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(54) Handle for hand tool, such as a painting roll or a scraper for removing paint

(57) Handle (5) for a hand tool according to the invention, such as a paint roller or a scraper for paint removal, includes:
a) a handle wall (7) which gives the handle (5) essentially open cross sections;
b) a hard insert (9) which comprises a harder primary material, forms at least part of the handle wall (7) and is at least partly delimited by at least one lateral edge (13); at least one soft edge (15) which covers at least one length of the lateral edge (13) of the hard insert (9) and is essentially softer than the primary material. The soft edge (15) at at least one length of the handle (5) forms the internal thickness of the handle wall (7) for a width (LB) equal to or greater than 2 mm. The handle (5) is comfortable and pleasant to use as a tubular handle, even though it is manufactured with an injection mold without moving platens.

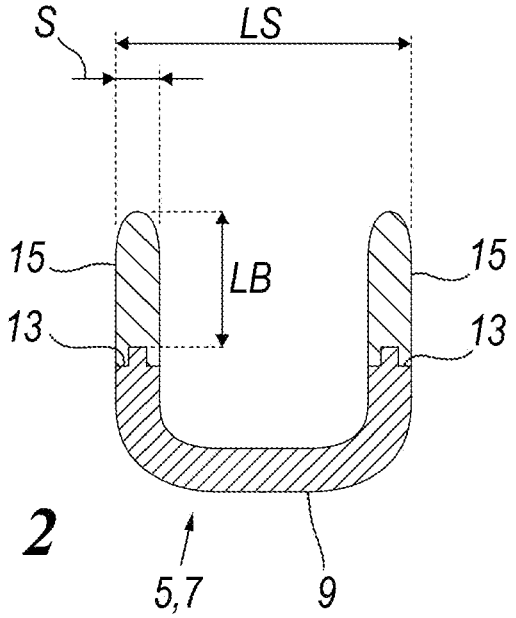

Fig. 2

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Description

Field of the invention

[0001] The present invention relates to a handle for hand tools, i.e. tools for painting. The present invention is particularly applicable to brushes, paint rollers and scrapers for paint removal.

State of the art

[0002] It is known how to make hand tools such as paint rollers or scrapers for paint removal, fitted with a plastic handle, with more or cross sections or necessary material, as well as to make the handle sufficiently easy to manage, the handles may be possibly hollow, for example essentially tubular. To make tubular handles with the necessary undercuts, injection molds with moving platens are almost always necessary.

[0003] One aim of the present invention is to provide a handle for hand tools such as paint rollers or scrapers for paint removal, which can be made without using injection molds with moving platens whilst retaining the lightness and ease of use of essentially round cross sections.

Summary of the invention

[0004] This aim is achieved, according to the present invention, with a handle for a hand tool having characteristics according to claim 1.Said handle is comfortable and pleasant to use as a tubular handle, even though it is manufactured with an injection mold without moving platens.

[0005] Further advantages that may be achieved with the present invention will be more evident to the technician in the field, from the following detailed description of two examples of a particular, non-limitative embodiment, illustrated with reference to the following schematic figures.

List of Figures

[0006]

Figure 1 shows a first perspective view of a paint roller according to a first embodiment of the present invention;
Figure 2 shows a cross section, according to the A-A section plane, of the handle of the paint roller of Figure 1;
Figure 3 shows a second perspective view of the roller in Figure 1;
Figure 4 shows a detail of a longitudinal section, according to the section plane B-B, of the paint roller of Figure 1;
Figure 5 shows a perspective view of a scraper for paint removal according to a second embodiment of the present invention;
Figure 6 shows schematically a possible way to grip the handle of the paint roller of Figure 1 or the scraper of Figure 5.

Detailed description

[0007] Figures 1-4 relate to a first embodiment of a hand tool according to the invention. This tool, indicated with the global reference 1, includes a handle 5 which in turn includes a handle wall 7 (Figure 2).In the present example of embodiment, the handle wall forms essentially a double curvature shell with open cross sections (i.e. not closed and not tubular), especially in a C or U shape.

