

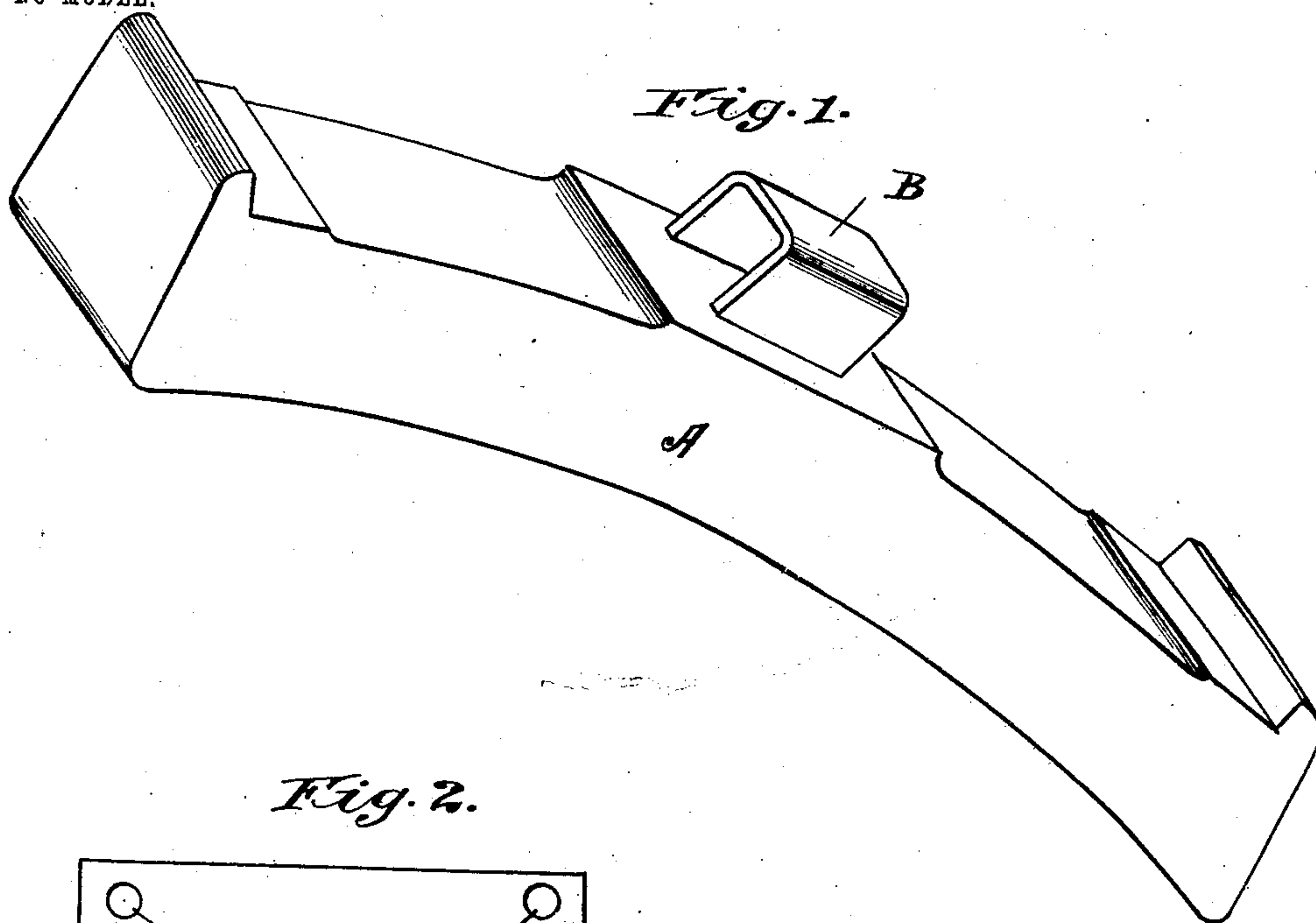
No. 762,513.

PATENTED JUNE 14, 1904.

