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(54) **A GLOVE FOR REMOVING DETACHABLE MATERIAL FROM AN OBJECT AND A METHOD FOR MANUFACTURING THE GLOVE**

HANDSCHUH ZUM ENTFERNEN VON ENTFERNBAREM MATERIAL VON EINEM GEGENSTAND
UND VERFAHREN ZUR HERSTELLUNG DES HANDSCHUHS

GANT SERVANT A ELIMINER UN MATERIAU DETACHABLE D'UN OBJET ET SON PROCEDE DE
FABRICATION

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Description

[0001] The present invention relates to a glove for removing detachable material from an object and a method for the manufacture of the glove.

[0002] Removal of friable skin from vegetables or removal of deposits such as food scraps or of discoloration of common crockery to be washed up, is conventionally done by means of one of the means selected from a sharp knife, a common stiff brush, a rough sponge, a scouring wisp, or a naturally occurring sponge.

[0003] Another well-known method is to use a hand driven or automatic potato peeler using a rough, abrasive surface for obtaining the desired effect that is removal of friable potato skin. However, potatoes come in many shapes and sizes, and some have sprouts, eyes or cavities. Although the potato peeler rinses and strips the potatoes, substantially all potatoes are provided with substantially the same rounded shape at the costs of vitamins and potato flesh to be disposed of. Even after the potatoes have been rinsed and skin and other surface objects have been stripped off in the potato peeler, each potato must be inspected and often a potato need manually finish treatment, e.g. using a knife or a manual potato peeler after rotation in the automatic potato peeler.

[0004] A cleaning glove with a special rough material sewed or glued to the palm and/or the fingertips is suggested in US patent no. 6,513,998. This known glove is made of a combination of an inner fabric liner having palm, finger, and thumb portions, and an outer surface bonded to said liner. The outer surface is made of an impervious flexible material, which forms a continuous film over the liner. A plurality of sharp-edged, abrasive granules is bonded to said outer surface on the palm portion, the inside of the finger portion, and entirely over and about the thumb portion. A soap fluid containment bladder is disposed inside the glove for supplying soap, and it is generally suggested that this glove is used as a dishwashing aid. Use of these abrasive granules on a soft surface, such as a vegetable surface will unavoidable damage said surface. In a mild degree of scouring scratching of the surface may be the result, but in worst-case significant amounts of surface flesh is removed. A vegetable treated with such a glove will be given a not very tempting appearance and a skin surface will turn red and even bleed, hence be greatly disfigured. Used on a harder surface, such as glass or plastic, the abrasive granules will make scratches and irreparable damage.

[0005] US patent no. 6,292,948 describes a bath glove formed by weaving or knitting different yarns in a specific manner, so that a plurality of terry piles are evenly distributed over and rising with three different heights from a surface of the bath glove. The terry piles having the smallest height are tightened at their roots to each horizontally extend across and bind together the roots of two terry piles separately having the medium and the largest heights. The rising terry piles having the medium and the largest heights loosely overlap one another to give the

bath glove a supple and elastic surface. The yarns for forming the medium height terry piles are formed by sequentially twisting or tangling multiple nylon filaments together, and the yarns for forming the terry piles having the largest height each is formed by winding at least one surface filament around at least one core filament. The terry piles of different heights provide a glove, which is soft to touch and enables catching of finer foam. Due to the softness of the terry piles this gloves is useless for removal of material, which is attached or stuck to a surface.

[0006] The use of brushes and rough sponges for removal of friable material, skin or peel etc. often results in excoriation on hands and fingers etc., and the object to be rinsed is difficult to hold on during rinsing. The above-mentioned known gloves are relatively expensive. When used they become very water loaded and the drying time is very long.

[0007] A water absorbent glove is known from US 5,799,333.

[0008] In a first aspect according to the present invention is provided a glove of the kind mentioned in the opening paragraph, which is easy and hygienic to use for removal of skin from an eatable object.

[0009] In a second aspect according to the present invention is provided a glove of the kind mentioned in the opening paragraph, which does not absorb water and does nor damage the object to be treated.

[0010] In a third aspect according to the present invention is provided a glove of the kind mentioned in the opening paragraph, which is washable.

[0011] The novel and unique feature whereby this is achieved according to the present invention is the fact that the glove is knitted or twilled of at least one thread of at least one elastic plastic material.

[0012] The elasticity of the plastic material provides the at least one thread with a shape memory. In addition to this the knitted structure provides the glove with additional elasticity so that the glove fits hands of different sizes. The plastic material is synthetic and water-repellent, so that the glove does not become loaded with water during use. As a result the glove becomes dry quickly after having been used for cleaning an object under e.g. running water or other kind of water supply.

[0013] Accordingly, the glove can easily be washed in an automatic washing machine or dishwasher after each use or at time of the choice of the user. If bits, residues or remainings of removed detachable material is left on the glove after use the washing process completely removes such material.

[0014] It has been found, that a glove having a suitable elasticity can be obtained if the at least one plastic material has an E-modul between about (125.000 psi - 150.000 psi) 0.861 - 1.034 GPa and/or a breaking elongation between 0.6 - 0.9. Within the scope of the present invention said E-modul is defined as the coefficient of elasticity applicable to the stretching the plastic material, i.e. the force needed to provide elongation of the thread.

[0015] In a preferred embodiment the plastic material is selected from the group comprising polyamide or polyethylene.

