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M. J. FINO

3,487,487

SHOE LASTING MACHINE TRIMMING DEVICE

Filed Jan. 3, 1969

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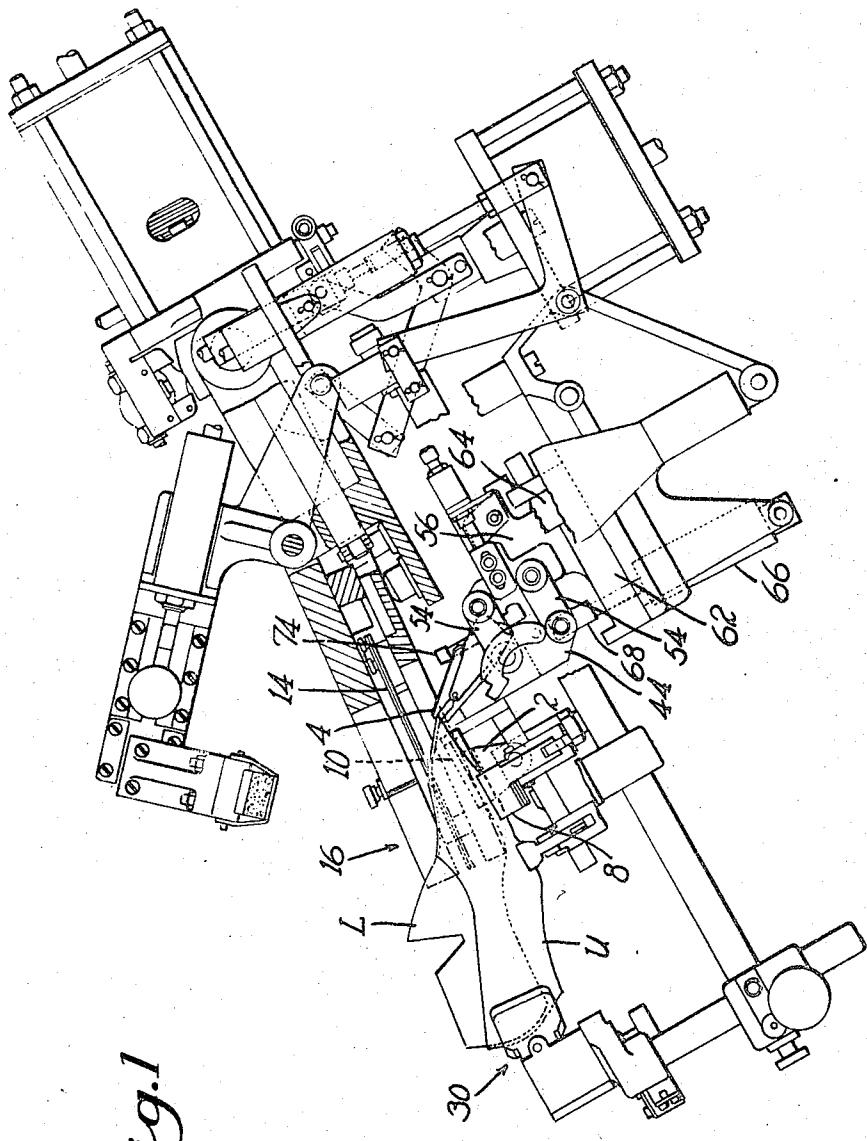


