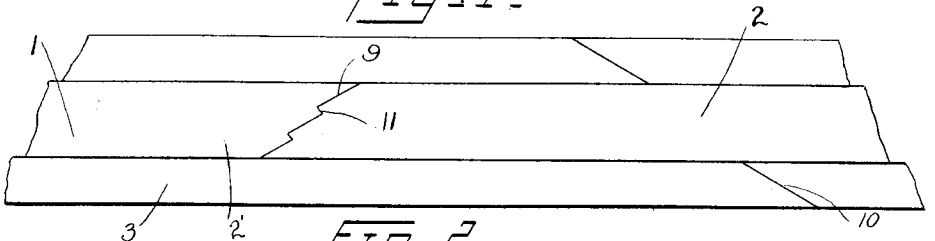


Fig. 2.

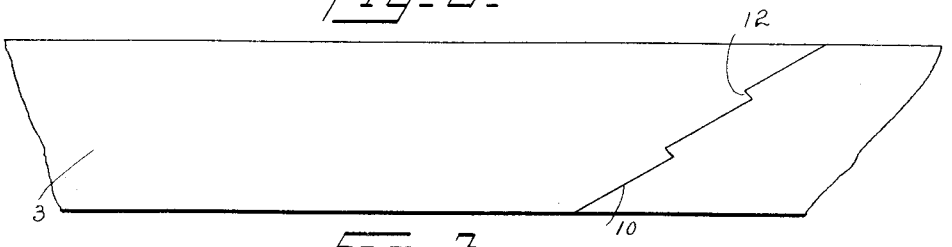


Fig. 3.

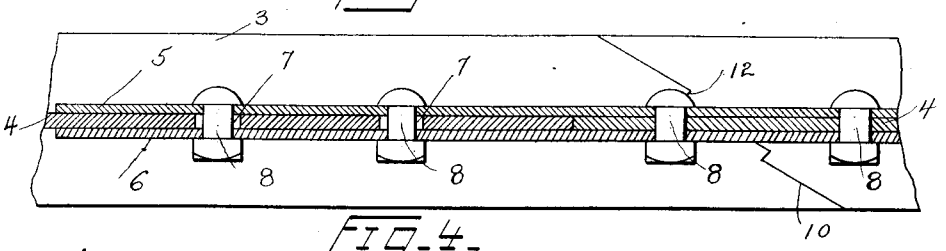


Fig. 4.

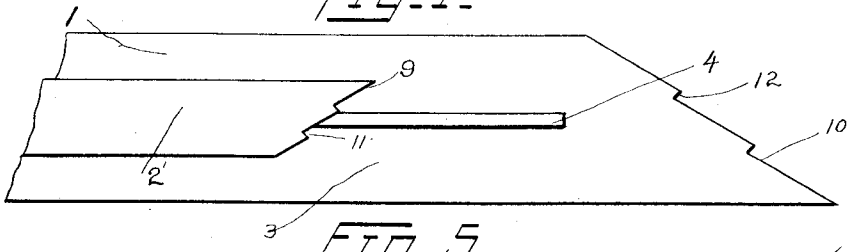
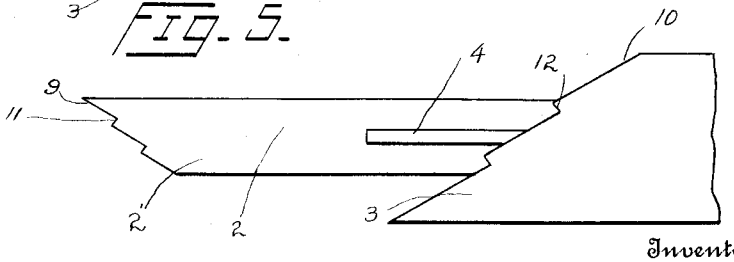


Fig. 5.



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RAIL-JOINT.

1,062,515. Specification of Letters Patent. Patented May 20, 1913.

Application filed May 17, 1912. Serial No. 697,947.

To all whom it may concern:

Be it known that I, HAKULYO C. TANABE, a citizen of Japan, residing at Marysville, in the county of Yuba and State of California, have invented new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to rail joints, the object of the invention being to provide a compound scarf joint between the meeting ends of the rails, the joints being arranged in such relation to the rails and to each other, as to form in effect a continuous rail, while at the same time providing for the necessary expansion and contraction due to changes in the weather.

A further object of the invention is to provide a joint of such nature as to render it impossible for the rails to move out of longitudinal alinement with each other in very hot weather, when the rails expand and are apt to buckle on account of the meeting extremities thereof being forced together.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claim hereunto appended.

In the drawings; Figure 1 is a top plan view of a rail joint, embodying the present invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a horizontal longitudinal section taken in line with the bolts. Fig. 4 is a top plan view of one section of the rail joint. Fig. 5 is a bottom plan view of the other section of the rail joint.

Referring to the drawings, 1 and 2 designate two adjacent and overlapping rail ends, each of which embodies a head 2', a base 3, and a web 4. Fish plates 5 and 6 are arranged at opposite sides of the rail ends, and are secured thereto by means of bolts 7 which pass through elongated openings in the webs of the rail ends in the usual manner to provide for the necessary expansion and contraction of the rails, owing to the changes in atmospheric conditions.

8 designates a series of bolts arranged in horizontal alinement with each other for clamping up the joint, said bolts passing through the oppositely located fish plates or splice bars, and the intervening webs of the rails.

It will be observed that instead of the usual transverse joint between the meeting ends of the rails, the said joint or division is formed on an oblique line, as shown at 9, and it will be further observed that the bases of the rail ends are similarly divided on an oblique line 10, and further that the line 10 is reversely inclined or oblique with respect to the line 9. Furthermore, the faces which meet on the oblique division line 9 in the rail heads are stepped or provided with a plurality of abrupt tooth-like shoulders 11, so as to limit the relative sliding movement of said oblique meeting faces, one upon the other, in case the ends of the rails are forced together very tightly in hot weather.

It will also be observed that the meeting faces along the oblique line 10 in the bases of the rails are correspondingly stepped or provided with a plurality of abrupt tooth-like shoulders 12, for the same purpose as that described in connection with the oblique joint in the head of the rail. In the formation of the steps or shoulders 12, the faces which define said steps are disposed at such angles to each other as to permit the rails to be moved longitudinally toward and away from each other, in assembling the joint as a whole.

The oblique division line or joint in the heads of the rails is set at a reverse inclination to the division line in the bases of the rails, and therefore when the rails expand and the abutting ends thereof are forced together under considerable pressure, there is no liability of the oblique meeting faces riding upon each other, so as to force the lateral edges of the rail heads and base flanges out of alinement with each other. At the same time, ample provision is made for the usual contraction and expansion, occurring under wide changes in atmospheric conditions.

What is claimed is:

In a rail joint, two rail ends having their heads and bases scarf jointed on oblique lines, the said joints being located in longitudinally spaced relation to one another and also inclined reversely with respect to one another, each of said joints being stepped and all of the faces which define the steps being oblique to the length of the rail

and also disposed at angles which permit the rails to be moved longitudinally toward and away from each other at the same time effecting a lateral interlock which prevents relative lateral movement of the rail ends in both directions, the web of each rail terminating between the vertical planes of the head joint and base joint and forming an overlapping support for the projecting head of the contiguous rail.

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

HAKULYO CHUHACHI TANABE.

Witnesses:
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W. J. HOLMES.

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