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MACHINE FOR LASTING SIDE PORTIONS OF SHOE UPPERS.

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Description

This invention is concerned with a machine for lasting side portions of shoe uppers comprising a shoe support for supporting a shoe, comprising a shoe upper on a last and an insole on the last bottom, side lasting roller means comprising two pairs of lasting rollers one pair being arranged at each side of the shoe support, and each pair being supported in a carrier which is mounted for pivotal movement about an axis extending transversely of the bottom of a shoe supported by the shoe support, each lasting roller being mounted for rotation about an axis extending transversely of the shoe bottom, and rotating means being provided for effecting rotation of the lasting rollers such that the lasting rollers of each pair rotate in contrary directions, and each lasting roller further comprising a helical rib whereby, as the roller is rotated, said rib effects an inwiping action on the lasting marginal portion of the shoe upper engaged thereby, and drive means for effecting relative movement, in a direction extending lengthwise of the shoe bottom, between the shoe support and the lasting roller means, whereby a lasting operation is caused to take place in which the lasting marginal portions of the shoe upper at opposite sides of the shoe are progressively wiped over and pressed against corresponding marginal portions of the insole by the lasting roller means, such lasting marginal portions being secured to the insole in such wiped-over condition.

BACKGROUND OF THE INVENTION

The provision of a pair of lasting rollers operable along one side of a shoe bottom in a so-called cement lasting machine is described in DE-C 2845303; more particularly the two rollers, which extend with their axes of rotation parallel to one another, are mounted in a bearing block which is itself in turn mounted for free-swinging movement in a second bearing block or housing. The effect of such mounting is that the two rollers are self-leveling, both thus being applied to the shoe bottom with an equalised force during the lasting operation. By reason of the contrary rotation of the rollers, furthermore, the resultant direction of the drafting force is said to extend perpendicular to the edge of the last, thereby avoiding a problem often associated with roller side lasting, namely the formation of folds in the lasting margin, especially at the ball region where the lasting margin of the side region being lasted meets the lasting margin previously lasted in a preceding toe-forepart lasting operation; such folds are perceived in the aforementioned specification as being created, where a single roller is used, by a build-up of material in front of such roller, which material is pushed along towards the previously lasted region.

In practice it is not clear that the provision of two rollers supported by a free-swinging bearing block achieves the desired avoidance of fold formation in all cases. In particular, when side lasting progressively using cement (adhesive) the adhesive selected will normally be characterised by an ability to hold firmly together the two surfaces to be bonded upon contact therebetween so that it must be questionable what effect the second roller can have in terms of inwiping and pressing. Thus if the first roller operates in such a manner as to create folds, it is not clear in what way, when cement side lasting, the second roller can affect the function of the first roller so as to avoid fold formation.

It has been found that when using two lasting rollers the direction of rotation of the "leading" one thereof, especially when side lasting progressively using cement, is likely to be of more significance in terms of fold formation (and its avoidance) than the provision of two rollers. When side lasting progressively using tacks or other metallic fasteners on the other hand the provision of a pair of lasting rollers at each side may be beneficial, depending upon the nature of the material of the shoe upper.

One problem in particular has been found to arise when side lasting progressively using a single lasting roller at each side of the shoe, namely that, especially in the case of ladies' high-heeled shoes, if the lasting roller operating along the inside waist region is rotating in such a direction that the operating portion thereof in contact with the shoe upper moves in the same direction as that in which the lasting roller is moved along the shoe bottom, excellent lasting can be achieved in terms of the shoe upper being drawn tightly to the shoe last, but the operation of the other roller, also rotating in such a direction that its contacting operating portion moves in the same direction, along the outside waist region tends to create a build-up leading to the formation of a fold at the "boundary" of the already lasted toe end portion and the side region being thus lasted; that is to say, in some instances the achieving of good lasting at one side of the shoe may give rise to poor lasting at the other. Moreover, it is not practicable, in economic terms at least, to arrange for the lasting rollers to rotate in opposite directions, necessitating switching the direction of each roller between left and right shoes.

OBJECT OF THE INVENTION

It is thus the object of the present invention to provide an improved machine for lasting side portions of shoe uppers using two pairs of lasting rollers, one pair arranged at each side of the shoe, wherein the use of the lasting rollers of each pair and the lasting forces applied thereby to lasting marginal portions of the shoe uppers may be closely controlled.
SUMMARY OF THE INVENTION

This object is resolved in accordance with the present invention, in a machine as set out in the first paragraph above, by the provision therein of control means for controlling pivotal movement of each of the carriers of the lasting roller means, independently of one another, whereby for each pair selectively one or both of the lasting rollers thereof can be caused to operate in a lasting operation as aforesaid.

