FITZ WILLIAM SARGENT.

BRAKE SHOE.

APPLICATION FILED MAR. 20, 1916.

1,184,137. Patented May 23, 1916.

Fig. 1.

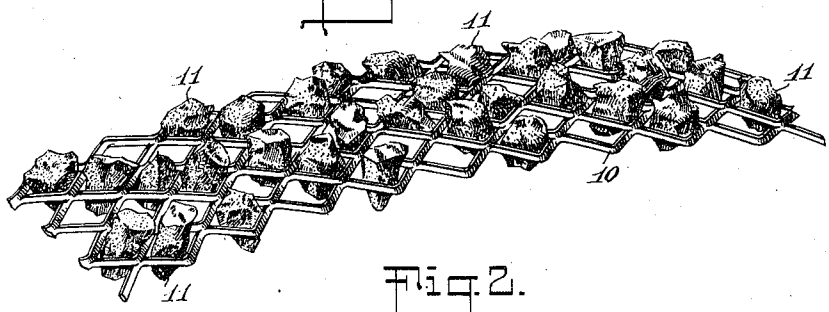


Fig. 2.

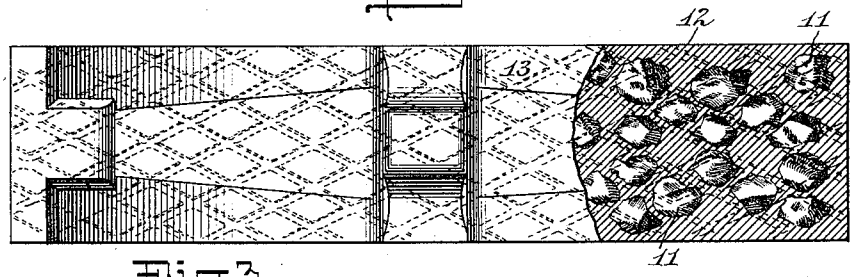


Fig. 3.

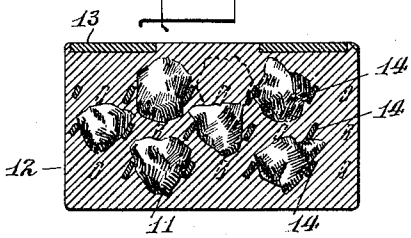


Fig. 4.

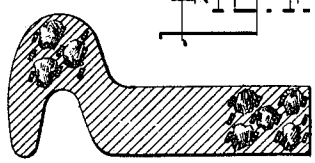


Fig. 5.

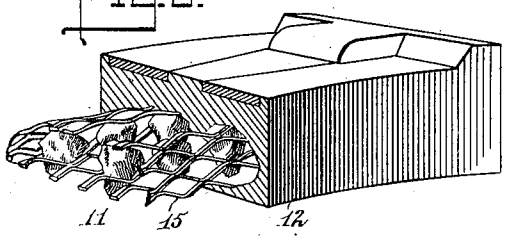


Fig. 6.

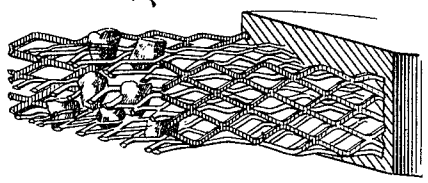


Fig. 7.



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BRAKE-SHOE.

1,184,137. Specification of Letters Patent. Patented May 23, 1916.

Application filed March 20, 1916. Serial No. 85,309.

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 brake shoes such as are used for dressing and truing car wheels.

The dressing and truing qualities of this type of brake shoe are obtained by incorporating in the cast metal body, hard mineral abrasives, which, upon contacting with the tread and flange of the wheel, grind and true the same, the abrasive inserts being localized so as to counteract the wear of the rail upon the flange and tread of the wheel. In order to prevent the abrasive inserts from becoming disarranged during the casting of the shoe, it has been the usual practice to anchor them in position by means of nails, or by forcing the inserts into the sand of the mold. This separate securement of each insert in position, requires considerable time and labor, and much difficulty has been experienced by one or more of the abrasive inserts becoming displaced and shifting to undesired parts of the shoe, or collecting at one locality, and thereby producing a bad cutting effect upon the car wheel. The occurrence of several abrasive inserts at one point, prevents the molten metal from flowing completely therearound, materially weakening the shoe and allowing the abrasive inserts to be easily dislodged during service. A further objection to this securement of the abrasive inserts, is that relatively large lumps of abrasive material must be used, and arranged in a single layer, which produces an injurious effect upon the car wheel, by the continuous grinding and abrading action at fixed points. The weakening effect upon the shoe, by the presence of large lumps of abrasives, prohibits the employment of lumps sufficiently large to extend from the wearing face to the back of the shoe, so that the abrading properties are not present throughout the entire serviceable life of the brake shoe.

