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(54) **Method for producing a leather shoe upper that is adaptable to foot deformations**

Verfahren zur Herstellung eines Leder-Oberschuhs, der an Fußverformungen anpassbar ist

Procédé de production d'une partie supérieure de chaussure en cuir adaptable aux déformations du pied

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(73) Proprietor: **Gold Star S.r.l.**
47030 San Mauro Pascoli (IT)

(72) Inventor: **Montanari, Margherita**
48010 Fusignano (IT)

(74) Representative: **Statti, Francesco**
Isea S.R.L.
Via G. Carducci, 6
62012 Civitanova Marche (IT)

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Description

Field of the invention

[0001] The present invention relates to the footwear manufacturing sector, and more specifically consists in making a series of micro-cuts with a cutting die having small blades to adapt the part of the leather upper next to the wearer's foot deformation.

Background

[0002] Currently, people who have foot deformation problems (hallux valgus - commonly called "bunion"; hammer-toes, etc.) cannot wear normal shoes because it is necessary to insert elastic inserts at the rubbing points between the leather upper and the foot deformation to prevent pain and other discomforts for the wearer.

[0003] It follows that the current leather shoes for people with foot deformations are very expensive due to the use of technical materials and because they require a particular type of production process for the insertion of elastic inserts to be stitched onto the parts of the leather upper next to the foot deformation. Besides being highly visible and unsightly, the elastic inserts and their stitching are also the cause of irritation to, or laceration of, the wearer's foot.

[0004] In order to remedy the said problems, preference has currently been given to using uppers made of synthetic material that however have the disadvantage of being the cause of allergic reactions promoted by lack of foot breathability.

[0005] US 2004/261295 A1 shows a shoe production method for rendering a leather upper elastic and adaptable to foot deformations consisting in cutting the part of the leather upper subject to the foot deformation so that the cuts obtained on the required part of the leather upper due to their arrangement, length and distance, will allow the leather upper to become elastic over the affected part of the foot and adapt to the pressure of its deformation and to remain compact in the other parts of the upper.

[0006] It is an object of the present invention to fit people who have foot deformation problems (hallux valgus, commonly called "bunion"; hammer-toes, etc.) with a type of shoe with a leather upper that can be made elastic on the foot deformation part without having to resort to stitching on elastic inserts.

[0007] It is another object of the present invention to have a leather upper that allows foot breathability to prevent foot irritation and to increase the wearer's comfort.

[0008] It is a further object of the present invention to allow people who have foot deformation problems (hallux valgus, commonly called "bunion"; hammer-toes, etc.) to wear a shoe that is aesthetically identical to those made for the majority of consumers.

[0009] It is still another object of the present invention to allow people who have foot deformation problems to wear shoes with leather upper that are less expensive and with better characteristics than those known in the state of the art.

Disclosure of the invention

[0010] These and other objects are achieved with the present invention that concerns a method for producing the leather upper of a shoe for people who have foot deformation problems (hallux valgus, commonly called "bunion"; hammer-toes, etc.) that consists in cutting the leather upper with a cutting die having a series of small blades that produce a series of micro-cuts on the leather upper that are 4 mm long, 4 mm apart and form sequences staggered from each other by 4 mm, so as to render the leather upper elastic next to the foot deformation and compact in the other parts.

[0011] Further features and advantages of the invention will be more readily apparent from the description of a preferred, but not exclusive, embodiment of the production process that is the subject of the present patent application, illustrated by way of non-limiting example in the drawing units in which:

Fig. 1 is a perspective view of a cutting die (1) having a series of small blades (2);
Fig. 2 is an enlargement of a portion of the sequences of the small blades (2) with which the cutting die (1) is provided: the blades are 4 mm long, 4 mm apart and the sequences are staggered from each other by 4 mm;
Fig. 3 shows from above the inside of the upper (3) with the leather lining (4) before being subjected to the cuts of the cutting die (1);
Fig. 4 is a view from above of a fibrous cardboard model (6) that is used to position and centre a metal or plastic mask (5) on the area of the leather upper (3) next to the wearer's foot deformation;
Fig. 5 is a view from above of the metal or plastic mask (5) that has the function of marking the boundary of the area of the leather upper (3) next to the foot deformation that is to be cut by the small blades (2) of the cutting die (1);
Fig. 6 is a view from above of the cutting die (1) on which have been placed the upper (3) and the fibrous cardboard (6) laid on top of it with the metal or plastic mask (5) inserted, which is thicker than the fibrous cardboard model (6), before the cutting die is inserted in a plating machine or in a shearing machine (not shown) to commence the cutting operation;
Fig. 7 is a view from above of the leather upper (3) from the outside of it (4-bis) with the series of micro-cuts (9) in the part bounded by the positioning of the metal or plastic mask (5).