It will thus be appreciated that by the provision of control means whereby one or both of the rollers of each pair can be selectively caused to engage the shoe upper, the machine in accordance with the invention is much more versatile than previous machines, allowing the selection of appropriate rollers, each rotating in an appropriate direction, to be used and also enabling the lasting force applied by the lasting roller means to each side of the shoe to be controlled, in accordance with the needs of that shoe.

Moreover, the problems, referred to above, arising out of the nature of the shoe upper material, may be resolved, it is often found, by varying the drafting force applied by the lasting rollers. Such variation may be achieved by varying the pressure with which each roller is urged against the shoe bottom, to which end different pressures may be applied, through the control means, not only to each pair but also to each roller of each pair. Alternatively, or indeed in addition, different lasting forces may be applied according to whether one or both rollers of each pair are brought into operation; this effect will be noted more significant when tack side lasting (for the reasons set out above). In one instance, for example, a greater lasting force may be desirable in the inside waist region, as compared with the outside waist region. Again, it may be that, because of the manner in which a particular pattern of shoe upper has been cut, there is less material in the outside waist region than in the inside waist region and consequently it is desirable to apply a greater lasting force to the outside waist region than to the inside waist region. Moreover, in the case of relatively heavy shoe upper material it may be desirable to apply an enhanced lasting force to both sides of the shoe bottom, as compared with the force applied in the case of shoes made from relatively light shoe upper material.

The machine in accordance with the invention can be operated in various modes of operation. Thus, to meet the particular problem of avoiding the formation of a fold at the boundary with the previously lasted toe end portion of the shoe, it has been found useful for a single lasting roller of each pair to be used, rotated each with its operating surface engaging the shoe upper moving in the same direction as its movement relative to the shoe support under the action of the drive means, from a remote position towards the previously lasted end portion, but for the other lasting roller of the pair operating along the outside waist region to be brought into operative engagement with the shoe upper shortly before the previously lasted portion is reached, said other roller by reason of its rotating in a contrary direction, thus mitigating the risk of fold formation at the boundary. Depending upon the mounting of the lasting rollers, either said other lasting roller may take over the lasting operation from the first-mentioned roller, the latter being moved out of engagement with the shoe, or, as in a preferred embodiment, the two rollers may operate together over the selected final portion of the lasting operation.

In another mode of operation of the machine, the control means may be effective to cause both rollers of each pair to engage the shoe upper lasting marginal portions over the whole of the length of the side portions. This has been found to be of advantage in the case of heavy work boots and the like. Again, in another mode of operation of the machine, the control means may be effective to cause both lasting rollers of the pair arranged at the "outside waist" side of the shoe to engage the shoe upper lasting marginal portions while only one of the rollers of the pair arranged at the "inside waist" side of the shoe is caused to engage the shoe along the whole of the side thereof, or alternatively, in a different selected mode of operation, the control means may be effective to cause both lasting rollers of the pair arranged at the "inside waist" side of the shoe to engage the shoe upper lasting marginal portions while only one of the rollers of the pair arranged at the "outside waist" side of the shoe is caused to engage the shoe, according to the particular nature of the shoe and the material from which its upper is made.

In the machine in accordance with the invention conveniently the axes of rotation of the lasting rollers of each pair lie in a common plane but are inclined to one another within said plane, the axis of pivotal movement of the carrier also lying in said plane and intersecting the point of intersection of the axes of the rollers. Preferably, the carrier is supported for pivotal movement as aforesaid on a support on which a motor is also supported, operation of which motor, in response to a signal from the control means, effects pivotal movement of the carrier on said support. In this way, it will be appreciated, the control means may be rendered effective to vary the applied lasting forces by rendering only one or both of the lasting rollers operative not only as between lasting operations but also during a given lasting operation. Moreover the pressure applied by the rollers of each pair can be varied for each roller independently. Conveniently to this end the axis of pivotal movement of the carrier is coincident with one of the roller axes; more particularly the roller axis of rotation coincident with the axis of pivotal movement of the carrier is fixed in relation to the support. It will of course be appreciated that the
roller whose axis of rotation is thus fixed is constantly in engagement with the shoe upper during the lasting operation, and the other roller of each pair may selectively be brought into such engagement either for the whole of the lasting operation, only part thereof or for no part thereof. For varying the pressures applied by the rollers independently, a first motor is effective to urge the support, and thus the roller with the fixed axis, towards the shoe bottom under a first applied pressure, while the pressure applied by the carrier-pivoting motor is separately adjustable and thus a second applied pressure can be applied by the other lasting roller, means being provided for the independent setting of the pressure supplied to each of the motors.

Conveniently also in an initial setting up operation the support, together with the carrier and lasting rollers supported thereby, is bodily adjustable angularly in relation to the shoe support about an axis extending lengthwise of the shoe bottom. In this way, the inclination of the rollers can be set according to the transverse contour of the shoe bottom being operated upon.

