March 28, 1933. N. F. McNAUGHT ET AL 1,903,058

MEANS AND METHOD FOR APPLYING BRAKE SHOE LININGS

Filed Feb. 27, 1932 2 Sheets-Sheet 1

Fig. 1.

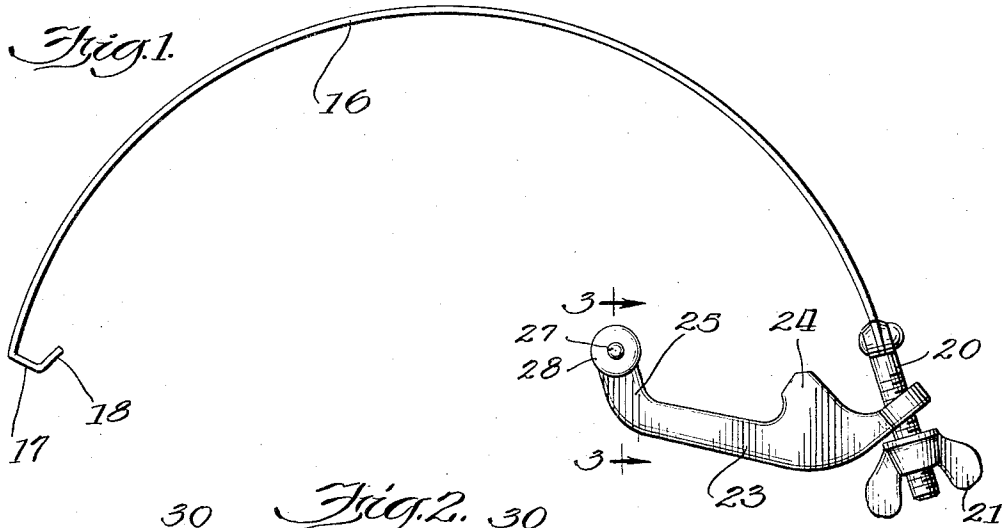


Fig. 2.

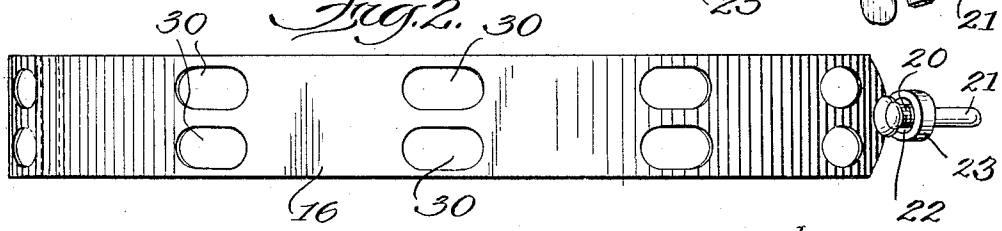


Fig. 4.

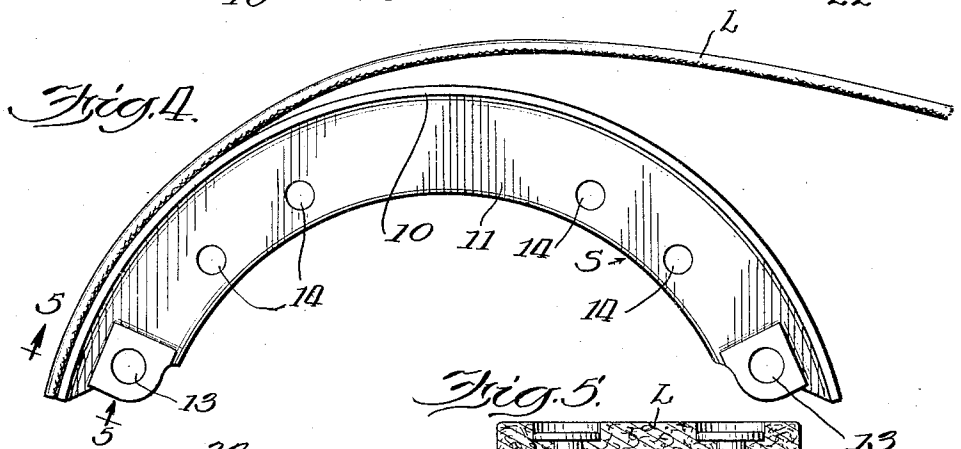
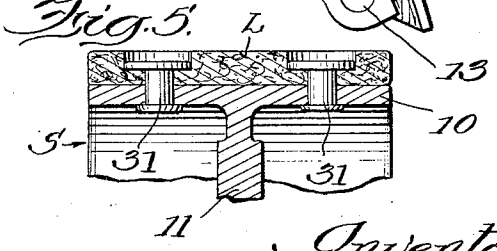


