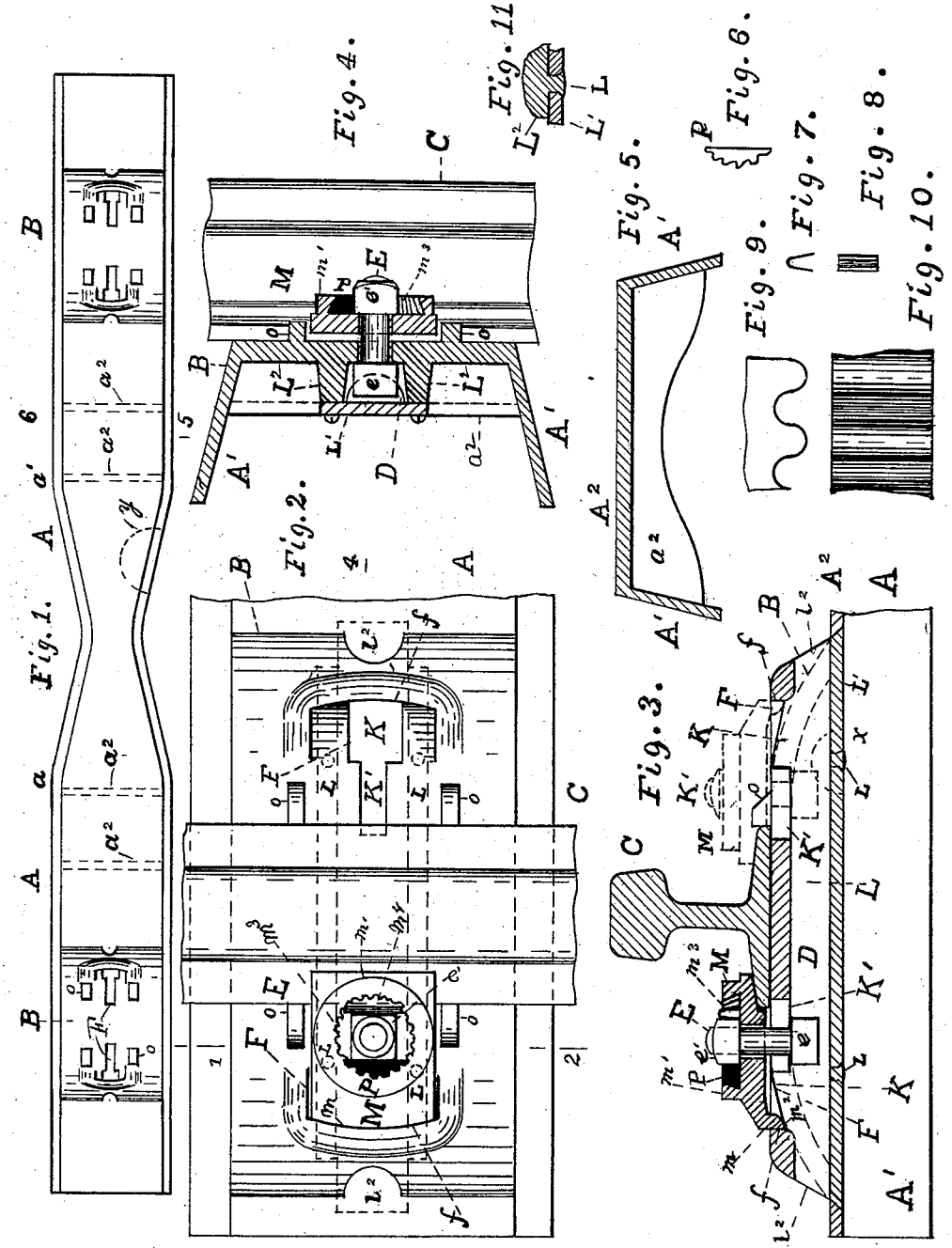
(No Model.)

J. L. CHAPMAN.

RAILROAD TIE AND FASTENING.

No. 486,628. Patented Nov. 22, 1892.



