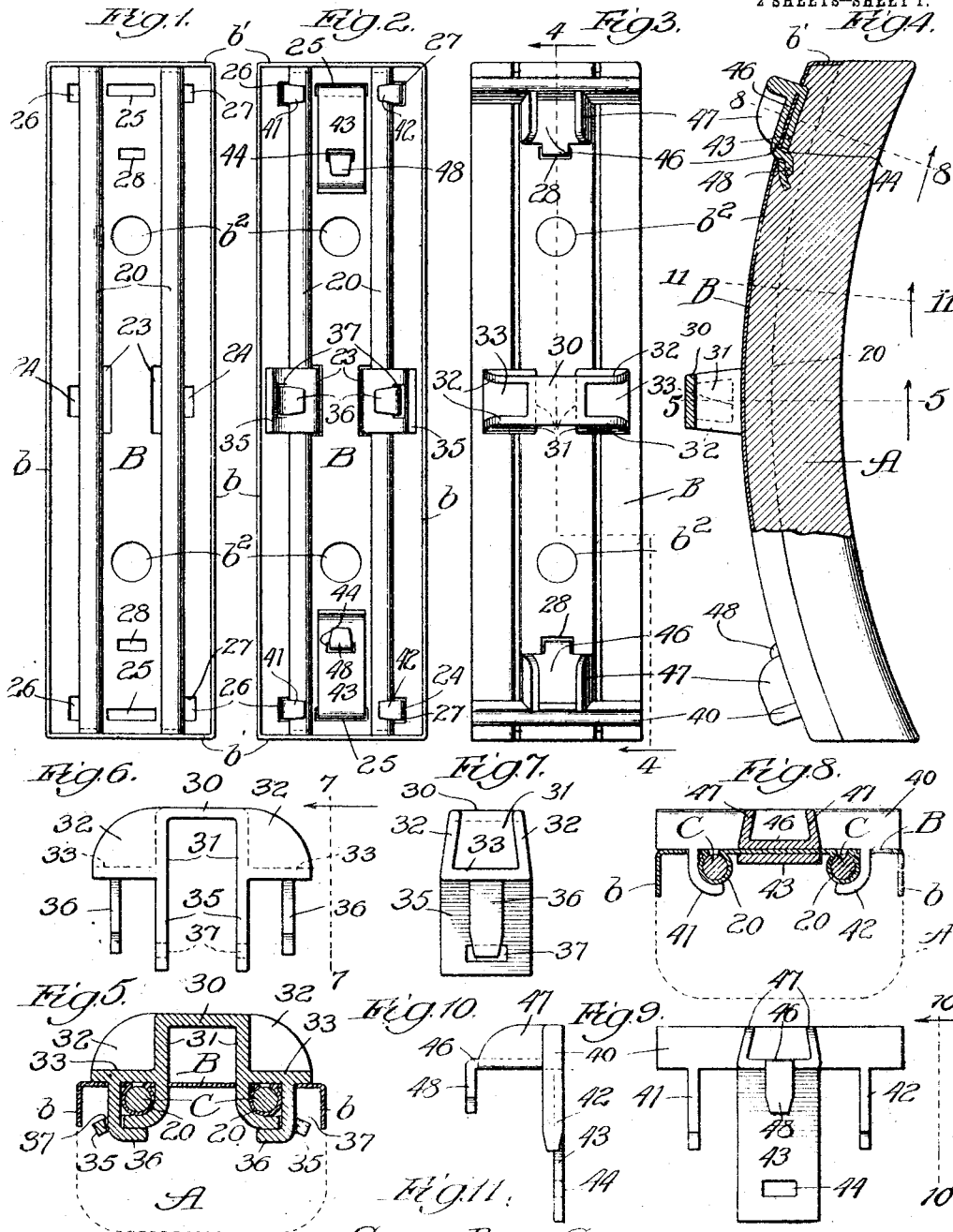


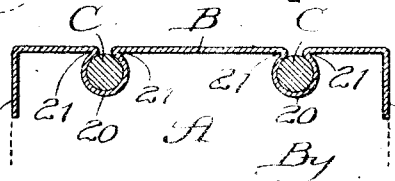
1,065,716.