Fig. 5.



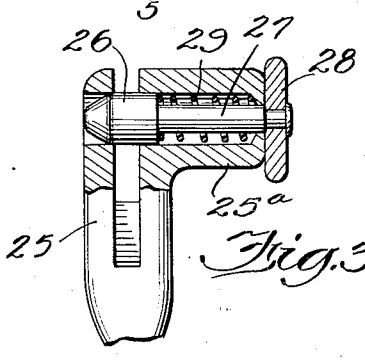


Fig. 3.

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Filed Feb. 27, 1932 2 Sheets-Sheet 2

Fig. 6.

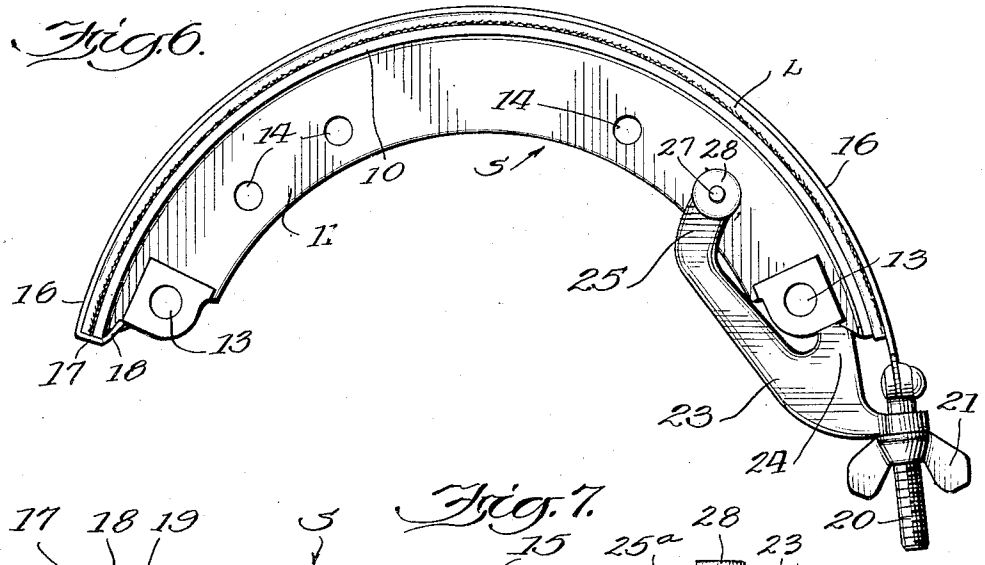


Fig. 7.



Fig. 8.

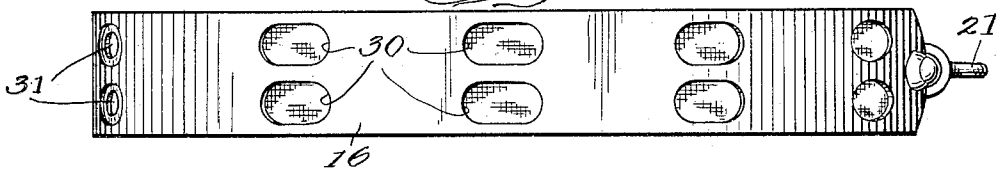


Fig. 9.

