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Description

The present invention is concerned with lasting shoes using adhesive, more especially with a method of lasting shoes, using adhesive, from the toe to at least over the ball region thereof, wherein the toe and forepart region of the shoe is inwiped by means of a pair of wiper plates mounted for inwiping movement about a common pivot located at or adjacent the toe end of the shoe, and wherein the adhesive is applied partly by means of an imprinter plate which is pressed against the shoe bottom and partly by nozzles movable along opposite sides of the shoe.

Such a method is described in, for example, U.S. Patent Specification No. 3,995,341. In carrying out this method, the region to which adhesive is applied by the imprinter plate extends substantially co-extensively with the region inwiped by the pair of wiper plates. It is, however, the case that from time to time the wiper plates must be changed, e.g. for changes in style of the shoes being operated upon or indeed in some circumstances for changes in size. Where it is a question of changes in size, a compromise may be accepted whereby a single imprinter plate is to be used when operating on a range of shoe sizes. For style changes, on the other hand, it is usually considered necessary or desirable to change also the imprinter plate in order to ensure that the wiper plates properly co-operate with the imprinter plate, and for example to avoid any risk of collision as the wiper plates move into engagement with the shoe. This is especially desirable, but not exclusively so, where the wiper plates are first brought into an intermediate position, while the insole continues to be pressed against the last bottom, as described e.g. in U.S. Patent No. 3579691.

It is, however, generally the case that the toes of shoes fall within a relatively small number of what may be termed "generic" types, viz. rounded, pointed and square. What is more, in most cases within each generic type, the toe region, i.e. the region closely adjacent the toe end of the shoe and extending only a relatively short distance therefrom, does not vary significantly between individual styles.

The present invention is also concerned in one of its aspects, with pulling over and lasting machines of the type described in US-A 3579691. Such a machine comprises a support for supporting the toe end of a shoe placed, bottom down, thereon, adhesive-applying means for applying adhesive to the shoe bottom from the toe at at least over the ball region thereof, a wiper assembly by which lasting marginal portions of the shoe upper, extending from the toe at least to over the ball region of the shoe are inwiped over the insole edge and pressed against corresponding marginal portions of the insole, to effect an adhesive bond therebetween, and a control by which the movement of the wiper assembly is arrested in an intermediate position in which the wiper assembly has just traversed the margin of the insole, the control also comprising a signalling device which supplies a "fall away" signal which effects the falling away of the imprinter plate from the insole when the wiper assembly is arrested.

In the operation of this machine, stopping the wiper assembly in the intermediate position results in that the adhesive-applying means, which in this case is constituted by an imprinter plate, presses the insole to the last bottom as long as possible, namely until, in the intermediate position reached by the wiper assembly, the latter holds the margin of the insole and thus has taken it over. In this way any bending of the insole as the wiper assembly moves inwardly is avoided with certainty, such bending being otherwise possible especially when flexible insoles are being used. Since upon reaching the intermediate position the wiper assembly has already reached significant proximity to the imprinter plate, the falling away of the imprinter plate prior to the continued movement of the wiper assembly is ensured by the arresting of the wiper assembly and the "fall away" signal, so that the wiper assembly cannot collide with the imprinter plate as it continues its movement.

It is known from DE-C 1685424 to provide in addition to an adhesive imprinter plate adhesive-applying nozzles which are moved in a direction from the heel end towards the toe, so that bands of adhesive are applied adjacent the margin of the shoe bottom. In this case, however, the imprinter plate applies adhesive to the toe and forepart region, while the nozzles cover the region from the heel end up to the imprinter plate. In this known machine, furthermore, no measures are provided whereby a wiper assembly associated with a lasting region is arrested in an intermediate position, where the lasting region of the assembly corresponds substantially with the area of application of the imprinter plate. Consequently the patent specification contains no reference to the supply of a particular "fall away" signal in order to ensure that the imprinter plate has fallen away from the insole before the wiper assembly is closed.

It is an object of the present invention to provide an improved method of lasting shoes, in carrying out which method the region to which adhesive is applied by the imprinter plate is maintained standardised for a generic type, regardless of variations in shape of the area beyond said region.

This object is resolved in accordance with the invention in that, in a method as set out in the first paragraph above, the region to which adhesive is applied by the imprinter plate extends approximately 50 mm (2") from the toe of the shoe, measured along the longitudinal centre line of the toe region of the shoe, and thus lies within but is substantially smaller than, the region inwiped by said pair of wiper plates.

It will thus be appreciated that by this method it

is possible to use an imprinter plate which, because it covers only a portion of the region inwiped by the wiper plates, can be used in combination with more than one set of such wiper plates, the nozzles then being used for applying the adhesive in the region no longer covered by the imprinter plate as well as beyond such area. Moreover, where the imprinter plate is so dimensioned as afore said, it is considered to be suitable for use with at least the great majority of individual styles within a generic type, thus rendering it necessary to provide only one such plate for each generic type. What is more, where the imprinter plate also serves to hold the insole against the last bottom during an initial inwiping stage of the wiper plates, an imprinter plate of such size has been found to be nevertheless adequate.

Preferably the nozzles apply adhesive starting adjacent the imprinter plate and being moved progressively heelwards therefrom. Furthermore, the method in accordance with the invention has been found especially advantageous where the nozzles apply adhesive along the side portions of the shoe up to the heel breast region thereof.

It will of course be appreciated that, while the imprinter plate can be considered as "standardised", the path of movement of the nozzles in carrying out the method in accordance with the invention has to be controlled according to the individual style of shoe to be lasted. To this end, therefore, preferably the nozzles are guided along the shoe bottom by control means according to a pre-programmed set of parameters appropriate to the style of shoe lasted. More particularly, conveniently the control means comprises a computer which, in accordance with a preselected set of digitized co-ordinate axis values stored in memory means associated with said computer, supplies control signals to n.c. motors (as herein defined) by which the nozzles are moved along the side portions of the shoe.

The term "n.c. motor" where used herein is to be understood as indicating a motor the operation of which is controlled by control pulses supplied thereto in accordance with digitized information appropriate to the desired operation of the motor. Where two motors operate in conjunction with one another, e.g. to move a tool along a desired path, the digitized information is usually in the form of digitized co-ordinate axis values. Examples of such motors are stepping motors and d.c. servomotors.

