C. W. ARMBRUST.

BRAKE SHOE.

APPLICATION FILED MAY 29, 1911.

1,020,532.

Patented Mar. 19, 1912.

3 SHEETS—SHEET 1.

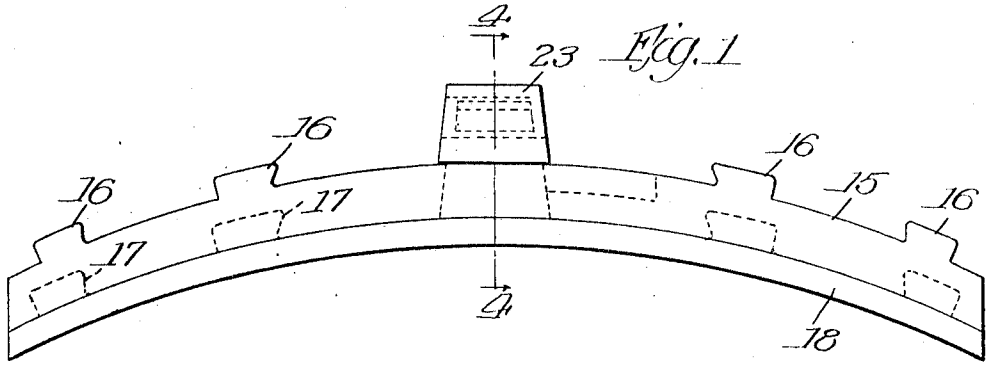

Fig. 1

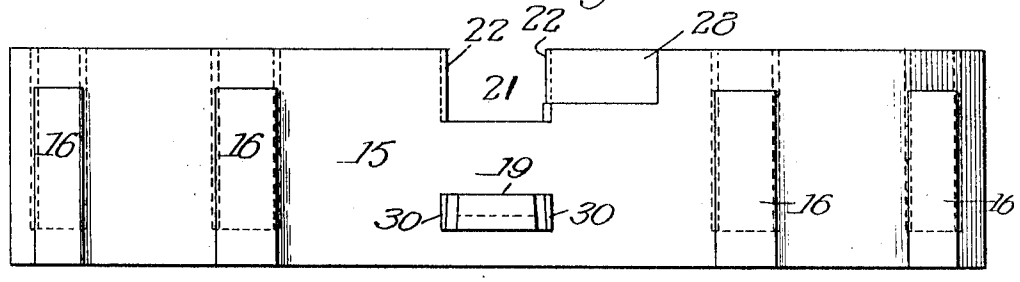

Fig. 2

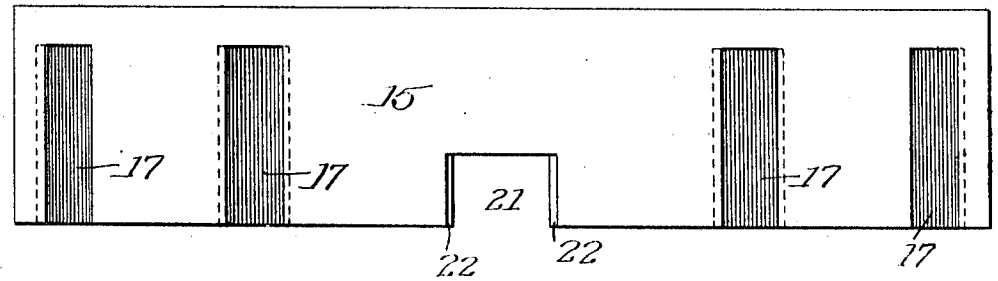

Fig. 3

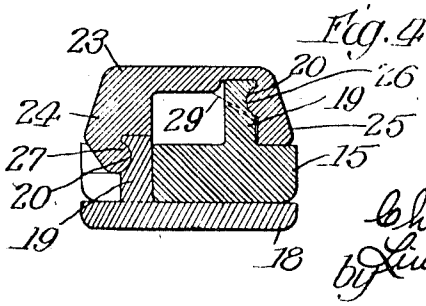

Fig. 4

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3 SHEETS—SHEET 2.

