

No. 824,928.

PATENTED JULY 3, 1906.

D. HOOPES.
CROSS TIE FOR RAILROADS.
APPLICATION FILED MAR. 17, 1906.

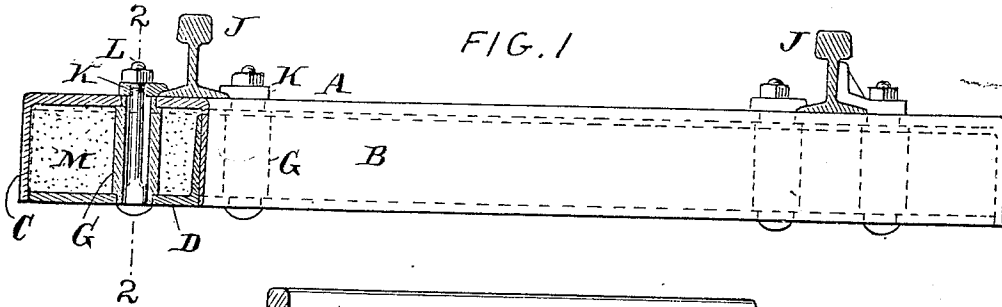


FIG. 2

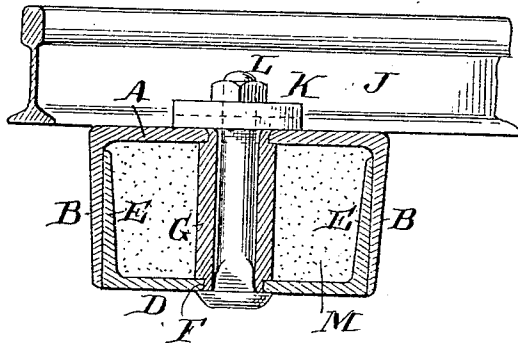


FIG. 3

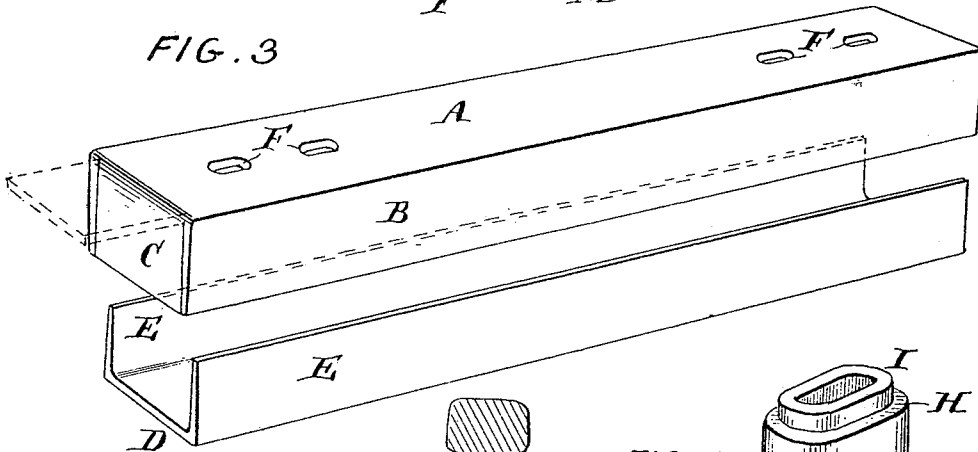
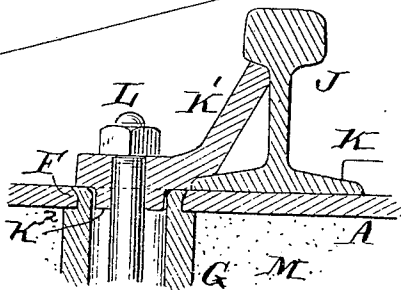
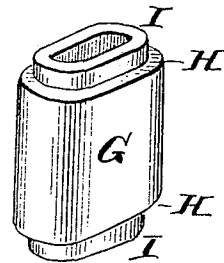


FIG. 4



Attest
R. M. Kelly
Wm. E. Rooney

FIG. 5

Inventor
Dawson Hoopes
By his atty
[Signature]

UNITED STATES PATENT OFFICE.

