No. 648,608. Patented May 1, 1900.

O. F. CANTWELL.

RAIL JOINT.

(Application filed Jan. 30, 1900.)

(No Model.)

Fig. 1.

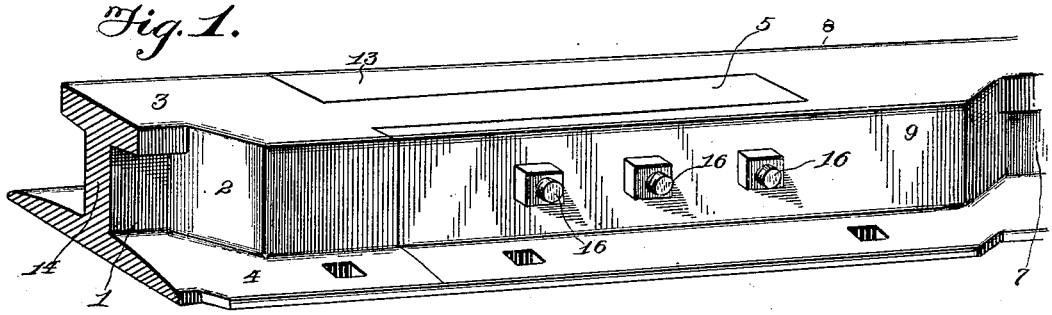


Fig. 2.

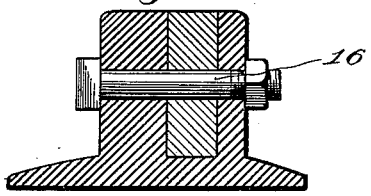


Fig. 3.

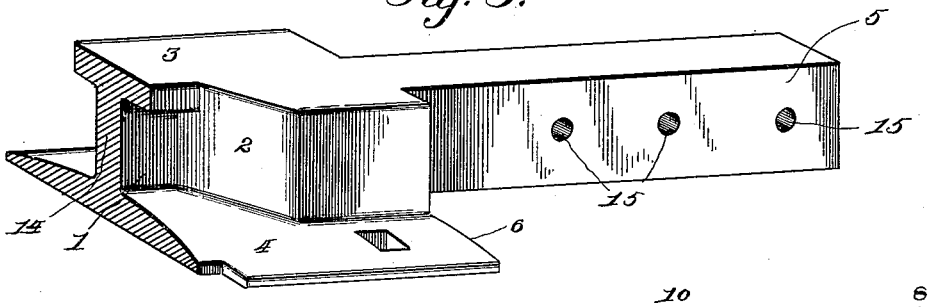
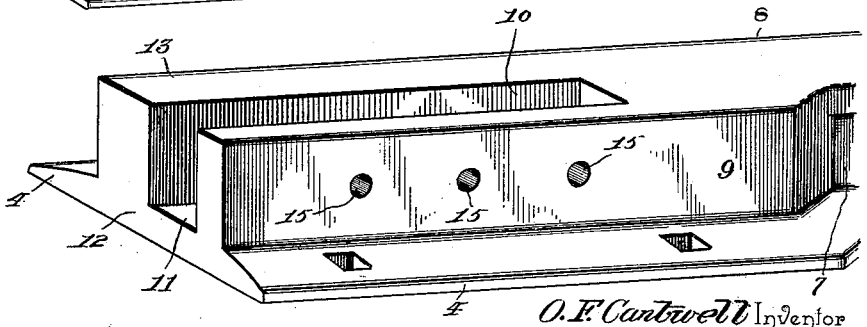


Fig. 4.



Witnesses

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ORLANDO FESTUS CANTWELL, OF MILAN, TENNESSEE.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 648,608, dated May 1, 1900.

Application filed January 30, 1900. Serial No. 3,333. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO FESTUS CANTWELL, a citizen of the United States, residing at Milan, in the county of Gibson and State of Tennessee, have invented a new and useful Rail-Joint, of which the following is a specification.

This invention relates to rail-joints; and the objects of the same are to provide a rail-joint for railroad-rails so constructed and arranged that the abutting ends or sections secured to the 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 will at the same time rigidly secure the abutting rail ends or sections against either lateral or vertical movement under the heaviest strains; further, 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; further, 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 ties it can be removed readily for repairs or other purposes without disturbing the abutting and interlocking rails, and, further, to construct such a joint without weakening the tread-surface at the inner portion of the rail-sections through the medium of the reduced walls or portions by essentially preserving the usual amount of metal adjacent the inner edge of the tread at the point of greatest crushing strain and locate the joint outside of the longitudinal median line of the rail-sections, with obvious increased strength and efficiency.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of interlocked rail-sections broken away and illustrating a joint embodying the features of the invention. Fig. 2 is a transverse vertical section of the improved joint. Figs. 3 and 4 are perspective views of the interlocking terminals of rail-sections, showing the joint embodying the improvement.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The rail-section 1 is similar in construction to an ordinary railroad-rail, except that at one extremity, for instance, it is formed with an outwardly-extending enlargement 2 from the head 3 downwardly to the flange 4, said enlargement being reduced to provide a rectangular tongue 5 of elongated form, which has a vertical extent from the plane of the top of the flange 4 and the tread-surface of the head 3, the upper surface of the said tongue and the enlargement 2 regularly merging and in the same plane and also in the plane of the tread of the head. By having the lower edge of the tongue 5 extend downwardly only to the plane of the upper limit of the flange 4 the latter is made to serve in the capacity of an abutting shoulder 6, and an effective male member of the rail-joint is thus completely produced without detracting from the effectiveness and advantage of the ordinary tread-surface now commonly used in railroad-rails.