[0016] As used herein polyamide refers to a synthetic polymer formed by the reaction of a diamine and a diacid. Nylon®, Kevlar® and sodium poly(aspartate) are examples of known commercially obtainable polyamide, which are plastic materials characterized by toughness, solvent resistance, sharp melting point and wrinkle-resistant capabilities.

[0017] As used herein polyethylene refers to a thermoplastic material produced by the polymerisation of ethylene molecules.

Polyethylene is a light, strong, water resistant and flexible product, even at low temperatures.

[0018] The glove is especially useful when the object from which detachable material is to be removed is selected from the group comprising vegetables, fruits, kitchen utensils, dirty dishes, automobile panes, window panes, bathroom equipment, kitchen equipment, fish, and animal fur, however this group is not exhaustive and other kinds of objects to which undesired detachable material may be stucked can also be treated with the glove according to the present invention to clean or rinse said object.

[0019] The glove according to the present invention is especially useful when the object is a vegetable, such as a root vegetable, preferably a potato or a carrot, and the detachable material is the skin of the vegetable.

[0020] For removal of the skin of the vegetable a glove according to the invention is put on each hand. The vegetable is then gently rubbed using one or both gloves for rubbing till the skin is detached from the object and can be washed off. Alternatively, one glove is used for holding the vegetable and the other glove for rubbing. Any part of the glove may be used for rubbing but experiments demonstrate that most people prefer to use one or more fingers, especially the thumb, for rubbing while the vegetable is confined in the palm of the other hand.

[0021] However, the glove according to the present invention is not only useable for removing skin or peel from vegetables such as potatoes or carrots. The glove may also within the scope of the present invention be used for cleaning kitchen utensils such as e.g. dirty dishes and pots, removal of dead insects on objects such as a pane, e.g. the windscreen of an automobile or a window pane, smudge or dirt on any objects such as e.g. garden furniture, for decalcification and cleaning of bathroom or kitchen equipment in general, e.g. sinks, tubs, slabs, pipes and taps, for cleaning of fish, e.g. removal of fish scale or fish skin, and for cleaning fruits and even as a currying glove for the fur of an animal, e.g. a dog or a horse.

[0022] In the most preferred embodiment of a glove according to the present invention, said glove is made by single jersey knitting although a rib-stitched wrist part may be provided.

[0023] The interior face of the glove is then the pur-

face of the knitted glove and the exterior face of the glove is the right face of the knitted glove.

[0024] The exterior of the glove, which is intended to get into contact with the object from which detachable material are to be removed, has, due to being the right face, a roughened surface structure which resembles a grater, but where the grater has elastic stitch openings the size of which changes during use so that the teared off bits of removed material are trapped and jammed in the stitch openings. Accordingly, every single knitted stitch acts first to tear or scrape off bits of material, and secondly to remove the bits of material by trapping it inside the constricted stitch openings. Thirdly, the bits of material are disposed from the glove by e.g. rinsing with tap water.

[0025] Although the exterior surface is named a "grate-like surface structure" the right face of the single jersey knitted glove has no sharp edges and the treated object is not in any way damaged.

[0026] The tearing off or scraping-off effect can advantageously be enhanced if the at least one thread of the at least one elastic plastic material has a rugged or hairy exterior surface, so that not only the overall surface of the exterior of the glove is uneven, but also the exterior surface of the knitting thread. As a result the elastic stitch openings will also be provided with an uneven internal circumferential surface so that a better grip of the bits of the teared-off or scraped-off material is obtained. This effect may be even further improved if the at least one thread of the at least one elastic plastic material is made of a plurality of finer rugged or hairy threads of the same or different at least one elastic plastic material.

[0027] In a second embodiment of a glove according to the present invention the glove is twilled of at least two threads of different or identical elastic plastic material.

[0028] When two different elastic plastic materials are used for the glove, irrespective of which embodiment, it may be preferred to use Nylon® for at least one of the threads and a different polyamide for another thread. Alternatively, a thread combined of finer threads of two different elastic plastic materials may be used for knitting or twilling the glove according to the present invention. The preferred proportion of elastic, plastic material in the final product glove may e.g. be 90 percentage by weight of Nylon® and 10 percentage by weight of a different polyamide or polyethylene. However, other combinations of elastic, plastic materials are intended comprised within the scope of the present invention.

[0029] The glove may be provided with an identification of the intended use. For example a rubber or textile imprint may be provided on the back of the glove.

[0030] Advantageously the colour of the glove is selected to substantially correspond to the colour of the detachable material, so that also the colour provides an indication of use. Moreover, the selected colour serves for camouflage of disfiguring, detached material on or after use of the glove.

[0031] Depending on the intended use at least the

thickness of the thread, the type of plastic material, the size of the stitches and the hardness of the final texture of the glove may vary. When the glove is intended for use on food objects the selected plastic material has sufficient integrity and mechanical and chemical resistance to avoid release of compounds and decomposition of the plastic material.

[0032] The invention also relates to a method for the manufacture of a glove as described above. The method comprise the steps of providing the at least one plastic material, knitting or twilling the glove, and finally heat treating the glove to cure the texture of the glove to a predetermined surface hardness depending on the object from which detachable material is to be removed.

[0033] The optimum texture and hardness for a specific purpose may be obtained by heat treating at a temperature between 130 - 200°C, preferably between 140 - 190°C and most preferred between 150 - 180°C. Hence, if the gloves to be manufactured must have a hard texture, curing takes place at the higher end of the interval. When a loose knitting and more soft texture is aimed for the curing temperature is selected from the lower end of the temperature interval.

