J. F. CURTICE.

Car-Brake Shoe.

No. 217,996. Patented July 29, 1879.

Fig. 1.

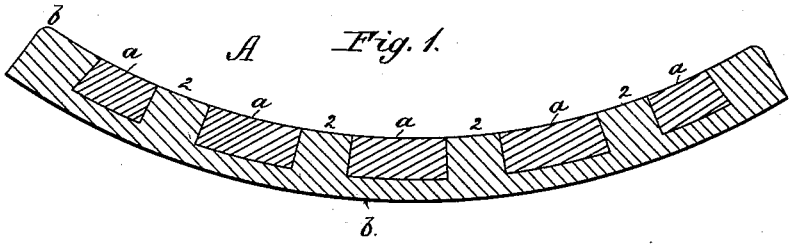


Fig. 2.

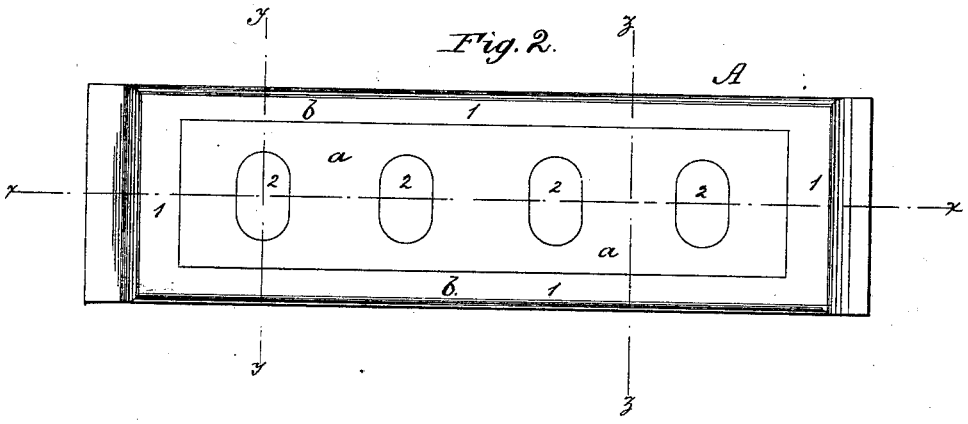


Fig. 3.

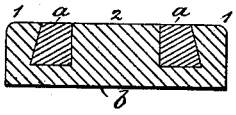
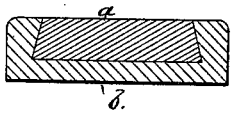


Fig. 4.



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JOHN F. CURTICE, OF FORT WAYNE, INDIANA.

IMPROVEMENT IN CAR-BRAKE SHOES.

Specification forming part of Letters Patent No. **217,996**, dated July 29, 1879; application filed April 21, 1879.

To all whom it may concern:

Be it known that I, JOHN F. CURTICE, of Fort Wayne, in the county of Allen and State of Indiana, have invented a new and Improved Car-Brake Shoe; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal central section through line *x x* of Fig. 2. Fig. 2 is a face view of the curved shoe. Fig 3 is a cross-section through the line *y y*, and Fig. 4 is a cross-section through the line *z z*.

My invention is an improvement upon the car-brake shoe patented March 21, 1876, by I. H. Congdon, in which detached pieces of wrought-iron are embedded in a body portion of cast-iron by casting the said body portion around the wrought pieces, whereby the wearing-face of the shoe is composed in part of wrought-iron, and is enabled to better resist wear, and gives an increased friction for stopping the motion of the car.

In the patent referred to, the pieces of wrought-iron (or steel) are wholly detached from each other, and are held in place by being beveled or undercut, or by the adhesion of the edges. The result of this construction is, that the brake-shoe possesses no greater strength than the simple strength of the cast-iron, which is seriously impaired by the chilled edges around the wrought-iron pieces referred to, and whose thickness is already reduced by the space taken up by the said wrought-iron pieces, necessitating by this method the use of a very thick and heavy, and therefore expensive, shoe to obtain even a moderate degree of strength.

The object of my invention is to provide such a construction of this composite brake-shoe as will, while retaining and even increasing the wearing qualities, also secure the requisite strength to resist the breakage to which its use renders it liable, and at the same time allow the use of a much lighter and less expensive shoe.

To this end it consists in forming the wrought portion of the face in the form of a single bar, having a series of perforations, so that when the body portion of the shoe is cast thereabout, the cast-iron forms both the margin of the face, and also forms tongues, which enter the holes of the wrought piece and appear on the face as patches of cast metal, whereby a system of joints in the metal is secured analogous to that of tenons and mortises, which holds the two kinds of metal more securely together, while the continuous character and longitudinal arrangement of the wrought piece together act as a splice to brace and strengthen the weaker cast-iron body portion, as hereinafter fully described.

In the drawings, A represents a brake-shoe formed in accordance with my invention, with a wrought portion, *a*, and a cast portion, *b*. The wrought portion *a* is constructed in the form of a single perforated bar, of a length and width very nearly equal to the length and width of the brake-shoe, and bent to the curvature of the wheel. In combining the two metals the wrought bar is arranged in the mold in such relation as to be upon the inner side or concave face of the shoe and then when the cast metal is poured in it flows around the said bar to form the margin of the face, as at 1 1 1 1, and also flows through the holes in the said wrought-iron bar in the form of tongues or tenons, which show through the face as isolated patches of cast metal occurring within the space of the wrought-iron, as at 2. This firmly unites the two metals upon mechanical principles, and as the wrought bar is a single piece arranged lengthwise, it acts as a brace or splice to supplement the weakness of the cast-iron body which renders the shoe both durable and strong, and capable of being made much lighter than by any other method.

The alternate recurrence of the wrought and cast metal also has a beneficial effect, in that the particles of one kind of iron are distributed over the face of another kind of iron, and they thus act reciprocally to prevent glazing, which latter is objectionable, in that it allows the wheels to slip by reason of insufficient friction.

It can be readily seen that instead of wrought-iron any other suitable metal may be used in the wearing-surface of a car-brake shoe in the manner herein described.

What I claim is—

A car-brake shoe consisting of a body of cast-iron and an embedded face of wrought-iron or other suitable metal, composed of a single curved and perforated bar arranged lengthwise, with the cast-iron appearing at the margin and through the holes in the wrought-iron or other suitable metal, substantially as described.

JOHN F. CURTICE.

Witnesses:
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