Fig. 5

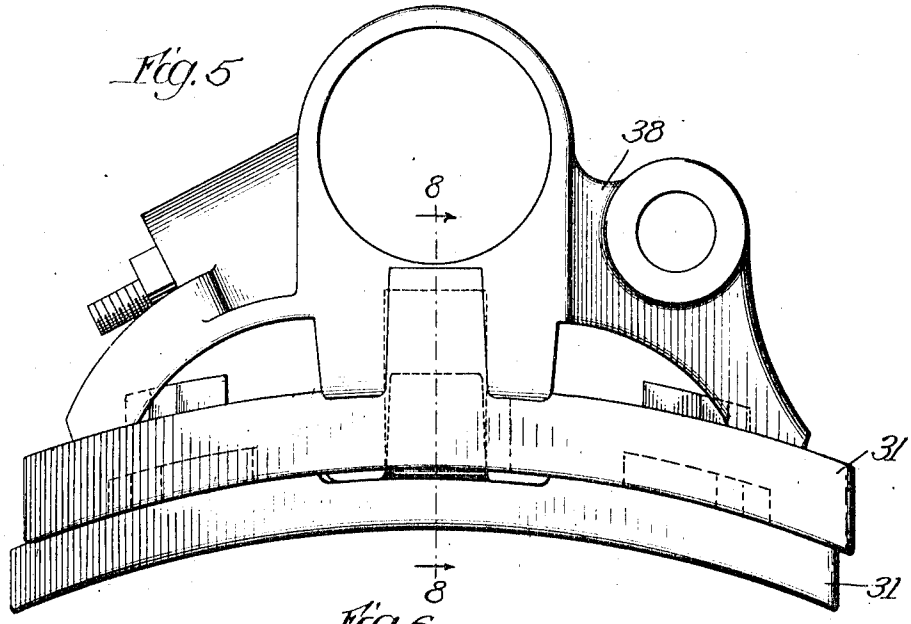

Fig. 6

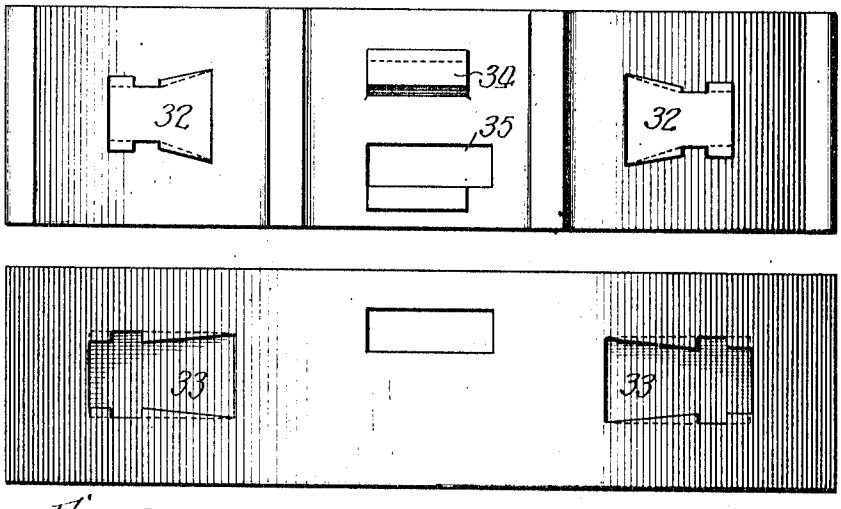

Fig 7

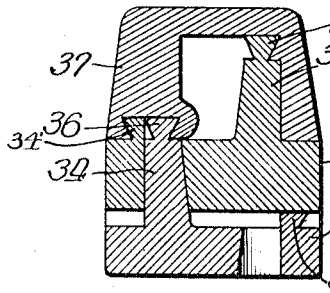

Fig. 8

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3 SHEETS—SHEET 3.

