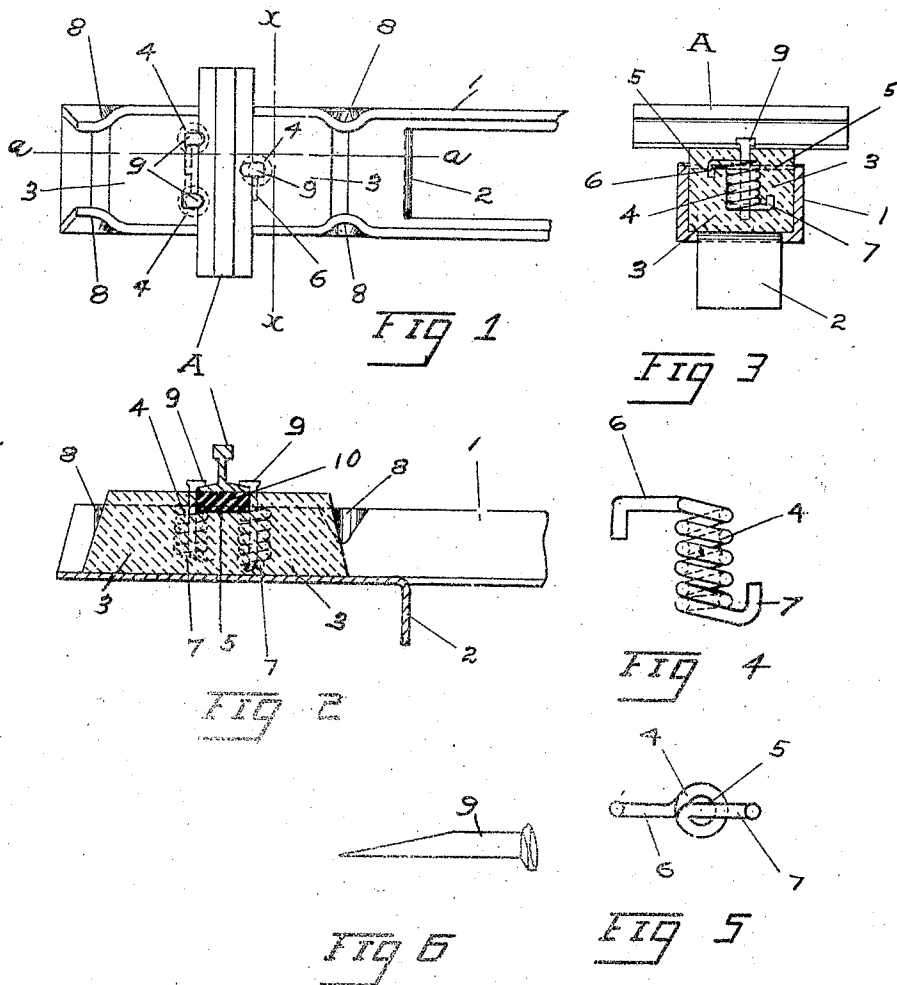


A. C. CANDLAND.
RAILWAY TIE AND FASTENER.
APPLICATION FILED SEPT. 9, 1911.

1,025,450.

Patented May 7, 1912.



WITNESSES.
F. L. Horsfield.
F. W. Thomas.

Arthur C. Candland.
INVENTOR

By J. M. Thomas
ATTORNEY

UNITED STATES PATENT OFFICE.

ARTHUR C. CANDLAND, OF PROVO, UTAH.

RAILWAY-TIE AND FASTENER.

1,025,450.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed September 9, 1911. Serial No. 648,541.

To all whom it may concern:

Be it known that I, ARTHUR C. CANDLAND, a citizen of the United States, residing at Provo, in the county of Utah and State of Utah, have invented certain new and useful Improvements in Railway-Ties and Fasteners, of which the following is a specification.

My invention relates to railway ties and fasteners, and my purpose is to provide a metal tie, light in weight and having a broad bearing surface, and within each end portion of which is secured a concrete block having apertures therein to receive and hold the spike with which the rails are fastened to the tie, and a cushion retaining recess within which may be interposed an insulating block or buffer.

These objects I attain with the device illustrated in the accompanying drawings in which similar letters of reference indicate like parts throughout the several figures, and as described in the specification hereinafter, it being understood that slight variations may be made in the construction of the several parts of my device, within the scope of the claims, without departing from the spirit of my invention.