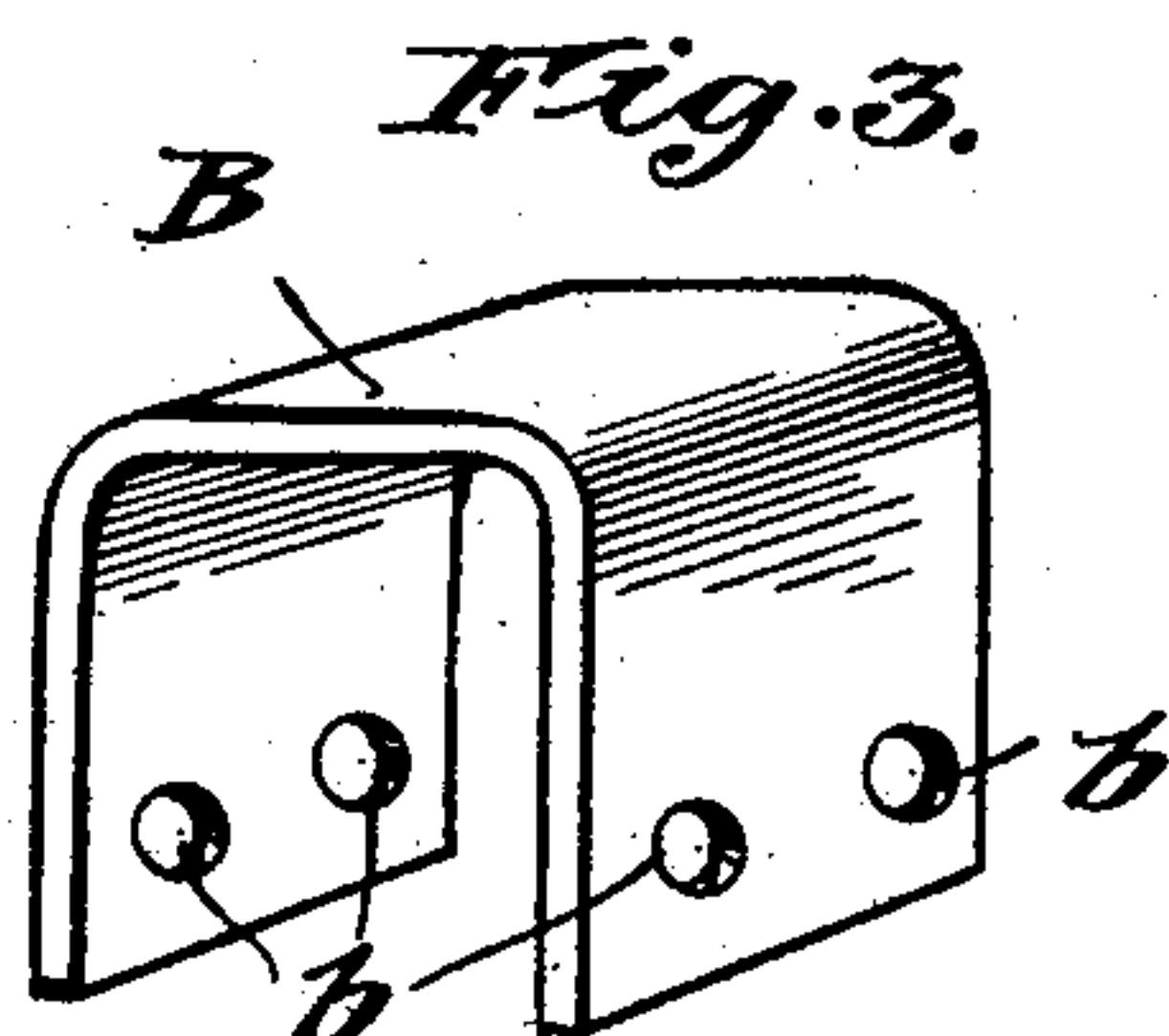
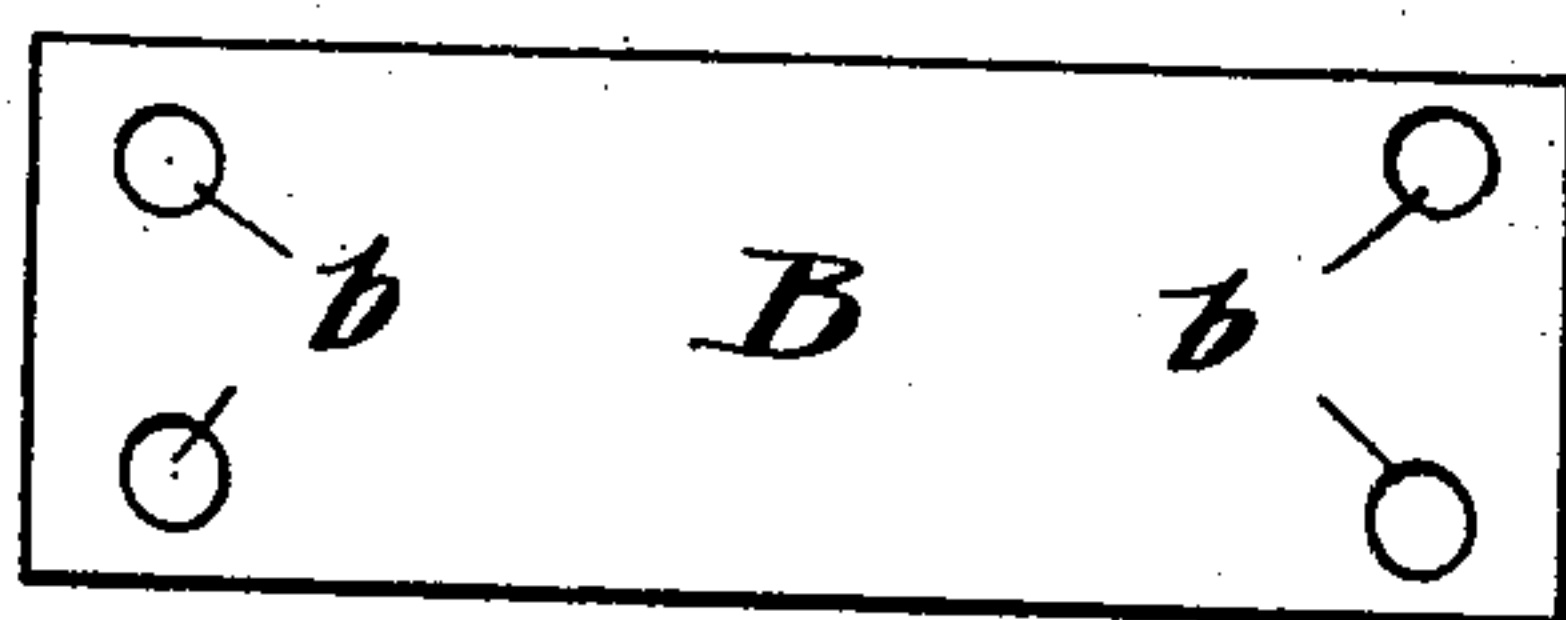
J. R. CARDWELL.  
BRAKE SHOE.

