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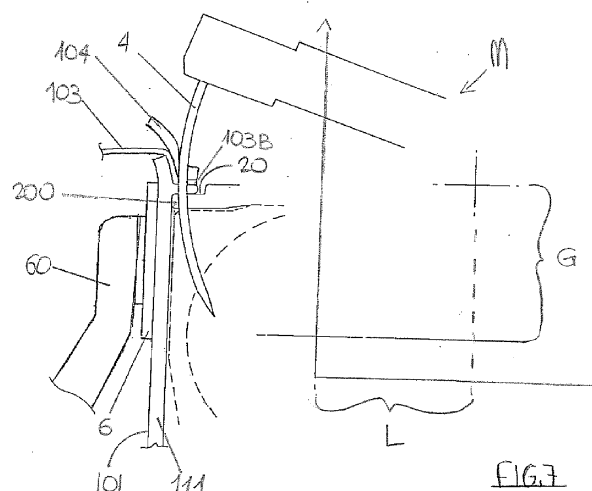
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(54) **A sewing machine for realising a semi-finished work-piece for a shoe**

(57) A sewing machine (M) for realising a semi-finished work-piece (100) for a shoe, the semi-finished work-piece (100) comprising: an underfoot insole (101) comprising: a body (111) and a border (102) fixed transversally to the body (111); an upper (103) and a welt (104); the insole (101), the upper (103) and the welt (104) being arranged such that the perimeter edge (103B) of the upper (103) is flanked to and interposed between the welt (104) and the border (102) of the insole (101); the machine (M) comprising: a curved needle (4), activatable along a curved trajectory such as to perform an outward run in a first oscillating direction (W), and a return run, in a second oscillating direction (Q), opposite the first oscillating direction (W); a rotary hook device (5), comprising an external part (50) and an internal part (51) activatable in rotation, arranged such as to receive the needle

(4) during the outward run thereof; translating means, able to translate the needle (4) and the rotary hooking device (5), in runs of a size equal to a predetermined step; an abutment (2), positionable transversally along the trajectory of the needle (4) and comprising: a surface (20) for abutting the side of the border (102) opposite the side thereof flanked to the perimeter edge (103B) of the upper (103); a through-hole, arranged in the surface (20) such as to enable transit of the needle (4) internally thereof. The rotary hook device (5) and the abutment (2) are arranged such as to enable the side of the border (102) abutted by the surface (20) to match the said surface (20). Further, the internal part (51) of the rotary hook device (5) is activatable in a rotation direction (V) equal to the first oscillating direction (W) of the needle (4).

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Description

DESCRIPTION OF THE INVENTION

[0001] The present invention concerns the technical sector relating to the realisation of shoes, with particular reference to those shoes known as the GOODYEAR type.

[0002] As is known, these shoes are particularly appreciated in that they are both comfortable and sturdy.

[0003] The process for realising a semi-finished workpiece for a GOODYEAR shoe includes various steps which for a long time have been carried out almost entirely manually.

[0004] As illustrated in figure 1, a semi-finished workpiece for a GOODYEAR shoe is substantially composed of: an underfoot insole 101, provided with a body 111 made of a flexible material, an upper 103 and a welt 104.

[0005] The insole 101 further comprises a border 102 (a sort of edge) which is perpendicularly fixed to the body 111 of the insole 101, which border 102 identifies a closed profile which follows the profile of the body 111 of the insole 101.

[0006] In particular, the border 102 is fixed to the body 111 so as to be at a certain distance from the perimeter thereof, and is applied on the face of the body 111 destined to be facing the ground, once the shoe obtained with the semi-finished workpiece is in use.

[0007] In substance, the operations for realising a semi-finished workpiece 100 for a GOODYEAR shoe consist in assembling the border 102 of the insole 101, the perimeter edge 103B of the upper 103 and the welt 104 with respect to one another.

[0008] During the assembly, the various elements (border, edge 103B of the upper 103 and the welt 104) must clearly be maintained flanked and aligned to one another: the manual procedure for this motive is particularly complex, and can be carried out only by very specialised personnel.

[0009] Publication EP2497384, in the name of the Applicant, discloses a sewing machine able to realise a semi-finished work-piece for a shoe of the GOODYEAR type which significantly reduces times and costs due to manual working.

[0010] A machine of this type substantially comprises (see figure 3, in which the known machine N is partially illustrated):

a curved needle 4, borne by an arm 3 activated in alternating oscillating motion, in such a way as to follow a curved trajectory during an outward run, in a first oscillating direction W, in which it is brought from a retracted position to an advanced position, and during a return run, in a second oscillating direction Q, opposite the first oscillating direction W, in which it is brought from the relative advanced position to the relative retracted position;

a device with a rotary hook 5, for cooperating with the curved needle 4 for realising sewing stitches of the semi-finished workpiece 100; the rotary hook 5 device comprises an external part 50 and an internal part 51 (rotary crotchet), activatable in a rotation direction R opposite the direction followed by the needle 4 of the outward run thereof;

translating means (not illustrated) for synchronously translating the curved needle 4 and the rotary hook device 5, with alternating motion, in runs of a predetermined step;

a plate (not visible in figure 3) for supporting the insole 101;

an abutment 2, arranged along the trajectory of the needle 4, transversally, for encountering the side of the border 102 opposite the one flanked to the border 103B of the upper 103 (see in particular figure 4), and provided with a through-hole for enabling transit of the needle 4 and the entry thereof in the rotary hook device 5.

[0011] The positioning heights and the sizing of the above parts are standard, and enable the illustrated machine N to realize a simultaneous sewing of the welt 104, the upper 103 and the border 102, which are passed through transversally in order by the curved needle 4.

