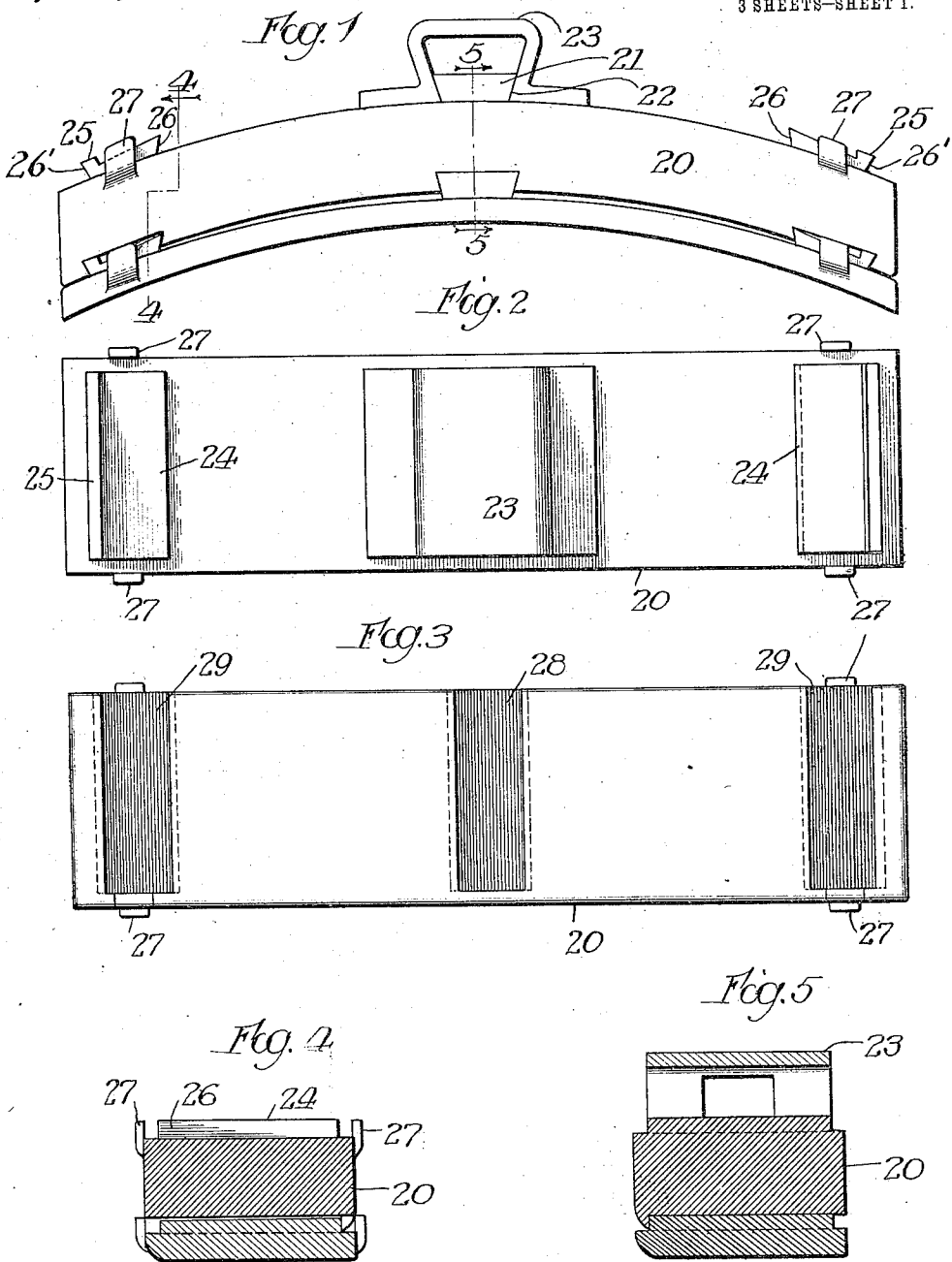


C. W. ARMBRUST.
 BRAKE SHOE.
 APPLICATION FILED JAN. 18, 1911.

Patented Nov. 28, 1911.
 3 SHEETS—SHEET 1.

