(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 434 934 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
26.03.2014 Bulletin 2014/13

(21) Application number: **10732433.7**

(22) Date of filing: **25.05.2010**

(51) Int Cl.:
A47L 13/256 *(2006.01)* ***A47L 13/46*** *(2006.01)*

(86) International application number:
PCT/IB2010/052300

(87) International publication number:
WO 2010/136958 (02.12.2010 Gazette 2010/48)

(54) **A TOOL FOR CLEANING SURFACES AND A METHOD FOR REALISING THE TOOL**

GERÄT ZUR REINIGUNG VON OBERFLÄCHEN UND VERFAHREN ZUR REALISIERUNG DES GERÄTS

DISPOSITIF POUR NETTOYER DES SURFACES ET MÉTHODE POUR RÉALISER CE DISPOSITIF

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

(30) Priority: **27.05.2009 IT BO20090344**

(43) Date of publication of application:
04.04.2012 Bulletin 2012/14

(73) Proprietor: **Messina, Carmela**
95034 Bronte (Catania) (IT)

(72) Inventor: **Messina, Carmela**
95034 Bronte (Catania) (IT)

(74) Representative: **Dall'Olio, Christian et al**
INVENTION S.r.l.
Via delle Armi, 1
40137 Bologna (IT)

(56) References cited:
FR-A1- 2 143 426 **US-A- 3 792 505**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 2 434 934 B1

Printed by Jouve, 75001 PARIS (FR)

Description

TECHNICAL FIELD

[0001] The invention relates to the field of cleaning tools in particular for cleaning surfaces (for example floors, walls, ceilings, etc.) which enable the operator to work without bending over and without coming into contact with the washing liquid.

BACKGROUND ART

[0002] In modern society the time available for cleaning, both domestic and professional, is ever more restricted; this has led to industries in the sector creating new tools which enable reduction and facilitation of the cleaning operations, in particular the cleanliness of particularly large surfaces such as floors. At present the market offers tools for floor cleaning known as mops which are associated to a bucket provided with a squeezing element and thus substitute the floorcloth and broom. In these tools, the washing part is fixed to a connection which is associable to a handle. The operator, by raising the handle, raises the washing part from the ground and can immerse it in the bucket which contains washing water and then squeeze the washing part in the squeezing element of the bucket, as she or he acts only on the handle. In this way the operator does not come into contact either with the washing part or with the washing water which might contain chemical products for cleaning that are dangerous or irritating or even corrosive.

[0003] Further, the operator is not forced to continually bend over in order to pick up a floor-cloth so as to rinse it. An example is given in US-A-3792505.

[0004] In these cleaning tools the washing part is usually constituted by a plurality of strips of textile or a plurality of tresses. Although this is given as an advantage in publicity campaigns, as it enables reaching into corners of the floor that are difficult to access, it has the drawback that during use the strips or tresses get arranged along the direction which the operator imparts on the washing part via the handle. It follows that operatively the surface that gets washed by moving the tools in a direction is less than the surface that gets washed by moving a floorcloth using a broom.

[0005] Further, this type of tool is not suitable for use with a particular kind of cloth which has been seen to be particularly suitable for cleaning surfaces; polyester/polyamide microfibre with a beehive weave. This microfibre tends to shed fluff when cut, and for this reason it is not truly suitable for use in strips, as each edge thereof would need hemming or sewing in order to minimise the shedding of fluff.

[0006] Recently, in order to increase the cleaning surface of sponges, a tool has been developed for cleaning floors which uses the same type of joint used in mops, to which, instead of the plurality of strips or fibres, a floor mop is fixed that is made of cotton sponge textile.