[0012] In particular, the radius of the circumference with a centre in the oscillation axis of the needle 4 passing through the needle 4 (i.e. with an arc of circumference coinciding with the needle 4) is 65 millimetres.

[0013] Further, in a Cartesian system defined by a perpendicular plane to the oscillating axis of the needle 4 and by the rotation axis of the internal part 51 of the rotary hook device 5 (see figure 3), the distance between the rotation axis of the internal part 51 of the rotary hook device 5 and the oscillating axis of the needle 4 is comprised between 4 and 44 millimetres along the y-axis of the Cartesian system (distance indicated by G in figure 3), and 42.5 millimetres along the x-axis of the Cartesian system (distance indicated by L in figure 3).

[0014] In a best hypothesis of sewing, the needle 4, having reached the relative advanced position, must be in the situation indicated by A in figure 4. In other words, the needle 4 should involve the welt 104, the perimeter edge 103B of the upper 103 and the border 102 of the insole 101 in a position in proximity of the body 111 of the insole 101, without however directly interfering with the insole 101.

[0015] However, experience has taught that the above-described best possible situation is not always attained.

[0016] In fact, in practice, the needle 4, in the advanced position thereof, during the sewing, is in the situation indicated by B (in a broken line) in figure 4.

[0017] This is mainly due to the reciprocal positioning

between the rotary hook device 5, abutment 2 and needle 4, which does not enable the needle 4 to penetrate into the semi-finished workpiece 100 in the best way possible.

[0018] In fact this position, clearly visible in figure 3, necessarily requires that the body 111 of the insole 101 is arranged and maintained, during the sewing procedure, inclined with respect to a vertical reference axis passing through the rotation axis of the rotary hook device 5 (still with reference to figure 3).

[0019] In detail, as visible in figure 4, the side of the border 102 abutted by the abutment 2 is also inclined with respect to the surface 20 of the abutment 2.

[0020] It is clear that the sewing stitches obtained in situation B of figure 4 do not guarantee the optimal assembly of the semi-finished workpiece 100, which over time can lose the sturdiness that distinguishes a shoe of the GOODYEAR type.

[0021] The aim of the present invention is to obviate the drawback.

[0022] The aim is attained according to claim 1.

[0023] The machine proposed with the present invention advantageously enables optimal sewing of the semi-finished workpiece, guaranteeing that the shoe produced will have the sturdiness typical of GOODYEAR shoes.

[0024] Unlike the prior art, in fact, the machine proposed in the present invention enables the needle to penetrate the welt, the upper and the border in proximity of the body of the insole, without however interfering with the insole.

[0025] Specific embodiments of the invention and further details not specified in the foregoing will be set out in the following description, with the aid of the appended tables of drawings, in which:

- figure 1 illustrates a semi-finished workpiece (welt, upper and insole) for realising a shoe, in which the parts making it up have not been assembled;
- figure 2 is a larger-scale illustration of the section of the welt, obtained according to plane II-II of figure 1;
- figure 3 is a lateral view of a sewing machine of known type during the realisation of a semi-finished workpiece for a shoe, in which some parts have been removed better to evidence others;
- figure 4 illustrates two operating situation during the sewing with a machine of the prior art: an ideal situation (situation A) and a real situation (situation B);
- figure 5 illustrates a lateral view of a machine according to the invention during the realising of a semi-finished workpiece for a shoe;
- figure 6 is a perspective view of a machine according to the invention during the realising of a semi-finished workpiece in which the workpiece is only partially represented;

- figure 7 is a schematic illustration of a partial section of a machine according to the invention, along the work plane of the needle.

[0026] In the following description, for the same elements described in relation to the prior art the same numerical references have been used.

[0027] With reference to the enclosed figures (in particular figures 1 and 2), 100 denotes a semi-finished workpiece suitable for realizing a shoe, in particular a shoe of the GOODYEAR type.

[0028] The semi-finished workpiece 100 comprises an underfoot insole 101, in turn comprising a body 111 (usually made of a flexible material) having a longitudinal development and a border 102 fixed transversally to the body 111 (solidly constrained thereto). In particular, the border 102 defines a closed profile which follows the profile of the body 11 of the insole 101, and is fixed to the body 111 in such a way as to be at a certain distance from the perimeter edge thereof. The border 102 is further arranged on the face of the body 111 destined to be facing towards the ground, once the shoe obtained with the semi-finished workpiece 100 is in use.

[0029] The semi-finished workpiece 100 further comprises an upper 103 and a welt 104, the transversal section of which is illustrated in figure 2. Obviously the welt 104 has a longitudinal development at least equal to the perimeter of the body 111 of the insole 101 and the perimeter border 103B of the upper 103.

[0030] In detail, in order to proceed with the simultaneous sewing of the welt 104, the upper 103 and the insole 101, they are arranged in such a way that the perimeter edge 103B of the upper 103 is flanked to and interposed between the welt 104 and the border 102 of the insole 101. In particular, the above elements must be aligned to one another (see in particular figures 5 and 7).

[0031] The sewing machine M of the invention comprises: a curved needle 4, activatable along a curved trajectory such as to perform an outward run, in a first oscillating direction W, towards a sewing zone, and a return run, in a second oscillating direction Q opposite the first oscillating direction W.

[0032] The machine M further comprises a rotary hook device 5, comprising an external part 50 and an internal part 51 activatable in rotation (rotary crochet). The rotary hook device 5 is, arranged such as to at least internally partly receive the needle 4 during the outward run thereof, such as to cooperate with the needle 4 for realising sewing stitches in the semi-finished work-piece 100.