1,010,010.



Witnesses:
 Geo. D. Brown
 Chas. J. Wilson

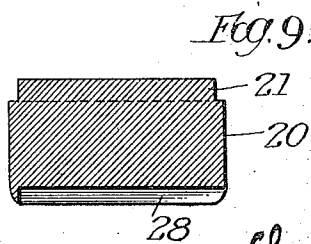
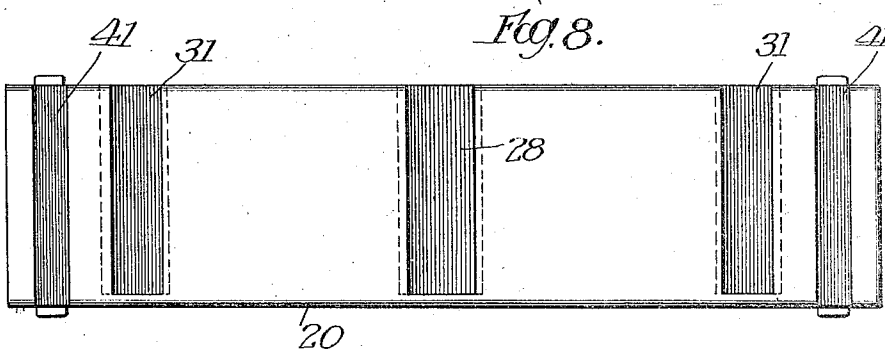
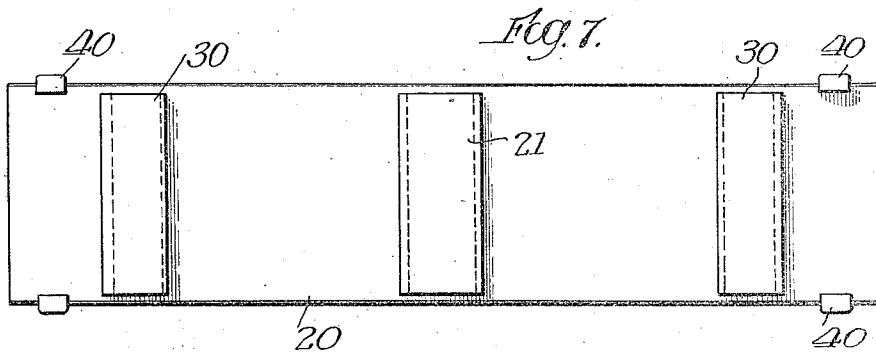
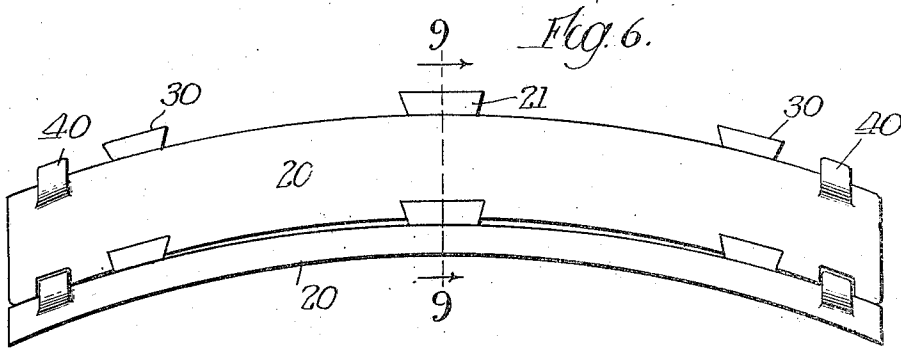
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 10.