As already mentioned, the lasting rollers of each pair rotate in contrary directions. Moreover, preferably the roller whose axis of rotation coincides with the axis about which the carrier pivots rotates in such a manner that the operating surface portion thereof in engagement with the shoe upper is moving in the same direction as the direction in which the lasting roller means moves relative to the shoe bottom under the action of the drive means.

Conveniently, in the machine in accordance with the invention, sensing means is provided, e.g. associated with toe support means of the shoe support, for sensing whether the shoe supported by the shoe support is a left or a right and for supplying an appropriate signal to the control means. In this way, where the arrangement for operating on the opposite sides of the shoe varies as above described the settings can be automatically switched according to whether the shoe is a left or a right. Similarly where the relative positions of the lasting rollers is varied during the lasting operation, desirably such variation takes place in response to the input of the length of the path to be followed by the rollers. This input may be made manually or automatic shoe length measuring means may be provided, from which a signal may be supplied on the basis of which the path length is calculated. Moreover selector means is preferably provided for inputting information relating to the length of the path over which the rollers are to operate.

Conveniently the control means comprises programme-controlled means, more particularly a microprocessor responsive in accordance with programmed instructions and in response to a particular selection of a mode of operation of the machine. Where a microprocessor or similar computer device is used, furthermore, conveniently the shoe length measuring means may be constituted by e.g. a linear potentiometer, the output of which, representing a signal to the control means, is in the form of a voltage of variable value, while the sensing means may comprise a proximity or like switch, which is responsive to the position of e.g. the toe support means of the shoe support, which toe support means is movable between two positions according to whether the shoe supported thereby is a left or a right.

It will be appreciated that the invention is applicable to side lasting machines both of the type using cement (adhesive) for securing the lasting marginal portions of the shoe upper to the insole and also of the type using tacks or other metallic fasteners for that purpose.

There now follows a detailed description, to be read with reference to the accompanying drawings, of one machine in accordance with the invention. It will of course be realised that this machine has been selected for description merely by way of non-limiting example. A further embodiment of the invention is set out in claim 6.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:
Figure 1 is a perspective view of the machine in accordance with the invention; and
Figure 2 is a fragmentary view of a mounting for a lasting roller assembly of the machine of Fig. 1; Figures 3, 4 and 5 are fragmentary views, respectively from the front, in plan and from the side, of said lasting roller assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The machine now to be described, which is a machine for lasting side and heel seat portions of shoes, is generally similar, except as hereinafter described, to the machine described in EP-A-0271303; of particular note is that for securing the lasting marginal portions of the side portions of the shoe upper to corresponding marginal portions of the insole thereof in the aforementioned machine tacks are used whereas in the machine in accordance with the present invention adhesive is used as will be hereinafter described.

The machine now to be described comprises a shoe support 10 mounted for movement about a horizontal axis 12 between a shoe loading position and the operating locality of the machine in which the heel end portion of a shoe S supported thereby is embraced by a heel band 14 forming part of heel seat lasting instrumentalities of the machine, said band 14 determining the lengthwise disposition of the shoe in the machine. The shoe support 10 comprises a heel pin 16 and a toe rest 18 whereby the shoe can be sup-
ported bottom up. For determining the heightwise disposition of the shoe in relation to the heel seat lasting instrumentalities, a hold-down 20 is also provided.

The machine also comprises heel seat lasting instrumentalities comprising a wiper assembly, comprising a pair of wiper plates 26 by which marginal portions of a shoe upper in the heel seat region of the shoe can be wiped over and secured to corresponding marginal portions of the insole of the shoe, said assembly and its operation being fully described in GB-A 2052950. In addition, the heel seat lasting instrumentalities comprise fastener-inserting tools generally designated 28 associated with the wiper assembly in such a manner that, after the over-wiping of lasting marginal portions of the upper, said portions are secured to the insole by fasteners driven therein.

The machine further comprises side lasting instrumentalities by which opposite side portions of the shoe upper can be wiped over and secured to corresponding marginal portions of the insole, said side lasting instrumentalities comprising two side lasting assemblies generally designated 230°, arranged one at each side of the shoe support 10. The two side lasting assemblies are generally the same, save that the one is a mirror-opposite of the other, and consequently only one of the assemblies will now be described with reference to Figures 2 to 5.

Each side lasting assembly 230° comprises a forwardly extending support arm 370 which is mounted at its rear end for pivotal movement about a horizontal axis 348 in a support frame 362, also forwardly extending, which in turn is mounted for pivotal movement about a vertical axis 364 whereby the forward ends of the arms can be moved towards and away from the shoe support and towards and away from each other. At an intermediate position along the length of each arm the support frame supports also a motor, in the form of a pneumatic cylinder 366, for effecting pivotal (heightwise) movement of the arm about its horizontal support axis 348. Further motor means, in the form of two hydraulic cylinders 352, one associated with each arm, effects movement of the forward ends of the arms towards and away from each other. The machine also comprises drive means in the form of a further hydraulic motor 350 mounted on the machine frame for effecting fore-and-aft movement of the side lasting instrumentalities, thus to effect movement thereof relative to the shoe support 10.