[0033] The machine M further comprises: translating means, able to synchronically translate the needle 4 and the rotary hooking device 5, with alternating motion, in runs of a size equal to a predetermined step (as will be more fully explained herein below); and an abutment 2, positionable transversally along the trajectory of the needle 4 and comprising: a surface 20 for abutting the side of the border 102 opposite the side thereof flanked to the perimeter edge 103B of the upper 103.

[0034] The abutment 2 further comprises a through-hole (not visible in the figures) arranged in the surface 20 such as to enable transit of the needle 4 internally thereof, such that the needle 4, during the outward run, can transversally penetrate the welt 104, the perimeter edge 103B of the upper 103 and the border 102, reaching via the through-hole into the rotary hook device 5.

[0035] In particular, the machine M of the invention is characterised in that the rotary hook device 5 and the abutment 2 (and therefore likewise the rotary hooking device 5 and the needle 4) are reciprocally arranged such as to enable the side of the border 102 abutted by the surface 20 to match the said surface 20.

[0036] Further, the internal part 51 of the rotary hook device (5) is activatable in a rotation direction (V) equal to the first oscillating direction (W) of the needle (4) (i.e. in a same direction of oscillation as the needle 4 during the relative outward run).

[0037] In other words, once the side of the border 102 is abutted by the surface 20, the border 102 is completely resting on the surface 20, i.e. in complete adhesion to the surface 20.

[0038] In the prior art, on the other hand, because of the reciprocal positioning between the rotary hook device and the abutment (and therefore between the rotary hook device and the needle), once the side of the border was abutted by the surface of the abutment, it was not completely resting thereon but, on the contrary, it was arranged inclined with respect to the surface (see figure 4).

[0039] For this reason it was necessary to maintain the body of the insole in an inclined position, with reference to figure 3, with respect to a vertical axis passing through the rotation axis of the rotary hook device. Consequently, the sewing of the semi-finished workpiece in the prior art was not done in an optimal way, precluding the sturdiness of the shoe made with the semi-finished workpiece.

[0040] Looking at figure 5, it can be seen how the machine M of the invention, thanks to the above-detailed specifications, is advantageously able to obviate the drawbacks in the prior art.

[0041] In fact, the body 111 of the insole 101 can be arranged vertically (with reference to figure 5), and the side of the border 102 opposite the one flanked to the edge 103B of the upper 103 matches (i.e. is in complete adhesion to) the surface 20 of the abutment 2.

[0042] In this way, the needle 4 penetrates the welt 104, the perimeter edge 103B of the upper 103 and the border 102, so as to be in proximity of the body 111 of the insole 101, without however interfering therewith.

[0043] Numerous experiments and general experience have led to establishing that the rotation direction V of the internal part 50 of the rotary hook device 5 should be the same as the first oscillation direction W of the needle 4, so as to realize sewing stitches in the best way possible.

[0044] The invention includes positioning the rotary hook device 5 with respect to the needle 4 differently from the prior art (in which only standard heights were referred

to).

[0045] The radius of the circumference with a centre in the oscillating axis of the needle 4 (i.e. with an arc of circumference coinciding with the needle 4) and passing through the needle 4 is 65 millimetres.

[0046] In this situation, in a Cartesian system defined by a perpendicular plane to the oscillating axis of the needle 4 and by the rotation axis of the internal part 51 of the rotary hook device 5 (with reference to figure 7), the distance between the rotation axis of the internal part 51 of the rotary hook device 5 and the oscillating axis of the needle 4 is comprised between 33.22 and 37.22 millimetres along the y-axis of the Cartesian system (distance denoted by G in figure 7), and between 32.36 and 36.36 millimetres along the x-axis of the Cartesian system (a distance denoted by L in figure 7).

[0047] In a preferred embodiment, the distance between the rotation axis of the internal part 51 of the rotary hook device 5 and the oscillating axis of the needle 4 is 35.22 millimetres along the y-axis of the Cartesian system and 34.36 millimetres along the x-axis of the Cartesian system.

[0048] With reference to the illustrated embodiment, the border 102 is perpendicular to the body 111.

[0049] In other cases (a variant that is not illustrated) the border 102 is obtained by making an oblique incision in the body of the insole, in more detail in the face thereof destined to be facing towards the bottom of the shoe when the shoe is being used.

[0050] In this way a flap is defined, in proximity of the edge of the body, which is rotated up to being arranged almost perpendicular to the longitudinal development of the body.

[0051] The needle 4 can be borne, for example, by an arm 3, part of the machine M, mobile in an alternating oscillating motion so that the needle 4 follows the above-mentioned trajectory in the relative outward and return runs. In the accompanying figures, the oscillation axis of the needle 4 coincides with the oscillation axis of the arm 3.

[0052] As regards the external part 50 of the rotary hook device 5, it constitutes a sort of support casing for the internal part 51. The internal part 51 comprises a rotary hook provided with a point and a shuttle which contains the bobbin (or reel) necessary for sewing the semi-finished workpiece.

[0053] In the illustrated embodiment, the abutment 2 is conformed such that an end 200 of the relative surface 20 thereof faces the body 111 of the insole 101 when the border 102 is abutted by the surface 20 (see figure 7). The plane perpendicular to the surface 20 of the abutment 2 passing through the end 200 is external to or tangential to the external part 50 of the rotary hook device 5. This specification is especially advantageous in the embodiment of the figures, in which the border 102 is perpendicular to the body 111.

[0054] Indeed, the insole 101 can be arranged in such a way that the body thereof is not obstructed by the ex-

ternal part 50 of the rotary hook device 5 (in other words, the external part 50 of the rotary hook device 5 does not interfere with the body 111 of the insole 101, once arranged as described above).