Detailed description

[0012] The invention that is the subject of the present application concerns a shoe production process for ren-

dering the leather upper (3) elastic and adaptable to foot deformations (hallux valgus, commonly called "bunion"; hammer-toes, etc.) that consists in cutting the part of the leather upper (3) subject to foot deformations with a cutting die (1) having a series of small blades (2), with sequences staggered from each other by 4 mm, that are 4 mm long and 4 mm apart, so that the micro-cuts (9) obtained on the required part of the leather upper (3), due to their arrangement, length and distance, will allow the upper to become elastic next to the affected part of the foot and adapt to the pressure of its deformation and to remain compact in the other parts of the upper (3).

[0013] The production process of the present invention involves:

- bonding the leather (4-bis) of the upper (3), by the known method, to a leather lining (4) [shown in the figures referred to above and in any case the said bonding is optional];
- using a metal or plastic mask (5) having the function of marking the boundary of the area of the leather upper (3), next to the foot deformation, to be cut;
- positioning the metal or plastic mask (5) on the part of the leather upper (3) to be cut, which takes place by positioning the mask inside a fibrous cardboard model (6);
- positioning the assembly of the leather upper (3), with the side of the leather lining (4), of the fibrous cardboard model (6) and of the metal or plastic mask (5) facing the blades (2) of the cutting die (1) in turn positioned on a plating machine or on a shearing machine (not shown);
- the pressure of the plating machine or the shearing machine (not shown) on the blades (2) of the cutting die (1) on which is positioned the assembly of the leather upper (3), the leather lining (4) (optional), the fibrous cardboard model (6) and the metal or plastic mask (5) that is thicker than the fibrous cardboard model, in such a way that the blades (2) of the cutting die (1) will come into contact only with the area of the upper (3) bounded by the mask (5), so making micro-cuts (9) only next to the wearer's foot deformation.

[0014] The details of the method as described above, illustrated in the accompanying drawings and later claimed, can be of any kind according to requirements and can be replaced with other technically equivalent ones, without for this reason straying from the protective scope of the present invention patent application.

Claims

1. Shoe production method for rendering a leather upper (3) elastic and adaptable to foot deformations (hallux valgus, hammer-toes, etc.) consisting in cutting the part of the leather upper (3) subject to the foot deformation with a cutting die (1) having a series of small blades (2) so that the micro-cuts (9) obtained on the required part of the leather upper (3) due to their arrangement, length and distance, will allow the leather upper (3) to become elastic over the affected part of the foot and adapt to the pressure of its deformation and to remain compact in the other parts of the upper (3), comprising the following stages:

   a) positioning, on a plating machine or on a shearing machine, of the cutting die (1);
   b) the leather (4-bis) of the leather upper (3) can be bonded, by the known method, to a leather lining (4);
   c) positioning of the leather upper (3) optionally bonded to a leather lining (4) facing the blades (2) of the cutting die (1);
   d) laying of a fibrous cardboard model (6) on top of the leather upper (3) bonded to a leather lining (4);
   e) laying of a metal or plastic mask (5) on top of the fibrous cardboard model (6);
   f) cutting, by means of a plating machine or a shearing machine, of the part of the leather upper (3) next to the mask (5).

2. Shoe production method for rendering a leather upper (3) elastic and adaptable to a foot deformation according to claim 1 wherein the cutting die (1) has a series of small blades (2) 4 mm long, 4 mm apart and forming sequences staggered from each other by 4 mm.

