

(No Model.)

P. REILLY.
RAILWAY BRAKE SHOE.

No. 446,236.

Patented Feb. 10, 1891.

Fig1.

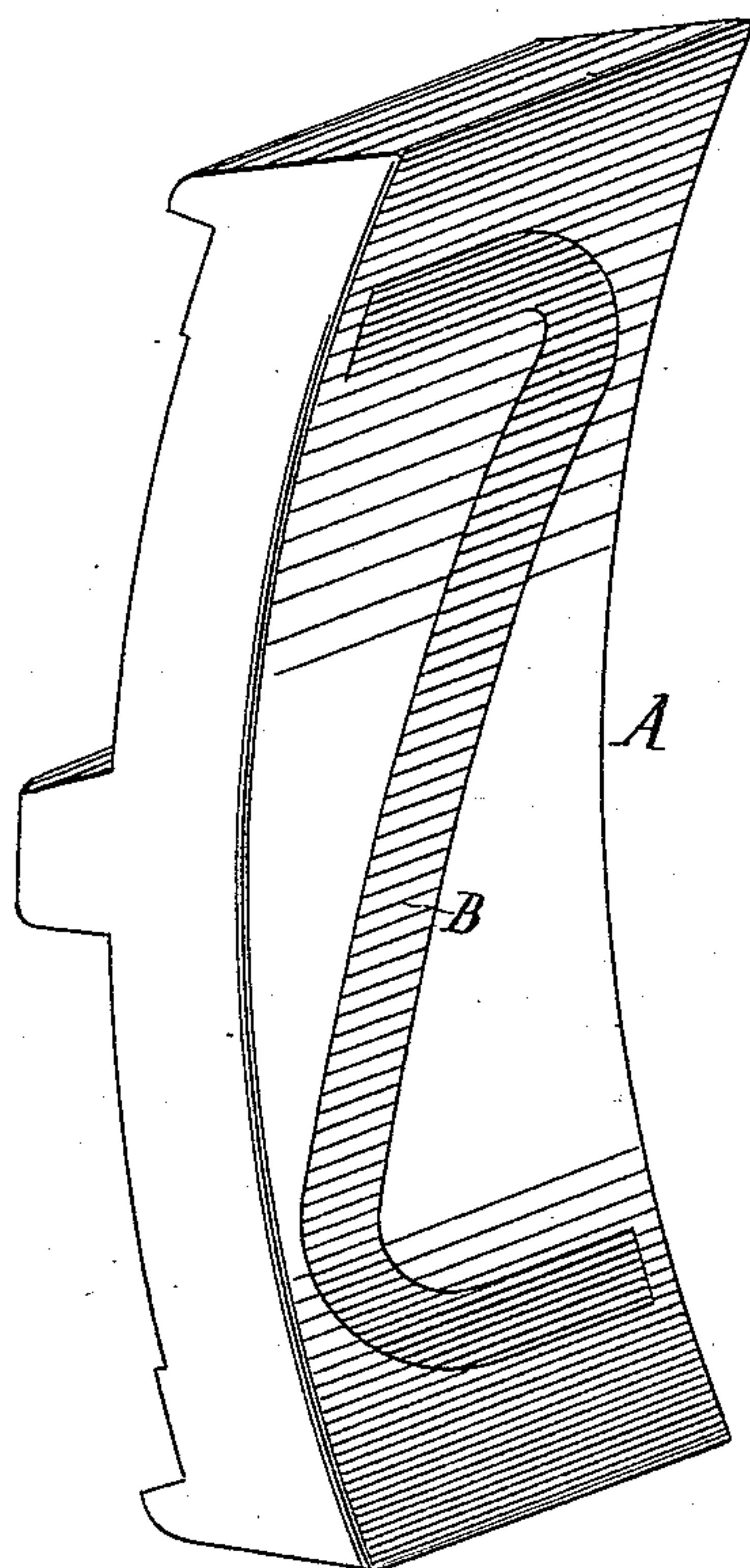


Fig2.

