

J. J. KINZER.
BRAKE SHOE.
APPLICATION FILED APR. 5, 1912.

1,044,786.

Patented Nov. 19, 1912.

FIG. 1.

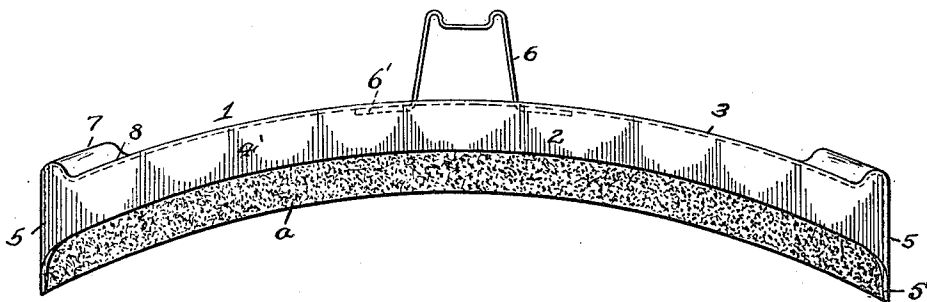


FIG. 2.

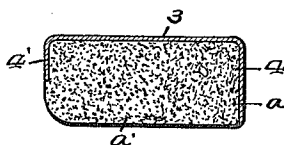


FIG. 3.

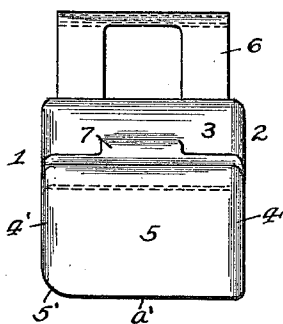
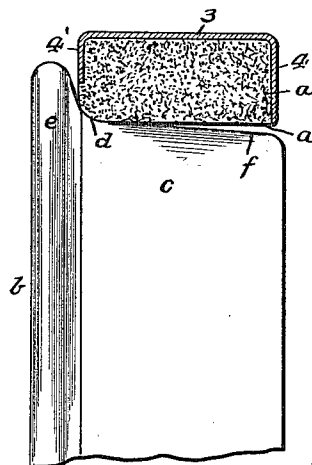


FIG. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN JACOB KINZER, OF WILDWOOD, PENNSYLVANIA, ASSIGNOR TO PITTSBURGH BRAKE SHOE COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

BRAKE-SHOE.

1,044,786.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed April 5, 1912. Serial No. 688,706.

To all whom it may concern:

Be it known that I, JOHN JACOB KINZER, a resident of Wildwood, in the county of Allegheny and State of Pennsylvania, have
5 invented a new and useful Improvement in Brake-Shoes; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to brake shoes and
10 has special reference to such class of shoes which are provided with an inclosed metallic casing around a filling of frictional material.

Heretofore, in the use of solid metal
15 shoes, in order to lessen the wear, about two thirds ($\frac{2}{3}$) of the portion of the shoe next to the flange of the article was cut away, but while this lessens the wear, it also lessens the frictional or retarding surface
20 or power of the shoe through loss of bearing surface thereon. In this class of shoes, the friction between the shoe and wheel in braking will immediately wear down the inner side wall of the metallic casing and frictional filling material in said casing, such
25 as when such shoes are first put into use against such wheel the outer edge of such wall and material adjacent thereto will contact with and bear against the covered corner or throat connection between the flange
30 on said wheel and the tread of the same by reason of the bearing face of such filling material being formed in a straight line and the tread of the wheel being at a downward
35 incline from such flange, which will thereby cause a loss of braking surface and therefore loss of power on said wheel and an undue wearing down of such frictional material and such inner side of said wall casing.

The object of my invention is to overcome
40 these difficulties and to provide a cheap, simple and efficient form of a brake shoe, and in which the inclosing casing will not be subjected to such wearing down of its
45 inner side wall as well as one in which such wall will conform to the shape of the corner or throat connection between the wheel flange and the tread of such wheel, and will not bear on said throat.

To these ends my invention consists, generally stated, in the novel arrangement,
50 construction and combination of parts as hereinafter more specifically set forth and described and particularly pointed out in
55 the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved brake-shoe, I will describe the same more fully, referring to the
60 accompanying drawing, in which—

Figure 1 shows a side elevation of my improved brake shoe. Fig. 2 is a cross section of the same. Fig. 3 is an end view of the same. Fig. 4 is a view showing a portion of a wheel with my improved brake
65 shoe engaging with the same.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing 1 represents
70 my improved brake shoe, which comprises an inclosing casing 2 and a filling of frictional material inserted within said casing. The casing 2 is preferably formed from
75 sheet, plate or other metal having a substantial degree of strength and ductility, such as malleable, wrought or other steel or iron, and when formed from sheet or plate
80 metal it is pressed or bent in suitable dies into a structure having an integral back wall 3, side walls 4 and 4', and end walls 5, as well as being open at its front for the insertion of the filling material *a* and curved
85 substantially in accordance with the periphery of the car wheel, on which the brake shoe is to be used.