It is a further object of the present invention to provide an improved pulling over and lasting machine in the operation of which the adhesive coatings may be accommodated to different shoe widths, while however preserving the need for pressing the insole against the last by means of the imprinter plate and the taking over of the insole by the wiper assembly in the intermediate position thereof, without thereby losing the required certainty that the wiper assembly cannot collide with the imprinter plate, for which purpose the "fall away" signal mentioned in the introduction is used to effect the falling away of the imprinter plate from the insole.

This further object is resolved in accordance with the invention, in a machine as set out in the fourth paragraph above, in that the imprinter plate of the adhesive-applying means extends from the toe of the shoe heelwardly approximately 50 mm (2"), as measured along the longitudinal centre line of the toe region of the shoe, in that the adhesive-applying means also comprises two nozzles arranged to operate along opposite sides of the shoe bottom, starting from adjacent the imprinter plate and movable progressively heelwardly therefrom, and in that the "fall away" signal is supplied to a latching member controlled by a sensor which sensor is so positioned that, after the nozzles have moved over the region which is to be wiped by the wiper assembly and have reached a position in which the wiper assembly can continue its movement, the sensor unlatches the latching member, thereby initiating the closing of the wiper assembly.

The region wiped by the wiper assembly is provided for in respect of the adhesive coating on the one hand by the imprinter plate (in the toe region of the shoe) and on the other by the adhesive nozzles (in the adjacent region in the direction of the ball region). More particularly, adhesive is applied by the imprinter plate only in the region of the shoe toe in which the width of the shoe is not substantially altered for different shoe sizes. In the remainder of the region, which extends into the ball region and beyond, wherein changes in shoe size are rendered more strongly noticeable by changes in width, the adhesive coating is achieved by means of the nozzles, which can be guided in known manner, for example by sensing the lasting margin of the insole edge or by template or programmed control.

Furthermore, by means of the latching member it is ensured that the nozzles are moved away from the imprinter plate sufficiently far that the wiper assembly can continue its movement unhindered. This is achieved by the sensor which is actuated by the nozzles and which unlatches the latching member by means of a signal.

The falling away of the imprinter plate can be controlled in different ways. On the one hand this can take place so that the "fall away" signal is supplied to the actuating means for the imprinter plate, at the time said signal is also supplied to the latching member. In this case, therefore, a relative early falling away of the imprinter plate takes place. On the other hand, the control can also ensure that the unlatching of the latching member initiates the falling away of the imprinter plate. In this case the imprinter plate presses against the insole for a relatively long period, whereby the adhesive applied by the imprinter plate

is then prevented from cooling at too early a time.

In this connection it is pointed out that in using the latching member for the initiation of the falling away of the imprinter plate by the unlatching of the latching member it is possible to select the position of the sensor so that it is actuated by the nozzles at a point in time when the nozzles have not yet completely moved out of the region covered by the wiper assembly. In this case the speed of the movement of the wiper assembly and of the movement of the nozzles must be determined relative to one another such that in any event in the closed position of the wiper assembly no nozzle stands in the way thereof.

An additional degree of security with respect to the prevention of the collision of the wiper assembly against the imprinter plate is provided in that the initiation of the continuation of the movement of the wiper assembly as compared with the initiation of the falling away of the imprinter plate is delayed by a delaying member. In this way it is ensured that the continuation of movement of the wiper assembly is initiated only by the time span defined by the delaying member after the initiation of the falling away of the imprinter plate. This is especially of significance if, in the machine in question, the wiper assembly in its intermediate position is already close to the imprinter plate.

In order that there is no interruption between the adhesive coatings applied by the imprinter plate and nozzles, preferably the starting position for the nozzles is located at a region to which adhesive is applied by the imprinter plate, the arrangement being such that the nozzles first engage the shoe bottom and the imprinter plate is moved into engagement with the shoe bottom only after the nozzles have moved away from said region. In this case the control for the nozzles need merely to be so constructed that, before bringing the imprinter plate against the insole, the nozzles have traversed a short region which is then, after the continuation of the movement of the nozzles away from the toe, also covered by the imprinter plate, which is brought into contact with the insole only after the continuation of movement of the nozzles.

In using the machine in accordance with the invention, furthermore, advantageously different adhesives may be used for the region to which adhesive is applied effectively by the imprinter plate and by the nozzles. This is of importance because especially the ball region is subjected to substantially stronger flexing movements when the shoe is being worn than is the case for the toe region. For this purpose the imprinter plate and the nozzles are connected to separate adhesive supplies each with different adhesive, an adhesive which remains elastic being supplied to the nozzles, while the imprinter plate has an adhesive which hardens off more strongly. The latter adhesive normally also has the property that it hardens off more quickly, which is of special significance for rapid and reliable bonding in the toe region.

There now follows a detailed description, to be read with reference to the accompanying drawings, of one method of lasting shoes and one pulling over and lasting machine, said method and machine being in accordance with the present invention. It will of course be appreciated that this method and this machine have been selected for description by way of non-limiting example only.

In the accompanying drawings:-

Figure 1 is a schematic view of a shoe bottom, indicating the regions thereof to which adhesive is applied respectively by an imprinter plate and by nozzles and also the region inwiped by a pair of wiper plates;

Figure 2 is a diagrammatic representation of the machine in accordance with the invention, said machine utilising a latching member; and

Figure 3 is a side view of the machine in accordance with the invention, showing various constructional details thereof.

The method in accordance with the invention now to be described is a method of lasting shoes, more especially of lasting toe, forepart and side regions of shoes. Conventionally the toe and forepart regions of shoes are today lasted by so-called pulling over and toe lasting machines, while the side portions are thereafter lasted by so-called side lasting machines. However it has been proposed to combine these operations in a single apparatus: see e.g. EP-A 0,055,107. It is intended that the present invention may be carried out in such a combined machine suitably modified for the purpose.

