

C. D. PETTIS.

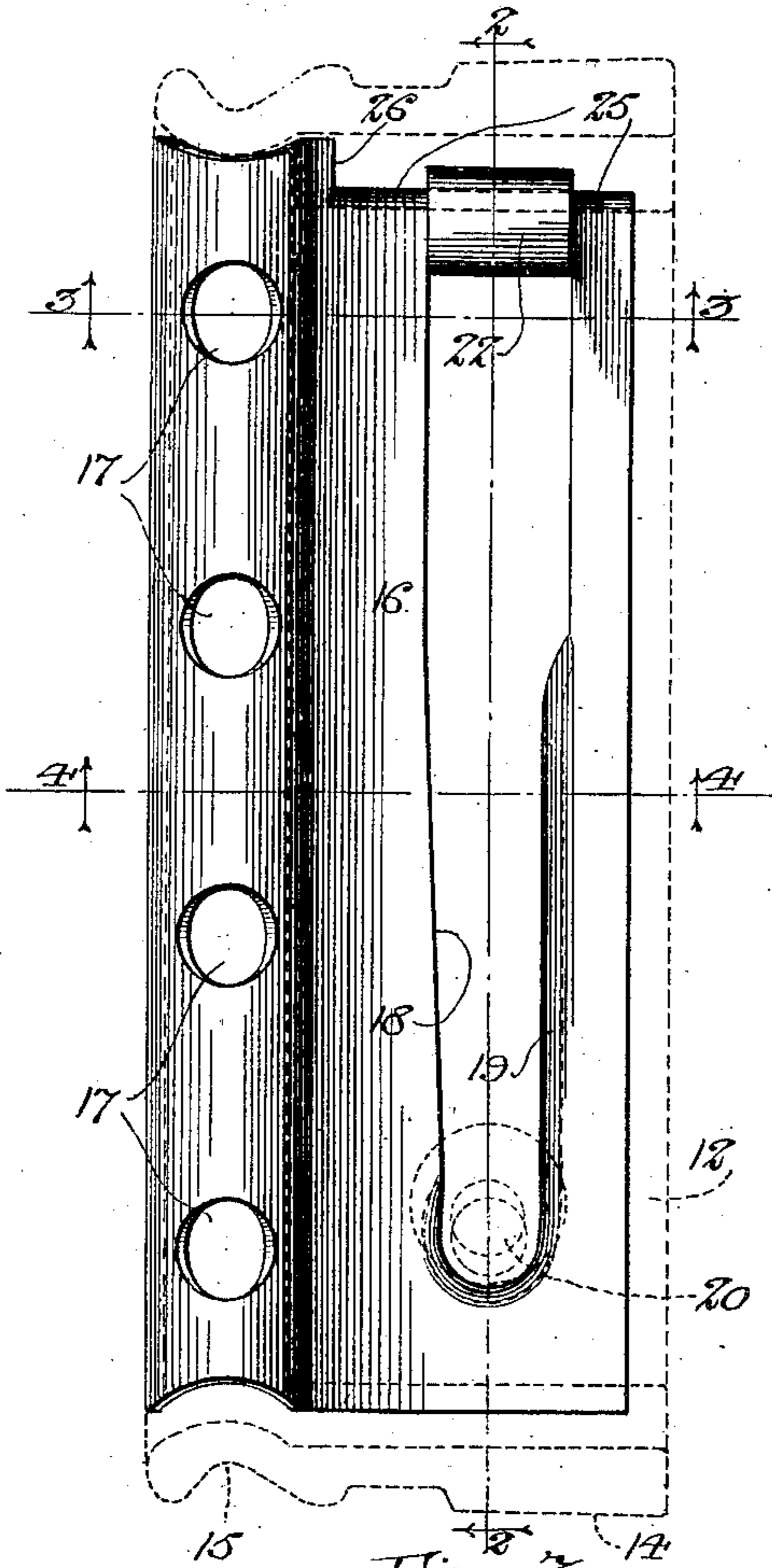
BRAKE SHOE.

APPLICATION FILED DEC. 3, 1908.