3. Shoe production method for rendering a leather upper (3) elastic and adaptable to a foot deformation according to claim 1 wherein the metal or plastic mask (5):

   • marks the boundary of the area of the leather upper (3) next to the foot deformation that must be cut by the small blades (2) of the cutting die (1);
   • is thicker than the fibrous cardboard model (6) so as to obtain micro-cuts (9) next to it only.

4. Shoe production method for rendering a leather upper (3) elastic and adaptable to a foot deformation according to claim 1 wherein the fibrous cardboard model (6) is used to position and centre the metal or plastic mask (5) on the area of the leather upper (3) next to the wearer's foot deformation.

Patentansprüche

1. Verfahren zur Herstellung von Schuhen, mit dessen Hilfe ein Leder-Oberschuh (3) geschaffen werden soll, der elastisch ist und sich Fußverformungen

(Hallux valgus, Hammerzehen, etc.) anpasst. Das Verfahren besteht darin, dass der Teil des Leder-Oberschuhs (3), der der Fußverformung ausgesetzt ist, mit einer Stanzform (1) geschnitten wird, die mit einer Reihe von kleinen Klingen (2) versehen ist, sodass die auf dem betroffenen Teil des Leder-Oberschuhs durchgeführten Mikroschnitte (9) aufgrund ihrer Anordnung und Länge sowie ihres Abstands es dem Leder-Oberschuh (3) ermöglichen, über dem betroffenen Teil des Fußes elastisch zu werden und sich dem Druck seiner Verformung anzupassen, während er an seinen anderen Teilen kompakt bleibt. Das Verfahren umfasst folgende Schritte:

a) Positionierung der Stanzform (1) auf einer Plattierungs- oder Schneidemaschine;
b) eventuelle Verleimung des Leders (4-bis) des Leder-Oberschuhs (3) mit einem Lederfutter (4) nach der bekannten Methode;
c) Positionierung des wahlweise an ein Lederfutter (4) geklebten Leder-Oberschuhs (3), sodass er den Klingen (2) der Stanzform (1) zugewandt ist;
d) Auflegen eines Modells aus Faserkarton (6) auf den an ein Lederfutter (4) geklebten Leder-Oberschuh (3);
e) Auflegen einer Schablone (5) aus Metall oder Kunststoff auf das Modell aus Faserkarton (6);
f) Schneiden des Teils des Leder-Oberschuhs (3), der sich an der Schablone (5) befindet, mittels einer Plattierungs- oder Schneidemaschine.

2. Verfahren für die Herstellung von Schuhen, mit dessen Hilfe ein Leder-Oberschuh (3) geschafften werden soll, der elastisch und anpassbar an eine Fußverformung ist, gemäß Patentanspruch 1, worin die Stanzform (1) über eine Reihe von kleinen Klingen (2) verfügt, die 4mm lang sind, 4mm auseinander liegen und Abfolgen bilden, die um 4mm voneinander versetzt sind.

3. Verfahren für die Herstellung von Schuhen, mit dessen Hilfe ein Leder-Oberschuh (3) geschaffen werden soll, der elastisch und anpassbar an eine Fußverformung ist, gemäß Patentanspruch 1, worin die Schablone (5) aus Metall oder Kunststoff

- die Grenzlinie des an der Fußverformung liegenden Bereichs des Leder-Oberschuhs (3) markiert, der durch die kleinen Klingen (2) der Stanzform (1) geschnitten werden soll;
- dicker als das Modell aus Faserkarton (6) ist, sodass die Mikroschnitte (9) ausschließlich neben der Schablone erzielt werden.

4. Verfahren für die Herstellung von Schuhen, dank dessen ein Leder-Oberschuh (3) geschaffen werden soll, der elastisch und an eine Fußverformung anpassbar ist, gemäß Patentanspruch 1, worin das Modell aus Faserkarton (6) verwendet wird, um die Schablone (5) aus Metall oder Kunststoff auf dem Bereich des Leder-Oberschuhs (3), der der Fußverformung des Trägers ausgesetzt ist, zu positionieren und zu zentrieren.