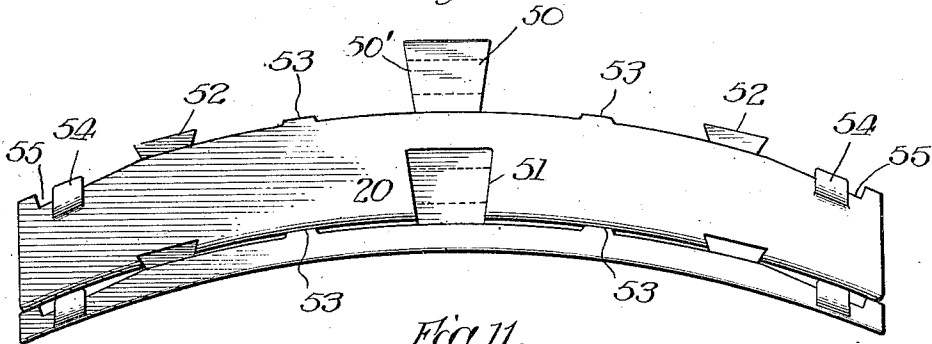


Fig. 11.

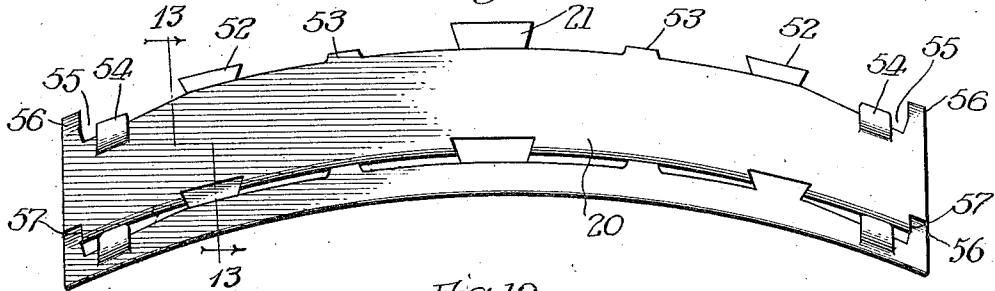


Fig. 12.

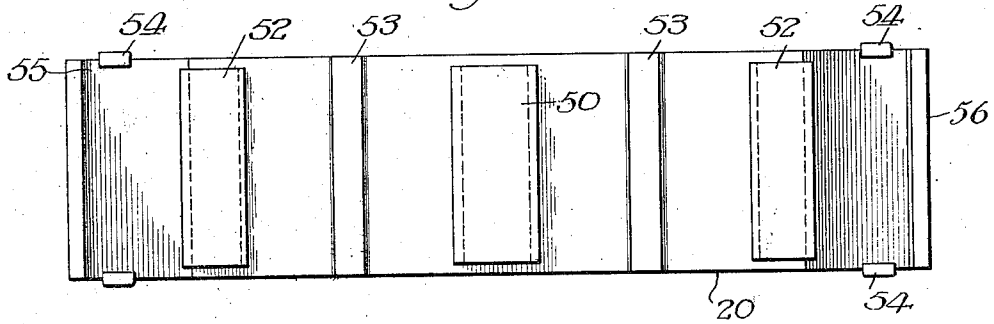
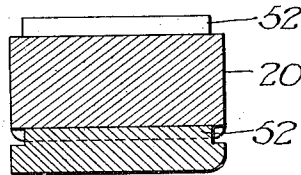


Fig. 13.



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UNITED STATES PATENT OFFICE.

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BRAKE-SHOE.

1,010,010.

Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed January 18, 1911. Serial No. 603,268.

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 Mc-Henry and State of Illinois, (whose post-office address is No. 906 Fisher Building, Chicago, Illinois,) have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to brake shoes, and more particularly to that type or class of brake shoes known as "interlocking" shoes, wherein the back and face of the shoe are provided with interlocking means, so that a partially worn shoe can be detached from the brake head and applied to the wearing face of a new shoe, whereby a partially worn shoe may be completely used up.

One of the novel features of my present invention resides in the construction, wherein the interlocking parts on the back and face of the shoe respectively are constructed to be engaged in interlocking relation by moving one of the shoes transversely relatively to the other, and the other shoes are so shaped that when interlockingly engaged, the central portions of the interlocked shoes are spaced apart, while the end portions thereof are in engagement with each other. By reason of this construction the interlocking recesses, with which the center of the face of the shoe is provided, may be made of minimum depth, thereby enabling the greatest amount of material to be incorporated in a shoe of predetermined thickness, with the result that the shoe possesses a maximum transverse strength.

