Aug. 12, 1930. E. SLADE 1,772,639

BRAKE SHOE

Filed May 13, 1925

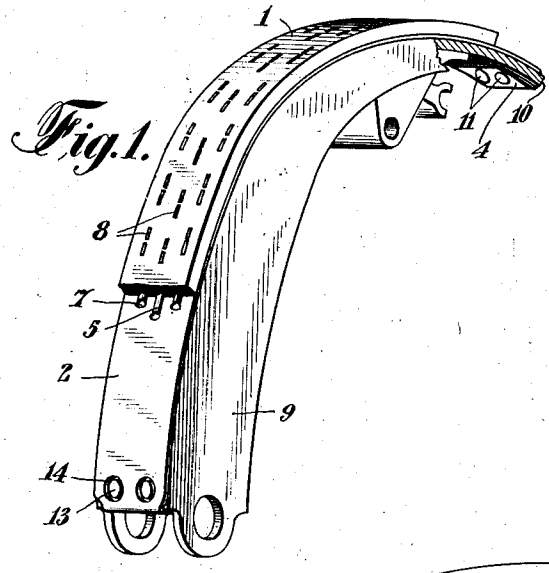


Fig. 1.

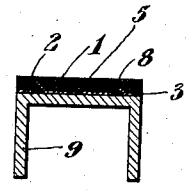


Fig. 4.

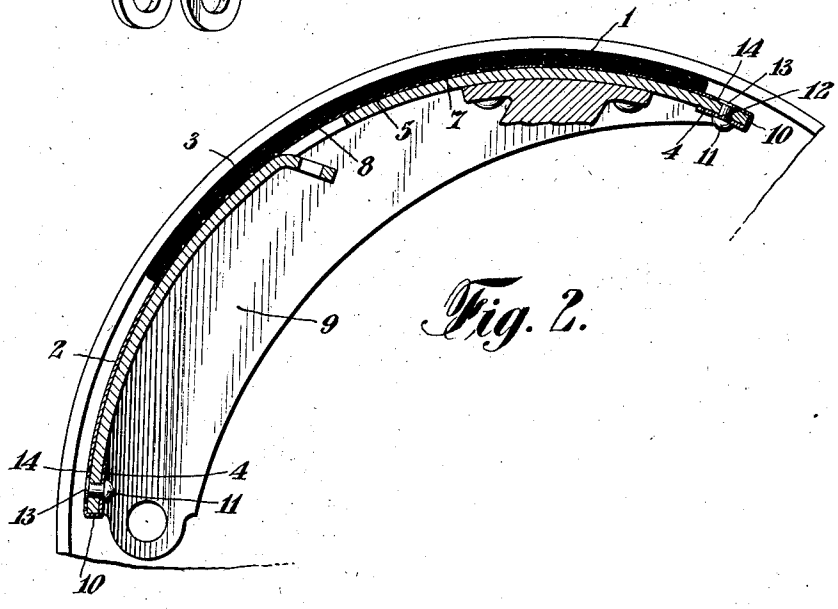


Fig. 2.

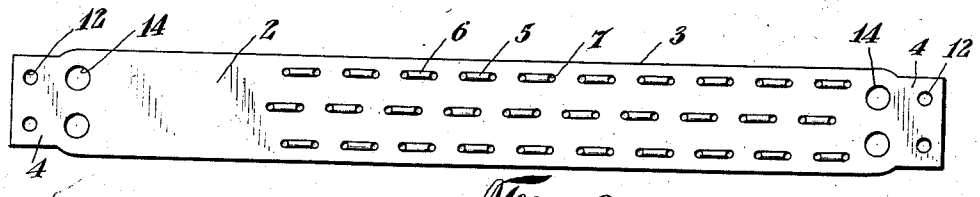


Fig. 3.

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UNITED STATES PATENT OFFICE

EDWARD SLADE, OF NEW YORK, N. Y.

BRAKE SHOE

Application filed May 13, 1925. Serial No. 29,971.

This invention relates to a friction brake, and particularly to the mounting of a friction brake upon a carrier such as a brake band or shoe, and to the article produced thereby.

