W. C. FISHER.

BRAKE SHOE.

APPLICATION FILED JULY 17, 1912.

1,078,039. **Patented Nov. 11, 1913.**

Fig. 1.

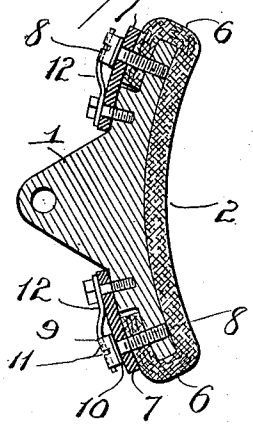


Fig. 2.

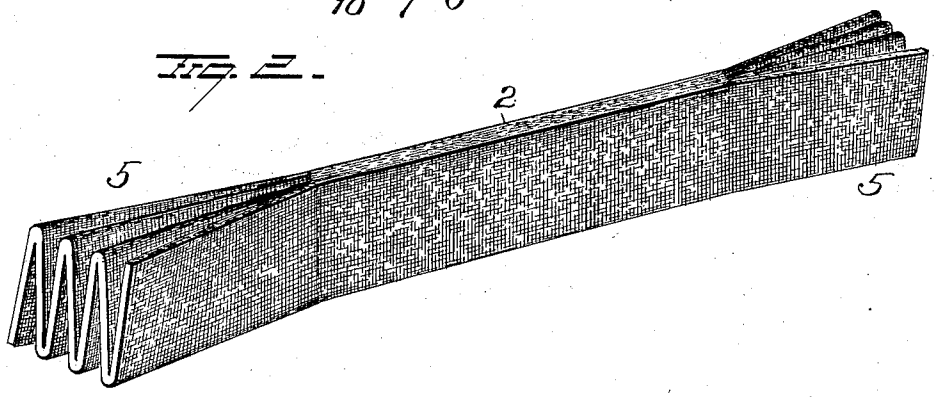
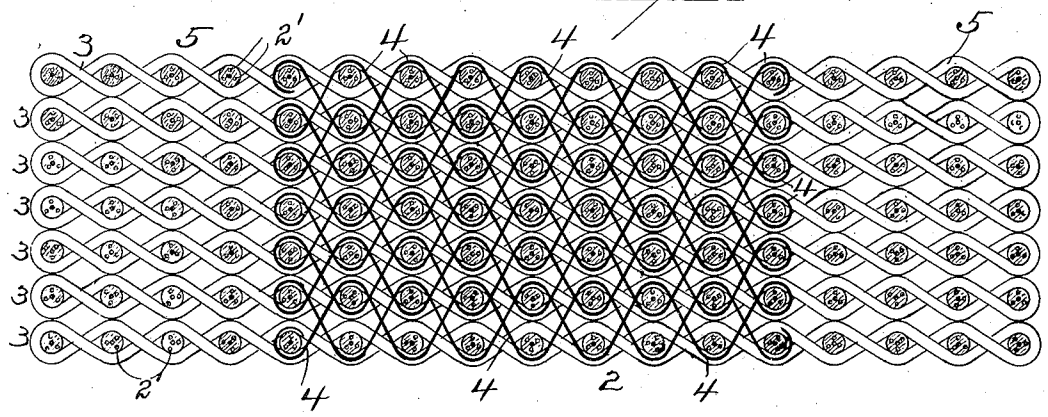


Fig. 3.



WITNESSES

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BRAKE-SHOE.

1,078,039. Specification of Letters Patent. Patented Nov. 11, 1913.

Application filed July 17, 1912. Serial No. 709,932.

To all whom it may concern:

Be it known that I, WILLIAM C. FISHER, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, 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.

This invention relates to improvements in brakes and more particularly to shoes therefor, one object of the invention being to so construct a brake shoe as to enhance the longevity of the same, and prevent the generation of heat.

A further object is to construct a brake shoe in such manner that the noise and wear incident to the use of shoes made partly or wholly of metal, shall be reduced to a minimum.

A further object is to so construct a brake shoe as to enhance the durability of the same; afford adequate frictional contact with the wheel with a minimum amount of wear in a given length of time; and be capable of quick and ready application and renewal.

With these objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings; Figure 1 is a view showing the application of my improvements; Fig. 2 is a separate view of the shoe, showing its appearance before being applied to the shoe head; and Fig. 3 is a sectional view of the shoe.

1 represents a brake shoe head which may be of any preferred or conventional form, and to which my improved wearing shoe 2 is applied, as will be more fully hereinafter explained.

The shoe 2 is made of asbestos fabric (preferably containing wire 2′ in its strands) comprising a plurality of superimposed plies securely united into a solid mass except at the end portions, the whole treated with hardening material, such as a composition of heated sulfur and molasses which will render the shoe very hard and durable but sufficiently pliant to permit it to be bent under pressure, (with the use of a suitable former), to make it conform to the contour of the shoe head so as to be readily applied thereto without further bending.

In constructing the shoe, I prefer to first weave asbestos strands containing wire into the form of a sheet, and then fold the sheet longitudinally, back and forth upon itself so as to form a plurality of superimposed layers or plies 3. These layers or plies are securely fastened together preferably by means of binder threads 4, throughout the body portion of the shoe, the end portions 5 of said layers or plies being left free, between their side edges. The loose ends of the several plies at each end of the shoe may be cut diagonally so that when these ends are subsequently bent to pass over the ends of the head, their extremities will aline with each other.

