J. K. MACKERAL & J. CRONIN.

METALLIC TIE AND FASTENER.

APPLICATION FILED OCT. 15, 1910.

995,694. Patented June 20, 1911.

FIG. 1.

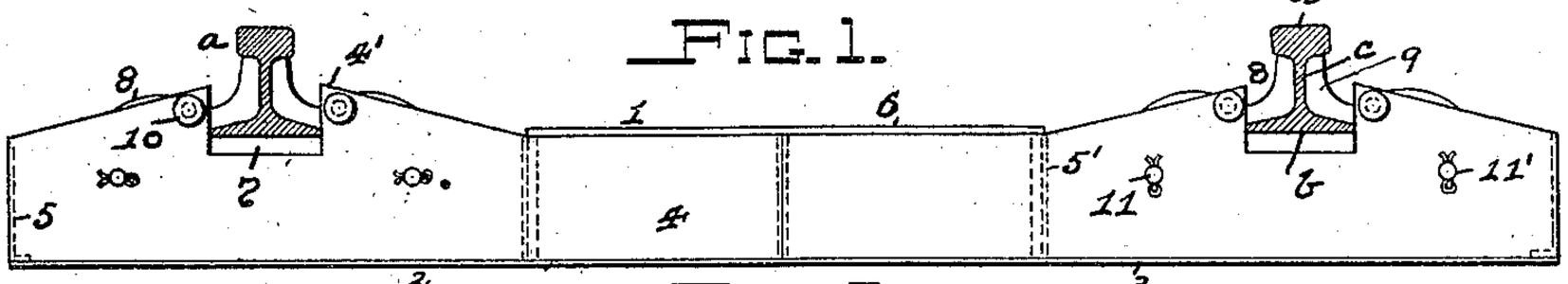


FIG. 2.

