

(No Model.)

A. B. B. HARRIS.
RAILROAD TIE PLATE.

No. 560,497.

Patented May 19, 1896.

Fig. 1.

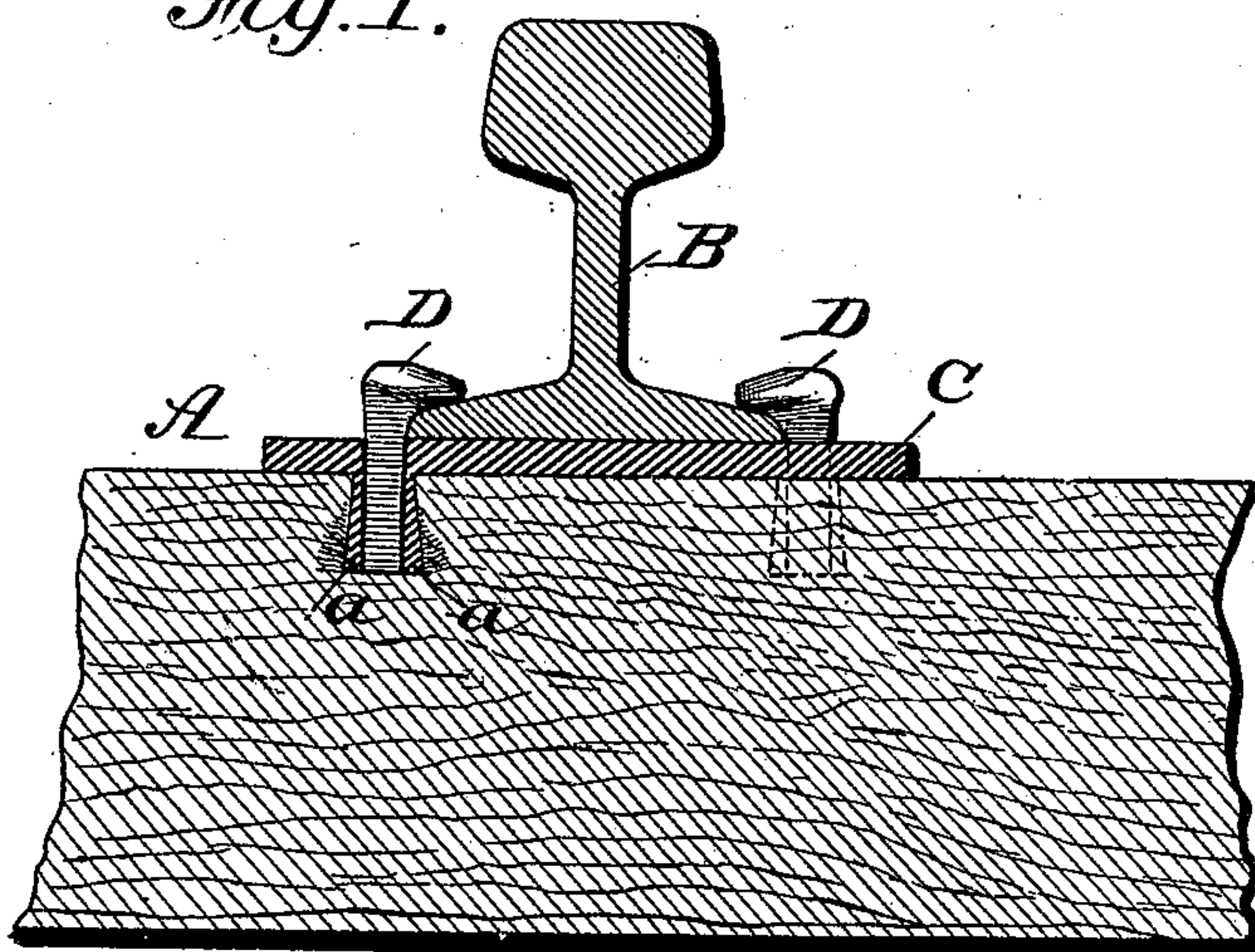


Fig. 2.

