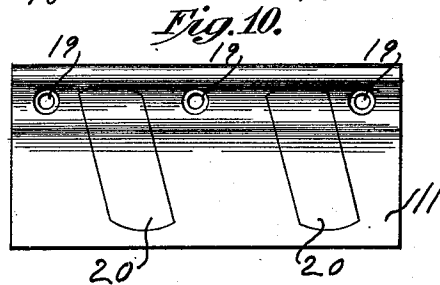
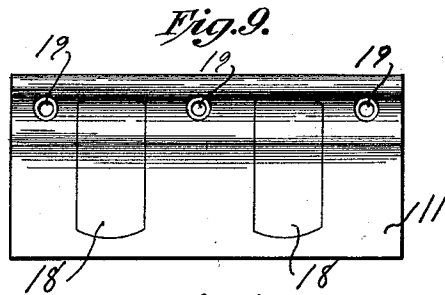
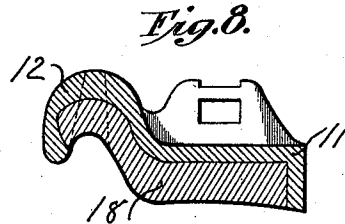
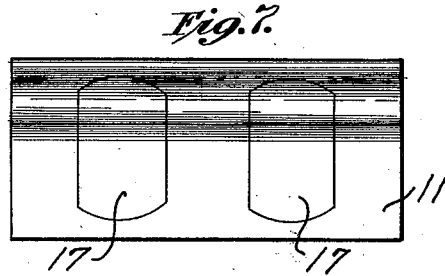
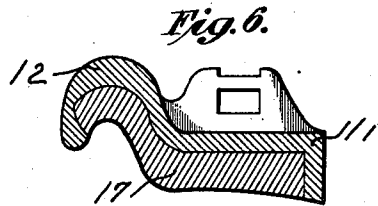
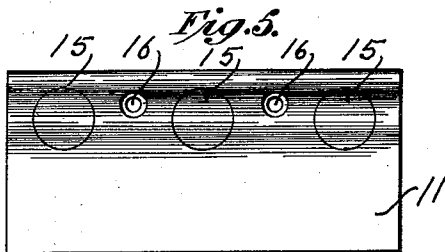
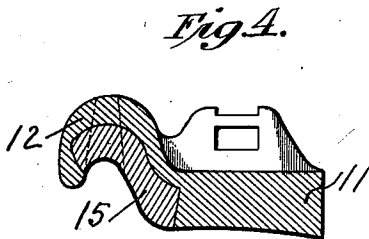
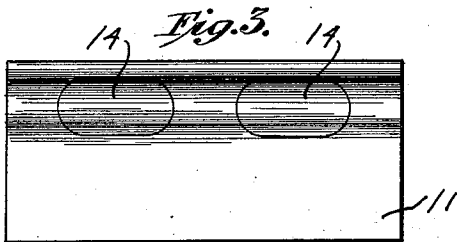
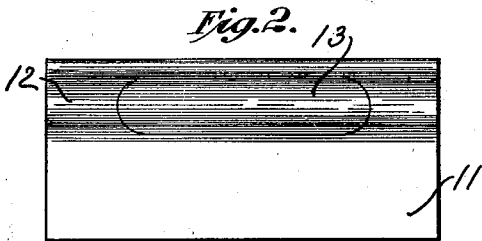
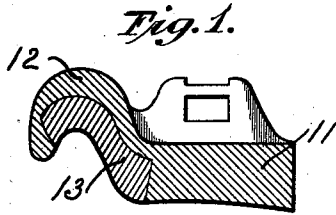


FITZ WILLIAM SARGENT.
BRAKE SHOE.
APPLICATION FILED MAR. 8, 1911.

1,001,083.

Patented Aug. 22, 1911.



Attest:
R. H. Flint.

Fitz William Sargent, Inventor:
by *George Cook* Atty

UNITED STATES PATENT OFFICE.

FITZ WILLIAM SARGENT, OF MAHWAH, NEW JERSEY, ASSIGNOR TO EDWARD H. FALLOWS, OF NEW YORK, N. Y.

BRAKE-SHOE.

1,001,083.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed March 8, 1911. Serial No. 613,186.