[0034] In an advantageous embodiment the method may comprise a dyeing step in which the at least one plastic material is dyed at a temperature below 100°C to provide the glove with a preferred colour. Said dyeing step may take place by dyeing the at least one plastic material before knitting or twilling the glove, or by dyeing the glove after knitting or twilling but before the heat treatment.

[0035] The glove according to the invention will be further illustrated with reference to the illustrations, in which

fig. 1a and fig. 1b shows the two opposite sides of a first embodiment of a glove according to the present invention,

fig. 2 shows in an enlarged scale the texture and surface structure of a slightly stretched section of a glove according to the present invention knitted of 100 percentage by weight of Nylon®,

fig. 3 shows schematically and in an enlarged scale the surface structure of a not stretched section of a twilled glove according to the present invention made by two different threads of elastic, plastic materials,

fig. 4 shows in an enlarged scale a simplified, schematic illustration of a single plastic material thread with a hairy exterior surface, and

fig. 5 shows in an enlarged scale a simplified, schematic illustration of a plastic material composed of two different types of plastic material threads, one of which has a hairy exterior surface.

[0036] Fig. 1a shows a photo of a knitted left hand glove

1 according to the present invention seen from the back 2 of the hand, and fig. 1b shows the same seen from the palm 3 of the hand.

[0037] The glove 1 is made as a conventional glove having five fingers, a thumb 4a, an index finger 4b, a long finger 4c, a ring finger 4d and a little finger 4e. The glove has a wrist portion 5 made by rib stitching. The wrist portion has a reduced cross-sectional area, and due to the rib stitching the wrist portion is extremely elastic to allow for the glove to fit around the wrist of the user, so that the glove stays firmly on the hand during use.

[0038] The glove may be suspended on a hook (not shown) by means of the loop 6 provided at the wrist portion 5.

[0039] Since the elastic plastic material selected for the manufacturing of the glove may differ dependent of the intended use an identification of said use may be provided on e.g. the back 2 as shown in fig. 1a, in which the word "potato" indicates that the glove is for the use of cleaning potatoes. Other kinds of identification may be used on gloves of other materials not distinguishable by the naked eye to assist the user to choose the right glove for the right purpose although the glove at first glimpse looks very similar.

[0040] The identification 5 may be a rubber imprint 7 which can be washed many times without e.g dissolving or releasing particulate matter during use.

[0041] Fig. 2 shows the structure and texture of the single jersey exterior surface 8 of the glove shown in fig. 1a and fig. 1b in stretched state. The exterior surface 8 is made up of stitch openings 9 of different sizes depending of to which extent the opening is stretched or has retracted to catch and bring along bits of detachable potato skin (not shown). As is clear from fig. 2 the openings have very different shapes and sizes.

[0042] Fig. 3 shows schematically the unstretched surface structure of a twill-weaved glove according to a second embodiment of the present invention.

[0043] A twill-weaved glove material 10 is made by passing the weft threads 11 over one warp thread and then under two or more warp threads 12, e.g. three as shown in fig. 3. Such surface structures are also found in twill fabrics such as gabardine, tweed and serge, however the advantages described above is obtained by using threads of different elastic plastic materials, preferably nylon and another kind of polyamide for twill weaving the glove. "

[0044] When the twilled structure is stretched the openings 13 will assume different shapes and obtain the scrubbing and grating effect as previously described.

[0045] The twilling may be the same over the entire glove or may have inverted or mirrored sections to provide the glove surface with e.g. a herringbone pattern.

[0046] The simplified, schematically illustrated single elastic, plastic material thread 14 shown in fig. 4 has a plurality of fine hairs 15 on the exterior surface. The fine hairs 15 are shown with substantially identical thickness and length, however it is to be understood that different

thicknesses, lengths and numbers of hairs are within the scope of the present invention so that different degrees of hairyness and ruggedness can be provided to the glove upon manufacture.

[0047] An alternative plastic material thread 16, which is composed of three entangled sub threads 18, 17a, 17b, is shown in fig. 5. In the case shown two sub threads 17a, 17b are of identical material and type, and a different third sub thread 18 has a plurality of hairs 19.

[0048] Some areas of the glove may be more susceptible to wear than other areas. In order to anticipate early worn-down of such areas of the glove an additional wear-resisting thread may be incorporated in the glove, e.g. by insetting the thread in the area susceptible to extreme wear by means of sewing.

[0049] By carefully selecting e.g. the types of elastic, plastic material, the surface of the at least one plastic material thread, the thickness of the thread, the elasticity of the thread material, the degree of entanglement, and the heat treating temperature, a glove according to the present invention can be designed, manufactured and targeted for a specific purpose and object to be treated. Other parameters, although not specifically mentioned here, may be determined by experimentation by the person skilled in the art to optimise the design and performance of the glove.

Claims

1. A glove (1) for removing detachable material from an object, which glove (1) is made by single jersey knitting of at least one thread (14;16) of at least one elastic synthetic, water-repellent plastic material, wherein the interior face of the glove (1) is the purl face and the exterior face (8) of the glove is the right face, **characterised in that** the glove has elastic stitch openings and that a predetermined surface hardness is obtained by curing said elastic, synthetic, water-repellent plastic material by heat treatment of the glove.
2. A glove for removing detachable material from an object, which glove is twill woven of at least one thread (14;16) of at least one elastic synthetic, water-repellent plastic material **characterised in that** the glove has openings (13) which can assume different shapes when the twilled material (10) is stretched and that a predetermined surface hardness is obtained by curing said elastic, synthetic, water-repellent plastic material by heat treatment of the glove.
3. A glove according to claim 1 or 2, **characterised in that** the at least one plastic material has an E-modul between (125.000 psi - 150.000 psi) 0.861 - 1.034 GPa.
4. A glove according to claim 1, 2 or 3, **characterised**

in that the at least one plastic material has a breaking elongation between 0.6 - 0.9.