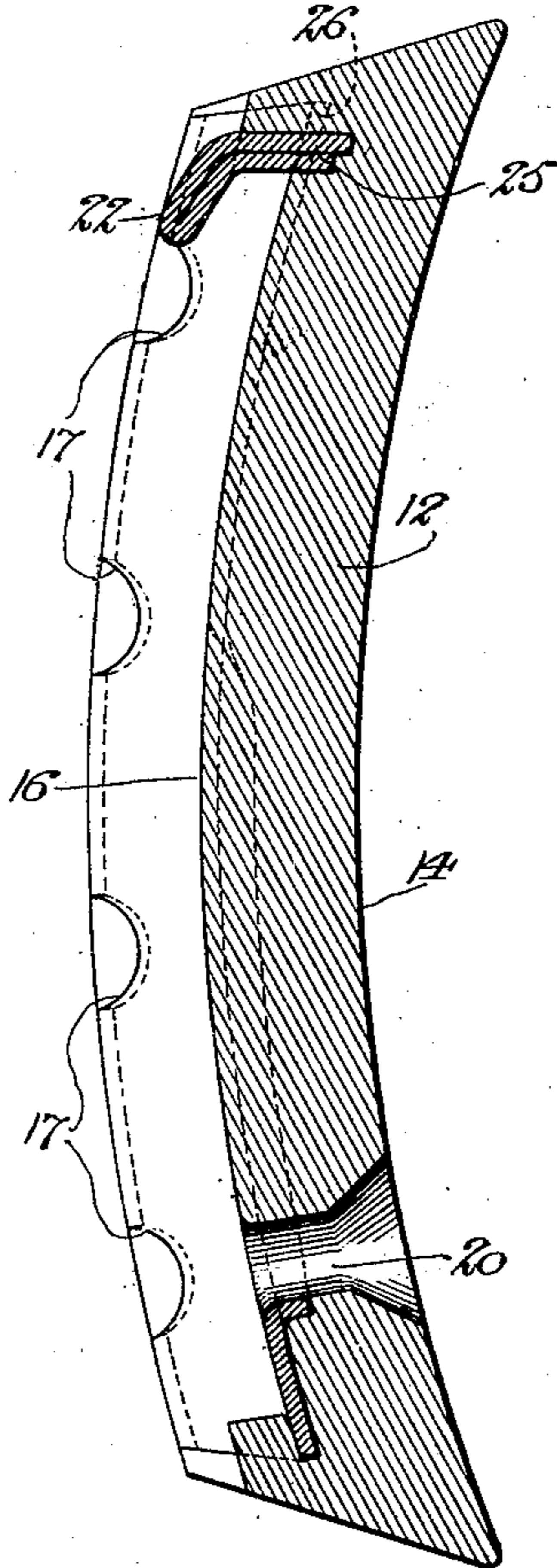
924,930.

Patented June 15, 1909.