[0055] In the preferred embodiment of the invention, the machine M further comprises a plate 6, positionable in such a way that when the side of the border 102 is encountered by the abutment 2, it stabilizes the body 111 of the insole 101 during the sewing operations in cooperation with the abutment 2.

[0056] In particular, the plate 6 can be a circular plate and the machine M can comprise an arm 60 bearing the plate 6.

[0057] The arm 60 is mobile between a retracted position and an advanced position, so as to enable respectively the insertion of the body 111 of the insole 101 between the plate 6 and the abutment 2, and the contacting of the body 111 of the insole 101 by a part of the plate 6 so as to block it at least partially.

[0058] When the arm 60 is in the relative advanced position, the body 111 of the insole 101 is retained by the plate 6 and the abutment 2, and can slide between them.

[0059] In the illustrated embodiment of the figures, the machine M further comprises a guide element 7, comprising at least a substantially C-shaped portion, for supporting and guiding the welt 104 towards the sewing zone, where the needle 4 operates.

[0060] In particular, the welt 104 is arranged resting internally of the recess of the C-shaped portion; the C-shaped portion is conformed such as to enable the support and the sliding of the welt 104 at the same time.

[0061] In a preferred embodiment of the invention, the machine M comprises separating means 8, arranged upstream of the sewing zone and conformed such as to insert between the side of the border 102 flanked to the edge 103B of the upper 103 and the edge 103B of the upper 103 itself. In detail, the separating means 8 are arranged upstream of the sewing zone, so as to keep separate the portions of the border 102 and the border 103B of the upper 103 on which the needle 4 is still to operate.

[0062] The separating means 8 substantially comprise a mobile wall 80 (for example by means of a slide, not illustrated) between two positions, advanced and retracted, so as to enable a positioning of the elements to be sewn and thus arranged as mentioned in the foregoing.

[0063] For some models of upper 103 and insole 101, the development of the respective perimeters coincide; in this case, during the sewing step the same advancing of the welt 104, the upper 103 and the border 102 is included for each point P of the line of sewing to be realized.

[0064] For other models, the development of the perimeter of the upper 103, before the sewing, is greater than that of the insole 101; in the presence of this characteristic, the upper 103 has to be curled in the zone of the tip (i.e. in the zone which will constitute the tip of the

shoe), so as to gather in this greater development and obtain at the same time the cambering, or "sharpening" thereof.

[0065] For this reason, the machine M can comprise a curling device 9, for performing the above-described operation.

[0066] In this case, during the sewing step the advancement of the welt 104, upper 103 and border 102 for each sewing stitch which does not relate to the tip zone, while an increased advancement of the upper 103 is included, by a predetermined amount, with respect to the advancement of the welt 104 and border 102, for each sewing stitch to be made in the tip zone.

[0067] The process for realising the sewing of the semi-finished workpiece 100 will now be described in detail.

[0068] First, the contrast element 6 is brought into the retracted position thereof, to enable introduction of the body 111 of the underfoot insole 101, with the border 102 (perpendicular with respect to the body 111 of the figures) inserted between the abutment 2 and the separating means 8; thus the contrast element 6 is brought into the relative advanced position (i.e. into the relative working position) so as to contact the body 111 of the insole 101 and retain it between the insole 101 and the abutment 2 (see for example figure 7).

[0069] The upper 103 is then positioned, with the perimeter edge 103B thereof brought up to the border 102, at least in the sewing zone.

[0070] The end of the welt 104 is also arranged (supported by the guide element 7) at the sewing zone, positioned as already described with respect to the upper 103 and the border 102.

[0071] At this point the operator starts up the machine M and begins sewing, taking care to follow, with his or her hands, the advancement of the body 111 of the insole 101 and the upper 103, while the welt 104, once the first sewing stitch is realised, is automatically drawn, supported by the guide element 7.

[0072] For the realisation of a sewing stitch, the needle 4 is activated, by means of the aim 3, so as to perform the outward run thereof in the above-mentioned oscillation direction W.

[0073] After passing beyond the welt 104, the perimeter edge 103B of the upper 103 and the border 102 of the insole 101, the needle 4 engages the rotary hooking device 5 (thanks to the presence of the hole present in the abutment 2).

[0074] The rotary hooking device 5 rotates in the direction V so as to realise the sewing stitch (for example with two knotted threads).

[0075] The translating means move the needle 4 and simultaneously the rotary hook device 5 in a first translation in a first direction and a first translation direction, the move being equal in size to a predetermined step: this consequently determines the advancing of the semi-finished workpiece 100 downstream of the sewing zone.

[0076] Once the needle 4, activated to perform the relative return run, exits from the rotary hook device 5, it is

subjected to a second translation by the translating means, simultaneously with the rotary hook device 5. The second translation takes place in the same direction as the first direction, but in an opposite sense to the first translation, by an amount equal to the first step. In other words, the needle 4 and the rotary hook device 5 are brought into the start position so as to realize a further sewing stitch.

[0077] This process, clearly, proceeds until the semi-finished workpiece 100 has been completely assembled, i.e. until a closed line of sewing has been completed, involving the welt 104, the edge 103B of the upper 103 and the border 102 of the insole 101.

[0078] If the shoe model to be made required recuperating the greater development of the perimeter of the upper 103 with respect to the perimeter of underfoot insole 101, the operator activates the curling device 9 at the start of the curvature of the tip of the semi-finished workpiece 100 and deactivates it only at the end of the curvature.

