

(No Model.)

D. PREW.  
BRAKE SHOE.

No. 308,430.

Patented Nov. 25, 1884.

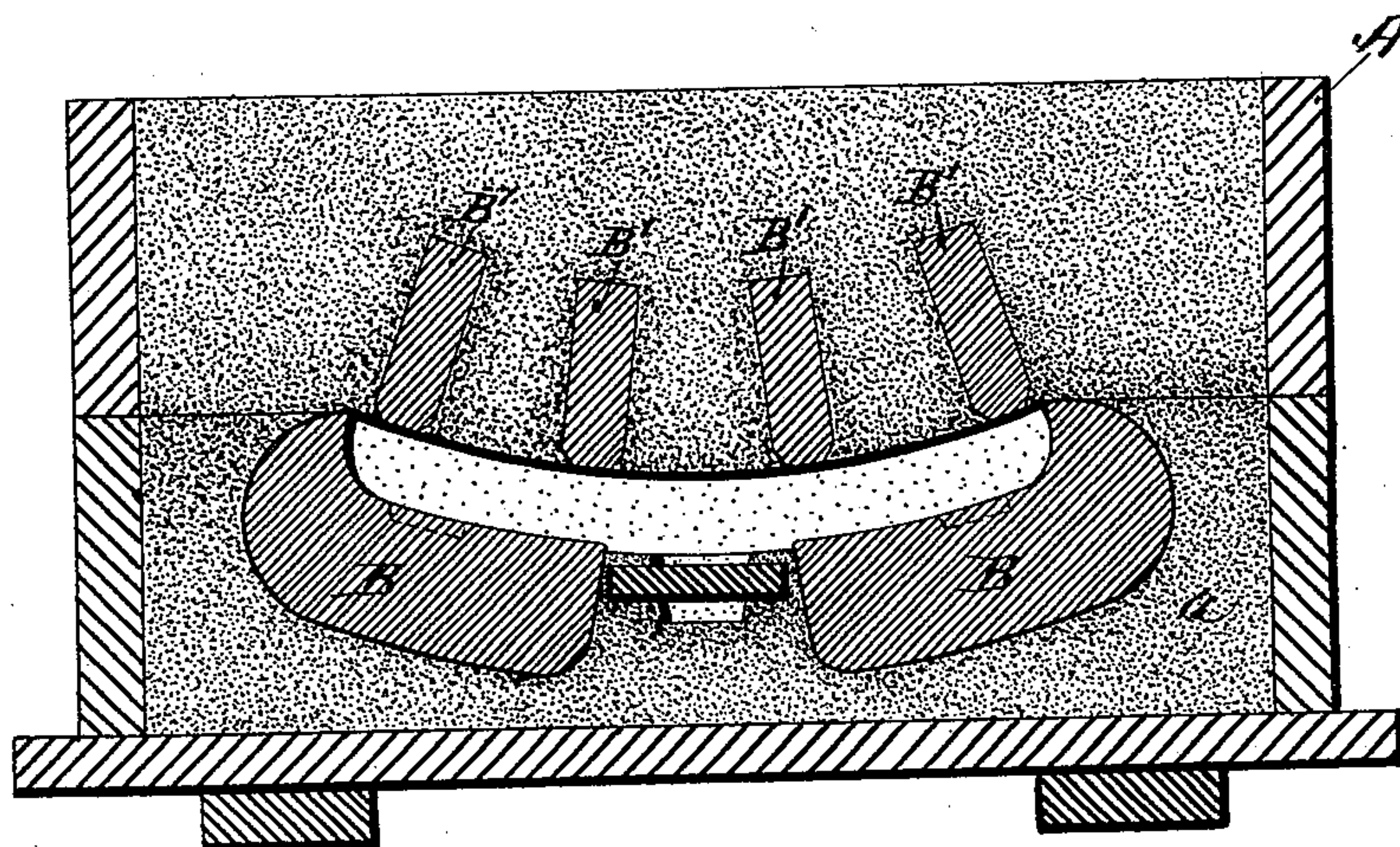


FIG. 1.

