(No Model.)

W. W. SNOW.

BRAKE SHOE.

No. 543,273. Patented July 23, 1895.

Fig. 1.

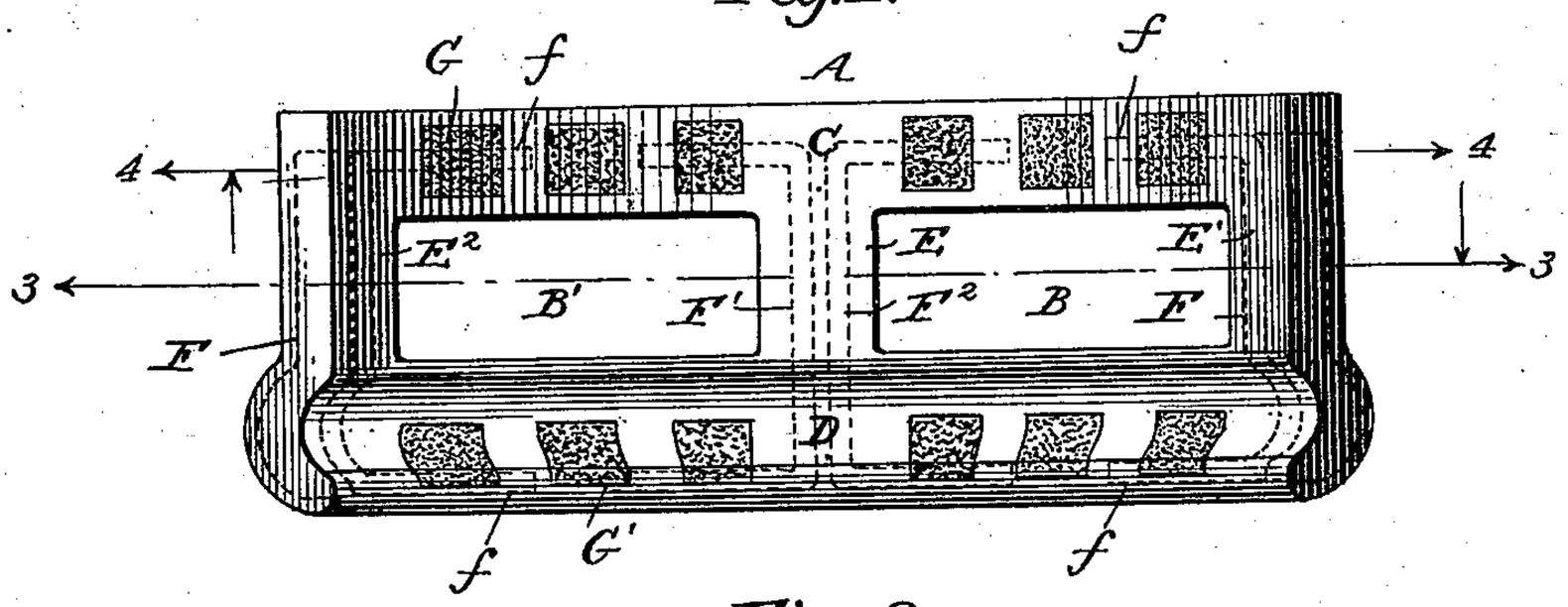


Fig. 2.

