No. 879,969. PATENTED FEB. 25, 1908.

L. E. KELLER.

BRAKE SHOE.

APPLICATION FILED FEB. 27, 1907.

Fig. 1.

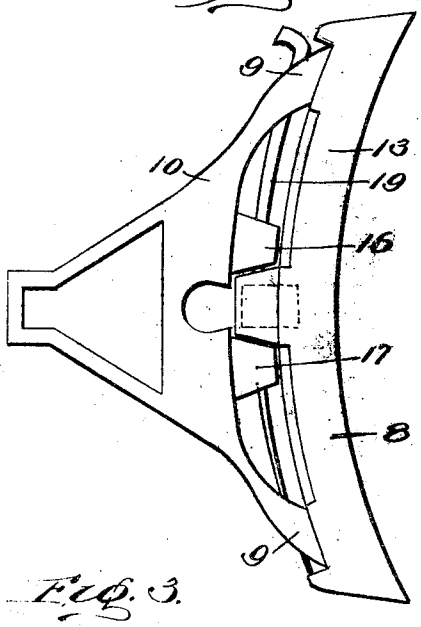


Fig. 2.

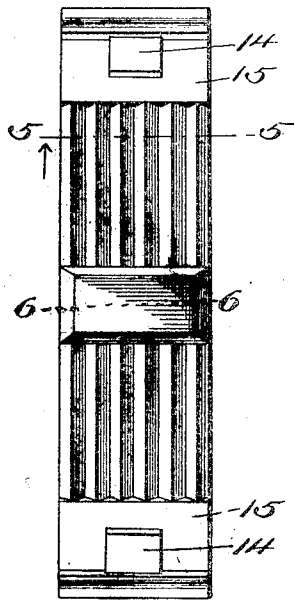


Fig. 3.

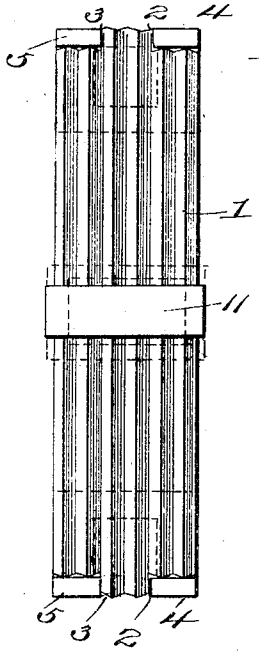


Fig. 4.

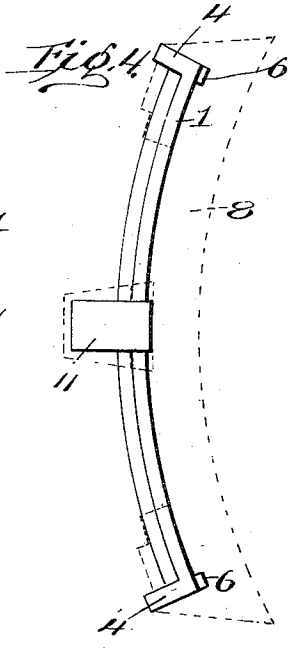


Fig. 5.

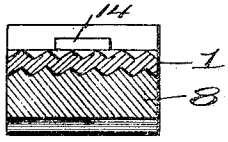


Fig. 6.

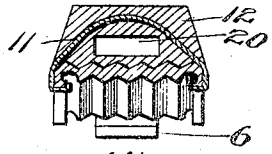
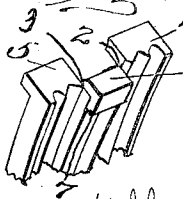


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

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BRAKE-SHOE.

No. 879,969. Specification of Letters Patent. Patented Feb. 25, 1908.

Application filed February 27, 1907. Serial No. 359,590.

To all whom it may concern:

Be it known that I, LOUIS E. KELLER, a citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, 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 brake shoes, and particularly to shoes having a removable contact member.

The invention comprises the production of a shoe having a supporting portion connected to a suitable supporting beam, and a contact portion removably secured thereto, the contact portion being made of different material from the supporting portion.

The invention further comprises the production of a contact portion for a brake shoe formed of cast material, a strengthening strip of steel preferably corrugated its full length, the cast portion being cast onto the steel strip and formed substantially integral therewith.

The object of the invention is the production of a brake shoe having a contact portion formed with a steel reinforcing strip that is not weakened at any point, and material cast thereon.

Another object in view is the production of a brake shoe having a contact member formed of a portion of cast metal and a portion of tempered metal, the cast metal being cast onto the tempered metal and formed substantially integral therewith.

A still further object in view is the production of a contact member, a brake shoe formed with a corrugated strip of tempered metal, and cast metal cast thereon and formed substantially integral therewith.

With these and other objects in view, the invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings:—Figure 1 represents a side elevation of a shoe formed according to the present invention. Fig. 2 is a plan view of the rear of a contact member of a brake shoe formed in accordance with the present invention. Fig. 3 is a view of a tempered reinforcing strip used in connection with the contact member forming part of the present invention. Fig. 4 is a side elevation of Fig. 3, the cast metal portion of the contact member being shown in dotted lines. Fig. 5 is a section through Fig. 2 on line 5—5. Fig. 6 is a section through Fig. 2 on line 6—6, the contact portion of the contact member being omitted to better disclose the shape of the tempered reinforcing strip. Fig. 7 is a detail, fragmentary, perspective view of one end of the tempered reinforcing strip forming part of the present invention.