Fig. 1

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Fig. 2

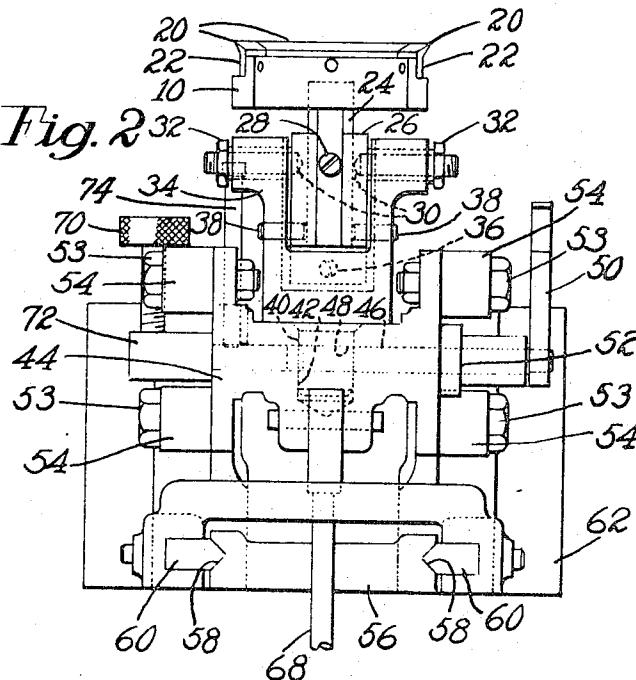
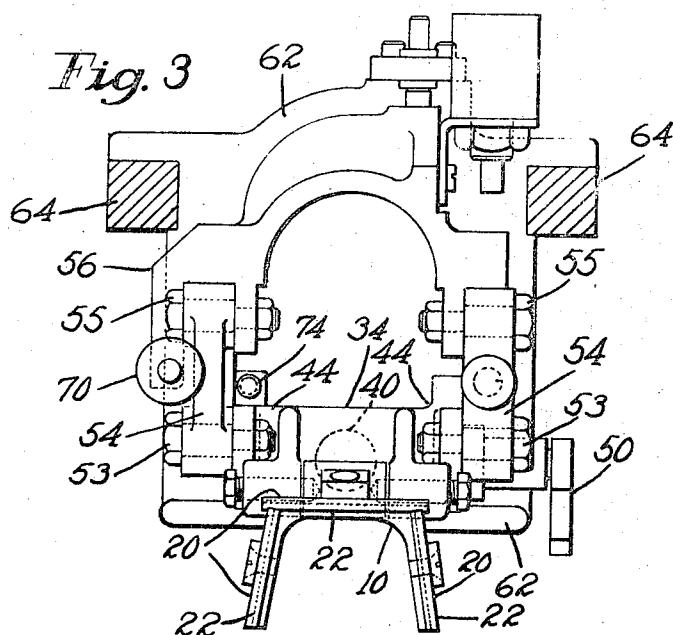


Fig. 3



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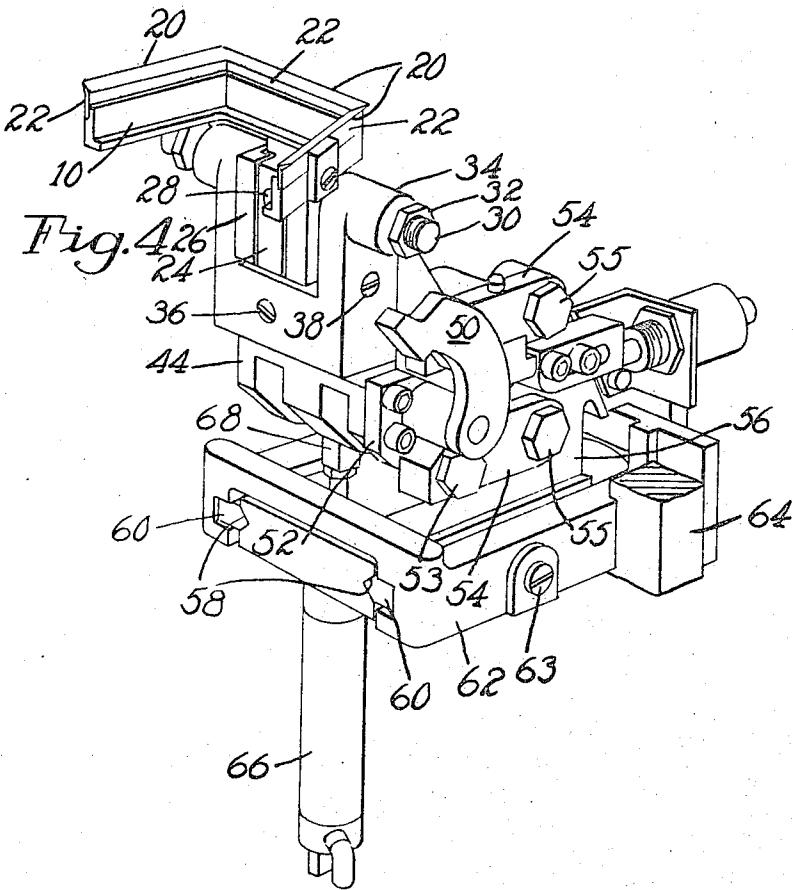
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SHOE LASTING MACHINE TRIMMING DEVICE
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5 Claims

ABSTRACT OF THE DISCLOSURE

A shoe lasting machine provided with a distributor having straight cutting edges for trimming the forepart margin of a shoe upper, the distributor being universally adjustable to orient the cutting edges with a wiping plane.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to a shoe lasting machine having mechanism cooperating with upper wiping means for evenly distributing the margin of a shoe upper as it is wiped heightwise about the forepart of a last and inwardly over the last bottom and for trimming a uniform thickness from the upper as it is so wiped.