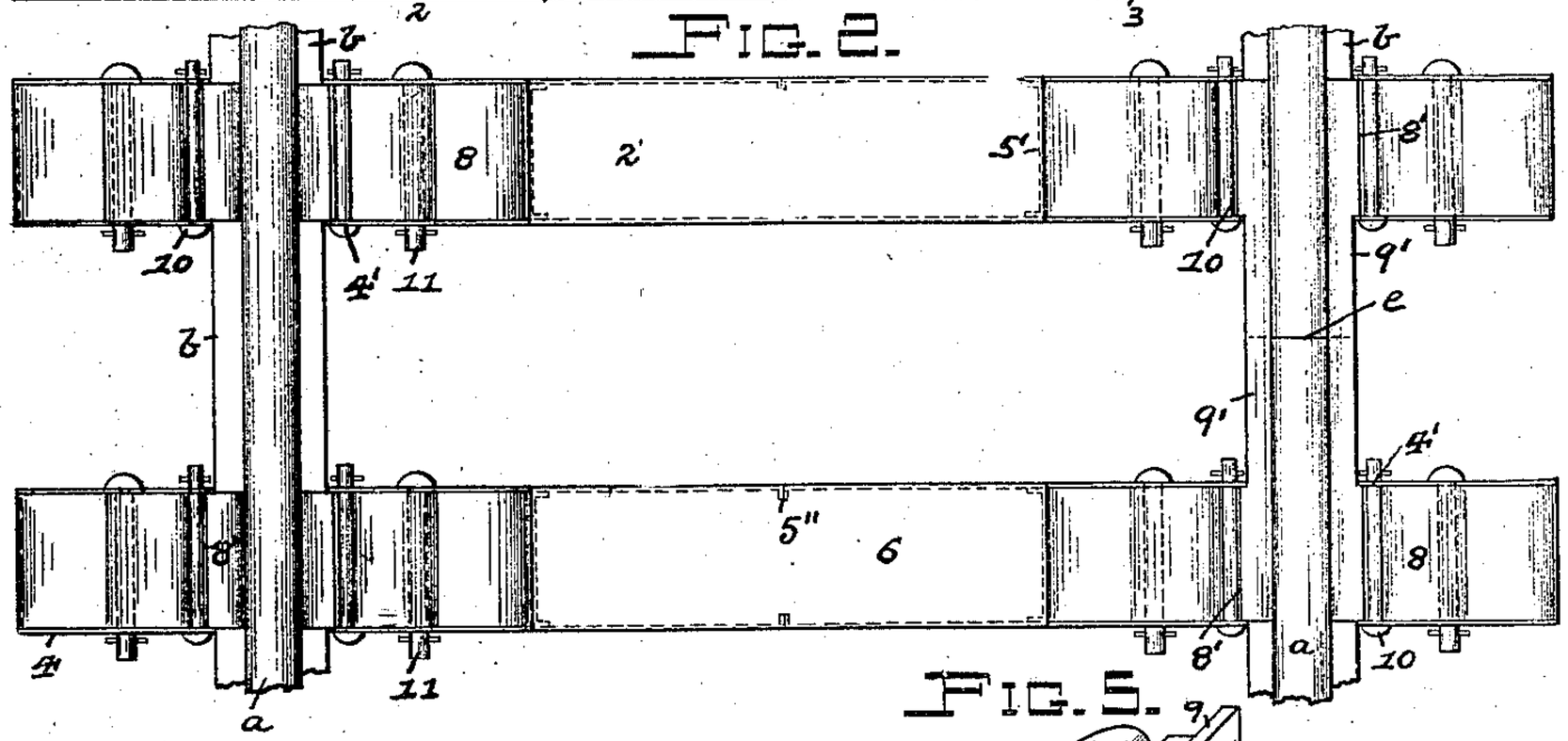


FIG. 5.

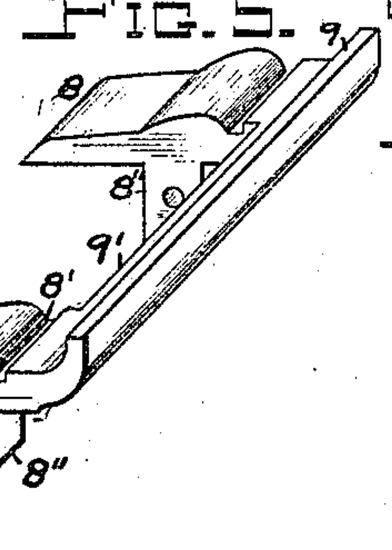


FIG. 6.

FIG. 4.

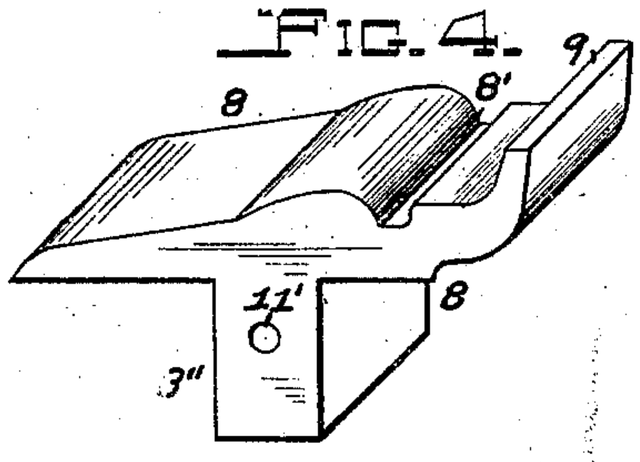
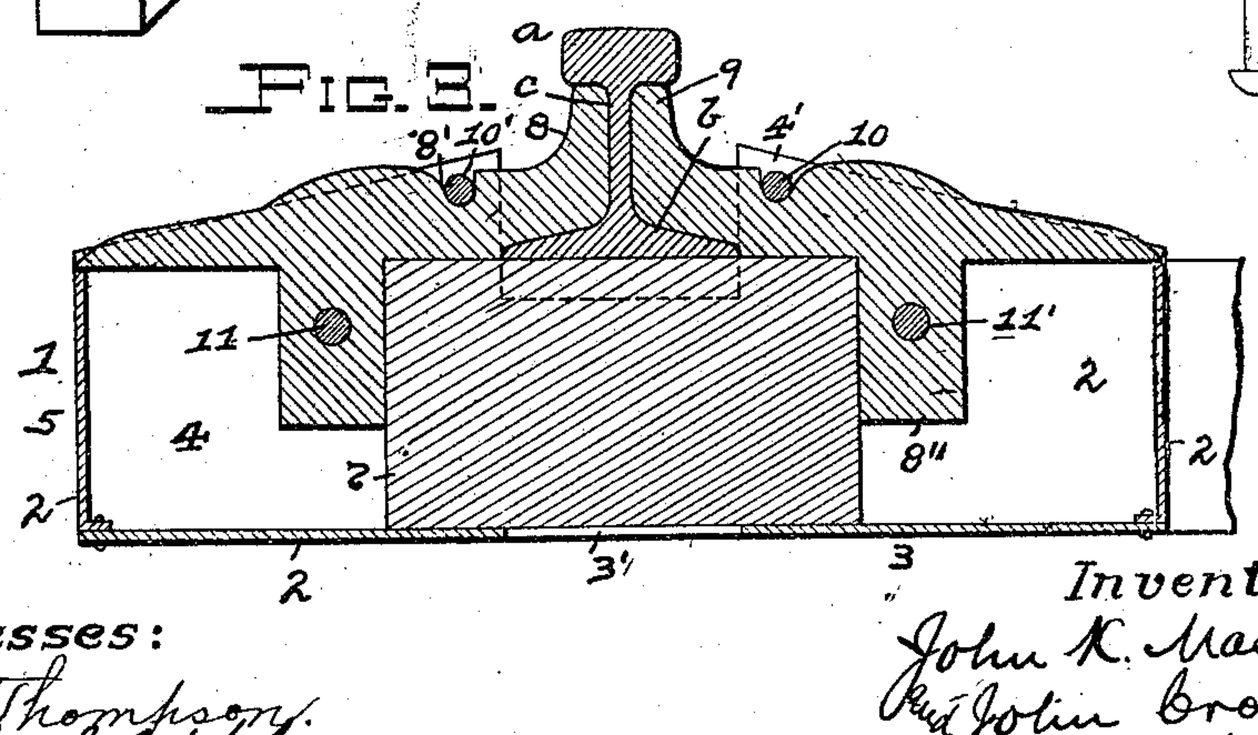


