

1,017,965.

Fig. 1.

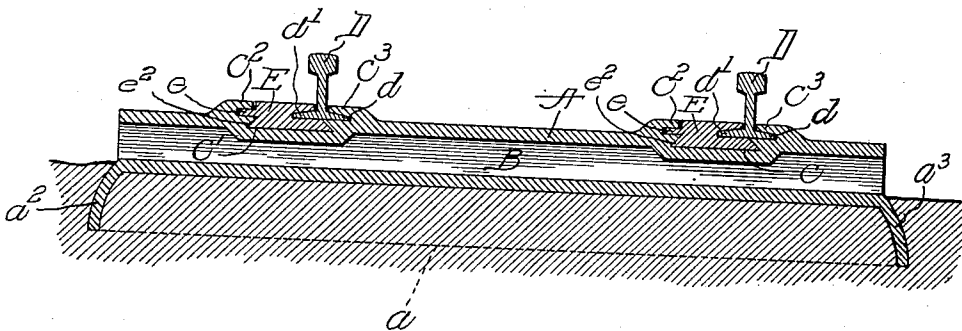


Fig. 2.

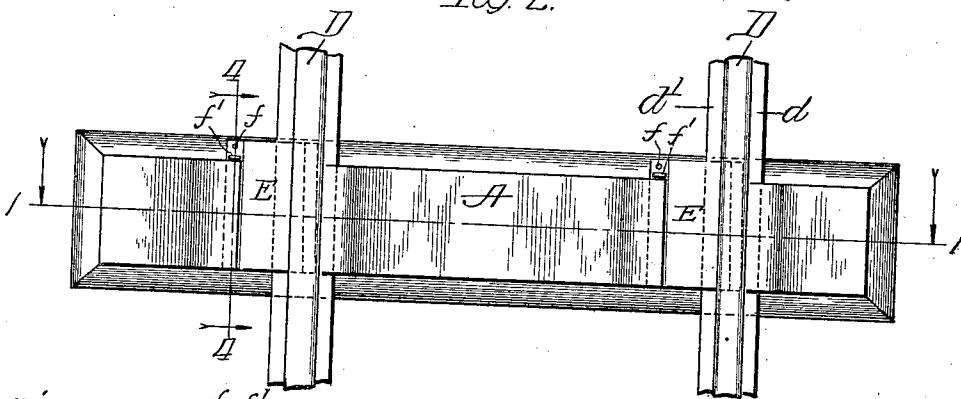


Fig. 3.

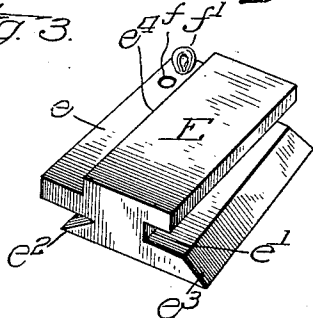
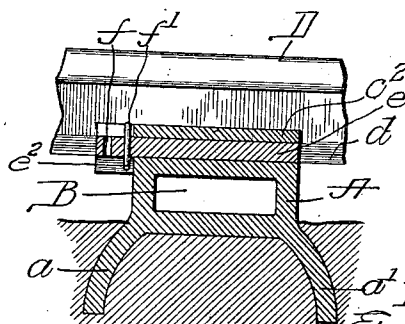


Fig. 7.



 I Inventor
Edward H. Frank.
By *Jesse H. King*-att'y.

UNITED STATES PATENT OFFICE.

EDWARD H. FRANK, OF CENTRALIA, ILLINOIS, ASSIGNOR OF ONE-HALF TO LOUIS C. KOELLING, OF CENTRALIA, ILLINOIS, AND GEORGE KUNZ, OF CLINTON, ILLINOIS.

METALLIC RAILROAD-TIE.

1,017,965.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed February 25, 1911. Serial No. 610,684.

To all whom it may concern:

Be it known that I, EDWARD H. FRANK, a citizen of the United States, residing at Centralia, Marion county, Illinois, have invented certain new and useful Improvements in Metallic Railroad-Ties, of which the following, taken in connection with the drawing, is a description.

My invention has for its object the production of a railroad tie and means for fastening the rails thereon, more particularly in that class known as metallic ties, and is designed to combine strength, durability and efficiency.

A further object of my invention is to provide a railroad tie to which the rail may be secured without the use of spikes, bolts, or other securing means, which are in usage easily loosened and misplaced.

A further object of my invention is to provide a tie of this kind having provision against end thrust and which may be so placed in the road bed that is not affected injuriously by the vibration caused by trains passing over it, but by its construction having concave sides and ends and bottom will cause the tie in service to get a firmer grip upon the earth, keeping the earth packed around it and requiring no tamping or other attention after once laid in the track.