Thus in carrying out this method in accordance with the present invention, the shoe to be lasted, comprising a shoe upper on a last and an insole on the last bottom, is placed, bottom down, on a shoe support and the margin of the upper is located in a plurality of grippers arranged around the shoe support in conventional manner. The upper is then tensioned over its last, again as is conventional, and a pair of wiper plates W, mounted for inwiping movement about a common pivot P located at or adjacent the toe end of the shoe, are brought into an intermediate position in which they trap the upper against the margin of the insole, the grippers at the same time releasing their grip and also a toe band being applied to press the upper against the last immediately above the wiper plates (again as described in EP-A 0,055,107).

In this position two nozzles N and also an imprinter plate I are brought into engagement with the shoe bottom. The imprinter plate I extends from the toe of the shoe heelwardly approximately 50 mm (2"), as measured along the longitudinal centre line of the toe region of the shoe; that is to say, the plate I, and thus the region of the insole covered thereby, is substan-

tially smaller than the region to be wiped subsequently by the wiper plates W.

The nozzles N are caused to move heelwardly, from a position adjacent the imprinter plate I, along opposite side of the shoe bottom (again as described in EP-A O,055,107); that is to say, the nozzles N are guided e.g. by computer control means supplying drive signals to suitable n.c. motors (as herein defined), in accordance with a set of digitized co-ordinate axis values stored in suitable memory means associated with the computer, such set being selected according to the style of shoe being operated upon and modified according to the size of such shoe. (This size may conveniently be measured by the movement of the heel rest against the shoe, as described in EP-A O,055,107).

In carrying out the method in accordance with the invention, as soon as the nozzles N have passed beyond the region to be inwiped by the wiper plates W, the latter are caused to continue their inwiping movement. Such further movement is controlled by the computer control means, which is also effective to ensure that the imprinter plate I is moved out of engagement with the insole so as to avoid any rise of collision of the wiper plates W with the imprinter plate I, as described in US-A-3,579,691.

The side lasting of the shoe can take place, in carrying out the method in accordance with the invention, using any suitable conventional means. For example, as in the machine described in EP-A-0,055,107, lasting rolls may be used. Alternatively conventional lasting fingers or lasting bands may be used, in which case side lasting can take place only after the nozzles N have completed their movement. Again within the scope of the present invention is included a method in which a shoe is lasted from the toe over the ball region only; in carrying out such a method conventional ball wipers linked to the wiper plates may be used.

Although in carrying out the method described above the wiper plates are arrested in an intermediate position, whereafter the application of adhesive takes place, it is to be understood that in carrying out other methods in accordance with the invention the application of adhesive can take place before any inwiping movement of the wiper plates is initiated.

Further details of the present invention are now to be described with reference to the machine shown in Figures 2 and 3. It will be appreciated that, unlike the machine described in EP-A-0,055,107, this machine is suitable for lasting shoes from the toe end over the ball region up to the shank region only. With reference to Figure 3, the machine in accordance with the invention comprises a shoe support 10 which supports a last 9, on which an upper (not shown) is mounted with an insole 8 (see Figure 2) on the last bottom. The last 9 is held at the heel and thereof by a heel support 48 which applies to the heel end of the last 9 a pressure which is accommodated by a toe abutment 49 engaged by the toe end of the last. The abutment 49 is connected in known manner with a support column 50 carried by a piston 51 for heightwise movement of the support column 50, and thus of the last 9, to bring the latter into an operative position for lasting. The column 50 also carries the shoe support 10 and also an imprinter plate 11 which, as will be described in detail hereinafter with reference to Figure 2 is movable to-and-fro by means of a piston-and-cylinder arrangement 21, 22. In Figure 3 the imprinter plate 11 is shown in a "fall away" position (also shown, in chain-dot line, in Figure 2).

The support column 50 is mounted on a frame portion 52 of the machine, as are also further elements, eg. a support 53 for pincers 54 for pulling the upper over the last 9 (further pincers are not drawn in for reasons of clarity) and a holder 55 for a stack of templates 56 which are sensed in known manner by a roll 57, and which serve to control the movement of adhesive-applying nozzles 34 (to be described hereafter).

Each nozzle 34 is mounted on the end of a carrier arm 58 which is connected via a piston rod 59 with a piston-and-cylinder arrangement 60, 61, for effecting heightwise movement of the nozzles 34 towards and away from the bottom of a shoe supported as aforesaid in the machine. Each carrier arm 58, together with its piston rod 59 and piston-and-cylinder arrangement, is carried by an arm 62 which is mounted for swinging movement about an axis 63, a lever 64 connecting the arm 62 with a piston rod 65 of a further piston-and-cylinder arrangement by which swinging movement of the arm 62 is effected, thus to cause the nozzles 34 to track along side portions of the shoe. The arm 62, is, furthermore, mounted for further swinging movement about an axis 66 in such a manner that the arm 62 can be pivoted out of and into the plane of the drawing. By being able to be moved as aforesaid any desired advancing movement can be given to each nozzle 34, so that it is possible to accommodate to the shape of the bottom of the last 9.

The machine also comprises a wiper assembly 7, arranged about the toe end of a shoe supported by the shoe support 10.

The machine further comprises (schematically shown in Figure 3) an adhesive supply for the imprinter nozzles 34 and the imprinter plate 11. The adhesive, in the form of rods 67, 68, is unwound from rolls 69, a feed mechanism 70 being provided for this purpose. The rods 67, 68 (shown interrupted for reasons of clarity) are supplied to inlets 71, 72 respectively of the nozzles 34 and the imprinter plate 11, whereupon they are heated in known manner so that flowable adhesive exits at the nozzles 34 and the imprinter plate 11. If desired, the rods 67, 68 may be of different adhesive, appropriate to the different requirements of

the regions of the shoe bottom to which they are to be applied.