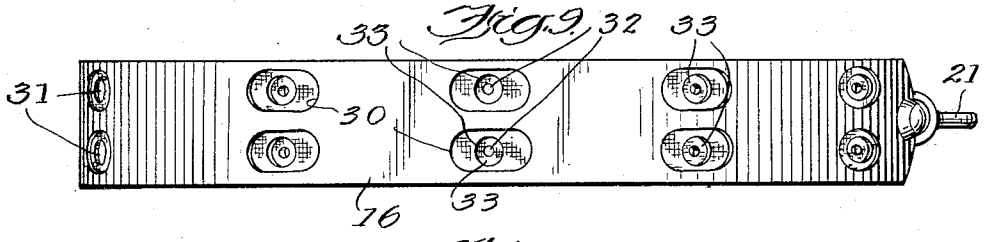
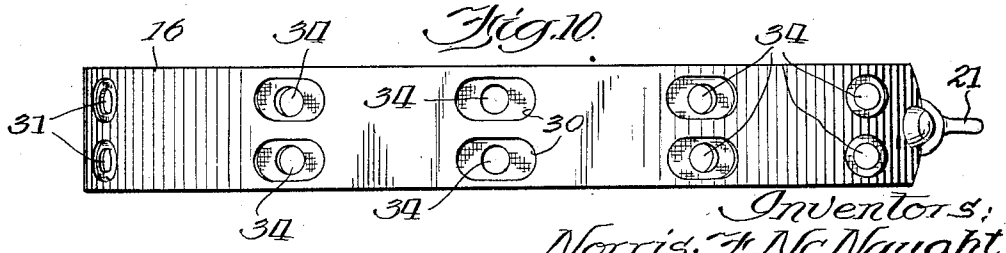


Fig. 10.



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Patented Mar. 28, 1933 1,903,058

UNITED STATES PATENT OFFICE

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MEANS AND METHOD FOR APPLYING BRAKE SHOE LININGS

Application filed February 27, 1932. Serial No. 595,488.

Our invention is concerned with the application of linings to brake shoes. The invention provides an improved method of applying such linings and a novel apparatus wherewith to practice that method.

Generally speaking, the improvements of the present invention enable us to apply linings to brake shoes more satisfactorily and expeditiously than heretofore has been possible because of the difficulties encountered in holding such linings snugly and smoothly on the shoes while the linings are being bored, counterbored and riveted in position.

In utilizing the improvements of the present invention the lining is applied to the brake shoe and riveted to one end of the latter. A flexible holding element, preferably in the form of a steel ribbon, is then caused to overlie the lining, the ribbon being attached to that end of the shoe to which the lining has been riveted. The steel ribbon is then drawn tautly toward the other end of the shoe and there held to retain the lining tightly and smoothly pressed against the shoe while the said lining is being bored, counterbored and riveted.

Other features, objects and advantages of our invention will appear from the following detailed description, wherein reference is made to the accompanying drawings, in which

Fig. 1 is a side elevational view of the apparatus of the present invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a detail section taken on the line 3—3 of Fig. 1 and looking in the direction indicated by the arrows;

Fig. 4 is a side elevational view of a conventional brake shoe having a brake lining riveted to one end of the shoe preparatory to the application of the apparatus depicted in the preceding figures;

Fig. 5 is a transverse cross section taken on the line 5—5 of Fig. 4;

Fig. 6 is a side elevational view illustrating how the apparatus of the present invention is employed smoothly and tightly to hold the brake lining against the shoe while the lining is being bored, counterbored and riveted;

Fig. 7 is a bottom plan view of the parts shown in Fig. 6;

Fig. 8 is a top plan view of the parts shown in Fig. 6;

Fig. 9 is a view corresponding to Fig. 8 but illustrating the lining bored and counterbored for the reception of those rivets which are applied while the lining is held in position on the shoe by the apparatus of the present invention; and

Fig. 10 is a view corresponding to Figs. 8 and 9 but showing all of the rivets applied.