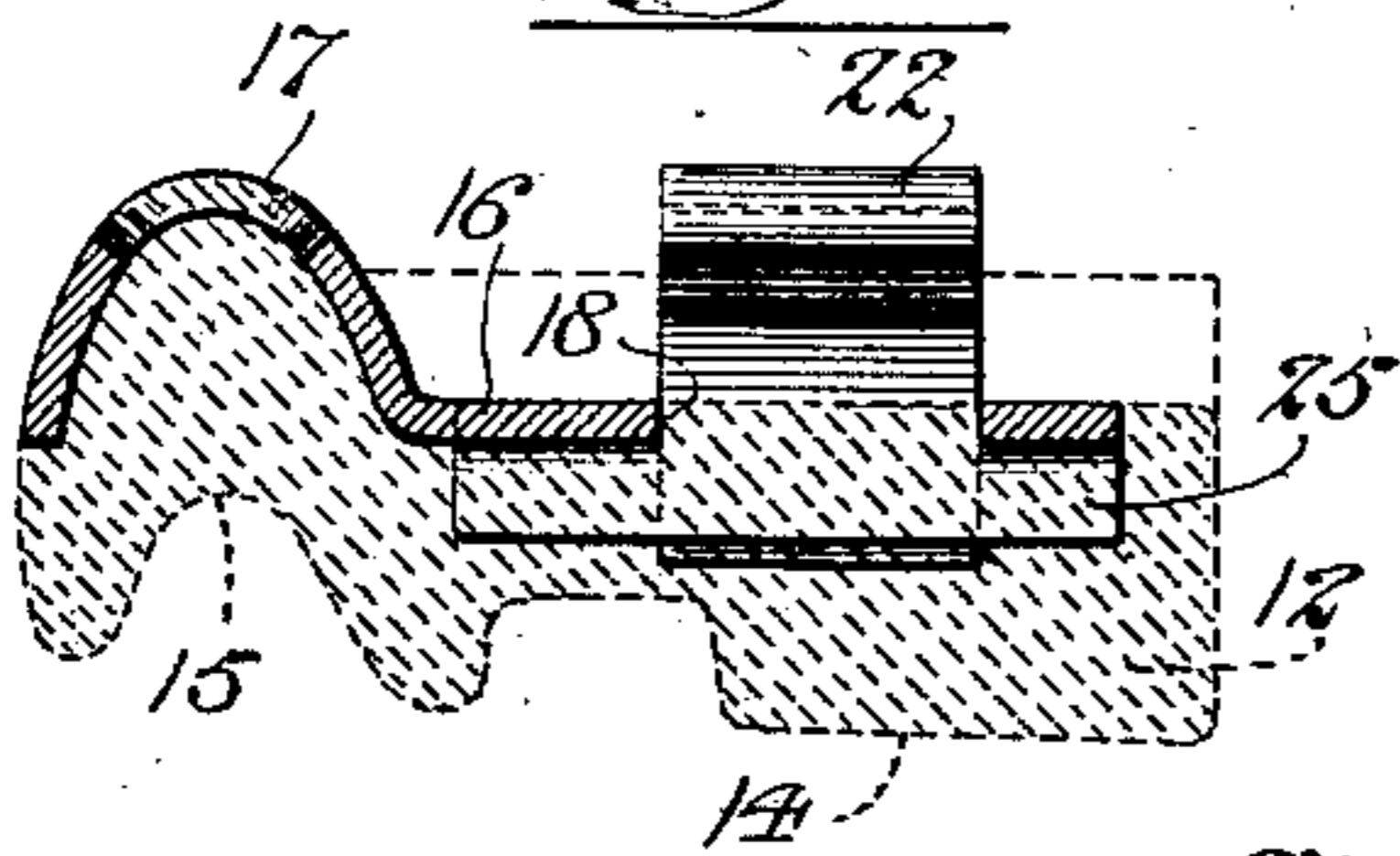
*Fig. 1.*



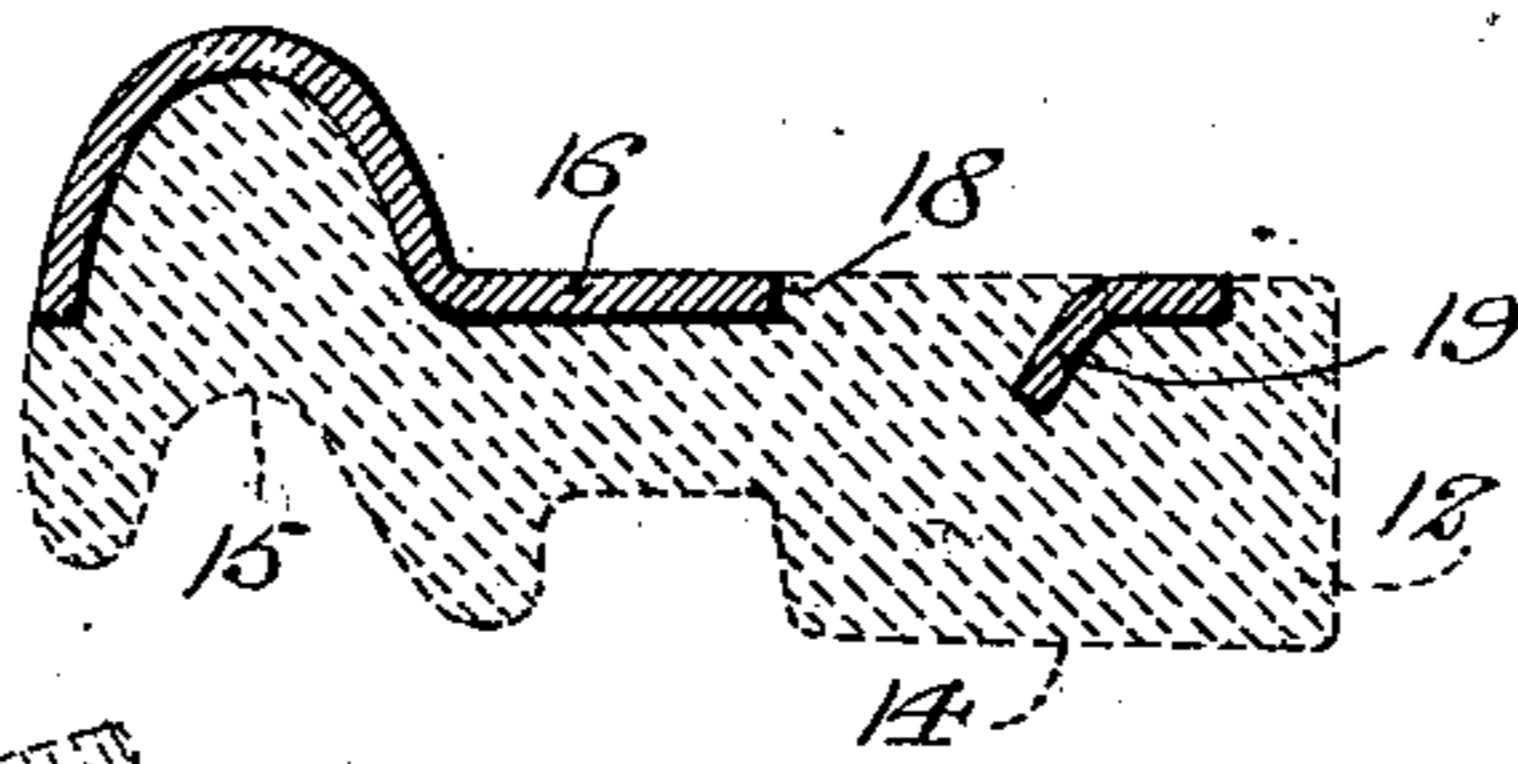
*Fig. 2.*



*Fig. 3.*



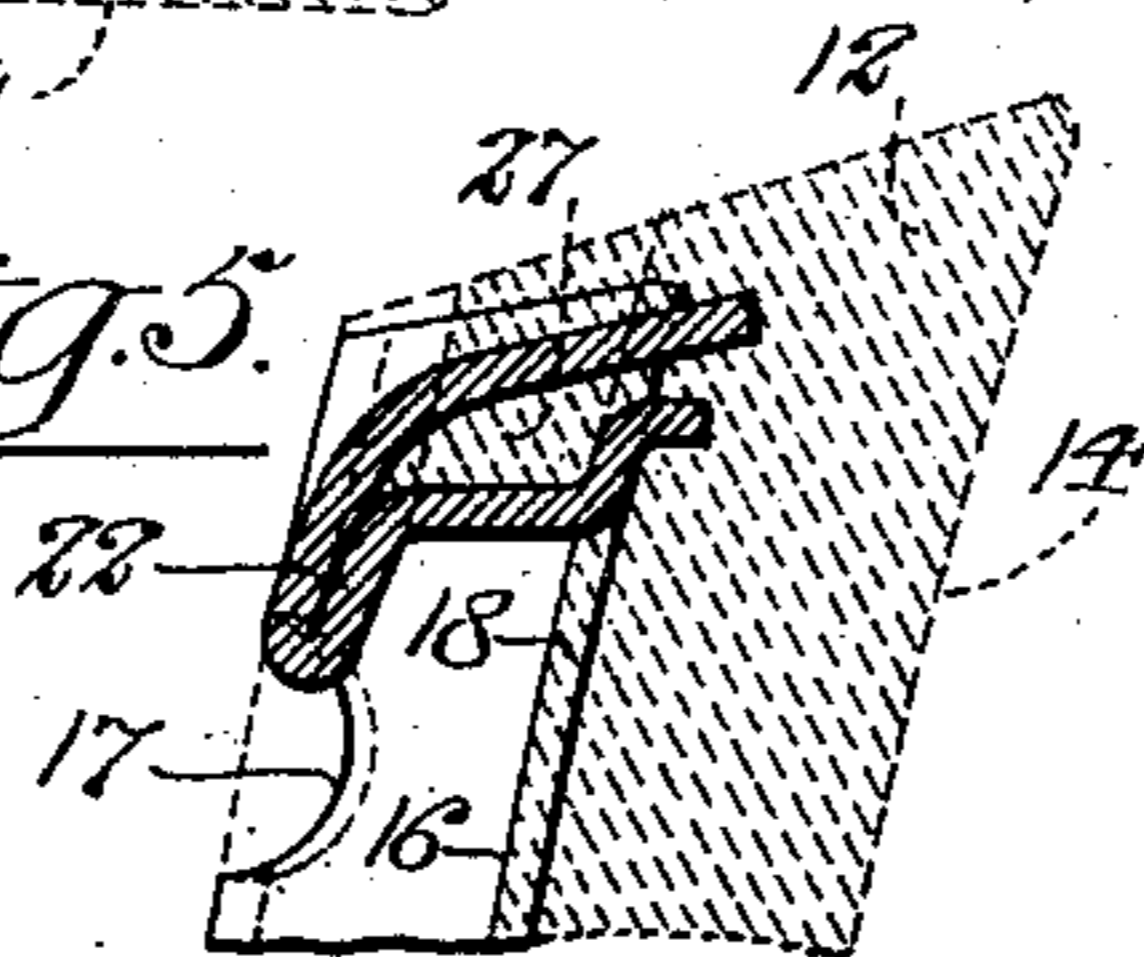
*Fig. 4.*



Witnesses:-

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*Fig. 5.*



Inventor:-

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# UNITED STATES PATENT OFFICE.

CLIFTON D. PETTIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO NATIONAL BRAKE SHOE COMPANY,  
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## BRAKE-SHOE.

No. 924,930.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed December 3, 1908. Serial No. 465,884.

*To all whom it may concern:*

Be it known that I, CLIFTON D. PETTIS, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Brake-Shoes, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