5. A glove according to any of the preceding claim 1-4, **characterised in that** the plastic material is selected from the group comprising polyamide or polyethylene.
6. A glove according to any of the preceding claims 1-5, **characterised in that** the at least one thread (14; 16) of the at least one elastic, plastic material has a rugged or hairy exterior surface.
7. A glove according to any of the preceding claims 1 - 6, **characterised in that** the at least one thread (14;16) of the at least one elastic plastic material is made of a plurality of finer rugged or hairy threads (17a,17b,19) of the same or different at least one elastic, plastic material.
8. A glove according to any of the preceding claims 1 - 7, **characterised in that** the glove is knitted or twilled of at least two threads (11,12) of different or identical elastic, plastic material.
9. A method for the manufacture of a glove (1) according to any of the preceding claims 1, 3 - 8, comprising the steps of

- providing the at least one elastic, synthetic, water repellent plastic material thread (14;16),
- knitting the glove (1) in a single jersey knit pattern, wherein the interior face of the glove (1) is the purl face and the exterior face (8) of the glove is the right face with at least said thread (14,16),

characterised in that the method further comprises

- heat treating the glove (1) to cure said elastic, synthetic, water-repellent plastic material and thereby the texture of the glove (1) to a predetermined surface hardness depending on the object from which detachable material is to be removed and
- that the glove has elastic stitch openings.

10. A method for the manufacture of a glove according to any of the preceding claims 2 - 8, comprising the steps of

- providing the at least one elastic, synthetic, water repellent plastic material thread (14;16),
- twill weaving the glove with at least said thread (14, 16),

characterised in that the method further comprises

- heat treating the glove to cure said elastic, syn-

thetic, water-repellent plastic material and thereby the texture of the glove to a predetermined surface hardness depending on the object from which detachable material is to be removed, and
 - that the glove has openings (13) which can assume different shapes when the twilled material (10) is stretched

11. A method according to claim 9 or 10, **characterised in that** the heat treating is made at a temperature between 130 - 200°C, preferably between 140 - 190°C and most preferred between 150 - 180°C.
12. A method according to any of the claims 9, 10 or 11, **characterised in that** the method further comprises a dyeing step, wherein the at least one plastic material is dyed at a temperature below 100°C.
13. A method according to claim 12, **characterised in that** the dyeing step takes place by dyeing the at least one plastic material before knitting or twilling the glove.
14. A method according to claim 12, **characterised in that** the dyeing step takes place by dyeing the glove after knitting or twilling but before the heat treatment.
15. Use of a glove according to any of the preceding claims 1 - 8, **characterised in that** the object from which detachable material is to be removed is selected from the group comprising vegetables, fruits, kitchen utensils, dirty dishes, automobile panes, window panes, bathroom equipment, kitchen equipment, fish, and animal fur.
16. Use of a glove according to claim 15, **characterised in that** the vegetable is a root vegetable, preferably a potato or a carrot.
17. Use of a glove according to any of the preceding claims 15 - 16, **characterised in that** the detachable material is selected from the group comprising vegetable skin, dead insects, smudge, dirt, calcification, fish scale, fish skin, and fur.

Patentansprüche

1. Handschuh zum Entfernen ablösbaren Materials von einem Objekt, wobei der Handschuh (1) durch eine einzige Jersey-Strickerei wenigstens eines Fadens (14; 16) aus wenigstens einem elastischen, synthetischen, wasserabweisenden Kunststoffmaterial gebildet ist, wobei die innere Oberfläche des Handschuhs (1) die linke Seite und die äußere Oberfläche (8) des Handschuhs die rechte Seite ist, **dadurch gekennzeichnet, dass** der Handschuh elastische Maschenöffnungen hat

und dass eine vorbestimmte Oberflächenhärte durch Behandeln des elastischen, synthetischen, wasserabweisenden Kunststoffmaterials durch Wärmebehandlung des Handschuhs erhalten wird.

