

A. OLSON.
MACHINE FOR OPERATING UPON THE EDGES OF SOLES OF BOOTS AND SHOES.
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2 SHEETS—SHEET 2.

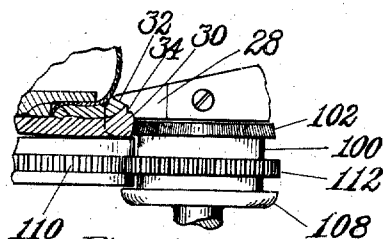


Fig. 3.

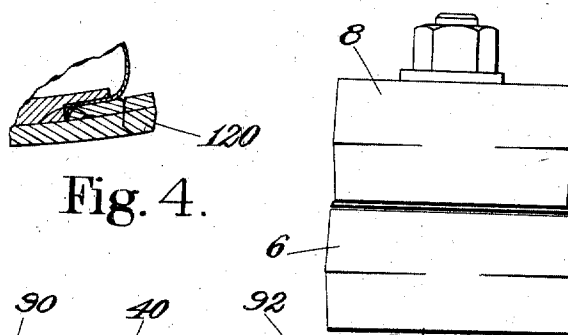


Fig. 4.

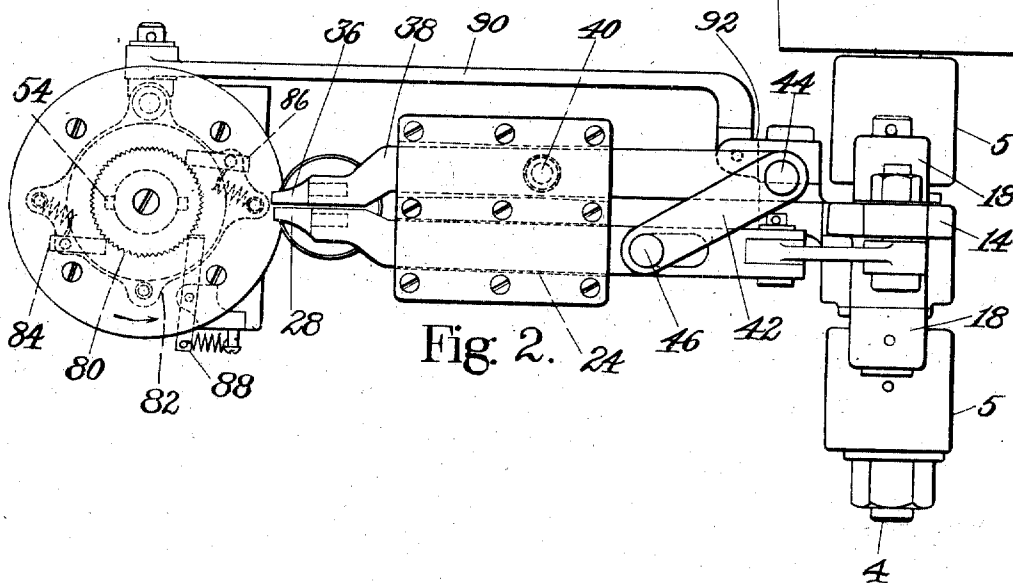


Fig. 2.

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MACHINE FOR OPERATING UPON THE EDGES OF SOLES OF BOOTS AND SHOES

993,543.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed April 10, 1908. Serial No. 426,266.

To all whom it may concern:

Be it known that I, AUGUST OLSON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Machines for Operating Upon the Edges of Soles of Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

In Goodyear or welt shoes, as ordinarily made, the outsole is attached to the welt and, by means of the welt, to the upper portion of the shoe by stitches passing through the welt and outsole near their outer edges, the stitches lying upon the surface of the welt. In certain classes of work, however, it is preferred that the stitches shall not be visible upon the welt. For the purpose of obtaining this result, various devices have been used to effect a depression of the line of stitches below the surface of the welt or otherwise to conceal the stitches. For example, the machine by which the outsole is attached to the welt has been provided with a knife which forms a groove or channel in the upper surface of the welt to receive the stitches. A serious objection to this practice is that the effective thickness of the welt is reduced and therefore a vital part of the shoe is weakened.

A primary object of the present invention is to provide a machine by the use of which the line of stitches upon the upper side of the welt may be concealed without weakening the welt.