WITNESSES:
Calvin L. Fulton
Jacob F. Goetzinger

INVENTOR
Joseph L. Chapman
by
Allen McLaughlin
his attorney.

UNITED STATES PATENT OFFICE.

JOSEPH L. CHAPMAN, OF HADDONFIELD, NEW JERSEY.

RAILROAD-TIE AND FASTENING.

SPECIFICATION forming part of Letters Patent No. 486,628, dated November 22, 1892.

Application filed December 23, 1891. Serial No. 415,968. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. CHAPMAN, a citizen of the United States, residing at Haddonfield, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Railroad-Ties and in the Mode of Securing the Rails to the 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The objects of my invention are, first, to construct a tie of such form as to keep it firmly in position after the dirt has been placed around it, preventing it from moving or creeping and to allow it to be cast without cores; second, to provide a recess for the block-clamps and a chamber for the heads of the bolts; third, to construct the block-clamps with their outer edges convexed and provide means for locking the nut of the bolt.

The nature of my invention will be fully apparent from the following specification and claims:

Figure 1 is a plan of the tie, the rail, clamp, and bolt omitted. Fig. 2 is an enlarged view of one end of the tie, showing a rail and one clamp and bolt. Fig. 3 is a longitudinal section on line 3 4, Fig. 2. Fig. 4 is a cross-section on the line 1 2, Fig. 2. Fig. 5 is a cross-section on line 5 6, Fig. 1. Fig. 6 is a plan of a rubber locking-piece for the nut e'. Fig. 7 is a plan of a steel locking-piece. Fig. 8 is an end view of the same. Fig. 9 is a plan of a portion of the tie at the point indicated by dotted lines at y, Fig. 1, showing that the sides could be corrugated. Fig. 10 is a side elevation of Fig. 9. Fig. 11 is a section of a portion of plate L′ and projection L, indicated by dotted lines at x, Fig. 3, showing that rivet L is cast upon and is a part of projection L.

Similar letters refer to similar parts throughout the several views.

A, Fig. 1, is the tie, which has depending sides A′, Figs. 3, 4, and 5, which are connected by the ribs a^2, Fig. 1, and are at an angle with the top A^2. (More plainly shown in Fig. 5.) The tie is made straight for any desired distance from each of its ends toward the center, (indicated in Fig. 1 by a a',) from which points the tie is tapered to the center, where it is narrowest, giving it a form which will allow the dirt placed around it to secure it from motion or creeping lengthwise of the tie. The ribs a^2 not only strengthen the tie and keep it from spreading, but assist in preventing the tie from creeping. At a suitable point or distance from the center of the tie, according to the gage, the top is raised near each end, as shown at B B, Fig. 1, and is given a curved shape. (Shown in dotted lines in Fig. 3.) This gives a bearing for the rail C and forms the chamber D for the bolt-head e of the bolt E, Figs. 3 and 4. The raised surface B has the recesses F F for the clamps M M, one of which is shown in dotted lines in Fig. 3, the inner edge f of which is concaved and has the opening K to allow the bolt-head e of the bolt E to pass into the chamber D. The said opening K terminates in a slot K′ to receive the body of the bolt E, and the two lugs L^2 L^2 depend from B to form the sides of the chamber D and have cast upon their lower edge the projections L L, Fig. 3, (shown at L L L L, Fig. 2, in dotted lines, and more plainly in Fig. 11.) These projections are used as rivets to secure the plate L′, which is cast with holes to receive the projections to the lugs L^2 L^2, forming the bottom of the chamber D. Screws could be used, as shown in Fig. 4; but I prefer the projections L L. l^2 l^2 are openings into the chamber D to allow the water which may find its way into the said chamber to escape.

The clamps M M, Figs. 2, 3, and 4, one of which is shown in dotted lines to allow the recess F, lug o, and opening K to be shown more clearly, have their outer edge m convexed to fit the concaved inner edge f of the recess F, and extend below the body of the clamp to give bearing-surface, as shown at m^2, Fig. 3. The clamp M has a hole cast in it for the bolt E, and also upon its upper surface a ring m', whose inner surface is corrugated or rough, as shown at M^3, Figs. 2 and 3, and forms a circular pocket around said bolt-hole, the upper diameter of which is smaller than its lower diameter, giving it a conical form, Figs. 3 and 4. The guide-lugs o o o o, Figs. 2, 3, and 4, are cast upon the

surface B to facilitate the placing of the rails in position.

