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(54) **PROTECTION DEVICE FOR HEELS**

SCHUTZVORRICHTUNG FÜR ABSÄTZE

DISPOSITIF DE PROTECTION POUR TALONS

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Description

[0001] The present disclosure generally refers to a protective device for a heel of a shoe, in particular for a heel of a women's shoe and to a method of protecting a heel of a shoe.

[0002] Heeled shoes, especially women's stiletto heel shoes, are very popular and widespread nowadays.

[0003] Traditionally, heels of women's shoes comprise an end portion and a connecting portion between said end portion and the heel portion of the shoe.

[0004] Generally, the end portion of the heel, that is the heel portion that in use during walking comes into contact with the ground, is made of rigid material, resistant to abrasion and impact. Furthermore, being this part of the heel the most stressed one, this end portion is often replaceable. Unlike the end portion, the connecting portion is often made with the same material and with the same finish as the rest of the shoe. It follows that this intermediate portion, or connecting portion, may be made of valuable material, such as for example leather, and of coloured material.

[0005] One of the main problems encountered in high-heeled shoes, particularly in shoes with a particularly thin heel, is the ease with which the heel portion of such shoes is damaged. Specifically, damage to the heel portion, and in particular to the connecting portion of the heel, can be very visible and can compromise the aesthetics and use of the entire shoe, since this intermediate portion, being fixed to the sole, it is generally not replaceable. In addition, being made with the same material and with the same finish as the rest of the shoe, repairs to the intermediate portion of the heel can be particularly expensive and ineffective. In fact, in the event of damage to the intermediate or connecting portion, it is generally possible to intervene through repair operations whose result, however, often differs from the original aesthetic appearance of the product.

[0006] In other words, following the damage, the damaged part will be aesthetically irreparably compromised.

[0007] Over the years, various protective devices for heels have been developed to overcome the aforementioned problems. However, these protective devices suffer from problems mainly related to the difficulty of installation, the inconvenience they cause in the normal use of the shoe, the fact that they alter the aesthetics of the heel or of the shoe, the fact that to remain integral with the heel they need gluey materials that at the time of removal they ruin the material of which the heel itself is made and the fact that they are often made of polluting materials that if dispersed in the environment can create environmental damage.

[0008] The document IT201700102101 discloses a protection device for a heel of a shoe according to the preamble of claim 1.

[0009] The present disclosure aims to provide a protection device for a heel of a shoe which allows to overcome the aforementioned drawbacks with reference to the known art and / or to achieve further advantages.

[0010] This is achieved through a protection device and a method as defined in the respective independent claims. Secondary characteristics and particular embodiments of the object of the present disclosure are defined in the corresponding claims.

[0011] The present disclosure starts from the need to provide a protection device for heels which is at the same time easy to install and to remove. Furthermore, advantageously, the heel protection device can also be made of biodegradable material and does not alter the comfort of use and the aesthetics of a shoe with a heel.

[0012] The protective device for a shoe heel according to the present disclosure comprises a tubular element configured to be placed onto the heel of a shoe and to adhere to it in a lasting and permanent way without additives or glues. In particular, the tubular element can be made of heat-shrinkable plastic or bioplastic material and is configured to shrink around the heel of a shoe following exposure to a heating agent at a temperature between 50 ° C and 90 ° C. Preferably, the material of the tubular element shrinks at a temperature between 50°C-70°C .

[0013] In other words, the protection device object of the present disclosure is an element in the shape of a tube or hollow cylinder which narrows or contracts, preferably in a radial direction, if exposed to a heat source.

[0014] It follows that the installation of the protective device on the heel of a shoe is particularly facilitated. In particular, the relatively low temperature at which the tubular element retracts makes it possible to install the protection device at home using common heating agents, such as for example a hair dryer.

[0015] According to an aspect of the present disclosure, the tubular element has a shrinkage ratio between 1.5: 1 and 3: 1, preferably 2: 1. For example, the size of the tubular element prior to exposure to the heating agent is twice that of the tubular element itself following shrinkage.

[0016] Advantageously, therefore, the protection device object of the present disclosure can be used with footwear having heels of different diameters.

[0017] According to a further aspect of the present disclosure, the tubular element has a wall thickness between 0.1 and 1.0 mm (before shrinking).

[0018] According to a preferred aspect of the present disclosure, the tubular element is transparent or substantially transparent or translucent. It follows that the use of the protection device according to the present disclosure can be configured so as not to alter the aesthetics of a shoe with a heel. But it can also be coloured, black, or fluorescent or having any other type of finishing depending on the style.

[0019] In fact, the tubular element may have an aspect capable of creating an aesthetic detachment with respect to the heel to which it is applied, to generate a temporary autonomous contribution to the aesthetics of the heel and consequently of the shoe, while maintaining the main purpose of protecting the heel portion for which the invention

is proposed.