With the above object in view the present invention comprises means for upsetting the edge of the welt or the upper portion of the projecting margin of the sole, after the sewing of the outsole to the welt, so as to bring the upper portion of the projecting margin of the welt or the welt and sole close to the upper. Preferably, also means is provided for acting upon the upset edge to rub and smooth it down and to bring the welt even closer to the upper, thus effectually hiding the line of stitches upon the upper side of the projecting margin.

In the embodiment of the invention about

to be described in detail an upsetting tool movable toward and from the sole edge is shown in combination with a rubbing tool which may have an upsetting as well as a smoothing function and which is movable along the sole edge. It is considered, however, that while the rubbing tool is useful it is not indispensable for, in one aspect, the invention comprises a work support, which may also if desired serve as a part of work feeding mechanism, and a single pounding or pressing tool in proper relation with the work support to act upon the upper portion of the edge of a welt or sole for upsetting it. Preferably also, an edge guiding wheel will be arranged below the upsetting tool to bear against the lower portion of the projecting edge of the welt or sole. This wheel may be rotated to assist in feeding the work.

As explained above, the portion of a welt shoe which projects outwardly beyond the upper comprises the welt and the outsole. In some cases an auxiliary or tap sole may be interposed between the welt and the outsole. Hence, what is herein referred to generally as the projecting margin of the sole of a Goodyear shoe includes both the outsole with or without a tap sole, and the welt.

It is conceived that, in some types of shoes not provided with a welt, it may be desired to upset the upper portion of the projecting margin of the sole to bring it closer to the upper. The present machine can be used to perform such work and therefore the term "welt" as used in this specification and in the claims is intended, where the context permits, to include the similarly located portion of a shoe having no welt.

In addition to the feature already specified the present invention comprises other features, including particular arrangements of parts and details of construction, which are hereinafter described and claimed.

Referring to the accompanying drawings,—Figure 1 is a side elevation, partly in section, of a machine embodying the present invention; Fig. 2 is a plan of the machine; Fig. 3 is a detail view illustrating some of the parts which act upon the shoe, a part of the shoe being shown in section to illustrate the work done by the machine; and Figs. 4

and 5 are respectively sectional and perspective views of part of a shoe and illustrate the work done by the machine.

As shown in the drawings, 2 represents the frame of the machine, which may be secured to a bench, as indicated, or bolted to any suitable stand or support. A driving shaft 4, supported by bearings 5 of the frame, is provided with a fast pulley 6 and a loose pulley 8 of usual construction. A portion 10 of the shaft 4 is reduced in diameter and is eccentric to the portion of the shaft within the bearings 5. Upon this eccentric 10 is a split or otherwise removable block 12 which may slide in the lower slotted end of a lever 14 pivoted at 16 in bosses 18 upon the bearings 5. To the upper end of lever 14, one end of a link 20 is adjustably connected by a pin and slot, the other end of the link being connected to a slide 22 supported and guided in a guideway 24 formed in an upright upon the frame 2. A plate 26 secured to the upright retains the slide 22 in place. At the forward end of the slide is a removable pounding or upsetting tool 28. As illustrated in Fig. 3, the acting face of this tool comprises a lower slightly inclined portion 30 and an upper more sharply inclined portion 32, between which is a shoulder or bead 34. Through the mechanism described, the slide 22 and the tool 28 will be vibrated in a direction at right angles to the edge of the work for upsetting the edge, as hereinafter fully explained.

At the side of the tool 28 is a tool 36 which may be similar in shape to tool 28 and which is carried by a lever 38, pivoted in the frame at 40 and operatively connected to the slide 22, as, for example, by a link 42 pivoted to the lever 38 at 44 and to the slide 22 at 46. Slide 22 may be slotted, as indicated in Fig. 2, to provide for a link of a different length, or otherwise to adjust the position of tool 36 with reference to tool 28.

