Feb. 17, 1931. G. LAGANAS 1,793,409

SOLE LEVELING AND SHAPING DEVICE

Filed Aug. 20, 1929 2 Sheets-Sheet 1

Fig. 1.

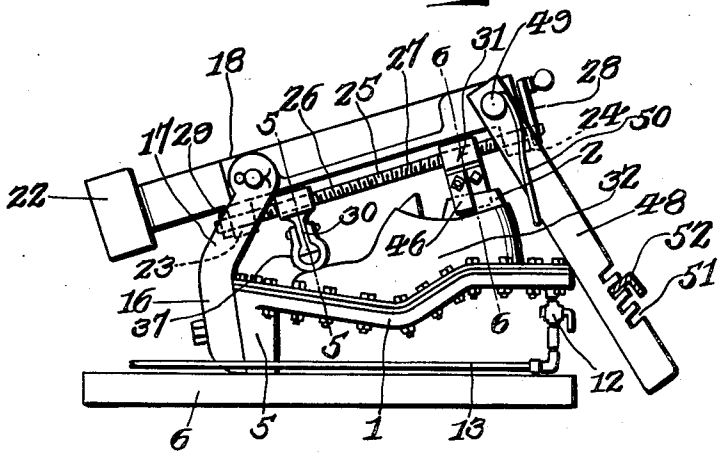


Fig. 2.

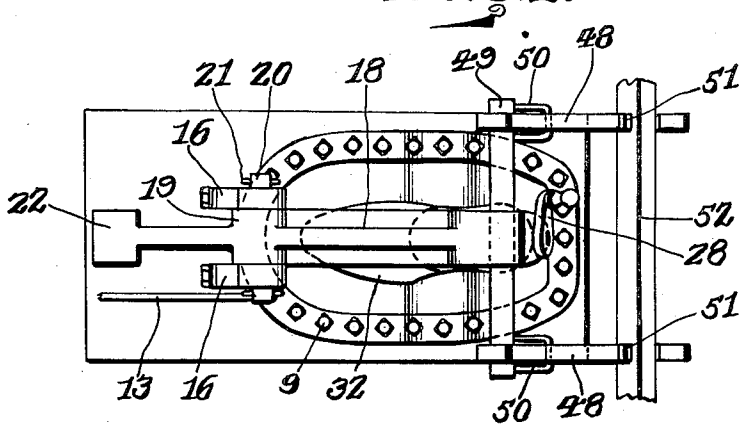
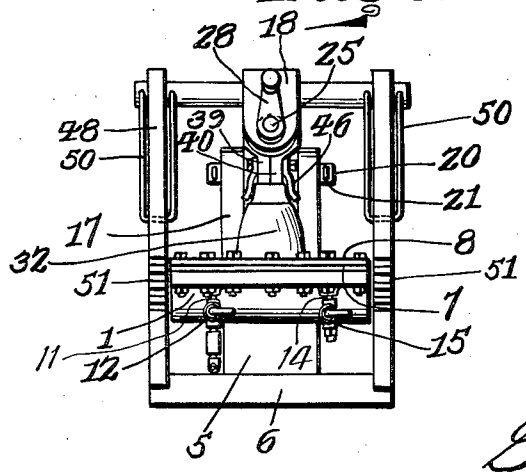


Fig. 3.



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Fig. 4.

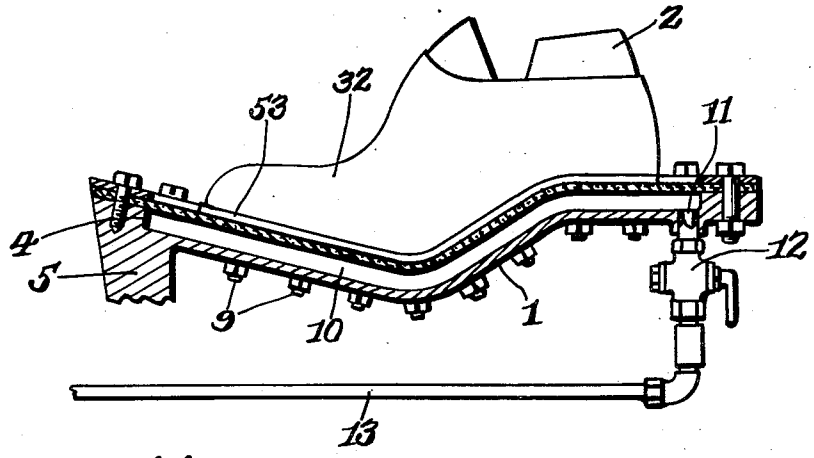


Fig. 5.