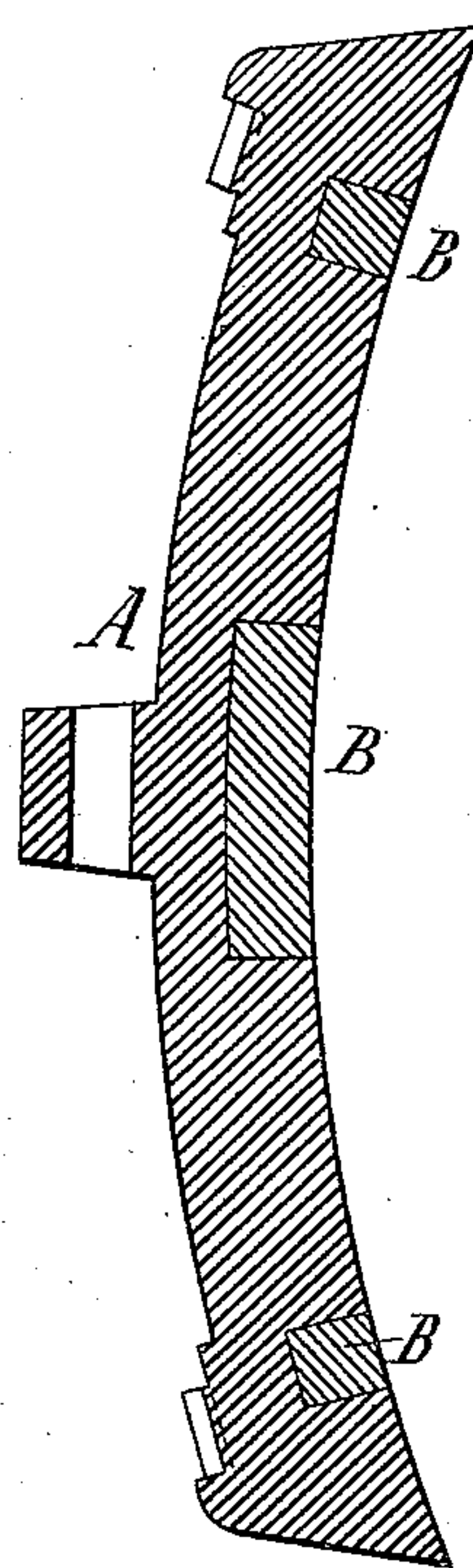


Fig4.

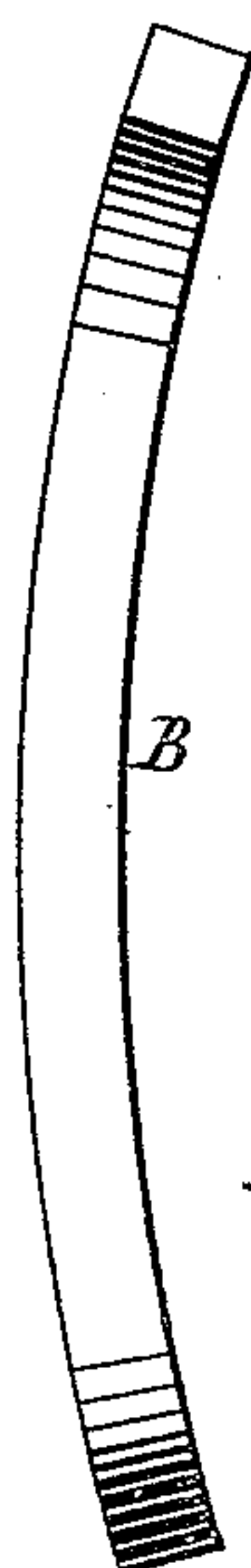


Fig3.

