No. 646,451. Patented Apr. 3, 1900.

J. P. McINTYRE.

BRAKE SHOE.

(Application filed Sept. 14, 1899.)

(No Model.)

FIG. 2.

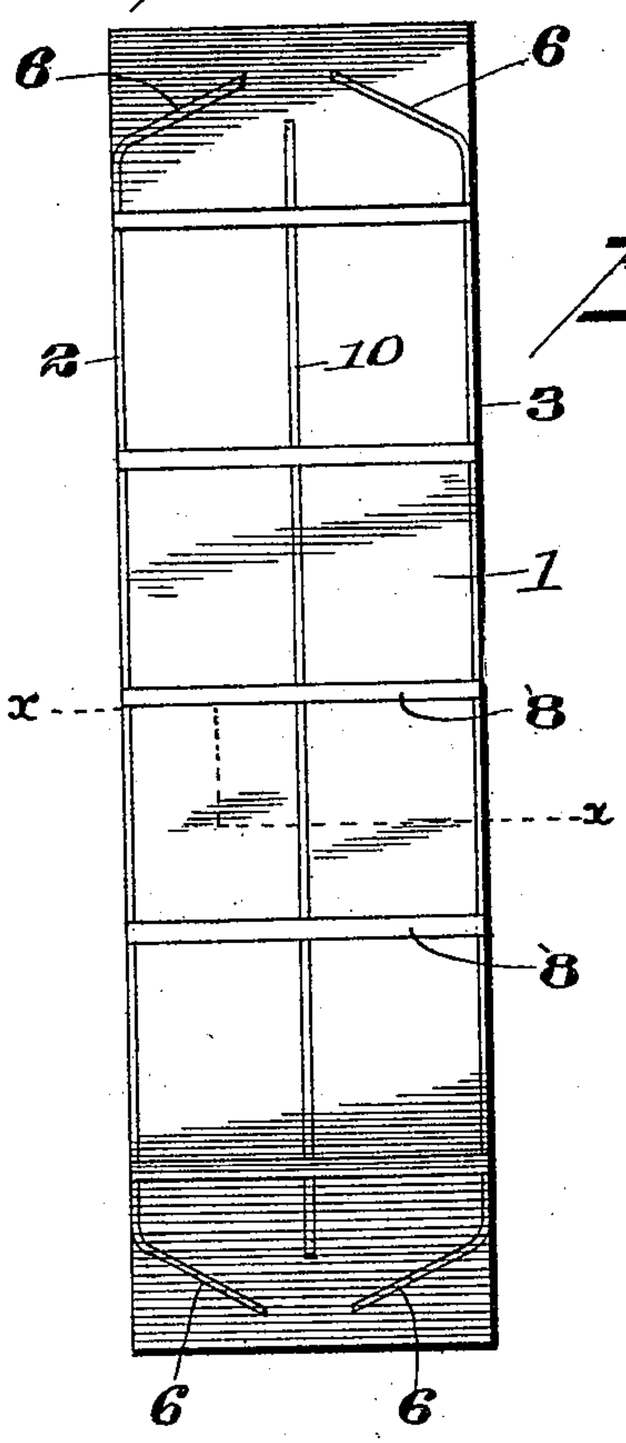


FIG. 1.

