

C. W. ARMBRUST.
BRAKE SHOE.
APPLICATION FILED OCT. 24, 1910.

1,022,397.

Patented Apr. 9, 1912

2 SHEETS-SHEET 1.

Fig. 1.

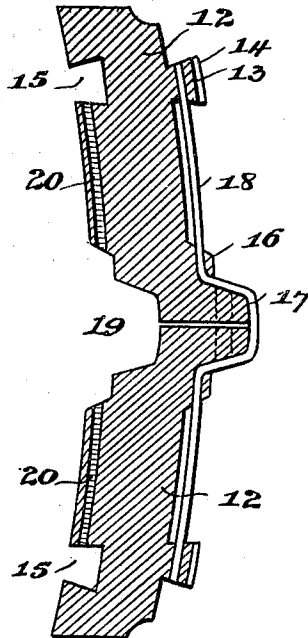


Fig. 2.

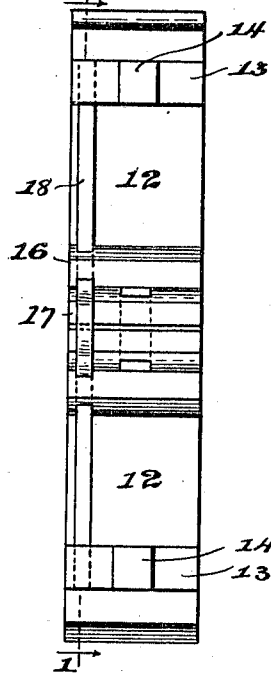


Fig. 3.

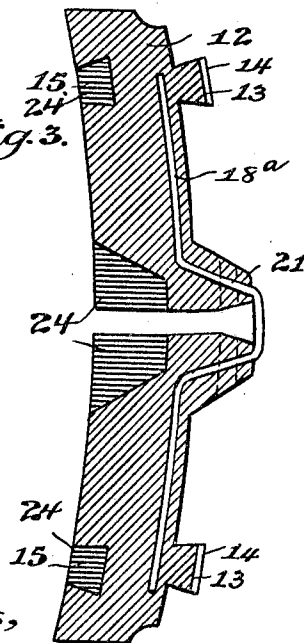
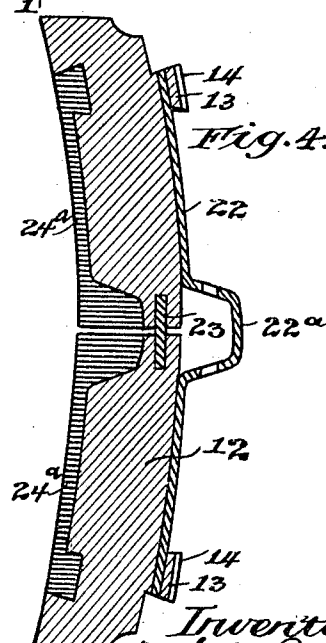


Fig. 4.



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2 SHEETS-SHEET 2.

Fig. 6. Fig. 10. Fig. 5.