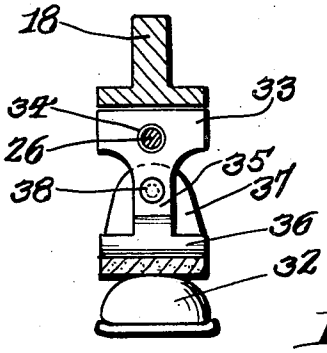


Fig. 6.

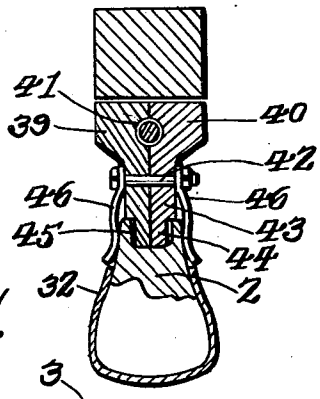
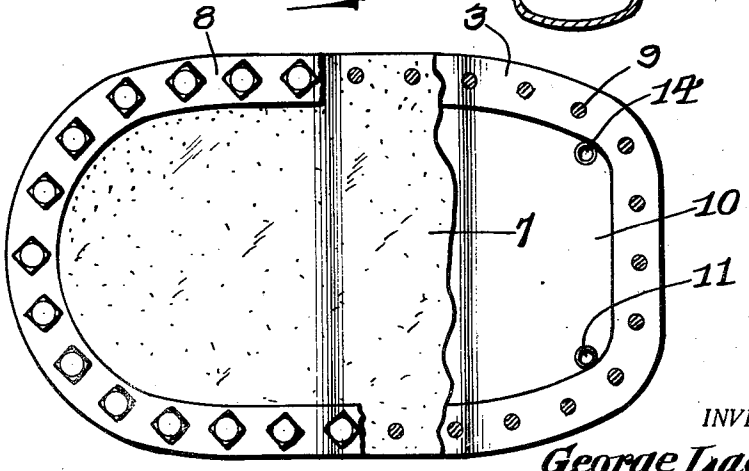


Fig. 7.



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UNITED STATES PATENT OFFICE

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SOLE LEVELING AND SHAPING DEVICE

Application filed August 20, 1929. Serial No. 387,200.

This invention relates to a leveling and shaping device for shoe soles designed primarily for use in connection with the leveling and shaping machine forming the subject matter of Letters Patent 1,709,728, granted to me April 16, 1929, but it is to be understood that a device for the purpose set forth and in accordance with this invention may be employed in connection with any form of machine for which it is found applicable, and the invention has for its object to provide, in a manner as hereinafter set forth, a device of such class for expeditiously shaping and leveling out a shoe sole on the application of fluid or air pressure after the sole has been attached to the upper positioned on a last thereby resulting in the required bend and curve of the sole to the last.

A further object of the invention is to provide, in a manner as hereinafter set forth, a device for the purpose referred to whereby the shaping and leveling of the sole is carried out on the original making last, under such conditions providing for increased production and a material decrease in the cost of labor.

A further object of the invention is to provide a device of the class referred to and in a manner as hereinafter set forth, whereby it does not necessitate to accomplish a leveling operation, the employment of separate iron beating out forms and lasts, as is the case at present, more especially the employment of different shapes of forms or lasts for different styles and sizes of shoes.

A further object of the invention is to provide, in a manner as hereinafter set forth, a sole leveling and shaping device which can be employed for all kinds of shoes for leveling and shaping the soles thereof to obtain the required bend and curve on the original making last.

A further object of the invention is to provide, in a manner as hereinafter set forth, a sole leveling and shaping device including pressure applying means and with the latter formed in a manner to materially enhance the life thereof with respect to the forms of air pressure applying means heretofore employed.