[0008] The handle 5 includes a hard insert 9 made of a harder primary material and that forms the central portion of the handle wall 7. The hard insert 9 is delimited along its sides, from two lateral edges 13 each of which, as in the present example of embodiment, may extend essentially along a side of the same handle 5.
The handle 5 also includes at least one soft edge 15, which covers at least one length of one of the lateral edges 13.In the example of the embodiment of Figure 1-4 the handle wall 7 is formed from the hard insert 9 and the two soft edges 15.

[0009] According to the invention, the soft edge 15 is essentially softer than the primary material of the hard insert 9 and, at at least one length of the handle 5, forms the entire thickness S of the handle wall 7 for a width LB equal or greater than 2 mm and measured from the free ends of the cross sections of the handle (Figure 2).One such soft edge is sufficient to cushion the handle 5 making it less sharp, hard, painful and uncomfortable to grip. Preferably the width LB is equal to or greater than 3 mm. Preferably the free ends of the cross sections of the soft edge 15 are essentially rounded or properly beveled.

[0010] As shown in Figures 1, 2 the handle 5 may have an essentially elongated shape and soft edges 11 may also be two or more. The soft edge or soft edges 15 are made of a material essentially softer than the primary material, and having a hardness of at least 4 Shore A degrees less than the hardness of the primary material, i.e. equal to or less than 68 Shore A degrees and more preferably equal to or less than 65 Shore A degrees, where in the present description Shore A degrees are understood as measured according to the standard DIN 53505 or ISO 868.

[0011] The primary material preferably has hardness equal to or greater than 72 Shore A degrees and, more preferably, equal to or greater than 75 Shore A degrees. The soft edge or soft edges 15 may be made of a secondary material chemically and/or physically different from the primary material that constitutes or forms part of the hard insert 9.

[0012] The primary and secondary material may be for example synthetic resin such as for example polypropylene or polyethylene. When either the hard insert 9 or the

soft edge or soft edges 15 are entirely or mainly made of polyethylene, to make one or the other - or others - two different types of polyethylene with different degrees of hardness may be used.

Alternatively the primary and secondary material may be natural rubber or thermoplastic elastomers with appropriate hardness degree and sufficient chemical affinity; for example it has a better adhesion molding soft edges 15 in thermoplastic elastomer obtained from polypropylene, on a hard polypropylene insert.

As shown in Figure 1, 3, 5 the width LB can vary along the handle 5; in the embodiment of Figures 1-4 the width LB is the maximum at the center of the handle 5 and decreases toward the ends.

[0013] Advantageously, at least on one length of handle 5, the soft edge 15 or the soft edges 15 have a width LB large enough to assure that, when the handle is gripped, the soft edge or edges 15 flex and curve towards the inside as shown in Figure 6, resulting in a handle 5 with completely rounded, tubular or almost tubular cross sections: said rounded sections are much more comfortable or less painful to grip for example than U-shaped cross sections, or more generally open, and essentially as much comfortable and pleasant as the closed sections of a known type of tubular handle.

[0014] To this end, preferably at least on one length of the handle 5, at least one soft edge 15 forms the entire thickness of the handle walls 7 for a width LB equal to or greater than 0.5 times the diameter or maximum width LS of the relative cross section of the same handle 5 (Figure 2), more preferably equal to or greater than 0.7 times said maximum diameter or width, and still more preferably equal to or greater than 0.8 times said maximum diameter or width; considering that 0.7 is approximately the ratio between a side of a square and its diagonal and 0.8 is approximately equal to n/4, said preferred ratios allow the soft edge or edges 15 to enough close the cross sections of the handle enough when it is bent. Also in this regard, advantageously at least in one length of handle 5, at least one soft edge 15 forms the entire thickness of the handle walls 7 for a width LB equal to or greater than 6 mm, and more preferably less than or greater than 1.2 cm. As in the example of embodiment of Figure 2, the value of the width LB, for which the soft edge 15 forms the entire thickness of the handle wall 7, may reach 1.5 cm, 2 cm, 2.5 cm or more.

