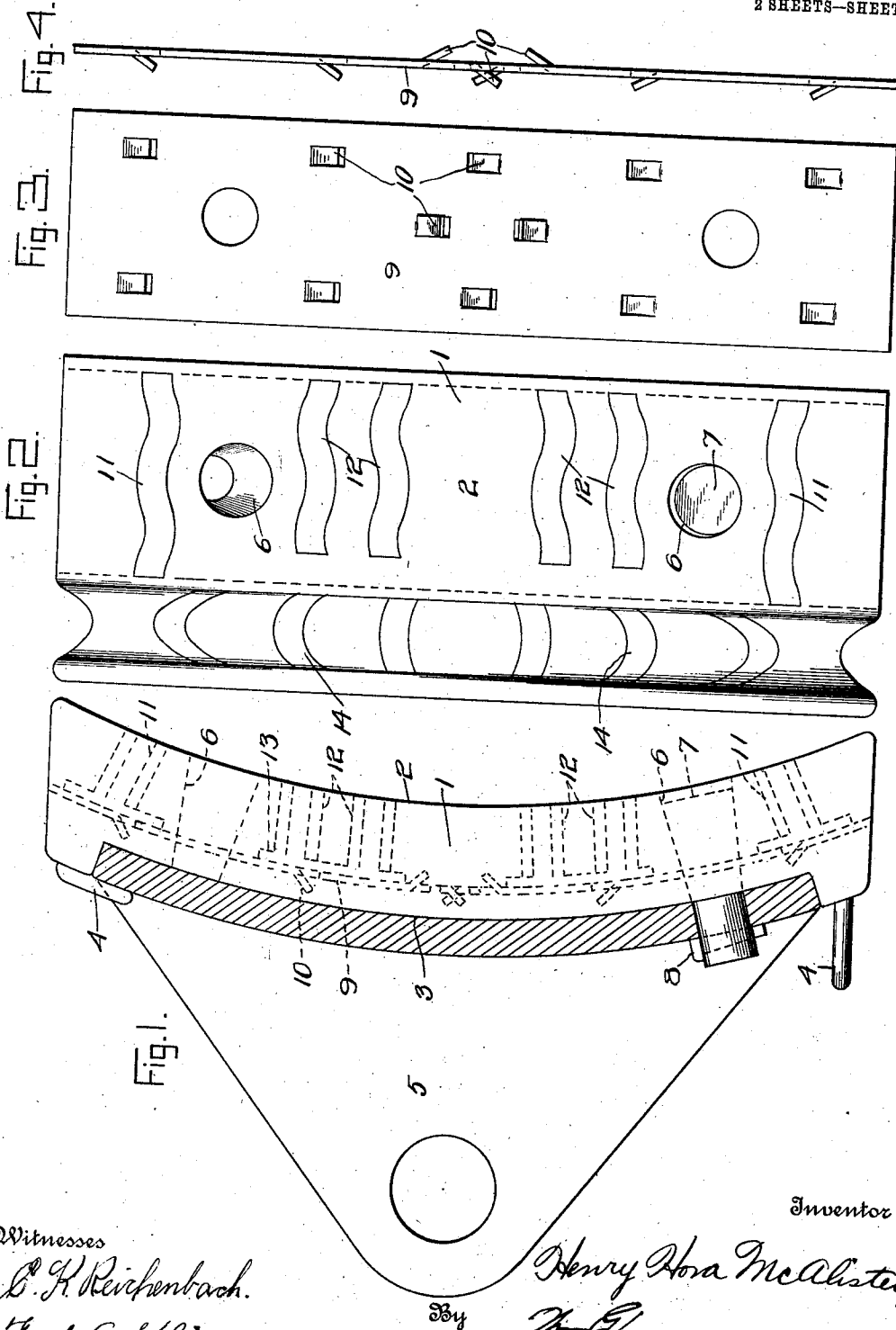


H. H. McALISTER.
BRAKE SHOE.
APPLICATION FILED JUNE 21, 1909.

944,573.

Patented Dec. 28, 1909.
2 SHEETS—SHEET 1.



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Fig. 5.

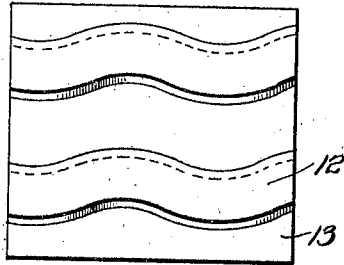


Fig. 6.