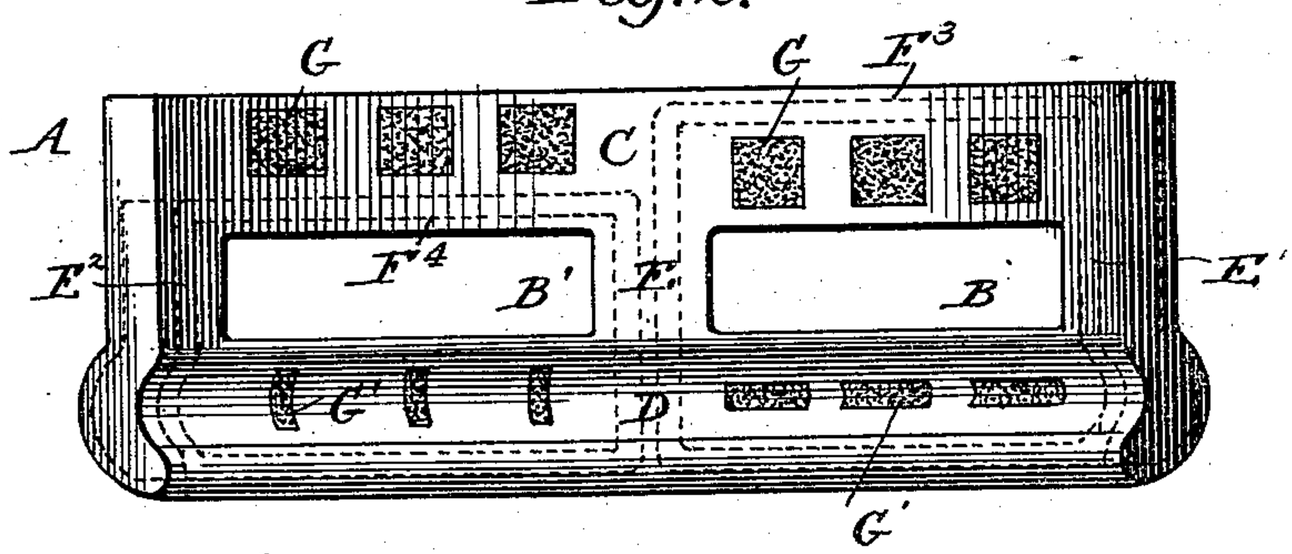


Fig. 3

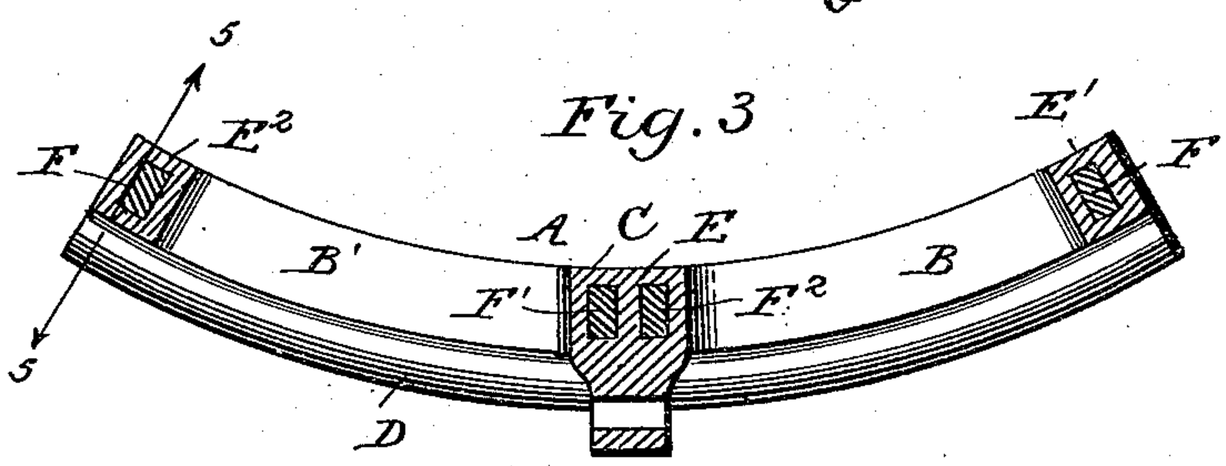


Fig. 4.