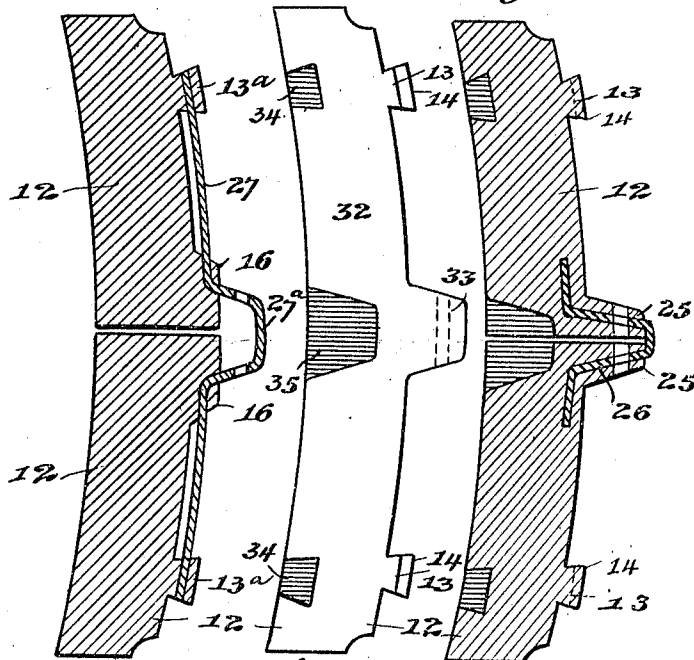
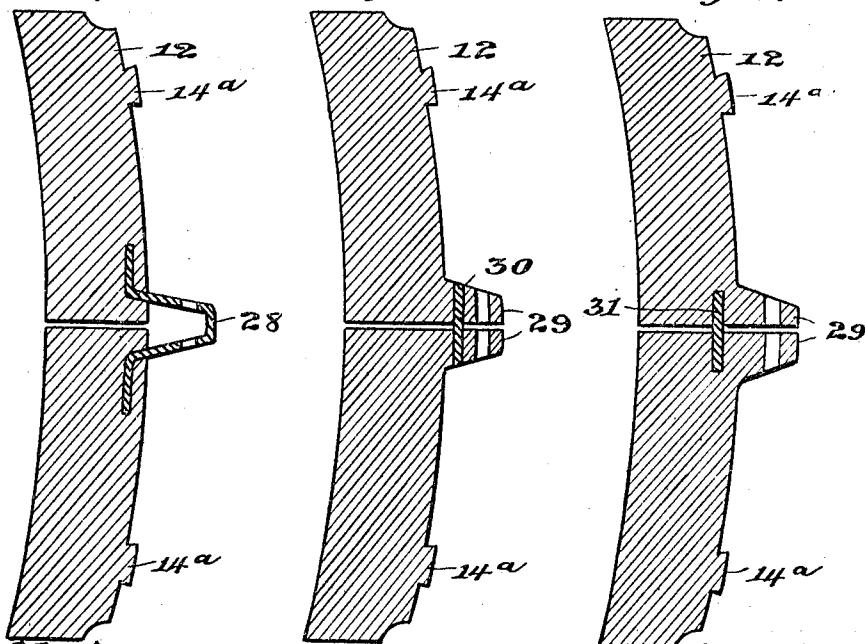


Fig. 7. Fig. 8. Fig. 9.



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BRAKE-SHOE.

1,022,397.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed October 24, 1910. Serial No. 588,583.

To all whom it may concern:

Be it known that I, CHARLES W. ARMBRUST, a citizen of the United States, residing at Crystal Lake, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

This invention relates to brake shoes, and has for its principal object to provide an improved construction of shoe capable of adapting itself readily to fit the contour of the wheel tread throughout its entire extent, as well as to settle back against the four points of contact on the head and also capable of being entirely worn out in service, thereby avoiding waste of material.

To these ends the invention consists in part of a shoe comprised of a plurality of cast metal body portions united by a strip or band embedded therein in the operation of casting; and partly in a shoe having on its back locking lugs, and in its face recesses open on one side of the shoe and closed on the other which permit the attachment of another shoe thereto by insertion of said locking lugs laterally thereof.

My invention will be readily understood when considered in connection with the accompanying drawings showing preferred forms thereof in which—

Figure 1 is a longitudinal sectional view on the line 1—1 of Fig. 2 of a two-part or divided shoe embodying both features of improvement above noted; Fig. 2 is a back elevational view of the shoe shown in Fig. 1; Fig. 3 is a longitudinal section of a modified form of Fig. 1; Fig. 4 is a similar view illustrating another modification; Fig. 5 is a similar view, illustrating a still further modification; Figs. 6, 7, 8 and 9 are similar views of non-interlocking shoes, illustrating other means of connecting the longitudinal halves of the shoe body; Fig. 10 is a side elevational view of a solid or one piece shoe embodying my novel interlocking means.

Referring to the drawings, 12 designates in all of the views except Fig. 10 each longitudinal half of a two-part cast metal shoe body; and 13 designates in Figs. 1, 2, 3, 4 and 5 a locking lug on the back of each half section, near the outer end thereof; on and centrally of which is mounted a guide lug

14 adapted to lie between the forks or prongs of the end of the usual head (not shown). The lugs 13 and 14 are dovetailed in cross-section; and 15 designates a similarly shaped recess formed in and across the face of each section near its outer end.