[0020] According to a further aspect of the present disclosure, the tubular element comprises a main direction of development which, in use, is arranged substantially parallel to the main direction of development of the heel of a shoe.

[0021] According to one aspect, the tubular element preferably comprises at least one incision (or more longitudinal incisions in a row) which, suitably arranged, facilitates removal of the device once it needs to be replaced.

[0022] It follows that, advantageously, the removal of the protective device from the heel of a shoe is facilitated.

[0023] According to an aspect of the present disclosure, the tubular element is an element made of biodegradable material. Consequently, any dispersion of the protective device during use does not constitute a source of pollution and / or environmental risk.

[0024] According to one aspect, the tubular element comprises a filament, incorporated or applied in the tubular element itself and arranged along the main direction of development of the tubular element, which has greater breaking strength than the tubular element to tear or cut it when the filament is pulled.

[0025] The present disclosure further relates to a method for protecting the heel of a shoe. This method includes:

- a step of inserting a tubular element made of plastic or bio- plastic heat-shrinkable material of a protective device for a shoe heel on a heel of a shoe and
- a step of deforming the tubular element by heat-shrinking so that it adheres to the heel.

[0026] This step of deforming by heat-shrinking advantageously providing for heating the tubular element to a temperature between 50 ° C and 90 ° C by exposing the tubular element to a heating agent where exposure to this heating agent causes the tubular element to be restricted around the heel of the shoe.

[0027] In other words, according to the present invention, the material of the tubular element can be chosen in such a way that the tubular element shrinks when exposed to a temperature between 50° C and 90° C. That is, in such a way that this exposure causes the tubular element to contract, preferably in a radial direction, around a heel of a shoe.

[0028] In particular, this material will be chosen in such a way that this contraction determines the coupling between the protection device and the heel.

[0029] Advantageously, therefore, the installation of the protection device is particularly simplified and simply requires inserting the tubular element on a heel and heating said tubular element, for example by means of a hair dryer, so that the tubular element itself shrinks and adheres to the heel.

[0030] According to one aspect of the present disclosure, the tubular element comprises a main direction of development which, when the tubular element is applied to the heel of a shoe, is arranged substantially parallel to a development direction, or vertical direction, of the heel. Furthermore, the tubular element comprises at least one preferential breaking zone, for example an incision or a sequence of notches or a thinning, or a filament arranged along this main direction of development. The method comprises a further step of removing the protective device from a heel of a shoe, in which this removal step is carried out by tearing the tubular element in correspondence with at least this preferential breaking or incision zone.

[0031] The preferential breaking zone may comprise a plurality of incisions or notches which extend along the entire main direction of development of the tubular element, or a thinned zone.

[0032] This preferential breaking zone may comprise a thread-like or ribbon-like element incorporated or applied in the tubular element to guide its breaking.

[0033] Further advantages, characteristics and methods of use of the object of the present disclosure will become evident from the following detailed description of its embodiments, presented by way of non-limiting example.

[0034] It is however evident that each embodiment of the object of the present disclosure may have one or more of the advantages listed above; however, each embodiment is not required to simultaneously include all the listed advantages.

[0035] Reference will be made to the figures of the attached drawings, in which:

- Figure 1 represents a perspective view of a tubular element of a protective device for heels of a shoe according to the present disclosure;
- Figure 2 represents a view of a security device applied to a heel of a shoe;
- Figure 3 represents a variant of the tubular element of a protection device for heels of Figure 1.

[0036] With reference to the attached figures, an embodiment of a protective device for a heel of a shoe is indicated with the reference number 10.

[0037] In the context of the present disclosure, the expression "protective device" means a device configured to be arranged on, and coupled with, the heel of a shoe in order to protect the latter from damage such as abrasion, bumps, scratches and other.

[0038] According to one aspect of the present disclosure, the protection device 10 is constituted by a tubular element 1 configured to be slipped on, or coupled with, a heel of a shoe.

[0039] More specifically, the tubular element 1 extends along a main direction of development L which, in use, is configured to be arranged substantially parallel to a main direction of development, or vertical direction T, of a heel of a shoe.

[0040] Preferably, the tubular element 1 is an element that has a cavity A which extends along said main direc-

tion of development L. In other words, the tubular element 1 comprises a lateral surface 2 configured in such a way as to define a through cavity A inside said tubular element 1 along said main development direction L. In other words, the configuration of the tubular element 1 is such that it is possible to slide a heel 11 of a shoe, for example a stiletto heel, within the through cavity of the tubular element 1 itself.

[0041] Preferably, the thickness of the tubular element 1, and in particular the thickness of the lateral surface 2 of the tubular element 1, is comprised between 0.1 mm and 1.0 mm (before retraction).