Figure 1 is a plan view of one end of my tie with a portion of a rail thereon. Fig. 2 is a longitudinal section of the same. Fig. 3 is a transverse section on line $x-x$ Fig. 1. Fig. 4 is an elevation of a spiral gripping element. Fig. 5 is a plan of the same. Fig. 6 is a side elevation of the spike.

My tie is made from a single piece of metal into the form of an upturned open channel 1, having the intermediate portion cut and bent down to form depending lugs 2, which lugs are to be embedded in the road-bed to retain the tie in place thereon. Within each end portion of said channel 1, is formed of plastic concrete a block 3, which block has portions thereof extended above the sides of said channel 1. The said upwardly extended portions of said block 3 forms on each of said blocks a transverse recess 5, the bottoms of which recess is slightly below the upper edges of the sides of said channel 1. Within the plastic material, before the same sets or hardens, is placed spiral springs 4, having one end of the wire from which the spring is wound bent at right angles to the axis of the said spring and extended diametrically from said axis. The other end of said wire is

bent diametrically across the opening or axis of said spiral spring. The said spiral springs are placed vertically in said concrete, spaced apart with room enough between them to receive the bottom flange or base of a rail, and with the end of the spring having the diametrically extended portion 6 uppermost and barely embedded in said concrete, and with the end 7 after extending across the bottom opening of said spring 4 extended and embedded in said concrete above the bottom thereof. The purpose of the said extended portions being to firmly secure said spiral spring within said concrete, and by having the bottom extension 7 of said spring cross the said opening it forms such a closure for that end as will prevent the said concrete from entering within the said opening and will leave it unobstructed to receive the spike 9. Another purpose of so having the said bottom extension 7 cross the opening within said spiral spring is that the point of said spike 9 being lighter or thinner will strike the said portion 7 of said spring and be deflected and bent to one side and thereby clench the said spike within said opening. To prevent said concrete blocks from longitudinal slipping within and vertical removal from said channel the sides of the said channel 1 are indented or bent inward, as shown at 8, at each end of each of said blocks 3. Within each of said recesses 5 in said blocks 3 is fitted a block or strip of insulating material 10, which will serve both as an insulator and as a cushion for the rail A that is secured thereover. The insulator and cushion 10, may be made of any suitable material such as rubber, asphalt, gilsonite or a block of wood or fiber covered with gilsonite or asphalt.

The concrete blocks 3 are made of crushed stone, gravel, sand and some binder such as cement or asphalt.

Having thus described my invention I desire to secure by Letters Patent and claim:—

1. A railway tie and fastener consisting of an upturned metal channel having its sides creased inwardly at the upper edges, a concrete block formed of plastic material within each end of said channel, a transverse recess in each block, and a cushion block adapted to fit closely within each of said recesses.

2. A railway tie and fastener consisting of an upturned metal channel having the

middle portion of the bottom cut out and its sides creased inwardly at the upper edges, a concrete block formed of plastic material within each end portion of said channel, a
 5 transverse recess in the upper side of each of said blocks having its bottom below the upper edge of said metal channel, and a cushion block closely fitted in each recess.

3. A railway tie and fastener consisting
 10 of two concrete blocks formed of plastic material each within the end portion of an up-turned metal channel, a transverse recess in the upper side of each block, spiral springs vertically embedded within each of said
 15 blocks adjacent said recesses each of said springs formed into a cylinder with a portion of the spring material forming a closure for the bottom of said cylinder, and a cushion block in each of said recesses.

20 4. A railway tie and fastener consisting of two concrete blocks formed of plastic material each within the end portion of an up-turned metal channel, a transverse recess in the upper side of each block, spirally formed

cylinders vertically embedded in said blocks 25 adjacent said recesses, a closure for the bottom of said cylinders consisting of a portion of the material of which said cylinders are formed bent diametrically thereacross, and a spike having a thin wedgelike point 30 adapted to fit closely within said cylinders.

5. A railway tie and fasteners consisting of two concrete blocks, a transverse recess in the upper side of each, spirally formed cylinders vertically embedded in each of said 35 blocks adjacent said recesses and with a portion of the material from which said cylinders are formed bent diametrically across the bottom of said cylinders, a spike having a thin wedge-like point adapted to fit closely 40 within said cylinders, and a cushion block adapted to fit within said recesses.

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

ARTHUR C. CANDLAND.

Witnesses:

SAM RANEX,

FRANK THOMAS.