APPLICATION FILED OCT. 2, 1902.

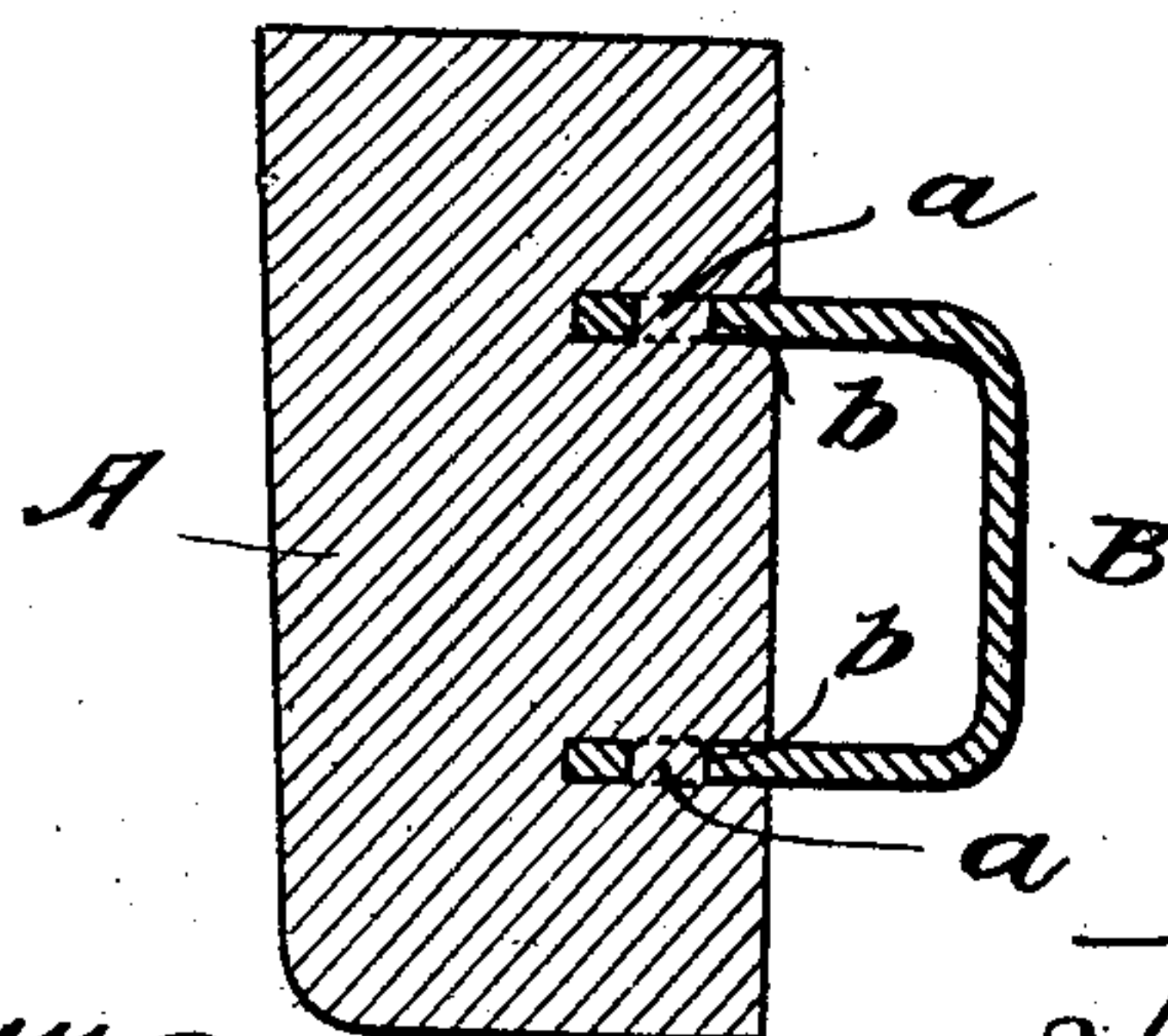
NO MODEL.