[0007] The joint comprises a sleeve and a cap originating from a terminal end of the sleeve. The cap affords two housings, each of which friction-couples with a pawl. The central part of the plurality of strips is placed between the two internal housings of the concavity of the cap. The friction-coupling means, constituted by a longitudinally-developing element from ends of which two pawls originate and develop perpendicularly thereto, are coupled unremovably to the housings such that the fastening means maintain the plurality of strips in the above-cited arrangement. In order to fix a floor cloth to the joint it is necessary to ruffle the central part along the smaller axis of the cloth and arranged it between the two housings of the cap. The cloth is thus folded on itself along the smaller axis, and is sewn along the edges that are perpendicular to the axis which, following folding, are centrally folded on themselves.

[0008] In the cited joint, the longitudinally-developing element of the fastening means is in contact with the floor during the cleaning operations, so it is not possible for the operator to impress a force to the cleaning part of the tool in which the vertical component is light, as the longitudinal element would be crushed against the surface to be cleaned, risking scratching or ruining the floor (for example a parquet or marble floor). Consequently the operator cannot carry out her or his work in a straight and comfortable posture, but on the contrary she or he has to work in a diagonal posture in order to prevent friction between the surface and the longitudinal element. In this case too it is not possible to exert a considerable force on the floor as the rest base of the cap also has to be prevented from contacting the surface to be cleaned.

[0009] Thus, in a case where a particularly dirty surface has to be cleaned, it is necessary to repeat the cleaning operations several times as it is not possible to impress on the cleaning part a force that is sufficient to clean the surface with a single operation without risking ruining it if the surface is, for example, particularly delicate. It is also obvious that the assembly of known tools for cleaning surfaces requires a certain skill in positioning the washing parts between the cap housings, and for hooking the fastening means to the cap.

SUMMARY OF THE INVENTION

[0010] The aim of the present invention is to provide a floor-cleaning tool which enables an operator both not to have to crouch and not to have to come into contact with the cleaning fluid, and to impress a force on the cleaning part which is characterised by a high vertical component, in this way enabling the operator to strike a working posture which is more ergonomic without creating at the same time the risk of ruining the surfaces to be cleaned.

[0011] A further aim of the invention is to provide a tool for cleaning floors which has a greater cleaning surface with respect to the tools of the prior art and which at the same time is easy to assemble.

[0012] A further object of the present invention is to

provide a tool for cleaning surfaces which can be realised in a material which tends to lose threads or fluff without having to provide a hem or seam on the edges which hem or seam is larger than what is required for a common floor cloth.

[0013] The invention also has the object of providing a method for realising the new tool for cleaning surfaces.

[0014] The tool for cleaning surfaces of the invention comprises the features of claim 1.

[0015] As the perimeter of the cloth exits from the sleeve, when the cloth is spread on the floor the sleeve is entirely positioned on the cloth: only the washing part of the surface cleaning tool of the invention comes into contact with the floor, the sleeve resting entirely on the remaining portion of cloth which exits from the sleeve, and it is thus possible to impress a force on the cloth having a large vertical component without incurring the risk of ruining the surfaces to be cleaned and enabling the operator to strike an ergonomic posture.

[0016] The cloth fixed to the sleeve further enables a cleaning surface to be obtained which is greater than strip or cloth mops of known types, and does not require more hemming or sewing than a common floor cloth.

[0017] Further, the tool for cleaning surfaces can easily be assembled using the method of the invention which does not require a careful positioning of the cleaning part before fastening. This method comprises the following stage: arranging the compressing means and the portion of the floor cloth internally of the housing such that the perimeter of the floor cloth is entirely located externally of the sleeve in order to exert a pressure on the portion of the floor cloth which pressure is directed towards at least an internal wall of the housing via the compressing means and obtaining a fastening of the floor cloth to the sleeve.

[0018] The portion of the floor cloth is preferably a central portion, so that once assembled, with the cleaning tool arranged with the portion of cloth exiting the sleeve spread out on the floor, the sleeve is centred with respect to the cleaning portion, and the cleaning operations are facilitated.