Turning now to a more specific description of the manner of operation of the machine, with particular reference to the sequence in which the various integers are brought into operation, there is shown in Figure 2 a lasted shoe 9 which is held in its position (see also Figure 3) with the insole 8 thereof against the shoe support 10; the latter is so small that it remains in position even when the wiper assembly 7 effects its operation. Also pressed against the insole 8 is the imprinter plate 11 which substantially surrounds the shoe support 10 and comprises one or more channels 16 through which adhesive is supplied. Adjacent the toe end of the shoe is disposed a wiper assembly 7 which is journalled in a mounting 5. The mounting 5 is carried by a head 17 of a piston-rod 18 of a piston-and-cylinder arrangement 19, constituting drive means for the wiper assembly. The piston-rod 18 extends through the piston 4 and projects from the other side thereof, carrying at its projecting end an abutment 1. When the piston 4 is advanced towards the right (viewing Figure 2) the abutment 1 moves therewith until it reaches the chain-dot position in which it engages a wedge 2. The wedge 2 is supported on an actuator mechanism 3 by which the wedge 2 can be withdrawn from the path of the abutment.

The imprinter plate 11 is mounted on a piston-rod 20 forming part of actuating means constituted by the piston-and-cylinder arrangement 21, 22.

In the operation of the machine, upon actuation thereof by an operator depressing a treadle (not shown), the piston 4 is actuated and thus moved to the right (viewing Figure 2), moving both the wiper assembly 7 and also the abutment 1 therewith. This advancing movement takes place until the abutment 1 engages the wedge 2, whereupon the wiper assembly is arrested in a position (shown in chain-dot) in which is has just traversed the lasting margin 25; this constitutes the intermediate position of said assembly. Upon engagement of the abutment 1 with the wedge 2 valve 30, which serves as a signalling device, is actuated, whereby pressure fluid supplied from a source 31 is switched and applies pressure in line 32, which leads to a latching valve 33, serving as a latching member.

By means of a drive control (which is known but not of interest in this connection), furthermore, the nozzles 34 starting from adjacent the imprinter plate 11 are moved along the insole 8 adjacent the lasting margin in a direction away from the imprinter plate 11, the nozzles 34 passing over substantially the ball region of the shoe 9. During this movement of the nozzles 34, each of the latter, by means of a cam 35, engages a plunger of a valve 36 (constituting a sensor for the movement of its associated nozzle 34) so that, in the position shown in Figure 2, the valve 36 is switched by the nozzle 34 and thus pressure fluid from a source 37 is switched via line 38 to the latching valve 33.

While the nozzles 34 continue their movement, and adhesive continues to be supplied therethrough, switching the pressure fluid through the valve 36 causes the latching valve 33 to be switched, whereupon the pressure fluid in line 32 is switched through on the one hand to line 39, which leads to the cylinder 22, and on the other hand to line 40, from where the pressure fluid is supplied to an auxiliary valve 41. At the cylinder 22 the supplied pressure fluid effects the downward movement of the piston 21 and thus the falling away of the imprinter plate 11, which thus moves to the chain-dot position. The imprinter plate thus no longer stands in the way of the continuation of the movement of the wiper assembly 7.

When the auxiliary valve 41 is switched, pressure fluid from source 42 is removed from line 43 and switched to line 44. The actuator mechanism 3 for the wedge 2, previously actuated via line 43 to bring the wedge 2 into the position shown in Figure 2, is now actuated in reverse direction, so that it withdraws the wedge 2 into the position shown in chain-dot. As a consequence of the inclination of the abutment surfaces 29 this withdrawal of the wedge 2 can take place without difficulties. In this way, further movement of the piston 4 is now no longer constrained, so that the wiper assembly 7 is advanced further from its intermediate position into its end position shown in chain-dot. It will be appreciated that this movement is not hindered by the imprinter plate 11, since the latter, as already mentioned, has previously fallen away (see chain-dot position). Furthermore, by the actuation of the valves 36, which acts as sensors, the movement of the wiper assembly 7 from its intermediate position is initiated only when the nozzles 34 have moved out of the region which is traversed by the wiper assembly, thereby ensuring that the movement of the wiper assembly 7 is in no way hindered.

The auxiliary valve 41 has not only the object of switching pressure from the line 43 to the line 44 and vice versa, but also exercises the function of delaying member, since the effect of the pressure fluid switched from the latching valve 33 is delayed in respect of its acting upon the actuator mechanism 3. The pressure fluid supplied via line 39 in fact acts directly on the cylinder 22 and effects thereby the immediate falling away of the imprinter plate 11, in comparison with which the further movement of the wiper assembly 7, made possible by the actuator mechanism 3 in withdrawing the wedge 2, is initiated only after the valve 41 has been switched. Between the actuation of the piston 21 in the cylinder 22 and the actuation of the actuator mechanism 3, therefore, there is, as a time differential, the switching time of the auxiliary valve 41. In this way security against a collision of the wiper assembly 7 with the imprinter plate 11 or the nozzles 34 is enhanced.

In Figure 2 line 73 (shown dotted) branching from line 32 connects line 32 directly with the input port 74 of the cylinder 22. If line 73 is utilised, line 39 is omitted. In this arrangement a direct initiation of the falling away of the imprinter plate 11 is achieved by the "fall away" signal supplied via line 32; that is to say, when the "fall away" signal is supplied, when the abutment 1 engages the wedge 2 (actuation of the valve 30), the imprinter plate 11 immediately falls away.

In the operation of the machine the nozzles 34 may be moved away from the plate 11 sufficiently far heelwardly that they are clear of the wiper ends 47a and 47b before the wiper assembly movement continues as aforesaid. Alternatively it is possible to raise the nozzles 34, at the end of their advancing movement over the insole 8, away from the latter sufficiently far that the wiper assembly 7 can move past the nozzles 34. In this case it would be possible to allow the advancing movement of the nozzles 34 to take place from the heel end toewardly and, at the end of this advancing movement, to raise the nozzles 34 from the insole 8 immediately in front of the imprinter plate 11, in order to clear the path for the operation of the wiper assembly 7.

Claims

1. Method of lasting shoes, using adhesive, from the toe to at least over the ball region thereof, wherein the toe and forepart region of the shoe is inwiped by means of a pair of wiper plates (W; 7) mounted for inwiping movement about a common pivot (P; 5) located at or adjacent the toe end of the shoe, and wherein the adhesive is applied partly by means of an imprinter plate (I; 11) which is pressed against the shoe bottom and partly by nozzles (N; 34) movable along opposite sides of the shoe, characterised in that the region to which adhesive is applied by the imprinter plate (I; 11) extends approximately 50mm (2") from the toe of the shoe, measured along the longitudinal centre line of the toe region of the shoe, and thus lies within, but is substantially smaller than, the region inwiped by said pair of wiper plates (W; 7).