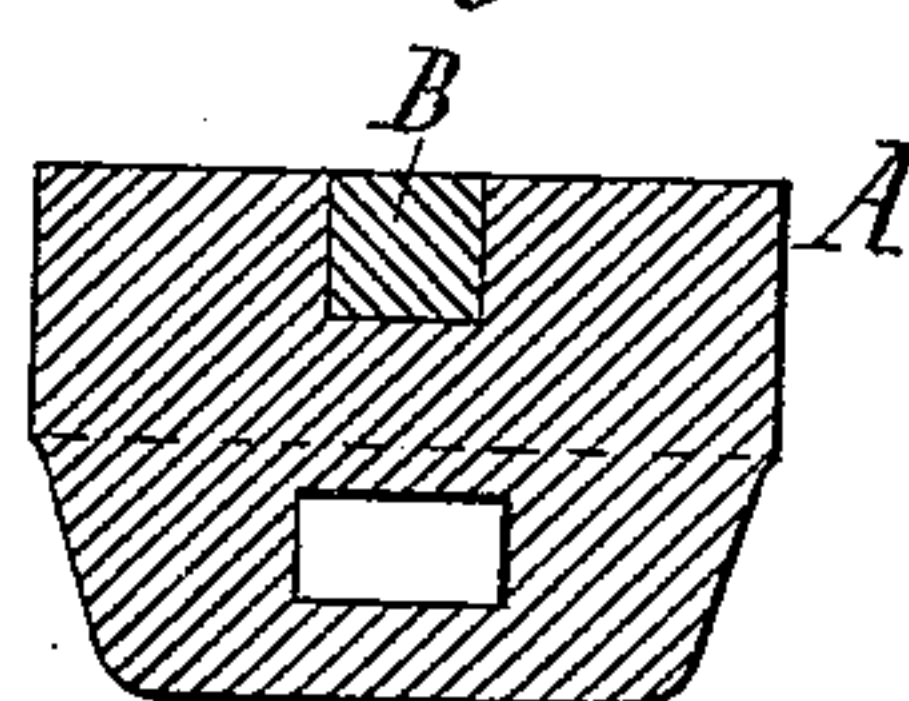
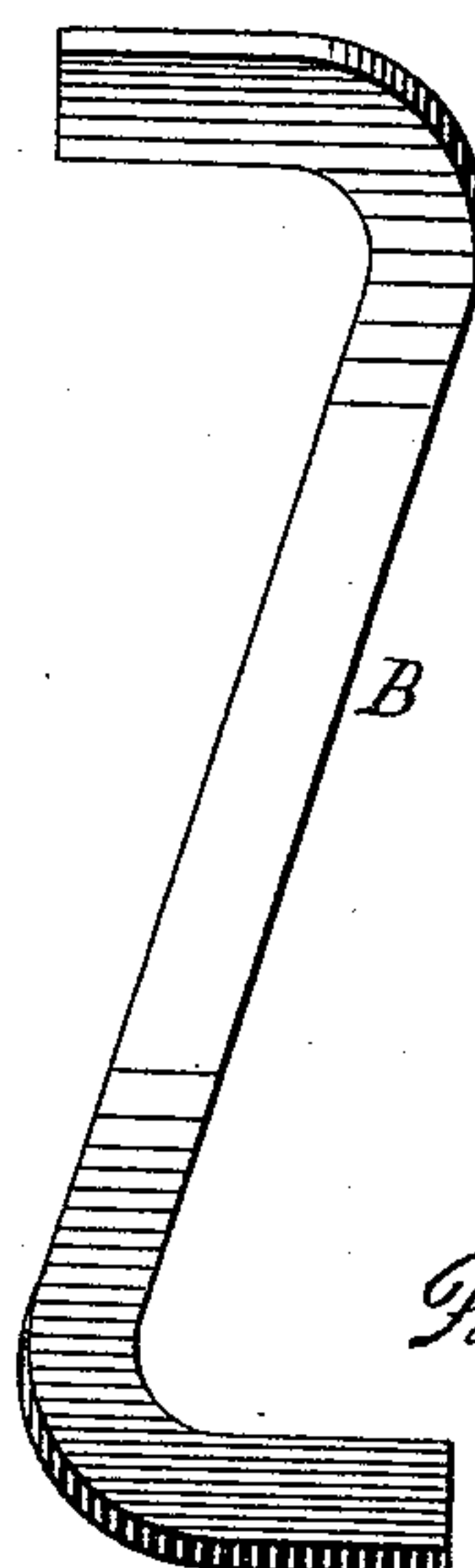


Fig5.



Witnesses:
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UNITED STATES PATENT OFFICE.

PATRICK REILLY, OF LIMA, OHIO.

RAILWAY BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 446,236, dated February 10, 1891.

Application filed April 9, 1890. Serial No. 347,197. (No model.)

To all whom it may concern:

Be it known that I, PATRICK REILLY, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have
5 invented certain new and useful Improvements in Railway Brake-Shoes; and I do hereby 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 ap-
10 pertains to make and use the same.

My invention consists in an improved construction of a brake-shoe comprising, in combination, a cast-iron base and a longitudinally-arranged piece of wrought metal, either
15 wrought-iron, steel, or malleable iron, in the form, approximately, of the letter **S** or **Z** or other equivalent serpentine form, the said **S** or **Z** form piece of metal being in cross-section, either square, round, oval, or other suitable shape, and the same being bent and
20 shaped on a former in a power-hammer or by hand or otherwise, and then placed in the mold, and the cast basis metal or body of the shoe cast around it, said wrought metal, steel,
25 or malleable piece serving as a tie and strengthening-brace to the cast metal and to the shoe as a whole, all as will be hereinafter described.

In the accompanying drawings, Figure 1 is
30 a perspective view of my improved shoe as seen from the bearing-surface thereof. Fig. 2 is a transverse section, and Fig. 3 a longitudinal section, of the same. Fig. 4 is an edge view of the **S** or **Z** shaped piece, and
35 Fig. 5 is a face view of the same.