[0019] The tool advantageously comprises a plurality of cloths, so that the pressure exerted on the sleeve via the handle, which is preferably a stick, is covered by several layers of cloth. Further, the weight of the cloths, once wetted, facilitate adhesion of the portion of cloth that exits from the sleeve to the floor, which means that during use the portion will remain more easily spread out, leading to a more constant cleaning surface.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

Figures 1 and 2 are longitudinal-section views of two examples of known tools for surface cleaning.

Figure 3 is a longitudinal-section view of the parts which make up the cleaning tool of the invention.

Figure 3a is a transversal-section view of a component of an embodiment of the cleaning tool of the invention.

Figure 4 is a longitudinal-section view of an embodiment of the cleaning tool of the invention.

Figure 5 is a longitudinal-section view of a further embodiment of the cleaning tool of the invention.

BEST MODE FOR CARRYING OUT THE INVENTION

[0021] In figures 1 to 5 identical components are denoted using the same numerical reference in the following description of the various embodiments of the invention, and it is understood that the parts have similar characteristics except where expressly indicated.

[0022] Figures 1 and 2 show two tools for cleaning surfaces that are available on the market. They comprise a connecting element 200 associable to a handle 190 and, in the case of figure 2, a cloth 30 for cleaning surfaces or a plurality of strips 300 of cloth, as shown in figure 1, fixed to the connecting element 200 by fastening means. The connecting element 200 comprises a sleeve 10 and a cap 210 which originates at a terminal end of the sleeve 10. The cap 210 exhibits two housings 220, each of which is destined to friction-couple with a pawl. The fastening means 250 are constituted by a first longitudinally-developing element 240 from ends of which emerge two pawls 230 which extend perpendicular to the development direction of the first element 240. Figure 2 shows how the cloth, rectangular or square, is curled along the smaller axis thereof, not illustrated, in order to create a curly portion 260. Located in the portion of the cap concavity between the two housings 220 is the central portion of the plurality of strips 300 (figure 1) or the curly portion 260 of the cloth 30 (figure 2). The material present between the two housings 220 is fastening by the fastening means 250, creating an unremovable friction coupling between the pawls 230 and the housings 220. The cloth 30 is folded on itself along the smaller axis, and sewn along the edges 270 of the cloth 30 perpendicular to the axis which, following folding, are centrally folded on themselves.

[0023] The longitudinally-developing element 240 or the rest base of the cap can be in contact with the floor during vertical or diagonal use of the tools of figures 1 and 2.

[0024] The housing is preferably in proximity of an end of the sleeve and is accessible from the end of the sleeve. In this case the handle is preferably fixable to the other end of the sleeve.

[0025] Figure 3 shows the components of the embodiment of the tool for cleaning floors of the invention shown in the section of figure 4, in which the element 60, partially surrounded by the portion 40 of the cloth 30, is friction-couplable with the housing 20 of the sleeve 10. The sleeve 10 is fastenable by screwing to the handle 190. The internal walls of the housing 20 exhibit grooves 280 which function as anti-rotational means. Figure 3A is a

section view of the sleeve 10 of figure 3 in which the grooves 280 are visible.

[0026] Figure 4 shows a further and preferred embodiment in which the compression means comprise an elastically-yielding element 60 inserted in the deformed state in the housing 20 and partially surrounded by the portion 40 of the cloth 30 in the housing 20 such as to exert a direct pressure towards at least an internal wall of the housing 20 of the portion 40 of the cloth 30. The portion 40 of the cloth 30 is pressed and/or compressed against the internal walls of the housing 20 by the elastically-yielding element 60.

[0027] In figures 4 and 5 the distances between the wall of the element 60 and the portion 40 of the cloth and other components have been deliberately exaggerated in order to make the description of the tools more comprehensible. The pressure exerted by the element 60 fixes the cloth to the sleeve and the fact that the elastically-yielding element 60 is partially surrounded by the portion 40 makes it more difficult to remove the cloth from the sleeve while at the same time it facilitates the assembly operations of the tool of the invention. This is due to the fact that it is sufficient to apply a force, preferably using compressed air, to the element 60, partially surrounded by the portion 40 and placed in proximity of the transit seating of the housing 20 in order to deform the element 60 and obtain the tool of the invention.