Revendications

1. Procédé de production de chaussure pour rendre la partie supérieure de chaussure en cuir (3) élastique et adaptable aux déformations du pied (hallux valgus, orteils en marteaux, etc.) consistant à couper une partie de la partie supérieure de chaussure en cuir (3) liée à la déformation du pied avec un outil de découpe (1) possédant une série de petites lames (2) afin que les microcoupures (9) obtenues sur la partie désirée de la partie supérieure de chaussure en cuir (3), selon leur position, longueur et espacement, permettent à la partie supérieure de chaussure en cuir (3) de devenir élastique sur la partie concernée du pied et de s'adapter à la pression de la déformation en restant compacte dans le reste de la partie supérieure de chaussure (3), en suivant les étapes ci-dessous:

a) positionnement, sur une machine de métallisation ou sur une machine à cisailler, de l'outil de découpe (1);
b) le cuir (4-bis) de la partie supérieure de chaussure en cuir (3) peut être collé, par la méthode habituelle, sur une doublure de cuir (4);
c) positionnement de la partie supérieure de chaussure en cuir (3), éventuellement collée sur une doublure de cuir (4), en face des lames (2) de l'outil de découpe (1);
d) positionnement d'un modèle en carton fibreux (6) au-dessus de la partie supérieure de chaussure en cuir (3) collée sur une doublure de cuir (4);
e) positionnement d'un masque en métal ou en plastique (5) au-dessus du modèle en carton fibreux (6);
f) coupe, au moyen de la machine de métallisation ou de la machine à cisailler, d'une partie de la partie supérieure de chaussure en cuir (3) près du masque (5).

2. Procédé de production de chaussure pour rendre une partie supérieure de chaussure en cuir (3) élastique et adaptable aux déformations du pied selon revendication 1 dans laquelle l'outil de découpe (1) possède une série de petites lames (2) de 4 mm de long, espacées de 4 mm et formant des séquences séparées entre elles de 4 mm.

3. Procédé de production de chaussure pour rendre une partie supérieure de chaussure en cuir (3) élastique et adaptable aux déformations du pied selon revendication 1 dans laquelle le masque en plastique ou en métal (5):

- marque la limite de la zone où la partie supérieure de chaussure en cuir (3) proche de la déformation du pied doit être coupée par les petites lames (2) de l'outil de découpe (1);
- est plus épais que le modèle en carton fibreux (6) afin que les microcoupures (9) soient réalisées uniquement près de lui.

4. Procédé de production de chaussure pour rendre une partie supérieure de chaussure en cuir (3) élastique et adaptable aux déformations du pied selon revendication 1 dans laquelle le modèle en carton fibreux (6) est utilisé pour positionner et centrer le masque en métal ou en plastique (5) sur la zone de la partie supérieure de chaussure en cuir (3) près de la déformation du pied du porteur.