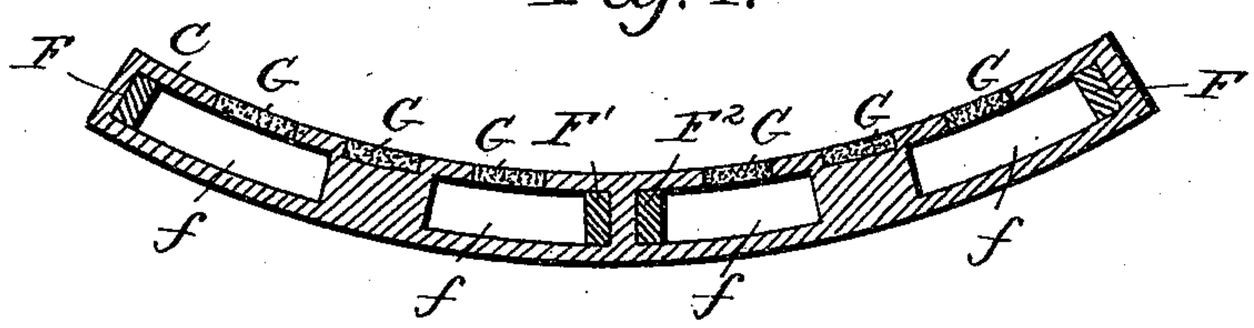
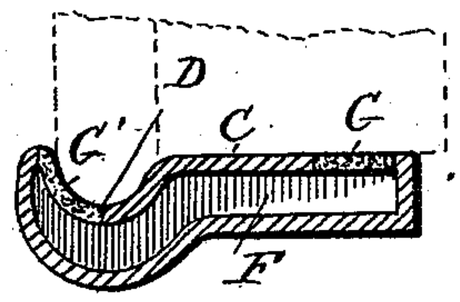


Fig. 5



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UNITED STATES PATENT OFFICE.

WILLIAM W. SNOW, OF HILLBURN, NEW YORK, ASSIGNOR OF ONE-HALF TO THE RAMAPO IRON WORKS, OF SAME PLACE.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 543,273, dated July 23, 1895.

Application filed April 8, 1895. Serial No. 544,997. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. SNOW, a citizen of the United States, residing at Hillburn, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to that class of brake-shoes which are adapted to serve as dressers of the car-wheels, as well as brakes—that is, which serve to dress down or wear away the car-wheel at certain points when the brakes are applied, which points are those which are subjected to the least wear in the running of the wheel on the track, so that the proper shape of the tread or wearing parts is preserved throughout the life of the wheel; and it has for its object to improve, simplify, and cheapen the construction of such shoes; and to these ends it consists in a brake-shoe having the various features of construction substantially as hereinafter more particularly pointed out.

Referring to the accompanying drawings, Figure 1 is a face view of a brake-shoe embodying my invention. Fig. 2 is a similar view of another brake-shoe embodying my invention. Fig. 3 is a longitudinal section of Fig. 1 on the line 3 3 looking toward the right. Fig. 4 is a similar longitudinal section of Fig. 1 on the line 4 4 looking toward the left, and Fig. 5 is a transverse section of the shoe applied to a portion of a car-wheel.

It is well known to those skilled in the art that the peripheries of car-wheels become worn most rapidly at certain portions of the tread near the flange, so that annular depressions or grooves are formed therein, while the flanges become lengthened and their contour changed, which seriously impairs the efficiency of the wheels and renders them liable to accident, and to prevent this and to so form the brake-shoe that when it is applied to the wheel for the purpose of stopping the same it will bear upon the unworn parts of the wheel and wear away or dress the wheel, so that it will retain substantially its original contour, as has heretofore been proposed, various forms of brake-shoes have been devised. Without reciting all that has been done in this art I will refer to Patent No. 523,084, as showing one of the latest developments in this line, and my invention may be said in a certain sense to be an improvement on the construction shown in this patent, although, of course, the principles of the invention may be applied to other forms of shoes.

It has been common to make shoes of this class of cast-steel, which, while it makes an effective shoe, is an expensive construction, and is objectionable on that account. Shoes have also been made of iron provided with wearing-surfaces of steel embedded in the face of the shoe; but in that case the shoe has had to be made solid in order to secure the requisite strength and involves a heavy shoe, and necessarily a relatively expensive one; and it is a further object of my invention to provide a brake-shoe having all the advantages of the construction shown in the patent above referred to, and at the same time to cheapen its construction, as well as to make it light and strong.