In the rest condition of the machine, the lowermost position of the arm 370 relative to the support frame 362 is determined by a stop 368, the heightwise position of which can be manually set via pneumatic cylinder 358 mounted (see Figure 1) on the front of the machine and operatively connected to the stop 368 by a Bowden cable 356.

Supported at the forward end of the arm 370 is a plate 372 having an arcuate slot 374 and groove 376 formed therein, the groove providing a track for rolls 378 mounted on a support block 380, which also carries a clamping nut 382 by which the support can be locked in position in relation to the plate 372. The support block 380 has an integral annular lug 383 at the upper end thereof in which is secured a rotary drive motor 384, e.g., a hydraulic motor, for a first lasting roller 386. The axis of rotation of the roller 386, and the axis of the annular lug 383, as well as of the motor 384, are all coincident. Moreover, supported on the body of the motor 384 is a carrier 388, by which thus the motor 384 can also be considered to be supported, said carrier 388 being mounted for pivotal movement on the body of the motor 384 about an axis coincident with the axis of rotation of the roller 386. The carrier 388 supports in a lug thereof a further rotary drive motor 390, again e.g., a hydraulic motor, for a second lasting roller 392. The axis of rotation of the roller 392 lies in a common plane with the axis of rotation of the roller 386, but the two axes are inclined to one another within said plane. The angle of such inclination within the plane is acute, being of the order of 20°. It is desirable that the axis of pivotal movement of the carrier 388 intersects the point of intersection of the axes of the rollers 386, 392; this is of course achieved in the machine being described by the axis of pivotal movement being coincident with the axis of rotation of the roller 386. For effecting pivotal movement of the carrier 388, furthermore, a piston-and-cylinder arrangement 394 is provided, mounted on the support block 380, the piston rod 396 thereof being connected with the carrier 388.

Each lasting roller 386, 392 is provided with a helical rib whereby, as the roller is rotated, the rib effects an inwiping action on the lasting marginal portion of the shoe upper engaged thereby, the arrangement being such that in the operation of the machine the rollers of each pair are caused to rotate in contrary directions, more particularly such that an operating surface portion of each roller when in engagement with the shoe upper is moving in a direction towards the other lastig roller; to this end therefore the helical rib of the lasting roller 386 describes a left-hand helix and that of the lasting roller 392 a right-hand helix. It will be appreciated that, in addition to the inwiping component of movement of the helical rib of each lasting roller as it is caused to rotate, there is also a component of movement of such rib in a direction towards the other lasting roller, and moreover away from the end of the shoe to which the particular lasting roller is more nearly disposed; that is to say, in the case of the machine now being described the "shoe-lengthwise" component of movement of the lasting roller 386 is away from the heel end of the shoe while that of the lasting roller 392 is away from the toe end.

The arrangement of the groove-and-rolls arrangements 376, 378 enables the angle of the carrier
388, and thus of both rollers 386, 392 to be adjusted according to the transverse contour of the shoe bottom, the clamping lever 382 enabling the rollers to be held in any desired position to the extent determined by the length of the slot 374. As will be seen from Figure 4, furthermore, the axis of rotation of the lasting roller 386 is disposed at a small acute angle to the perpendicular to the longitudinal centre line of the machine, with its free end towards the heel end of the shoe.

The machine in accordance with the invention also comprises an in-machine adhesive-applying system comprising two adhesive-applying nozzles 400 (see Figure 1) arranged to operate along opposite side portions of the shoe bottom thus to apply adhesive to marginal portions of the insole in the region of said side portions. (In other machines in accordance with the invention and otherwise similar to the machine here described other conventional adhesive-applying systems may be used to apply adhesive to the marginal portions of the insole and/or the upstanding last marginal portions of the shoe upper.) The adhesive-applying nozzles 400 are mounted for movement fore-and-aft on a slide frame comprising four rods 402 and initially move in a rectilinear path thus to clear the ends of the "legs" of the heel band. Thereafter each nozzle is guided along a path parallel to the periphery of the insole by a guide (not shown) which engages said periphery (or the shoe last adjacent the insole) and which is mounted in a fixed relationship with its nozzle 400. Each nozzle/guide arm assembly is urged resiliently against the insole periphery and the assemblies are moved along their fore-and-aft path by means of a hydraulic motor (not shown) which operates synchronously with the drive means for the lasting rollers.