Further objects and advantages of my invention will be apparent to those skilled in the art, and in the accompanying drawing I have illustrated what I now consider the preferred form of my invention, although the size, proportion and details of construction may be varied without departing from the spirit thereof, and in these drawings Figure 1 is a longitudinal sectional view of the tie with the rails secured thereto; Fig. 2 is a top plan view of the same; Fig. 3 is a perspective view of the fastening key; and Fig. 4 is a transverse sectional view of the tie and a side elevation of the section of a rail positioned thereon, taken on the line 4-4 of Fig. 2.

Referring to the drawings A represents the tie proper, all of which is formed of metal, the lower outer sides a , a' of the same being convex as shown in Fig. 4, the ends of the tie a^2 , a^3 are also outwardly convex.

B is a longitudinal opening extending lengthwise of the tie from end to end.

C is the top or face of the tie which is pro-

vided with two dove-tailed recesses or grooves c , c' , one side of the recess c being inclined transversely of the tie to cooperate with a correspondingly inclined edge of the key hereafter explained. Extending above these recesses and at either side thereof I have provided, integrally with the face of the tie a pair of clamps c^2 , c^3 each of which is slightly elevated from the face of the tie leaving a recess therebetween. One of these recesses, in this instance c^3 receives and impinges upon one side of the base of the rail D, the other receiving and impinging upon the tongue of the key hereafter explained.

E is the key used with my tie to secure the rail in position. This key is of novel construction and is adapted to be secured in place to lock the rail to the tie without the use of bolts or spikes, and in such manner that it is impossible to displace the same or work it loose by trains passing over it or otherwise accidentally. This key E is of metal, and is of slightly greater length than width as shown in Fig. 3, and is provided upon one side thereof with a tongue e and upon the opposite side with a groove e' . The bottom of the key beneath the tongue e is inclined upwardly to the body as at e^2 , the entire length thereof. The bottom of the key on the side having the groove e' is inclined from one end to the other so that the key is wider at one end than at the other, the edge thereof being beveled as shown at e^3 , to engage with the correspondingly inclined and beveled edge of the recess extending transversely of the tie. When the rail is placed in position with one side of the base thereof d securely held beneath the clamp c^3 , the key E is inserted with the opposite flange d' of the base of the rail in the groove e' , the inclined faces e^2 , e^3 fitting into the dovetailed recesses c , c' , the tongue e being secured under the clamp c^2 , the edge thereof abutting the shoulder e^4 of the key. When in position one side of the base of the rail d rests upon the face of the tie under the clamp c^3 , the other side d' being positioned in the groove e' of the key and resting upon the lower half of the key as shown in Fig. 1. One or more apertures f are provided in the narrow end of the key E to receive the cotter pin f' which is placed in the opening next to the edge of the clamp c^2 . This locks the key against any backward movement and the rail is securely held in

position by the rigid engagement of each of the base flanges with the clamp on one side thereof and the key on the other.

The operation of fastening the rail to the tie will be apparent from the above description.

By the construction hereinabove described I have provided a railroad tie which will, by reason of the trains passing over it, grip the earth, and by the vibration caused by the passing trains it will keep the earth packed under and about the tie, thus making unnecessary the work of track men who are required to tamp and level the spaces between railroad ties as heretofore constructed, the concave construction of the under side of the tie preventing the earth from working loose therefrom.

I claim:

1. A metallic railroad tie formed of a single piece of metal having outwardly convex sides and ends and a concave bottom with an opening extending longitudinally through the tie, the face of said tie having oppositely extending clamping members, and a key adapted to engage with the clamping members and the flanges of the rail to lock the rail to the tie, substantially as described.
2. A metallic railroad tie formed of a single piece of metal having outwardly convex sides and ends and a concave bottom

and a longitudinal opening extending through the tie, the face of said tie being provided with dovetailed recesses therein, and an oppositely facing clamp upon either side of said recess, a key provided with a tongue upon one side thereof and a groove upon the other, said key and the aforesaid clamps engaging the base of the rail to lock it in position, substantially as described.

3. A metallic railroad tie formed of a single piece of material with a longitudinal opening therethrough and having dovetailed recesses extending transversely of the face of the tie, each of said recesses being narrower at one edge of the tie than at the other, oppositely facing clamping members formed integrally with the tie, one of said clamping members engaging one side of the base of each rail, two keys each having a groove to engage the opposite side of each rail base, said keys being locked to the tie in the above mentioned dovetailed recesses and extending under one half the rail base, and means for locking the keys against displacement, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EDWARD H. FRANK.

Witnesses:

HOMER GILLET,
O. V. PARKINSON.