Patented June 24, 1913.

2 SHEETS-SHEET 1.



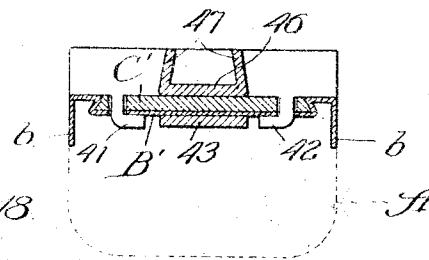
Witnesses:
 E. C. Taylor,
 Chas. H. Bull.



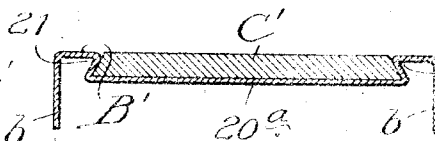
Inventor:
 Clifton D. Pettis
 By
 Pierce, Fisher & Clapp
 Attys.

1,065,716.

2 SHEETS—SHEET 2.



Chas. H. Buell;



Clifton. H. Pettie

By Pierce, Fisher & Chapin
Attys

UNITED STATES PATENT OFFICE.

CLIFTON D. PETTIS, OF CHICAGO, ILLINOIS.

BRAKE-SHOE.

1,065,716.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed August 3, 1912. Serial No. 713,176.

To all whom it may concern:

Be it known that I, CLIFTON D. PETTIS, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Brake-Shoes, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

The present invention has relation more particularly to that class of brake shoes commonly known as reinforced brake shoes, in which provision is made for strengthening or reinforcing the back of the shoe so that as the cast metal body of the shoe is reduced by wear, the danger of fracture of the shoe may be avoided.

The invention consists in the novel features of construction hereinafter described, illustrated in the accompanying drawings and particularly pointed out in the claims at the end of this specification.

Figure 1 is an inner face view of the back or shell for inclosing the back of the shoe. Fig. 2 is a view similar to Fig. 1 after the attaching lugs have been connected to the back or shell. Fig. 3 is an outer face view or plan of the completed shoe. Fig. 4 is a view in longitudinal section on line 4-4 of Fig. 3. Fig. 5 is a view in cross section on line 5-5 of Fig. 4. Figs. 6 and 7 are detail views in elevation of the central attaching lug. Fig. 8 is a view in cross section on line 8-8 of Fig. 4. Figs. 9 and 10 are detail views in elevation of one of the end attaching lugs. Fig. 11 is a view in cross section (upon an enlarged scale) on line 11-11 of Fig. 4. Fig. 12 is a view similar to Fig. 1, but showing a modified form of shell or back. Fig. 13 is a view similar to Fig. 12 with the attaching lugs in position. Fig. 14 is an outer face view or plan of the completed shoe embodying a modified form of the invention. Fig. 15 is a view partly in longitudinal section and partly in side elevation on line 15-15 of Fig. 14. Fig. 16 is a view in cross section on line 16-16 of Fig. 15. Fig. 17 is a view in cross section on line 17-17 of Fig. 15. Fig. 18 is a view in cross section, upon an enlarged scale, on line 18-18 of Fig. 15. In Figs. 5, 8, 11, 16, 17 and 18 the cast metal portion of the shoe is indicated in dotted lines.

My present invention is especially applicable to that class of brake shoes in which

the body A is formed of cast metal, although features of the invention will be found applicable also to brake shoes in which the body of the shoe is composed in whole or in part of any of the compositions of material adapted for use in brake shoes.

At the back of the body A of the brake shoe, and preferably connected thereto in the casting operation, is a strengthening back B of ductile metal, this back being preferably in the shape of a pan or shell having sides and ends *b* and *b'* preferably stamped or pressed integral with the back B. The back B is reinforced by what for convenience may be termed a supplemental back. This supplemental back may be made of various forms and upon Sheet 1 of the drawings the supplemental back is shown as comprising reinforcing rods extending from end to end of the brake shoe, while upon Sheet 2 of the drawings the supplemental back is shown as consisting of a plate of ductile metal extending approximately from end to end of the brake shoe.