[0042] Preferably, moreover, the diameter of the tubular element 1 may vary from 0.9 cm to 3.5 cm.

[0043] The tubular element 1 is preferably cylindrical. Other suitable shapes for passing a heel 11 of a shoe within the through cavity of the tubular element 1 are possible. For example, this tubular element 1 can also have a parallelepiped or cone shape.

[0044] Furthermore, according to one aspect of the present disclosure, the tubular element 1 is made of heat-shrinkable plastic or bio-plastic material. In other words, the tubular element 1 is made in such a way that exposure to a heat source causes the shrinkage, or contraction, of the tubular element 1 itself.

[0045] Preferably, this shrinkage or contraction occurs following an exposure of the tubular element 1 to a heating agent at a temperature between 50° C and 90° C, more preferably between 55° C and 75° C.

[0046] This exposure, as mentioned, causes a shrinking, or contraction, or a size reduction, of the tubular element 1. Preferably, this shrinking occurs in the radial direction, preferably exclusively in the radial direction. In other words, according to a preferred aspect, the tubular element 1 shrinks in a direction perpendicular to the main direction of development L.

[0047] According to a preferred aspect of the present disclosure, the shrinkage ratio of the tubular element is between 1.5: 1 and 3: 1, and is preferably 2: 1. In the context of the present disclosure, by "shrinkage ratio" is meant the difference between the size of the tubular element 1 before exposure to the heating agent and the size of the tubular element 1 following exposure to the heating agent. Preferably, the shrinkage ratio is the ratio between the size of the diameter of the tubular element 1 before exposure to the heat source and following exposure to the heat source.

[0048] Preferably, the tubular element 1 of the protection device 10 is made of plastic or bio-plastic material which, in addition to being heat-shrinkable, is resistant to abrasion and impact.

[0049] Even more preferably the tubular element 1 is made of polymeric materials with biaxial orientation.

[0050] For example, polymers obtained from fossil sources can be used, such as polyolefins (PE (BOPE), PP (BOPP), PS (BOPS)), vinyl polymers (PVC, PVAc , EVOH, EVA), polyesters (PET or BOPET) or polyamides (PA or BOPA, especially Ny6-based), which have the advantage of being very resistant.

[0051] However, biopolymers obtained partially or totally from renewable sources are preferably used, such as some polyolefins (bio -PE or bio -PP), some polyesters (bio - PET, PLA or BOPLA, PEF, PHB, PBAT, PBS, PBSA) or some cellulose derivatives (cellulose acetate CA, cellulose acetate propionate CAP, cellulose acetate butyrate CAB), or any other plastic or bio-plastic material that shrinks at relatively low temperatures (50-90° C).

[0052] In this way, the installation of the protection device on a heel 11 of a shoe is particularly simplified. In fact, to place the heel protection device 10 on a heel 11 of a shoe it is sufficient to place the tubular element 1 around the heel 11 of a shoe, or to insert the heel 11 into the tubular element 1, and subsequently to heat said element tubular 1 at a temperature between 50° C and 90° C in such a way as to cause a shrinkage, or a decrease in the radial dimension, of the tubular element 1 which in turn determines the coupling between the protection device 10 and the heel 11 of the shoe.

[0053] In other words, the tubular element 1 of the protection device is made of plastic or bioplastic material which, once inserted on a heel 11 of a shoe and exposed to a heat source, shrinks around the heel 11 itself so as to adhere to it and remain autonomously integral with the heel 11 itself. In other words again, once the tubular element 1 narrows around a heel 11 of a shoe following exposure to the heat source, it remains in position without the aid of further attachment means. Advantageously, therefore, it is not necessary to use adhesives which could damage the shoe itself upon removal of the same protection device.

[0054] Furthermore, according to a further preferred aspect of the present disclosure, the tubular element 1 can also be made of biodegradable material. It follows that an eventual detachment of the protective device 10 from a heel 11 of a shoe during normal use and the consequent possible dispersion of the protective device 10 in the environment do not constitute a cause of environmental pollution.

[0055] According to one aspect, shown in Figure 1, the tubular element 1 preferably further comprises at least one incision 3 or, more generally, a preferential breaking zone, arranged along the lateral surface 2, for example according to the main direction of development L of the tubular element 1. According to one aspect, the tubular element 1 comprises a plurality of incisions 3 which preferably extend for the entire length of the main development dimension L.

[0056] Advantageously, this at least one incision 3 facilitates the removal of the heel protection device 10. In fact, in the event that an end user wishes to remove the protection device 10 from a heel 11 of a shoe, the at least one incision 3 of the tubular element 1 facilitates the breaking of the tubular element 1 itself along the main direction of development L.

[0057] Each preferential breaking zone may be defined by or comprise a thread-like or ribbon-like element, or

filament, incorporated or applied in the tubular element which, with reference to Figure 1, may extend along the dotted line identified with reference 3.