For supporting the work in proper relation to the tools, the machine is provided with a work support 50 mounted at the upper end of a spindle 52 having splines 54 which insure that the table will rotate with a rotatable sleeve 56 but which permit the spindle to move longitudinally through the sleeve. The lower end of the sleeve is provided with a flange 58 and a flanged ring 60, bolted to a bracket 62 mounted on the frame 2, securing the sleeve against longitudinal movement. The lower end 64 of spindle 52 is rounded to fit into a recess in an enlarged head 66 upon a rod 68 threaded at its lower end to receive a nut 70 located within a threaded sleeve 72. A hand wheel 74 on the sleeve serves to adjust it in and out of the lower end of bracket 62. A washer 76 bears against the end of the sleeve 72 while a spring 77 is interposed between the washer and the head 66 so that the washer limits

the upward movement of nut 70 and therefore of the table 50. The tension of spring 77 may be adjusted also through the nut. With the nut located as indicated in Fig. 1, the normal raised position of the table may be varied by adjusting the sleeve 72, in or out but the table may yield downwardly to accommodate work of varying thickness, since it is supported by spring 77.

The table may be intermittently rotated by the following mechanism: The sleeve 56 is provided with ratchet teeth 80. Surrounding the sleeve is a cage or pawl carrier 82 rotatably supported upon the upper end of ring 60 and carrying two spring pressed pivoted pawls 84, 86 arranged to engage the ratchet teeth 80. Upon bracket 62 are pivoted two spring pressed pivoted locking pawls 88. In order to provide for a comparatively small feeding movement, the pawls 84 and 86 are so arranged that when one of them engages the shoulder of a ratchet tooth the other will be half way between two teeth. Similarly one of the pawls 88 is slightly longer than the other so that they will engage the shoulder of each ratchet tooth alternately. A connecting link 90 is pivoted at its forward end to the cage 82 and at its rear end to a block 92 adjustably connected at 94 to a flange 96 integral with the lever 14.

To assist in the feeding of the work and also to serve as an edge gage, the machine is provided with a wheel having a flange 102 with a slightly inclined milled or toothed sole engaging surface. These teeth may be relatively long and sharp so that they will penetrate somewhat into the sole edge. At the lower end of the wheel, a shank 104 fits into a hole 106 in the frame of the machine. The flange 102 and another flange 108 at the opposite end of the wheel overlap the table 50 and the table is provided around its circumference with gear teeth 110 meshing with teeth 112 upon wheel 100 so that table and roll are compelled both to move vertically and to rotate together.

Work which may be done by the machine above described and the mode of operation of the machine will be explained in connection with Figs. 3, 4, and 5.

As shown at 120, the edge of the sole is preferably trimmed to a bevel and comparatively close to the upper and to the line of stitching by which the outsole is secured to the welt before it is presented to the machine illustrated. Ordinarily the machine will be used to operate only upon the forepart of the sole and, if desired, a short distance into the shank. The shoe will be presented to the machine with the tread surface of the sole resting upon the upper surface of table 50, but preferably slightly inclined so that it will bear upon the table for a short distance only from its edge. The edge of

the sole—that is of the outsole and welt—as shown in Fig. 4, will rest at its lower portion against the flange 102 and at its upper portion against the rubbing tool 36, it being assumed that the pounding tool 28 is in retracted position, as indicated in Figs. 1 and 2. However, at the commencement of the operation before any part of the sole has been upset, the engagement of the upper portion of the sole with the rubbing tool 36 will prevent the lower portion of the sole from engaging the flange 102. With the parts in this position, the upper edge or tips of tools 28 and 36 will be preferably at about the level of the upper side of the projecting margin of the sole or very slightly above that surface and the edge or corner of bead 34 will be preferably as low as the junction of welt and outsole. As the pounding tool 28 is moved forward by the rotation of shaft 4 and eccentric 10, the acting face 30, 32, 34 will deliver a blow upon the upper portion of the edge of the sole and will upset it and bend it back toward the upper. While the tool 28 is moving forward, the table 50 will be stationary and the tool 36 will oscillate about its pivot 40 away from the path of tool 28. As the tool 28 makes its return stroke, the table will be rotated by the feeding mechanism described and, during the feeding movement of the work, the tool 36 will move substantially in the line of feed but in the direction opposite to the movement of the work and will act to complete the upsetting of the portion of the work previously acted upon by the pounding tool and will smooth down the upset edge so that it will have a shape somewhat as indicated in Fig. 3 and at 122 in Fig. 5. This tool 36 may also act to some extent to perform a rubbing function as it moves in the direction of feed upon the operative stroke of the upsetting tool 28.