[0079] Before the machine M realises the last sewing stitches, the operator commands the raising into an in-operative position of the separating means 8, so as to be able to close the sewing line.

[0080] After having cut the threads, the plate 6 is brought into the retracted position thereof, and the semi-finished workpiece extracted: the semi-finished workpiece is suitable for use for realizing a shoe of the GOOD-YEAR type.

Claims

1. A sewing machine (M) for realising a semi-finished work-piece (100) for a shoe, the semi-finished work-piece (100) comprising: an underfoot insole (101) comprising: a body (111) having a longitudinal development and a border (102) fixed transversally to the body (111), which border (102) defines a closed profile in proximity of the perimeter edge of the body (111); an upper (103) and a welt (104); the insole (101), the upper (103) and the welt (104) being arranged such that the perimeter edge (103B) of the upper (103) is flanked to and interposed between the welt (104) and the border (102) of the insole (101); the machine (M) comprising: a curved needle (4), activatable along a curved trajectory such as to perform an outward run, in a first oscillating direction (W), towards a sewing zone, and a return run, in a second oscillating direction (Q), opposite the first oscillating direction (W); a rotary hook device (5), comprising an external part (50) and an internal part (51) activatable in rotation, arranged such as to at least internally partly receive the needle (4) during the outward run thereof, such as to cooperate with the needle (4) for realising sewing stitches in the semi-finished work-piece (100); translating means, able to synchronically translate

the needle (4) and the rotary hooking device (5), with alternating motion, in runs of a size equal to a pre-determined step;

an abutment (2), positionable transversally along the trajectory of the needle (4) and comprising: a surface (20) for abutting the side of the border (102) opposite the side thereof flanked to the perimeter edge (103B) of the upper (103); a through-hole, arranged in the surface (20) such as to enable transit of the needle (4) internally thereof, such that the needle (4), during the outward run, can transversally penetrate the welt (104), the edge (103B) of the upper (103) and the border (102), reaching via the through-hole into the rotary hook device (5);

the sewing machine (M) being **characterised in that:**

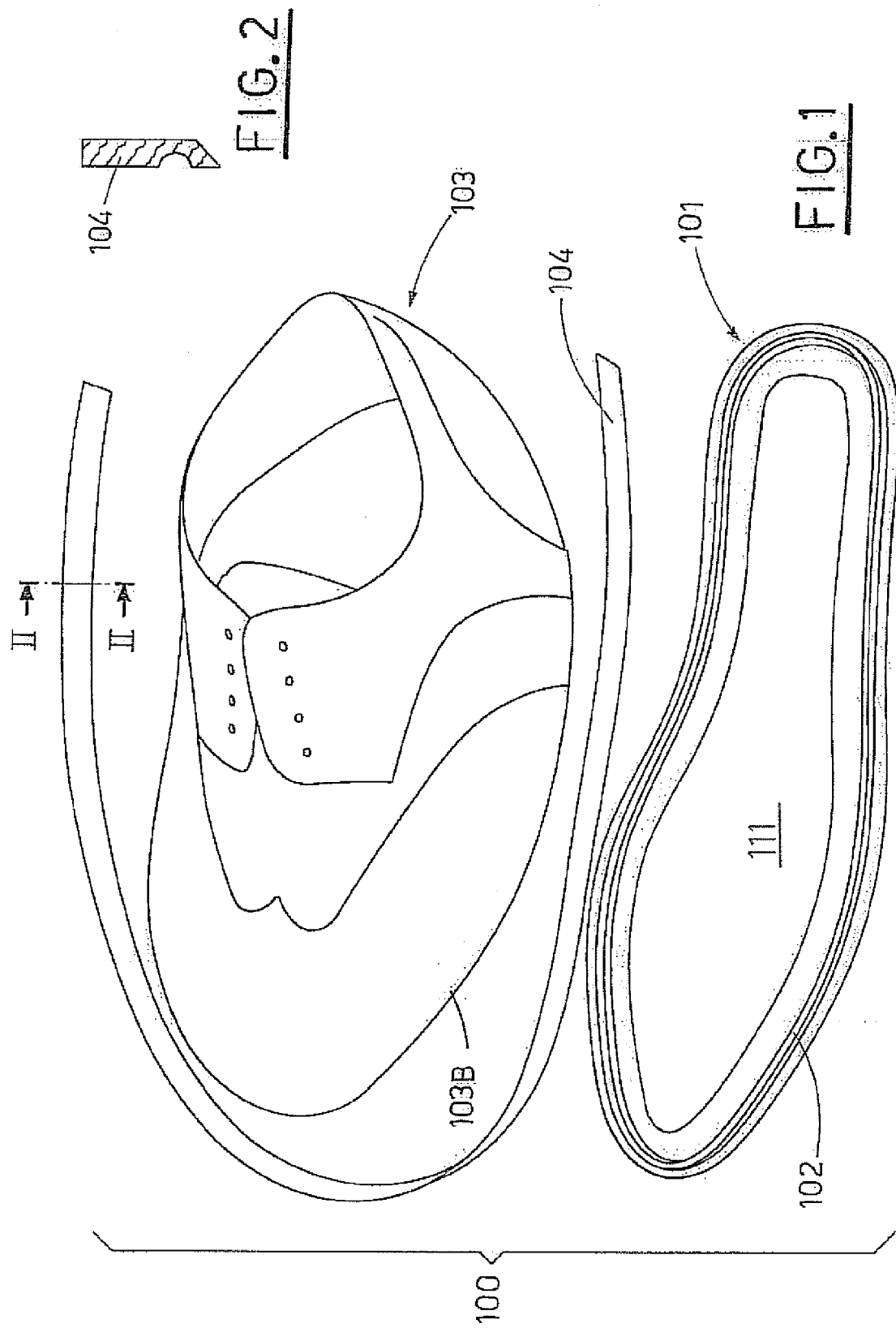
the rotary hook device (5) and the abutment (2) are reciprocally arranged such as to enable the side of the border (102) abutted by the surface (20) to match the said surface (20);

