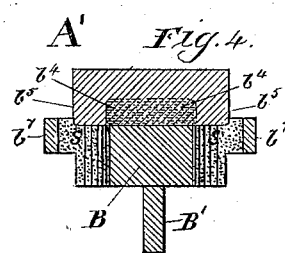
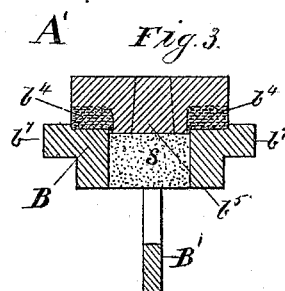
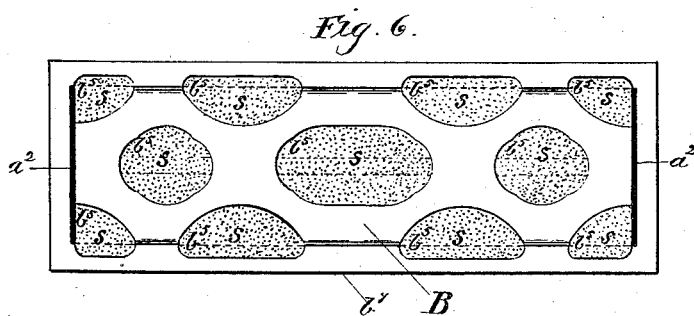
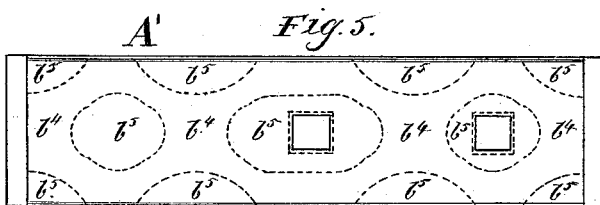
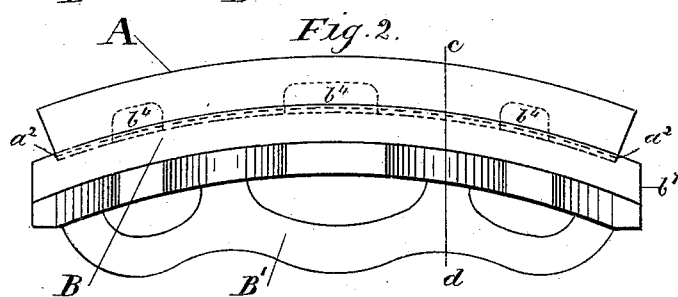
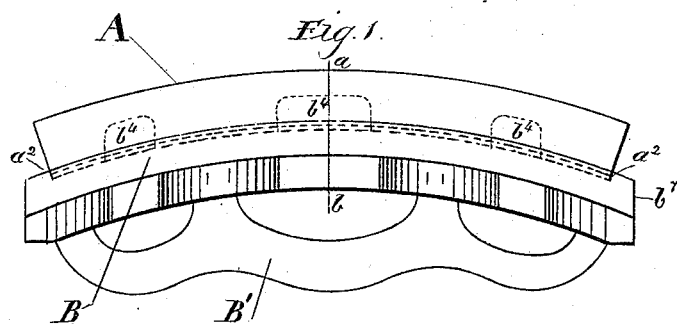


(No Model.)

W. GILL.  
BRAKE SHOE.

No. 344,102.

Patented June 22, 1886.



Witnesses

*Sam Munro*  
*W. J. Hoodbridge*

Inventor

*William Gill*

# UNITED STATES PATENT OFFICE.

WILLIAM GILL, OF TORONTO, ONTARIO, CANADA.

## BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 344,102, dated June 22, 1886.

Application filed February 16, 1886. Serial No. 192,090. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GILL, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Brake-Shoes for Braking the Wheels of Railway-Cars and other Car-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same.

10 The improvements consist, chiefly, in the locating and distributing of the chilled and unchilled metals in the face of the brake shoe, so as to produce a shoe that will be durable in wear, and so constructed that it will not stop the wheels of the cars entirely from revolving until trains arrive at the stations, nor when braking on downgrades when the trains are in motion and skid the wheels. The action of my brake-shoes will consequently not wear flat spots on the face of the wheels, but on the contrary keep the wheels true and smooth, and will protect both the wheels and the rails.