Referring more particularly to Figs. 1 and 2, 16 designates a shoulder formed on and across the back of each section at its inner end integral with and extending beyond which is a keeper lug 17, apertured for the passage of the usual key that connects the shoe to the head. Embedded in the lugs 13 and shoulder 16 at one side of and spaced from the back of the shoe (Fig. 1) and overlying the keeper lugs 17, is a metal strip 18, that serves to unite the two halves of the shoe, while affording a limited degree of transverse flexibility to the shoe as a whole. The inner ends of the face of the shoe sections are cut out so as to unitedly form a recess 19 conforming in shape to the combined lugs 17, shoulders 16, and overlying portion of strip 18 and each of the faces of the shoe has formed therein grooves 20 extending between the recesses 15 and 19 on each half section. By reason of this connection it will be readily seen that a partially worn out shoe may be removed from the head and applied to the face of a new shoe attached to the head by inserting said partially worn shoe laterally or edgewise into the face of the new shoe; the recesses 15 receiving and interlocking with the lugs 13 and 14, the recess 19 accommodating the lugs 17, shoulders 16 and the intermediate bent portion of the connecting strip 18, and the grooves 20 receiving the portions of the connecting strip 18 lying between the lugs 13 and shoulders 16. The grooves 20 are formed on the side of the shoe that lies adjacent to the wheel flange, and by their engagement with the strips 18 prevent lateral displacement of the partially worn shoe on the opposite side.

Fig. 3 shows a modification, wherein the shoulders 16 of Fig. 1 are extended to the full height of the keeper lugs 17 and apertured, thereby forming relatively large integral keeper lugs 21, in which the central portion of the connecting strip 18 is entirely embedded excepting its outer transverse portion; the ends of said strip being

also embedded in the shoe body sections for their full length. In this form I have also shown the faces of the shoe sections as recessed to receive the locking and guide lugs 13 and 14 and the keeper lugs 21 and their overlying portion of the connecting strip 18^a, the recesses being open on one side of the shoe, but closed by a wall 24 on the opposite side, which prevents lateral displacement of the attached partially worn shoe on that side. In such cases as this the wall 24 will be formed on the side of the shoe remote from the wheel flange, the latter being relied upon to prevent displacement on that side. Preferably the lugs 13 and 21 will be made narrower than the full width of the shoe to the extent of the thickness of the wall 24, so as to obtain substantially perfect transverse alinement of the side walls of the new shoe and the partially worn shoe applied thereto. In this form also I have shown the halves of the shoe-body as spaced apart by a somewhat greater interval than in Figs. 1 and 2 to afford a greater degree of transverse flexibility to the shoe as a whole.

In the form shown in Fig. 4 a connecting strip 22 is shown as overlying the backs of the sections and having its ends embedded in the lugs 13, while its intermediate portion is bent up to form an apertured keeper 22^a, and the intermediate keeper lugs on the shoe sections are omitted. In this construction a short auxiliary connecting strip 23 is preferably employed, being embedded in the inner adjacent ends of the sections. In this form the face of the shoe is suitably recessed to fit the locking and guide lugs 13 and 14, and the connecting strip 22, 22^a; a continuous back wall 24^a being left on each half for the purpose above described.

In Fig. 5 the shoe sections have integral central apertured keeper lugs 25, within which is embedded a bent apertured connecting strip 26, the ends whereof extend some distance into the shoe sections.