DAWSON HOOPES, OF PHILADELPHIA, PENNSYLVANIA.

CROSS-TIE FOR RAILROADS.

No. 824,928.

Specification of Letters Patent.

Patented July 3, 1906.

Application filed March 17, 1906. Serial No. 306,502.

To all whom it may concern:

Be it known that I, DAWSON HOOPES, a resident of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Cross-Ties for Railroads, of which the following is a specification.

My invention has reference to cross-ties for railroads; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a construction of metallic cross-ties which shall have great strength and stability and conform closely to the shape and resiliency of the ordinary wooden cross-tie.

My invention consists of a cross-tie having its body formed of two channel-shaped beams of different cross-sections and one fitting over or embracing the other to constitute a box-like structure combined with bolts or other suitable devices for clamping the rails thereto.

My invention also consists in combining the box-like tie with a series of spacing tubular pieces or studs arranged between the parallel top and bottom faces of the two channel-beam sections and through which clamping-bolts extend to hold the rails in place.

My improvement further embodies the tie of above construction when reinforced with a filling of suitable non-metallic material which may be poured in the plastic condition and allowed to set or harden to give solidity to the tie as a whole.

My invention also comprehends details of construction which, together with the features above specified, will be better understood by reference to the drawings, in which—

Figure 1 is a side elevation of my improved cross-tie with part in section and showing the rails attached thereto. Fig. 2 is a cross-section of same on line 2 2. Fig. 3 is a perspective view of the two channel-beams before being forced together. Fig. 4 is a perspective view of one of the tubular spacing-studs, and Fig. 5 is a cross-section showing a brace for the rail on a curve adapted for use with my improved cross-tie.

A is the upper beam and is of channel shape in cross-section, with the flanges B extending downward from sides. A portion of the upper surface of the web at each end is

bent downward, as at C, to close in the ends, as clearly shown in Figs. 1 and 3. One of these ends C of the web may be left in the position shown in dotted lines in Fig. 3 until after the filling material M has been introduced and subsequent to which it is bent down in cold condition.

D is the lower channel-beam and has its flanges E extended upward and fitted within the channel-beam A, as shown in Fig. 2. It will thus be noted that the beam D is of less width and of less depth than the beam A, though the latter condition is not essential. As the outer walls of the flanges E are vertical and parallel, I prefer to bend inward the flanges or sides B of the beam A, so that they fit snugly against the said outer surfaces of the flanges E of the beam D. It is also evident that, if desired, the flanges E and B may be bent so that they interlock on a dovetail principle, though hardly perceptible to the eye, as such construction would tend to hold the two parts A and D together during shipment and handling and before the bolts L are employed.

G represents tubular spacing-studs and are made oblong in cross-section and provided at each end with a shoulder H and flange I, the latter fitting the oblong apertures F in the webs of the channel-beam sections A and D, as shown in Figs. 1 and 2. If desired, these flanges I may simply fit the apertures as bushings or may be riveted therein, as indicated in Fig. 5, in which case they would act as means for holding the sections A and D together.

J represents the rails, which rest upon the tie, as shown, and may be clamped in place by the clamping-plates K and bolts L, which latter extend through the apertures in the studs G and are provided with square or oblong parts on the shanks next to the head to prevent them rotating when turning up the nuts above the clamping-plates K. In place of the particular means shown for clamping the rails upon the tie any other means may be employed.

Braces, such as shown at K', Fig. 5, might be employed when the track is curved to act as a brace to the rails, and these braces may have downwardly-extending lugs K², filling the oblong apertures of the studs, so as to prevent possible shifting under the radial strains

23
STUDS
METALLIC

1. A railroad cross-tie consisting of two metal channel-beams fitting one within the other, combined with clamping-bolts, extending through both beams and clamping-plates held by the bolts clamping the flanges of the rails.

5 lugs K² similar to those of the brace K¹.

