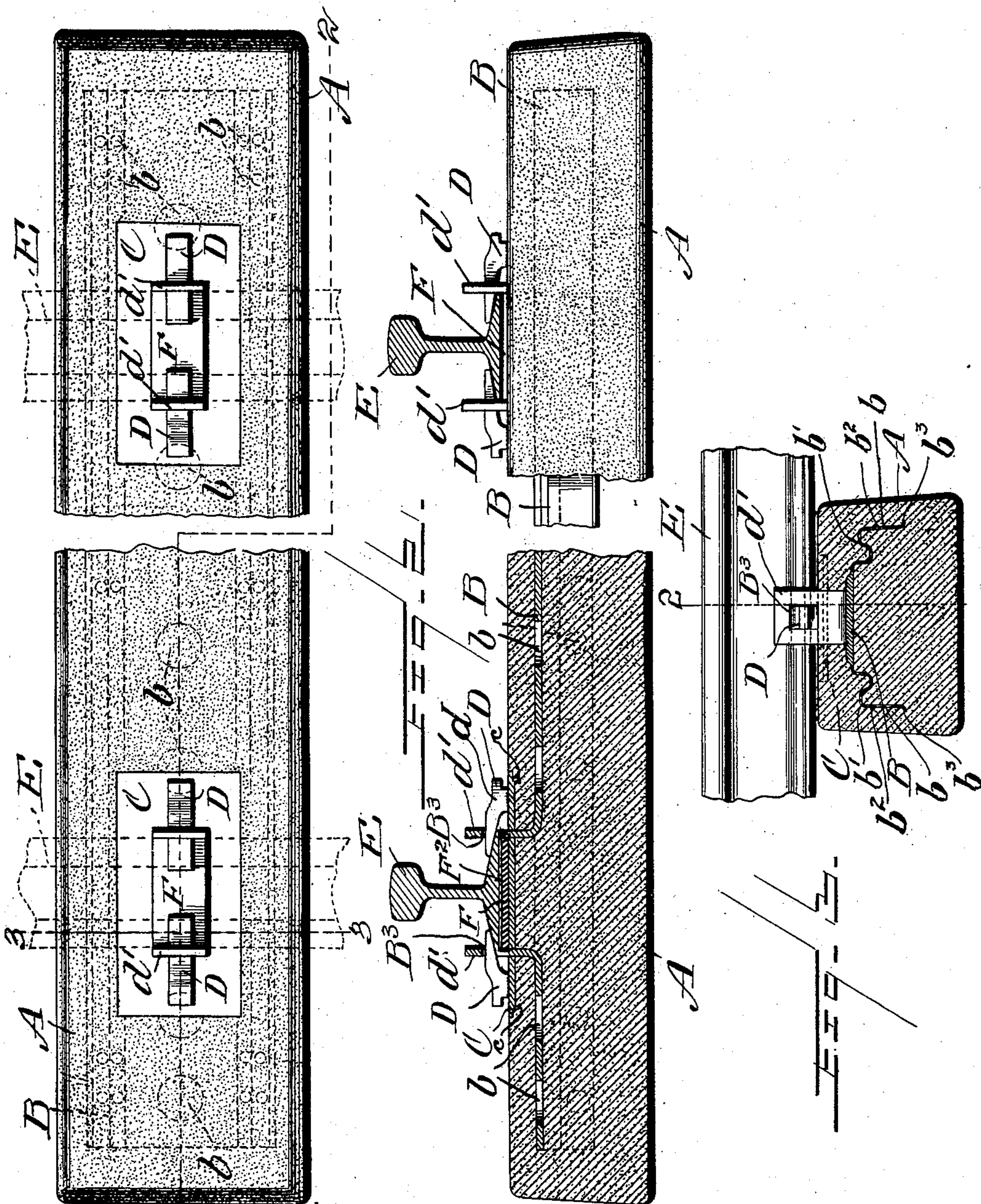


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PATENTED MAY 3, 1904.

L. & M. J. BEEZER.
CONCRETE RAILWAY TIE.
APPLICATION FILED JUNE 8, 1903.

NO MODEL.



WITNESSES.

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UNITED STATES PATENT OFFICE.

LOUIS BEEZER AND MICHAEL J. BEEZER, OF PITTSBURG, PENNSYLVANIA.

CONCRETE RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 758,612, dated May 3, 1904.

Application filed June 8, 1903. Serial No. 160,450. (No model.)

To all whom it may concern:

Be it known that we, LOUIS BEEZER and MICHAEL J. BEEZER, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Concrete Railway-Ties, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a plan view of our invention with the central portion removed. Fig. 2 is a longitudinal section taken on the line 2 of Fig. 3 and through the rail E immediately in front of the tie A of the left-hand portion of Fig. 1. Fig. 3 is vertical cross-section through the tie flush with the outer side of one of the flanges d' of the other figures.