Figs. 6, 7, 8 and 9 show the application of various forms of connecting strips to solid shoe sections not provided with the interlocking feature. In Fig. 6 the strip 27 is embedded at its ends in lugs 13^a and at its intermediate portions in the shoulders 16, which latter omit the integral keeper lugs, the central outwardly bent apertured portion 27^a of the strip serving as a keeper lug, and the portions of the strip lying between the lugs 13 and the shoulders 16 being spaced from the back line of the shoe, as in Figs. 1 and 2. It may here be remarked that the principal purpose of this spacing or separation of the connecting strips is to enable the shoe body to be approximately entirely worn out without injuring the connecting strip, which latter holds together the remaining unworn parts of the shoe and prevents their falling to the track even when broken. In

Fig. 7, the shoe sections omit the integral central keeper lugs and are united simply by an apertured bent connecting strip 28 having its ends embedded in the adjacent ends of the shoe sections, as in Fig. 5. In Fig. 8, the shoe sections are shown as provided with integral apertured central keeper lugs 29, and with a straight short connecting strip 30 embedded at the base of said lugs. Fig. 9 is similar to Fig. 8, with the exception that the single short straight connecting strip 31 is embedded in the adjacent ends of the shoe sections somewhat inwardly of the base of the keeper lugs 29. In Figs. 7, 8 and 9 the backs of the shoe sections have at their ends simply the usual guide lugs 14^a adapted to prevent lateral displacement of the ends of the head.

In Fig. 10 I have illustrated a solid or one part shoe 32 provided with the locking and guide lugs 13 and 14, as above described, and an integral central apertured keeper lug 33, locking recesses 34 in the face of the shoe adapted to cooperate with the lugs 13 and 14, and a central recess 35 in the face of the shoe adapted to seat the central keeper 33.

From the foregoing it will be seen that that portion of my invention represented by the shoe sections united endwise by an inserted strip may be advantageously employed on either an interlocking or plain shoe; and has the advantage over the interlocking shoe that has independent halves of a lesser number of parts to be handled in service, while retaining the advantages of the latter as to transverse flexibility. It will also be seen that that portion or feature of my invention which consists in the means for interlocking a partially worn shoe with a new shoe might advantageously employ therewith a plain solid shoe or a sectional shoe, but the highest efficiency and best results are attained by combining these features, as in the forms of shoe represented in Figs. 1 to 5 inclusive.

It will be evident to those skilled in the art that many other forms and locations of the connecting means might be employed for uniting the shoe sections endwise; and hence the forms and locations of such connecting strips shown in the drawings for the purpose of illustrating the principle are not to be regarded as representing the full scope of the invention in this respect. Furthermore, the specified forms of interlocking lugs and recesses herein shown and described are not all of the essence of the invention, as long as the principle of connection by lateral insertion is adhered to.

I claim:

1. A brake-shoe composed of a plurality of sections, and a connecting strip embedded in said sections and uniting the same endwise, substantially as described.
2. A brake-shoe composed of a plurality

of sections, and a connecting strip embedded in and uniting the adjacent ends of said sections, substantially as described.

3. A brake-shoe composed of a pair of 5 sections each having a lug on its back, and a connecting strip embedded in said lugs and uniting said sections endwise, substantially as described.

4. A brake-shoe composed of a pair of 10 sections each having a lug on its inner end, and a connecting strip embedded in said lugs and uniting said sections, substantially as described.

5. A brake-shoe provided in its wearing 15 face with one or more recesses open on one side of the shoe and closed on the other, and adapted to permit the lateral insertion of a similarly shaped lug or lugs on the back of another shoe, substantially as described.

20 6. A brake-shoe provided on its back near each end with an attaching lug and with a central apertured keeper lug, and in its wearing face with recesses conforming to said attaching and keeper lugs and open on 25 one side of the shoe, substantially as described.

7. A brake-shoe comprising a pair of sections, and a connecting strip uniting said sections, each of said sections having simi-

larly formed lugs and recesses on its back 30 and face, respectively, substantially as described.

8. A brake shoe comprising a pair of longitudinal halves having end and intermediate lugs on their backs, and a connecting 35 strip embedded in said lugs and spaced from the back line of the shoe sections, substantially as described.

9. A brake shoe comprising a pair of longitudinal half sections and a connecting 40 strip overlying the backs of said sections, said sections having formed in their faces recesses adapted to accommodate the connecting strip of another shoe, substantially 45 as described.

10. A brake shoe comprising a pair of longitudinal half sections having lugs on their backs, and a connecting strip embedded in said lugs and overlying the backs 50 of said sections, said sections being provided in their faces with recesses adapted to interfit with the corresponding lugs and connecting strip of another shoe, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."