The usual supporting lug 6 is connected or fixed to the back 3 of the casing 2 in any
90 suitable manner for connecting the shoe 1 to the ordinary approved brake head or hanger, and is preferably separate therefrom, as shown, by having its inner ends 6' passed through slots in said back and turned against the inner face of the same to connect said lug to said casing. Short bearing
95 surfaces 7, which are adapted to abut against bearings on the ends of the brake head or hanger, are formed on the back wall 3 of the casing 2, adjoining its ends, and such bearing surfaces are preferably recessed as at 8, while central or intermediate
100 bearings on said head or hanger are adapted to abut against said back wall and on each side of the lug 6.

The rubbing or frictional action of the
105 brake-shoe 1 upon the wheel *b* is exerted by the frictional member *a*, which consists of a filling of any suitable material, such as cast-iron, or composition of matter specially prepared for the purpose, and of such char-
110

acter as to exert proper and sufficient friction upon the periphery *c* of the wheel *b* without the imposition of undue or excessive pressure thereon, and compositions of this character are well known in the art. This filling *a* is either cast into the casing 2 or inserted in such casing under pressure and retained in position, after hardening, by the walls of the casing, and the inner side wall 4' of such casing is somewhat shorter in height than the outer side wall 4 of the same, so that when the inner side edge of the filling material *a* bearing against the curved corner connection *d* between the flange *e* and the tread *f* on the periphery *c* of the wheel *b* will allow the inner bearing face *a'* of said filling to conform to the taper or incline of said tread as such face is worn down and thereby permit said inner side wall 4' to have its edge in the same relation to said face as the outer side wall edge in the further wearing down of said filling and walls. The corner connection 5' between the inner side wall 4' and end walls 5 on the casing 1 is also curved on said ends and thus thereby conforms to the curved connection *d* between the flange *e* and tread *f* on the periphery *c* of the wheel *b* for the same purpose as the shortened inner wall 4' on said casing, as above described in the wearing down of the filling *a* and end walls 5.

It will be evident that my improved brake-shoe 1 can have its side walls 4 and 4' flat or corrugated, while various other modifications and changes in the design and construction of my improved brake shoe may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

It will thus be seen that when my improved brake-shoe is in use there will be no loss of braking surface on the shoe and therefore no loss of braking power by said shoe on the wheel, which will therefore prevent any weakness of the inner side of the shoe casing caused by the melting of the casing from the heat in the braking and from the undue wearing down of said side.

It will also be seen that in the use of my improved shoe the metal of the same will not contact with the throat on the wheel, and thereby avoid the formation of a sharp flange at such point on said wheel, which necessitates the removal of such wheels for retreating or turning to their proper shape, and also lessens the danger of broken wheels, such as are very liable to occur when the metal of the shoe wears a sharp flange or shoulder at such throat while the whole bearing surface of the shoe is retained with the increased amount of the composition bearing on the wheel over the cut out metal shoes, as such composition has more friction than the metal and at the same

time the result desired is obtained and the efficiency of the shoe is increased.

What I claim as my invention and desire to secure by Letters-Patent is—

1. A brake-shoe comprising an inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material.

2. A brake-shoe comprising an inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, and said ends being curved at their inner corners to conform to the shape of the wheel between its flange and tread.

3. A brake-shoe comprising an inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, and said ends being curved at their inner corners from said inner sides to conform to the shape of the wheel between its flange and tread.

4. A brake-shoe comprising a metallic inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material.

5. A brake shoe comprising a metallic inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, and said ends being curved at their inner corners to conform to the shape of the wheel between its flange and tread.

6. A brake shoe comprising a metallic inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, and said ends being curved at their inner corners from said inner sides to conform to the shape of the wheel between its flange and tread.

7. A brake shoe comprising an inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, said sides being corrugated.

8. A brake shoe comprising an inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, and said ends being

curved at their inner corners to conform to the shape of the wheel between its flange and treads, said sides being corrugated.

9. A brake-shoe comprising an inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, and said ends being curved at their inner corners from said inner sides to conform to the shape of the wheel between its flange and treads, said sides being corrugated.

10. A brake-shoe comprising a metallic inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, said sides being corrugated.

11. A brake-shoe comprising a metallic inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than its outer side and said material, and said ends being curved at their inner corners to conform to the shape of the wheel between its flange and tread, said sides being corrugated.

12. A brake shoe comprising a metallic inclosing casing and a filling of frictional material, said casing being provided with sides and ends around said material and having its inner side shorter in height than

its outer side and said material, and said ends being curved at their inner corners from said inner sides to conform to the shape of the wheel between its flange and tread, said sides being corrugated.

13. As a new article of manufacture a metallic brake shoe inclosing casing having one of its sides shorter than the other in height, and having its ends of the same height as the deeper side and curved to the shorter side.

14. As a new article of manufacture a metallic brake shoe inclosing casing having one of its sides shorter than the other in height and corrugated, and having its ends of the same height as the deeper side and curved to the shorter side.

15. As a new article of manufacture a brake shoe inclosing casing having one of its sides shorter than the other in height, and having its ends of the same height as the deeper side and curved to the shorter side.

16. As a new article of manufacture a brake shoe inclosing casing having one of its sides shorter in height than the other and corrugated, and having its ends of the same height as the deeper side and curved to the shorter side.

In testimony whereof, I the said JOHN JACOB KINZER, have hereunto set my hand.

JOHN JACOB KINZER.

Witnesses:

JOHN E. McCALMONT,
J. N. COOKE.