In the drawings I have illustrated one embodiment of the invention showing a brake mounted upon a brake shoe, but I of course do not desire to be limited to this embodiment, as this is selected for illustrative purposes.

In the drawings:

Figure 1 is a perspective view of a portion of a brake shoe with the brake lining and its backing attached thereto, part of the lining and part of the shoe being broken away to more clearly illustrate the construction;

Figure 2 is a longitudinal sectional view taken through the shoe, the lining and the backing, and showing the relation of the parts to the brake drum;

Figure 3 is a plan view of the blank from which the lining backing is formed; and

Figure 4 is a transverse section.

In the embodiment of the article illustrated in the drawings, the lining 1, which may be of any of the well known forms, but which is preferably of the form disclosed in my copending application Serial No. 605,524, filed December 7, 1922, is attached to a backing 2. This backing is preferably of metal having the body portion 3 and end portions 4. The body portion 3 of the backing is provided with a series of projections 5 which are formed by depressing portions of the body of the backing. The production of these projections 5 results in the formation of depressions or troughs 6. At the ends of the projections 5 openings 7 are formed, and these openings 7, as well as the projections 5 of one series, are arranged in staggered relation to the openings and projections of the adjacent series.

The lining 1 is secured to the backing 2 by means of separate stitches 8, which pass through the openings 7 with their bight portions located in the depressions 6, and through the lining 1, having their ends inturned toward each other and clinched or upset in the face of the lining, as shown in Figure 1 of the drawings.

It is to be noted, as shown in Figure 1, that the stitches pass through the lining at several transverse points, so that the lining is secured on the backing in a flat condition. I have shown the stitches as arranged in rows, the stitches of one row being staggered with relation to the stitches of the next adjacent row, which staggering increases the efficiency of the attachment by producing an effective zig zag line of securement of the lining to the backing.

The method of forming the brake element when a folded lining such as I have hereinbefore described is used, consists in first impregnating the cloth with the desired lubricant-bearing compound, then cutting the same to the proper size and folding it so that the raw edges are turned inwardly. The lining thus folded is brought to size under pressure so that it assumes a somewhat definite form. This lining is then assembled with the backing, that is, brought face to face with the backing in which projections 5 have already been formed incidental to the formation of the depressions 6. With the backing and lining thus assembled the stitches are forced through the openings in the backing, and through the lining, their ends being turned over on the face of the lining. The lining and backing thus assembled are then baked to impart to the lining the necessary wear-resisting qualitites and to set the lubricant-bearing compound thoroughly therein. Following this baking operation the lining is pressed upon the backing and squared to shape. This pressure of course clinches the stitches in the lining and forces the projections 5 into the lining. The pressure during the compressing and squaring operation is so great that with the cooperation of the stitches and the projections 5, the lining and backing become substantially a unitary structure. When a lining of a different form is used it is compressed, preferably, after it has been assembled with the backing so that it becomes a unitary structure with the backing.

In order that the backing carrying the

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brake lining may be attached to the carrier, such, for instance, as the brake shoe 9, I have constructed the ends of the backing so that they may be bent around edges of the carrier either at the ends of the carrier or between the ends thereof.

In the drawings I have shown the ends of the backing 2 reduced as at 4, but under some circumstances it may be undesirable to so reduce the ends as the purpose is to accommodate them to the particular shoe to which the backing is to be attached. In the form illustrated in the drawings the ends of the backing 2 are bent around the edges of the shoe 9 so that the strain which is incidental to the use of the brake lining, and which is longitudinal of the brake lining, is taken up by the engagement of the bent ends with the edges of the shoe 10 irrespective of whether or not the force applied is in one longitudinal direction or the opposite.