Referring to the form of the invention illustrated upon Sheet 1 of the drawings, the reinforcing rods C are locked to the back or shell B by being inclosed in longitudinal chambers 20 extending substantially from end to end of the shoe. The chambers 20 are formed by stamping or rolling the metal of which the back or shell B of the shoe is composed, the chambers 20 being first left open sufficiently to admit the rods C, after which the upper edges of the chambers 20 will be drawn together so as to securely lock the rods C in place. The metal of which the back or shell B is formed is preferably a thin, ductile plate which, in the operation of casting the body A of the shoe, will firmly adhere to and coalesce with the body A, forming in effect a tough skin or armor for the back portion of the body A that will effectively serve to aid in preventing the fracture of the body A and guard against any danger of the falling away of any portion of the body A, even should fracture occur. The rods C which constitute the supplemental back give great strength to the back portion of the shoe and are firmly locked to the back. The walls of the chambers 20 form with the back B longitudinal cavities 21 into which the cast metal of the body of the shoe will flow and form a dovetailed joint between the chambers 20 and the wall of the back B.

While my invention as thus far described may be used with attaching lugs of various types, I prefer to employ a center lug such as is set forth and claimed in application, Serial No. 711,304, filed by me in the United States Patent Office July 24, 1912, and I prefer to employ end lugs such as are set forth and claimed in an application, Serial No. 711,305, filed by me in the United States Patent Office July 24, 1912. I do not wish to be understood, however, as claiming in the present application the specific construction of lugs set forth and claimed in the above mentioned applications.

When my improved attaching lugs are employed the back or shell of the shoe will be provided about its center with the slots 23, 23, and 24, 24, and about its ends with slots or holes 25, 26, 27 and 28 to receive the locking members of the lugs. The center lug is shown as having a crown 30, side walls 31, brace walls 32 and base portions 33, as in my above mentioned application Serial No. 711,304; and from the base of the center lug depend the locking members 35, 35 and 36, 36, the locking members 35, 35 being provided with slots 37 to receive the free ends of the locking members 36, 36, as will presently appear. Each of the end lugs comprises a transverse wall 40 adapted to extend across the end of the brake shoe, from which wall depend short locking members 41 and 42 and a longer locking member 43 having an opening 44 formed therein. At right angles to the transverse wall 40 extends an inwardly projecting part 46 from which rise the walls 47 and integral with the part 46 is formed a locking member 48. In forming my improved brake shoe, the rods C will first be inclosed within the chambers 20 of the back or shell B, after which the attaching lugs will be placed in the position shown in the drawings. This is accomplished by passing the locking members 35 of the center lug through the openings 23, and the locking members 36 through the openings 24 of the back or shell B. After the locking members have thus been passed through the center openings of the back or shell B, the locking members 35 will be turned outwardly about the rods C, and the locking members 36 will be passed through the holes 37 in the locking members 35, after which the free ends of the locking members 36 will be bent laterally and inwardly, so that the parts will assume the position shown in Fig. 5 of the drawings.

The locking member 43 of each of the end lugs will be passed through the corresponding opening 25 adjacent the end of the back or shell B, while the locking members 41 and 42 will be passed through the openings 26 and 27; and the locking member 48 will

be passed through the opening 28 in the back or shell B. The locking members 41 and 42 will then be bent inwardly and partially around the chambers 20 of the back or shell B, as shown in Fig. 8, and the locking member 43 will be bent toward the center of the shoe and the locking member 48 will be passed through the opening 44 of the member 43, and the free end of the locking member 48 will be bent inwardly, as shown in Fig. 4 of the drawings. When the attaching lugs have been thus secured in place, (as shown in Fig. 2 of the drawings), the body A will be cast on to the back or shell B. Preferably, the back or shell B is provided with openings b^2 through which the cast metal will be poured into the mold that forms the body A. When the body metal is thus cast on to the back or shell B, it will not only firmly adhere to and unite with the back, but will also flow around and unite with the locking members of the center and end lugs and thus effectively prevent any possibility of the withdrawal of the lugs under the severe strains to which the shoes are subjected.