In certain modes of operation of the machine it is necessary to provide an input as to whether the shoe being operated upon is a left or a right. In the machine therefore sensing means is provided, associated with the toe rest 18, which for this purpose can rock about a horizontal fore-and-aft axis 18a, it being thus rocked in one direction when a left shoe toe is supported thereby and in the other direction when a right shoe toe is thus supported. The sensing means may be in any suitable form, e.g. a proximity switch (not shown), which signals the control means of the machine according to the direction in which the toe rest 18 has been rocked.

Similarly for determining the length of the path of the lasting rollers 386, 392, the incidence of certain activities (to be referred to hereinafter) relating thereof and also the length of the path of the adhesive-applying nozzles 400, the machine is provided with path-length setting means including an operator-actuable selector knob 410 controlling a rotary potentiometer which thus supplies a corresponding signal to the control means of the machine. (Alternatively automatic shoe length measuring means, including e.g. a linear potentiometer, may be provided.)

The control means of the machine preferably programme-controlled means which includes a microprocessor programmed not only to cause the various modes of operation of the machine (as will be hereinafter described) to take place, but also to control the temperature of the various integers of the adhesive-applying system and other functions of the machine, including the synchronous operation of the motor for the nozzles 400 and the drive means for the lasting rollers.

The machine also comprises selector means (not shown) whereby different modes of operation of the machine can be selected, according to the needs of the shoe to be operated upon.

In the operation of the machine, after a shoe S, the toe end portion of which has previously been lasted, has been placed upon the shoe support 10 while the latter is in its loading position, in sequence the shoe support 10 is swung into its operative position, determined by engagement of the heel end of the shoe with the heel band 14, and further is moved heightwise to bring the heel seat region thereof into engagement with the holddown 20. At this time the sensing means signals whether the shoe is a left or a right. Depending upon the nature of the shoe upper material of the shoe to be lasted, and according to the mode of operation selected, the stops 368 will have been set such that either the lasting rollers 386, 392 will engage the shoe upper during their inward movement towards each other (usually in the case of heavy shoe upper material) or will remain above the shoe upper and thus not have any inwiping effect thereon during such inward movement (usually in the case of light, stretchable, upper material). Whatever the setting of the stops at the start of the lasting operation the side lasting assemblies and also the adhesive-applying nozzles 400 are moved inwards. The adhesive-applying nozzles first engage the insole and apply adhesive to the shoe bottom (last marginal of the upper and/or margin of the insole) progressively from the heel breast line toewardly, according to the path length input. Following the initiation of adhesive application, and after the rollers have completed their inward movement, the stops 368 are retracted so that the lasting rollers (or selected ones thereof) now apply a lasting pressure to the last marginal portions of the upper under the control of the various motors, as will be hereinafter described.

In one mode of operation of the machine, which may be selected when operating upon light, relatively stretchable materials, only the two rollers 386 are caused to engage the lasting margin of the shoe upper, the other rollers 392 being held out of engagement by the motor 394. The engagement of rollers with the shoe takes place in the heel breast line region (the heel seat being lasted in the same operation
by the seat last instrumentalties) and the drive means then causes the side last instrumentalties to be moved toewards the "boundary" with the previously lasted toe end portion.

As the rollers approach the ball region of the shoe bottom, i.e., just short of the "boundary" with the previously lasted toe end portion, the "outside waist" roller 392 is also moved into engagement with the shoe upper lasting marginal portion. Because of its contra-rotation this roller 392 acts directly against the formation of a fold in the material which may have built up in front of the "outside waist" roller 386. It is not expected that any fold will be likely to be formed along the "inside waist" side of the shoe, but to give additional inward drafting of the shoe upper material at the ball region, if desired both pairs of rollers 386, 392 can be moved axially inwards, in the manner described in EP-A 0271303.

It will be appreciated that instead of only the one "inside waist" last roller 386 operating as aforesaid both "inside waist" rollers 386, 392 may be used, with or without the axial displacement described above, without going outside the scope of the invention in its broader aspects. Similarly in other machines in accordance with the invention, and otherwise similar to the machine herein disclosed, the engagement of the second "outside waist" roller 392 with the shoe upper may be followed by or coincide with the withdrawal of the first roller 386, always of course provided that no portion of the side of the shoe remains unlasted; this could for example be achieved by the rearward roller constituting the second roller, so that, in engaging the shoe upper, it would overlap part of the lasting margin already lasted by the first roller.

In another mode of operation of the machine described herein it has been found that satisfactory lasting results may be achieved by lasting the whole of the "outside waist" side by both rollers 386, 392 while the "inside waist" side of the shoe is lasted using only the first roller 386. Alternatively, again depending upon the nature of the shoe upper material, in some cases it has been found beneficial to last the "inside waist" side using the two rollers 386, 392 and the "outside waist" side with the first roller 386 only. Clearly also the machine may be set up to operate with both rollers 386, 392 operating on both sides or indeed only the first roller 386 on both sides.