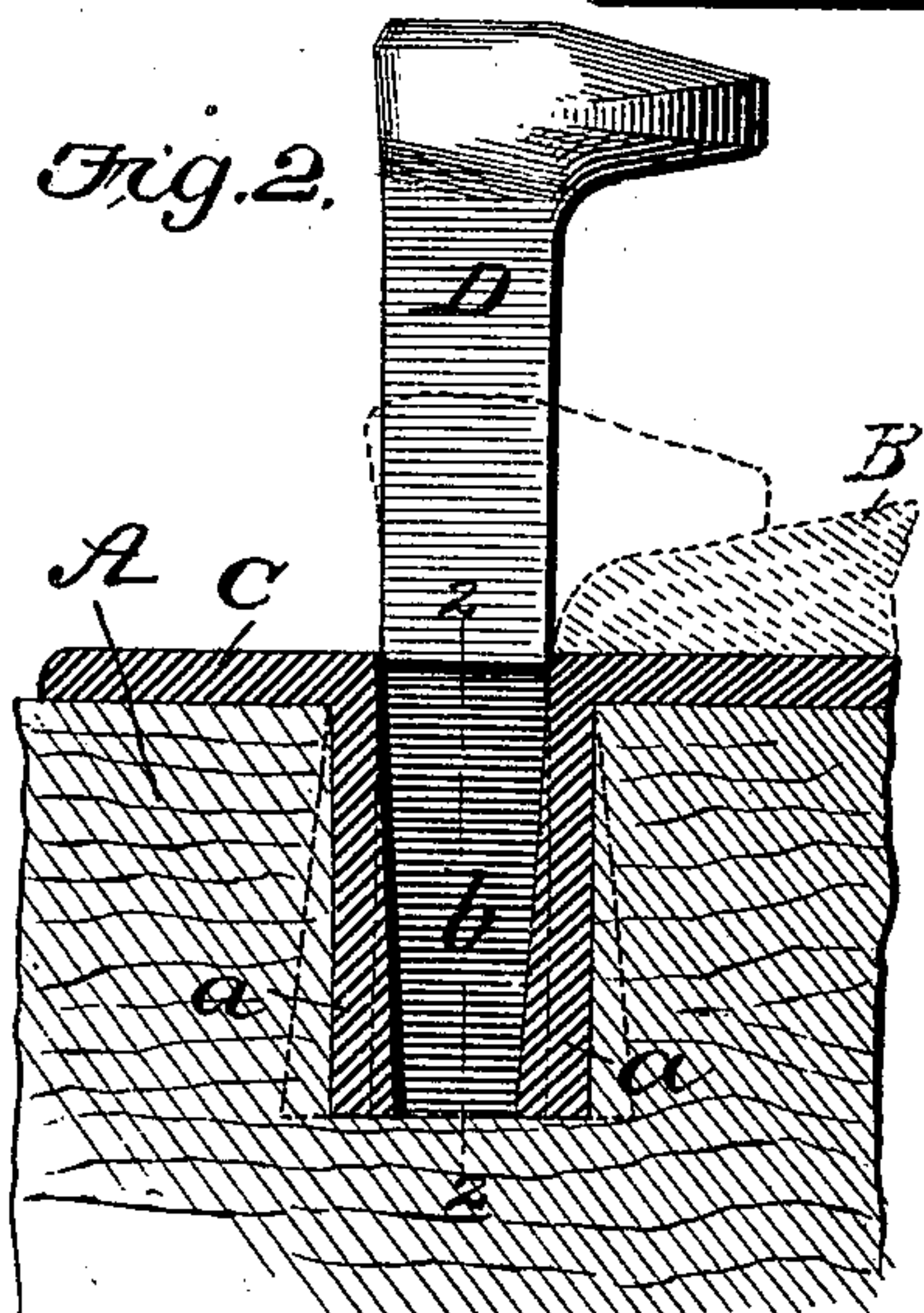


Fig. 3.