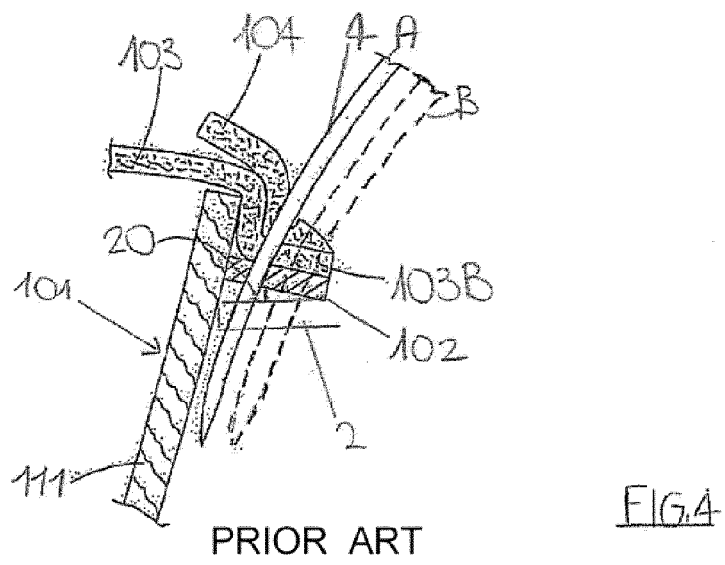
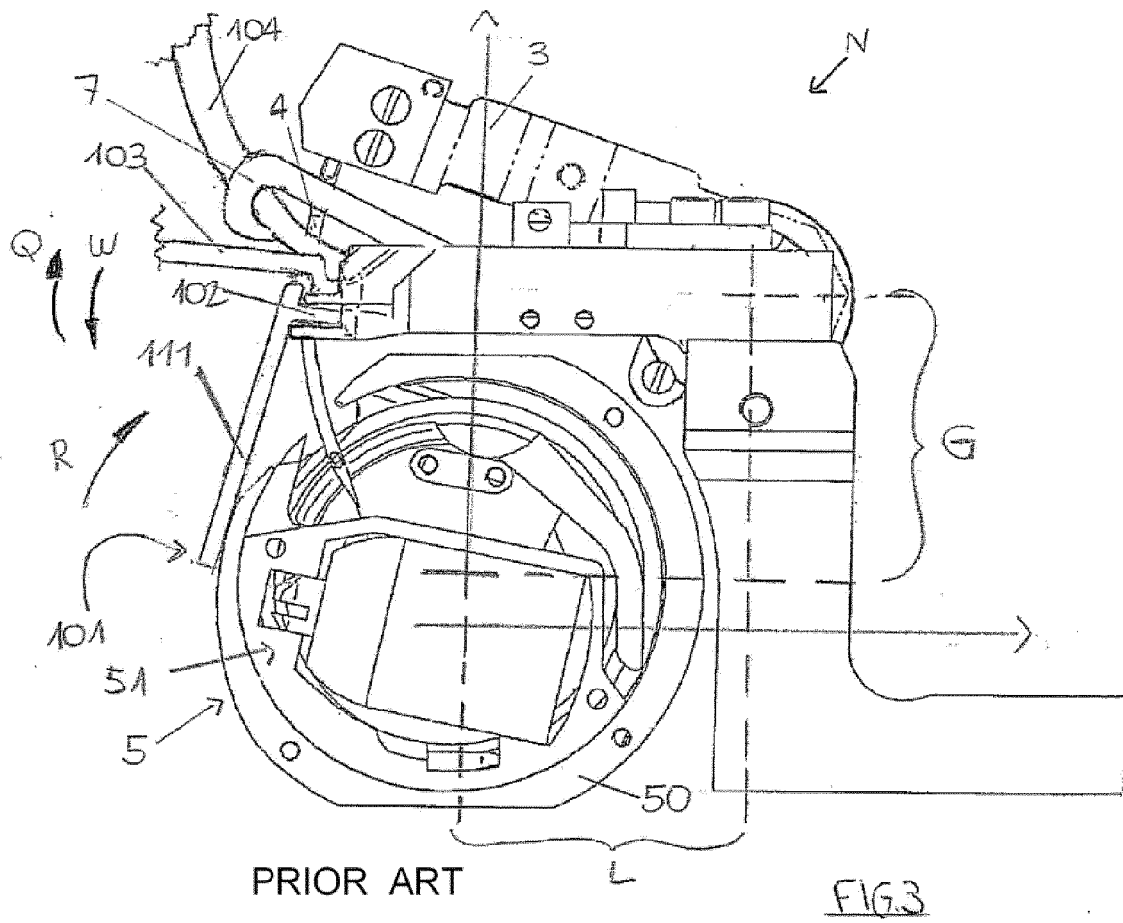
and in that:

the internal part (51) of the rotary hook device (5) is activatable in a rotation direction (V) equal to the first oscillating direction (W) of the needle (4).