[0028] Thus a method is preferred which comprises the following stages: predisposing an elastically-yielding element 60 destined to be inserted in a deformed state thereof and being partially enveloped by the portion 40 of the floor cloth 30 in the housing 20;
partially enveloping the elastically-yielding element 60 with the portion 40 of the floor cloth 30;
inserting the elastically-yielding element 60 partially enveloped by the portion 40 of the floor cloth 30 internally of the housing 20, elastically deforming the elastically-yielding element 60 such that a pressure is exerted on the portion 40 of the floor cloth 30 directed towards at least an internal wall of the housing 20.

[0029] In a preferred embodiment, the elastically-yielding element 60 can be placed on the transit seating of the cloth housing 20, preferably in a central position, and a force can be applied in the direction of the sleeve axis, preferably using compressed air, in order to deform the elastically-yielding element 60 and to insert it in the housing 20. The element 60 will be partially surrounded by a portion 40 of the cloth 30.

[0030] The elastically-yielding element 60 can advantageously be an internal seeger ring, a hollow spherical element or a substantially solid spherical element obtained by balling of a material as it is easily positionable internally of the housing respectively by means of pliers, or a snap-fit, or a pressure-fit using compressed air.

[0031] Of particular advantage are embodiments in which the housing 20 exhibits a narrowing 70 at the opening 120, and in which the housing 20 is friction-couplable with the elastically-yielding element 60 partially wound on the portion 40 of the cloth 30, as the friction coupling exhibits greater fastening guarantees.

[0032] As a consequence the production methods of the cleaning tool of the invention are advantageous as the housing 20 is friction-coupled with the elastically-yielding element 60 partially surrounded by the portion 40 of the cloth 30.

[0033] The narrowing can be advantageously constituted by a ring, i.e. by a constant-section edge concentric of the sleeve axis as shown in figures 3 to 5.

[0034] When the arranged narrowing is not constant along the section which is perpendicular to the axis of the sleeve but is for example constituted by protuberances arranged along a diameter, it also functions as antirotation means which prevent the portion 40 of the cloth from rotating and thus thinning out and exiting from the housing 20.

[0035] When the narrowing does not function as an antirotation means, floor-cleaning tools are particularly advantages which have at least an internal wall of the housing 20 exhibiting antirotation means. These antirotation means can be protuberances, reliefs or pawls which originate from the internal wall of the housing 20.

[0036] Particularly advantageous are sleeves in which the antirotation means comprise a plurality of longitudinal grooves 280, as shown in figures 3 and 3a, in the internal walls of the housing 20, as these grooves are easier to realise by moulding with respect to sleeves exhibiting reliefs, protuberances or pawls. However, in the case of the tools of the invention, which do not comprise antirotation means, it is sufficient to take care not to squeeze out the portion of cloth that exits from the sleeve in a direction and the sleeve in another. This can be done using a bucket provided with a squeezing element.

[0037] The tool for cleaning surfaces of the invention illustrated in figure 5 is particularly preferred as it enables, in associated with a bucket provided with a squeezing element, more efficient squeezing of the cloth. In this embodiment a wall 100 emerges from the end of the sleeve 10 proximal to the opening 120 of the housing 20, which wall 100 surrounds the sleeve 10 and has a surface 140 destined, during use, to face the surface to be cleaned with an inclination with respect to the axis of the sleeve 10 of an angle α comprised between 10° and 90° with the perimeter 150 of the cloth 30 entirely located externally of the wall 110. In this embodiment, during use the wall 110 is located on a second and spread portion of the cloth 30 which exits from the sleeve. In this way the wall 110 does not touch the surface to be cleaned and there is not risk of scratching or damage. The wall 110 preferably is truncoconical concentric to the sleeve.