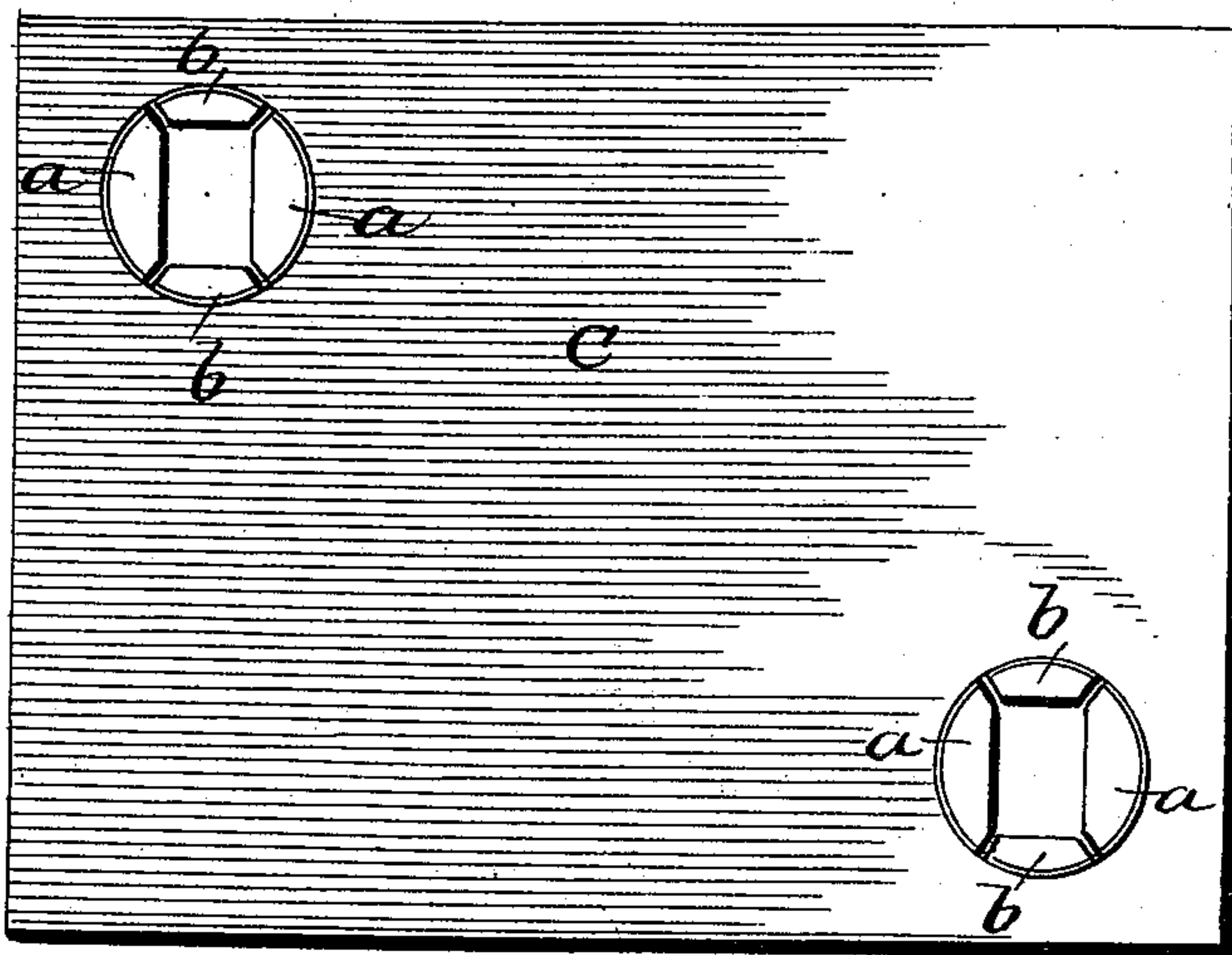
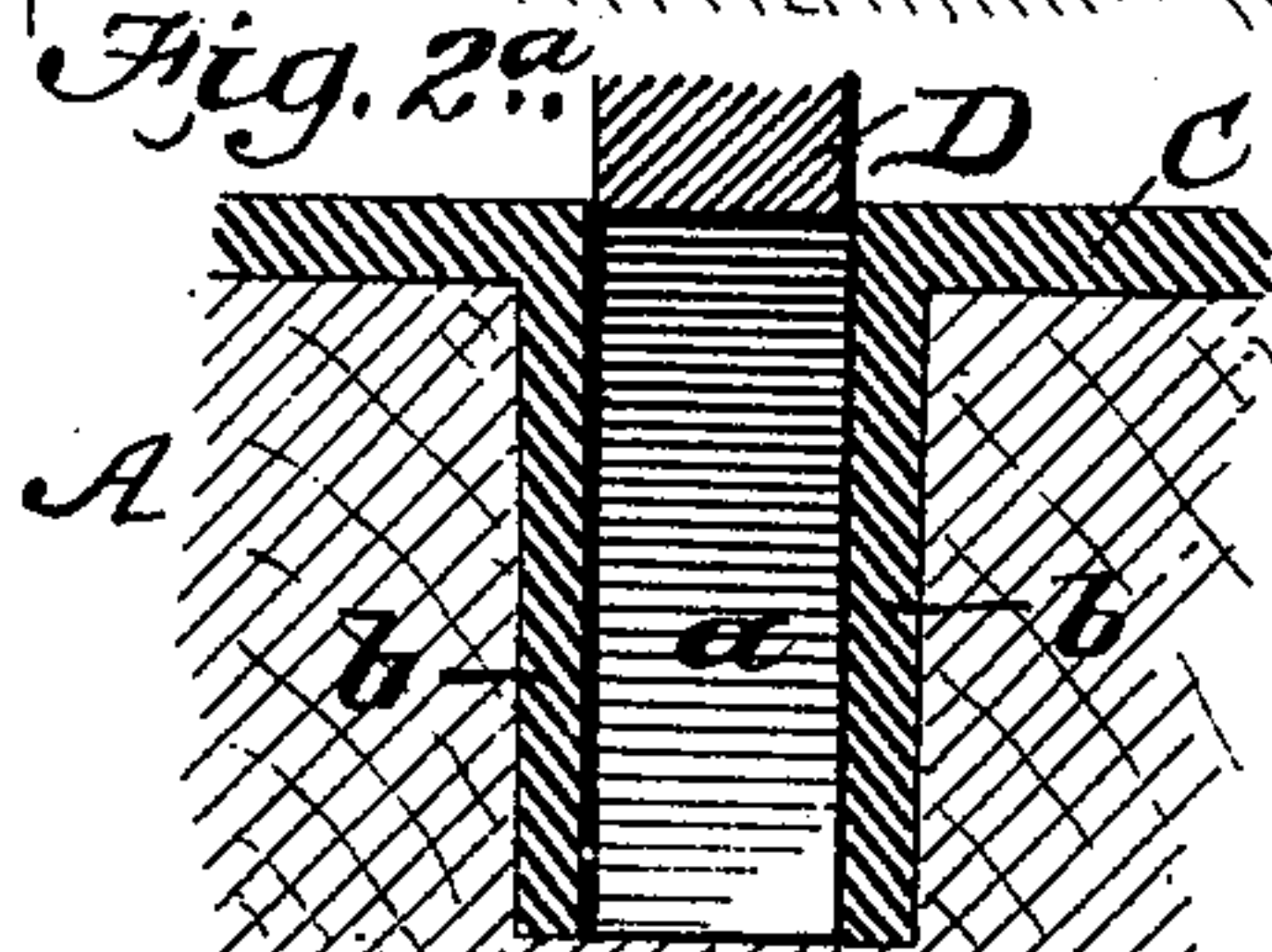