2. Method according to Claim 1 characterised in that the nozzles (N; 34) apply adhesive starting adjacent the imprinter plate (I; 11) and being moved progressively heelwards therefrom.

3. Method according to either one of Claims 1 and 2 characterised in that the adhesive applied by the imprinter plate (11) is of a different type from that applied by the nozzles (34).

4. Pulling over and lasting machine for carrying out a method according to any one of the preceding Claims, comprising

a support (10) for supporting the toe end of the shoe placed, bottom down, thereon,

adhesive-applying means (11, 34) for applying adhesive to the shoe bottom from the toe to at least over the ball region thereof, said means comprising an imprinter plate (11) by which adhesive is applied to the shoe bottom in the toe region thereof and which is pressed against the shoe bottom to hold the insole these against,

a wiper assembly (7) by which lasting marginal portions of the shoe upper, extending from the toe at least to over the ball region of the shoe, are inwiped over the insole edge and pressed against corresponding marginal portions of the insole, to effect an adhesive bond therebetween, and a control (1, 2, 30) by which the movement of the wiper assembly (7) is arrested in an intermediate position in which the wiper assembly (7) has just traversed the margin of the insole, the control (1, 2, 30) also comprising a signalling device (30) which supplies a "fall away" signal which effects the falling away of the imprinter plate (11) from the insole when the wiper assembly (7) is arrested in its intermediate position,

characterised in that the imprinter plate (11) of the adhesive-applying means (11, 34) extends from the toe of the shoe heelwardly approximately 50 mm (2"), as measured along the longitudinal centre line of the toe region of the shoe, in that the adhesive-applying means (11,34) also comprises two nozzles (34) arranged to operate along opposite sides of the shoe bottom, starting from adjacent the imprinter plate (11) and movable progessively heewardly therefrom, and in that the "fall away" signal is supplied to a latching member (33) controlled by a sensor (35), which sensor (35) is so positioned that, after the nozzles (34) have moved over the region which is to be wiped by the wiper assembly (7) and have reached a position in which the wiper assembly (7) can continue its movement, the sensor (35) unlatches the latching member (33), thereby initiating the closing of the wiper assembly (7).

5. Machine according to Claim 4 characterised in that the falling away of the imprinter plate (11) is initiated by the unlatching of the latching member (33).

6. Machine according to either one of Claims 4 and 5 characterised in that the starting position for the nozzles (34) is located at a region to which adhesive is applied by the imprinter plate (11), the arrangement being such that the nozzles (34) first engage the shoe bottom, and the imprinter plate (11) is moved into engagement with the

shoe bottom only after the nozzles (34) have moved away from said region.

Patentansprüche

1. Verfahren zum Zwicken von Schuhwerk von der Spitze bis wenigstens über den Ballenbereich eines Schuhs unter Verwendung eines Klebstoffes, wobei die Spitze und der Frontbereich des Schuhs mit Hilfe eines Paares Zwickscherenplatten (W; 7) bestrichen werden, die um eine gemeinsame Halterung (P; 5) an oder neben dem Schuhspitzenende bewegbar angeordnet sind, wobei der Klebstoff teilweise mit Hilfe einer gegen den Schuhboden gedrückten Druckplatte (I; 11) und teilweise mittels Spritzdrüsen (N; 34) aufgetragen wird, die längs der gegenüberliegenden Seiten des Schuhs bewegt werden können,
dadurch gekennzeichnet, daß sich der Bereich, dem Klebstoff mittels der Druckplatte (I; 11) zugeführt wird, annähernd 50 mm von der Schuhspitze erstreckt, gemessen längs der longitudinalen Mittellinie des Zehenbereichs des Schuhs, und daher innerhalb des von dem Paar Zwickscherenplatten (W; 7) bestrichenen Bereichs liegt, jedoch wesentlich schmaler als letzterer ist.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß die Spritzdüsen (N; 34) den Klebstoff, beginnend neben der Druckplatte (E; 11), auftragen und davon fortschreitend in Richtung auf die Absätze bewegt werden.

3. Verfahren nach einem der Ansprüche 1 oder 2, dadurch gekennzeichnet, daß der durch die Druckplatte (11) aufgetragene Klebstoff von einem unterschiedlichen Typ gegenüber jenem ist, der durch die Spritzdüsen (34) aufgetragen wird.

4. Vorrichtung zur Durchführung des Verfahrens nach einem der vorhergehenden Ansprüche,
mit einer Auflage (10), welche das Schuhvorderteil mit abwärts gerichtetem Boden trägt,
mit einer Klebstoff-Auftragseinrichtung (11, 34), welche dem Schuhboden von der Schuhspitze bis wenigstens über den Ballenbereich Klebstoff zuführt, wobei die Einrichtung eine Druckplatte (11) aufweist, durch die ein Klebstoff auf die Unterseite des Schuhs in dessen Zehenbereich aufgetragen und die gegen die Unterseite des Schuhs gedrückt wird, um die Innensohle dagegen zu halten,
mit einer Zwickscherenanordnung (7), mit welcher die Zwickrandbereiche des Schuhoberteils, die sich wenigstens von der Schuhspitze bis über den Ballenbereich des Schuhs erstrecken, um den Brandsohlenrand gelegt und gegen entsprechende Randabschnitte der Brandsohle gedrückt werden, um zwischen diesen Teilen eine Klebverbindung zu schaffen, und
mit einer Steuerung (1, 2, 30), mittels welcher die Bewegung der Zwickscherenanordnung (7) in einer Zwischenlage, in welcher die Zwickscherenanordnung (7) gerade den Brandsohlenrand überschritten hat, gestoppt wird, und welche einen Signalgeber (30) umfaßt, welcher mit dem Stoppen der Zwickscherenanordnung in ihrer Zwischenlage ein den Abfall der Druckplatte (11) von der Brandsohle bewirkendes Abfallsignal erzeugt,
dadurch gekennzeichnet, daß sich die Druckplatte (11) der Klebstoff-Auftragseinrichtung (11, 34) vom Zehenbereich des Schuhs in Richtung auf den Absatz etwa 50 mm (2") weit erstreckt, und zwar gemessen entlang der longitudinalen Mittellinie des Zehenbereichs des Schuhs,
daß die Klebstoff-Auftragseinrichtung (11, 34) ebenso zwei Spritzdüsen (34) aufweist, die angeordnet sind, um entlang entgegengesetzter Seiten der Unterseite des Schuhs, beginnend von neben der Druckplatte (11) und fortschreitend bewegbar davon in Richtung auf den Absatz, zu arbeiten, und
daß das Abfallsignal einem von einem Sensor (35) gesteuerten Verriegelungsglied zugeführt wird, und daß der Sensor (35) so positioniert ist, daß er, nachdem sich die Spritzdüsen (34) über den von der Zwickscherenanordnung (7) zu überstreichenden Bereich bewegt und eine Lage erreicht haben, in welcher die Zwickscherenanordnung (7) ihre Bewegung fortsetzen kann, das Verriegelungsglied (33) entriegelt, so daß das Schließen der Zwickscherenanordnung (7) einleitbar ist.

5. Vorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß das Abfallen der Druckplatte (11) durch Entriegeln des Verriegelungsglieds (33) einleitbar ist.

6. Vorrichtung nach einem der Ansprüche 4 oder 5, dadurch gekennzeichnet, daß die Anfangsposition für die Spritzdüsen (34) in einem Bereich liegt, auf den Klebstoff durch die Druckplatte (11) aufgetragen wird, wobei die Anordnung so ist, daß die Spritzdüsen (34) zuerst in die Unterseite des Schuhs eingreifen, und daß die Druckplatte (11) in Eingriff mit der Unterseite des Schuhs bewegt wird, erst nachdem sich die Spritzdüsen (34) von dem Bereich wegbewegt haben.

Revendications

1. Procédé pour monter des chaussures, à l'aide d'un adhésif, depuis le bout avant jusqu'au moins au-dessus de la ligne d'articulation ou de saillie des orteils, selon lequel la région du bout et de l'avant-pied de la chaussure est rabattue vers l'intérieur à l'aide d'une paire de plaques rabatteuses (W ; 7) montées pour un mouvement de rabattage autour d'un pivot (P ; 5) commun situé à l'extrémité, ou près de l'extrémité, avant de la chaussure, et dans lequel l'adhésif est appliqué en partie à l'aide d'une plaque (I ; 11) d'injection, qui est pressée contre le dessous de la chaussure, et en partie par des buses (N ; 34) mobiles le long de côtés opposés de la chaussure, procédé caractérisé en ce que la région à laquelle l'adhésif est appliqué par la plaque (I ; 11) d'injection s'étend sur environ 50 mm (2") à partir de l'extrémité avant de la chaussure, la mesure étant effectuée le long de la ligne centrale longitudinale de la région avant de la chaussure, et ainsi se situe dans la région rabattue par ladite paire de plaques (W ; 7) rabatteuses, mais en étant nettement plus petite que la région rabattue.

2. Procédé selon la revendication 1, caractérisé en ce que les buses (N, 34) appliquent l'adhésif en partant d'une zone voisine de la plaque (I ; 11) d'injection et en étant progressivement déplacées de cette zone vers l'arrière ou le talon de la chaussure.

3. Procédé selon l'une ou l'autre des revendications 1 et 2, caractérisé en ce que l'adhésif appliqué par la plaque (11) d'injection est d'un type différent de celui appliqué par les buses (34).

4. Machine à mettre sur forme et à monter pour mettre en oeuvre un procédé selon l'une quelconque des revendications précédentes, cette machine comprenant

un support (10) destiné à supporter l'extrémité avant de la chaussure placée, le fond en bas, sur ce support,

un dispositif (11, 34) destiné à appliquer l'adhésif sur le bas de la chaussure à partir de l'avant jusqu'au moins au-dessus de la ligne d'articulation ou de saillie des orteils, ledit dispositif comprenant une plaque (11) d'injection permettant d'appliquer l'adhésif sur le bas de la chaussure, dans sa région avant, et qui est pressée contre le bas de la chaussure pour maintenir la première contre le bas de la chaussure,

un dispositif rabatteur (7) par lequel les parties marginales de l'empeigne à monter, s'étendant de l'avant jusqu'au moins au-dessus de la ligne d'articulation de la chaussure, sont rabattues par-dessus le bord de la première et pressées contre des parties marginales correspondantes de la première, pour effectuer une liaison par adhésif entre ces parties,

et un dispositif de commande (1, 2, 30), qui arrête le mouvement du dispositif rabatteur (7) en une position intermédiaire dans laquelle le dispositif rabatteur (7) est juste passé devant le bord ou partie marginale de la première, le dispositif de commande (1, 2, 30) comprenant également un dispositif (30) de signalisation qui fournit un signal d'"écartement", qui effectue l'écartement de la plaque (11) d'injection en éloignant cette plaque de la première quand le dispositif rabatteur (7) est arrêté en sa position intermédiaire, machine caractérisée en ce que la plaque (11) d'injection du dispositif (11, 34) d'application de l'adhésif s'étend depuis l'avant de la chaussure vers son arrière sur approximativement 50 mm (2"), la distance étant mesurée le long de la ligne centrale longitudinale de la région avant de la chaussure,

en ce que le dispositif (11, 34) d'application de l'adhésif comprend également deux buses (34) disposées pour opérer le long de côtés opposés du bas de la chaussure, en partant du voisinage de la plaque (11) d'injection et en se déplaçant progressivement vers l'arrière de la chaussure,

et en ce que le signal commandant "l'écartement" est fourni à un élément verrouilleur (33) commandé par un détecteur (35), ce détecteur (35) étant placé de manière qu'après le déplacement des buses (34) au-dessus de la région qui est à rabattre par le dispositif rabatteur (7) et une fois que ces buses ont atteint une position permettant au dispositif rabatteur (7) de poursuivre son mouvement, le détecteur (35) déverrouille l'élément verrouilleur (33), en amorçant ainsi la fermeture du dispositif rabatteur (7).

