

A. L. STREETER.
 BRAKE SHOE.
 APPLICATION FILED JULY 25, 1910.

981,896.

Patented Jan. 17, 1911.

Fig. 1.

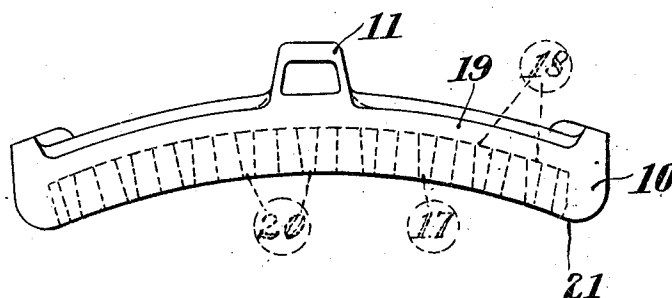


Fig. 2.

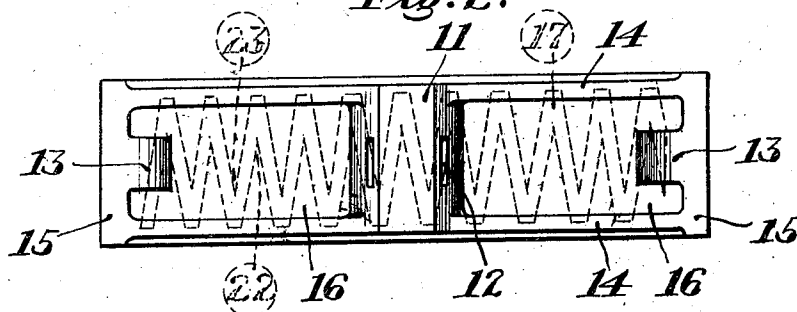
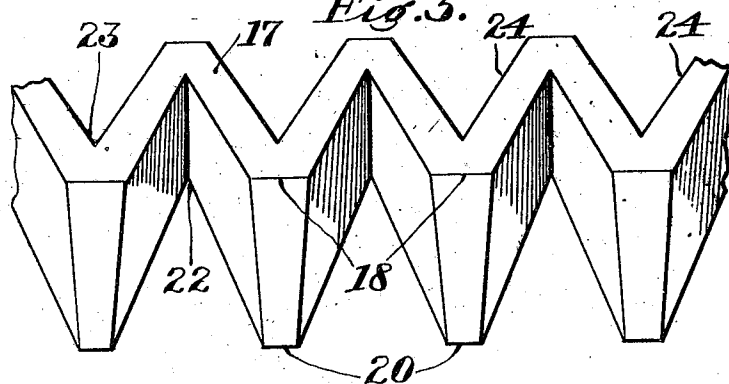


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALFRED L. STREETER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO ILLINOIS MALLEABLE IRON COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BRAKE-SHOE.

981,896.

Specification of Letters Patent.

Patented Jan. 17, 1911.

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To all whom it may concern:

Be it known that I, ALFRED L. STREETER, a citizen of the United States, and a resident of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My present invention relates to brake shoes and templates, first, the provision of an improved construction of brake shoe, and, second, the provision of an improved process for making said brake shoe.

The brake shoe made according to my improved process and containing my improvements comprises essentially a metal body portion, a wearing insert of harder metal than said body portion, a suitable means for attaching the brake shoe to the brake head, all of the general form and appearance of a number of different types of shoes made according to present accepted M. C. B. standards for freight and passenger car service, though it is obvious that my improvements may be utilized for the production of locomotive driver shoes, street car shoes and other brake blocks of divers forms and contours.

The principal objects of my present invention are the provision of an improved type of brake shoe having a ductile metal back and in addition thereto a ductile metal body portion better enabled than others known to me to withstand the shocks of service, and to accommodate itself to distortion of the brake head with which it is used, without fracture and consequent dropping of any portions of the shoe upon the track, thereby not only lessening the braking efficiency of the shoe but also giving rise to possible derailment of the car; the provision of an improved form of brake shoe wherein the ductile metal back and body portions thoroughly embrace the relatively rigid insert, and in the event of breakage prevent any portion of the insert from becoming disengaged from the body portion of the shoe and falling upon the track; the provision of an improved brake shoe comprising in combination a malleable body portion and a less malleable insert; the provision of an improved brake shoe especially adapted for use upon steel tired wheels and wheels having specially hard tread portions,

such as the Davis manganese steel wheel; together with such other objects as may hereinafter appear.

In the brake shoe practice carried on at this day, as known to me, no shoe has thus far been produced which is both adequately strong to meet service conditions and at the same time of sufficient braking quality for satisfactory use with wheels having tread portions of steel or other extraordinarily hard material, without scoring or grooving such treads, which is objectionable in this that such interruption of the continuity of the tread leads to breakage if not promptly removed by dressing, and that dressing of such hard material is both difficult and expensive.

In the attainment of the objects above stated, and in overcoming the disadvantages noted, I have provided a shoe, one embodiment of which is illustrated in the accompanying drawing, wherein—

Figure 1 is a side elevation of the shoe; Fig. 2 is a view of the back of the shoe; and Fig. 3 is a perspective view of one form of insert which I preferably use in connection therewith.

Referring first to Figs. 1 and 2, it will be observed that the shoe here shown comprises a body portion, 10, having formed integrally therewith an attaching lug, 11, having key-way, 12 (Fig. 2) adapted to receive the attaching key by means of which the shoe is fixed to the brake head, the bifurcated ends of which embrace the end lugs, 13--13. On either side of the lug, 11, and extending laterally to within, say, three-quarters of an inch of the sides, 14--14, of the shoe and longitudinally to within about one inch of the ends, 15--15, thereof, I provide recess, 16--16, in the back, such recess having a depth of about five-sixteenths of an inch, to the end that when the shoe is fully worn out and must be discarded there will be a minimum amount of scrap remaining, and thus the largest possible percentage of the metal of the body of the shoe will be utilized, rendering the shoe highly economical in service.