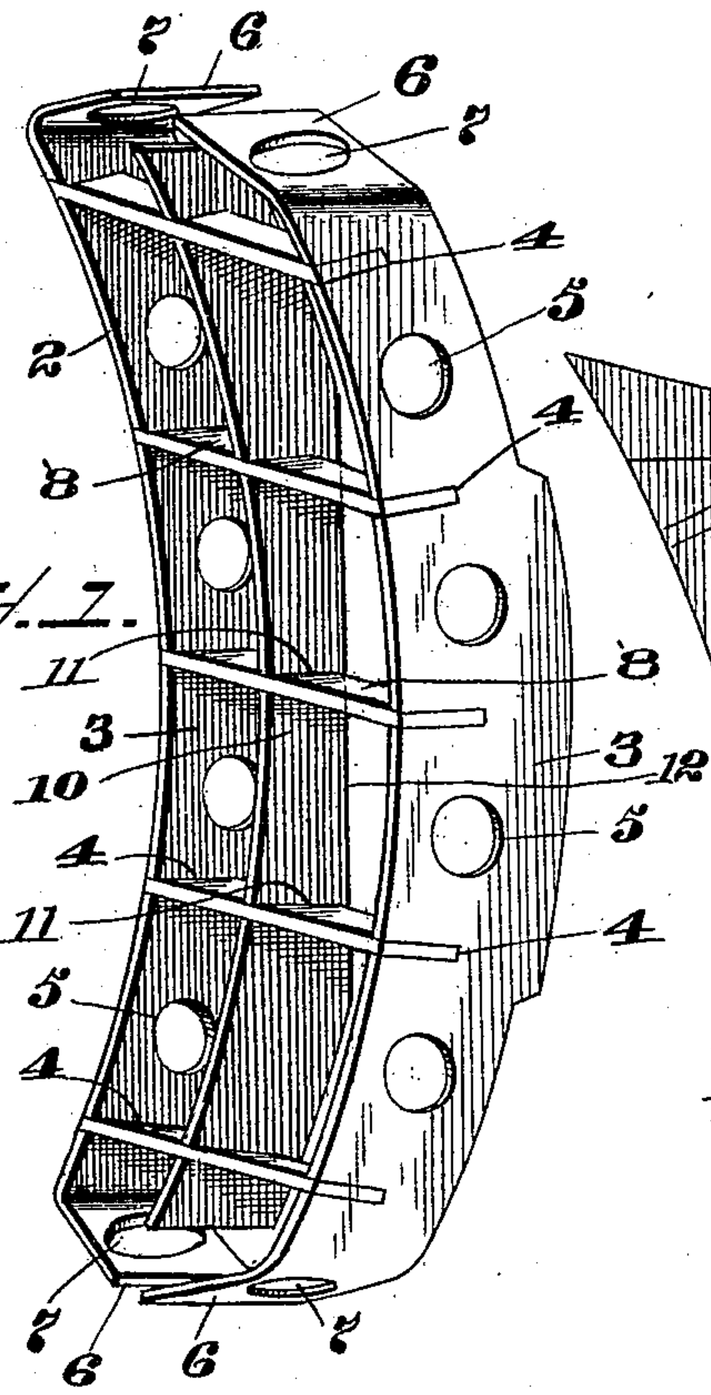


FIG. 3.