The present invention relates more particularly to that class of brake shoes having a body formed of cast metal reinforced by a strengthening plate or back of soft steel or like ductile metal, and the invention is more particularly directed to the provision of an improved construction of reinforced brake shoe for use upon the driving wheels of locomotives.

The invention consists in the novel features of construction hereinafter described, illustrated in the accompanying drawing and particularly pointed out in the claims at the end of this specification.

Figure 1 is a plan view of my improved reinforcing back, the outline of the cast metal body of the shoe being indicated by dotted lines. Fig. 2 is a longitudinal section on line 2—2 of Fig. 1, the cast metal body of the shoe being shown in full lines. Fig. 3 is a view in cross section on line 3—3 of Fig. 1. Fig. 4 is a view in cross section on line 4—4 of Fig. 1. Fig. 5 is a view in central vertical section through one end of the brake shoe showing a slightly modified form of the retaining lug.

The body 12 of the brake shoe may be formed of cast iron of suitable quality and shape, and my reinforcing back will be of soft steel or other suitable tough or ductile metal. As shown, the body 12 of the shoe is of the general shape commonly employed for shoes for the driving wheels of locomotives; that is to say, the shoe has a braking face 14 adapted to bear upon the tread of the wheel, and a groove 15 adapted to engage the flange of the wheel. The reinforcing back 16 is preferably formed of soft steel or other suitable ductile metal and, as shown, extends from side to side and approximately from end to end of the body of the shoe at its back. Preferably the curved portion of the back 16, which extends over the flange-engaging portion of the shoe body, is provided with a series of openings 17 to permit the cast metal

shoe body to more effectively engage and interlock with the reinforcing back.