2. Handschuh zum Entfernen ablösbaren Materials von einem Objekt, wobei der Handschuh aus wenigstens einem Faden (14; 16) von wenigstens einem elastischen, synthetischen, wasserabweisenden Kunststoffmaterial köpergewoben ist, **dadurch gekennzeichnet, dass** der Handschuh Öffnungen (13) hat, die verschiedene Formen annehmen können, wenn das geköperte Material (10) gestreckt wird und dass eine vorbestimmte Oberflächenhärte durch Behandeln, des elastischen, synthetischen, wasserabweisenden Kunststoffmaterials durch Wärmebehandlung des Handschuhs erhalten wird.
3. Handschuh nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das wenigstens eine Kunststoffmaterial ein E-Modul zwischen (125.000 psi - 150.000 psi) 0,861 - 0,034 GPa hat.
4. Handschuh nach Anspruch 1, 2 oder 3, **dadurch gekennzeichnet, dass** das wenigstens eine Kunststoffmaterial eine Bruchdehnung von zwischen 0,6 - 0,9 hat.
5. Handschuh nach einem der vorhergehenden Ansprüche 1-4, **dadurch gekennzeichnet, dass** das Kunststoffmaterial ausgewählt ist aus der Gruppe bestehend aus Polyamid und Polyethylen.
6. Handschuh nach einem der vorhergehenden Ansprüche 1-5, **dadurch gekennzeichnet, dass** der wenigstens eine Faden (14; 16) des wenigstens einen elastischen Kunststoffmaterials eine schroffe oder haarige äußere Oberfläche hat.
7. Handschuh nach einem der vorhergehenden Ansprüche 1-6, **dadurch gekennzeichnet, dass** der wenigstens eine Faden (14; 16) des wenigstens einen elastischen Kunststoffmaterials aus einer Mehrzahl von feineren schroffen oder haarigen Fäden (17a, 17b, 19) desselben oder eines anderen wenigstens einen elastischen Kunststoffmaterials hergestellt ist.

8. Handschuh nach einem der vorhergehenden Ansprüche 1-7, **dadurch gekennzeichnet, dass** der Handschuh aus wenigstens zwei Fäden (11, 12) aus verschiedenem oder identischem elastischen Kunststoffmaterial gestrickt oder geköpert ist.
9. Verfahren zum Herstellen eines Handschuhs (1) nach einem der vorhergehenden Ansprüche 1, 3-8, die Schritte aufweisend

- Bereitstellen des wenigstens einen elastischen, synthetischen, wasserabweisenden Kunststoffmaterialfadens (14; 16),
- Stricken des Handschuhs (1) in einem einzelnen Jerseystrickmuster, wobei die innere Oberfläche des Handschuhs (1) die linke Seite und die äußere Oberfläche (8) des Handschuhs die rechte Seite ist, mit wenigstens dem Faden (14, 16),

dadurch gekennzeichnet, dass das Verfahren weiter aufweist

- Wärmebehandeln des Handschuhs (1) zum Härten des elastischen, synthetischen, wasserabweisenden Kunststoffmaterials und **dadurch** der Textur des Handschuhs (1) für eine vorbestimmte Oberflächenhärte, abhängig von dem Objekt, von dem das ablösbare Material entfernt werden soll und
- dass der Handschuh elastische Maschenöffnungen hat.

- 10.** Verfahren zum Herstellen eines Handschuhs nach einem der vorhergehenden Ansprüche 2-8, die Schritte aufweisen

- Bereitstellen des wenigstens einen elastischen, synthetischen, wasserabweisenden Kunststoffmaterialfadens (14; 16),
- Körperweben des Handschuhs mit wenigstens dem Faden (14, 16),

dadurch gekennzeichnet, dass das Verfahren weiter aufweist

- Wärmebehandeln des Handschuhs zum Härten des elastischen, synthetischen, wasserabweisenden Kunststoffmaterials und **dadurch** der Textur des Handschuhs für eine vorbestimmte Oberflächenhärte, abhängig von dem Objekt, von dem das ablösbare Material zu entfernen ist, und
- dass der Handschuh Öffnungen (13) hat, die verschiedene Formen annehmen können, wenn das geköperte Material (10) gestrickt wird.

- 11.** Verfahren nach Anspruch 9 oder 10, **dadurch gekennzeichnet, dass** das Wärmebehandeln bei einer Temperatur zwischen 130-200 °C, bevorzugt zwischen 140-190 °C und besonders bevorzugt zwischen 150-180 °C vorgenommen wird.

- 12.** Verfahren nach einem der Ansprüche 9-10 oder 11, **dadurch gekennzeichnet, dass** das Verfahren weiter einen Färbeschritt aufweist, wobei das wenigstens eine Kunststoffmaterial bei einer Temperatur unterhalb 100 °C gefärbt wird.

- 13.** Verfahren nach Anspruch 12, **dadurch gekennzeichnet, dass** der Färbeschritt durch Färben des wenigstens einen Kunststoffmaterials vor dem Stricken oder Köpern des Handschuhs erfolgt.

- 14.** Verfahren nach Anspruch 12, **dadurch gekennzeichnet, dass** der Färbeschritt durch Färben des Handschuhs nach dem Stricken oder Köpern aber vor dem Wärmebehandeln erfolgt.

- 15.** Verwendung eines Handschuhs nach einem der vorhergehenden Ansprüche 1-8, **dadurch gekennzeichnet, dass** das Objekt, von dem das ablösbare Material zu entfernen ist, ausgewählt ist aus der Gruppe aufweisend Gemüse, Früchte, Küchenutensilien, schmutziges Geschirr, Automobilfensterscheiben, Fensterscheiben, Badausstattung, Küchenausstattung, Fisch und tierisches Fell.

- 16.** Verwendung eines Handschuhs nach Anspruch 15, **dadurch gekennzeichnet, dass** das Gemüse ein Wurzelgemüse, bevorzugt eine Kartoffel oder eine Karotte ist.

- 17.** Verwendung eines Handschuhs nach einem der vorhergehenden Ansprüche 15-16, **dadurch gekennzeichnet, dass** das ablösbare Materials ausgewählt ist aus der Gruppe bestehend aus Gemüsehaut, tote Insekten, Schmutz, Dreck, Kalkablagerungen, Fischschuppen, Fischhaut und Fell.