Fig.1

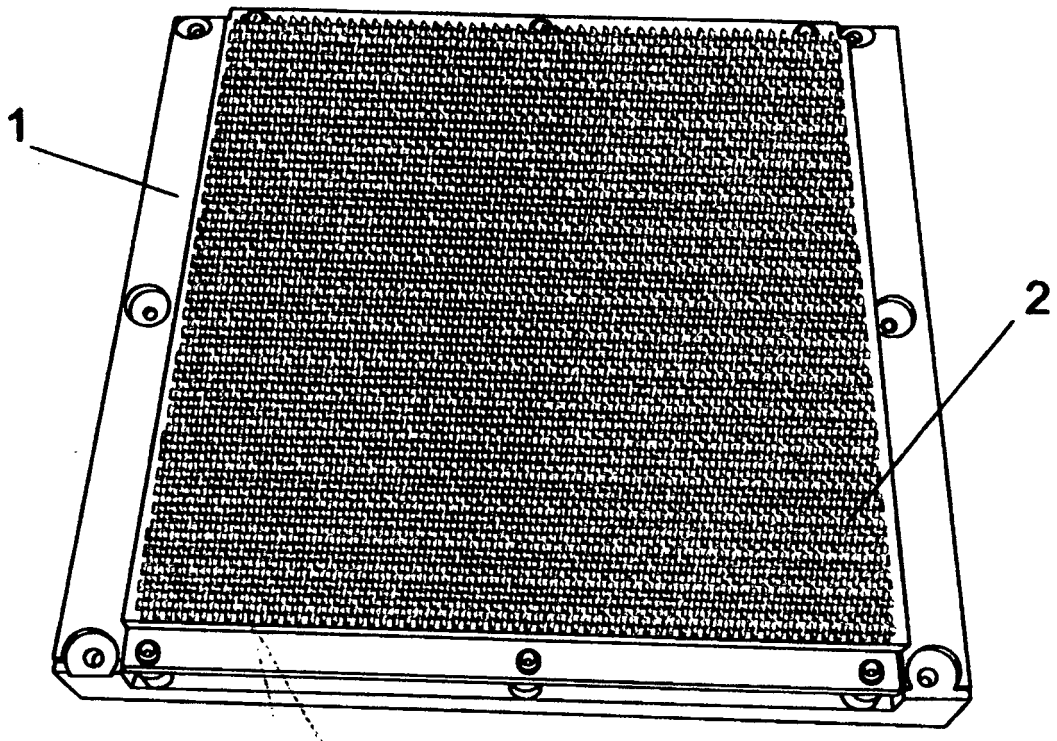


Fig.2

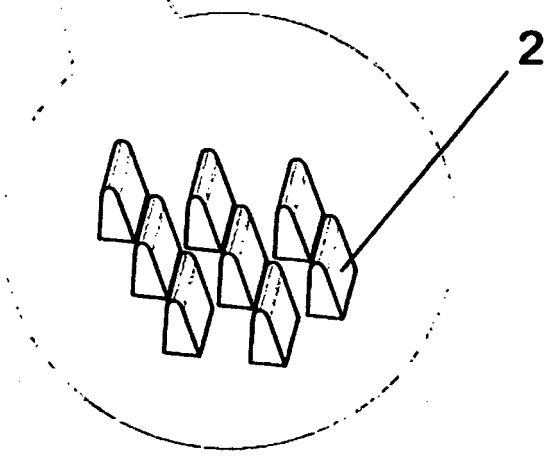


Fig.5

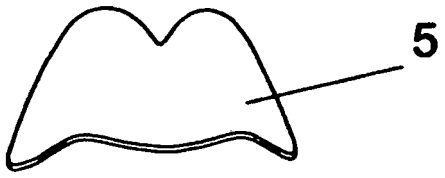


Fig.4

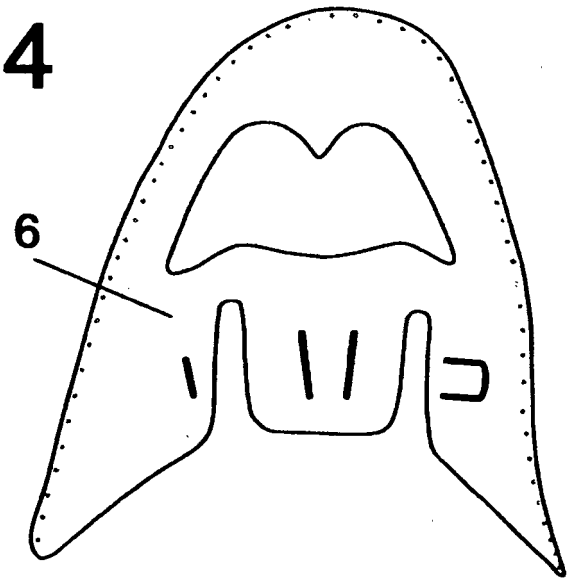


Fig.3

