

H. JONES.
BRAKE SHOE.

APPLICATION FILED DEC. 17, 1912.

1,130,171.

Patented Mar. 2, 1915.

Fig. 1.

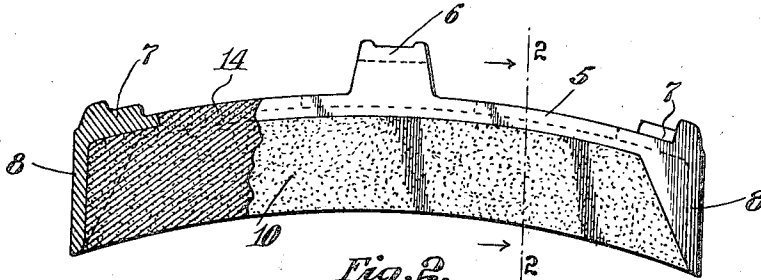


Fig. 2.

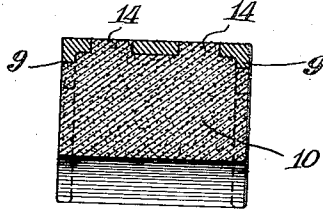
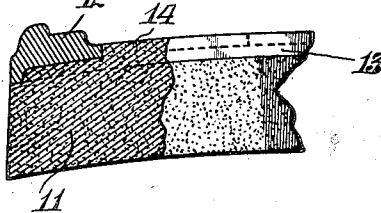


Fig. 3.



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HARRY JONES, OF SUFFERN, NEW YORK, ASSIGNOR TO EDWARD H. FALLOWS, OF NEW YORK, N. Y.

BRAKE-SHOE.

1,130,171.

Specification of Letters Patent.

Patented Mar. 2, 1915.

Application filed December 17, 1912. Serial No. 737,188.

To all whom it may concern:

Be it known that I, HARRY JONES, a citizen of the United States, and a resident of Suffern, in the county of Rockland and State of New York, have made and invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to brake shoes designed for use upon railway vehicles, and more particularly to brake shoes of the type commonly referred to as composition shoes wherein the body portion of the shoe which contacts with the periphery of the wheel and is worn away when the shoe is in use is made from a non-metallic composition, or substance, or from a composition composed for the most part of non-metallic ingredients; as distinguished from a brake shoe in which the body portion is of metal, such as iron or steel, or comprises a cast metal body having blocks, strips, or other shaped pieces of iron or steel embedded therein.

In the practice heretofore prevailing composition brake shoes have commonly been made up of an inclosing shell or casing within which a non-metallic composition is placed, the purpose of the shell being to support the body of non-metallic substance or composition and prevent it from crumbling or disintegrating as the shoe is forced against the periphery of the car wheel. The use of a non-metallic casing having side portions extending circumferentially of the car wheel has resulted in injury to the wheel, as by cutting grooves therein, the principal objection to composition filled shoes being this cutting or grooving action upon the wheels incident to the use of a casing having sides or edges extending circumferentially of the wheel.

I have found as the result of experiments performed with composition brake shoes that by using a plastic composition of definite character, and pressing the same against and into engagement with a supporting back by means of extremely high pressure, I am able to produce a shoe in which the composition body portion of the shoe is molded onto and united with the supporting back so firmly as to avoid the necessity of the usual side support for the mass or block of composition thus produced; and a shoe in which the non-metallic body portion is supported almost entirely from the metallic

back of the shoe, thus avoiding the necessity of side support along the entire length of the shoe; the result being that a shoe is produced in which there are practically no metallic portions extending longitudinally thereof and circumferentially of the wheel to cut or groove the periphery thereof, as has heretofore been the case. The shoe thus constructed will not cut or groove the wheel with which it is used because of the absence of metallic portions extending along the sides thereof, and the fact that the plastic composition is molded and pressed into engagement with the metallic supporting back under great pressure produces an exceedingly dense body portion for the shoe and one which will hold its shape and not break away or disintegrate in use, and at the same time produces a shoe the life of which is equal to that of shoes having a metallic body.

In the drawings accompanying and forming a part of this application, I have illustrated various forms of brake shoes in which the non-metallic composition is molded onto and supported from a supporting back practically without the aid of sides extending longitudinally of the shoe.