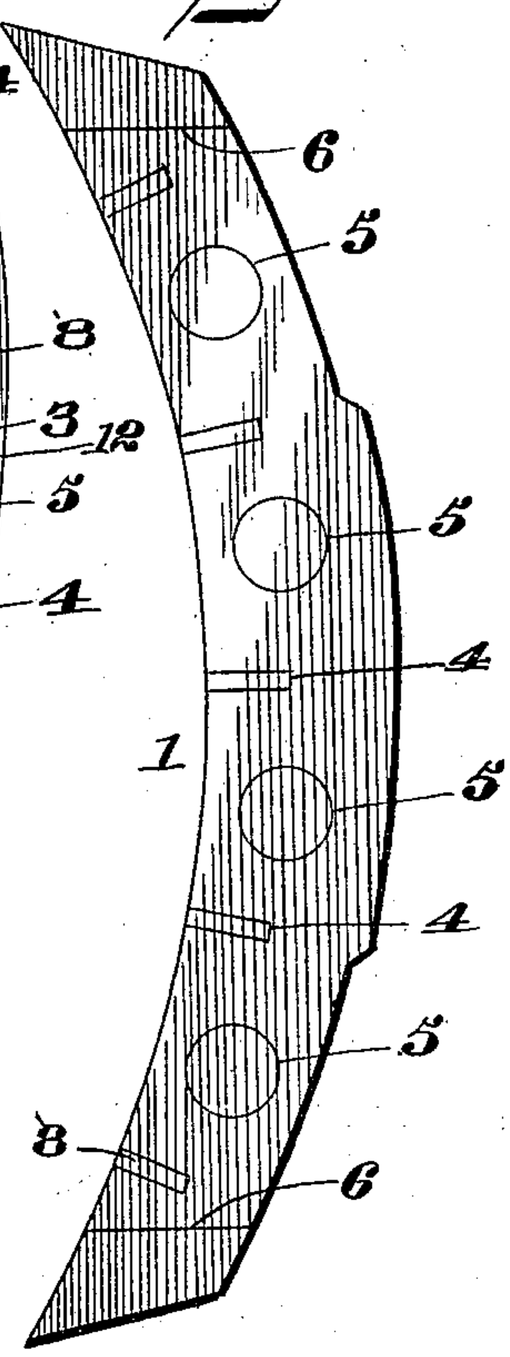
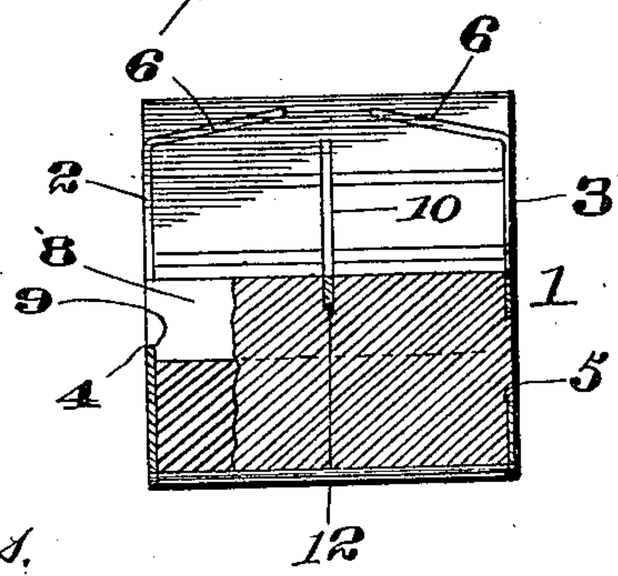


FIG. 4.



WITNESSES

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BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 646,451, dated April 3, 1900.

Application filed September 14, 1899. Serial No. 730,487. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. MCINTYRE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brake-Shoes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in brake-shoes, and particularly to that class of brake-shoes which are provided with composite braking-surfaces.

It consists in a brake-shoe having a frame of wrought-iron, steel, or malleable iron comprising side pieces, a central piece, and cross-bars connecting the same, the said frame having cast metal molded so as to partially surround it to form the body portion of the shoe.

It also consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of the frame which is to be molded in a brake-shoe. Fig. 2 represents a face view of the brake-shoe; Fig. 3, a side elevation of the same, and Fig. 4 a transverse cross-section showing the manner in which the shoe is cast upon the frame.

1 in the drawings represents my improved brake-shoe, and 2 a wrought-iron frame.

The main body portion of the brake-shoe is preferably constructed of cast metal in order to obtain a good wearing-surface against the wheel or other article to be acted upon. In order, however, to give the cast metal sufficient strength and friction, I incorporate a frame of some stronger metal, such as wrought-iron, malleable iron, or steel. Of these I prefer wrought-iron.