The metallic cross-tie made in the above-described manner may be used for the railway, or more preferably the space between the sections A D and around the studs G is filled with concrete, cement, glass, slag, sulfur, or combinations of these, or filled with any other suitable non-metallic material to give solidity to the tie as a whole. In applying the filling I prefer to pour it into the box-like structure from one end before the end plate C is bent down, as shown in Figs. 1 and 3. When filled with a body material as thus stated, the solidity of the tie is much improved, and in consequence thereof it is possible to have the metal in the beams A and D of considerably less thickness than is usually found in the standard rolled channel-beams of commerce, which reduction in thickness would reduce the weight of the metal employed, and consequently reduce the cost.

By referring to Fig. 2 it will be seen that there is no possibility of water entering, between the side flanges of the two beams because of the fact that the flanges B of the beam A extend over the under beam D; but I do not restrict myself to this arrangement, as the tie structure may be inverted as a whole, if so desired.

While I prefer the construction shown, I do not limit myself to the details, as these may be modified in various ways without departing from the spirit of the invention.

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

1. A railroad cross-tie consisting of two metal channel-beams fitting one within the other, combined with clamping-bolts, extending through both beams and clamping-plates held by the bolts clamping the flanges of the rails.

2. A railroad cross-tie consisting of two metal channel-beams fitting one within the other, tubular spacing-studs between the top and bottom faces of the beams combined with clamping-bolts, extending through the studs, and clamping-plates held by the bolts for clamping the flanges of the rails.

3. A railroad cross-tie consisting of two metal channel-beams fitting one within the other, tubular spacing-studs between the top and bottom faces of the beams combined with clamping-bolts extending through the studs, a filling of non-metallic material between the beams and around the studs, and clamping-plates held by the bolts for clamping the flanges of the rails.

4. A railroad cross-tie consisting of a channel-beam having its web at the ends bent

down between the flanges or sides combined with a second channel-beam fitting within the first-mentioned channel-beam so as to form a box-like structure, and clamping devices for clamping the rails to the channel-beams.

5. A railroad cross-tie consisting of a channel-beam having its web at the ends bent down between the flanges or sides combined with a second channel-beam fitting within the first-mentioned channel-beam so as to form a box-like structure, hollow studs extending between the parallel webs of the two channel-beams and clamping devices for clamping the rails to the channel-beams extending through said hollow studs.

6. A railroad cross-tie consisting of a channel-beam having its web at the ends bent down between the flanges or sides combined with a second channel-beam fitting within the first-mentioned channel-beam so as to form a box-like structure, a filling of non-metallic substance within the space inclosed by the two channel-beams and clamps for clamping the rails to the channel-beams.

7. A railroad cross-tie consisting of a channel-beam having its web at the ends bent down between the flanges or sides combined with a second channel-beam fitting within the first-mentioned channel-beam so as to form a box-like structure, hollow studs extending between the parallel webs of the channel-beams a filling of non-metallic material within the space inclosed by the two channel-beams and clamping devices for clamping the rails to the channel-beams extending through said hollow studs.

8. A railroad cross-tie consisting of a channel-beam having its web at the ends bent down between the flanges or sides combined with a second channel-beam so as to form a box-like structure, studs extending between the parallel webs of the two channel-beams having holes oblong in cross-section and clamping devices for clamping the rails to the channel-beams consisting of clamping-plates and bolts extending through the plates and holes of the studs and having parts which prevent the bolts turning in the studs.

9. A railroad cross-tie consisting of a channel-beam having its web at the ends bent down between the flanges or sides combined with a second channel-beam fitting within the first-mentioned channel-beam so as to form a box-like structure, studs extending between the parallel webs of the two channel-beams having holes oblong in cross-section and clamping devices for clamping the rails to the channel-beams consisting of clamping-plates and bolts extending through the plates and having extensions above to form braces to the rail and lugs below fitting into the holes of the studs.

10. A railroad cross-tie consisting of two

5 sections of commercial channel-beam one fitting within the other and having no obstructing or projecting parts, combined with means for uniting the sections together, and clamping-plates for clamping the flanges of the rail attached to the channel-beam sections intermediate of their sides.

In testimony of which invention I hereunto set my hand.

DAWSON HOOPES.

Witnesses:

R. M. HUNTER,
R. M. KELLY.

BEST AVAILABLE COPY