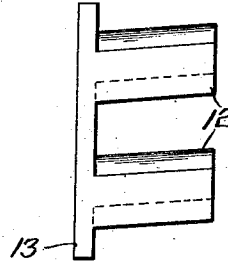


Fig. 7.

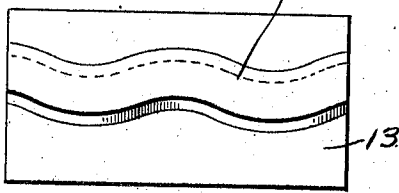


Fig. 8.

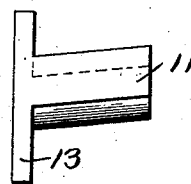


Fig. 9.

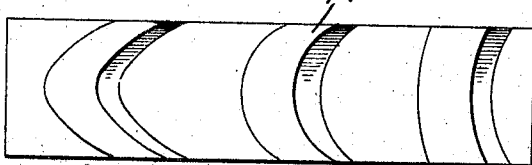


Fig. 11.

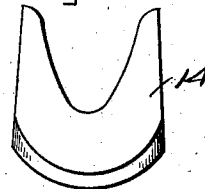


Fig. 10.

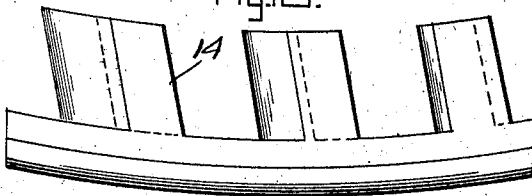
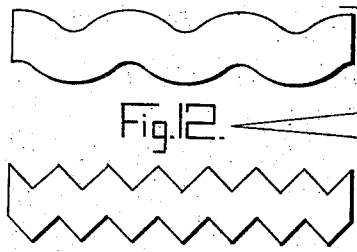


Fig. 12.



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UNITED STATES PATENT OFFICE.

HENRY HORA McALISTER, OF FITZGERALD, GEORGIA.

BRAKE-SHOE.

Specification of Letters Patent.

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Application filed June 21, 1909. Serial No. 503,416.

To all whom it may concern:

Be it known that I, HENRY HORA McALISTER, a citizen of the United States, residing at Fitzgerald, in the county of Irwin and State of Georgia, have invented certain new and useful Improvements in Brake-Shoes; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to brake-shoes for locomotives and cars, and while designed more particularly for locomotive driving wheels yet possesses features rendering it applicable for car-wheels in general.

It has for its object to construct a brake-shoe which will be reversible so that it may be used on wheels at either side of the locomotive or car, or used first on one side and when partially worn may be taken off and applied to the wheels at the other side of the locomotive or car thus enabling it to be used until practically worn out. This reversibility also makes it possible to supply the demands of the equipment department of a road with one-half the number of brake-shoes necessary to keep on hand where the shoes are not reversible because when not reversible a sufficient number of shoes for the wheels of each side of the locomotives or cars must be kept in stock.

It has further for its object to provide a construction in which the brake-shoe will be provided at each end with means for connecting the shoe to the brake-head at the top of the brake-head at whichever side of the locomotive or car the shoe may be applied, and in which said means may be employed in an emergency for securing the lower end of the brake-shoe to the lower end of the brake-head in the event that the attaching bolt ordinarily employed for that purpose should become broken or detached and lost.

It has further for its object to provide an improved construction for reinforcing the brake-shoe and to guard against the destruction of the efficiency of the brake-shoe in the event of the brake-shoe becoming broken, such construction preventing the broken

part from becoming detached from the other part.

It has further for its object to provide an improved construction and application of chilled wearing inserts in the face and the flange groove portions of the brake-shoe so as to insure said inserts being securely held in place without the possibility of becoming loose and separated from the shoe, or lost, and in which they will serve to more effectively dress the face of the wheels where they are least worn by contact with the rails.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the features hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawings forming a part hereof, and in which—

Figure 1 is a side elevation of the improved brake-shoe, showing it attached to a brake-head; Fig. 2 is a front or face view of the brake-shoe; Fig. 3 is a face view of the reinforcing strip; Fig. 4 an edge view of the same; Fig. 5 is a face view of one of the centrally disposed chilled inserts; Fig. 6 an end view of the same; Fig. 7 a face view of one of the end inserts; Fig. 8 an end view of the same; Fig. 9 a face view of one of the flange-groove chilled inserts; Fig. 10 a side view of the same; Fig. 11 an end view of the same; and Fig. 12 a plan view of two modified forms of chilled inserts.

In the drawings, the numeral 1 designates a brake-shoe having the face or tread portion 2 and the flange-groove portion 3, which are of cast metal as usual.