Similar characters of reference refer to similar parts throughout the several views.

In Figs. 4, 5, 6 and 7 reference letter S denotes a brake shoe comprising an arcuate or lining receiving web 10 and the vertical or reinforcing web 11. The web 11 is provided with the usual extremity apertures 13—13 and intermediate apertures 14—14, these apertures being provided to cooperate with pins or other instrumentalities for holding and operating the shoe in a conventional or other suitable brake assembly. The arcuate or lining receiving web 10 is provided with a plurality of bores or apertures 15—15 to receive the rivets whereby the lining is to be held in position on the shoe.

The special apparatus contemplated by the present invention comprises a flexible steel ribbon 16 of substantially the same width as, and preferably somewhat longer than, the arcuate web 10 of the brake shoe. At one of its ends the ribbon 16 is conformed to provide a hook 17 having a lip 18 which is centrally notched at 19 to receive the web 11 of the shoe, as shown in Figs. 6 and 7. At its other end the ribbon 16 is pivoted in the bifurcated end of a threaded stem 20, which in turn is provided with a wing nut 21.

The stem 20 extends freely through the end aperture 22 of an attachment bracket 23 which is provided intermediate its ends with a projection 24 conformed to fit in the angle X at the right hand end of shoe web 11 (see Figs. 4 and 6). The attachment bracket also is provided with an offset and bifurcated extremity 25 carrying a lateral hollow boss 25—*a*. The said offset and bifurcated extremity 25 is provided with a transverse

bore accommodating a locking plunger 26. The plunger 26 has a reduced integral stem 27 provided with an operating button 28. A compression spring 29, located in the hollow boss 25—*a*, disposed around the stem 27, and acting against plunger 26, normally holds the plunger in the position depicted in Fig. 3.

The steel ribbon 16 is provided with a plurality of bores or apertures 30—30, those of the apertures 30—30 which are located intermediate the ends of the ribbon conveniently being elongated in the direction which is lengthwise of the ribbon.

The brake lining to be applied to the shoe S is indicated at L.

In applying the lining to the shoe, we first align the lining with the web 10 of the shoe and secure the left end of the lining to the left end of the shoe by countersunk rivets 31—31 which extend through that pair of rivet apertures 15—15 which are located at the left hand end of the shoe web 10 (see Figs. 4 and 5).

The steel ribbon is now passed over the lining L with the hook 17 engaging over the left end of the shoe web 10, and with the notch 19 of the hook lip 18 receiving the left end of the shoe web 11 (see Figs. 6 and 7).

With the thumb nut 21 sufficiently loosened, the attachment bracket 23 is placed in the position shown in Fig. 6, i. e. with the intermediate offset portion 24 of the bracket located in the angle X of the shoe web 11, the offset and bifurcated end 26 of the bracket embracing the shoe web 11, and the plunger 26 extending through one of the apertures 14 of the shoe web 11.

The thumb screw 21 is now tightened to put the flexible ribbon 16 under tension. When this occurs the lining L, being riveted to the shoe S only at the left hand end of the latter, is drawn snugly into engagement with the shoe web 10 and is also tightly and smoothly stretched over the said web, all wrinkles in the lining being thereby eliminated. We are now prepared to proceed with the boring, counterboring and riveting of the lining to complete its attachment to the brake shoe.

The lining is now bored, as indicated at 32—32 in Fig. 9, the bores 32—32 of course being in registry with the corresponding apertures 15 of the shoe web 10. The lining is also counterbored, as indicated at 33—33 in the same figure. The boring and counterboring of the lining, as indicated at 32 and 33, may be accomplished by means of any suitable tool,—preferably a tool of the kind illustrated and claimed in patent application of E. H. Peterson and W. H. Odlum, Serial No. 477,177, filed August 22, 1930. The apertures 30—30 of the ribbon 16, being elongated lengthwise of the ribbon, facilitate the use of such a tool for boring and counterboring the lining.