*Fig. 2.*



*Fig. 4.*



Witnesses,  
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# UNITED STATES PATENT OFFICE.

JAMES R. CARDWELL, OF CHICAGO, ILLINOIS.

## BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 762,513, dated June 14, 1904.

Application filed October 2, 1902. Serial No. 125,616. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES R. CARDWELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to brake-shoes, and has reference more particularly to a new and improved brake-shoe-attaching lug for uniting the shoe to the brake-head.

Brake-shoes as at present ordinarily constructed are provided with a cast-iron lug integral with the main body of the brake-shoe, and this construction necessitates the use of a core which has to be made and nailed into the mold, which renders the process of molding somewhat difficult. Furthermore, it is a well-known fact that cast-iron brake-shoe lugs are frequently a source of trouble by reason of the fact that sand gets underneath them in the mold, making an inferior or imperfect casting, and being brittle they frequently break in driving in the key when attaching the shoe to the brake-head.

By my invention I propose to obviate the objections hereinabove mentioned, and this I do through the employment of a lug of wrought iron or steel, which is bent to the required shape and is united with the shoe in the operation of casting the latter, as hereinafter more particularly explained.

A brake-shoe embodying my present invention is shown in the accompanying drawings, wherein—

Figure 1 is a perspective view of the shoe complete, including the attaching-lug. Fig. 2 is a plan view of the blank from which the lug is made. Fig. 3 is a perspective view of the lug detached, bent and apertured to the required form; and Fig. 4 is a cross-sectional view through the shoe-body and its attaching-lug, illustrating the manner in which the latter is permanently keyed or locked into the shoe-body.

In the drawings, A designates a cast-iron brake-shoe of the usual form.

B designates my improved attaching-lug, which is made from a plain rectangular blank

of wrought iron or steel, preferably of one-eighth inch thickness and bent into the U shape illustrated in Fig. 3. The ends of the blank are provided with apertures *b* for a purpose hereinafter disclosed.

In the operation of manufacture I provide in the usual brake-shoe pattern, at the central portion thereof, a pair of parallel longitudinal slots into which is loosely fitted the two apertured ends of the attaching-lug B. The pattern containing the lug is then placed upside down in the mold, and the sand is pounded over the pattern and into the loop of the lug protruding from the pattern, so that when the pattern is extracted the loop will remain buried in the sand with the two apertured ends protruding into the mold. The molten metal is then poured into the mold and flowing around the protruding ends of the lug and through the apertures therein, as shown at *a*, Fig. 4, securely unites the lug to itself, that portion of the metal *a* lying within the holes constituting a key, whereby the lug is locked against the possibility of extraction irrespective of the adhesive effect of the metal of the body upon the sides and edges of the embedded ends of the attaching-lug.

By my invention I provide a brake-shoe wherein the usual integral cast-metal lug, which, as above pointed out, is liable to imperfections in casting and easily breaks, is replaced by a wrought metal or steel lug, affording much greater toughness and strength and involving no increased labor or difficulty in the molding process, but rather rendering the latter easier and simpler by dispensing with the usual core, while the provision of means whereby the integral metal of the body is interlocked with the metal of the lug renders the latter as secure against detachment from the body as in the case of the usual integral cast-metal lug. Moreover, by dispensing with the use of the usual core my improved brake-shoe can be manufactured at a less cost than the usual cast-metal shoe having an integral cast-metal attaching-lug, thus effecting a material economy in the cost of producing these elements of railway equipment.



I claim—

The combination to form a brake-shoe, of a  
cast-metal shoe-body and a U-shaped wrought-  
metal attaching-lug the ends whereof are re-  
5 cessed, extended directly into the body of the  
shoe and autogenously united therewith by  
being cast in, and the remainder of the at-

taching-lug except the inserted ends exposed  
and projecting freely from the shoe-body, sub-  
stantially as described.

JAMES R. CARDWELL.

Witnesses:

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