The numeral 4 designates two U-shaped lugs of malleable iron or steel cast in the shoe, one at each end, and normally standing up from the body of the shoe but adapted to be bent inwardly over either, or both ends of the brake-head 5, one of them being so indicated by dotted lines in Fig. 1 of the drawing. The shoe is cast with two bolt-holes 6, one near each end, so that a bolt may be passed through the lower hole, according as one end or the other of the shoe may be placed at the bottom of the brake-head; the bolt being secured in place by a pin 8, so as to bolt the shoe to the brake head. By forming the shoe with two lugs,

one at each end, and with two bolt-holes, one near each end, the shoe can be applied to a brake-head at either side of the locomotive, and a bolt passed through the lower hole to attach the shoe at that end to the brake-head, and the lug at the top may be bent over the brake-head so as to serve as a means for connecting the shoe at the upper end to the brake-head. In the event of the bolt becoming broken or accidentally detached and lost, the loop at the lower end of the shoe may be bent over onto the brake-head so as to secure the shoe thereto; and it will also serve to prevent the shoe from rising up on the brake-head in the backing of the engine. It will thus be observed that the use of the two loops and the two bolt holes make it possible to reverse the shoes so as to use them on either side of the locomotive and that the loops also serve for connecting the upper end of the shoe to the brake-head, and in case of emergency to secure its lower end to the head.

For the purpose of reinforcing the brake-shoe so as to give it additional strength and also to prevent a part of it from separating from another part in the event of accidental breakage, a reinforcing strip 9, preferably of malleable metal, is inserted and cast in as a part of the shoe, the strip being located near the rear portion of the shoe, and extending lengthwise thereof. This strip is formed with holes corresponding to the bolt-holes in the body portion of the shoe, and has spurs 10 struck-up from the metal, preferably by cutting and bending the cut portions so that they will stand out from the face of the strip or plate. It is preferred to have some of these spurs extend outwardly from both faces of the strip or plate and to incline to the plane of the strip. They are inclined in opposite directions with relation to the central portion of the strip, and preferably so that those to each side of the center will incline toward the center, as illustrated, and at the central portion it is preferred to have more of the spurs than at another one point. By having the spurs incline toward the center they will serve to hold the broken portion of the shoe to the other portion, in case of accident, and prevent the possibility of it slipping downwardly and outwardly and separating from the other portion, whichever end of the shoe be uppermost. These spurs also prevent the possibility of the strip working loose and slipping in any direction in the body of the shoe; and the cast metal portion being molded about the strip the spurs become embedded therein so as to be practically a part thereof.

To increase the durability of the wearing surface of the face or head and also the flange-groove of the shoe and to afford a shearing cutting tool for dressing the sur-

faces of the locomotive or car wheel which are least worn by contact with the rails, I provide chilled metal inserts for both the tread and the flange-groove portions of the shoe. The inserts for the face or tread portion of the shoe are designated by the numerals 11 and 12, the inserts at the ends being 11 and the intermediate inserts 12, the former extending preferably substantially the width of the face or tread and the others only partially across the face, and the intermediate ones preferably formed in pairs, as illustrated. Each insert is serpentine in a longitudinal direction, the outline of which may be of different configuration, for instance such as illustrated in Figs. 5 and 7, or as illustrated in Fig. 12, or otherwise. Each insert has a T head designated by the numeral 13, and the body or tongue portion of the insert stands at an inclination to a normal to the curved face of the shoe as illustrated. These inserts are so disposed on each side of a line passing transversely through the central portion of the shoe that the inserts on one side of the central portion will incline in the opposite direction to the inserts on the other side, say from the face rearwardly and toward the end of the shoe on the side of the central portion where the inserts are located, and also disposed in such manner that the inserts on one side of the central portion will be the opposite or reverse of the corresponding inserts on the other side. This will cause the chilled inserts to act in the same manner on the same parts of the wheel whether the locomotive is going ahead or backing up, or whether the shoe is reversed for use on one side or the other of the locomotive or car. These inserts are molded in the shoe in the operation of casting the shoes, and the T heads to the inserts and the inclination of the tongue portions tend to effectively guard against the possibility of the inserts becoming loose in the shoes, or separating therefrom in the event of accidental fracture of the cast metal portion of the shoes. The serpentine contour or lines of the inserts afford shearing cutting edges that serve to dress the treads of the wheels, especially those portions that have the least wearing contact with the rails. The flange-groove portion of the shoes is likewise provided with chilled inserts 14 which are preferably curved in cross section, to a greater or lesser degree and are inclined to a vertical line and provided with a T head, and are preferably although not necessarily connected in groups to the same head as illustrated in Figs. 9 and 10. The inserts on one side of a central line passing transversely through the groove portion are the opposite or reverse to the corresponding inserts on the other side so that they will act in the same way and on the same portions of the car wheel flange

whether used on one side or the other of the locomotive or car, and whether the locomotive be going ahead or backing.