A represents a brake-shoe of ordinary construction, except so far as it is changed in accordance with my invention.

B is the tying and strengthening piece of
40 steel, wrought-iron, or malleable iron, which is embedded into a depression in the wearing-surface of the brake-shoe in the casting operation. This bar is bent and made on a
45 former, either by hand, a power-hammer, or other analogous means, and takes the exact curvature on its inner and outer faces of the wearing-surface of the shoe, as shown in the drawings. In bending the part B in **S** or **Z**
50 or other equivalent shape the convex side measures more than the concave side on a straight line. In an ordinary shoe the difference in these lengths is about one-half inch.

By this construction the piece B at its ends acts the same as a dovetail within the body of cast metal A, and thus a secure means
55 for holding the piece in the body of the shoe is secured, and the piece cannot fall out, but will remain secured in its place until the shoe is worn out. The side edges of the piece B are vertical and the corresponding edges or
60 walls of the depression in the shoe in which the bar is embedded are also vertical. By reason of the construction of the piece in the manner shown it requires to be applied to the shoe by casting the basis metal about it, as
65 shown. From Fig. 1 of the drawings it will be seen that the bar B between its transverse branches or ends occupies a diagonal position with respect to the concave wearing-surface of the shoe, while its end branches extend
70 in a reverse direction to one another almost entirely across said wearing-surface, and by means of this construction a very complete protection to the shoe and the wheel which comes in contact with it, as well as an
75 increased durability of the shoe, will be insured, with a very slight expenditure for a wrought-iron, steel, or malleable piece, such as B.

It has been found that my invention provides a very strong enduring surface or bar
80 along nearly the entire length of the shoe by the use of a very small amount of steel, malleable or wrought metal, and that the said bar holds itself in position by reason of its peculiar shape or bent form, and that great length
85 of life or wearing endurance is added to the shoe, the longitudinally-running **S** or **Z** form bar acting as a strengthening tie and brace to the shoe as a whole, making a strong efficient cast-iron wrought-metal-stayed brake-
90 shoe.

It will be apparent that the **S** or **Z** form bar, by running longitudinally, while providing an improved wearing-surface and acting
95 as a brace, serves as a means for keeping the cast metal of the shoe intact, thus avoiding liability of the shoe breaking crosswise of its length—a result not attainable from pieces set crosswise in a shoe, such pieces, instead of
100 adding strength to the shoe, tending to weaken it on account of being separated from one another.

I am aware that metal has been cast in a

zigzag form into dovetail recesses of cast-iron brake-shoes.

I am also aware that a cast-iron shoe having a piece of wrought metal with a number of weakening perforations through it for the passage of a number of connecting-spuds of cast metal has been devised, and I make no claim for either of the constructions referred to.

I, however, am not aware that a bent imperforated or solid wrought-metal, steel, or malleable-iron bar of the serpentine or **S** or **Z** form, as I have herein shown and described, has ever been placed in the mold and the shoe proper cast upon it in such manner that said bar serves as a tie to the cast metal and a strengthening-brace to the shoe as a whole; and also, although said bar is constructed with vertical sides, it cannot, after being bent into curved form and has had the cast-iron cast about it, come out of its place nor work loose before it is entirely worn out.

It is very important to be able to have the wrought-metal bar constructed in **Z** form and to have its body portion extend diagonally across the working-surface of the shoe and along nearly its whole length and its ends or branches to extend transversely in opposite directions nearly or entirely across said working-surface, and it is also important to have this bar as narrow as possible and constructed without any perforations in it which would weaken and render it liable to break under

strain upon the shoe, and this bar must be made of a tough metal which can be bent into form, as hereinbefore described.

My invention, as herein described, may be carried out with substantially the same results by making the wrought-iron, steel, or malleable cast-metal bar **B** of any other form which is the equivalent of that shown and applying it to the supporting base metal in such manner that portions of the strengthening metal run longitudinally in a diagonal direction or from left to right or right to left transversely of the supporting base metal, and therefore my invention is not necessarily confined to the special form shown.

What I claim as my invention is—

1. A brake-shoe strengthened by the brace-bar of **S** form, of wrought-iron, steel, or malleable iron, applied and held within a depression in its wearing-surface, substantially as described.

2. A brake-shoe comprising a cast-metal base and a bent piece of tying or staying and bracing metal of **S** form, said piece being wrought-iron, steel, or malleable iron, and the said basis metal being cast upon it, substantially as described.

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

PATRICK REILLY.

Witnesses:

W. E. REILLY,
A. S. GRAHAM.