[0058] The thread-like or ribbon-like element, or filament, advantageously will have a greater breaking strength than the tubular element 1, so as to be used to tear or cut the latter.

[0059] The thread-like or ribbon-like element, or filament, will be arranged in the tubular element in such a way that its pulling determines the cutting or tearing of the tubular element 1 where this is affected by the presence of the thread-like or ribbon-like element itself.

[0060] The thread-like element or ribbon-like, or filament, preferably will be made of transparent material and advantageously will be inserted into the device in order to make the removal of the device effective and easy.

[0061] According to one aspect, the thread-like or ribbon-like element, or filament, will be made of a material having greater tensile strength than the material of which the tubular element 1 is composed.

[0062] According to one aspect, the thread-like or ribbon-like element, or filament, will be made of the same material of which the tubular element 1 is composed but will have a greater thickness so as to be able to tear the tubular element 1 without breaking when it is pulled.

[0063] According to a preferred aspect of the present disclosure, the tubular element 1 is transparent or substantially transparent or translucent. As a result, the installation of the protection device 10 for heels does not alter the aesthetics of a shoe with a heel, however it can also be black or of any other colour, according to contingent requirements of the present invention.

[0064] According to a preferred aspect of the present disclosure, the tubular element 1 is also coloured or black. As a result, it can also be used to aesthetically embellish the heel portion and not only to protect it from scratches and abrasions.

[0065] The present disclosure has as a further object a method for protecting a heel 11 of a shoe.

[0066] In describing this process, the elements of the protection device 10 involved in the method and having the same function and the same structure as the elements previously described bear the same reference number and are not again described in detail.

[0067] Specifically, the method involves placing the tubular element 1 made of thermo-retractable plastic material or bio-plastic material around a heel 11 of a shoe and to heat the tubular element 1 at a temperature comprised between 50° C and 90° C exposing the tubular element 1 itself to a heating agent. This exposure causes the tubular element 1 to shrink around the heel 11 of the shoe and remain firmly anchored, or attached to, or associated with, the heel 11 itself without the aid of further connection or fastening means.

[0068] According to a further preferred aspect of the present disclosure, the method further comprises a step of removing the protective device 10 from a heel 11 of a shoe. Such removal is preferably carried out by tearing the tubular element 1 in correspondence with the at least one preferential tear area or incision 3, or filament for removal.

[0069] Advantageously, therefore, the installation and subsequent possible removal of a protective device for a heel 11 of a shoe is particularly simplified.

[0070] With particular reference to Figure 3, in a possible variant embodiment of the present invention, the tubular element 1 may be shaped as a heel 11.

[0071] The sizes of the tubular element 1 will be advantageously increased with respect to those of the heel 11 to which it is intended to be applied, in order to facilitate the insertion of the latter into the tubular element 1 itself.

[0072] Clearly, these sizes will be chosen in such a way as to ensure adequate adhesion of the tubular element 1 to the heel 11 by heat-shrinking.

[0073] The object of the present disclosure has been described up to now with reference to its embodiments. It is to be understood that other embodiments may exist which pertain to the same inventive core, all falling within the protection scope of the claims set out below.

Claims

1. Protection device (10) for a heel (11) of a shoe, wherein said protection device (10) comprises a tubular element (1) configured to be inserted on, and coupled with, a heel (11) of a shoe, wherein the tubular element (1) is a heat-shrinkable plastic or bioplastic element configured to shrink around a heel (11) of a shoe following exposure to a heating agent at a temperature ranging from 50°C to 90°C, wherein the tubular element (1) comprises a main development direction (L), and is configured in such a way that, following coupling said tubular element (1) with a heel (11) the main development direction (L) is arranged substantially parallel to a main development direction, or vertical direction (T), of a heel (11) of a shoe and wherein the tubular element (1) comprises at least one preferential rupture zone along said main development direction (L), **characterized in that** the tubular element (1) comprises a filament incorporated or applied in the tubular element (1) and arranged along this main development direction (L), said filament having a greater resistance to breaking than the tubular element (1) for breaking or cutting the tubular element (1) along said preferential rupture zone when pulled.

2. Protection device (10) according to claim 1, wherein the tubular element (1) shrink around a heel (11) of a shoe following an exposure to a heating agent at a temperature of preferably 70°C.

3. Protection device (10) according to claim 1 or 2, wherein the tubular element (1) has a shrinking ratio comprised between 1.5:1 and 3:1, preferably of 2:1.

4. Protection device (10) according to any one of the preceding claims, wherein the tubular element (1) has a thickness comprised between 0.1 and 1.0 mm.

5. Protection device (10) according to any one of the preceding claims, wherein the tubular element (1) is transparent or substantially transparent or translucent.