[0038] In an embodiment which is not illustrated, the surface 140 can be inclined with respect to the axis of the sleeve 10 by a 90° angle. In this way the pressure exerted by the operator on the washing part interposed between the surface and the floor can be uniformly distributed.

[0039] Figure 5 illustrates a further particularly advan-

tageous characteristic of the tool of the invention, in that it comprises a plurality of cloths 30 which once wetted, adhere perfectly due to their weight to the floor and thus guarantee a cleaning surface which is equal to the surface of the second portion of cloth which exits from the sleeve.

[0040] This tool comprises two superposed cloths 30, preferably of a same size, with the first portion 40 of the central cloths in a central position and in which at least a piece of material 160 is interposed between the cloths, and preferably two pieces 160 having smaller dimensions than that of the cloths 30 with a central portion 170 of the piece of material 160 which partially surrounds the elastically-yielding element 60 and on which the elastically-yielding element 60 inserted in the housing 20 exerts a pressure directed towards at least an internal wall of the housing 20 with the perimeter 180 of the piece of material 160 entirely located externally on the wall 110. In the embodiment of figure 5, during use, at least three layers of material are interposed between the surface to be cleaned and the wall 110; two layers are due to the second portions of the cloth 30 and at least one is due to a remaining peripheral portion of the piece of material 160. This enables the operator to use a force having a still greater vertical component and thus to clean more accurately between the three layers dampen the pressure of the rest base on the floor. Figure 3 schematically shows, in section, four layers of material the two external layers relate to cloths 30 and the two internal layers relate to two pieces of material.

[0041] In an embodiment which is not illustrated, and alternative to the embodiment shown in figure 5, the tool comprises a cloth 30 which is folded in half in which at least a piece of cloth 160, preferably two, is interposed between the two folded parts with the central portion 170 of the piece 160 of cloth partially surrounding the elastically-yielding element 60 inserted in the housing 20 and on which the elastically-yielding element 60 exerts a pressure directed towards at least an internal wall of the housing 20, in which the size of the piece 160 of material is less than half the size of the cloth 30 and in which the perimeter 180 of the piece of material 160 is entirely located externally of the wall 110.

[0042] In both this embodiment and in the embodiment illustrated in figure 5, the wall 110 rests entirely and directly on a second portion of the cloth 30 which exits from the sleeve 10.

[0043] The pieces of material 160 are preferably constituted by the same type of material as the cloth.

[0044] Also particularly advantageous are tools for cleaning surfaces which further comprise a joint with which the handle 190 can be coupled, in which the joint is located at the end of the distal sleeve of the opening 120 of the housing 20. The sleeve 10 and the handle 190 are preferably associable by screwing, as shown in figures 3 to 5.

[0045] The textile the cloth 30 and/or the elastically yielding element 60 and/or the piece 160 of material is made of is advantageously a microfibre made of polyester/polyamide, with a beehive weave as this material facilitates capture, retaining and rinsing of the dirt.

Claims

1. A tool for cleaning surfaces, comprising:

a sleeve (10), fixable to a handle (190) and provided with a housing (20) for receiving a portion (40) of a floor cloth, the housing (20) being accessible from an opening (120);
a floor cloth (30) for cleaning surfaces having a portion (40) which is insertable in the housing (20), such that a perimeter (150) of the floor cloth (30) is entirely located externally of the sleeve (10);
compressing means, insertable in the housing (20), for exerting a pressure on the portion (40) of the floor cloth (30), which pressure is directed towards at least an internal wall of the housing (20) and for obtaining a fastening of the floor cloth (30) to the sleeve (10):

characterised in that the compressing means comprise an elastically-yielding element (60) destined to be inserted in a deformed state thereof and partially enveloped by the portion (40) of the floor cloth (30) in the housing (20) such as to exert a pressure on the portion (40) of the floor cloth (30) which pressure is directed towards at least an internal wall of the housing (20).