Description of the prior art

U.S. Patent No. 3,309,721, granted Mar. 21, 1967, discloses a machine for lasting the toe ends of shoes in which a distributor mechanism having a cutting edge reduces the marginal thickness of a shoe upper. While the distributor trimming mechanism of that patent is somewhat similar in purpose to that disclosed herein, the apparatus of the present invention provides substantial improvement in operation. Other shoe lasting machines have been provided with upper thinning devices, as exemplified in U.S. Patent No. 2,324,509, granted July 20, 1943, but such devices have involved mechanisms much more complex and expensive than that of the present invention.

SUMMARY OF THE INVENTION

It is an object of the invention to provide a greatly improved upper distributing and skiving mechanism for shoe lasting machines. To this end, the machine is provided with a distributor having cutting edges, the distributor being mounted for universal adjustment so the cutting edges may be accurately oriented with a wiping plane. Since the distributors must be changed frequently for different styles the universal adjustment greatly facilitates such change without tedious and costly fitting of the distributors.

According to one feature, the cutting edges are straight to facilitate manufacture and resharpening and are formed on a plurality of flat bars secured to the distributor.

According to another feature, fluid pressure means yieldingly moves the distributor toward the wiper means in the machine and against an adjustable stop which determines the location on the upper margin where skiving commences. An adjustable abutment also determines the thickness to which the upper is skived.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention together with novel details of construction and combinations of parts will be described with particular reference to the accompanying drawings, in which:

FIG. 1 is a side elevation of a typical machine embodying the present invention with portions of the casing and frame broken away to illustrate the principal operating mechanisms;

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FIG. 2 is a front elevation of the distributor skiving mechanism;

FIG. 3 is a plan view of the mechanism shown in FIG. 2;

5 FIG. 4 is a perspective view of the mechanism shown in FIGS. 2 and 3.

10 There is shown in FIG. 1 a typical machine in which the invention may be embodied, the machine shown being generally similar to that disclosed in U.S. Patent 3,164,852. The general operation of the machine will be described herein only briefly for sufficient understanding of the invention and if desired reference may be had to said patent for a complete description of the various operating instrumentalities of the machine.

15 The machine includes a shoe rest 2 (FIG. 1) which supports the bottom of a last L on which an upper is loosely assembled to position the last heightwise as well as to support it against the action on the upper of a toe gripper 4 and side grippers 8. For initial positioning lengthwise and widthwise, the forepart of the last is located against the inner surfaces of a distributor 10 which is shown in FIG. 3 as being of generally U-shape. The distributor also acts to spread the upper material evenly as it is wiped heightwise around the forepart and widthwise over the bottom of the shoe by a pair of forepart wipers 14, only one of which is seen in FIG. 1. The wipers are carried on a head 16 pivoted for heightwise swinging movement in two stages. Initially the head 16 is in an elevated position so that the last may be placed on the support 2 and the margin of the upper inserted into grippers. After the grippers exert a preliminary tension on the upper, the wiper head is swung down to a gaging position as seen in FIG. 1 where the outline of the wipers overlie the outline of the last and act as a visual gauge to enable the operator to determine whether the upper is properly located on the last. Also at this time a heel clamp 30 is moved against the heel end of the shoe. After the upper is properly located on the last the head 16 is moved further down from the position shown in FIG. 1 to wipe the tensioned upper heightwise about the forepart of the last and thereafter inwardly over the last bottom to complete the lasting of the forepart of the shoe.

20 As the wipers wipe the upper heightwise, the distributor 10 clamps the upper against the bottom surface of the wipers to maintain the tension on the upper as well as to spread the margin of the upper evenly as it is wiped. After the upper is clamped by the distributor the grippers 4 and 8 are released and the distributor then acts to maintain the tension on the upper as it is wiped. Also at this time the distributor acts to skive excess material, such as lining and box toe material, from the margin of the upper. To this end the distributor 10 (FIGS. 2-4) is provided with cutting edges 20 which are formed on bars 22 secured to the distributor, the bars being straight so that the cutting edges are inexpensively manufactured and resharpened.

25 The distributor is provided with a tang 24 which is loosely received in a T-shaped slot in a holder 26 and is pivotally secured within the holder by a screw 28. The holder in turn is mounted on trunnions 30 which extend through hollow screws 32 threaded at opposite sides of the holder in a block 34. The block also is provided with a pair of adjusting screws 36 (only one of which is seen in FIG. 2) adapted to engage the front and rear face of the holder 26 for adjustment about the trunnions 30 to orient the cutting edges 20 with the inwiping plane of the wipers extending lengthwise of a shoe in the machine. The block 34 is further provided with adjusting screws 38 which engage side surfaces of the tang 24 for pivotally adjusting the distributor about the screw 28 thereby orienting the cutting edges 20 with the inwiping plane of the wipers extending widthwise of the shoe. By adjusting the sleeve

screws 32, the distributor also may be bodily adjusted widthwise of the shoe. By these various adjustments, the cutting edges 20 are oriented so as to be generally parallel to the underside of the wipers 14 when the wipers are in their lowermost inwiping position.