A shoe constructed with the features specified possesses great strength and durability, and is capable of being reversed so as to be used on either side of the locomotive and thus obviates the necessity of keeping on hand special shoes for each side of the locomotive or car. It also possesses the several advantages specified in giving a description of the several parts.

I have described with particularity the preferred details of construction of each of the features enumerated but it is obvious that changes may be made therein and essential features of the invention retained.

Having described my invention and set forth its merits, what I claim is:—

1. A brake-shoe provided at opposite ends with laterally extending members capable of being deflected for connecting the shoe to a brake-head, substantially as described.

2. A brake-shoe formed adjacent to each end with a bolt-hole for the passage of an attaching bolt and provided at opposite ends with laterally extending members capable of being deflected, said holes and extending members adapting the shoe to be reversed for attachment to a brake-head at either side of an engine or car, substantially as described.

3. A brake-shoe having embedded therein a reinforcing plate, said plate being formed with spurs projecting from its opposite faces and engaging the metal of the shoe on both sides of the plate, substantially as described.

4. A brake-shoe having embedded therein a reinforcing plate, said plate being wholly contained within the body of the shoe below its rear face and formed with spurs projecting at an inclination from its face along the portion thereof lying back of the face or tread portion of the shoe and engaging the metal of the shoe, substantially as described.

5. A brake-shoe having embedded therein a reinforcing plate, said plate being wholly contained within the body of the shoe below its rear face and formed with spurs inclined in opposite directions along the portion thereof lying back of the face or tread portion of the shoe and engaging the metal of the shoe, substantially as described.

6. A brake-shoe having embedded therein a reinforcing plate, said plate being wholly contained within the body of the shoe below its rear face and formed on opposite sides of the central portion of the plate with inclined spurs, the spurs on one side inclining toward the inclined spurs on the other side of said central portion and in a direction toward the central portion of the shoe, substantially as described.

7. A brake-shoe provided in its tread-face with chilled inserts extending transversely

across the face and having an irregular sectional outline, said inserts lying on opposite sides of a line passing transversely through the tread, and the inserts on one side of said line being oppositely or reversely disposed to inserts on the other side of the line, the inserts on one side of said line extending at an inclination opposite to the inclination of the inserts on the other side of said line and each of said inserts inclined to a normal to the curvature of the face of the shoe, substantially as described.

8. A brake-shoe provided in its tread-face with chilled inserts extending transversely across the face and irregular in outline, said inserts lying on opposite sides of a line passing transversely through the tread, some of said inserts being arranged in pairs and positioned intermediate of the end inserts, and the inserts on one side of said transverse line being reversely disposed to inserts on the opposite side of said line, substantially as described.

9. A brake-shoe provided in its tread-face with chilled inserts extending transversely across the face, said inserts lying on opposite sides of a line passing transversely through the tread, and the inserts on one side of said line extending at an inclination opposite to the inclination of inserts on the other side of said line the inserts toward the ends of the shoe extending substantially the width of the tread-face and the intermediate inserts extending partially across the width of the tread-face, substantially as described.

10. A brake-shoe provided in its tread-face with chilled inserts extending transversely across the face, said inserts lying on opposite sides of a line passing transversely through the tread and provided with heads, the inserts on one side of said line extending at an inclination opposite to the inclination of inserts on the other side of said line, substantially as described.

11. A brake-shoe formed with a flange-groove and provided in the groove with chilled inserts curved transversely to the length of the groove, said inserts being disposed on opposite sides of a line passing transversely through the groove, and the inserts on one side of said line being reversely disposed to the inserts on the opposite side thereof, substantially as described.

12. A brake-shoe formed with a flange-groove and provided in the groove with chilled inserts curved transversely to the length of the groove, said inserts being disposed on opposite sides of a line passing transversely through the groove, the inserts on each side of said line having degrees of curvature differing from each other, substantially as described.

13. A brake-shoe formed with a flange-groove and provided in the groove with chilled inserts curved transversely to the

length of the groove, said inserts being disposed on opposite sides of a line passing transversely through the groove, and the inserts on one side of said line being reversely disposed and inclined to the inserts on the opposite side thereof, substantially as described.

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

HENRY HORA McALISTER.

Witnesses:

A. B. COOK,
C. E. BAKER.