5. Machine selon la revendication 4, caractérisée en ce que l'écartement de la plaque (11) d'injection est amorcé par le déverrouillage de l'élément verrouilleur (33).

6. Machine selon l'une des revendications 4 et 5, caractérisée en ce que la position de départ des buses (34) est située en une région à laquelle de l'adhésif est appliqué par la plaque (11) d'injection, l'agencement étant tel que les buses (34) viennent tout d'abord au contact du bas de la chaussure, et que la plaque (11) d'injection est déplacée pour venir au contact du bas de la chaussure seulement après que les buses (34) se soient éloignées de ladite région.

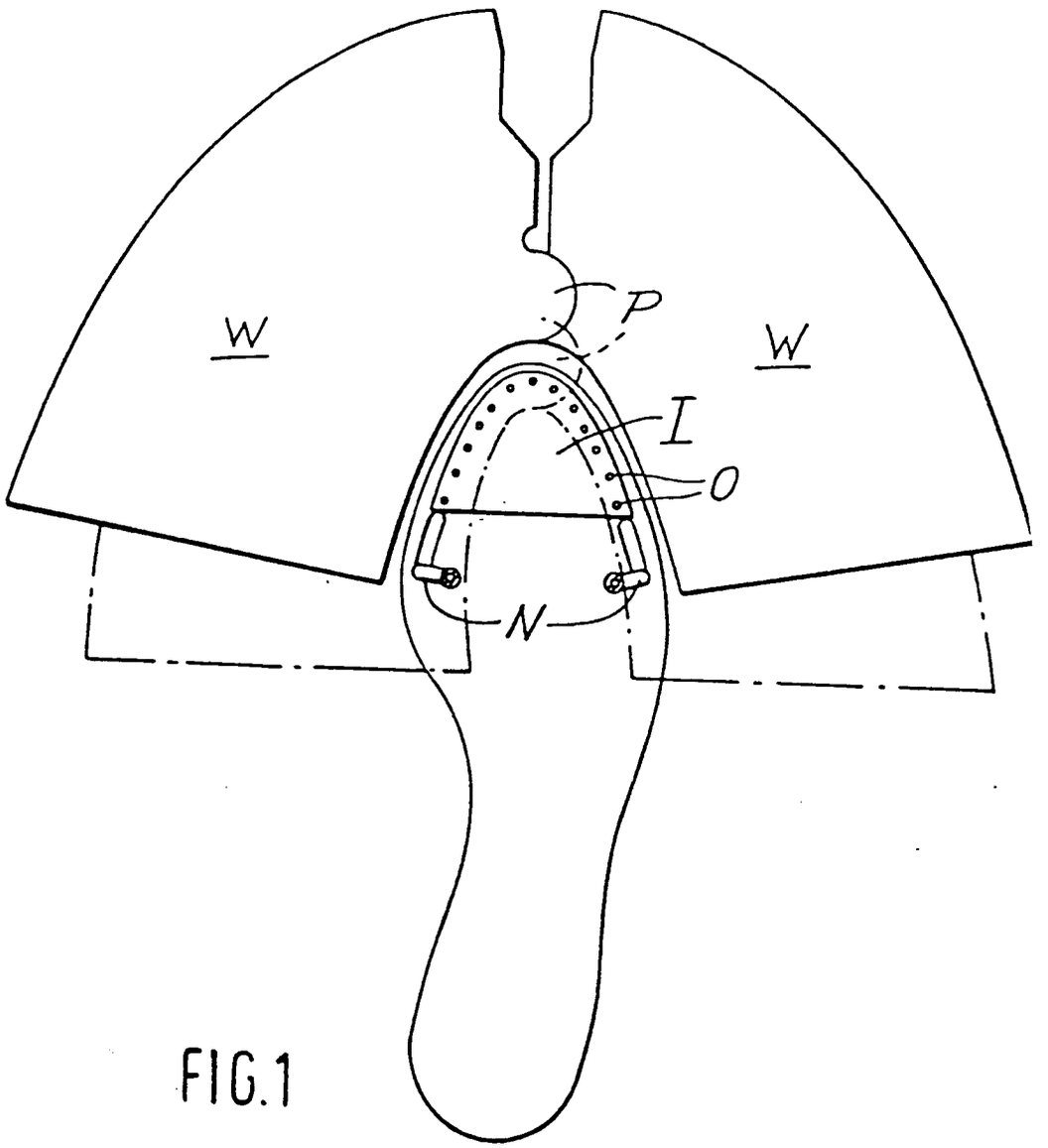

FIG.1

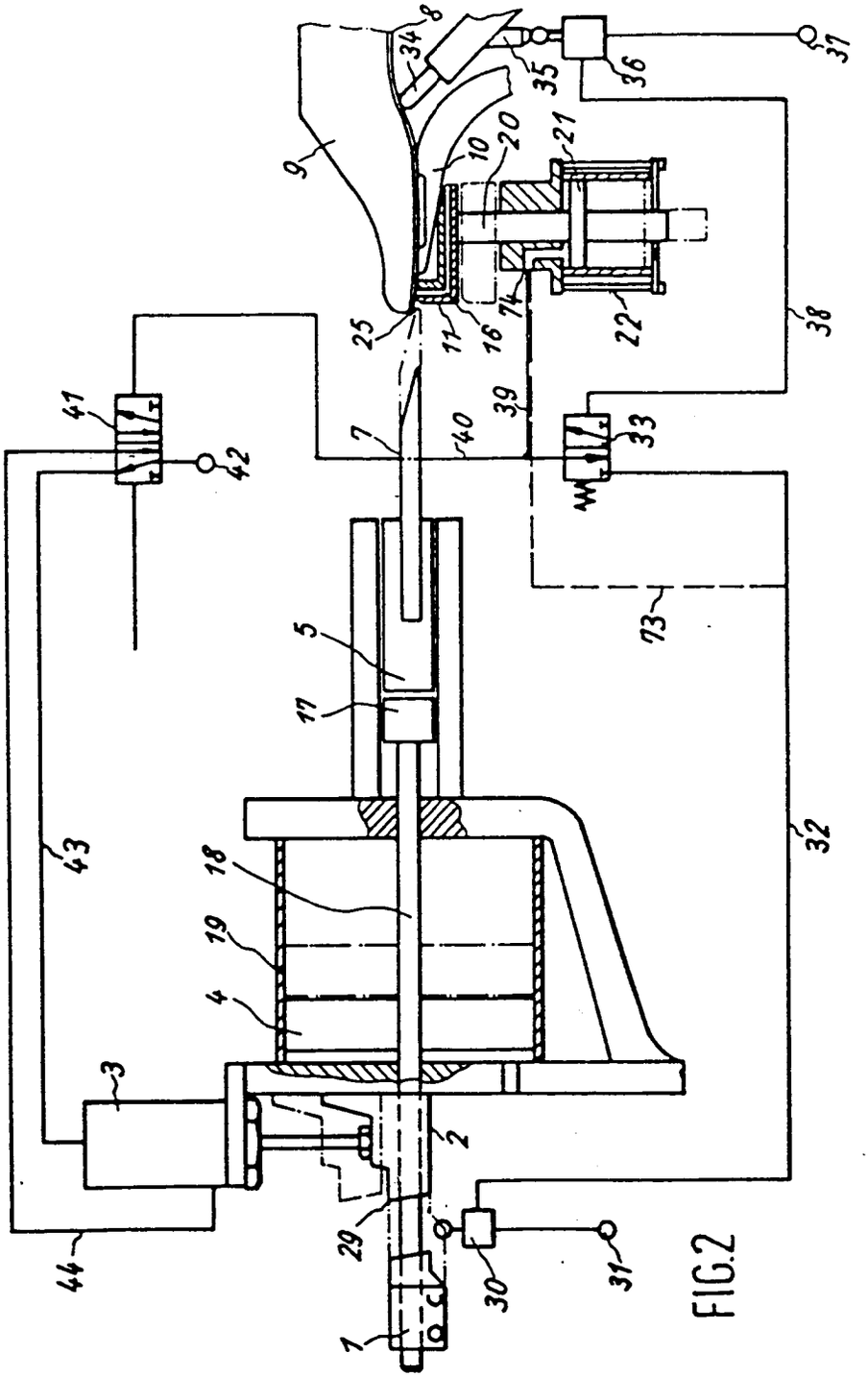
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FIG.2

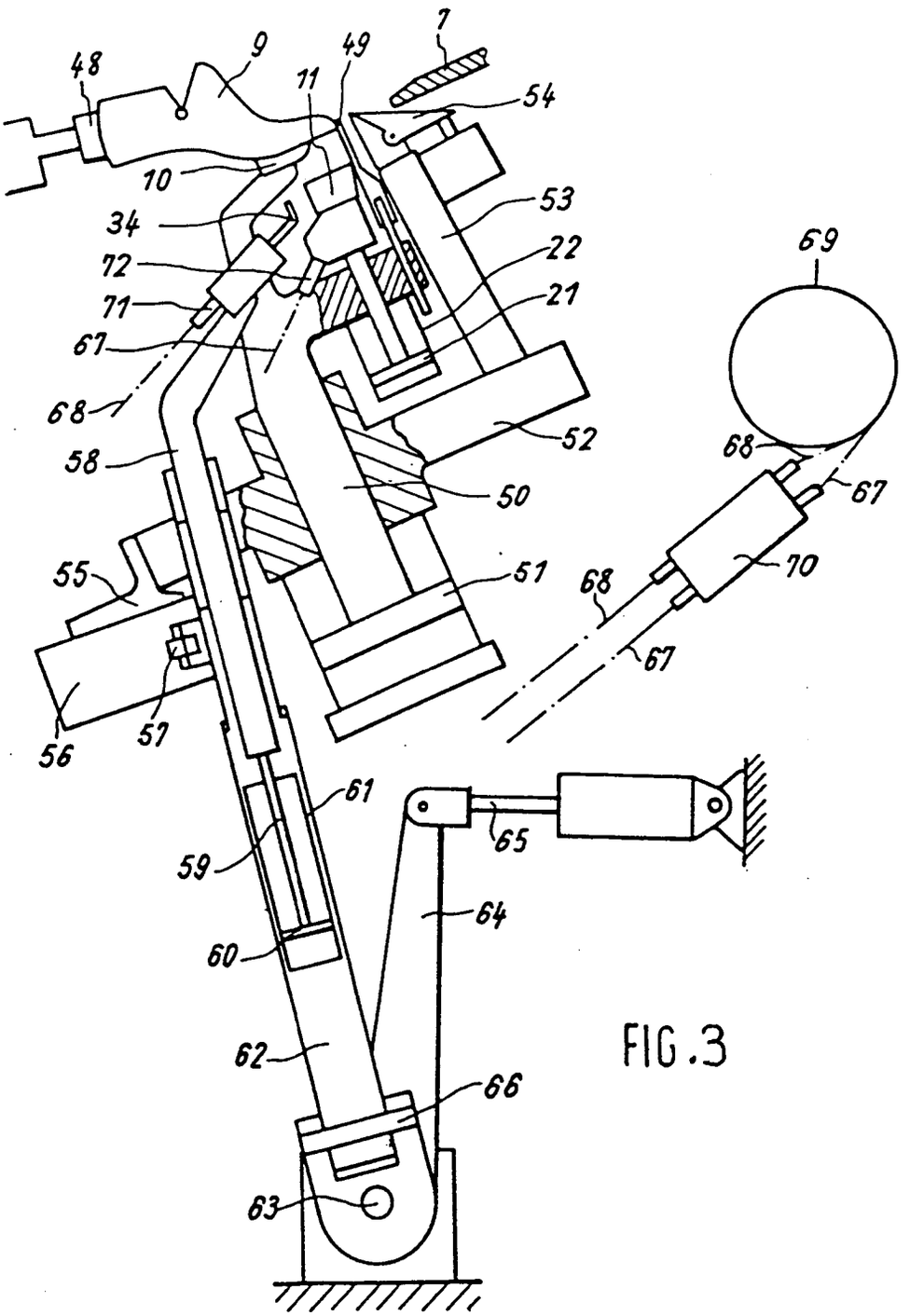
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FIG.3