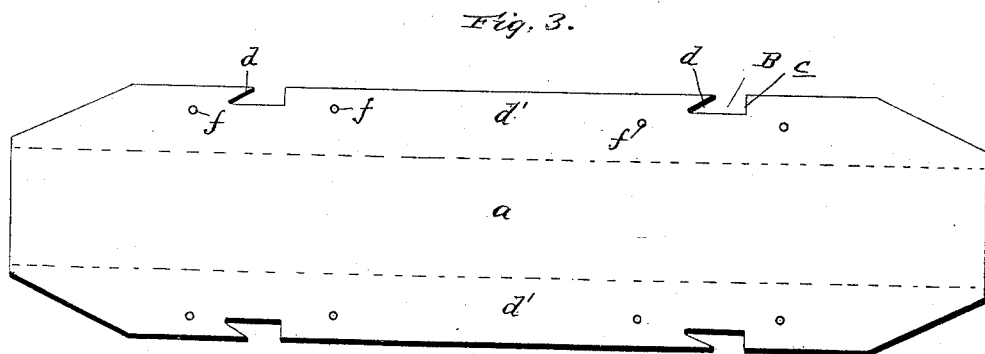
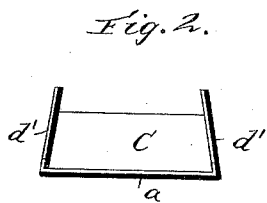
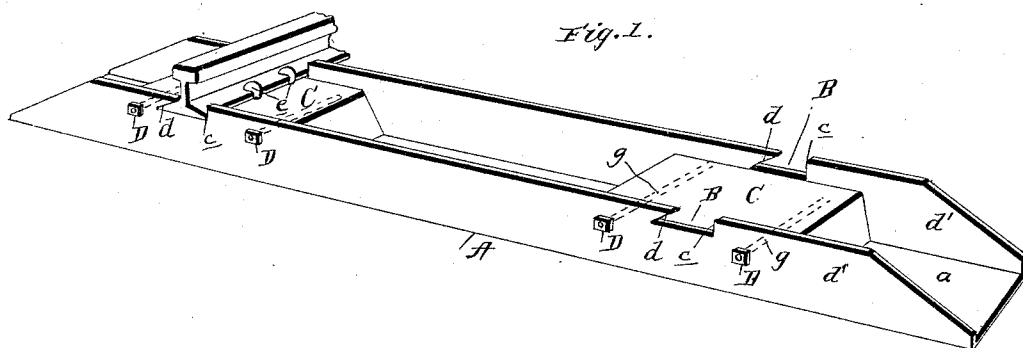


(No. Model.)

J. F. HARRIS.
RAILROAD TIE.

No. 466,942.

Patented Jan. 12, 1892.



Witnesses:

W. T. Matthews.

Inventor

John F. Harris.

James Shuey

Attorney

UNITED STATES PATENT OFFICE.

JOHN F. HARRIS, OF FORT EDWARD, NEW YORK.

RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 466,942, dated January 12, 1892.

Application filed November 12, 1890. Serial No. 371,201. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. HARRIS, a citizen of the United States, residing at Fort Edward, in the county of Washington and State of New York, have invented certain new and useful Improvements in Railroad-Ties; and I do 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.

This invention relates to improvements in railway-ties, and more particularly to that class embodying a metallic tie and an elastic cushion or sleeper; and it consists in the construction, combination, and adaptation of parts, as will be hereinafter more fully set forth and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved tie and sleeper, with a section of rail illustrated in position thereon. Fig. 2 is an end elevation of the tie and the cushion or sleeper therein, and Fig. 3 is a view of the blank from which the tie is formed.

It is well known that on steam-railroads the continual travel of trains causes wooden ties to become depressed at opposite ends and bulge or rise in the center, so that in time the road-bed becomes impaired to such an extent as to require frequent repairing and replacement of the ties. While it is desirable to have a tie to yield to some extent, such as wood, yet for the sake of strength and durability metal ties are rapidly coming into vogue and are destined to replace wooden ties when adapted to possess the qualities of cheapness in manufacture, durability, ease of construction, and require but inexperienced labor to place them. It has been found that when metal ties are used a cushion should be afforded for the rails, and it is also desirable that the common spikes be used instead of a great number of bolts and nuts or like fastening devices.

A disadvantage following from the use of metal ties has been that when channel-iron is used and the bearing branches arranged straight or vertically such branches after but little use crack, and as a result break down by the constant pressure of the weight upon them.

The object of my invention is to provide a tie at a minimum expense which will overcome the numerous objections above stated, and one which may be placed by unskilled labor, and the common spikes, which are so desirable, employed, and at the same time preserve the good qualities of both wood and metal ties without getting the disadvantages of either as used separately.

In carrying out my invention I take a sheet of metal of sufficient length and width, preferably steel plate, and with a die or other suitable device cut or shape the same into the form shown in Fig. 3 of the drawings, thus providing notches at opposite points in the longitudinal edges, and also bolt-apertures, as will be presently explained. I then bend the sheet or plate longitudinally at the points indicated by the dotted lines, so as to form a straight base *a* and side walls *d'*, the latter being directed sufficiently inward, as better shown in Fig. 2, so as to approximate a dovetail in cross-section. The notches *B*, which are brought in alignment with each other, are designed to receive the base of a rail, as shown. One wall *c* of each rail-seat is straight or vertical, while the opposite wall is undercut, as shown at *d*, so as to overlap the rail-flange on the opposite side.

C indicates the sleepers. These sleepers are formed from blocks of wood and of a form in cross-section corresponding with that of the metal ties, so that they may be driven into the tie from opposite ends to a point beneath the rail-seats, and are designed to come flush with the base of the notches *B*. These blocks *C* serve as cushions or sleepers for the rails, and spikes *e* are designed to secure the rails thereto by their heads taking over the flanges of said rails. With a construction of this character it is obvious that the rails could not rise from the sleepers or cushions, and consequently the tie, unless the spikes were first drawn, and it is also obvious that the rails, being seated in the notches of the tie, would prevent any lateral displacement of the cushions or sleepers so long as the spikes remain in position; but as an additional security I have provided bolt-apertures *f* and employ bolts *g*, with nuts *D*, taking through said apertures and also the cushions or sleep-

ers, whereby said cushions are more firmly retained in place.

By having the side walls of the metal tie inclined inwardly I not only overcome the objections heretofore experienced in straight-wall ties, but I obtain a means for holding the cushions or sleepers down in position.

When a sleeper or cushion becomes impaired or worn, it is simply necessary to drive it out of the tie lengthwise, when another one may be quickly driven in place, the rail let into the notched seats of the tie, and the spikes quickly applied to secure the rail to the sleepers or cushions.

Having described my invention, what I claim is—

1. The combined railway-tie and cushion described, consisting, essentially, of the tie formed from a single piece of channel-iron having its side walls directed slightly inward, so as to approximate a dovetail in cross-section, said walls also having their upper edges

recessed at opposite points, as shown, one wall of each recess being arranged vertically and the opposite wall having an under-cut, the wooden cushions arranged in the channel of the tie, and bolts securing said cushions to the walls thereof, substantially as specified.

2. The combination of a railway-tie formed from channel-iron, with its side walls directed inwardly and provided with notched rail-seats, said notches having one straight wall and one undercut wall, and the wooden cushions of a form in cross-section corresponding with that of the tie and arranged in the tie at the rail-seats thereof, substantially as specified.

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

JOHN F. HARRIS.

Witnesses:

J. H. CHEESMAN,
A. R. WING.