In the accompanying drawings, Figure 1 is a side view of the pattern, and of the chill by which the shoe is made. Fig. 2 is also a side view of the pattern and of the chill by which the shoe is made, the former pattern producing a shoe having slight projecting soft portions on the face of the shoe, the latter pattern producing a smooth-face shoe. Fig. 3 is a transverse section through the line *a b* in Fig. 1, representing the shoe and the chill. Fig. 4 is a transverse section through the line *c d* in Fig. 2, also representing the shoe and the chill. Fig. 5 is a face view of the shoe, the dotted lines indicating and distinguishing the surfaces of the chilled and unchilled metals in the face thereof. Fig. 6 is a face view of the chill. Fig. 7 is a transverse section through the side bar of the chill. The chill is shown filled with sand and ready to receive the molten metal thereon.

Similar letters of reference indicate the same parts in all the views, as in this specification.

Referring to Fig. 1, A represents the pattern, which has thin projecting patches moveably fastened on the face thereof, which produce similar projecting soft patches on the face of the shoe. B represents the chill. The said pattern and chill occupy this position when the mold for the shoe has been made and the flask turned over.

Referring to Fig. 2, A represents the pattern without the projecting patches on the face thereof, which have been removed in order to produce a smooth-face shoe; the chill B, being common to both without change or adjustment, to produce either a shoe with soft projecting patches on the face thereof or a smooth-face shoe. The dotted lines on the sides of the pattern A show an approximate depth of the chilled metal in the face of the shoe.

Referring to Fig. 3, A' represents a transverse section of the shoe, made from the pattern A, with chilled portions *b'* in the face of the same, and a soft projecting portion, *b''*, between the chilled portions, which is made from a projecting patch, *b'*, on the face of the pattern A, and intersected by the line *a b* in Fig. 1. S represents the sand not yet removed from the middle of the chill B.

Referring to Fig. 4, A' represents a transverse section of a smooth-face shoe, made from the pattern A, with a chilled portion, *b'*, in the middle of the face thereof, and a soft portion, *b''*, on each side of the same. *s s* represent the sand not yet removed from the side apertures in the chill, as will be understood from the section-line *c d* in Fig. 2.

Referring to Fig. 5, which represents the shoe A' and is a face view of the same, the construction of which will be easily understood from the transverse sections of the shoe in Figs. 3 and 4. The dotted lines in this face view distinguish the chilled metal *b'* from the unchilled metal *b''* therein, the proportions of which can be varied, as may be required for special shoes.

Referring to Fig. 6, which is a face view of the chill B, and is of one piece of metal, which simplifies and expedites the molding of the shoe. It may briefly be here stated that in molding the shoe the pattern A is placed in the flask, with its face up, and the chill B laid thereon. The sand is filled in the aperture *b''* of the chill and pressed close down on the face of the pattern, and when turned up the sand remains in the chill, and when the pattern is removed and the molding complete, and the molten metal poured in the mold, the metal that lodges on the face of the chill becomes the chilled portion *b'*, and the metal that lodges on the sand *s* becomes the soft metal *b''* in the face

- of the shoe, and are distinguished from each other, as shown by the dotted lines in Fig. 5. The side bars,  $b^1$ , are cast with the chill B, the whole, as previously stated, forming one piece.
- 5 These side bars are for the double purpose of keeping the pattern securely on the chill and for rounding the edges of the face of the shoe. The indentations or stops  $a^2$  prevent the pattern from shifting endwise on the chill.
- 10 I am aware of chilled-face shoes for braking the wheels of railway-cars having been in use for some time; but I am not aware of any such shoes having been constructed with a single chilled portion in the face of the same, which
- 15 single chilled portion being so located and distributed with the unchilled metal as to obtain the proportions of each so that the properties of both the metals will act to the best advantage on the face of the wheels; and, further,
- 20 the single chilled portion being longitudinal, and extending from end to end in the face of the shoe, forms a girder and greatly strengthens the cross-section of the same.

I am aware of a patent granted to D. Prew, No. 308,430, patented November 25, 1884, in 25 which patent I find a chilled strip down the middle of the face of the shoe, leaving a portion of unchilled metal on each side of the same, which must be for a different purpose than this invention, as it would leave a ridge on the 30 middle of the rim of the wheels.

Having thus described my invention in accordance with Rule 40 of the Rules of Practice for United States, I claim—

A brake-shoe constructed with a single longitudinal chilled portion in the face thereof 35 and extending the full length of the face, and portions of said chilled portion reaching to the edges of the shoe and having soft portions of metal on each side of and in the middle of said 40 chilled portion, substantially as shown and described, as a new manufacture.

WILLIAM GILL.

Witnesses:

SAM. MUNRO,

W. T. WOODBRIDGE.