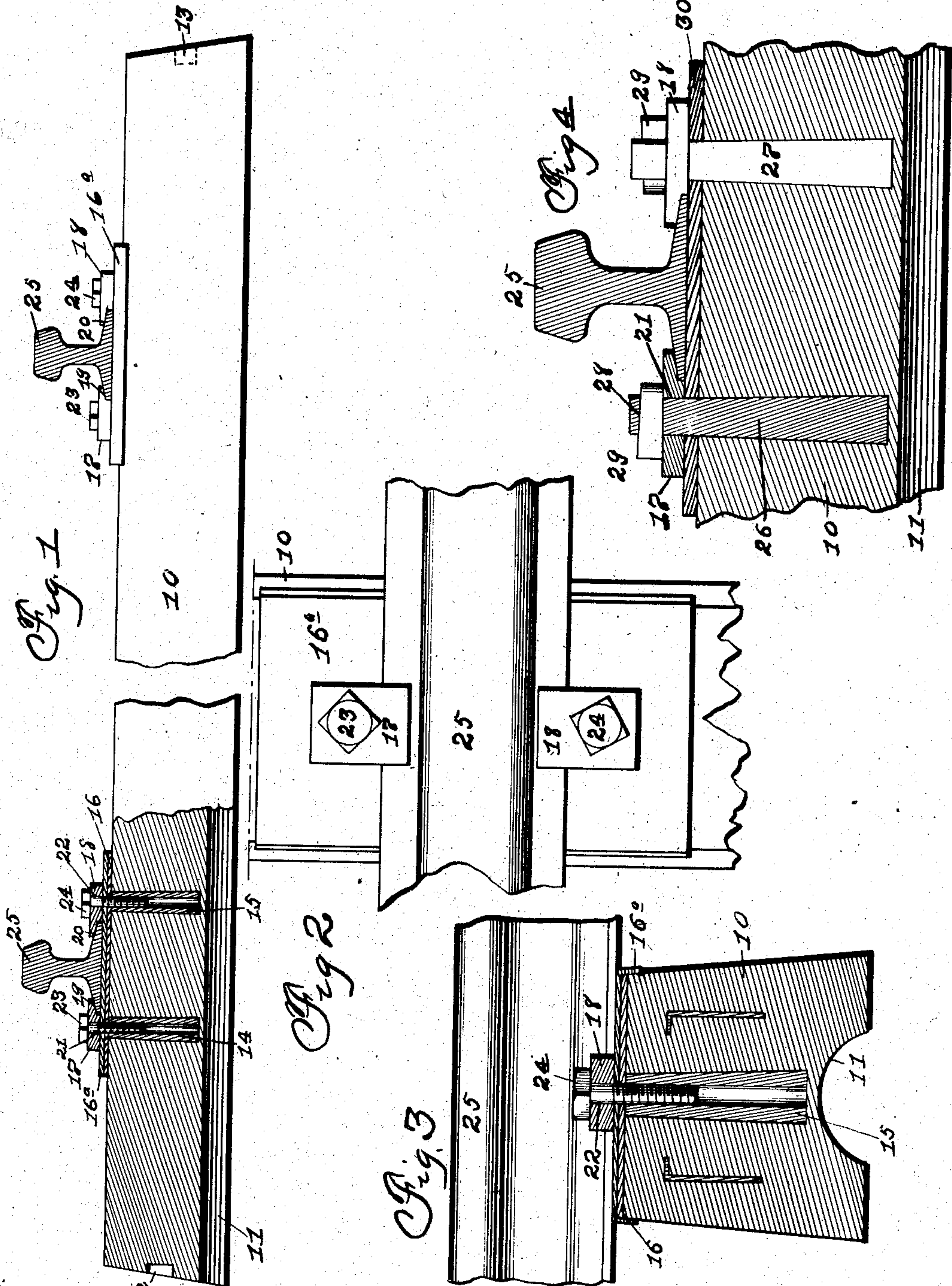


No. 827,436.

PATENTED JULY 31, 1906.

R. FULLERTON.
CEMENT RAILROAD TIE AND RAIL FASTENER.
APPLICATION FILED NOV. 18, 1905.



Witnesses
R. H. Leibock.
B. M. Sedgwick.

Inventor Robert Fullerton
By Jell & Co. atty

UNITED STATES PATENT OFFICE.

ROBERT FULLERTON, OF DES MOINES, IOWA.

CEMENT RAILROAD-TIE AND RAIL-FASTENER.

No. 827,436.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed November 18, 1905. Serial No. 288,058.

To all whom it may concern:

Be it known that I, ROBERT FULLERTON, a citizen of the United States, residing at Des Moines, county of Polk, and State of Iowa, have invented a new and useful Improvement in Cement Railroad-Ties and Rail-Fasteners, of which the following is a specification.

The object of my invention is to provide a strong, durable, and inexpensive railroad-tie provided with a means of securely clamping the rails thereon. In attaining this object I construct my tie of cement and gravel, and I have provided a means of securing the rails to the said tie in such a manner as to give it the necessary vibration to cause the train to ride easily and to diminish the possibility of the grinding wear on the solid tie.

My invention consists of certain details of construction hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure I shows a longitudinal elevation view of my device, a part of the central portion of the tie being removed and one end of the tie being in section and revealing also in section the rail-securing device which I employ. Fig. II shows a plan view of a portion of a rail and a portion of the tie I employ. Fig. III shows a transverse sectional view of the tie, the rail being shown in elevation secured thereto. Fig. IV shows a detailed sectional view of a modification which I employ.