2. The machine (M) of claim 1, wherein the abutment (2) is conformed such that an end (200) of the relative surface (20) thereof faces the body (111) of the insole (101) when the border (102) is abutted by the surface (20); and wherein the plane perpendicular to the surface (20) of the abutment (2) passing through the end (200) is external to or tangential to the external part (50) of the rotary hook device (5).
3. The machine (M) of claim 1 or 2, wherein the radius of the circumference with a centre in the oscillating axis of the needle (4) and passing through the needle (4) is 65 millimetres, and wherein, in a Cartesian system defined by a perpendicular plane to the oscillating axis of the needle (4) and by the rotation axis of the internal part (51) of the rotary hook device (5), the distance between the rotation axis of the internal part (51) of the rotary hook device (5) and the oscillating axis of the needle (4) is comprised between 33.22 and 37.22 millimetres along the y-axis of the Cartesian system, and between 32.36 and 36.36 millimetres along the x-axis of the Cartesian system.
4. The machine (M) of the preceding claim, wherein the distance between the rotation axis of the internal part (51) of the rotary hook device (5) and the oscillating axis of the needle (4) is 35.22 millimetres along the y-axis of the Cartesian system and 34.36 millimetres along the x-axis of the Cartesian system.

5. The machine (M) of any one of the preceding claims, further comprising a contrast element (6), positionable such that when the side of the border (102) is abutted by the surface (20), the contrast element (6) stabilises the body (111) of the insole (101) during the sewing operations, in cooperation with the abutment (2). 5
6. The machine (M) of the preceding claim, wherein the contrast element comprises a plate (6), and wherein the machine (M) further comprises an arm (60), which bears the plate (6) and which is mobile between two end positions, respectively retracted and extended. 10 15
7. The machine (M) of any one of the preceding claims, further comprising a guide element (7), comprising at least a substantially C-shaped portion, for supporting and guiding the welt (104) towards the sewing zone. 20
8. The machine (M) of any one of the preceding claims, comprising separating means (8), arranged upstream of the sewing zone and conformed such as to insert between the side of the border (102) flanked to the edge (103B) of the upper (103) and the edge (103B) of the upper (103) itself. 25 30 35 40 45 50 55