Referring now more particularly to Fig. 3, it will be observed that the insert, 17, (shown in dotted lines in Figs. 1 and 2) extends from the tread about two-thirds of the way to the back of the shoe and throughout

substantially the entire length of the shoe (as indicated in the dotted lines in Fig. 1). As is clearly to be seen from Figs. 1 and 2, the insert is perceptibly greater in cross section at its upper portions, 18, adjacent the back, 19, of the shoe than it is at its lower portions, 20, adjacent the tread, 21, of the shoe, this construction being provided for the purpose of preventing the insert from becoming disengaged with the body in the event of fracture either of the body or back. For a like reason the insert, 17, is provided with a number of deep corrugations or indentations, 22 and 23, thus giving it the appearance of a number of jointed or continuous V-shaped portions, 24, having their acute angled apices directed toward the sides of the shoes. As is clearly to be seen from Figs. 1 and 2, the body, 10, back, 19, and lug, 11, are made of one integral casting, such cast metal being any one of a number of well known compositions of annealable iron, whereas the insert, 17, here shown as a casting is preferably made of iron of a composition which is less annealable than that of the body of the shoe, even to iron which is substantially non-annealable. If desired, the insert, 17, may be made from a wrought iron or mild steel plate of similar cross section to that shown, and bent into the wavy form clearly apparent in Figs. 2 and 3.

In manufacturing my improved shoe in preferred form, I place a slightly or substantially non-annealable insert, 17, in inverted position in a mold, and then pour into the mold annealable iron in such a manner as to first form the lug, 11, and then the back and body, and cause the body, 10, to embrace the insert, 17. The shoes thus produced are placed in a malleabilizing furnace and treated according to the well known methods of malleabilizing iron. A shoe is thus produced which has a combined lug, back and body portion of exceedingly tough metal which will readily accommodate itself to the brake head with which it is used, and at the same time containing a much less annealed, even to the extent of substantially non-annealed insert, of greater total braking capacity. It is obvious that the form of the insert and the degree of annealing to which it is subjected may be substantially modified without departure from the spirit of my invention, and that I do not limit myself to any particular composition of malleable iron for the body portion, nor of less annealable iron for the insert.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent is the following:

1. A brake shoe comprising in combination a malleable iron body containing an insert less annealed than said body.

2. A brake shoe comprising in combination a malleable body and a substantially non-annealed insert.

3. A brake shoe comprising, in combination, a malleable iron body or shell cast about a wearing insert.

4. A brake shoe comprising, in combination, a malleable iron body or shell having a malleable attaching lug and cast about a wearing insert.

5. As a new article of manufacture a brake shoe comprising a malleable iron shell having an integral attaching lug, 11, and recessed portions, 16, in the back thereof, and a wearing insert, said shell and insert having cast engagement with each other, such shell being annealed subsequently to the placement of the insert therein.

6. In a brake shoe, in combination, a cast body portion and a wearing insert comprising a number of continuous acute angled V-shaped portions, 24—24.

7. In a brake shoe, in combination, a cast body portion and an insert comprising a number of V-shaped portions, 24—24, said portions being relatively thicker in cross section adjacent the back of the shoe, and having their ends joined to form a continuous member.

8. In a brake shoe, in combination, a body portion and a wearing insert comprising a number of continuous acute angled V-shaped portions, 24—24, the apices of said V-shaped portions being directed to the sides of the shoe.

9. A brake shoe comprising in combination a metal body and a metal wearing insert having cast engagement with each other, one of said members being of relatively annealable iron and the other of less annealable iron, the annealable member being annealed subsequently to the placement of the insert therein.

10. A brake shoe comprising, in combination, a metal body or shell and a metal wearing insert having cast engagement with each other, one of said members having an attaching lug and being of relatively annealable iron and the other of less annealable iron, the annealable member being annealed subsequently to the placement of the insert therein.

11. A brake shoe comprising, in combination a malleable iron body or shell cast about a wearing insert, said insert being less annealed than said shell.

12. A brake shoe comprising, in combination, a malleable iron body or shell having a malleable attaching lug and cast about a wearing insert.

13. A brake shoe comprising, in combination, a malleable iron body or shell cast about a wearing insert, said insert being less malleabilized than said shell.

14. A brake shoe comprising, in combination

tion, a malleable iron shell and a wearing insert having cast engagement with each other, the malleable member being malleabilized subsequently to the implacement of the insert therein.

15. As a new article of manufacture, a malleable iron brake shoe containing an insert of metal relatively less malleable, the malleable iron portions being malleabilized subsequently to the implacement of the insert therein.

16. A brake shoe comprising, in combination, a malleable body or shell and a wearing insert (one of said members being provided with an attaching lug), the malleable member being malleabilized subsequently to the implacement of the insert therein.

17. A brake shoe comprising, in combina-

tion, a malleable body or shell and a wearing insert, the malleable member being malleabilized subsequently to the implacement of the insert therein.

18. As a new article of manufacture, a brake shoe comprising a cast malleable iron shell having an integral attaching lug, 11, and recessed portions, 16, in the back thereof, and a wearing insert, such shell being malleabilized subsequently to the implacement of the insert therein.

In testimony whereof I have hereunto signed by name in the presence of the two subscribed witnesses.

ALFRED L. STREETER.

Witnesses:

PAUL CARPENTER,
EVELYN C. NAYLOR.