Fig. 9

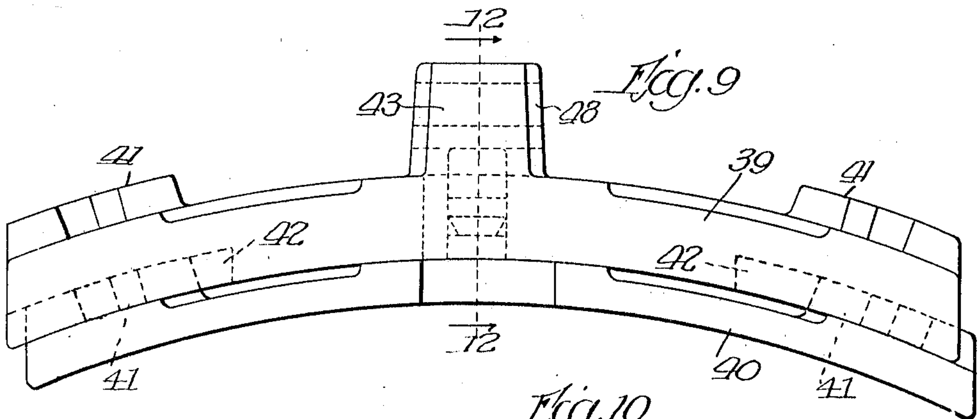


Fig. 10

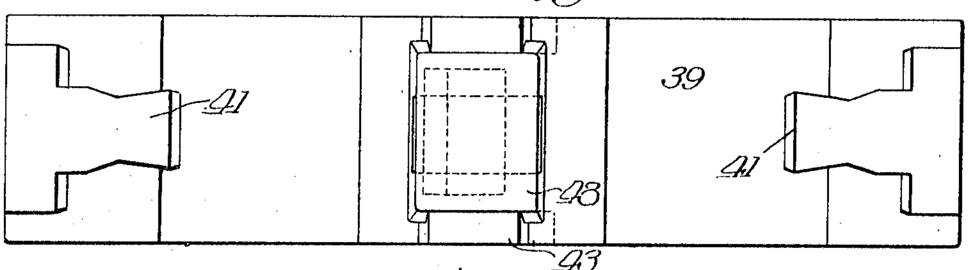


Fig. 11

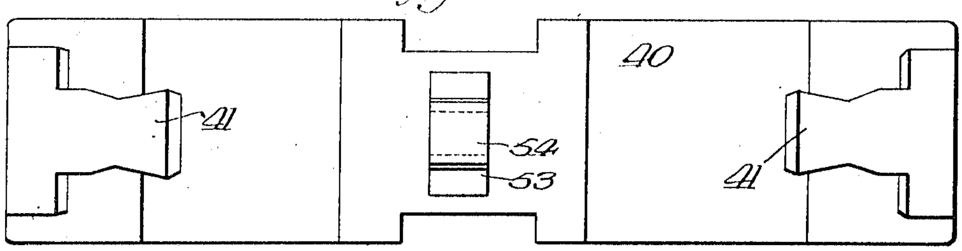


Fig. 12

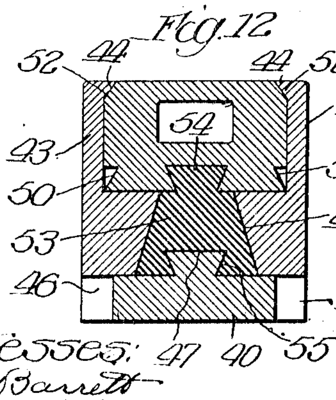
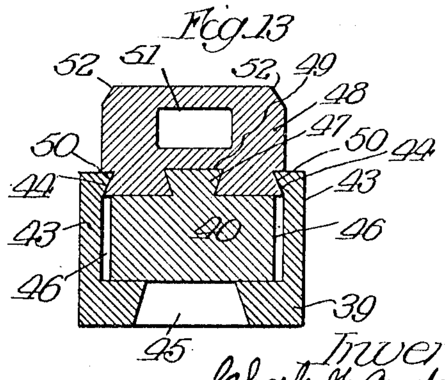


Fig. 13



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UNITED STATES PATENT OFFICE.

CHARLES W. ARMBRUST, OF CRYSTAL LAKE, ILLINOIS, ASSIGNOR OF ONE-HALF TO HARRIET W. ARMBRUST, OF NORTH CRYSTAL LAKE, ILLINOIS.

BRAKE-SHOE.

1,020,532. Specification of Letters Patent. Patented Mar. 19, 1912.

Application filed May 29, 1911. Serial No. 630,148.

To all whom it may concern:

Be it known that I, CHARLES W. ARMBRUST, of 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 particularly to that class of shoes known as interlocking shoes, said shoes being so constructed that the back of one shoe may be locked to the face of the other shoe whereby when one of said shoes is partially worn away it may be locked to the face of a new shoe so that the partially worn shoe can be entirely used up.