In the operation of the machine, furthermore, the rollers 386 are each urged against the shoe bottom by the motor 368 acting on the support arm 370 to cause it to pivot about its horizontal axis, while each second roller 392 is urged against the shoe bottom by the motor 394 acting on the carrier 388 for pivoting said second roller into such engagement. Thus the facility is provided for varying the pressure applied by said motors and thus for varying the pressure applied by each roller to the shoe bottom, independently of each other roller. The machine also comprises operator-actuated means, in the form of knobs 398 on the machine control panel, for setting the desired pressure for each motor.

It will thus be appreciated that with a machine having the foregoing features, especially with the programme-controlled microprocessor system, a much greater degree of versatility is provided than has previously been the case.

Claims

1. Machine for lasting side portions of shoe uppers comprising
   a shoe support (10) for supporting a shoe (S), comprising a shoe upper on a last and an insole on the last bottom,
   a lasting roller means (230') comprising two pairs of lasting rollers (386; 392), one pair being arranged at each side of the shoe support (10), and each pair being supported on a carrier (388) which is mounted for pivotal movement about an axis extending transversely of the bottom of a shoe supported by the shoe support (10), each lasting roller (386; 392) being mounted for rotation about an axis also extending transversely of the shoe bottom and rotating means (384,390) being provided for effecting rotation of the lasting rollers (386; 392) such that the lasting rollers of each pair rotate in contrary directions, and each lasting roller (386; 392) further comprising a helical rib whereby, as the roller is rotated, said rib effects an inwiping action on the lasting marginal portion of the upper engaged thereby, and
   a drive means (350) for effecting relative movement, in a direction lengthwise of the shoe bottom, between the shoe support (10) and the lasting roller means (230'), whereby a lasting operation is caused to take place in which the lasting marginal portions of the shoe upper at opposite sides of the shoe are progressively wiped over and pressed against corresponding marginal portions of the insole by the lasting roller means (230'), such lasting marginal portions being secured to the insole in such wiped-over condition,
   said means being characterised by control means for controlling pivotal movement of each of the carriers (388) of the lasting roller means (230'), independently of one another, whereby for each pair selectively one or both of the lasting rollers (386; 392) thereof can be caused to operate in a lasting operation as aforesaid.

2. Machine according to Claim 1 characterised in that the carrier (388) is supported for pivotal movement as aforesaid on a support (380, 383) on which a motor (394) is also supported, opera-
tion of which motor, in response to a signal from the control means, effects pivotal movement of the carrier (388) on said support (380, 382).

3. Machine according to Claim 2 characterised in that the support (380, 383), together with the carrier (388) and lasting rollers (386, 392) supported thereby, is bodily adjustable angularly in relation to the shoe support (10) about an axis extending lengthwise of the shoe bottom.

4. Machine according to any of the preceding Claims characterised in that the axes of rotation of the lasting rollers (386; 392) of each pair lie in a common plane but are inclined to one another within said plane, and in that the axis of pivotal movement of the carrier (388) also lies in said plane and intersects the point of intersection of the axes of the rollers (386; 392).

5. Machine according to Claim 4 characterised in that the axis of pivotal movement of the carrier (388) is coincident with the axis of one (386) of the rollers (386; 392).

6. Machine according to Claim 5 characterised in that the roller (386) whose axis of rotation coincides with the axis about which the carrier (386) pivots rotates in such a manner that the operating surface portion thereof in engagement with the shoe upper is moving in the same direction as the direction in which the lasting roller means (230°) moves relative to the shoe bottom under the action of the drive means (350).

7. Machine according to Claim 5 or 6 when tied to Claim 2 characterised in that the axis of rotation of said one (386) of the rollers (386, 392) is fixed in relation to the support (380, 383).

8. Machine according to Claim 2 or 3 or any one of Claims 4 to 7 when tied, directly or indirectly to either thereof characterised in that the motor (394) for the carrier (388) is a fluid pressure operated motor (394) and a further fluid pressure operated motor (366) is provided for urging said support (380, 383) by which the carrier (388) is supported towards the shoe support (10) as aforesaid, means (398) being provided for independent setting of the pressured supplied to each of the motors (366, 394).