After this general statement, which is sufficient to those skilled in the art, I will now proceed to describe the preferred embodiment of my invention, as illustrated in the accompanying drawings, in which A represents the body of the brake-shoe, having openings B B′ in the central portion of the body to come opposite the groove worn in the wheel by the rail, while C is the side or face of the shoe which bears upon the inner portion of the periphery of the wheel, and D is the portion which bears upon the flange of the wheel. The side pieces C and D are connected together by the webs E E′ E^2, which portions come opposite the groove in the wheel and have little or no wearing or bearing surface on the wheel when the brake is applied. It is evident that these webs, which are preferably made as thin or narrow as possible, are an element of weakness in a shoe of this character, and especially so when the shoe is made of cast-iron, bronze, or other similar and inexpensive material, and it is even so, to a greater or less degree, when the shoe is made wholly of cast-steel. In order to overcome these objections and to make a shoe having the desired qualities at the least expense, I provide strengthening-pieces of wrought-iron or steel, which are formed or cast into the

body of the shoe and give the requisite strength and tenacity to the metal, insuring its integrity until it is completely worn out. Thus I provide the pieces F F of wrought metal, which are relatively thin, but as wide as practicable, and which are embedded or formed in the body of the shoe to give it the requisite strength. These strengthening-pieces may be variously formed and arranged in the shoe, and in Fig. 1 I have shown the piece F extending the length of the web E′ and having its ends *f* bent and extending a greater or less distance along the sides C D of the shoe. So also in the central web E, I have arranged two strengthening pieces F′ F² in a similar manner. In the form shown in Fig. 2 the strengthening-pieces F³ and F⁴ extend completely around the openings B and B′, respectively, one of them being shown as extending to the edge of the side C and the other as being adjacent the opening B′. In all instances it will be seen that the strengthening-pieces extend through the webs, which are the weakest portions of the shoe, and along the sides sufficiently to give the shoe the requisite strength and rigidity, and it is evident that these strengthening-pieces can be arranged in various ways and located in different positions, according to the requirements of any particular case. These strengthening-pieces F are shown as being completely embedded in the material of the shoe, and this is the preferable form, although the objects of my invention could be attained even if the strengthening-pieces extended to the outside of the shoe. These strengthening-pieces are not intended to form the wearing-surfaces of the brake-shoe, and this surface may be made in any way—that is, it may be formed by chilling portions of the shoe or by the insertion of wearing-blocks G G′, which blocks may be arranged in any desired or well-known way, several arrangements being indicated in the drawings, sufficient to enable those skilled in the art to understand the same.

The strengthening-pieces can be made of merchantable bar and can merely be bent around, as shown in Figs. 1 and 2, or their ends may be formed or shaped, as indicated in Fig. 5, to more nearly conform to the outline of the shoe; but all these matters of detail may be varied without departing from the spirit of my invention. It is unnecessary to describe how the shoe can be made embodying my invention, as it is evident to those skilled in the art that the strengthening-pieces can be formed or cast in the shoe in the process of making. It will thus be seen that by the use of my invention an exceedingly strong shoe can be made of cheap material, rendering it light and at the same time having a long life and possessing the advantages of the wrought metal, in addition to the well-known qualities of the cast metal.

I am aware that it has heretofore been suggested that brake-shoes be provided with strengthening-pieces, and I do not claim the use of such pieces broadly.

What I do claim is—

1. A brake-shoe having wearing surfaces to bear upon those portions of the wheels which do not make contact with the rail and having web portions connecting said bearing portions, and provided with strengthening pieces extending through said web portions and into the bearing portions, substantially as described.

2. A cast metal brake-shoe having wearing surfaces to bear on those portions of the wheels which do not make contact with the rail and having web portions uniting said bearing portions, and provided with wrought metal strengthening portions extending through the web portions and into the bearing portions, substantially as described.

3. A cast metal brake-shoe having wearing surfaces to bear upon those portions of the wheels which do not make contact with the rail, said wearing surfaces comprising wearing blocks mounted in said wearing surfaces, webs connecting the bearing portions, and strengthening bars of wrought metal extending through the web portions and into the bearing portions below the wearing surfaces, substantially as described.

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

WILLIAM W. SNOW.

Witnesses:
F. WILLIAM SNOW,
F. L. FREEMAN.