To all whom it may concern:

Be it known that I, FITZ WILLIAM SARGENT, a citizen of the United States, and a resident of Mahwah, in the county of Bergen and State of New Jersey, have made and invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to an improvement in brake shoes, the object thereof being to so construct an article of this kind that the flange of the wheel will be subjected to less injury than is now commonly met with in the use of brake shoes of the type employed with flanged wheels.

In the use of flanged brake shoes, it is found that the flange of the wheel is particularly liable to injury, due largely to the heat developed in the comparatively thin flange of the wheel by contact with the flange of the shoe and which heating of the frame is liable to cause cracks to be formed therein; and the object of my invention more specifically stated, is to provide a shoe in which there will be less grinding action between the flange of the wheel and the flanged portion of the shoe than has heretofore been the case, and consequently less heat generated.

In order to secure the result above stated, I provide recesses or pockets located for the most part in the flanged portion of the brake shoe, and which pockets are filled with a composition composed wholly or principally of a non-metallic substance, or such substance selected and compounded with a view to avoiding as much as possible the grinding action and consequent generation of heat between the flange of the shoe and the flange of the wheel when the shoe is pressed against the latter. That is, I prefer to have the maximum braking effect produced by the contact of the shoe on the tread of the wheel, that portion of the shoe extending over the flange acting more as a guide to hold the shoe in place than for frictional purposes.

The composition employed is such that it will compact and polish without wearing away rapidly or be affected by heat, and will be preferably composed in part, at least, of materials having some lubricating properties and a high specific heat, as compared with the specific heat of the body of

the shoe, which is commonly formed from cast iron, so that the composition, in addition to being non-grinding in its nature, will also be preferably compounded with a view to securing a certain amount of lubricating action between the flange portion of the brake shoe and the flange of the wheel, which lubricating action will further reduce the grinding action between the shoe and the wheel flange, and as a consequence reduce the heating action incident to a metallic contact extending throughout the entire bearing surface of the shoe upon the wheel in brake shoes of the form in use at the present time.

With the objects above enumerated in view, my invention consists in the improved brake shoe illustrated in the accompanying drawing, described in the following specification and hereinafter particularly claimed.

In the drawing: Figure 1 is a view showing a transverse section of my improved brake shoe; Fig. 2 is a view showing the same as seen from a position beneath Fig. 1; Fig. 3 is a similar view showing a different disposition of the pockets and filling material therein; Fig. 4 is a view showing a transverse section of a brake shoe wherein the pockets, with filling material therein, are used in addition to openings extending through the flange of the shoe; Fig. 5 is a view showing the same as seen from a position beneath Fig. 4; Fig. 6 is a view showing a transverse section of the pockets and filling material extending across both the flange portion and face of the shoe; Fig. 7 is a view showing the shoe seen from a position below Fig. 6; Fig. 8 is a view similar to Fig. 6 and showing a similar shoe, openings extending through the flange being, however, used in addition to the pockets; Fig. 9 is a view showing the shoe illustrated in Fig. 8, as seen from a position beneath such figure, and, Fig. 10 is a similar view showing a slightly different disposition of the pockets and filling material.

In Figs. 1 and 2, 11 is the body portion of the brake shoe, and 12 the flange thereof, the body portion being adapted to engage the tread of the wheel and the flange of the shoe adapted to extend over the flange of the wheel, as will be understood. The body of filling material or composition 13 is

placed within a recess provided for it in the brake shoe, and which recess is located mainly in the flange portion of the shoe, but preferably extends slightly into the wearing face thereof, so that the composition will come into contact with the flange of the wheel and that portion of the tread adjacent thereto, where the maximum wear, due to contact with the rails, occurs. The filling material may be in a single mass as in Fig. 2, or divided into two or more bodies as shown at 14, Fig. 3.

In Figs. 4 and 5, I have shown pockets filled with composition 15 used in addition to openings 16 extending through the flange of the shoe, said openings serving to permit material worn from the shoe and from the bodies of composition to readily escape from between the shoe and wheel face, and which openings also secure a more effective dissipation of the heat, providing, as they do, greater radiating surface for the shoe, and also passages through which a flow of air may occur.

In Figs. 6 and 7 I have shown the pockets with filling material 17 as extending through the flange portion and across the face of the shoe; and in Figs. 8 and 9 I have shown similar pockets with filling material 18 used in addition to openings 19 extending through the flange of the shoe. If desired, the pockets and filling material may extend diagonally across the face of the shoe and flange as shown at 20, Fig. 10.