The block 34 has formed thereon a depending cylindrical tang 40 (FIG. 2) which is received in a bore 42 of a member 44. The member receives a pin 46 which extends through a cross bore 48 in the tang 40 to secure the block 34 on the member 44. The pin 46 is provided with a handle 50 by which the pin 46 may be withdrawn for removal of the block 34, there being provided a fitting 52, not shown in detail, to secure the handle 50 and pin 46 in the position shown. The member 44 is carried by bolts 53 on the ends of four links 54 which at their opposite ends are pivotally mounted by bolts 55 on a frame 56. The frame 56 is provided with guideways 58 which receive guide bars 60 of a frame 62 which is rigidly secured to upright posts 64 which form part of the frame of the machine. After adjustment lengthwise of the shoe 20 to locate the distributor properly, the frame 56 is locked to the frame 62 by a set screw 63.

The member 44 and the distributor carried thereby is moved heightwise into operating position while maintaining the orientation of the cutting edges, by a piston and cylinder device 66. The lower end of the cylinder is secured to the machine frame and the upper end of a piston rod 68 of the device is pivotally secured to the member 44. For limiting the uppermost position of the cutting edge of the distributor the frame 56 is provided with an adjustable stop 70 threaded into a lug 72 of the frame. The underside of a head of the stop is engaged by one of the links 54 thus limiting the upward movement of the member 44 and hence also the initial position of the distributor and cutting edges 20 in respect to the shoe support 2. The member 44 is also provided with an abutment screw 74 (FIGS. 2 and 3) which is engaged by a portion of the wiper head 16 during its heightwise movement to position the wipers 14 in their inwiping plane. The adjustment of the screw 70 determines the location of the distributor above the shoe support as well as the point at which the wipers 14 press the upper against the cutting edges 20. The adjustment of the abutment screw 74 determines the depth of penetration of the cutting edges 20 into the underside of the upper since the distributor is moved downwardly with the wipers after engagement of the head 16 with the abutment screw 74. Thus it may be seen that by varying the position of the screw 70, the point on the upper margin at which the skiving commences may be varied; and that by adjusting the abutment screw 74, the depth of penetration of the cutting edges may be varied and hence also vary the thickness of the material skived from the upper margin. Since the cutting edges 20 of the distributor are oriented accurately with the inwiping plane of the wipers 14 by means of the universal adjustment above described, it should be apparent that the material remaining on the upper margin after skiving will be of uniform thickness when wiped over the shoe bottom and attached to an insole on the bottom of the last by adhesive or other means.

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Having thus described a preferred embodiment of my invention it should be apparent that a variety of mechanisms and parts could be substituted for those described without departing from the scope of the invention.

I claim:

1. In a shoe lasting machine having a support for a last with an upper loosely assembled thereon, means for initially tensioning the upper about the forepart of the last on the support, wiper means engageable with the tensioned upper, means for causing relative movement between the wiper means and the support whereby the tensioned upper is wiped heightwise about the forepart of the last and inwardly over the last bottom, and a distributor extending about the forepart of the last and co-operable with the wiper means to maintain the tension on the upper as it is wiped; the improvement comprising, a member on which the distributor is fixed, a frame on which the member is mounted for movement relative to the support and wiper means, an adjustable stop on the frame limiting the movement of the member to determine an initial position of the distributor with respect to the support, said distributor being provided with cutting edges which when the distributor is in said initial position penetrate one surface of the tensioned upper during the heightwise relative movement between the wiper means and the support, and an adjustable abutment on the member engaged by the wiper means during its heightwise relative movement causing the distributor to be moved heightwise with the wiper means thereby limiting the penetration of the cutting edges into the upper, the inward movement of the wiper means over the last bottom thereafter moving the upper across the cutting edges to skive the upper margin to a predetermined thickness.

2. A machine according to claim 1 in which the distributor is mounted on the member for universal adjustment for orienting the cutting edges with the plane of relative inward movement of the wiper means.

3. A machine according to claim 1 in which the distributor is mounted in a holder for universal adjustment for orienting the cutting edges with the plane of relative inward movement of the wiper means and the holder is removably mounted on the member.

4. A machine according to claim 1 in which fluid pressure means is provided to move the member against the stop, said fluid pressure means being yieldable to permit movement of the member by the wiper means when engaged with the abutment.

5. A machine according to claim 1 in which the distributor comprises a generally U-shaped member provided with a plurality of bars having straight cutting edges.

References Cited

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