After the device shall have been woven to the form shown in Fig. 2, it will be treated with hardening and toughening material as hereinbefore explained, and then pressed into shape to cause it to conform to the brake shoe head to which it is to be secured. By leaving free the end portions of the several plies forming the shoe, said end portions may be bent abruptly so that they will extend over the ends of the head 1, and hug the same closely, as shown at 6 in Fig. 1. During such abrupt bending of the end portions of the shoe, the free end portions of the plies will move slightly, one upon another, and thus permit the several superimposed plies (which mark segments of successively increasing radii at the ends of the shoe) to lie closely upon each other.

The ends 6 of the shoe are secured to the shoe head, preferably by means of clamping

plates 7 which are secured to said head and bear upon the portions 6 of the shoe, said plates being provided with holes which aline with holes in the end portions 6 of the shoe for the passage of bolts 8. These bolts are threaded into sockets in the head 1 and are provided at their free ends with heads 9, between which latter and the plates 7, suitable disks or washers 10 may be located. In order to prevent possibility of the bolts becoming loose, suitable locking means may be employed. For example, the head 9 of each bolt may be made with grooves or recesses 11 to receive the free end of a locking finger 12 secured to the adjacent plate 7.

In the manufacture of the shoe the entire shoe is treated with the hardening material, and I prefer to shape it between formers before the hardening material sets, and again shape it between formers after it has hardened and set in order to secure perfect shape, but I may omit the preliminary shaping, and not subject the shoe to any shaping process until after the hardening material has set. In each instance however the shaping is done between forms prior to its application to the shoe head, and it is shaped in this form to conform to the curvature of the shoe head, so that there is no tendency, after the shoe is placed on the head, for shoe to bend or move away from the head.

With a brake shoe constructed and applied as hereinbefore described, a wearing face is afforded which will be yielding and avoid the noise and rattling incident to the use of shoes having metal engaging surfaces. While the body of the shoe consists of woven fabric, still experience has shown that the same is very durable and at the same time, adequate frictional engagement with the wheel will be afforded to render the shoe very efficient in the performance of its functions.

The shoe can be quickly and easily applied to the head and can be readily replaced when worn.

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

1. A brake shoe comprising a woven sheet of asbestos folded back and forth upon itself forming a plurality of superimposed plies, the said plies being united at their intermediate portions and free between their edges at the end portions.

2. A brake shoe comprising a plurality of superimposed plies of woven fabric, said plies being united at their intermediate portions and free between their edges at the end portions.

3. A brake shoe comprising a sheet of woven fabric folded longitudinally back and forth upon itself forming a plurality of superimposed plies, said plies being rigidly secured together in their intermediate portions and free between their edges at the end portions.

4. A brake shoe comprising a woven sheet of asbestos folded longitudinally back and forth upon itself, forming a plurality of superimposed plies united in their intermediate portions and free between their edges at the end portions, said fabric layers containing hardening material.

5. The combination with a brake shoe head, of a shoe comprising a plurality of superimposed plies of woven asbestos containing hardening material, said plies being united in their intermediate portions and free between their edges at the ends, the ends of the shoe extending over the ends of the heads, and fastening devices securing said ends of the shoe upon said head.

6. The combination with a brake shoe head, of a brake shoe composed of a plurality of superimposed plies of woven asbestos secured together into a compact body intermediate its ends, the latter being left free and flexible, the said shoe being impregnated with a hardening material, and devices for detachably securing the flexible end portions to the brake shoe head.

7. The combination with brake shoe head, of a brake shoe composed of a plurality of superimposed plies of woven asbestos secured together into a compact mass intermediate its ends the latter being left free and flexible, said shoe being impregnated and bent prior to its application to the head, into shape so as to conform to the concave face of said head and present a concave wearing face to the wheel.

8. A brake shoe made of woven fabric the intermediate portion of said shoe being hard and compact and the ends flexible whereby they may be bent for attachment to the brake shoe head.

9. A brake shoe made of a series of superimposed plies of woven fabric, the intermediate portion of said shoe being hard and compact, and the ends thereof flexible whereby they may be bent for attachment to the brake shoe head.

10. A brake shoe made of woven material the intermediate part thereof being compact and hard for contact with the wheel and the two ends flexible for attachment to the brake shoe head.

11. A brake shoe composed of a head having a concave face, and a shoe, the latter being made up of a plurality of superimposed plies of woven fabric united into a solid mass, the said mass being impregnated with a hardening material and bent prior to its application to the head into shape so as to conform to the concave face of said head

and present a concave wearing face to the wheel.

12. A brake shoe composed of a head having a concave face, and a shoe composed of a plurality of superimposed plies of woven fabric containing wire and united into a solid mass by a binder, the shoe being bent prior to its application to the head into shape so as to conform to the concave face of said head and present a concave face to the wheel.

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

WILLIAM C. FISHER.

Witnesses:
C. L. WILLIAMS,
H. W. HUBBARD.