6. Protection device (10) according to any one of the preceding claims, wherein the tubular element (1) is coloured with any colour or nuance.

7. Protection device (10) according to any one of the preceding claims, wherein said preferential rupture zone comprises an incision (3) or a series of incisions.

8. Protection device (10) according to any one of the preceding claims, wherein said preferential rupture zone comprises said filament that makes easier to remove the protection device.

9. Protection device (10) according to anyone of the preceding claims, wherein the tubular element (1) is made of biodegradable material.

10. Protection device (10) according to any one of the preceding claims, wherein the tubular element (1) is made of a thermo-retractable material.

11. Method for protecting a heel (11) of a shoe, said method comprising the steps of:

    - providing a protection device (10) according to one of the claims 1 to 10;
    - insert in a heel (11) of a shoe a tubular element (1) made of heat-shrinkable plastic or bio-plastic material of the protection device (10);
    - heating the tubular element (1) to a temperature between 50°C and 90°C by exposing said tubular element (1) to a heating agent so that the tubular element (1) itself shrinks around the heel (11) of the shoe.

12. Method according to the preceding claim, wherein the tubular element (1) comprises at least one preferential rupture zone; the method comprising the further step of removing the protection device (10) from the heel (11) pulling the filament incorporated or applied into the tubular element (1) for breaking or cutting the tubular element (1) along said preferential breaking zone.

13. Method according to claim 11, wherein the tubular element (1) comprises at least one preferential breaking zone comprising an incision (3) or a series of incisions; the method comprising the further phase of removing the protection device (10) from the heel (11) using said incision (3) or said series of incisions.

Patentansprüche

1. Schutzvorrichtung (10) für einen Absatz (1) eines Schuhs, wobei die besagte Schutzvorrichtung (10) ein röhrenförmiges Element (1) umfasst, das dazu ausgelegt ist, auf einen Absatz (11) eines Schuhs aufgesteckt zu werden und damit gekoppelt zu werden, wobei das röhrenförmige Element (1) ein Element aus einem durch Wärme schrumpfbaren Kunststoff oder Bio-Kunststoff ist, welches dazu ausgelegt ist, um einen Absatz (11) eines Schuhs zu schrumpfen, nachdem es einem Heizmittel bei einer Temperatur aus einem Bereich von 50 °C bis 90 °C ausgesetzt wurde, wobei das röhrenförmige Element (1) eine Haupterstreckungsrichtung (L) aufweist, sowie derart konfiguriert ist, dass im Anschluss an das Koppeln des besagten röhrenförmigen Elements (1) mit einem Absatz (11) die Haupterstreckungsrichtung (L) substantiell parallel zu einer Haupterstreckungsrichtung oder Vertikalrichtung (T) eines Absatzes (11) eines Schuhs ist, und wobei das röhrenförmige Element (1) wenigstens eine Bruchzone entlang der Haupterstreckungsrichtung (L) aufweist, **dadurch gekennzeichnet, dass** das röhrenförmige Element (1) ein Filament umfasst, das in dem röhrenförmigen Element (1) integriert oder darin appliziert ist und entlang der Haupterstreckungsrichtung (L) ausgerichtet ist, wobei das besagte Filament einen größeren Bruchwiderstand hat als das röhrenförmige Element (1), um das röhrenförmige Element (1) entlang der bevorzugten Bruchzone zu brechen oder zu schneiden, wenn daran gezogen wird.

2. Schutzvorrichtung (10) gemäß Anspruch 1, wobei das röhrenförmige Element (1) um einen Absatz (11) eines Schuhs schrumpft, nachdem es einem Heizmittel bei einer Temperatur von vorzugsweise 70 °C ausgesetzt wurde.

3. Schutzvorrichtung (10) gemäß Anspruch 1 oder 2, wobei das röhrenförmige Element (1) ein Schrumpfverhältnis zwischen 1,5 : 1 und 3 : 1 aufweist, vorzugsweise von 2 : 1.

4. Schutzvorrichtung (10) gemäß einem der vorhergehenden Ansprüche, wobei das röhrenförmige Element (1) eine Dicke zwischen 0,1 und 1,0 mm hat.

5. Schutzvorrichtung (10) gemäß einem der vorhergehenden Ansprüche, wobei das röhrenförmige Element (1) transparent ist oder substantiell transparent oder transluzent.

6. Schutzvorrichtung (10) gemäß einem der vorhergehenden Ansprüche, wobei das röhrenförmige Element (1) mit jeder beliebigen Farbe oder Schattierung eingefärbt ist.

7. Schutzvorrichtung (10) gemäß einem der vorhergehenden Ansprüche, wobei die besagte bevorzugte Bruchzone einen Einschnitt (3) oder eine Reihe von Einschnitten umfasst.