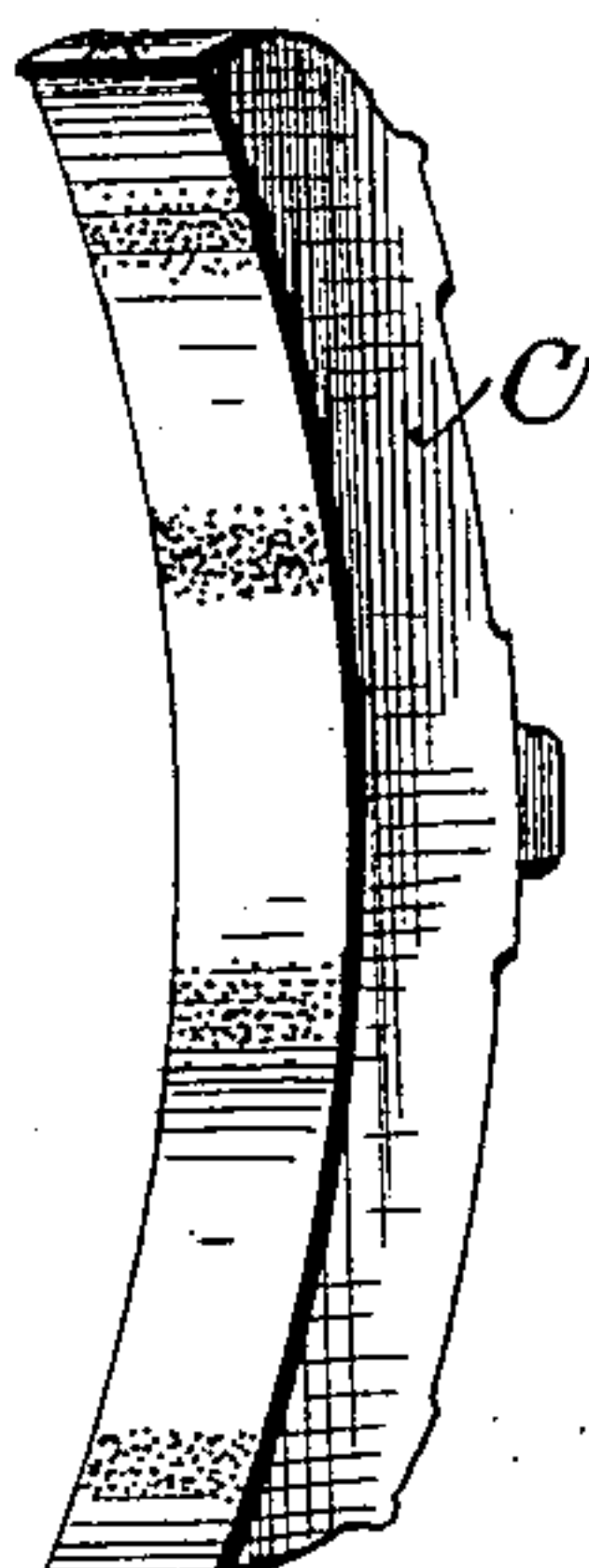


FIG. 2.