Revendications

- 1.** Gant (1) servant à éliminer un matériau détachable d'un objet, quel gant (1) est fabriqué en tricotage de jersey simple d'au moins un fil (14; 16) d'au moins un matériau plastique, élastique, synthétique, hydrofuge, où la face intérieure du gant (1) est la face des mailles à l'envers et la face extérieure (8) du gant est la face droite, **caractérisée en ce que** le gant a des ouvertures de maille élastiques et qu'une dureté de surface prédéterminée est obtenue à l'aide de durcissement dudit matériau plastique élastique, synthétique, hydrofuge par traitement thermique du gant.
- 2.** Gant servant à éliminer un matériau détachable d'un objet, quel gant est tissé de manière sergée d'au moins un fil (14;16) d'au moins un matériau plastique élastique, synthétique, hydrofuge, **caractérisée en ce que** le gant a des ouvertures (13), qui peuvent avoir des formes différentes, quand le matériau sergé (10) est étiré et que la dureté de surface prédéterminée est obtenue à l'aide de durcissement dudit matériau plastique élastique, synthétique, hydrofuge par traitement thermique du gant.

3. Gant selon la revendication 1 ou 2, **caractérisée en ce que** le au moins un matériau plastique a un module entre (125000 psi - 150000 psi) 0,861 - 1,034 GPa.
4. Gant selon revendication 1,2 ou 3, **caractérisée en ce que** le au moins un matériau plastique a un allongement de rupture entre 0,6 - 0,9.
5. Gant selon une quelconque des revendications précédentes 1 - 4, **caractérisée en ce que** le matériau plastique est choisi du groupe comprenant polyamide ou polyéthylène.
6. Gant selon une quelconque des revendications précédentes 1 - 5, **caractérisée en ce que** le au moins un fil (14;16) de le au moins un matériau plastique élastique a une surface extérieure inégale ou velue.
7. Gant selon une quelconque des revendications précédentes 1 - 6, **caractérisée en ce que** le au moins un fil (14;16) d'au moins un matériau plastique élastique est fait d'une pluralité de fils plus finement inégale ou velue (17a,17b,19) du même ou de différent au moins un matériau plastique élastique.
8. Gant selon une quelconque des revendications précédentes 1 - 7, **caractérisée en ce que** le gant est tricoté ou sergé d'au moins deux fils (11,12) de matériau différent ou identique de matériau plastique élastique.
9. Méthode pour la fabrication d'un gant selon une quelconque des revendications précédentes 1,3 - 8, comprenant les étapes de
- fournir le au moins un fil (14;16) de matériau plastique élastique, synthétique, hydrofuge,
 - tricoter le gant (1) dans un modèle de tricotage de simple jersey, où la face intérieure du gant (1) est la face des mailles à l'envers et la face extérieure (8) du gant est la face droite avec au moins ledit fil (14;16),
- caractérisée en ce que** la méthode comprend de plus
- de traiter de manière thermique le gant (1) pour renforcer ledit matériau plastique élastique, synthétique, hydrofuge et ainsi la texture du gant (1) à une dureté de surface prédéterminée dépendante de l'objet duquel matériau détachable est enlevé et
 - que le gant a des ouvertures élastiques de maille.
10. Méthode pour la fabrication d'un gant selon une quelconque des revendications précédentes 2 - 8, comprenant les étapes de
- fournir le au moins un fil (14;16) de matériau plastique, élastique, synthétique, hydrofuge,
 - tisser de manière sergée le gant avec au moins ledit fil (14; 16),
- caractérisée en ce que** la méthode comprend de plus
- de traiter de manière thermique le gant pour durcir ledit matériau plastique élastique, synthétique, hydrofuge, et ainsi la texture du gant a une dureté de surface prédéterminée dépendante de l'objet duquel matériau détachable est enlevé, et
 - que le gant a des ouvertures (13) qui peuvent avoir des formes différentes quand le matériau sergé (10) est étiré.
11. Méthode selon la revendication 9 ou 10, **caractérisée en ce que** le traitement thermique est fait à une température entre 130 - 200°C, de préférence entre 140 - 190°C et le plus préféré entre 150 - 180°C.
12. Méthode selon une quelconque des revendications 9,10 ou 11, **caractérisée en ce que** le traitement thermique comprend de plus une étape de peinture, où le au moins un matériau plastique est coloré à une température au-dessous de 100°C.
13. Méthode selon la revendication 12, **caractérisée en ce que** l'étape de peinture a lieu en colorant le au moins un matériau plastique avant tricotage ou tissage sergé du gant.
14. Méthode selon la revendication 12, **caractérisée en ce que** l'étape de peinture a lieu en colorant le gant après tricotage ou tissage sergé mais avant le traitement thermique.
15. Usage d'un gant selon une quelconque des revendications précédentes 1 - 8, **caractérisée en ce que** l'objet duquel matériau détachable est enlevé, est choisi du groupe comprenant des légumes, des fruits, des ustensiles de cuisine, du service sale, des vitres pour automobiles, des vitres de fenêtre, de l'équipement de toilette, de l'équipement de cuisine, des poisons et de la fourrure d'animal.
16. Usage d'un gant selon la revendication 15, **caractérisée en ce que** le légume est un légume-racine de préférence une pomme de terre ou une carotte.
17. Usage d'un gant selon une quelconque des revendications précédentes 15 - 16, **caractérisée en ce que** le matériau détachable est choisi du groupe comprenant écorce de légume, insectes morts, fu-

migène, saleté, calcification, écailles de poisson,
peau de poisson, et fourrure.