The connecting rail-section 7 or, for instance, the opposite extremity of the rail-section 1, as the case may be, has the flange and head portions similar to the section 1; but the head portion 8 has an outer enlargement 9, which is formed by widening the section at said point equally to the enlargement 2 of the section 1, and in the said enlargement 9, near the outer face, a longitudinal slot 10 of the same dimension as the tongue 5 is constructed and has its bottom wall 11 in the same plane as the upper limit of the flange 4. In this section 7 the terminal of the enlargement is flush with the end 12 of the flange, and by locating the slot 10 outwardly, so as to be eccentric, longitudinally considered, to the longitudinal median line of the section 7, the inner widened member 13 is produced and receives the strain or crushing effect of the rolling-stock without material wear or danger of fracture, and at the point where the joint is formed the ordinary vertical web 14 between the flange and the head is dispensed with and the metal thickened to further

strengthen the device and materially add to the advantages of the improvement. The enlargement 9 of the section 7, having the slot 10 therein, may be properly termed a "female" member of the joint, and in the assemblage of the parts of the joint the tongue 5 is seated in the slot 10 and the shoulder 6 of the flange of the rail-section 1 snugly abuts against the said end 12 of the flange of the section 7, and the ends of the members disposed on opposite sides or forming the side walls of the slot 10 closely engage the projecting portions of the enlargement 2 and rail-head and adjacent web of the section 1 on opposite sides of the tongue 5 where the latter starts from said enlargement 2. It will be observed that a flush fitting of all the parts is secured without projection of any sort, and after the flanges have been spiked or secured to the ties in the ordinary manner now commonly pursued the joint will be effectively completed, and particularly so far as vertical or transverse movement is concerned; but to make the joint still stronger and more effectively resistable to separation the interlocking parts are provided with alined bolt-holes 15 to receive bolts 16, which are nutted, and longitudinal separation of the parts of the joint is thereby obstructed; but, like ordinary railroad construction, the joint does not interfere with the necessary expansion and contraction or creeping of the rails, due to causes well understood.

The present construction of joint has been particularly devised to prevent the formation of what is known as a "low" joint or a "lip" on the end of the rail-section and also obstructs downgrade creeping from unnatural causes. By the use of the improved joint a less number of coupling-bolts are required than employed on the ordinary fish-plate joint, and the latter form of joint, with its inconveniences, expense, and uncertainties, is entirely dispensed with. Another advantage of the improved construction is the extra width of the flange at the point where the joint is located, which will prevent the rail from turning over, as is often the case with the ordinary joint now in use, and, furthermore, the ties beneath will not be cut, as when a rail having a narrow or ordinary flange is used. The rail-joint will also materially reduce the use of braces, and in the employment of the device for curves the ends of the sections will be properly bent for this purpose at the time of the formation of the same.

The great expense attending present railroad construction employing connecting fish-plates and extra coupling-bolts and the constant attention necessary on the part of railroad hands and others to guard against accident by loosening of the joints and repair of the track-bed is considerably in excess of the cost of the improved railroad-joint, in view of the reduced wear and tear on the railroad-bed, the less number of coupling-bolts employed, and the safety and reliability in view of an impossible accidental separation. Moreover, the jar and vibration will be reduced on the rolling-stock in view of the fact that there are no abrupt joints, and it is obviously apparent that changes in the form, proportions, and minor details can be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

1. A railroad-joint comprising rail-sections respectively having male and female interlocking members consisting of an elongated straight tongue in the one instance and a longitudinal slot in the other to receive said tongue, the said tongue and slot of the two members when interlocked being located outside of the longitudinal median line of the rail-sections to preserve the ordinary and necessary thickness of metal along the inner edges of the sections to withstand the wear and strain of the wheel-flanges adapted to move thereagainst.

2. A railroad-joint comprising rail-sections with terminal enlargements, the latter being on the outside of the section and one formed with a straight elongated tongue and the other with a longitudinal slot to receive said tongue and make a flush joint therewith, the flange under the joint being increased in width and the web thickened and the inner face thereof flush with the inner limit of the head of the joint.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ORLANDO FESTUS CANTWELL.

Witnesses:
J. B. RAGSDALE,
F. D. MOORE.