After the lining has been bored and counterbored, as just explained, rivets 34—34 are applied completely to secure the lining to the brake shoe.

Thumb nut 21 is now loosened, the plunger 26 is retracted against the pressure of its spring 29, and the apparatus of the present invention is removed from the lined brake shoe.

Having thus illustrated and described our invention, what we claim is new and desire to secure by Letters Patent of the United States is:

1. In an apparatus for use in applying a lining to a brake shoe having a convex surface to be lined, a flexible metal band adapted to overlie a lining disposed on the convex surface of such a shoe, said flexible metal band being provided with a plurality of apertures through which the lining may be drilled and riveted, and a hook at one end of the band adapted to engage one end of the shoe, a threaded stem at the other end of the band, a bracket having an opening through which said threaded stem extends, means for securing said bracket to the shoe, and a wing nut threaded on said stem adapted to cooperate with said bracket to place said band under tension while the said hook and bracket are in engagement with the shoe.

2. In an apparatus for use in applying a lining to a brake shoe, a flexible metal band adapted to overlie a lining disposed on the convex braking surface of such a shoe, said band being provided with a plurality of apertures through which the lining may be drilled and riveted, said band being provided at one end with a hook adapted to engage the corresponding end of the shoe, a threaded stem pivoted to the other end of the band, a bracket adapted to embrace and to be fastened to the shoe adjacent said stem, said bracket having an opening through which said threaded stem extends, and a nut cooperating with said stem and with said bracket to place said band under tension to compress a lining between the band and the brake shoe while the said hook and the said bracket are applied to the shoe.

3. In an apparatus for use in applying a lining to a brake shoe having a convex surface to be lined, a flexible metallic band adapted to overlie a lining disposed on the convex surface of such a shoe, said flexible band being cut away at various points to permit the lining to be drilled and riveted, a hook at one end of the band adapted to engage one end of the shoe, a bracket bifurcated to embrace the reinforcing web of the shoe, means for securing the said web in the embrace of the bracket bifurcation, and means acting between the bracket and the band to put the band under tension and thus to clamp the lining to the shoe.

4. In an apparatus for use in applying a

lining to a brake shoe having a convex surface to be lined, a flexible metallic band adapted to overlie a lining disposed on the convex surface of such a shoe, said flexible band being shaped to expose the lining at the points where it is to be drilled and riveted, a hook at one end of the band adapted to engage one end of the shoe, a bracket bifurcated at one end to embrace the reinforcing web of the shoe, a spring pressed plunger associated with said bifurcated portion adapted to engage in an opening in the said reinforcing web of the shoe, an aperture in the other end of the bracket, a threaded stem carried by the band extending freely through said aperture, and a wing nut adapted to cooperate with said stem and said bracket to tension the band upon the shoe and thus clamp the lining to the shoe.

5. In an apparatus for use in applying a lining to a brake shoe having a convex surface to be lined, a flexible metal band adapted to overlie a lining disposed on the convex surface of such a shoe, said flexible band being shaped to expose the lining at the points where it is to be drilled and riveted, a hook at one end of the band adapted to engage one end of the shoe, a bracket bifurcated to embrace the reinforcing web of the shoe, means for securing the said web in the embrace of the bracket, an aperture in the other end of the bracket, a threaded stem pivoted to the adjacent end of the band and adapted to extend freely through said aperture, and a nut adapted to cooperate with said threaded stem and said bracket to tension the band and thus clamp the lining to the shoe.

In witness whereof, we hereunto subscribe our names this 18th day of February, 1932.

NORRIS F. McNAUGHT.
EDWARD H. PETERSON.