FIG. 8.



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JOHN K. MACKERAL AND JOHN CRONIN, OF PITTSBURG, PENNSYLVANIA.

METALLIC TIE AND FASTENER.

995,694. Specification of Letters Patent. Patented June 20, 1911.

Application filed October 15, 1910. Serial No. 587,286.

To all whom it may concern:

Be it known that we, JOHN K. MACKERAL and JOHN CRONIN, residents of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Metallic Ties and Fasteners; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to metallic ties and fasteners for railroad rails, and has special reference to such ties as being formed into hollow shape from metal sheets connected together.

The object of our invention is to provide a cheap, simple and efficient form of a metallic tie and fastener for railroad rails, which can be readily and easily formed from metal sheets connected together, will enable the fastening parts for the rails to be securely held by intermediate and joint ties, and will enable such parts to be quickly and conveniently connected to and disconnected from said ties and rails.

To these ends our invention consists, generally stated, in the novel construction, arrangement and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which our invention appertains to construct and use our improved metallic tie and fastener for railroad rails, we will describe the same more fully, referring to the accompanying drawing, in which—

Figure 1 is a side elevation of our improved metallic tie and fastener and showing the rails connected thereto and in section. Fig. 2 is a top plan view of two of our improved ties and showing the rails connected thereto. Fig. 3 is an enlarged longitudinal central section of one end of a tie and showing the rail and fasteners in section. Fig. 4 is a perspective view of the fastener for the rails on intermediate ties. Fig. 5 is a similar view of the fastener for rails on joint ties. Fig. 6 is a side elevation of one of the bolts employed for the fasteners.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing, 1 represents our improved tie, which is of hollow form, and is formed from metal sheets 2, such as steel, and connected together by riveting or other suitable fastenings to form the bottom 3, sides 4, ends 5 and central top 6. Within each of the ties 1 is a block 7, which is positioned at each end of such ties, and rests upon the bottom 3 and against the sides 4 of said ties. The base *b* of the rails *a* rests upon the tops of the blocks 7 and rail fastening bars 8 are adapted to rest upon the tops of said blocks and between raised portions 4′ on the sides 4 of the ties 1, while the outer ends of the outer bars are adapted to rest upon the top edges of the outer tie ends 5 and the inner ends of the inner bars upon the vertical wall 5′ in said ties, which wall is located between said ends 5 and the central joining and riveted end flanges 5″ on the sides 4 of said ties. The bars 8 are provided with an upwardly extending portion 9 thereon for fitting along the web *c* and under the heads *d* of the rails *a*, and such bars are removably held in place in the ties 1 and against the rails *a* by the pins or bolts 10 fitting in seats or grooves 8′ on the upper surface of said bars and within holes 10′ in the raised portions 4′ on the tie sides 4, as well as by the pins or bolts 11 passing through holes 11′ in said sides and in a downwardly extending portion 8″ on the under face of said bars and resting against the sides of the blocks 7 to hold said blocks in place. The bolts 10 being arranged in the seats 8′ in the top of the bars 8 will also enable such bars to be raised and lowered with the rails *a* in a spring-like action on account of the rails vibrating on the blocks 7 and through the bolts 11 acting as a pivot for such bars. Where the bars 8 are used in the ties 1 on each side of a joint *e* in the rails *a*, such bars are provided with an integral bridge portion 9′ between such ties, which portion is formed as part of and of the same shape as the upwardly extending portion 9 on said bars for holding the rails at such joint and thereby assists the portions 9 on said bars in holding or fastening such rails beyond said joint.