One of the objects of my present invention is to provide two shoes of this character which can be interchangeably used, each of said shoes being adapted to be locked either to the face or the back of another shoe and also to provide a detachable attaching lug which, when in locking position, will engage or interlock with both of said shoes and thereby lock them together.

My invention will be best understood by reference to the following description when taken in connection with the accompanying drawings illustrating preferred embodiments thereof.

Referring to the drawings Figure 1 is a side elevation of a pair of shoes embodying my invention showing the attaching lug engaged therewith; Fig. 2 is a back view of one of said shoes; Fig. 3 is a face view thereof; Fig. 4 is a sectional view on the line 4—4 of Fig. 1; Fig. 5 is a side elevation of a pair of shoes of modified form showing a brake head connected therewith; Fig. 6 is the back view of one of said shoes; Fig. 7 is a face view thereof; Fig. 8 is a sectional view on the line 8—8 of Fig. 5; Fig. 9 is a side elevation of a pair of shoes of still another form; Fig. 10 is a back view of one of the shoes shown in Fig. 9 with the detachable attaching lug engaged therewith; Fig. 11 is a back view of the other shoe shown in Fig. 9; Fig. 12 is a sectional view on the line 12—12 of Fig. 9; and Fig. 13 is a sectional view similar to Fig. 12 but showing the shoes in reversed position.

Referring to the drawings and particularly Figs. 1 to 4 thereof, reference character 15 indicates the body of one form of my improved shoe shown as equipped on its back with transversely extending locking lugs 16 and on its face with locking recesses 17 adapted to receive the locking lugs of a similarly shaped shoe.

18 designates the body of a partially worn shoe shown in Fig. 1 as having its locking lug interlockingly engaged in the locking recesses of the body 15. These shoes are adapted to be interlockingly engaged upon relative transverse movement thereof and it will be apparent from Figs. 2 and 3 that the locking lugs 16 extend only partially across the back of the body portion while the locking recesses 17 likewise extend only partially across the face of the body, said recesses being open at one end to receive the locking lugs 16 of a similar shoe and closed at their other ends to prevent the shoe from becoming laterally displaced in that direction.

Each of the shoes is equipped on its back and adjacent one side thereof with a centrally disposed attaching stud 19 projecting upwardly from the body of the shoe and having its outer face undercut or grooved as indicated at 20. The opposite side of the shoe has a recess 21 formed therein to receive the locking stud 19 of a similarly shaped shoe when the shoes are interlockingly engaged upon relative lateral movement thereof. The end walls of this recess are undercut as indicated at 22 to form a locking engagement with the tapered ends of the attaching stud whereby the upper shoe will be held to the brake head by the attaching stud when the lower wearing shoe has entirely worn away.

A detachable attaching lug 23 is formed with two legs 24 and 25 respectively, the leg 25 being provided with a bead or rib 26 adapted to engage in the groove 20 of the attaching stud on the upper shoe and the longer leg 24 being provided with a rib or projection 27 adapted to engage in the groove 20 of the attaching stud on the lower shoe whereby, when the attaching lug is locked to a brake head by an ordinary locking or attaching key, both of the shoes are securely attached to the brake head. The

detachable attaching lug 23 is engaged with the attaching studs 19 by longitudinal movement thereof relatively to the shoes, and in order that the rib or projection 27 on the longer leg 24 of the lug may be brought into engagement with the groove 20 of the lower shoe which lies below the upper face of the upper shoe, said upper shoe is cut away or provided with a depression 28 adjacent one end of the recess 21 to permit the attaching lug to be alined with the attaching stud on the lower shoe and then slid into locking position.

In order to strengthen the leg 25 of the attaching lug, a web 29 is formed at one end thereof connecting said leg with the crown of the lug and the studs 19 are notched or cut away at each end, as indicated at 30, to receive this web and permit the ribs 26, 27 to engage throughout their length in the grooves 20.

