

J. H. MITCHELL.
Brake-Shoe.

No. 220,165.

Patented Sept. 30, 1879.

Fig. 1.

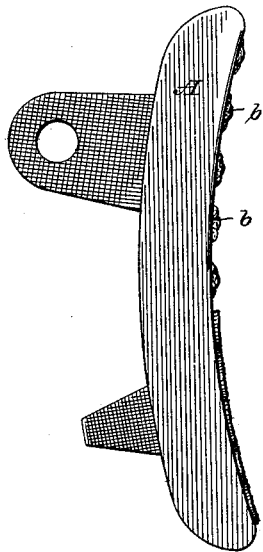


Fig. 2.

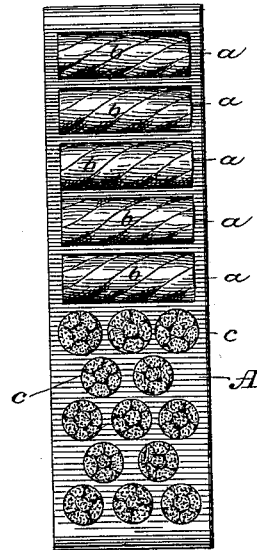


Fig. 3.

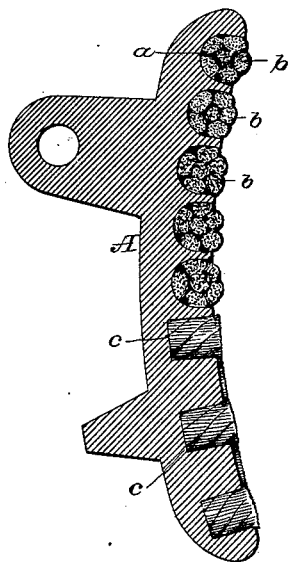
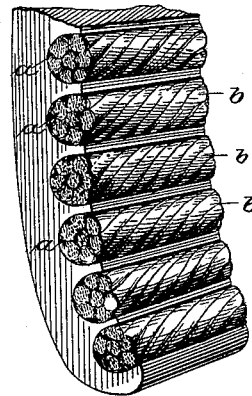


Fig. 4.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN BRAKE-SHOES.

Specification forming part of Letters Patent No. **220,165**, dated September 30, 1879; application filed August 19, 1879.

To all whom it may concern:

Be it known that I, JOHN HOWARD MITCHELL, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Brake-Shoes for Railway-Cars, of which the following is a specification.

My invention relates to brake-shoes for the wheels of railway-cars and other vehicles of that class, in which the substance coming in frictional contact with the periphery of the wheel is embedded in the body of the shoe, made of metal or some equivalent material.

The object of the invention is to provide an inexpensive shoe, which shall be capable of adhering to the surface of the wheel with great frictional power, and which will operate equally well in dry or wet weather.

My invention, which I call the "hold-fast brake-shoe," consists in forming the said frictional surface of rope or other textile fabric made of fibrous materials, as hereinafter more fully described.

In the drawings hereunto attached, and forming part of this specification, Figure 1 is a side view, Fig. 2 a face view, and Fig. 3 a longitudinal vertical section, of my improved shoe. Fig. 4 shows a portion of the face of my improved brake-shoe in a modified form.

In constructing my shoe, I make the body of the shoe of cast-iron, of ordinary shape, and with ordinary devices for attaching it to the brake-bar. The surface of the shoe is formed, as in ordinary shoes, with a curve adapted to the curve of the wheel to which it is to be applied. This curved surface I have cast with or cut into grooves or channels either rectangular in cross-section, or any other shape adapted to hold the material when once pressed within them.

The cavities may be in form of transverse or longitudinal grooves, or they may be simply perforations in the face of the shoe, care being taken to leave a sufficient thickness of metal at the back. Into the perforations or cavities thus formed I force, by very powerful pressure, pieces of ordinary rope, or of rope composed of any ordinary material, which rope constitutes the wearing or frictional surface of the shoe.

Instead of the rope, I may use other textile fabrics, made from any known fibrous material.

In order to make the lining sufficiently water-proof, the rope may be boiled in resin until well saturated, and then pressed into cavities while hot.

Referring more particularly to the drawings, the brake-shoe A is represented as made in Fig. 2 with transverse cavities or pockets, which are shown also in section in Fig. 3, and which are marked *a*. Into these cavities the sections of rope *b b* are powerfully pressed.

In the same figures is shown another form, which may be adopted, if preferred. In those figures round holes *c c* are represented—in plan view in Fig. 2, and in section in Fig. 3. These cavities may be from one to two inches in depth, according to the nature of the material used or the thickness of the iron. Where the round holes are used, the rope or other fibrous material is forced in endwise, and the end of the fibrous material presented to the wear of the wheel.

In Fig. 4 a section of a brake-shoe is shown without any flanges of metal, the grooves running the entire width of the shoe. In this case, as in the other, the material is held in the grooves by being powerfully and compactly pressed in, as heretofore described.

A shoe formed of the material and in the manner described will, as has been stated above, operate uniformly and with the best effect, either in wet or dry weather. It does not injure the wheel by causing it to wear hollow, as is the case with many other kinds of brake-shoe, and by the use of this shoe the life of the wheel is very much prolonged, and the brakeman (or engineer, in case an air or vacuum brake is used) has perfect control of all the wheels under the cars, as the gripe is always certain.

I am aware that brake-shoes have been heretofore described in which wood or india-rubber was used for filling cavities in the face of the shoe, forming the wearing-surface, and I desire to limit my claims so as not to include such devices.

My invention includes only a fibrous mate-

rial, such as ropes, in which separate fibers are formed into a solid mass and pressed into the cavities with great force.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A brake-shoe made with recesses, in combination with a fibrous packing, which forms the wearing-surface, as and for the purpose set forth.

2. A cast or wrought iron brake-shoe, formed

with grooves or holes in its wearing-surface, in combination with sections of rope pressed into said cavities, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN HOWARD MITCHELL.

Witnesses:

A. B. JUSTICE,

D. HOWARD JOHNSTON.