Referring to the drawing: Figure 1 is a view showing my improved brake shoe in side elevation, a portion thereof being broken away to show features of internal construction; Fig. 2 is a view showing a section upon a vertical transverse plane indicated by the line 2-2, Fig. 1; Fig. 3 is a view showing another form of supporting back.

Referring to Figs. 1 and 2 of the drawing, the reference numerals 5 designates a supporting back formed from cast or malleable iron and provided with a central attaching lug 6, and with end stops 7, the central lug and end stops being provided for the purpose of attaching the shoe to a standard form of brake head as will be understood.

The supporting back 5 is, in the form of my invention shown in Figs. 1 and 2, provided with depending portions 8 located at each end thereof and extending throughout the thickness of the composition body portion of the shoe; and said end portions are provided with triangular shaped side walls as shown for strengthening and bracing the same, said end portions being obviously

worn away simultaneously with the body portion when the shoe is in use. The back is also provided with depending side flanges 9 extending along the sides thereof and merging with the triangular walls aforesaid of the ends, but which flanges do not extend downward to such an extent that they will come into contact with the periphery of a car wheel at any time during the life of the shoe.

The reference character 10 designates a mass or block of non-metallic composition or substance, or a composition which is essentially non-metallic in character although it may contain a metal as an ingredient, for example a metal in a finely divided form such as comminuted iron borings. This non-metallic substance or composition is prepared in a plastic form and is molded and forced into contact with the metallic supporting back under great pressure as by means of a hydraulic press, the back being supported in such a way as to confine the composition within a suitably shaped cavity and prevent lateral flow thereof as the same is forced into contact with the supporting back. The shoe thus produced comprises a metallic supporting back and a body portion of non-metallic composition supported therefrom without the aid of the usual metallic side portions extending longitudinally of the shoe. The end portions 8 of the back in this form of my improved brake shoe assist in holding the composition body portion in place, and, as they extend transverse to the periphery of the car wheel, do not cut or groove the same. I may, however, dispense with these ends and support the composition body portion entirely from the back of the shoe in the manner shown in Fig. 3, wherein 11 designates a composition body portion supported from a metallic back without the assistance of portions of the back like the end portions 8 extending toward the car wheel and contacting therewith as the shoe is worn away. The form of back shown in this figure is provided with flanges 13 similar to the flanges 9, but these flanges do not come into contact with the periphery of the wheel during the normal or intended life of the shoe, and may contact therewith only in case the shoe is subject to excessive wear and is worn thinner than is usually the case before the shoe is discarded. In both forms of my device the metallic supporting plate or back will be provided with openings into which portions of the non-metallic composition will enter as shown at 14; this being for the purpose of securing a more firm anchorage between the back and

the non-metallic body portion supported therefrom.

In view of the premises, it will be appreciated that the distinguishing characteristic of my invention is a brake shoe in which a composition body portion is molded upon and forced into contact with and supported from a metallic back without the assistance of the usual metallic sides extending longitudinally of the shoe and which sides would contact with the periphery of the wheel when the shoe is in use, as distinguished from a composition filled brake shoe in which the non-metallic composition is held within a casing the sides of which contact with the periphery of the wheel and are worn away simultaneously with the body portion of the shoe.

The ingredients from which the composition which forms the body portion of my brake shoe is made may be varied within wide limits without sacrificing the advantages of my invention, so long as the body portion formed by the composition is supported from the metallic back as distinguished from within a casing having longitudinally extending sides. I have, however, used a composition made up of the following ingredients in approximately the quantity stated; and have found the same to give satisfactory results in practice:

Pulverized iron-ore.....	15 lbs.	
Pitch	6 "	
Asphalt	7 "	
Fire clay	8 "	95

these ingredients being mixed in a heated condition and forced into contact with the metallic supporting back of the shoe as above explained under a pressure of 350 pounds per square inch, or thereabout.

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

A brake shoe comprising a metallic supporting member having an opening and provided with a depending portion located at each end thereof and which dependent portions are provided with triangular side walls, and a non-metallic body portion supported by said back and located between said ends and a portion of which enter the openings in said supporting member.

Signed at Mahwah, in the county of Bergen, and State of New Jersey, this 12th day of December, A. D. 1912.

HARRY JONES.

Witnesses:

FRANK W. TAYLOR,
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