When our improved metallic tie and fastener is in use, with the parts assembled as shown in Figs. 1, 2, 3 and 4, the rails *a* will be securely held in place on the ties 1 and by the fastener bars 8, while such bars

will completely and rigidly secure and hold such rails in place on the said ties and thereby do away with the usual bolts and fish or angle bars so generally used in holding these parts together. When the ties 1 are set in place, the fastening bars 8 can be easily and quickly placed on the ties and in position with the rails on such ties, and such rails and bars are capable of being readily and conveniently removed from the ties at any time desired.

If desired, the central top portion of the ties can be dispensed with and ballast or other material placed within the ties at such point, as well as around the rail supporting blocks and depending portion on the fastening bars, while the bottom 3 of the tie can be cut away under the blocks 7 therein, as at 3′, in order to permit the ballast or other tie supporting material to come in contact with said blocks and thereby assist in the supporting of such blocks in position under the rails *a*.

Various other modifications and changes in the design and construction of our improved metallic tie and fastener may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

It will thus be seen that in the use of our improved metallic tie and fastener, the rails will be prevented from spreading or moving and it will do away with the usual spiking of such rails to hold the rail on the tie as well as the usual nuts and fish bars to hold the rail in place. The tie can be easily tamped and the wooden blocks and other parts of the tie are protected from the weather and drippings from the rolling stock by the covering formed by the rail fastening bars. The weight on the tie of the rails and rolling stock is taken up greatly by the wooden blocks, and in case of a broken rail the bridged fastening bar can be used instead of the separate fastening bars, which will hold said rail in place and together, without the necessity of putting in a new rail. It will also be seen that our improved tie being formed of metal sheets can be easily assembled and handled in parts, and the fastening bars being formed of cast metal, will form a strong and rigid tie and fastener to hold the rail firmly in place, and will greatly strengthen such rail when in use.

What we claim as our invention and desire to secure by Letters Patent is—

1. The combination with a hollow metallic tie, of fastening bars on said tie adapted to rest on the flange and along the web of the rails, said bars being provided with seats in the upper faces of the same and above the rail flange, separate blocks within said tie for supporting the rails, and bolts fitting in said seats and passing through the sides of said tie to hold said bars in place.

2. The combination with a hollow metallic tie, of fastening bars on said tie adapted to rest on the flange and along the web of the rails, said bars being provided with seats in the upper faces of the same, blocks within said ties for supporting the rails, downwardly extending projections on the under faces of said bars for fitting against the sides of said blocks, bolts fitting in said seats and passing through the sides of said tie, and bolts passing through said projections and through the sides of said tie.

3. The combination with the ties, of fastening bars on said ties adapted to rest upon the flange and along the web of the rails, and bridge-portions on said bars extending between said ties for supporting the said rails.

4. The combination with the ties, of fastening bars on said ties adapted to rest on and along the web of the rails, and bridge portions on said bars extending between said ties for supporting the rails along their heads, flanges and webs.

5. The combination with the ties, of fastening bars on said ties adapted to rest upon the flange and along the web of the rails, and integral bridge-portions on said bars extending between said ties for supporting the said rails.

6. The combination with the ties, of fastening bars on said ties adapted to rest on and along the web of the rails, and integral bridge portions on said bars extending between said ties for supporting the rails along their heads, flanges and webs.

In testimony whereof, we the said JOHN K. MACKERAL and JOHN CRONIN, have hereunto set our hands.

JOHN K. MACKERAL.
JOHN CRONIN.

Witnesses:
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