8. Schutzvorrichtung (10) gemäß einem der vorhergehenden Ansprüche, wobei die besagte bevorzugte Bruchzone das besagte Filament umfasst, das es einfacher macht, die Schutzvorrichtung zu entfernen.

9. Schutzvorrichtung (10) gemäß einem der vorhergehenden Ansprüche, wobei das röhrenförmige Element (1) aus einem biologisch abbaubaren Material besteht.

10. Schutzvorrichtung (10) gemäß einem der vorhergehenden Ansprüche, wobei das röhrenförmige Element (1) aus einem thermisch retrahierbaren Material besteht.

11. Verfahren zum Schutz eines Absatzes (1) eines Schuhs, wobei das besagte Verfahren die folgenden Schritte umfasst:.

    - Bereitstellen einer Schutzvorrichtung (10) gemäß einem der Ansprüche 1 bis 10;
    - Aufstecken eines röhrenförmigen Elements (1) aus einem durch Wärme schrumpfbaren Kunststoff- oder Bio-Kunststoff-Material der Schutzvorrichtung (1) auf einen Absatz (11) eines Schuhs;
    - Erhitzen des röhrenförmigen Elements (1) auf eine Temperatur zwischen 50 °C und 90 °C, indem das besagte röhrenförmige Element (1) einem Heizmittel ausgesetzt wird, so dass das röhrenförmige Element (1) selbst um den Absatz (11) des Schuhs herum schrumpft.

12. Schutzvorrichtung (10) gemäß dem vorangehenden Anspruch, wobei das röhrenförmige Element (1) wenigstens eine bevorzugte Bruchzone umfasst; wobei das Verfahren den weiteren Schritt aufweist, dass die Schutzvorrichtung (10) von dem Absatz (11) entfernt wird durch Ziehen an dem Filament, das in dem röhrenförmigen Element (1) integriert oder darin appliziert ist, um das röhrenförmige Element (1) entlang der besagte bevorzugten Bruchzone zu brechen oder zu zerreißen.

13. Schutzvorrichtung (10) gemäß Anspruch 11, wobei das röhrenförmige Element (1) wenigstens eine bevorzugte Bruchzone mit einem Einschnitt (3) oder mit einer Reihe von Einschnitten umfasst; wobei das Verfahren die weiteren Stufe aufweist, dass die Schutzvorrichtung (10) von dem Absatz (11) entfernt wird unter Verwendung des besagten Einschnitts (3) oder der besagten Reihe von Einschnitten.

Revendications

1. Dispositif de protection (10) pour un talon (11) d'une chaussure, ledit dispositif de protection (10) comprenant un élément tubulaire (1) configuré pour être inséré sur, et couplé à, un talon (11) d'une chaussure, dans lequel l'élément tubulaire (1) est un élément en bioplastique ou plastique thermorétractable configuré pour se rétracter autour d'un talon (11) d'une chaussure suite à l'exposition à un agent chauffant à une température située dans la plage allant de 50°C à 90°C, dans lequel l'élément tubulaire (1) comprend une direction de développement principale (L), et est configuré de telle sorte qu'après le couplage dudit élément tubulaire (1) à un talon (11), la direction de développement principale (L) est disposée sensiblement parallèle à une direction de développement principale, ou direction verticale (T), d'un talon (11) d'une chaussure, et dans lequel l'élément tubulaire (1) comprend au moins une zone de rupture préférentielle le long de ladite direction de développement principale (L), **caractérisé en ce que** l'élément tubulaire (1) comprend un filament incorporé ou appliqué dans l'élément tubulaire (1) et disposé le long de cette direction de développement principale (L), ledit filament ayant une résistance à la rupture supérieure à celle de l'élément tubulaire (1) pour rompre ou découper l'élément tubulaire (1) le long de ladite zone de rupture préférentielle quand il est tiré.

2. Dispositif de protection (10) selon la revendication 1, dans lequel l'élément tubulaire (1) se rétracte autour d'un talon (11) d'une chaussure suite à une exposition à un agent chauffant à une température de préférence de 70°C.

3. Dispositif de protection (10) selon la revendication 1 ou 2, dans lequel l'élément tubulaire (1) a un taux de rétractation compris entre 1,5/1 et 3/1, de préférence de 2/1.

4. Dispositif de protection (10) selon l'une quelconque des revendications précédentes, dans lequel l'élément tubulaire (1) a une épaisseur comprise entre 0,1 et 1,0 mm.

5. Dispositif de protection (10) selon l'une quelconque des revendications précédentes, dans lequel l'élément tubulaire (1) est transparent ou pratiquement transparent ou translucide.

6. Dispositif de protection (10) selon l'une quelconque des revendications précédentes, dans lequel l'élément tubulaire (1) est coloré de n'importe quelle couleur ou nuance.