In the form of my invention shown in Figs. 5 to 8 inclusive, the shoes 31 are provided on their backs with locking lugs 32 and on their faces with locking recesses 33 adapted to receive said lugs whereby the shoes may be interlocked upon relative longitudinal movement thereof. In this instance, each of the shoes is provided with attaching studs 34 and 34′ and also with a perforation or opening 35 to receive the longer attaching stud of a similarly shaped shoe, said opening 35 being of greater length longitudinally of the shoe than the stud to permit relative longitudinal movement of the shoes whereby they are locked together. The attaching studs 34, in this instance, project upwardly from the back of the shoes far enough to pass entirely through the body of the upper shoe and they are provided with undercut locking shoulders 36 which are engaged by undercut shoulders provided on the detachable attaching lug 37. The attaching lug is disposed entirely above the back of the upper shoe and is brought into interlocking engagement with the attaching studs by moving the same longitudinally of the shoes until the undercut shoulders are engaged with the studs as shown in Fig. 8. The brake head 38, as shown in Fig. 5, is of the ordinary M. C. B. type and the shoes are fastened thereto by an ordinary locking or fastening key (not shown). In this form of my invention the side walls or openings 35 are slightly undercut and the side walls of the attaching studs 34 are correspondingly tapered so that the stud on the lower shoe can not be drawn upwardly through the upper shoe to release the attaching lug if the lower shoe should be entirely worn away.

In the form of my invention shown in Figs. 9 to 13 inclusive, the shoes 39 and 40 differ from one another in the form of attaching stud with which they are equipped. Each of the shoes, however, is provided on its back with locking lugs 41 and on its face with similarly shaped locking recesses 42 with which the locking lugs interlockingly engage upon relative longitudinal movement of the shoes.

The shoe 39 is provided on its back, near or at the middle and adjacent each side, with attaching studs 43, which project upwardly from the body of the shoe and are equipped at their upper ends with inwardly projecting shoulders 44. This shoe is also provided at its center with an opening 45 tapered from its bottom upwardly as indicated in Figs. 12 and 13. The shoe 40 is cut away at the center on each side to form recesses 46 adapted to receive the studs 43 of the shoe 39 as shown in Fig. 13. The shoe 40 is also provided on its back with a centrally disposed stud 47 provided with undercut walls. An attaching lug 48 is provided on its bottom with an undercut recess 49, the inclined walls of which are adapted to interlockingly engage with the undercut walls of the stud 47 and is also provided at its sides with notches or recesses 50 adapted to engage with the inclined shoulders 44 of the studs 43. This construction enables the attaching lug 48 to be interlockingly engaged with both the shoe 39 and the shoe 40 as shown in Fig. 13. The lug is also provided with a key receiving opening 51 adapted to receive the ordinary locking key which fastens the shoes to a brake head.

The shoes when lockingly assembled may be locked together as shown in Fig. 13 and fastened to a brake head. After the shoe 39 has been worn away, it is desirable to reverse the position of the shoes, that is, to secure a new shoe 39 to the brake head and to place the shoe 40 on the face thereof so that it in turn will act as the wearing shoe. In order to effect this arrangement of the shoes, the upper corners of the attaching lug are cut away as indicated at 52 to interlockingly engage with the shoulders 44 of the studs 43 and an auxiliary lug 53, having an undercut stud 54 at its upper end and an undercut recess 55 at its lower face, is employed. This auxiliary lug is interlockingly engaged with the stud 47 of the shoe 40 by means of the undercut recess 55 and is projected through the tapered opening 45 of the shoe 39. The detachable attaching stud 48 is then slid into position longitudinally of the shoes so that the undercut recess 49 will lockingly engage with the stud 54 projecting above the back of the shoe 39 as shown in Figs. 9 and 12. The side walls of the auxiliary lug 53 are tapered to fit in the tapered opening 45 so that when the shoe 40 is entirely worn away the auxiliary lug will assist in holding the shoe 39 to the attaching lug. It will thus be apparent that the attaching lug 48 is adapted for interlocking engagement with both the shoe 39 and

the shoe 40 to lock them together and fasten them to the brake head irrespective of which shoe is placed at the back and it will also be obvious that the shoes can be interchangeably employed, the partially worn shoe in each instance being secured to the face of a new shoe.

While I have shown and described preferred embodiments of my invention, it will be obvious that various modifications in the size, shape and proportion of the various parts may be resorted to without departing from the spirit or sacrificing any of the material advantages of my invention.

I claim:

1. The combination of a brake shoe, provided with an attaching stud, a second brake shoe interlocked therewith and provided with an attaching stud, and a detachable attaching lug interlockingly engaged with the attaching studs of both of said shoes.