A further object of the invention is to provide, in a manner as hereinafter set forth, a device for the purpose referred to including a pair of abutment members and means for simultaneously adjusting such members towards and from each other to provide for the employment thereof in connection with shoes of different sizes.

A further object of the invention is to provide, in a manner as hereinafter set forth, a device for the purpose referred to including means whereby the supply and discharge of fluid pressure therefrom can be conveniently controlled from the front of the device.

A further object of the invention is to provide, in a manner as hereinafter set forth, a device for the purpose referred to including an air pressure receiving chamber having a rigid bottom, rigid side and end walls and a resilient top wall formed of material different from the other walls and said bottom, and by such an arrangement the top wall of such chamber, which is termed a pressure applying element has its life materially increased, and further whereby the bursting of the side and end walls and bottom of the pressure receiving chamber is prevented.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a device which is simple in construction and arrangement, strong, durable, compact, thoroughly efficient in its use, conveniently handled and comparatively inexpensive to set up.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is a side elevation of a leveling and shaping device for the soles of shoes in accordance with this invention.

Figure 2 is a top plan view thereof.

Figure 3 is a front elevation.

Figure 4 is a fragmentary view in longitudinal section and further illustrating the last with the upper thereon mounted on the device.

Figure 5 is a section on line 5—5 Figure 1.

Figure 6 is a section on line 6—6 Figure 1.

Figure 7 is a fragmentary view, partly broken away and in plan of the device.

Referring to the drawings in detail 1 indicates a metallic base plate which is of a contour corresponding to the shape of the bottom of the last 2. In top plan the plate 1 is substantially oval and further plate 1 is of a width and length materially greater than the width and length of the last 2. The upper face of plate 1 has the marginal portion thereof formed with an upstanding ridge 3 of the desired height and which is co-extensive with the marginal portion of the upper face of plate 1. The ridge 3 has its inner face provided with an upstanding, endless shoulder 4.

Formed integral with one end of plate 1, which when the device is employed is the rear end of such plate, is a depending support 5 adapted to be coupled with a platform 6 forming an element of the machine with which the device is connected.

Mounted upon the upper face of the ridge 3 and having its edge flush throughout with the outer edge of ridge 3 is a resilient member 7 formed of rubber, or rubberized fabric, or any other suitable material for the purpose intended. Mounted upon the upper marginal portion of the member 7 is a metallic band 8 which corresponds in contour to the shape of the plate 1 and further is flush with the edges of member 7 and ridge 3. Extending through the band 8, member 7, ridge 3 and plate 1 are spaced holdfast devices 9 for fixedly securing member 7 with plate 1 and further to set up an air-tight joint between band 8, member 7 and ridge 3.

The plate 1, member 7 and ridge 3 provide an air pressure receiving chamber 10. The top wall of chamber 10 is covered by member 7 and such wall is resilient. The side and end walls of chamber 10 are provided by the shoulder 4 formed by the inner edge of ridge 3 and the bottom wall of chamber 10 is provided by plate 1 and such bottom is rigid and maintained in shape at all times. The chamber 10 has metallic side and end walls and a metallic bottom and a resilient top wall, and by such arrangement the life of the top wall of the chamber 10 is enhanced as member 7 is anchored in a manner to plate 1 to prevent the tearing away of the member.

Further, as the side and end walls and bottom of chamber 10 are made of metal there is little likelihood of any of the walls of the chamber 10 bursting as would be the case if a flexible bag was employed to provide the pressure receiving chamber and pressure applying means for the shoe sole.

Extending up through the plate 1, at the front thereof is an air pressure supply inlet 11, which is controlled by a cock 12 and communicating with the latter is a fluid pressure feed pipe 13. Extending up through the plate 1, near the front thereof is an air pressure discharge nipple 14 which is controlled by a cutoff 15. The cock 12 and the cutoff 15 are arranged at the front of the base plate 1 or in convenient position to be manipulated by the operator from the front of the device.