2. The tool of the preceding claim, wherein the elastically-yielding element (60) is an internal seeger ring, a hollow spherical element or a substantially-spherical solid element obtained by balling up a textile material.

3. The tool of any one of the preceding claims, wherein the housing (20) exhibits a narrowing (70) at the opening (120), and in which the housing (20) is interference fit couplable with the elastically-yielding element (60) partially enveloped by the portion (40) of the floor cloth (30).

4. The tool of any one of the preceding claims, wherein at least an internal wall of the housing (20) exhibits anti-rotation means.

5. The tool of the preceding claim, wherein the anti-rotation means comprise a plurality of longitudinal grooves (280) in at least a wall of the internal walls of the housing.

6. The tool of any one of the preceding claims, wherein

a wall (110) commences from an end of the sleeve (10) which is proximal to the opening (120) of the housing (20), which wall surrounds the sleeve (10) and has a surface (140) destined, during use, to be facing a surface to be cleaned, the surface (140) being inclined with respect to an axis of the sleeve (10) by an angle (α) comprised between 10° and 90° with the perimeter (150) of the floor cloth (30) being entirely located externally of the wall (110).

7. The toot of the preceding claim, comprising two superposed floor cloths (30), the first portion (40) of the floor cloths (30) being central and in which at least a piece of cloth (160) is centrally interposed between the floor cloths (30), the piece of cloth (160) being smaller than the floor cloths (30) and a central portion (170) of the piece of cloth (160) partially enveloping the elastically-yielding element (60) and on which the elastically-yielding element (60) inserted in the housing (20) exerts a pressure directed towards at least an internal wall of the housing (20) with the perimeter (180) of the piece of cloth (160) being entirely located externally of the wall (110).

8. The tool of claim 6, comprising a floor cloth (30) folded in half, wherein at least a piece of cloth (160) is interposed between the two folded parts, a central portion (170) of the piece of cloth (160) partially enveloping the elastically-yielding element (60), and on which the elastically-yielding element (60) inserted in the housing (20) exerts a pressure directed towards at least an internal wall of the housing (20), wherein a size of the piece of cloth (160) is smaller than half a size of the floor cloth (30) and wherein a perimeter (180) of the piece of cloth (160) is entirely located
externally of the wall (110).

9. The tool of any one of the preceding claims, further comprising a joint by which the handle (190) is coupled to the sleeve (10), the joint being located at an end of the handle (10) which is distal of the opening (120) of the housing (20).

10. The tool of any one of the preceding claims, wherein the textile material with which the floor cloth (30) and/or the elastically-yielding element (60) and/or the piece (160) of cloth are made of a microfibre material.

11. The tool of any one of the preceding claims, wherein the microfibre is a polyester/polyamide microfibre having a honeycomb weave.

12. An assembly method for a tool for cleaning surfaces, as in any one of claims from 1 to 11, comprising a following stage:

arranging the compressing means and the portion (40) of the floor cloth (30) internally of the housing (20) such that the perimeter (160) of the floor cloth (30) is entirely located externally of the sleeve (10) in order to exert a pressure on the portion (40) of the floor cloth (30) which pressure is directed towards at least an internal wall of the housing (20) via the compressing means and
obtaining a fastening of the floor cloth (30) to the sleeve (10);
characterised in that it comprises following stages:

predisposing an elastically-yielding element (60) destined to be inserted in a deformed state thereof and being partially enveloped by the portion (40) of the floor cloth (30) in the housing (20);
partially enveloping the elastically-yielding element (60) with the portion (40) of the floor cloth (30);
inserting the elastically-yielding element (60) partially enveloped by the portion (40) of the floor cloth (30) internally of the housing (20), elastically deforming the elastically-yielding element (60) such that a pressure is exerted on the portion (40) of the floor cloth (30) towards at least an internal wall of the housing (20).