2. The combination of a brake shoe provided with an attaching stud and shaped to receive the attaching stud of a similarly shaped shoe, and an attaching lug detachably engaged with the attaching studs of both of said shoes.

3. The combination of a brake shoe provided with an attaching stud and having a recess to receive the attaching stud of a similarly shaped shoe, a second shoe engaged with said first shoe and having its attaching stud disposed in said recess, and an attaching lug detachably engaging both of said studs.

4. A brake shoe provided with locking lugs and a locking stud and having locking recesses on its face, a second shoe having locking lugs engaged in the locking recesses of said first shoe and also provided with a locking stud, and a detachable attaching lug interlockingly engaged with the studs of both of said shoes.

5. The combination of a brake shoe provided with a centrally disposed attaching stud and locking lugs disposed on each side thereof, a second shoe interlockingly engaged with said first shoe and having an attaching stud projecting through said first shoe and disposed within the perimeter thereof, and an attaching lug detachably engaged with the attaching studs of both of said shoes.

6. The combination of a brake shoe provided with an attaching stud and having an attaching stud-receiving recess, a second shoe locked to said first shoe and having a locking stud disposed in said recess, and an attaching lug interlockingly engaged with the studs of both of said shoes.

7. A brake shoe provided with an attaching stud, a second shoe having an attaching stud projecting through the body of said first shoe within the perimeter thereof, and a detachable attaching lug interlockingly engaged with both of said studs whereby the shoes are locked together.

8. The combination of a pair of brake shoes each provided with an attaching stud, the stud of one of said shoes projecting through the body of the other shoe, and an attaching lug engaged with both of said studs whereby the shoes are locked together.

9. A brake shoe provided with an attaching stud, a second brake shoe also provided with an attaching stud, said shoes being constructed so that the attaching stud of one shoe may be inserted through the body of the other shoe, and a detachable attaching lug adapted to be engaged upon movement thereof longitudinally of the shoes with the attaching studs of both shoes whereby the shoes are locked together.

10. The combination of a pair of brake shoes each provided with an attaching stud projecting upwardly from the back thereof, one of said shoes being provided with a recess to receive the upwardly projecting stud of the other shoe, and an attaching lug adapted to be engaged with the studs of both of said shoes to lock the same together.

11. The combination of a pair of brake shoes, and a detachable attaching lug engaged with each of said shoes.

12. The combination of a pair of brake shoes, and a detachable attaching lug engaging directly with each of said shoes.

13. The combination of a pair of brake shoes, each provided with an attaching stud, and an attaching lug detachably engaged with the studs of both shoes.

14. The combination of a plurality of brake shoes, each provided with an attaching stud, and a detachable attaching lug engaged with the studs of each shoe.

15. The combination of a pair of brake shoes, each provided with an attaching stud projecting upwardly from the back thereof, and with a recess adapted to receive the upwardly projecting stud of a similarly shaped shoe, the end walls of said studs and recesses being inclined whereby the stud of the wearing shoe will assist in retaining the back shoe in position.

16. A brake shoe comprising a body portion provided with a recess, and having an attaching stud projecting upwardly from the back thereof, one wall of said stud and recess being inclined whereby, upon interlocking engagement of similarly shaped shoes, the back shoe will be at least partially retained by the lug of the wearing shoe.

17. A brake shoe comprising a body portion provided with a stud projecting therefrom, and having a recess adapted to receive the stud of a similarly shaped shoe, the said body portion adjacent said recess having a depression to accommodate a detachable attaching lug.

18. The combination of a pair of brake

shoes, each provided with an attaching stud, and having a recess open at one side to receive the stud of a similarly shaped shoe, and a detachable attaching lug adapted to be engaged with the studs of both of said shoes to lock the shoes together against relative lateral displacement.

19. The combination of a pair of brake shoes, each provided with a rearwardly projecting stud and having a recess open at one side to receive the stud of a similarly shaped shoe, and a detachable attaching lug having a sliding engagement with the studs of both of said shoes whereby the shoes are locked together and secured to a brake head.

20. A detachable attaching lug for brake shoes having legs or prongs adapted for sliding engagement with the attaching studs of the brake shoes, one of said legs or prongs being connected with the main body portion of the lug by a flange or web.

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