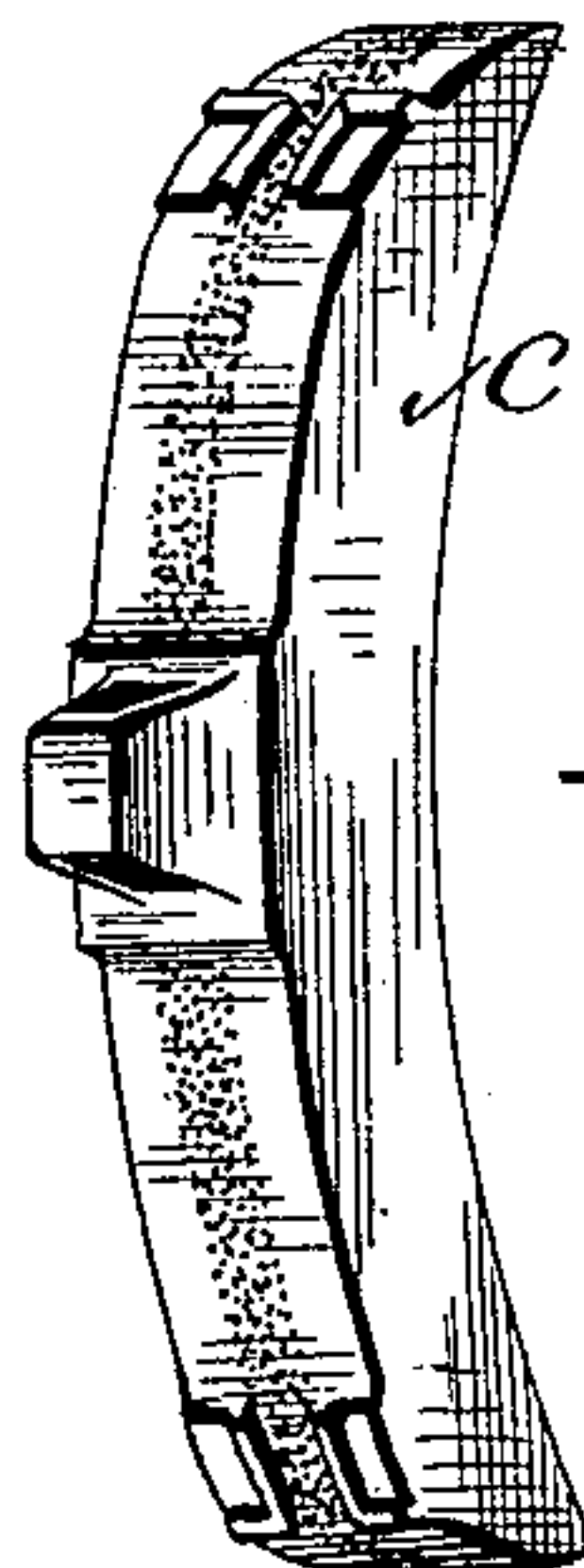
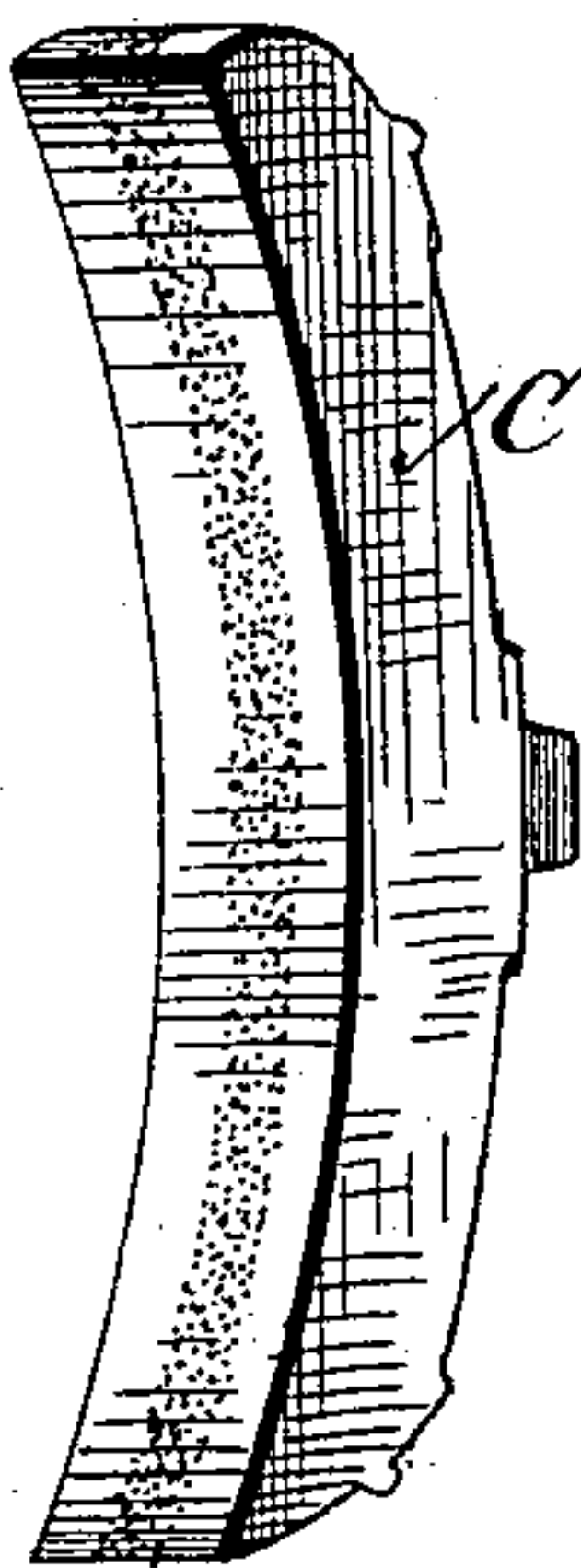