13. The method of the preceding claim wherein the housing (20) couples by interference fit with the elastically-yielding element (60) partially enveloped by the portion (40) of the floor cloth (30).

Patentansprüche

1. Gerät zur Reinigung von Oberflächen, Folgendes beinhaltend:

ein Manschette (10), die an einem Stiel (190) befestigt werden kann und
die ein Gehäuse (20) zur Aufnahme eines Abschnittes (40) eines Wischlappens aufweist, wobei dieses Gehäuse (20) über eine Öffnung (120) erreichbar ist;
einen Wischlappen (30) zur Reinigung von Oberflächen, der einen Abschnitt (40) aufweist, der derart in das Gehäuse (20) einführbar ist,
dass sich ein Außenumfang (150) des Wischlappens (30) vollständig außerhalb der Manschette (10) befindet;
Kompressionsmittel, die in das Gehäuse (20) einführbar sind, um einen Druck auf den Abschnitt (40) des Wischlappens (30) auszuüben, wobei dieser Druck auf zumindest eine Innen-

wand des Gehäuses (20) gerichtet ist, und um somit eine Befestigung des Wischlappens (30) an der Manschette (10) zu erhalten;
dadurch gekennzeichnet, dass die Kompressionsmittel ein elastisch nachgiebiges Element (60) beinhalten, das dafür bestimmt ist, in einem verformten Zustand und teilweise mit dem Abschnitt (40) des Wischlappens (30) umhüllt in das Gehäuse (20) eingeführt zu werden,
um einen Druck auf den Abschnitt (40) des Wischlappens (30) auszuüben, wobei dieser Druck auf zumindest eine Innenwand des Gehäuses (20) gerichtet ist.

2. Gerät nach dem vorhergehenden Anspruch, worin das elastisch nachgiebige Element (60) ein Innen-Sicherungsring, ein Hohlkugelelement oder ein im Wesentlichen kugelförmiges Vollkörperelement ist, das durch Zusammenballen eines textilen Materials erhalten wird.

3. Gerät nach einem der vorhergehenden Ansprüche, worin das Gehäuse (20) eine Verengung (70) an der Öffnung (120) aufweist, und in dem das Gehäuse (20) durch Presspassung mit dem elastisch nachgiebigen Element (60) verbindbar ist, das teilweise mit dem Abschnitt (40) des Wischlappens (30) umhüllt ist.

4. Gerät nach einem der vorhergehenden Ansprüche, worin zumindest eine Innenwand des Gehäuses (20) Drehsicherungsmittel aufweist.

5. Gerät nach dem vorhergehenden Anspruch, worin die Drehsicherungsmittel mehrere Längsrillen (280) an zumindest einer Wand der Innenwände des Gehäuses beinhalten.

6. Gerät nach einem der vorhergehenden Ansprüche, worin eine Wand (110) an einem Ende der Manschette (10) ihren Ursprung nimmt, das proximal zur Öffnung (120) des Gehäuses (20) ist, wobei diese Wand die Manschette (10) umgibt und eine Oberfläche (140) aufweist, die im Gebrauch dafür bestimmt ist, einer zu reinigenden Oberfläche zugewandt zu sein, wobei die Oberfläche (140) relativ zu einer Achse der Manschette (10) um einen Winkel (α) geneigt ist, der zwischen 10° und 90° beträgt, und wobei sich der Außenumfang (150) des Wischlappens (30) vollständig außerhalb der Wand (110) befindet.

7. Gerät nach dem vorhergehenden Anspruch, enthaltend zwei einander überlagerte Wischlappen (30), wobei der erste Abschnitt (40) der Wischlappen (30) mittig angeordnet ist und worin zumindest ein Stück Stoff (160) mittig zwischen den Wischlappen (30) eingelegt ist, wobei dieses Stück Stoff (160) kleiner ist als die Wischlappen (30) und ein mittlerer Abschnitt (170) des Stoffstücks (160) teilweise das elastisch nachgiebige Element (60) umhüllt, und worauf durch das in das Gehäuse (20) eingeführte elastisch nachgiebige Element (60) ein Druck ausgeübt wird, der zumindest auf eine Innenwand des Gehäuses (20) gerichtet ist, wobei sich der Außenumfang (180) des Stoffstücks (160) vollständig außerhalb der Wand (110) befindet.