Referring to the accompanying drawings, the numeral 10 is used to indicate the tie I employ, the said tie being molded of cement or some other plastic substance, the two longitudinal sides and the two ends thereof being beveled. Centrally located and extending longitudinally the entire distance of the under surface of the said tie I have provided a recess 11, and centrally located in each end of the tie I have provided recesses 12 and 13, respectively. Centrally located and near each end of the tie I have embedded in the cement two hollow shafts 14 and 15, said shafts being internally screw-threaded and being embedded in the said cement in such a manner as to cause one of them to be in a position on each side of the flange of each of the rails when the rails are placed in position for the track. The said hollow shafts are slightly elliptical in cross-section and larger at one end than at the other, the larger end being downward and the upper portion of the said

hollow shaft being exposed at the top of the tie.

The numeral 16 indicates a sheet of wool felt saturated with asphaltum, and the numeral 16^a indicates a plate designed as a covering for the wool-felt strip, said plate being provided with two orifices, one designed to be located immediately above and in line with the internally-screw-threaded hollow portion of each of the said hollow shafts.

The numerals 17 and 18 indicate companion plates, each being provided in the forward portion of its under surface with a shoulder 19 and 20, respectively, and the numerals 21 and 22 indicate orifices, one located centrally in each of said plates and designed to be in line with its respective internally-screw-threaded hollow shaft located thereunder.

The numerals 23 and 24 indicate bolts, each being provided with a square head, said bolts being designed to engage the screw-threads in the hollow shafts 14 and 15, respectively.

The numeral 25 indicates the rail.

In the modified form as shown in Fig. IV I used square shafts 26 and 27 in place of the hollow shafts 14 and 15, said square shafts being constructed, preferably, of wood and designed to extend upwardly through the companion plates 17 and 18, and extending transversely through the upper portion of each of the said shafts I have provided a rectangular orifice 28, said orifice having its top surface inclined downwardly from the outer portion of the shaft and adapted to receive a wedge 29. Between the rails and the tie I have provided cushion-plates 30, said plates being provided with orifices through which the square shafts are designed to pass. These cushion-plates may also be substituted for the asphaltum strip and metal plate employed in my principal means, as described.

In securing the rails to the tie in the formation of the track the strip of wool felt 16 is placed immediately over the tie and is perforated where it comes in contact with the upper portion of the hollow shafts. The plate 16^a is then placed immediately on top of the said strip of wool felt, the said plate being provided with orifices to coincide with the orifices in a strip of wool felt, as stated. The securing-plates 17 and 18 are then placed in position, the shoulders 19 and 20 each engaging one of the flanges of the rail. The bolts 23 and 24 are then passed through

their respective orifices in the plates 17 and 18, respectively, the orifices in the plate 16^a and their respective orifices in the wool-felt strip 16 until they engage the hollow shafts 14 and 15, respectively, when they are screwed into position, thus obviously clamping the rail to the tie. In using hollow shafts larger at their base than at their top it is obvious that they will be firmly embedded in the cement and will successfully resist the upward pressure which is caused by the clamping of the bolts therein. The hollow shafts which I employ are of a sufficient length so that when they are embedded in the tie they extend very nearly through the cement, so that there is a slight layer of cement between the base of the tie and the base of the hollow shaft. The object of this is that should the screw-threads in one of the shafts become weakened the shaft can be easily replaced by removing the rail, forcing the hollow shaft downward through the thin layer of cement at its base, inserting from the base a new hollow shaft, and then re-menting the bottom of the tie. The purpose of the recesses 12 and 13 in the ends of the tie is for convenience in handling by use of a derrick on a construction-train.

In the modified form it is obvious that when the wedges 29 are driven through the orifices 28 they will firmly hold and bind the plates 17 and 18 to the flange of the rail. When the wedges have been properly driven in place, the inner side of each wedge is tapped with a hammer and turned so that it may not become loosened.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A railroad-tie and rail-fastener comprising in combination a tie molded from a plastic substance, a recess centrally located in each end of said tie; internally-screw-thread-

ed hollow shafts embedded in said tie their upper ends exposed, two strips of wool felt saturated with asphaltum, companion openings in said wool-felt strips designed to engage the hollow shafts; a plate designed to cover each of said strips of wool felt each of said plates being provided with orifices designed to engage the companion openings in the wool-felt strips; a second plate provided with a shoulder designed to engage the flange of the rail, engaging and covering each of the openings in the said first plate, an orifice in each of said second plates, a nut-headed bolt with a screw-threaded shank designed to engage and pass through the opening in the second plate, the opening in the first plate, the opening in the wool-felt strip and enter into and be secured by the internally-screw-threaded hollow shaft all arranged and combined substantially as stated.

2. A railroad-tie and rail-fastener comprising in combination a tie molded from a plastic substance, a recess centrally located in each end of said tie; internally-screw-threaded hollow shafts embedded in said tie their upper ends exposed; two cushion-plates each being provided with two orifices; a second plate provided with a shoulder designed to engage the flange of the rail, engaging and covering each of the openings in the said first plate, an orifice in each of said second plates, a nut-headed bolt with a screw-threaded shank designed to engage and pass through the opening in the second plate, the opening in the first plate, the opening in the wool-felt strip and enter into and be secured by the internally-screw-threaded hollow shaft all arranged and combined substantially as stated.

ROBERT FULLERTON.

Witnesses:

J. CHASE ROE.

B. M. SEDGWICK.