My improved brake shoe may be made by first forming a shoe with pockets or recesses in its surface, and then placing the non-metallic composition in the pockets, the same in such case being preferably in plastic form, or, the said composition may be first molded or otherwise formed into blocks of suitable form and size, which blocks are then placed in a mold and the molten metal of which the shoe is to be formed poured about the blocks.

The non-metallic, or semi-metallic composition, wherewith the recess in the shoe is filled, may be formed from various ingredients so long as it retains the characteristics of being a non-grinding composition, and as explained, preferably a composition having to some degree lubricating properties. Among such ingredients are graphite, asbestos, pulverized trap-rock, and similar substances having a higher specific heat than cast iron, the same being mixed and bound together with any suitable binding material. I, however, recommend that the compositions be formed from the ingredients mentioned below; as I have obtained better results by using compositions so formed than with any other compositions at present known to me.

In case the composition is to be formed

as a plastic and forced into pockets formed in the shoe, I recommend:

Fire clay	1 part	
Iron borings	3 parts	
Crushed iron ore	3	
Coal tar	1 part	70
Asphalt	$\frac{1}{2}$	

the ingredients being thoroughly mixed and heated to about 112° F. and pressed into the pockets of the brake shoe.

In case the composition is to be first formed into blocks to be placed in molds and the molten metal of the shoe poured about them, I recommend:

Fire clay	8 parts	80
Crushed slag	6	
Graphite	3	

the ingredients being thoroughly mixed and moistened so that they will pack, and formed into blocks of suitable shape under pressure of about 50 tons per square inch.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. A brake shoe comprising a body portion formed from cast iron and adapted to contact with the car wheel, said body portion having a flange adapted to contact with the flange of a wheel, and having a recess or pocket formed in said flange and extending into the portion of the shoe which contacts with the tread of the wheel, said recess being filled with a non-metallic substance having lubricating properties and the area thereof being small as compared with the entire bearing surface of the shoe.

2. A brake shoe comprising a body portion formed from cast iron, and adapted to contact with a car wheel, said body portion having a flange adapted to contact with the flange of a wheel, and having a recess or pocket formed in said flange and extending into the portion of the shoe which contacts with the tread of the wheel, said recess being filled with a non-metallic composition, one ingredient of which has lubricating properties the area of said recess being small as compared with the entire bearing surface of the shoe.

3. A brake shoe comprising a body portion formed from cast iron and adapted to contact with the car wheel, said body portion having a flange adapted to contact with the flange of a wheel, and having a recess or pocket formed in said flange portion and filled with a non-metallic composition, one ingredient of which has lubricating properties the area of said recess being small as compared with the entire bearing surface of the shoe.

4. A brake shoe, having a flange adapted to contact with the flange of a wheel, and

having a recess or pocket formed in said flange and filled with a non-metallic substance, said flange having holes extending therethrough.

5 5. A brake shoe, having a flange adapted to contact with the flange of a wheel and having a recess or pocket formed in said flange extending into the portion of the shoe which contacts with the tread of the
10 wheel; said recess being filled with a non-metallic substance and said flange portion having holes extending therethrough.

15 6. A brake shoe, having a flange adapted to contact with the flange of a wheel, and having a recess or pocket formed therein, and with holes extending therethrough, said recess being filled with a non-metallic composition, one ingredient of which has lubricating properties.

20 7. A brake shoe, having a flange adapted to contact with the flange of a wheel, and having a recess or pocket formed in said flange extending into the portion of the

shoe which contacts with the tread of the wheel and having holes extending there- 25 through, said recess being filled with a non-metallic composition, one ingredient of which has lubricating properties.

8. A brake shoe, comprising a body portion formed from cast iron and adapted to 30 contact with the car wheel, said body portion having a flange adapted to contact with the flange of a wheel, and having a recess or pocket formed in said flange, said recess being filled with a non-metallic substance hav- 35 ing lubricating properties and the area thereof being small as compared with the entire bearing surface of the shoe.

Signed at New York, borough of Manhattan, in the county of New York and State 40 of New York, this 18th day of February, A. D. 1911.

FITZ WILLIAM SARGENT.

Witnesses:

A. V. WALSH,
H. M. WHITE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."