These ends are secured to the shoe 9 by means of rivets 11 which pass through openings in the shoe with their heads preferably located on the under side of the shoe, and which are upset as at 13 on the face of the shoe. These upset ends 13 of the rivets are located within recesses 14 in the backing 2, which recesses are larger than the upset ends of the rivets so that the latter are accommodated without any contact with the backing. The force which is applied to the brake lining will not be applied to the upset ends 13 of the rivets, but will, in fact, be assumed entirely by the engagement of the bent ends of the backing with the edges of the shoe. The rivets 11 will, therefore, merely serve to maintain the ends of the backing in place upon the shoe rather than take up any of the strain incidental to the use of the lining.

It is to be noted that the blank which forms the backing 2 is provided with the openings 12 and 14 prior to the application of the backing to the shoe, and may, in fact, be provided with these openings prior to the assembly of the backing 2 and the lining 1. This pre-formation of the attaching means at the ends of the backing and the attachment of the lining to the backing prior to the application to the carrier results in the formation of a complete article of manufacture which may be of standardized sizes so that the installation of the braking element upon the carrier simply entails bending the ends of the backing around the edges of the carrier, and the securing, by means of rivets or other-wise, of the ends of the backing to the carrier.

I have described the attaching of the backing to the carrier by the bending of the ends of the backing around the edges of the carrier and I wish it to be understood that these edges need not be the end edges of the carrier, but may, in fact, be edges produced by slots in the face or side of the carrier.

It will be seen from the foregoing description that I have provided a brake element which may be of standardized lengths, which will obviate the necessity of cutting the lining from a supply to fit the particular carrier to which it is to be applied. Furthermore, I have so constructed the brake element that its application to the carrier would be simple and yet the strains incidental to the use of the lining will be ineffective to detach the lining from the backing or the backing from the carrier.

I claim:

1. In a device of the class described the combination with a carrier of a metallic backed brake lining, the ends of the backing being bent around the edges of the carrier, and rivets securing the ends of the backing to the carrier, the body of the carriers having openings for the free accommodation of the ends of the rivets.

2. An article of manufacture including a brake lining and a metallic backing therefor, said backing having rivet receiving openings in the ends thereof, and having relatively larger openings for housing the ends of the rivets.

3. In a device of the character described a brake shoe, a brake lining and a metallic backing therefor, said backing having reduced end portions provided with rivet receiving openings, the ends of the backing being bent around the edges of the brake shoe and rivets securing the ends of the backing to the brake shoe, the body of the shoe having openings for the free accommodation of the ends of the rivets.

4. In a device of the character described a carrier for brake lining, a brake lining having a metallic backing, said backing having reduced end portions provided with rivet receiving openings and having relatively larger openings in spaced relation for housing the ends of the rivets.

5. In a device of the character described the combination with a carrier of a metallic backed brake lining, said backing having reduced end portions adapted to be bent around the edges of the carrier, rivet receiving openings in the end portions and relatively larger openings for housing the ends of the rivets.

6. In a device of the character described, a carrier for brake lining, a brake lining having a metallic backing, the ends of the metallic backing being bent around the edges of the carrier, said ends of the backing being provided with rivet receiving openings and having relatively larger openings for housing the ends of the rivets.

7. In a device of the character described, an arcuate brake shoe, a metallic backing extending along the outside of the brake shoe on the convex side thereof, and having its ends turned inwardly around the ends of the brake shoe, one end of the backing hav-

ing an opening larger than one end of a rivet and also having another opening smaller than the opposite end of the rivet, and a rivet passing through said openings.

8. In a device of the character described, an arcuate brake shoe of substantially inverted U-shape in cross section, a metallic backing positioned on the convex, outer side of the shoe, having its ends bent inwardly around the ends of the shoe, one end of the backing having large and small openings therein the smaller opening being nearer the end, and a rivet passing through said openings and through the shoe, said larger opening freely accommodating the outer end of the rivet.

9. In a device of the character described a brake shoe, a metallic backing member overlying the same and having its ends turned around the ends of the brake shoe, means for securing said turned ends to the shoe, a brake lining carried by said backing member, said member being provided with elongated eyelets struck up therefrom and the lining being attached by clips passing through said eyelets and clinched to the lining.

In testimony whereof, I have signed my name to this specification this 12th day of May, 1925.

EDWARD SLADE.

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