[0015] Advantageously the length of the handle 5 in which at least one soft edge 15 forms the entire thickness of the handle wall 7 for a width LB equal to or greater than 3 mm has a length LT equal to or greater than the width of the palm of the hand of a standard user; for example LT is at least equal to 7 cm, more preferably it is at least equal to 8 cm and more preferably at least equal to 9 cm (Figure 1): in this way the soft edge or soft edges 15 extend and protect a substantial part or the inside span of the palm of the hand of a standard adult user.

[0016] Advantageously the length of handle 5 in which at least one soft edge 15 forms the entire thickness of the handle wall 7 for a width LB equal to or greater than 10 mm, and a length at least LT = 7 cm long, more preferably at least 8 cm. The thickness S of the soft edge or soft edges 15 parallel at the attachment area on the hard insert 9, is preferably equal to or greater than 2 mm, more preferably equal or greater than 3 mm.

[0017] The hard insert 9 may be obtained for example by injection molding; due to its open cross section, the insert 9 may be molded with a mold without moving platens, usually used to make undercuts, thereby significantly reducing the cost of the mold or the molds for two reasons:

1) a mold without moving platens is more likely to have a higher number of shapes or molding cavities; and

2) each shape or mold cavity, if it has no moving platens, has a lower unit cost compared to a shape or cavity with moving platens.

The soft edge or soft edges 15 are advantageously obtained by molding on the hard insert 9 previously shaped. The considerable savings by the use of a mold without moving platens fully compensate the costs of the operations - in a certain "supplementary" sense - of molding the soft edges 15. The coupling area between the hard insert 9 and soft edges 15 may include for example, a longitudinal rib 130 (Figure 1) or other ridges and/or indentations of a known type.

The presence of molded soft edges 15 makes the handle more appreciated, both in terms of esthetic value and in terms of increased technical quality perceived by the end user.

As a handle 5 according to the invention may be made essentially as an open half-shell, much material is furthermore saved by making the hard insert 9, approximately up to 40-50% with respect to a known tubular handle: this material savings means less weight and lower unit cost of the product, as well as greater comfort in use because it is lighter.

[0018] As shown in Figures 1, 3, 4 and 5, a handle according to the present invention may be provided with a rest pad 17 for the thumb or possibly for the index finger. Said pad 17 advantageously includes a partition that closes an opening 19 made in the hard insert 9 and is entirely made of a material essentially softer than the primary material which the hard insert 9 is made of, and having a hardness of at least 4 Shore A degrees less than the hardness of the primary material, for example equal to or less than 68 Shore A degrees and more preferably equal to or less than 65 Shore A degrees.

Placing one's finger on the soft surface of the pad 17 is more convenient and comfortable than resting it on a harder surface, especially during prolonged use.

[0019] The pad 17 may be made of a synthetic resin such as for example polypropylene or polyethylene or a thermoplastic elastomer, or even natural rubber.

[0020] Figure 5 shows a handle for a scraper for paint

removal, according to a second embodiment of the invention.

[0021] The examples of embodiment described above are susceptible to various modifications and variations without going outside the scope of the present invention.

[0022] The examples and lists of possible variants of the present application are not to be considered as non-exhaustive lists.

Claims

1. Handle (5) for a hand tool, such as, for example, a paint roller or a scraper for paint removal, where the handle (5) includes:

   a) a handle wall (7) which means that the handle has essentially open cross sections;
   b) a hard insert (9), comprising a harder primary material, forms at least part of the handle wall and is at least partially delimited by at least one lateral edge (13);
   c) at least one soft edge (15) covering at least a length of the lateral edge (13) of the hard insert and is essentially softer than the primary material;

   wherein the soft edge (15) at at least one length of the handle wall (5) forms the entire thickness of the handle for a width (LB) equal to or greater than 2 mm and measured from the free ends of the cross sections of the handle.