Another novel feature of this invention consists in eliminating the usual end guide lugs and providing in lieu thereof suitable side stops adapted to engage with the outer faces of the brake head end prongs to maintain the shoe in alinement.

Various other novel features of construction will be apparent as the invention is better understood by the following description, when taken in connection with the accompanying drawings illustrating those embodiments of my invention, which appear at the present time to be preferred.

Referring to the drawings—Figure 1 is a side elevation of an interlocking shoe, embodying one preferred form of my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a face view. Fig. 4 is a sectional view

on the line 4—4 of Fig. 1. Fig. 5 is a sectional view on the line 5—5 of Fig. 1. Fig. 6 is an elevation of a modified form of my invention. Fig. 7 is a top plan view thereof. Fig. 8 is a face view. Fig. 9 is a sectional view on the line 9—9 of Fig. 6. Fig. 10 is an elevation of still another modification of my invention. Fig. 11 is an elevation of a modification differing slightly from Fig. 10. Fig. 12 is a plan view of the shoe shown in Fig. 11; and Fig. 13 is a sectional view on the line 13—13 of Fig. 11.

On the drawings 20 designates the main body of a shoe provided on its back with the integral centrally disposed locking stud 21 having undercut sides 22 for dove-tail locking engagement with a detachable attaching lug 23. The back of the shoe is also provided adjacent its ends with combined locking and spacing lugs 24 preferably up-turned at their outer ends 25 to act as thrust lugs and having their inner and outer sides beveled or undercut at 26, 26' respectively. The sides of the shoe adjacent the locking and spacing lugs 24 are provided with upwardly projecting stops 27 adapted to cooperate with the sides of the usual end prongs of a brake head to maintain the shoe in alinement thereon. The face of the shoe is provided with a centrally disposed locking recess 28, having undercut side walls for locking engagement with the undercut sides of a locking stud 21 on a similarly shaped shoe. The face of the shoe is also provided adjacent its ends with locking recesses 29 having undercut walls for locking engagement with the sides of the spacing lugs 24. It will be evident from Fig. 3 that the locking recesses 28 and 29 are open at one end and closed at the other to prevent lateral displacement of the attached shoe beyond that side of the fixed shoe, the closed ends being notched to permit the passage of the side stops 27 therethrough. The shoes are fastened to the brake head with the closed ends of the locking recesses disposed outwardly, the open ends of the recesses lying adjacent the flange of the wheel, which is relied upon to prevent lateral displacement of the attached shoe inwardly.

It will be evident from an inspection of Figs. 1, 6, 10 and 11 that the backs and faces of the shoes are formed on the arcs of concentric circles, but that the circles are of different radii, the back of the shoe being

formed on the arc of a circle having a greater radius than the circle upon which the face of the shoe is formed. This construction provides a shoe whose face is curved more sharply than its back, so that when two shoes are interlockingly engaged, the end portions thereof will lie flush against each other, while the central parts will be spaced apart. The principal reason for forming the shoe so that the central portions of interlocking shoes will be spaced apart when they are interlockingly engaged is that the locking recesses 28 may be made shallower than would be possible if the back and face of the interlocking shoes lay flush against each other throughout their length, to bring the body of the locking stud 21 entirely within the recess 28 on the adjacent shoe. By spacing the central portions of the shoes apart, part of the body of the stud 21 lies between the adjacent backs and faces of the interlocking shoes, and the recess 28 need be made only deep enough to receive the top portion of the locking stud. Another reason for spacing the central portions of the shoes apart is to reduce the transmission of heat from the wearing shoe to the face of the supporting shoe as it has been found that long and continued application of a shoe to a wheel sometimes so heats the face of the supporting shoe that its temper is injured before that shoe has ever been actually brought in contact with the surface of the wheel.