7. Dispositif de protection (10) selon l'une quelconque des revendications précédentes, dans lequel ladite zone de rupture préférentielle comprend une incision (3) ou une série d'incisions.

8. Dispositif de protection (10) selon l'une quelconque des revendications précédentes, dans lequel ladite zone de rupture préférentielle comprend ledit filament qui facilite le retrait du dispositif de protection.

9. Dispositif de protection (10) selon l'une quelconque des revendications précédentes, dans lequel l'élément tubulaire (1) est fait d'un matériau biodégradable.

10. Dispositif de protection (10) selon l'une quelconque des revendications précédentes, dans lequel l'élément tubulaire (1) est fait d'un matériau thermorétractable.

11. Procédé pour protéger un talon (11) d'une chaussure, ledit procédé comprenant les étapes de :

- fourniture d'un dispositif de protection (10) selon l'une des revendications 1 à 10 ;
- insertion, dans un talon (11) d'une chaussure, d'un élément tubulaire (1) fait d'un matériau bioplastique ou plastique thermorétractable du dispositif de protection (10) ;
- chauffage de l'élément tubulaire (1) à une température comprise entre 50°C et 90°C par exposition dudit élément tubulaire (1) à un agent chauffant de façon que l'élément tubulaire (1) lui-même se rétracte autour du talon (11) de la chaussure.

12. Procédé selon la revendication précédente, dans lequel l'élément tubulaire (1) comprend au moins une zone de rupture préférentielle ; le procédé comprenant l'étape supplémentaire de retrait du dispositif de protection (10) à partir du talon (11) par traction du filament incorporé ou appliqué dans l'élément tubulaire (1) pour rompre ou couper l'élément tubulaire (1) le long de ladite zone de rupture préférentielle.

13. Procédé selon la revendication 11, dans lequel l'élément tubulaire (1) comprend au moins une zone de rupture préférentielle comprenant une incision (3) ou une série d'incisions ; le procédé comprenant la phase supplémentaire de retrait du dispositif de protection (10) depuis le talon (11) par utilisation de ladite incision (3) ou de ladite série d'incisions.