Secured to the support 5 are a pair of spaced uprights or posts 16 projecting a substantial distance above the chamber 10 and having the upper portions thereof projected forwardly, whereby the upper ends of the posts 16 will be positioned over the support 5. Arranged over the member 7, and in alignment with the longitudinal median thereof is a lever 18 provided at a point between its transverse median and its rear end with a pair of oppositely disposed bosses 19 which are positioned between the upper ends of the posts 16. Extending through the posts 16, bosses 19 and lever 18 is a pivot 20 for lever 18 and which is maintained in position by cotter pins 21 extending through the ends of pivot 20. The rear end of lever 18 carries a counterweight 22. That portion of lever 18 which projects forwardly from pivot 20 is of a length to extend to a point in close proximity to the fluid pressure intake or discharge. The weight 22 normally tends to maintain the lever 18 in an upwardly inclined position from front to rear of the lever.

The lever 18, rearwardly of the pivot 20, but in proximity thereto has a depending, apertured projection 23 and the lever 18 at its forward end is also formed with a depending, apertured projection 24. Journaled in the projections 23, 24 is an adjusting screw 25 provided with oppositely disposed threads 26, 27 spaced from each other. The screw 25 extends a substantial distance outwardly from projection 24 and has fixed thereto a handle 28 for the purpose of rotating screw 25 when occasion requires. The rear end of screw 25 projects a substantial distance rearwardly from projection 23 and carries a retaining nut 29.

Mounted upon the screw 25 is a pair of abutment members, arranged in spaced relation and indicated generally at 30, 31. The members 30, 31 are adjustable relatively towards and away from each other to provide for the use thereof in connection with shoes of various sizes. The abutment member 30 is for positioning on the upper 32 at the toe thereof and the abutment member 31 is for extension into the heel portion of the last 2.

The abutment member 30 comprises a head portion 33 formed with an opening 34 having

a threaded wall for the purpose of engaging the threads 26 of screw 25. The abutment 30 further includes a shank 35 terminating in a bottom piece 36 which projects laterally in both directions from shank 35. A yoke-shaped cushioning member 37 is secured by the holdfast means 38 to abutment member 30 and member 37 encloses a portion of the shank 35 and the laterally disposed part 36 of member 30. The member 37 is formed of a material which will not in any manner mar the upper 32 during the sole leveling and shaping operation.

The abutment member 31 is formed of two oppositely disposed sections 39, 40 each provided on the inner face of its upper portion with a semi-circular groove 41 provided with threads. The sections 39, 40 are secured together by a holdfast means 42 and when the said sections are connected together, the grooves 41 register to provide a circular opening having a threaded wall and with the threads of such wall engaging the threads 27 of the screw 25. The section 39, as well as the section 40 has a depending stem 43 formed with a reduced portion 44 for entering a pocket or socket 45 formed in the top of the heel part of the last 2.

The holdfast means which secures the sections 39, 40 together also couples with the abutment member 31 a pair of spring fingers 46 which are adapted to overlap the last and upper, and in this connection see Figure 6.

The device includes a pair of spring controlled latching arms for maintaining the abutment member 30 against the upper 32 and the abutment member 31 against the last 2. The latching arms are indicated at 48, 48 and they are mounted at their upper ends upon a pivot 49 which is secured to the forward end of lever 18 and extends transversely of the latter. The controlling springs for the latching arms 48 and 48 are indicated at 50. The springs are fixed to the pivot 49 and overlap the rear side edges of the latching arms.

Each latching arm in proximity to its lower end has its forward edge provided with a set of notches 51, which selectively engage with an angle-shaped bar 52 forming an element of the machine with which the device is used and the notches 51 provide for the selective engagement thereof with the bar or member 52 whereby the lever 18 is latched in a manner to maintain the abutments 30, 31 in the position shown in Figure 1.

The sole 53 is adapted to be secured to the upper 32 by suitable cementitous material interposed between the sole and the upper. The securing of the sole 53 to the upper 32 is had when the upper 32 is mounted upon last 2. The last with the upper and sole is positioned upon the member 7, after which the abutments 30, 31 are arranged in the position shown in Figure 1 and the lever 18 latched in position to maintain the abutments 30, 31 in the position to which they are set by the engagement of the latching arms 48 with the bar or member 52. On a supply of air pressure to the chamber 10 the air pressure acting against member 7 will force the last 2 against the abutment members 30, 31 and member 7 will act upon the sole 53, the latter will be leveled and shaped to the shape of the last and further be secured to the upper.