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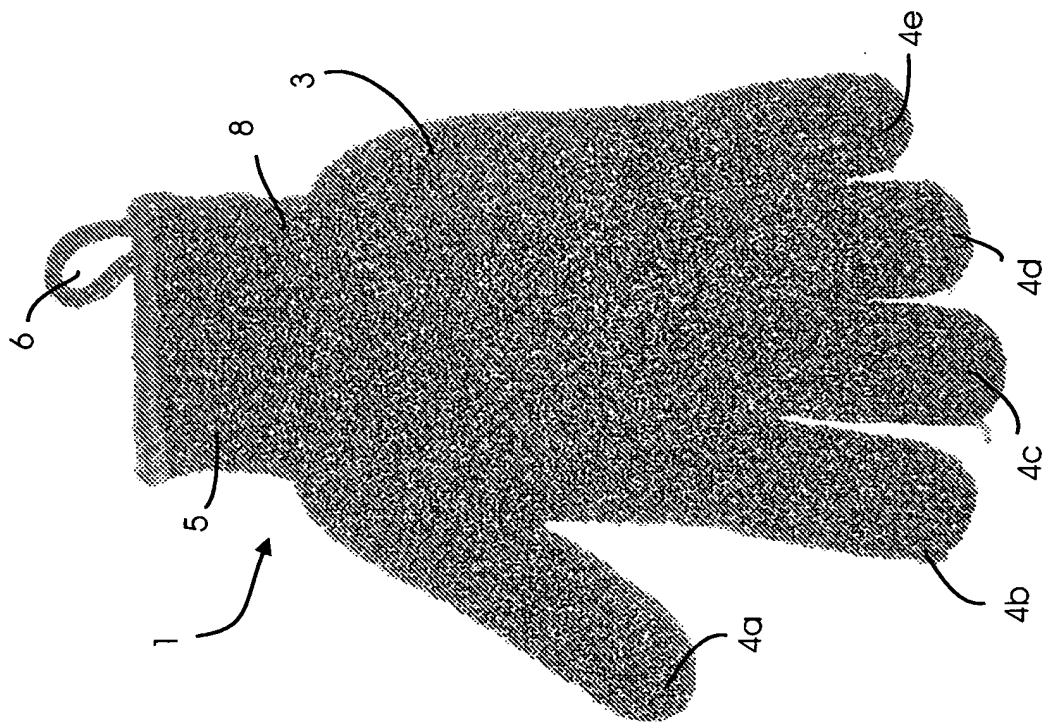