It is therefore an object of my invention to provide a brake shoe wherein the abrasive inserts may be easily and quickly arranged, and securely anchored, in an orderly and symmetrical position, within the mold, this end being attained by the employment of a bundle of expanded metal, with regularly spaced openings, in which the abrasive inserts are wedgedly fixed and anchored. Relatively small abrasive inserts may accordingly be used, and arranged in superposed layers, extending from the wearing face of the shoe to the back, causing the points at which the grinding and abrading action takes place, to continuously shift over the face of the shoe as it wears, and also providing that the dressing and truing qualities of the shoe are maintained throughout the serviceable life thereof.

A further object is to provide a brake shoe wherein the anchoring means for holding the abrasive inserts in place during casting, subsequently form a part of the body of the shoe, and reinforce the same throughout, and also form a part, and add to the effectiveness, of the matrices in which the abrasive inserts are located and held.

Other objects and advantages will appear as the description proceeds, wherein it is to be understood that changes in the precise embodiment of the invention can be made within the scope of what is claimed without departing from the spirit thereof.

The preferred embodiment of my invention is disclosed in the accompanying drawings, wherein:

Figure 1 is a view in perspective of a strip of expanded or openwork ductile metal, with the lumps of the abrasive inserts wedged within the various interstices thereof; Fig. 2 is a view in top plan of my improved brake shoe, with a portion of the body thereof broken away; Fig. 3 is a view in vertical section of the brake shoe illustrated in Fig. 2; Fig. 4 is a view in vertical section of a brake shoe, with the abrasive inserts localized or confined to certain portions thereof; Fig. 5 is a fragmentary view in perspective of a brake shoe in which the reinforcing member is formed as a cage for the retention of the abrasive inserts; Fig. 6 is a view in perspective, illustrating the arrangement of the abrasive inserts and strips of open-work metal, in superposed layers; and Fig. 7 is a view in longitudinal vertical section of a portion of a brake shoe having the above arrangement of abrasive inserts and reinforcing strips incorporated therein.

Referring specifically to the several views,

a reinforcing member 10, formed of expanded ductile metal, is provided with abrasive inserts 11, which are forcibly wedged between the various strands thereof and rigidly anchored in place. The reinforcing member is provided with regularly spaced openings, so that the small lumps of abrasive inserts may be easily and quickly arranged in regular and symmetrical position, and rigidly anchored and held in spaced relation, so that after the body of the shoe has been cast, each abrasive insert will be completely surrounded by molten metal.

The reinforcing member accordingly acts as a spacer, and is positioned within a mold and the body 12 of the brake shoe cast thereabout, the usual type of steel back 13 being incorporated in the shoe if desired.

As disclosed in Figs. 3, 4, 6 and 7, the reinforcing member may be made up of a number of superposed layers 14 of expanded metal, and the lumps of abrasive inserts arranged in staggered relation. The somewhat modified form of reinforcing member or spacer 15, disclosed in Fig. 5, has the side edges thereof overturned so as to form and effect a complete cage, in which the abrasive inserts are contained. The reinforcing member in the several forms disclosed may, if desired, extend throughout the entire body of the shoe, and the abrasive inserts be confined or restricted to certain portions thereof, this latter feature being clearly illustrated in Fig. 4.

The ductile strands of the reinforcing member which surround, either partially or completely, each abrasive insert, become flattened and wedgedly driven against the inserts, and add to the effectiveness of the matrices in holding the lumps of abrasive inserts against dislodgment. The openwork metal reinforces the shoe throughout, and counteracts the weakening effect due to the presence of the abrasive inserts.

What I claim is:—

1. A brake shoe comprising a cast metal body, with a reinforcing member of openwork metal therein, and lumps of abrasive inserts in said body.

2. A brake shoe comprising a cast metal body, an openwork reinforcing member therein, and lumps of abrasive inserts embedded in said body and combined with said ductile reinforcing member.

3. A brake shoe comprising a cast metal body with an openwork reinforcing member therein, and lumps of abrasive inserts located between the strands of said reinforcing member.

4. A brake shoe comprising a cast metal body with a reinforcing member having regularly spaced intermeshing strands and lumps of abrasive inserts embedded in said body and located between the strands of said reinforcing member.

5. A brake shoe comprising a cast metal body with a bundle of expanded metal therein, abrasive inserts embedded in said body, arranged in superposed layers and combined with the strands of said expanded metal.

6. A brake shoe comprising a cast metal body with a reinforcing member of openwork ductile metal therein, and relatively small lumps of abrasive inserts embedded within the body of said shoe, associated with the strands of said openwork metal and arranged in superposed layers extending from the wearing face to the back of said shoe body.

7. A brake shoe comprising a cast metal body with a reinforcing member therein and formed of superposed layers of openwork metal, and lumps of abrasive inserts positioned between the layers of said reinforcing member.

Signed at Mahwah, in the county of Bergen and State of New Jersey, this seventh day of March A. D. 1916.

FITZ WILLIAM SARGENT.

Witnesses:
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CHARLES N. WINTER.