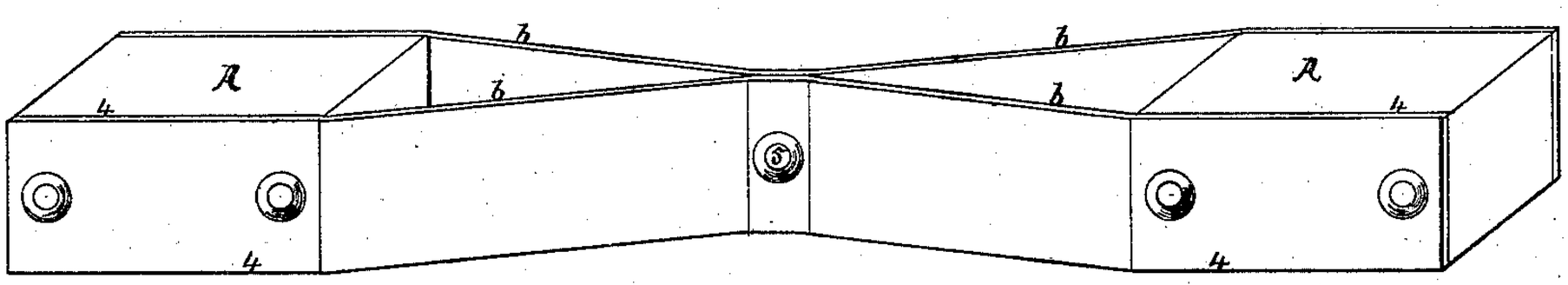
P. S. DEVLAN.

Railroad-Ties.

No. 143,407. Patented Oct. 7, 1873.




WITNESSES:-

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# UNITED STATES PATENT OFFICE.

PATRICK S. DEVLAN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR OF ONE-THIRD HIS RIGHT TO CHARLES BARNUM, OF BROOKLYN, N. Y.

## IMPROVEMENT IN RAILROAD-TIES.

Specification forming part of Letters Patent No. **143,407**, dated October 7, 1873; application filed March 21, 1873.

*To all whom it may concern:*

Be it known that I, PATRICK S. DEVLAN, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Railroad-Tie; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawing which accompanies and forms a part of this specification.

The ties or "sleepers" employed to support and secure the rails upon the road-beds of railroads are almost, if not quite, universally made of wooden logs about six feet in length, and from about six to ten inches in width and depth throughout this length. In order to sustain the rails properly, these ties are required to be placed on an average, say, about sixteen inches apart throughout the entire length of the railway, and at some places in the track are, for short distances, laid still nearer together. The points at which the rails are secured to them are generally about six to ten inches from their respective ends, and the residue of their length, with the exception of a few inches—say four or five—inside of the rails on each side of the road-bed, which are requisite to give sufficient base to secure the rail, is useless for any purpose, except, by its mass and contact with the ground or "ballast" in which it is more or less embedded, to impart stiffness and solidity to the tie, like any other piece of timber—in other words, there are nearly four feet, or about two-thirds of each tie, which are inert, and do not directly contribute to the support of the railroad-rails.

It is manifest that, as an enormous number of the ties are needed for each mile of railway, and as there are in the United States at the present time more than seventy thousand miles of railroad in operation, (not including double track or "sidings,") and over forty thousand more in progress, and as the life of a railroad-tie is on the average only about five years, at the end of which time it requires renewal, the consumption of timber for this purpose—especially in view of the increasing scarcity of timber sources—is becoming a serious matter.

The object of this invention is to provide a railway-tie which shall require the employment of only about one-third of the timber at present needed, while it also has all the requisite solidity and firmness, and at the same time is far more durable than the ordinary tie.

The manner in which I effect these results is to use two blocks or pieces of timber, one of which is to be placed beneath the rail on each side of a railroad-track, and each of which may be about twelve inches in length by about six inches in width and six inches in depth, or of any other desired dimensions which will properly sustain and secure the rails upon the road-bed. These two blocks or end pieces are shown in the drawing at A A, and they are firmly united together by strips or side pieces *b b* of hoop or band iron, or any other suitable material. I prefer to use band-iron about a quarter of an inch in thickness, and of about the same width as the depth of the end pieces, and to rivet or bolt these side pieces firmly to the blocks, as at 4 4 4 4 in the drawing, and also to each other at about the middle of their length, as at 5 in the drawing. Any other substantial and rigid mode of connecting the blocks together by the side pieces will, however, answer the purpose.

Instead of wood for the end pieces, any other material or substance or composition which will serve to properly sustain and secure the rail, and which, like wood, will have sufficient elasticity, may be employed; but wood is probably the cheapest and best. Iron and stone are too rigid, and will not answer the purpose.

The tie is laid and used in the same manner as the ordinary tie, and it will be obvious that while it answers all the purposes of the wholly wooden tie, it dispenses with all the inert portion of the latter, and will long outlast it. The end pieces, when of wood, may, if desired, be "kyanized," or otherwised protected against decay.

One advantage of this improved tie is that, as it requires so little timber for the end pieces, enough material for them may frequently be cut out of wooden ties which have been taken up and discarded.

By the quantity the cost of this tie will not greatly if at all exceed the average price at the

present time of wooden ties, but its superior durability will in the end render it decidedly more economical than the latter.

I am aware that ties made wholly of iron have been proposed, but they do not answer a good purpose. I do not claim any such thing as that, for it is essential to my improvement that the end pieces of my tie should possess sufficient elasticity to make proper bases for the rails to rest upon. It is also essential to my improvement that these somewhat elastic end pieces should be so connected together as to make the whole tie, when in place, strong and firm, and yet to enable me to dispense with substantially the whole of the inert portion of the all-wood tie, as above stated, and thereby secure an important economy over the latter.

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

As a new article of manufacture, the improved railroad-tie, consisting of end blocks or pieces of any material and dimensions which are adapted to support and securely hold the railroad-rails, and which are connected or combined together by strips or side pieces of band or hoop iron, or its equivalent, substantially as and for the purposes set forth.

PATRICK S. DEVLAN.

Witnesses:
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