My improved back plate 16 is formed with a longitudinal opening 18 and along one side at least of this opening 18 there is formed a downwardly depending flange 19 that is embedded in the cast metal body 12 of the shoe. This flange 19 serves to materially strengthen the shoe and obviously the flange may be extended along or around so much of the opening as may be deemed desirable. As shown, the flange 19 is extended around that end of the opening which coincides with the hole 20 which receives the usual retaining bolt that coöperates in connecting the brake shoe to the brake head. The flange 19 thus greatly strengthens the shoe at this point of severe strain. At the opposite end of the longitudinal opening 18 there is formed the attaching lug 22. This attaching lug 22 is integral with the metal of the back plate 16 and is made from a portion of the metal that is cut away in forming the longitudinal opening 18. When the back plate 16 is cut to form the longitudinal opening 18, the material of which the attaching lug 22 is made comprises a long strip or tongue of metal which is thereafter doubled back upon itself and bent to the shape indicated most clearly in Fig. 2 of the drawing. Preferably the end portion 25 of the back plate adjacent the lug 22 is bent downward, as shown, the back plate 16 being cut as at 26 to permit this to be done. The end portion or flange 25 thus bent downward will together with the end of the metal strip of which the lug 22 is formed, be embedded in the cast metal body 12 of the shoe.

After the back plate 16 has been formed, as above indicated, it will be placed in the mold and the metal body of the shoe will be cast thereon in manner well understood by those familiar with the manufacture of this class of brake shoes. The cast metal will flow into the openings 17 and 18 and around the ends of the plate, as illustrated in the drawings, so that the back plate will be firmly united to the body of the shoe.

In Fig. 5 of the drawing I have shown the metal that comprises the lug 22 so bent as to leave a space between its folds, into which space the cast metal will run, as indicated at 27, so as to reinforce the lug.

The construction of my improved back plate is such that it not only serves to hold the parts of the shoe together in case of frac-

ture, but it greatly increases the strength of the shoe. By forming the retaining lug from the metal that is cut out in making the longitudinal opening 18 not only is waste of metal avoided, but a much shorter plate of metal can be used in forming the back plate than would be possible if the retaining lug were made from a tongue of metal extending beyond the length of the plate.

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

1. A reinforcing back for brake shoes, comprising a plate of tough metal having a longitudinal opening therein through one end of which the retaining bolt may pass, said opening having an edge flange that extends around the end portion of the opening that receives the retaining bolt.

20 2. A reinforcing back for brake shoes comprising a plate of tough metal having a longitudinal opening therein terminating inside the end of the plate and having an integral hook-shaped attaching lug made of a double thickness of the metal that is removed in forming said opening.

3. A reinforcing back for brake shoes comprising a plate of tough metal having an opening therein and having integral there- with an attaching lug made of two overlap- 30 ping thicknesses of metal cut from the plate in forming said opening.

4. A brake shoe of the character described comprising a cast metal body and a reinforcing back formed of a plate of tough metal having a longitudinal opening therein ter- 35 minating inside the ends of the plate and having a hook-shaped attaching lug made of two overlapping thicknesses of the metal re-

moved in forming said opening, the lower 40 end of said portion being embedded in the cast metal body of the shoe.

5. A brake shoe of the character described comprising a cast metal body and a reinforcing back formed of a plate of tough metal 45 having a longitudinal opening therein and having a hook-shaped attaching lug integral with the plate and formed from the metal that is cut away in forming said opening, the end of said plate adjacent said lug having a 50 downwardly turned flange that is embedded in the body of the shoe.

6. A brake shoe having an opening there- through for a retaining bolt and provided with a reinforcing back plate, said back plate 55 having a flange extending around the outer side of said opening.

7. A brake shoe having an opening at one end for receiving a retaining bolt and pro- vided with a reinforcing, longitudinally slot- 60 ted back plate, the slot of said back plate co- inciding at one end with said opening, and having a longitudinal edge flange which ex- tends around said opening.

8. A brake shoe having an opening there- 65 through at one end for receiving a retaining bolt and provided with a reinforcing back plate, said back plate being longitudinally slotted and having a strengthening flange at the end adjacent said opening and an inte- 70 gral, hook-shaped, attaching lug at the oppo- site end, said lug and flange being made of the metal that is removed to form the slot of said back plate.

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