After the leveling and shaping action has been had to the desired extent, the supply of fluid or air pressure is cut off by closing the cock 12 and the cutoff 15 is opened whereby the pressure is relieved from chamber 10, under such conditions the latching arms 48 can be released, the lever 18 lifted and the last with the upper and sole removed from the device.

It is thought the many advantages of a device in accordance with this invention and for the purpose set forth can be readily understood, and although the preferred embodiment of the invention is as illustrated and described, yet it is to be understood that the changes in the details of construction can be had which fall within the scope of the invention as claimed.

What I claim is:

1. In a shoe leveling and shaping device a rigid base plate conforming in contour to the shape to be applied to the sole, an endless ridge on the marginal portion of the upper face of said plate, a pressure applying member for the sole positioned on said ridge and forming in connection with the latter and said plate an air pressure receiving chamber, means for fixedly securing said member to the ridge and plate, and means connected with the plate for controlling the supply and exhaust of air pressure from said chamber.

2. In a shoe leveling and shaping device a pair of spaced abutment members, one for positioning against the upper and the other for positioning against the last carrying the upper during the leveling and shaping operation, a lever, means for pivotally supporting the lever, arms carried by the lever for maintaining the abutments against the upper and the last, and an adjusting screw suspended from said lever and threadedly engaging said abutments to provide for the adjusting of the abutments relatively to each other.

3. In a sole leveling and shaping device a rigid base plate conforming in contour to the shape to be applied to the sole, a resilient pressure applying element for the sole connected to said plate and providing in connection therewith an air pressure receiving chamber, means carried by the plate for controlling the supply and discharge of fluid pressure from such chamber, a pair of spaced abutments positioned above said member, one for bearing against the upper and the other for bearing against the last carrying the up-

per, a combined suspension and adjusting means for said abutments, a pivoted support for said combined suspension and adjusting means, and latching means carried by the support for maintaining the abutments against the upper and the last, and with the abutments maintaining the last in position when the pressure applying member acts against the sole to level and shape the latter on the supplying of air pressure to said chamber.

4. In a sole leveling and shaping machine a rigid base plate conforming in contour to the shape to be applied to the sole, an endless ridge on the marginal portion of the upper face of said plate, a pressure applying member for the sole positioned on said ridge and forming in connection with the latter and plate an air pressure receiving chamber, a band positioned upon the marginal portion of the upper face of said member and coextensive with said marginal portion, means for securing said band, member, ridge and plate together to provide an air-tight joint, and means connected to the plate for controlling the supply and exhaust of air pressure to and from said chamber.

5. In a sole leveling and shaping device, a rigid base plate of an area greater than the area of the sole, a pressure applying member for the sole positioned on and connected to said plate to provide in connection with the latter an air pressure receiving chamber, said member adapted to have mounted thereon the sole connected with an upper mounted upon a last, means connected to the plate for supplying and exhausting air pressure to and from said chamber, abutment means for the upper and last, said abutment means pivotally connected with said plate, and means for latching the abutment means against the upper and last during the sole leveling and shaping operation on the supply of air pressure to said chamber.

6. In a sole leveling and shaping device, a rigid base plate conforming in contour to the shape to be applied to the sole, a resilient pressure applying member for the sole positioned on and connected to said plate and providing in connection with the latter an air pressure receiving chamber, means connected to the plate for controlling the supply and exhaust of air pressure to and from said chamber, said member adapted to have mounted thereon a last carrying an upper and a sole, a pair of abutment members for positioning against the upper and the last to maintain the latter in position during the shaping and leveling of the sole on the application of air pressure to said chamber, a rotatable, combined adjusting and suspension element common to said abutment members, a pivoted support for said element, said support connected with said plate, and latching means for said support to maintain the abutment members in position during the sole leveling and shaping operation.

7. A device for the purpose set forth comprising a rigid base, an air pressure applying member for a shoe sole, said member fixedly connected to the base in superposed relation with respect thereto and forming in connection therewith an air pressure receiving chamber, and means connected with the base for removably securing a last carrying an upper and a sole upon said member, said means including a pair of adjustable abutment members for the last and a rotatable combined adjusting and suspension element for said abutment members.

In testimony whereof, I affix my signature hereto.

GEORGE LAGANAS.