In the manufacture of brake shoes for cars, it has been found desirable to make the same in substantially two parts so that the contact or friction part may be removed and renewed as occasion may require. In making brake shoes of this character it has been found that the removable portion is very liable to break unless made very heavy and of a more or less expensive material. Various means have been suggested for reinforcing the contact member of brake shoes with varying success, and it is to this class of invention in which reinforcing means are provided for the contact member that the present invention relates.

In constructing a brake shoe, I have provided a metallic strip 1 of tempered material, preferably tempered steel. The strip 1 is made of corrugated material as clearly seen in the drawings. In providing this corrugated strip, I preferably stamp the same from sheet material, forming corrugations on both sides of the strip, or in other words bending the strip back and forth until the same has a wavy appearance in cross section. At the same stamping operation, if it is desired, the strip may be formed on the arc of a circle for conforming to the periphery of a car wheel when the same is applied thereto. At each end of the strip 1, I slit the same at 2 and 3, and turn the outside portions 4 and 5 outward and the portion 6 inward. The portion or member 6 is also bent for forming a hooked extension 7 for more readily and firmly grasping and holding in place the cast material 8 after the same has been placed thereon. The extensions or members 4 and 5 form stops for the ends 9—9 of the supporting part of the brake shoe 10. Positioned centrally of the reinforcing member 1 is a reinforcing strip 11 for reinforcing the sustaining or retaining member 12 of the entire contact member 13. After the strip 1 has been bent into the form shown Figs. 3 and 4 and the reinforcing strip 11 has been placed in

position as clearly seen in Fig. 6, metal, preferably of cast iron, is cast onto the lower surface of the member 1 as clearly seen in Fig. 1 and at the same time metal is cast around the reinforcing strip 11 as clearly seen in Fig. 6. During the casting operation, shoulders 14—14 together with smooth portions 15—15 are cast on the ends of the metal strip. The space left vacant by the bending of the member 6 to the position shown in Fig. 7 is filled with cast material so as to present a complete shoulder across each end of the contact member 13. The ends 9—9 of the supporting part of the brake shoe 10 are bifurcated, and the bifurcation is adapted to fit over the shoulders 14—14 and consequently hold the ends 9—9 from slipping laterally. It will also be evident that the members 4 and 5 will prevent the ends 9—9 from moving longitudinally. On the supporting part of the brake shoe 10 is formed supporting lugs 16 and 17 having perforations therethrough for accommodating a securing member 19. In assembling the contact member 13 with the member 10 the same is placed in position with the ends 9—9 fitting against the members 4 and 5 and the central portion 12 fitting between the members 16 and 17. The member 12 is provided with an aperture 20 which is adapted to register with the apertures in lugs 16 and 17 so that when the securing member 19 is placed in position, it will pass through the aperture 20 and consequently hold the contact member 13 firmly against the ends 9—9. The contact member 13 being firmly held against the ends 9—9, and the ends 9—9 being kept in position by the shoulders 14—14 and the members 4 and 5, it will be observed that the contact member 13 is thus firmly held in position.

The provision of a reinforcing strip, as 1, being pressed into a wavy contour forms a strong and durable means for firmly holding friction metal, as 8, in position, for at all times operating in the usual way. The wavy or corrugations of the strip 1 form a large surface for the cast metal to come in contact with, and affords consequently a greater holding means for retaining the cast metal in its proper shape. The use of a corrugated strip the full width of the brake shoe greatly strengthens the shoe throughout its entire length and presents a shoe that has substantially the same resisting power at all points. The provision of a strip of tempered metal of the full width of the shoe and means for firmly holding the cast metal thereto at all times produces a shoe that is not liable to break, and one that has a tendency, by its peculiar construction, to hold the cast metal in position even though the same should crack at any point. In shoes of this class that are at present being used it has been found quite often that the same will crack and either part or all fall down upon the track and in some instances cause much damage thereby. The provision of a strip, as 1, for more or less firmly holding the cast metal in position at all times, even when the same is cracked presents a structure that is desirable, and one that by its peculiar conformation to said supporting member, and by reason of the said corrugations, imparts toughness as well as strength for preventing the breaking of the refrangible cast metal.

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

1. A device of the character described, comprising a supporting member and a contact member, said contact member comprising a portion of cast iron, a reinforcing strip for the same formed with corrugations on each side, said strip being the same width throughout and having its ends bent for forming stops on one side and bent on the opposite side for forming auxiliary holding means for the cast material, and a supporting member cast integral with said cast material and provided with a tempered metal reinforcing strip.

2. In a device of the character described, comprising a supporting member, and a contact member, said contact member comprising a cast frictional portion, a longitudinally corrugated reinforcing member of steel, the same width throughout its entire length, for said frictional portion, and a retaining member cast integral with said frictional member and engaging the sides of the reinforcing member.

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

LOUIS E. KELLER.

Witnesses:
FRED A. STECK,
JOHN M. McGILL.