In the modified form of my invention illustrated upon Sheet 2 of the drawings, the back or shell B' is shown as reinforced by a supplemental back or plate C' that is inclosed within a chamber or recess 20^a formed in the back B'. The edges of the supplemental back or plate C' are inclined or beveled, as clearly shown in Figs. 16 to 18 of the drawings, and the walls of the chamber or recess 20^a are correspondingly inclined to engage the beveled edges of the plate C'. By this means the plate is securely interlocked with the back or shell of the shoe. The plate C' will be formed with openings adapted to coincide with the openings b^2 of the back or shell B', as shown in Figs. 14 and 15 of the drawings. In this form of my invention, as in that hereinbefore described, the back or shell B' is provided with slots or holes about its center and ends to receive the locking members of the attaching lugs, the construction of which has been already fully set forth. When the supplemental back or plate C' covers the greater portion of the back or shell B', as in the form of the invention shown upon Sheet 2 of the drawings, the plate C' will be formed about its center and ends with slots or holes corresponding to and adapted to coincide with the slots or holes at the center and ends of the back or shell B', so that the locking members of the attaching lugs will pass through the slots or holes of both the back or shell B' and the supplemental back or plate C'. When the locking members of the center and end lugs have been passed through the back or shell B' and the supplemental back or plate C', these locking members will be bent to the

positions shown in Figs. 13, 15 and 16 and 17 of the drawings. After the center and end attaching lugs have been thus fastened in position, the body metal will be cast on to the back in manner hereinbefore described. In this form of the invention, as in that illustrated upon Sheet 1 of the drawings, the metal of which the body A is composed will flow into the recesses 21 and form thereat a dovetailed joint with the back or shell B'.

The term "supplemental back", as used herein, is to be understood as including any suitable reinforcing member adapted to supplement the back or shell B and strengthen the shoe. The metal of the supplemental back is considerably thicker than the metal of the back or shell B and can be made as thick or heavy as may be required.

It will be understood that the details of construction above set out may be varied without departure from the spirit of the invention, and that features of the invention may be employed without its adoption as an entirety. Thus, for example, while I have shown the body of the shoe as provided with a pan-shaped back, it is obvious that the features of providing a back having a supplemental back locked thereto may be used, whether the back itself be formed with side and end walls, or not.

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

1. A brake shoe comprising a body having a longitudinally recessed, ductile metal back and a supplemental back locked thereto by integral parts of said ductile metal back.

2. A brake shoe comprising a body having a longitudinally recessed, ductile metal back and a supplemental back of ductile metal within said recessed back, said recessed back being bent to engage and retain said supplemental back in position.

3. A brake shoe comprising a body having a back of ductile metal chambered substantially from end to end thereof and a supplemental back of ductile metal inclosed within said chambered back.

4. A brake shoe comprising a body having a back of ductile metal formed with a longitudinal chamber and a supplemental back located within said chamber, the walls of said ductile metal back being bent to engage and retain said supplemental back.

5. A brake shoe comprising a body having a ductile metal back bent to form a chamber opening from the exterior and a supplemental back located within said chamber.

6. A brake shoe comprising a body having a ductile metal back bent to form a chamber projecting inwardly and having contracted walls, and a supplemental back located within said chamber, said chamber being embedded in the body of the shoe.

7. A brake shoe comprising a body having a back of thin ductile metal and a thicker supplemental back locked thereto by integral bent parts of said ductile metal back.

8. A brake shoe comprising a body having a pan-shaped back of thin ductile metal, said back being recessed longitudinally between its side walls and a supplemental back of ductile metal located within said recessed back.

9. A brake shoe comprising a body having a back of thin ductile metal recessed between its side walls and a supplemental back of thicker ductile metal secured within said recessed back, and a lug for attachment to the brake head passing through said back and interlocking with said back and said supplemental back.

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Witnesses:

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KATHARINE GERLACH.