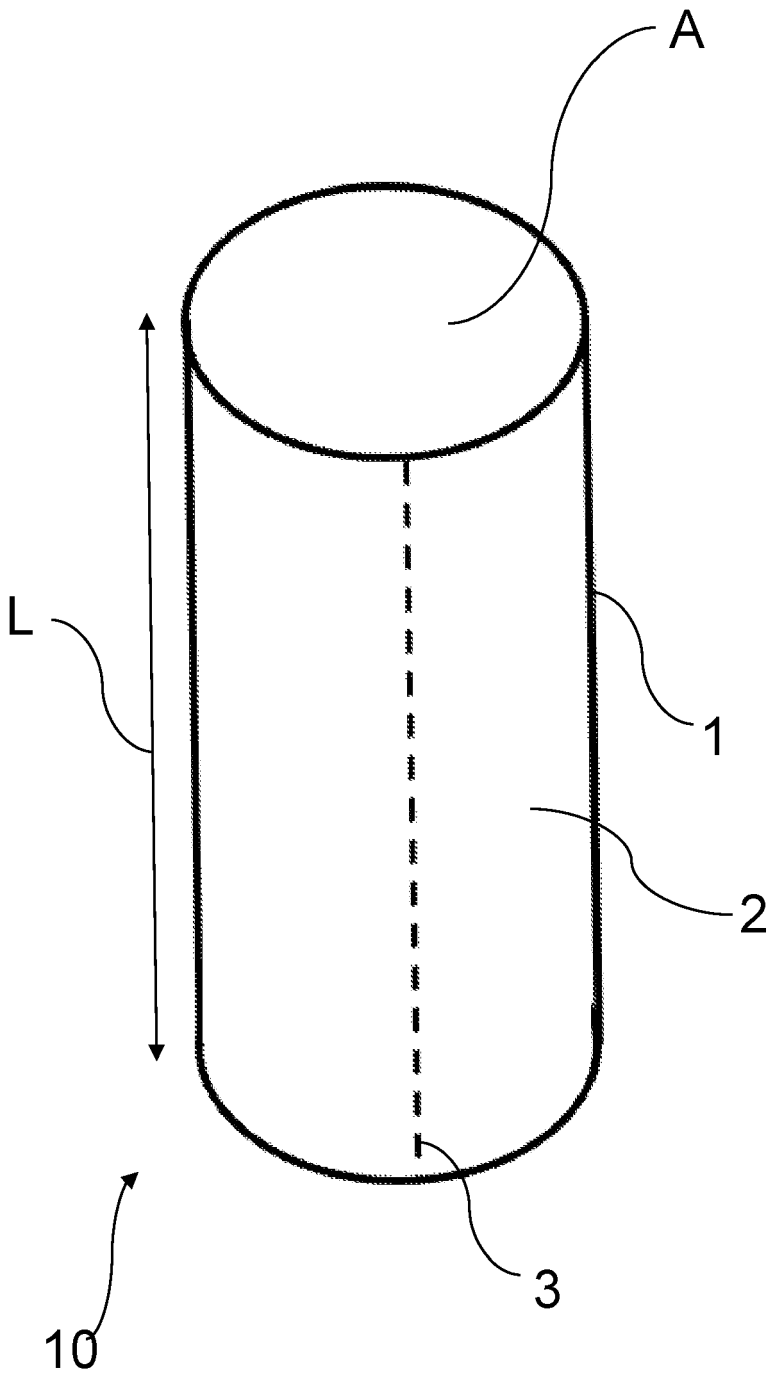

Fig. 1

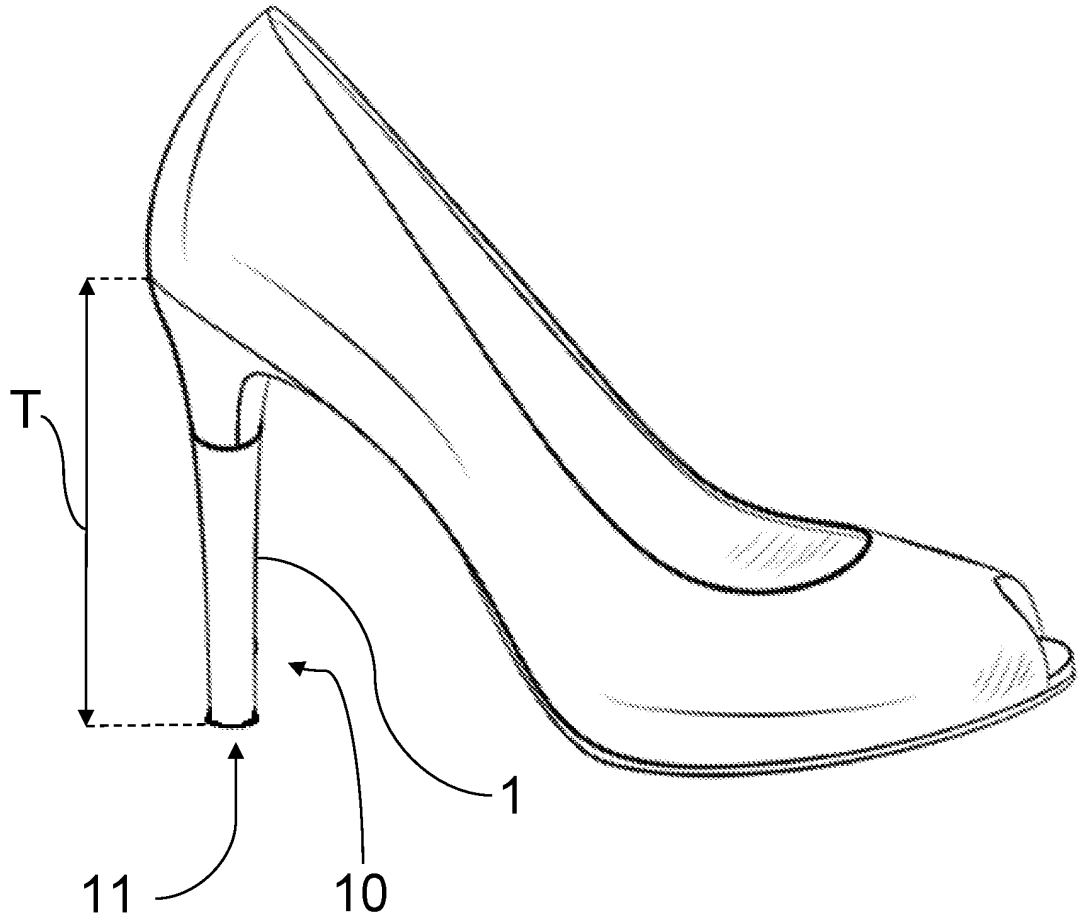

Fig. 2

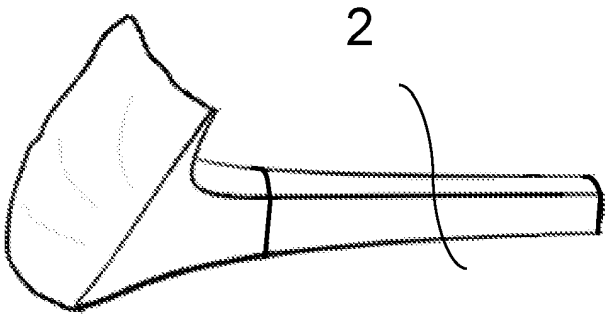

Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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