Fig. 2a.



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RAILROAD-TIE PLATE.

SPECIFICATION forming part of Letters Patent No. 560,497, dated May 19, 1896.

Application filed February 11, 1896. Serial No. 578,896. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER B. B. HARRIS, of Bristol, in the county of Sullivan and State of Tennessee, have invented a new and useful Improvement in Railroad-Tie Plates, of which the following is a specification.

In an application for a patent filed May 10, 1895, Serial No. 548,840, allowed August 22, 1895, I have shown and described a railroad-tie plate in which a flat plate adapted to rest upon the top of the tie was formed with spike-holes having around them downwardly-extending tongues or extensions forming a spike-socket made in one piece with the plate and bearing at their lower ends outwardly-projecting toes or flanges, which tongues were designed to enter a bored hole in the tie and when the spike was driven through the plate and between them were expanded in the tie and their toes made to enter the wood and effectually lock the plate to the tie.

My present invention is in the nature of an improvement upon that invention; and it consists in forming the spike-socket with straight cylindrical outer edges without any toe or flange at their lower edges, but making the two opposite tongues which lie in the line of the grain of the wood thicker at their lower ends than they are above, while the other tongues are of the same size below that they are above, so that when the spike is driven it expands the lower edges of the two thickened tongues outwardly in the line of the grain of the wood, but does not expand the others, which would produce a strain transversely to the tie and split the latter.