The frame 2 is constructed of outer side pieces 3 3, having a series of notches, as at 4 4, extending inwardly from their wearing edges. The said side pieces are also provided with a series of apertures or holes, as 5 5, in order to attach the frame securely to the body of the brake-shoes, as will be hereinafter described. The ends of the side pieces 3 3 might extend the full length of the brake-shoe and be bent in at the ends; but I prefer to form and arrange them as shown in Fig. 2 of the drawings, the end portions 6 6 being bent inwardly before they reach the end of the brake-shoe and extending toward the central portion of the said shoe. The inner bent ends 6 are also preferably provided with securing-apertures, as 7 7. The sides 3 3 of the frame 2 are connected and held together by means of cross pieces or bars 8 8, the said bars being notched, as at 9, so as to form projecting end portions, which are adapted to extend into the recesses 4 4 formed in the said side pieces 3 3. The shoulders thus formed upon the ends of the bars 8 will operate to properly space the side pieces from each other. I also employ a central piece, as 10, which extends longitudinally through the central portion of the brake-shoe and is provided with a series of recesses or notches 11 11, which receive the bars 8. The recesses 11 are made slightly deeper than the recesses 4, because the bars 8 are preferably not notched or reduced in width at the center. The central piece 10 might extend the full length of the brake-shoe; but I preferably make it a little shorter, as seen in Fig. 2, so that its ends are embedded in the metal of the said shoe. The center piece 10 is not made as deep as the side pieces 3, being preferably cut away to some extent at the back and along its central portion, as seen at 12. This allows a solid back portion of the cast metal or body portion of the shoe, by which it may be securely attached to the applying mechanism. After the frame 2 is constructed in the manner described it is placed in a mold and the cast metal forming the body portion is run into the mold, filling the spaces in the frame and extending into the recesses 5 and 7 in the side bars 3, so that the frame will be thoroughly secured to the said cast body portion. The cast metal is preferably flush with the outer faces of the sides 3 3. The inwardly-bent portions 6 6 and the apertures therein also serve to thoroughly anchor the frame in place in the cast metal. The frame is so formed as to be flush with the inner bearing-surface of the brake-shoe, and therefore protects the said surface against too-rapid wear, as well as lending strength and durability to the shoe.

I am aware that composite brake-shoes

have been constructed heretofore; but they have not been provided with a frame constructed in accordance with my invention and attached to the brake-shoe in the same manner.

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

1. A brake-shoe comprising a strengthening-frame formed of side pieces, cross-pieces connecting the said side pieces, the said side pieces being provided with apertures and cast metal partially surrounding the said frame and engaging the said apertures for thoroughly securing the parts in place and forming a composite brake-shoe, substantially as described.

2. In a brake-shoe, the combination of a cast body portion, a frame for strengthening the same, comprising side pieces having a series of apertures formed therein for attaching it to the body portions, recesses formed in the said side pieces, cross-bars engaging the said recesses and connecting the side pieces, and a central piece also engaging the said cross-bars, the whole of the said frame being embedded in the cast body portion, substantially as described.

3. A brake-shoe comprising in its construction a cast body portion, a strengthening or stiffening frame comprising side pieces having attaching-apertures bent inwardly at their ends, cross-bars engaging the recesses in the said side pieces, said bars being notched at their ends to space the side bars at the proper distance apart, and a central piece parallel with the side pieces and having recesses for receiving the cross-bars, the said central piece not extending entirely through the body portion of the brake-shoe, whereby a strong attaching back portion is left upon the said brake-shoe, substantially as described.

4. A composite brake-shoe comprising a stiffening-frame made up of side pieces having a series of attaching-apertures, said side pieces being bent inwardly at their ends and said end portions having attaching-apertures also, cross-bars for holding the side pieces in place and engaging notches or recesses formed in the said side bars, a central piece parallel with the side pieces and provided with recesses or notches for engaging the cross-bars, the said central piece being made shallow at its central portion so as not to extend entirely through the brake-shoe and a cast body portion molded so as to partially surround the said frame and inclose the central piece and the cross-bars as well as the inner bent ends of the said bars, the said body portion also extending into the recesses of the said side bars for thoroughly securing the frame in the body portion of the brake-shoe, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES P. McINTYRE.

Witnesses:
A. H. DUNHAM,
N. HARTY.