After the ties have been placed in the ground the rails are laid between the guide-lugs, which gives to them their true position without measurement or trial. The bolts E are or may have been previously placed in position by passing their heads through the opening K into the chamber D, the head *e* resting on the bottom of said chamber, which holds it in position. Said chamber not only serves to hold the bolts in position, but keeps them free from dirt. The clamps are then passed over the bolts and placed in the recesses F F with their convexed edge *m* in contact with the concaved edge *f* of the recess F. This allows the clamp to adjust itself to any irregularity, such as a short bend in the rail C, or where the rails are laid to form a curve in the road. The opposite end of the clamp rests upon the rail. The nut *e'* of the bolt E is then screwed on, clamping the rail securely in position. To lock the nut to prevent its being jarred loose and in turn loosening the rail, the rubber locking-piece P, Fig. 6, is then placed in the recess M^3, alongside of the nut *e'*, as shown in Fig. 2, which prevents the nut from turning. Said recess being conical, the rubber expands back to its normal size after it is pushed below the upper diameter, which is smaller than the lower one, filling the larger space, as shown in Figs. 3 and 4, which prevents its being displaced or jarred out, thus securely locking the nut *e'* on bolt E. The steel locking-piece, Figs. 7 and 8, can be employed in the same manner as shown at m^4, Fig. 2.

I show rubber and steel for locking-pieces; but wood, vulcanized fiber, or any other suitable material may be employed. I used a clamp in my metal tie patented August 14, 1883, which was constructed with its outer edge and the inner edge of the recess to receive it on a straight line. This construction is much improved by my curved clamp and recess. The angular sides A may be corrugated, as shown in Figs. 9 and 10, to further strengthen and prevent the movement of the tie.

What I claim as my invention is—

1. The cast tie A, with the raised surfaces B B near each of its ends, respectively, said raised surfaces being provided with guide-lugs *o o o o* and clamp-recesses F F, with opening K, terminating in slot K' and in chamber D and tapering from points *a a'* toward the center, where it is the narrowest, substantially as shown.

2. The cast tie A, with its surface A^2 raised at B B, where it is provided with guide-lugs *o o o o*, clamp-recesses F F, concaved on their inner edges *f f*, and the opening K K to allow the passage of bolt-head *e* of bolt E, said opening terminating in slot K' to receive the body of bolt E, and the depending lugs L^2 L^2, having cast upon their lower edge the riveting projections L L, in combination with the plate L', substantially as shown.

3. In a cast tie, the raised surface B B, provided with clamp-recesses F F, having their inner edges *f* concaved, opening K to allow bolt-head *e* to pass, terminating in slot K' for the body of bolt E, clamp M, having its convexed edge *m* bearing against the concaved surface of edge *f* of recess F, and bolt E with its nut *e'*, in combination with the rail C, substantially as described.

4. In a cast tie, the raised surface B B, provided with guide-lugs *o o o o*, clamp-recesses F F, having their inner edge *f* concaved, opening K to allow bolt-head *e* to pass, terminating in slot K' for the body of the bolt E, with clamp M in recess F, having its convexed edge *m* bearing against the concaved surface of the edge *f* of recess F, and bolt E with its nut *e'*, in combination with the rail C, substantially as shown and described.

5. The clamp M, provided with a bolt-hole, having a ring *m'* cast upon its upper surface, with the inner surface m^3 of said ring corrugated or rough, its upper diameter being smaller than its lower diameter, forming a conical shape, and a circular pocket around said bolt-hole, in combination with the nut *e'* of bolt E and a locking-piece P, substantially as shown.

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

JOSEPH L. CHAPMAN.

Witnesses:

CALVIN L. FULTON,

JACOB F. GOEHRING.