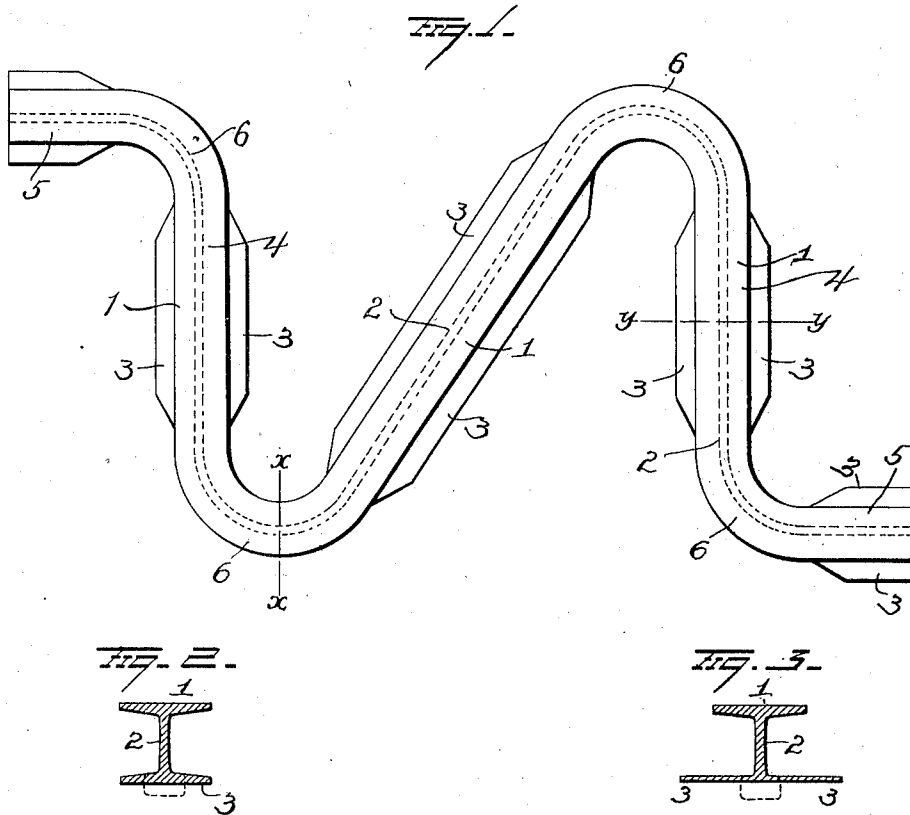


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METAL TIE.
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METAL TIE.

1,003,640.

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To all whom it may concern:

Be it known that I, WILLIAM H. MORGAN, a citizen of the United States, and a resident of Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Metal Ties; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in metal ties, and it consists in the features of construction as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in plan of one form of tie embodying my improvement; Fig. 2 is a view in section on the line $x-x$ of Fig. 1 and Fig. 3 is a view on the line $y-y$ of Fig. 1.

The tie is preferably and conveniently made from a section of old rail road rail, but which may be made of new material. It comprises a base flange, a web and a head or top flange, and when made from a section of rail road rail, the base flange 1 of the latter constitutes the head of the tie, and the head of the rail section is wholly or partly swaged to expand same laterally on both sides of the web 2, thus producing a tie base flange 3 wider at points than the head of the tie. The end sections of the tie thus shaped, are bent, as at 4 into parallel planes to form supports for the rails, and the extreme ends 5 are then bent outwardly at right angles to the rail supporting sections of the tie, so as to project at both sides beyond the rails carried by the ties, for preventing tipping of the ties. When the tie is made from a section of rail, I prefer to expand the whole head laterally at both sides of the web until it is as wide as the base flange, throughout the length of the tie, and I then further expand the tie base flange 3, at points intermediate the bends 6, and at the extreme ends, so as to secure increased bearing surface between the bends. After the head of the rail, which as before stated constitutes the base flange of the tie, has been thus swaged the tie section is then bent into the shape shown, or into any other approved shape. By this arrangement I secure a tie having top and

base flanges of approximately the same width at the bends 6 as shown in Fig. 2, while the base flanges intermediate the bends and between the bends and the extreme ends of the tie are wider than the top flange, as shown in Fig. 3.

If desired the whole base flange could be laterally expanded the full width as shown in Fig. 3, and the surplus material cut away at the bends, but I prefer to only partly expand at the bends, as by so doing I preserve the full strength of the tie at the point subjected to torsional strains.

It has been found to be very difficult to bend the very wide flange around a short radius, without seriously distorting the flange at the bend, but by making both flanges of approximately the same width at the bends this difficulty has been overcome.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. A railroad tie having upper and lower flanges and an intermediate web, the opposite ends being bent to form parallel supports for the rail, the base flanges of said parallel portions and the intermediate portion of the tie, being wider than the base flanges at the bent portions of the tie.

2. A rail road tie having upper and lower flanges and a web, the opposite ends being bent to form parallel supports for the rail and the extreme ends bent outwardly from such parallel portions, the base flange at the bent portion of the tie being narrower than the base portion of the other portions of the tie.

3. A railroad tie having upper and lower flanges and an intermediate web, the opposite ends being bent to form parallel supports for the rails, the base flanges of said parallel portions being wider than the base flanges at the bent portions of the tie.

4. A rail road rail having upper and lower flanges and a web, the opposite ends

being bent to form parallel supports for the rail and the extreme ends bent outwardly from such parallel portions, the base flanges at the bent portions of the tie being narrower than the base flanges of the rail supporting sections of said tie.

In testimony whereof, I have signed this

specification in the presence of two subscribing witnesses.

WILLIAM H. MORGAN.

Witnesses:

J. H. LLOYD,

N. C. FETTERS.

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