In the modifications disclosed in Figs. 6 to 9 inclusive, the thrust lugs are omitted entirely, while the side stops 40 are disposed upon the sides of the shoe body near its ends, said stops projecting over onto the back of the shoe, as shown in Fig. 7. The face of the shoe is provided with transversely disposed recesses 41 into which the side stops 40 formed on the back of a similar shoe are adapted to fit when the shoes are interlocked.

In the modification disclosed in Fig. 10 the back of the shoe is equipped with an integral attaching lug 50, provided with the usual key slot 50', while the face of the shoe is recessed to a sufficient width to provide locking engagement between the undercut walls of the recess and the inclined walls of the attaching lug. The locking and spacing lugs 52 are also provided in this instance and the back of the shoe is further provided with transverse spacing lugs 53, which are adapted to insure the maintenance of the proper distance between the spaced portions of the interlocked shoes. Side stops 54 are disposed upon the sides of the shoe adjacent its ends, said stops overlapping the back of the shoe similar to the stops 40 previously described. In the present instance, however, the back of the shoe between the side stops is cut away at 55 for the reception of the end prongs of the brake head and the tops of the side stops 54 are disposed beneath or tangentially to

the curve of the back of the shoe, so that the provision of transverse recesses in the face of the shoe for the reception of the stops 54 is rendered unnecessary.

In the modifications shown in Figs. 11 to 13 inclusive, the shoe is equipped with the locking stud 21, previously described in connection with Figs. 1 and 4 in lieu of the integral attaching stud shown in Fig. 10, but the shoe also has the transversely disposed spacing ribs 53, the locking lugs 52 and the side stops 54. The back of the shoe between the side stops is also cut away similar to the construction shown in Fig. 10, but the ends of the shoe beyond the cut-away portions are raised to provide thrust lugs 56, and the ends of the face of the shoe are grooved or recessed at 57 for the accommodation of these thrust lugs when two shoes are disposed in interlocked relation.

While I have shown and described several preferred embodiments of my present invention, it will be obvious that the invention is not limited to the exact constructions shown but that the modifications are capable of various slight changes in proportion and construction without departing from the spirit of the invention or sacrificing any of the material advantages thereof.

I claim:

1. A brake shoe comprising a body member having locking lugs on its back and locking recesses on its face to interlock with the locking lugs of a similar shoe, the curvature of the face of the shoe being greater than the curvature of the back thereof, whereby the central portions of interlocked shoes are spaced apart.

2. A brake shoe comprising a body member having a locking stud and locking lugs on its back and having locking recesses on its face adapted to interlockingly engage with the locking stud and locking lugs of a similar shoe, the back and face of said shoe being formed on the arcs of different circles, whereby to space apart the central portions of interlocked shoes.

3. A brake shoe comprising a body member having locking lugs on its back and locking recesses on its face to interlock with the locking lugs of a similar shoe, the curvature of the face of the shoe being greater than the curvature of the back and said locking recesses being shallower than their corresponding lugs whereby the back and face of interlocked shoes are spaced apart intermediate their ends.

4. A brake shoe comprising a body member provided on its back with locking lugs and on its face with locking recesses, the curvature of the face of the shoe being greater than the curvature of the back thereof and the locking recesses being shallower than the corresponding locking lugs whereby the interlocked shoes lie against each

other at their ends but are spaced apart by the locking lugs intermediate their ends.

5. An interlocking brake shoe comprising a body member, provided on its back with a centrally disposed locking stud and a plurality of locking lugs and on its face with recesses adapted to interlock with the locking stud and lugs of a similar shoe, the back and face of said member constituting arcs of concentric circles of different radii, whereby the central portions of the interlocked shoes are spaced apart.

6. An interlocking brake shoe comprising a body member provided with locking lugs and having side stops located on each side thereof, one face of said member being correspondingly recessed to accommodate the locking lugs of a similarly shaped member.

7. A brake shoe comprising a body member provided on its back with transversely disposed locking lugs, side stops located adjacent the ends of said member and projecting upwardly from each side thereof, the face of said member being provided with transversely disposed locking recesses to accommodate the locking lugs of a similarly shaped member.