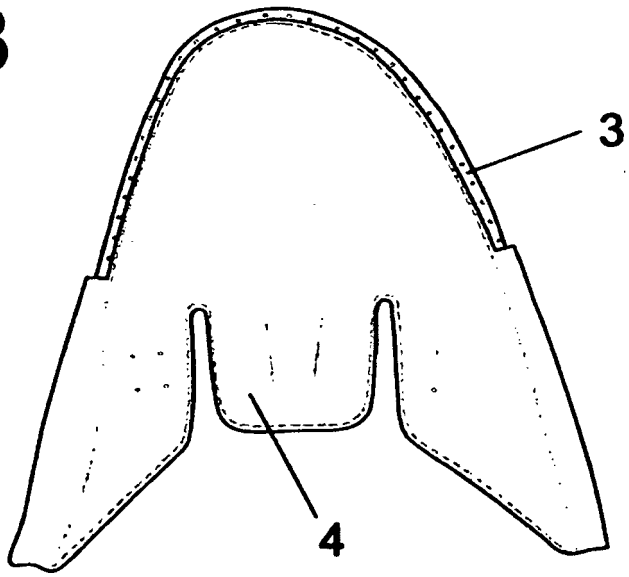


Fig.6

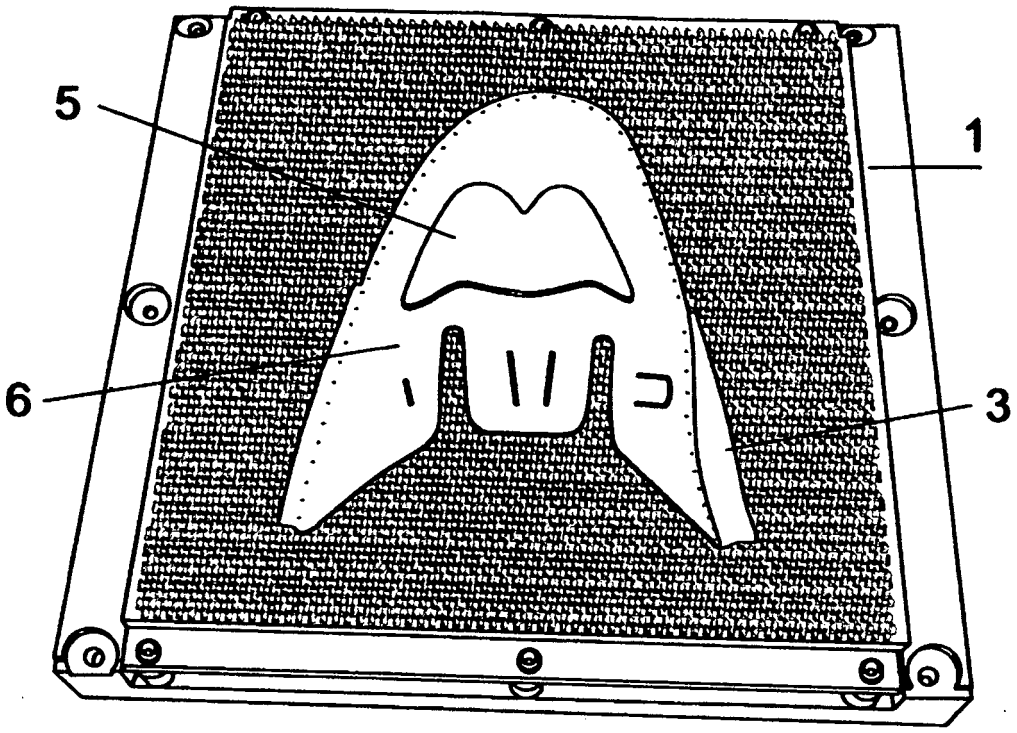
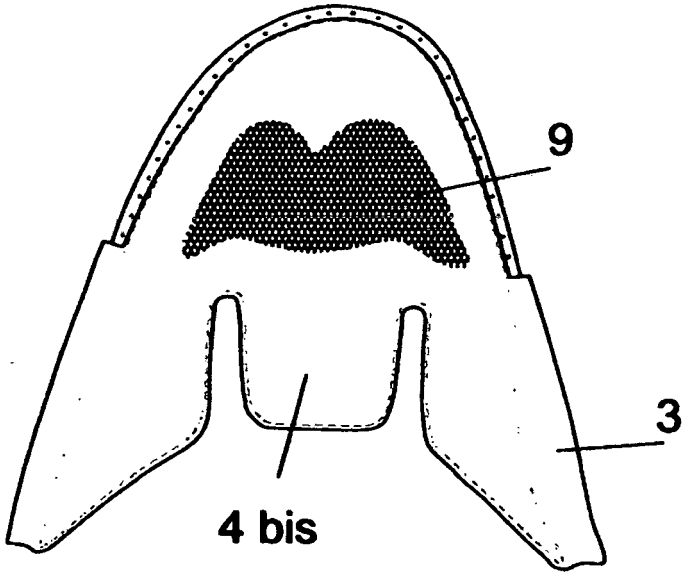


Fig.7



REFERENCES CITED IN THE DESCRIPTION

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