After the desired portion of the edge of the sole has been submitted to the action of the tools 28 and 36 the edge may be set immediately or it may be given a final trimming and then set as indicated at 124, Fig. 5. If desired, also, the edge may be provided, as at 126, with indentations to imitate stitches.

While upsetting and rubbing tools of various shapes may be employed, the form of tool shown in the drawings is believed to be preferable especially for the pounding operation. The bead 34 has an important function in crowding the portion of the sole to be upset toward the upper, since it sinks slightly into the edge of the sole and prevents the tool from slipping over the edge without performing its function.

It will be understood that while one specific embodiment of the invention has been described in considerable detail in order that the invention may be fully understood, va-

rious modifications, as well as variations in arrangement of parts and in details of construction, may be made without departing from the spirit and scope of the invention as defined by the claims.

Having now indicated the nature and scope of the invention and fully described a machine embodying it, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a machine of the class described, a work support, an upsetting tool constructed and arranged to act upon the welt portion of a sole edge at a distance from the work support, and means to actuate the tool positively to cause it to upset the welt.

2. In a machine of the class described, a movable work supporting table, an upsetting tool constructed and arranged to move in a plane substantially parallel with but at a distance from the surface of the table, and means to actuate the tool to cause it to upset the welt of a shoe.

3. In a machine of the class described, a work support, an edge gage, an upsetting tool directly above the edge gage and constructed and arranged to act upon that portion of the edge of the welt of a shoe which extends above the edge gage.

4. In a machine of the class described, an upsetting tool having an acting face shaped to operate on the edge and top of the welt of a shoe in combination with means to actuate the tool to cause it to crowd the welt upwardly and backwardly toward the upper of the shoe.

5. In a machine of the class described, an upsetting tool having an acting face inclined to its direction of movement and a shoulder formed on said face, and means to actuate the tool to cause it to upset the edge of the welt of a shoe.

6. In a machine of the class described, an upsetting tool, a work supporting table having provision for movement toward and from the tool, a guide roll connected to move vertically with the table, and means for rotating said table and said roll to effect the feed of the work.

7. In a machine of the class described, devices constructed and arranged simultaneously to upset and rub the edge of the welt of a shoe and operating means for said devices.

8. In a machine of the class described, means for upsetting the edge of the welt of a shoe in combination with means for rubbing the upset edge.

9. In a machine of the class described, an upsetting tool movable toward and from a sole edge in combination with a rubbing tool movable along said edge.

10. In a machine of the class described, an upsetting tool and a rubbing tool, means for vibrating one of the tools, and connections

between the tools constructed and arranged to effect the vibration of the second tool.

11. In a machine of the class described, an upsetting tool and a rubbing tool arranged to vibrate in directions approximately at right angles to each other, means for actuating the upsetting tool, and connections between said means and the rubbing tool for actuating the latter.

12. In a machine of the class described, an upsetting tool and a rubbing tool arranged to vibrate in directions approximately at right angles to each other, slidable and oscillatory carriers respectively for said tools, a link connecting the carriers, and actuating means connected to one of the carriers.

13. In a machine of the class described, a work support, an upsetting tool movable toward and from a sole edge, a rubbing tool movable along said edge, and means acting to feed the work intermittently during the retracting movement of the upsetting tool and the rubbing movement of the rubbing tool.

14. In a machine of the class described, a tool arranged to engage the sole edge of a shoe, means for imparting to said tool a vibratory rubbing movement, and means for feeding the shoe intermittently while the tool is moving in a direction opposite to that in which the shoe is fed.

15. In a machine of the class described, a

tool constructed and arranged to engage the welt of a shoe, means for operating said tool to cause it to crowd the welt upwardly and backwardly toward the upper of the shoe, a second tool also arranged to engage the welt and means for operating said second tool to exert a further crowding action on the welt, said second tool being constructed to give to the welt a shape different from that imparted to the welt by the first tool.

16. In a machine of the class described, means for operating on the marginal portion of the welt of a shoe to force some of the stock backwardly toward the upper, in combination with additional means for smoothing down the stock so forced backwardly.

17. In a machine of the class described, means for partially upsetting the marginal portion of the welt of a shoe and forcing some of the stock backwardly over the outseam, in combination with means for operating upon the stock previously acted upon, to complete the upsetting action and to smooth the upset stock down over the outseam.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUST OLSON.

Witnesses:

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H. F. WENIGER.