Patentansprüche

1. Maschine zum Zwicken von Seitenabschnitten von Schuhstäben, die folgendes umfaßt:
   eine Schuhstütze (10) zum Stützen eines Schuhs (S), welcher einen Schuhzapfen auf einem Leisten- und eine Brandsohle an der Leistenunterseite umfaßt,
   und eine Zwickrolleneinrichtung (230°), die zwei Zwickrollenpaare (386; 392) umfaßt, wobei an jeder Seite der Schuhstütze (10) ein Paar angeordnet ist und wobei jedes Paar an einem Träger (388) angebracht ist, der für eine Schwenkbewegung um eine Achse gelagert ist, die sich quer zur Unterseite eines von der Schuhstütze (10) gestützten Schuhs erstreckt, wobei jede Zwickrolle (386; 392) zum Drehen um eine Achse gelagert ist, die sich ebenfalls quer zur Schuhunterseite erstreckt, und wobei eine Dreheinrichtung (384, 390) zum Bewirken einer Drehbewegung der Zwickrollen (386; 392) dergestalt vorgesehen ist, daß sich die Zwickrollen eines jeden Paares in entgegengesetzte Richtungen drehen, und wobei jede Zwickrolle (386; 392) ferner mit einer schraubenförmigen Rippe versehen ist, wodurch diese Rippe, während die Rolle gedreht wird, eine Überschiebewirkung auf den Zwickrandabschnitt des Schafastes ausübt, mit der sie im Eingriff ist, und
   eine Antriebswelle (350) zum Bewirken einer relativen Bewegung zwischen der Schuhstütze (10) und der Zwickrolleneinrichtung (230°) in der Schuhunterseite, wodurch verhindert wird, daß ein Zwickvorgang stattfindet, bei dem die Zwickrandabschnitte des Schuhzapfens an gegenüberliegenden Seiten des Schuhzapfens fortschreitend mittels der Zwickrolleneinrichtung (230°) über entsprechende Randabschnitte der Brandsohle übergeschoben und gegen die Brandsohle gedrückt werden, wobei solche Zwickrandabschnitte in einem solchen übergeschobenen Zustand an der Brandsohle befestigt werden,
   wobei diese Einrichtung durch eine Steuereinrichtung zur Steuerung einer Schwenkbewegung eines jeden der Träger (388) der Zwickrolleneinrichtung (230°) unabhängig voneinander gekennzeichnet ist, wodurch für jedes Paar wahrscheinlich eine oder beide Zwickrollen (386; 392) dazu veranlaßt werden kann bzw. können, in einem Zwickvorgang wie vorstehend beschrieben zu arbeiten.

2. Maschine gemäß Anspruch 1, dadurch gekennzeichnet, daß der Träger (388) für eine Schwenkbewegung wie oben erwähnt auf einer Stütze (380, 382) gelagert ist, an der auch ein Motor (394) befestigt ist, dessen Betrieb aufgrund eines Signals von der Steuereinrichtung eine Schwenkbewegung des Trägers (388) an der Stütze (380, 382) bewirkt.

3. Maschine gemäß Anspruch 2, dadurch gekenn-
zeichnet, daß die Stütze (380, 382) zusammen mit dem Träger (388) und den davon gelagerten Zwickrollen (386, 392) winkelmäßig relativ zur Schuhstütze (10) um eine sich längs der Schuhunterseite erstreckende Achse körperlich einstellbar ist.

4. Maschine gemäß einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Drehachsen der Zwickrollen (386; 392) eines jeden Paares in einer gemeinsamen Ebene liegen, jedoch innerhalb dieser Ebene aufeinander zu geneigt sind, und daß die Achse der Schwenkbewegung des Trägers (388) ebenfalls in dieser Ebene liegt und den Schnittpunkt der Achsen der Rollen (386; 392) kreuzt.

5. Maschine gemäß Anspruch 4, dadurch gekennzeichnet, daß die Achse der Schwenkbewegung des Trägers (388) mit der Achse einer (386) der Rollen (386; 392) zusammenfällt.

6. Maschine gemäß Anspruch 5, dadurch gekennzeichnet, daß sich diejenige Rolle (386), deren Drehachse mit der Achse zusammenfällt, um die der Träger (386) schwenkt, auf eine solche Weise dreht, daß sich dessen im Eingriff mit dem Schuhstiefel stehend im Betrieb befindlicher Oberflächenabschnitt in die gleiche Richtung bewegt wie die Richtung, in die sich die Zwickrolleneinrichtung (230°) unter der Wirkung der Antriebs einrichtung (350) relativ zur Schuhunterseite bewegt.

7. Maschine gemäß Anspruch 5 bzw. 6, wenn mit Anspruch 2 verknüpft, dadurch gekennzeichnet, daß die Drehachse der einen (386) der Rollen (386, 392) relativ zur Stütze (380, 383) ortsfest ist.

8. Maschine gemäß Anspruch 2 bzw. 3 bzw. einem der Ansprüche 4 bis 7, wenn direkt oder indirekt mit einem dieser Ansprüche verknüpft, dadurch gekennzeichnet, daß es sich bei dem Motor (394) für den Träger (388) um einen mit Fluiddruck betriebenen Motor (394) handelt und ein weiterer mit Fluiddruck betriebener Motor (386) dafür vorgesehen ist, die Stütze (380, 383), mittels derer der Träger (388) gestützt wird, wie oben erwähnt auf die Schuhstütze (10) zu drücken, wobei eine Einrichtung (398) zum unabhängigen Einstellen des an jeder der Motoren (366, 394) gelieferten Druckes vorgesehen ist.