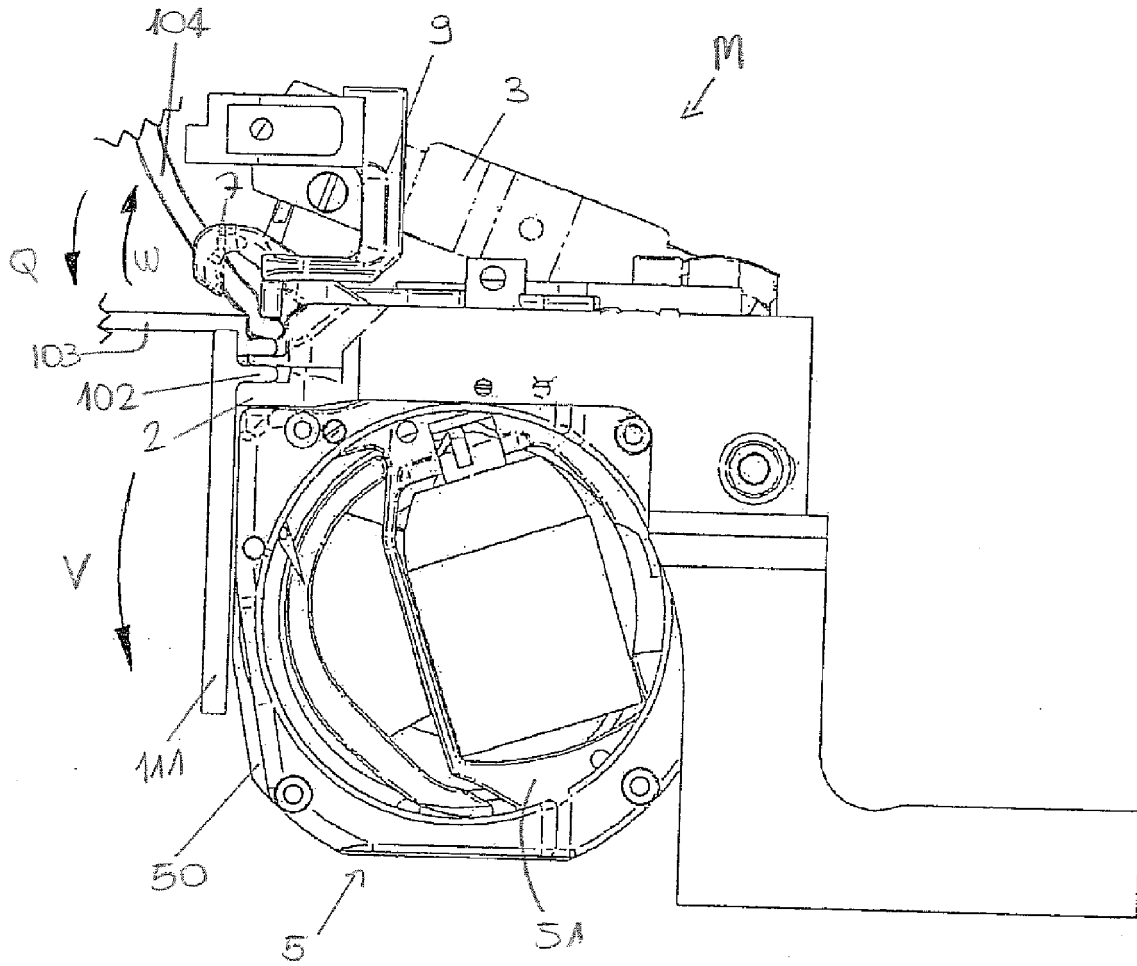


FIG. 5

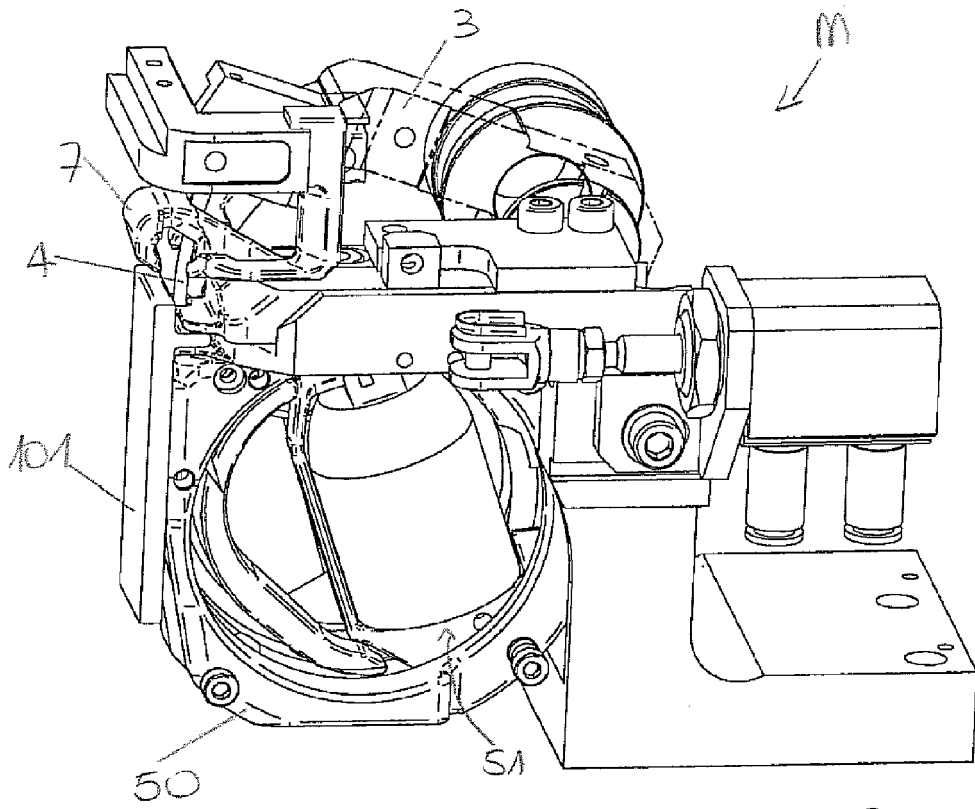


FIG. 6

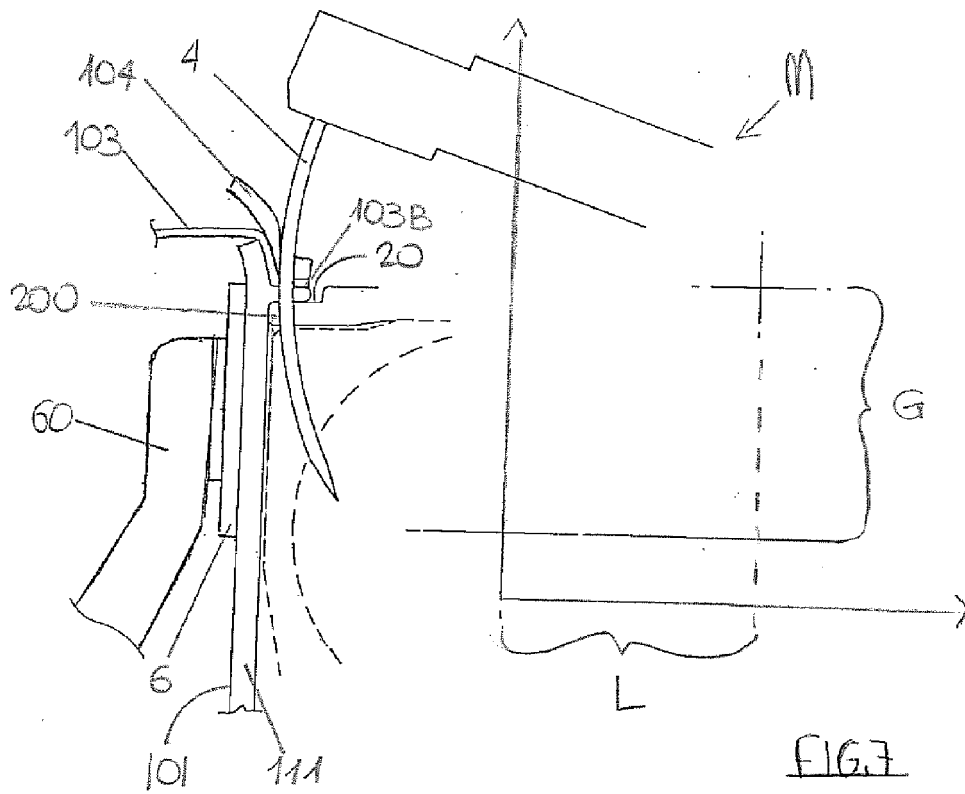


FIG. 7



EUROPEAN SEARCH REPORT

Application Number
EP 13 18 7641

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2 681 023 A (GEORGE CHENEY LEONARD) 15 June 1954 (1954-06-15) * column 2, line 37 - column 4, line 16; figures 1-3 *	1-8	INV. D05B15/06
A	US 2 562 810 A (MILOSLAV MUC) 31 July 1951 (1951-07-31) * column 2, line 23 - column 5, line 56; figures 1-4 *	1-8	
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Place of search Munich		Date of completion of the search 29 January 2014	Examiner Herry-Martin, D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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