Fig. 1b

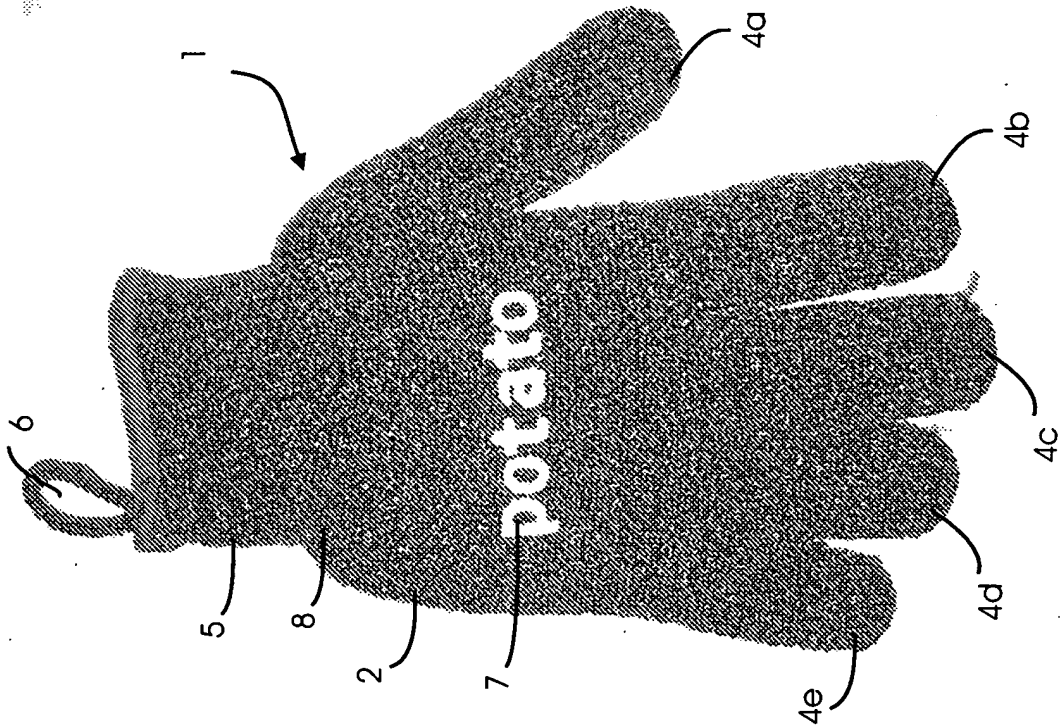


Fig. 1a

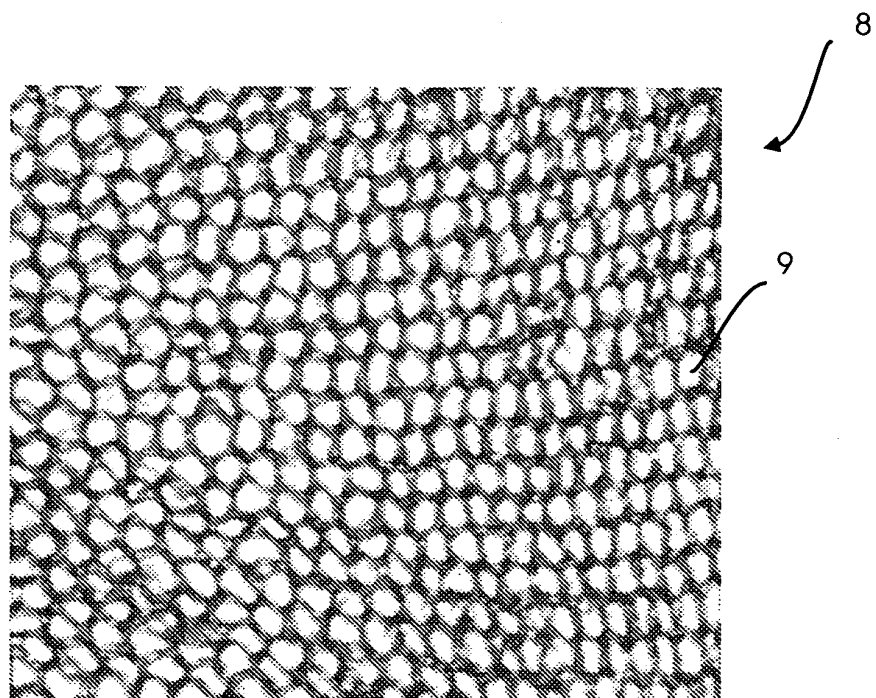


Fig. 2

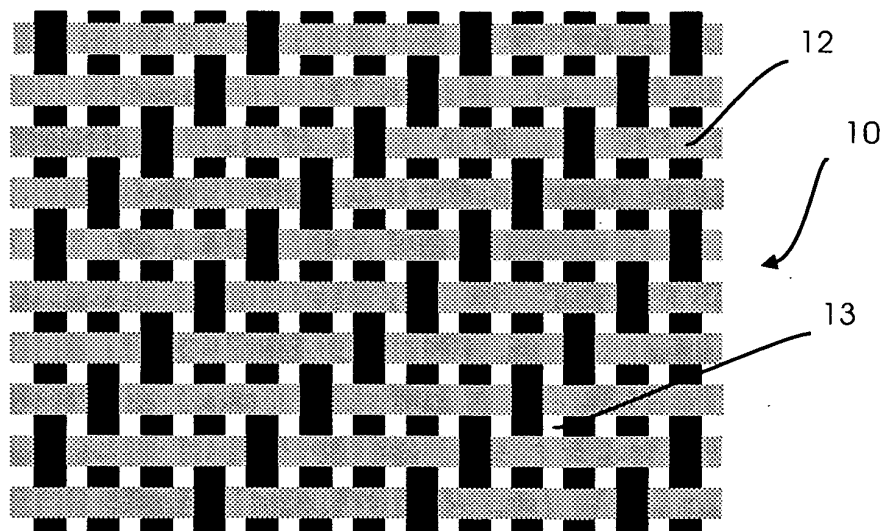


Fig. 3

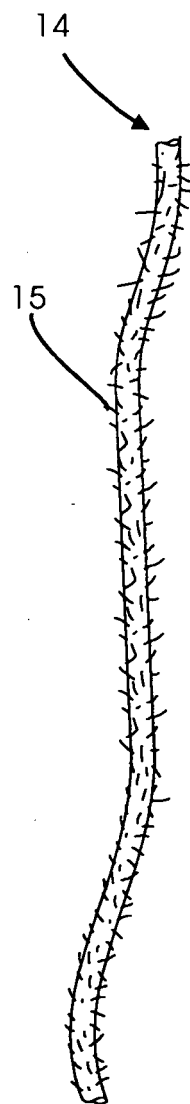


Fig. 4

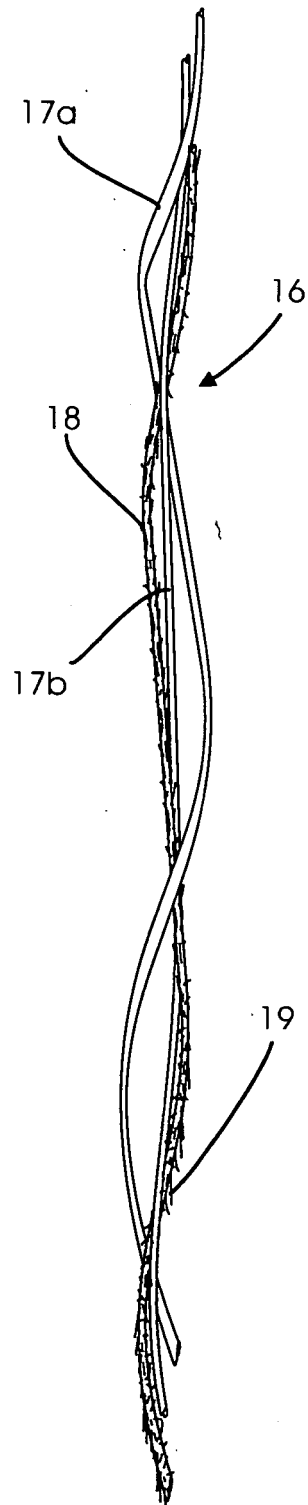


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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