8. An interlocking brake shoe, comprising a body member whose back and face are formed on the arcs of concentric circles of different radii, the back of said member being provided with transversely disposed locking lugs and side stops located on each side to engage the end prongs of a brake head and prevent lateral movement of the shoe, the face being recessed to receive the locking lugs of a similarly shaped member, said members when interlockingly engaged being spaced apart throughout a portion of their length.

9. An interlocking brake shoe, comprising a body member provided upon its back with locking lugs and upon its sides with stops, and provided on its face with locking recesses adapted to receive the locking lugs of a similarly shaped shoe, said locking lugs serving to space said interlocking shoes apart throughout a portion of their length.

10. A brake shoe, comprising a body member provided on its back with spacing lugs and locking lugs and upon its sides with stops, the tops of said stops being disposed tangentially to the curve of the back of the shoe, the face of said member being recessed for interlocking engagement with the locking lugs of a similarly shaped member, the back and face of said member being formed on the arcs of different sized circles, whereby the central portions of the interlocked members are spaced apart.

11. An interlocking brake shoe, comprising a body member, provided on its back with locking lugs and upon its sides adjacent the ends thereof with stops, the back of said member being recessed between said

stops, the face of said member being provided with locking recesses for the reception of the locking lugs of a similarly shaped member, the contiguous backs and faces of said members engaging with each other adjacent the ends of the members but being spaced apart throughout the central portions thereof.

12. An interlocking brake shoe, comprising a body member provided with a centrally disposed attaching lug and locking lugs located intermediate said attaching lug and the ends of the shoe, the face of said member being provided with recesses to accommodate the attaching lug and locking lugs of a similar shoe.

13. An interlocking brake shoe, comprising a body member provided with an attaching lug and interlocking lugs disposed upon either side of said attaching lug and spaced from the ends of the shoe sufficiently to permit the end prongs of a brake head to lie outside said locking lugs.

14. An interlocking brake shoe, comprising a body member provided on its back with a centrally disposed attaching stud and a plurality of locking lugs and recessed on its face to accommodate the attaching stud and locking lugs of a similarly shaped shoe, said attaching stud serving to space the back and face of said interlocked shoes apart.

15. An interlocking brake shoe comprising a body member provided on its back intermediate its ends with a plurality of locking lugs and having on its face a plurality of recesses adapted to interlockingly engage with the locking lugs on a similar shoe, each of said recesses being of less depth than its corresponding locking lug whereby to space the back and face of the interlocked shoes apart intermediate their ends.

16. An interlocking brake shoe comprising a body member provided with a centrally disposed attaching stud and a plurality of locking lugs spaced from the ends of the shoe and having on its face interlocking recesses adapted to cooperate with the locking stud and locking lugs of a similarly shaped shoe to lock the shoes together, said attaching stud and locking lugs and the ends of the back of said shoe forming the engaging and bearing surfaces of said interlocked shoes.

17. An interlocking brake shoe comprising a body member provided with a centrally disposed attaching stud and locking lugs disposed intermediate said stud and the ends of the shoe, the face of said shoe being recessed to accommodate the attaching stud and locking lugs of a similarly shaped shoe, the back and face of said interlocked shoes engaging with each other adjacent their ends, said attaching stud and locking lugs serving to space said shoes apart intermediate their ends.

18. An interlocking brake shoe comprising a body portion provided upon its back with an attaching stud and with spacing lugs adapted to space the shoe body away from the brake head, and provided on its face with locking recesses adapted to lockingly engage with said spacing lugs, said lugs and the attaching stud serving to space the interlocked shoe bodies apart.
19. A brake shoe comprising a body member having locking lugs on its back and locking recesses on its face to interlock with the locking lugs of a similar shoe, said locking lugs serving to space the interlocked shoes apart throughout a portion of their length.
20. A brake shoe comprising a body member having locking lugs on its back and locking recesses on its face to interlock with the locking lugs of a similar shoe, the curvature of the face of the shoe being greater than the curvature of the back thereof, and the locking lugs serving to space the interlocked shoes apart.

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