2. Handle (5) according to claim 1, wherein the soft edge (15) parallel at at least one length of the handle (5) forms the entire thickness of the handle for a width (LB) equal to or greater than 3 mm and measured from the free ends of the cross sections of the handle.

3. Handle (5) according to claim 1, wherein at at least one length of the handle (5) the width (LB) of the soft edge (15) is equal to or greater than half of the diameter or maximum width (LS) of the relative cross section of the same handle (5), and possibly equal to or greater than 0.7 times the diameter or the maximum width (LS) of the related cross section of the same handle (5), and possibly is equal to or greater than 0.8 times the diameter or the maximum width (LS) of the related cross section of the same handle (5).

4. Handle (5) according to the claim 1, wherein at at least one length of the handle (5) the soft edge (15) is designed to flex inward when deformed by the hand gripping the same handle (5), to make a more convenient and comfortable grip of the handle.

5. Handle (5) according to claim 1, wherein the width (LB) of the soft edge (15) is equal to or greater than 6 mm, and more preferably is equal to or greater than 5 cm.

6. Handle (5) according to claim 1, wherein the lateral edge (13) extends essentially along a side of the handle (5).

7. Handle (5) according to claim 1, wherein the length of the handle (5), on which the soft edge (15) forms the entire thickness of the handle wall at least for a width (LB) equal to or greater than 3 mm, is at least 7 cm long, and preferably is 8-9 cm long.

8. Handle (5) according to claim 1, wherein the length of the handle (5), on which the soft edge (15) forms the entire thickness of the handle wall at least for a width (LB) equal to or greater than 3 mm, is essentially as long as the width of the user's palm.

9. Handle (5) according to claim 1, wherein the length of the handle (5), on which the soft edge (15) forms the entire thickness of the handle wall at least for a width (LB) equal to or greater than 3 mm, is at least 8 cm long (LT), and preferably is at least 10 cm long.

10. Handle (5) according to claim 1, wherein the harder primary material has a hardness of at least four Shore A degrees greater than the hardness of at least one soft side (15).

11. Handle (5) according to claim 1, wherein the at least one soft edge (15) has a hardness equal to or less than 68 Shore A degrees, and preferably equal to or less than 65 Shore A degrees.

12. Handle (5) according to claim 1, wherein the harder primary material has a hardness equal to or greater than 72 Shore A degrees, and preferably equal to or greater than 75 Shore A degrees.

