May 9, 1933. L. E. LA BRIE 1,908,483

BRAKE SHOE

Original Filed Feb. 14, 1927

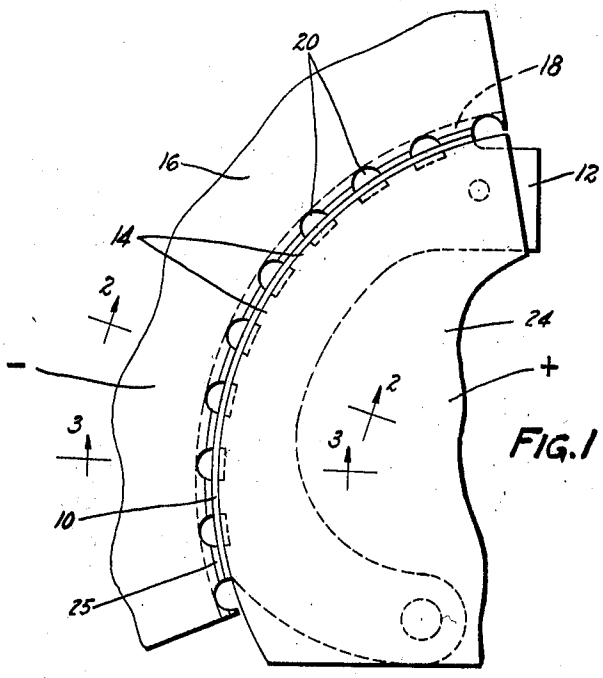


FIG. 1

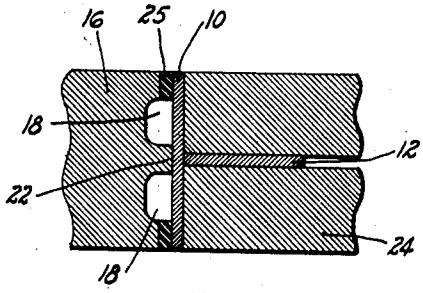


FIG. 2

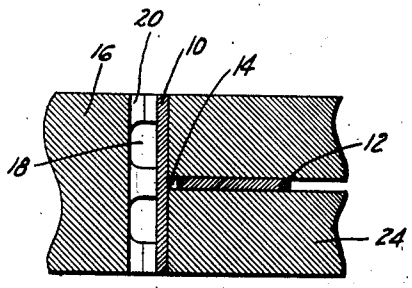


FIG. 3

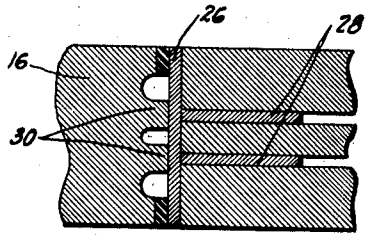


FIG. 4

INVENTOR.
LUDGER E. LA BRIE
BY H. O. Clayton
ATTORNEY

Patented May 9, 1933 1,908,483

# UNITED STATES PATENT OFFICE

LUDGER E. LA BRIE, OF SOUTH BEND, INDIANA, ASSIGNOR TO BENDIX BRAKE COMPANY, OF SOUTH BEND, INDIANA, A CORPORATION OF ILLINOIS

## BRAKE SHOE

Original application filed February 14, 1927, Serial No. 168,044. Divided and this application filed August 12, 1929. Serial No. 386,829.

This invention relates to method of forming brake shoes and is illustrated as embodied in a novel manner of fabricating shoes for an internal expanding automobile brake.

An object of the invention is to provide strong and light but inexpensive shoes by building each shoe of an arcuate outer band for the lining and a flat stiffening web member secured to the band by a series of spaced spot welds. Preferably the web member has a series of projections about the outer edge shown as engaging the inner face of the outer band so that all spot welds may be made at once by arranging one electrode in engagement with the outer band and forming the other to grip the web member so that currents are sent simultaneously and parallel through all of the projections.