Our invention relates to railway appliances, and more particularly to railway-ties and rail-fastening devices.

It is the object of our invention to provide a substitute for the common wooden ties, which owing to the scarcity of suitable wood and their increasing cost must give way to an article cheaper to maintain. We have devised a tie which is not only cheaper, but one which will last much longer than a wooden tie and is practically indestructible. Our tie being thoroughly waterproofed will not be affected by frost or water, and the parts are so strongly united that they will not become broken or separated. We also give the rails a suitable elastic bed, which not only makes the trains less noisy and less injurious to the rolling-stock, but also prevents to a large degree the pounding action of the car-wheels from being transmitted so suddenly to the concrete portion of the ties, the result being that the ties will not be so liable to be cracked or broken.

Referring to the drawings, A represents the tie as a whole, having preferably a rectangular base, the sides and ends tapering upwardly, so that the top has a somewhat less area than the base, thus increasing the bed or bearing surface of the tie. The inclined sides and ends, either being regarded as a lateral surface, enable the tie to take hold and become locked within ballast better than if they were

vertical, because the ballast on this portion transmits its weight to the tie and any movement of the tie will tend to keep it beneath the ballast, the bottom edge acting like a plow-point or a cultivator-tooth. If preferred, only the sides or only the ends may be tapered.

The tie A is made mostly of slag, cement, concrete, or of other plastic materials and has embedded in it at its formation the plate B, made preferably of steel. This plate has a number of holes b through it, so that the concrete will run through them and lock the plate tightly in place within the concrete and unite as large a portion of the concrete as possible together along the plane occupied by the plate. If the holes were not made, the portions of the concrete on opposite sides of the plate would have a very large area entirely separated, and there would thus be lines and planes of weakness next to the plate where the concrete might become broken; but when the holes are made the concrete binds together, through the holes, a large portion of the said lines and planes. The steel plate B extends nearly the whole length of the tie, as shown in Fig. 2, and has lateral portions bent into a wavy or S shape b' , whose outer edges are connected to downwardly turned or flanged portions b^2 thereof. The bottoms of the flanges b' have outwardly-extending flanges or foot portions b^3 . The parts b' , b^2 , and b^3 are provided with the holes b . The S-shaped portion b' and the flanges b^2 stiffen the plate against movement in the tie and also provide a series of holes b in more planes or lines, so that the strain on one portion of the plate will not be transmitted so largely to all other parts.

Embedded in the top of the tie is a metal plate C, preferably flush with the top of the tie and provided with curved flanges c on its under side to enable the plate to hold securely to the concrete and to prevent any lateral movement.

The top portion of the steel plate B beneath the rails E is formed into four upwardly-bent tongues d' , which extend through the plate C and lie against the flanges of the rail, as shown on Figs. 1 and 2.

Beneath the rail E and between the tongues d' we preferably place a cushion of compressed cork, covered with a flanged plate F^2 , to give resiliency or elasticity to the solid-tie construction.

The tongues d' are provided just above the flanges of the rails with the holes B^3 , through which are driven the wedges D. The wedges have a toothed portion d on their lower surfaces near their outer ends. The wedges are driven through the holes B^3 and their inner ends bear upon the rail-flanges, while their toothed portions d slide upon and bite into the plate C, and so prevent the retreat of the wedges.

The concrete we prefer to use is made of slag and cement; but we do not desire to be limited to this composition, as other plastic hardening compositions may be used to accomplish the same result.

Having described our invention, we claim—

1. In a railway-tie, a plastic material, a metal plate supporting upstanding tongues, and wedges extending through said tongues and bearing on the rail-flanges for securely holding the rails.

2. In a railway-tie, a plastic material, a

metal plate embedded therein and supporting upstanding tongues, a metal base-plate between the rails and the plastic material, and wedges extending through the tongues, one end of each wedge bearing on a rail-flange, the other end having a serrated under surface resting on said base-plate.

3. In a railway-tie, a plastic material, a metal plate embedded therein and supporting upstanding tongues, a metal base-plate between the rails and the plastic material an elastic cushion on the base-plate, and wedges extending through the tongues, one end having a serrated under surface resting on said base-plate.

4. In a railway-tie, a plastic material and a U-shaped metal plate embedded therein, portions intermediate the sides of the plate being wavy and said portions and said sides being perforated.

Signed at Pittsburg, Pennsylvania, this 3d day of June, 1903.

LOUIS BEEZER.

MICHAEL J. BEEZER.

Witnesses:

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