13. Handle (5) according to claim 1, having an essentially C, U or arc-shaped cross sections.

14. Handle (5) according to claim 1, wherein the at least one soft side (15) is molded on the hard insert (9).

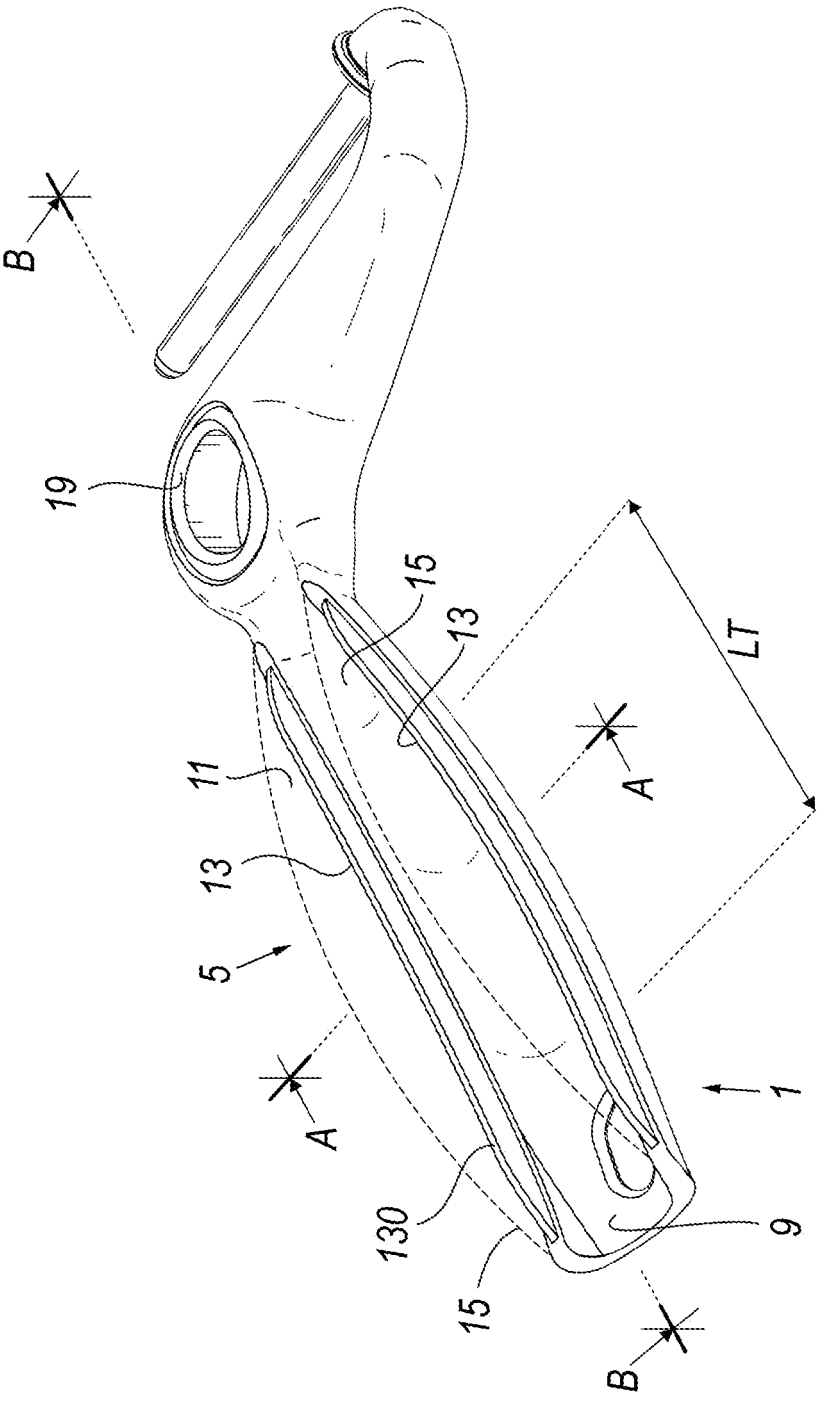

Fig. 1

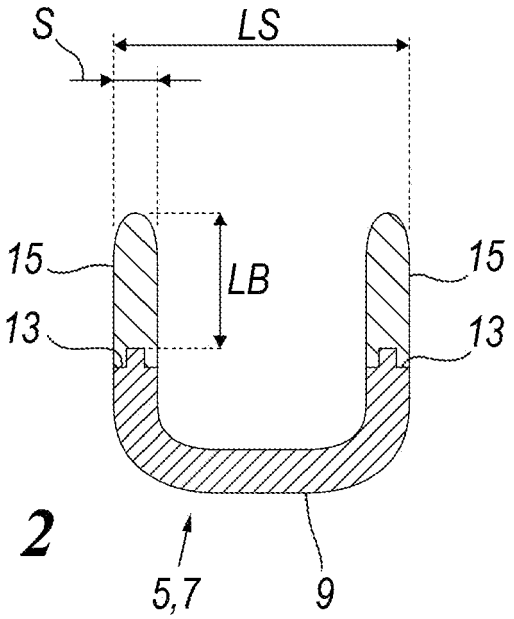

Fig. 2

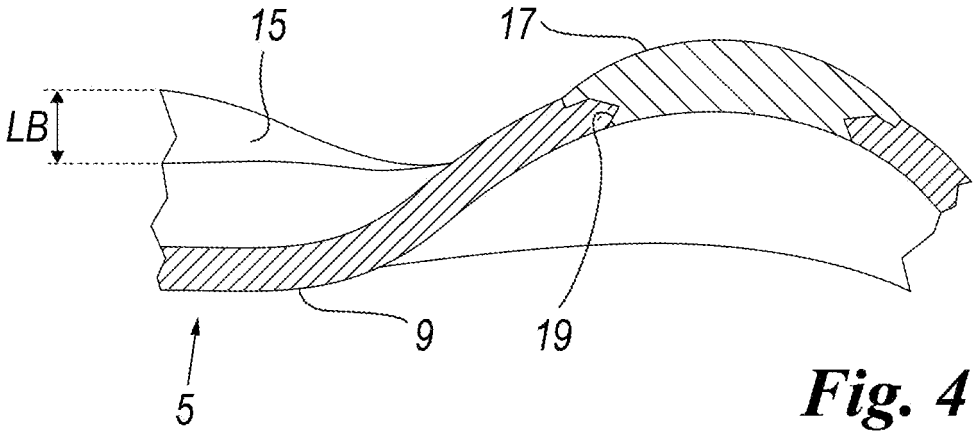

Fig. 4

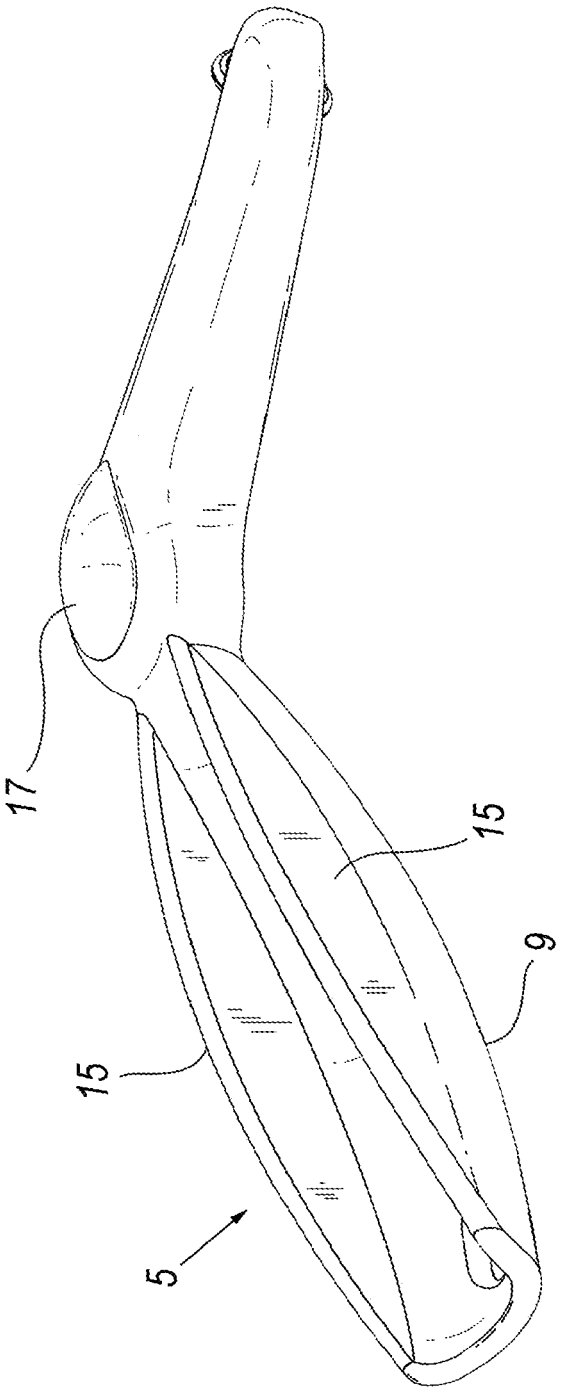

Fig. 3

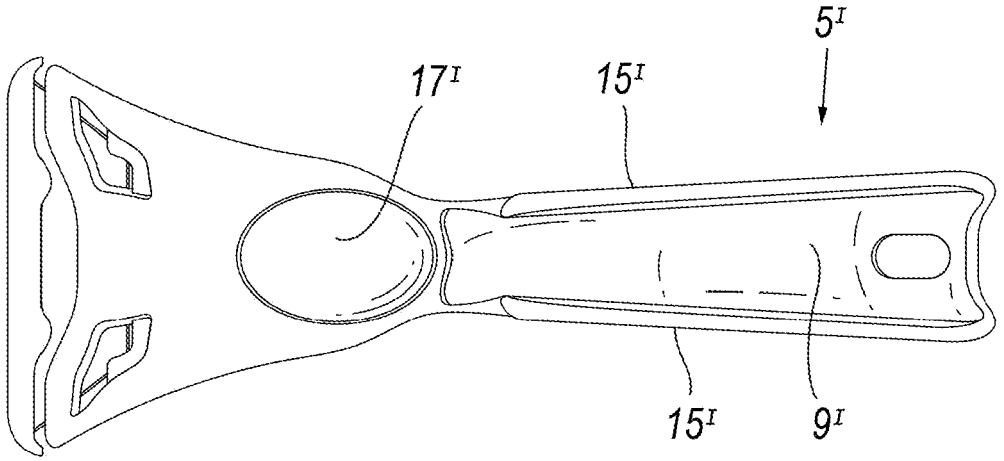