FIG. 3.

FIG. 4.



WITNESSES:

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

DAVID PREW, OF PROVIDENCE, RHODE ISLAND.

## BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 308,430, dated November 25, 1884.

Application filed August 18, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID PREW, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented  
5 an Improvement in Brake-Shoes, of which the following is a specification.

On railway-cars the brake-shoes, as ordinarily made of cast-iron, are in a very short time so worn as to require renewal, and the  
10 resulting deterioration in the quality of the remaining iron will render the same comparatively valueless for the purpose of remelting and casting new shoes therefrom; and it is the object of my invention to provide a practically  
15 manufactured brake-shoe having greatly-increased durability accompanied with less deterioration of the material; and it consists in the combination of a sectionally-hardened face or wearing-surface with the hardened  
20 back of the shoe, as hereinafter set forth.

Figure 1 is a vertical section of the molding-flask, showing a desirable arrangement of the chills for sectionally hardening the shoe. Figs. 2, 3, and 4 are perspective views of the brake-  
25 shoe in which the sectionally-hardened surfaces are represented.

In the accompanying drawings, A represents a two-part molding-flask, from which the brake-shoe pattern has been withdrawn preparatory to pouring the metal into the gate-  
30 openings of the flask to form the shoe. The longitudinally-arranged chills B for the back surface of the shoe are embedded in the sand a of the nowel, and are desirably made of about  
35 one-third of the width of the shoe C, as shown by the dotted surface, Fig. 3, which serves to indicate the action of the chill upon the back of the same. The chills B' B' are arranged in the cope transversely, and operate  
40 to chill-harden the face of the shoe sectionally,

as shown by the dotted surfaces in Fig. 2, and in some cases I arrange a chill lengthwise of the face of the shoe, so as to produce the result shown by the dotted surface in Fig. 4, which, in conjunction with the chilled back  
45 surface, will produce a shoe having a hard central portion with comparatively soft edges.

In the manufacture of brake-shoes having a chill-hardened wearing-surface, it is necessary to provide against danger of cracking  
50 and breakage caused by the unequal contraction of the metal when cooling off in the flask in contact with a set chill arranged upon one side only of the shoe, and I have found in practice that by sectionally chilling the metal  
55 of the shoe upon both sides of the same in proper proportions the improved shoes may be turned out free from such cracks and flaws and not liable to accidental breakage in use, the wearing quality of such shoes being more  
60 than doubled over that of the ordinary soft-iron shoe.

A brake-shoe chill-hardened on its rear side was secured to me by Letters Patent of the United States No. 277,159. I am also aware  
65 that it is not new to chill-harden a brake-shoe sectionally from the concave front of the same; but it has been shown that by the combined effect of both front and rear chills the iron of the shoe will be beneficially relieved from  
70 the strain which tends to crack the same in cooling.

I therefore claim as my invention—

A brake-shoe sectionally hardened both upon its front and rear portions, substantially  
75 as described.

DAVID PREW.

Witnesses:

NELSON E. CHURCH,  
SOCRATES SCHOLFIELD.