Revendications

1. Machine pour le montage de flancs de dessus de chaussures comprenant
   un support (10) de chaussure pour supporter une chaussure (S), comprenant un dessus de chaussure sur une forme et une semelle intérieure sur la partie inférieure de la forme,
   un moyen (230°) à rouleaux de montage comprenant deux paires de rouleaux (386; 392) de montage, une paire étant placée de chaque côté du support (10) de chaussure, et chaque paire étant supportée sur un dispositif porteur (388) qui est monté pour un mouvement pivotal autour d'un axe s'étendant transversalement à la partie inférieure d'une chaussure supportée par le support (10) de chaussure, chaque rouleau (386; 392) de montage étant monté pour tourner autour d'un axe s'étendant aussi transversalement à la partie inférieure de chaussure, et un moyen de rotation (384, 390) étant fourni pour effectuer la rotation des rouleaux (386; 392) de montage de façon à ce que les rouleaux de montage de chaque paire tourment dans des directions contraires, et chaque rouleau (386; 392) de montage comprenant en outre une nervure hélicoïdale grâce à quoi, au fur et à mesure que le rouleau tourne, ladite nervure effectue une action de rabattage en dedans sur la partie marginale de montage du dessus engagé de cette nervure, et
   un moyen (350) d'entraînement pour effectuer un mouvement relatif, dans une direction dans le sens de la longueur de la partie inférieure de chaussure, entre le support (10) de chaussure et le moyen (230°) à rouleaux de montage, par lequel une opération de montage est provoquée dans laquelle les parties marginales de montage du dessus de chaussure aux côtés opposés de la chaussure sont progressivement rabattues et pressées contre les parties marginales correspondantes de la semelle intérieure par le moyen (230°) à rouleaux de montage, ces parties marginales de montage étant fixées à la semelle intérieure dans cet état rabattu.

ledit moyen étant caractérisé par un moyen de commande pour commander le mouvement pivotal de chacun des dispositifs porteurs (388) du moyen (230°) à rouleaux de montage, indépendamment de l'un de l'autre, par lequel pour chaque paire sélectivement le fonctionnement de l'un ou des deux rouleaux (386; 392) de montage de celui-ci peut être provoqué dans une opération de montage comme susmentionné.

2. Machine selon la revendication 1, caractérisée en ce que le dispositif porteur (388) est supporté pour un mouvement pivotal comme susmentionné sur un support (380, 382) sur lequel un moteur (394) est également supporté, moteur dont le fonctionnement, en réponse à un signal provenant du moyen de commande, fait pivoter le dis-
3. Machine selon la revendication 2, caractérisée en ce que le support (380, 382), ainsi que le dispositif porteur (388) et les rouleaux (386, 392) de montage supportés par celui-ci, peut être ajusté physiquement à un certain angle par rapport au support (10) de chaussure autour d'un axe s'étendant dans le sens de la longueur de la partie inférieure de chaussure.

4. Machine selon une quelconque des revendications précédentes, caractérisée en ce que les axes de rotation des rouleaux (386; 392) de montage de chaque paire se situent dans un plan commun mais sont inclinés les uns par rapport aux autres dans ledit plan, et en ce que l'axe de mouvement pivotal du dispositif porteur (388) se situe également dans ledit plan et passe par le point d'intersection des axes des rouleaux (386; 392).

5. Machine selon la revendication 4, caractérisée en ce que l'axe du mouvement pivotal du dispositif porteur (388) est coincident avec l'axe de l'un (386) des rouleaux (386; 392).

6. Machine selon la revendication 5, caractérisée en ce que le rouleau (386) dont l'axe de rotation coïncide avec l'axe autour duquel le dispositif porteur (388) pivote tourne d'une telle manière que la partie de surface de manœuvre de celui-ci engagée avec le dessus de chaussure se déplace dans la même direction que la direction dans laquelle le moyen (230') à rouleaux de montage se déplace par rapport à la partie inférieure de chaussure sous l'action du moyen (350) d'entraînement.

7. Machine selon la revendication 5 ou 6, lorsqu'elle est liée à la revendication 2, caractérisée en ce que l'axe de rotation dudit l'un (386) des rouleaux (386,392) est fixe par rapport au support (380, 383).

8. Machine selon la revendication 2 ou 3 ou l'une quelconque des revendications 4 à 7, lorsque liée, directement ou indirectement à l'une de celles-ci, caractérisée en ce que le moteur (394) pour le dispositif porteur (388) est un moteur (394) commandé par pression de fluide et un autre moteur (396) commandé par pression de fluides est fourni pour presser ledit support (380, 383) par lequel le dispositif porteur (388) est supporté vers le support (10) de chaussure comme mentionné, un moyen (398) étant fourni pour un réglage indépendant de la pression fournie à chacun des moteurs (366, 394).