My invention also consists in changing the form of the spike from an elongated nail adapted to enter the wood of the tie to a short and thick plug, which, while having a spike-head to fasten upon the base of the rail, does not penetrate the wood of the tie, but merely serves when driven between the pendent tongues to expand the latter in the bored hole of the tie and furnishes a very strong body of metal to resist the lateral thrust of the rail and the cutting of the heads of the spikes whenever the car-wheels jump the track, all as hereinafter more fully described.

Figure 1 is a longitudinal section through the tie and tie-plate as secured thereupon and holding the rail. Fig. 2 is an enlarged sec-

tional view of the tie-plate, showing the spike or expanding-plug in its entering position in full lines and in its driven position in dotted lines; and Fig. 2^a is a detail sectional view taken on the line 2 2 of Fig. 2. Fig. 3 is an inverted plan view of the tie-plate.

In the drawings, A represents a wooden cross-tie. B is the rail, and C the tie-plate, which consists of a flat plate of metal cast or otherwise formed with two spike-holes through it of a square form and having depending from the under side of the plate and adjacent to the spike-holes four downwardly-projecting tongues *aa* and *bb*. These tongues together form a substantially cylindrical exterior, being only a trifle smaller in diameter at their lower ends than they are at the top, so as to freely enter a cylindrical bored hole in the tie. Two of these tongues *aa*, which are opposite to each other, are made considerably thicker at their lower ends than they are at their upper ends, while the other tongues, *bb*, are of substantially the same size at their lower ends that they are at the top, where they join onto the plate. This construction of the tongues causes the hole, which is substantially square where it opens through the plate, to be gradually reduced on two sides as it approaches the lower end, so that the opening at said lower end is an elongated rectangular one, as seen in Fig. 3.

D is the expanding-plug. This has the head of a spike, but has a very much thicker body portion than the ordinary spike, and is also much shorter and does not enter the wood of the tie at all, its function being simply, when driven into the square hole of the plate, to expand the tongues *aa* at the bottom and throw their lower ends to an outward flare, as seen in Fig. 1, which tightly wedges these tongues into the wood of the tie and firmly holds the plate down to the tie. These two tongues, which are expanded, lie in the direction of the grain of the wood of the tie, and when expanded simply crowd back the wood against the grain without involving any splitting strain on the tie. The other tongues *bb*, which lie in a line at right angles to the grain, are not substantially affected by the penetration of the plug D, and hence do not involve any splitting strain on the wood. By making the tongues straight on their outer walls

they may be cheaply constructed by casting or otherwise, and by limiting the expansion of the tongues to the line of the grain of the wood a large expansion and riveting action 5 in the wood may be obtained without risk of splitting the tie. By making the spike or plug relatively thicker as compared with the ordinary spike it is made very strong to resist lateral spreading of the rails, and its head 10 is not liable to be cut off by the car-wheels if they should jump the track. By making the spike so that it does not penetrate the wood the weight of metal in the spike is reduced to the same as that used in the ordinary 15 spike and no additional expense over the ordinary spike is involved.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

20 1. A railroad-tie plate having spike-holes through it and provided with four downwardly-projecting tongues formed integrally with the plate, all made with straight outer edges, and the two opposite tongues being 25 made with thicker lower ends, and the alternate ones of uniform thickness forming an opening between them contracting on its two sides toward its lower end substantially as and for the purpose described.

30 2. A railroad-tie plate having spike-holes through it, and provided with four down-

wardly-projecting tongues formed integrally with the plate, all made with straight and substantially cylindrical outer edges, and the two opposite tongues being made with 35 thicker lower ends and the alternate ones of uniform thickness forming an opening between them contracting on its two sides toward its lower end, in combination with a spike having a head to overlap the base of the rail, 40 and a relatively thick and short body portion acting as an expanding-plug without entering the wood of the tie, substantially as shown and described.

3. The combination with the wooden tie, 45 and rail, of a tie-plate having four downwardly-extending tongues about each of its spike-holes, the two tongues which lie in the line of the grain of the tie being made thicker at their lower ends than at the upper ends, 50 and the alternate ones of the same size at top and bottom, and all of said tongues being straight and substantially cylindrical on their outer edges, and a spike-headed expanding-plug fitting the opening in the plate and 55 adapted to expand the alternate tongues substantially as and for the purpose described.

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Witnesses:

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