Fig. 5

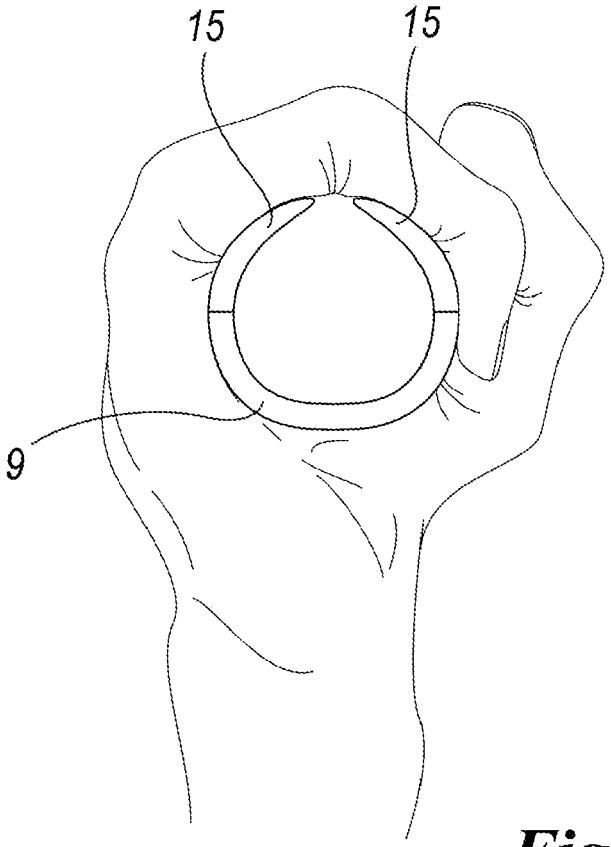

Fig. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 11 15 6292

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	DE 21 2005 000006 U1 (ALFOELDI THOMAS [AT]) 2 March 2006 (2006-03-02) * paragraph [0055]; figures 1-9 *	1-14	INV. B05C17/02 A47L13/022
A	US 2 517 247 A (SELEY SIDNEY C) 1 August 1950 (1950-08-01) * column 1, line 53 - column 2, line 39; figures 1-3 *	1-14	
A	DE 200 09 719 U1 (SCHOTT GLAS [DE]) 21 September 2000 (2000-09-21) * page 5, lines 1-9; figures 1-3 *	1-14	
A	CA 2 334 425 A1 (RICHARD LTEE A [CA]) 6 August 2002 (2002-08-06) * page 6, line 19 - page 11, line 12; figures 1-7 *	1-14	

TECHNICAL FIELDS SEARCHED (IPC)

B05C
B25G
A47L
B60S

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	22 June 2011	Menn, Patrick

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82