It has heretofore been the practice in welding the rim to the web of the shoes to pass the welding current intermittently and progressively through a plurality of limited contiguous areas in the rim and web. By my novel method of fabricating these shoes, the time element is appreciatively reduced, in that all of the spaced welds are made simultaneously. By my novel process a simpler apparatus is also possible than that heretofore used, in that but two electrodes enveloping the entire shoe are made to approach each other in the clamping operation, thus obviating the more or less complicated apparatus necessary to effect the intermittent welding heretofore described.

The above and other objects and novel steps contemplated by the invention and the pronounced advantages of my improved process will more fully appear from the following specification and claims.

In the drawing used to illustrate one application of the invention:

Figure 1 is a side elevation of the brake shoe and welding electrodes assembled therewith;

Figure 2 is a transverse section taken on the line 2—2 of Figure 1;

Figure 3 is a transverse section taken on the line 3—3 of Figure 1; and

Figure 4 is a section corresponding to Figure 2 disclosing apparatus as applied to the welding of a double webbed brake shoe.

As disclosed in Figures 1, 2 and 3 of the drawing showing a preferred form of effecting my invention, the brake shoe to be assembled by my novel process includes an outer arcuate band 10, to which the conventional woven brake lining may be riveted or otherwise secured, and a flat stiffening web member 12 which extends below the lower end of the band 10 as a pivot arm.

According to my proposed manner of assembling these parts, the web 12 is first notched or scalloped along its outer edge to form a series of projections 14. An arcuate rim member 10 is then superposed upon the peripheral edge of the web and held in place by an outer electrode 16 characterized by having annular arch-shaped recesses 18 extending on each side of the electrode and longitudinally throughout its length and also by spaced transversely extending arched openings 20, this construction resulting in centrally located projections 22 which are spaced to lie immediately above the projections 14 in the periphery of the web. The web member 12 is now enveloped by a lower electrode 24 and clamped thereto in any approved manner. Current is then passed through the electrodes, which current divides in parallel along the projections 14 which are thus simultaneously spot welded to the band 10.

The upper electrode 16 is insulated from the rim surface by short sections of insulating material 25 interposed between the edges of the electrodes and the contiguous rim face. Such insulating material serves the purpose of concentrating the current at the projections 22 which is the desideratum.

In Figure 4 I have disclosed a similar apparatus for effecting the welded bond between a rim 26 and two webs 28, the outer electrode being shaped to provide two spaced series of projections 30 similar to the projections shown in the electrode of Figure 2.

There is thus effected, in a minimum of operations, a very effective bond between the rim and web portions of the shoe effectively withstanding the unusual stresses

such as side thrust and sheer, to which these parts are subjected.

While one particular manner of effecting the shoe has been described in detail, it is not my intention to limit the scope of the invention by that description or otherwise than by the terms of the appended claims.

This case constitutes a division of my co-pending application No. 168,044, filed February 14, 1927.

I claim:

1. The method of forming brake shoes which comprises first forming the web thereof with spaced projections along its outer marginal edge, clamping said web to an electrode, placing the rim of the shoe in position on said web member, and uniting said web member and said rim member by simultaneously pressing the same together and passing a current between said web and rim members from localized areas opposite said projections.

2. The method of forming a brake shoe which comprises first forming the rim member of the shoe to a certain curvature, forming the web member of the shoe with spaced projections on the rim-abutting edge thereof, clamping the web member to an electrode, positioning the rim member on the spaced projections of the web member, pressing said members together throughout their length by a second electrode contacting said rim member, and passing a welding current between said web member and rim member from localized areas opposite said projections.

3. The method of forming brake shoes which comprises forming the web thereof with spaced projections on the marginal edge thereof, clamping said web to an electrode, forming a second electrode with spaced projections, placing the rim of the shoe in position on said web member, placing said second electrode in position with said projections thereon aligned with said projections on said web member, and uniting said web and rim members by passing current through localized areas only and applying pressure.

In testimony whereof I have hereunto signed my name.

LUDGER E. LA BRIE.