8. Gerät nach Anspruch 6, enthaltend einen zur Hälfte gefalteten Wischlappen (30), worin zumindest ein Stück Stoff (160) zwischen den zwei gefalteten Hälften eingelegt ist, wobei ein mittlerer Abschnitt (170) des Stoffstücks (160) teilweise das elastisch nachgiebige Element (60) umhüllt, und worauf durch das in das Gehäuse (20) eingeführte elastisch nachgiebige Element (60) ein Druck ausgeübt wird, der zumindest auf eine Innenwand des Gehäuses (20) gerichtet ist, worin die Größe des Stoffstücks (160) kleiner ist als die halbe Größe des Wischlappens (30) und worin sich der Außenumfang (180) des Stoffstücks (160) vollständig außerhalb der Wand (110) befindet.

9. Gerät nach einem der vorhergehenden Ansprüche, ferner enthaltend ein Gelenk, mittels dem der Stiel (190) an der Manschette (10) festgelegt ist, wobei das Gelenk an einem Ende der Manschette (10) angeordnet ist, das sich distal von der Öffnung (120) des Gehäuses (20) befindet.

10. Gerät nach einem der vorhergehenden Ansprüche, worin das textile Material, aus dem der Wischlappen (30) und/oder das elastisch nachgiebige Element (60) und/oder das Stoffstück (160) hergestellt sind, aus einem Mikrofasermaterial besteht.

11. Gerät nach einem der vorhergehenden Ansprüche, worin die Mikrofaser eine Polyester/Polyamid-Mikrofaser mit Waffelmuster ist.

12. Montageverfahren für ein Gerät zur Reinigung von Oberflächen nach einem der Ansprüche von 1 bis 11, folgende Phase enthaltend:

Anordnen der Kompressionsmittel und des Abschnittes (40) des Wischlappens (30) im Inneren des Gehäuses (20), derart, dass sich der Außenumfang (150) des Wischlappens (30) vollständig außerhalb der Manschette (10) befindet, um einen Druck auf den Abschnitt (40) des Wischlappens (30) auszuüben, wobei dieser Druck über die Kompressionsmittel auf zumindest eine Innenwand des Gehäuses (20) gerichtet ist und somit eine Befestigung des Wischlappens (30) an der Manschette (10) erhalten wird;
dadurch gekennzeichnet, dass es folgende Phasen beinhaltet:

Bereitstellen eines elastisch nachgiebigen Elements (60), das dafür bestimmt ist, in einem verformten Zustand und teilweise mit dem Abschnitt (40) des Wischlappens (30) umhüllt in das Gehäuse (20) eingeführt zu werden;
teilweises Umhüllen des elastisch nachgiebigen Elements (60) mit dem Abschnitt (40) des Wischlappens (30);
Einführen des elastisch nachgiebigen Elements (60), das teilweise mit dem Abschnitt (40) des Wischlappens (30) umhüllt ist, in das Innere des Gehäuses (20), wobei das elastisch nachgiebige Element (60) derart verformt wird, dass auf den Abschnitt (40) des Wischlappens (30) ein auf zumindest eine Innenwand des Gehäuses (20) gerichteter Druck ausgeübt wird.

13. Verfahren nach dem vorhergehenden Anspruch, worin das Gehäuse (20) durch Presspassung mit dem elastisch nachgiebigen Element (60) verbunden wird, das teilweise mit dem Abschnitt (40) des Wischlappens (30) umhüllt ist.

Revendications

1. Un dispositif pour nettoyer des surfaces, comprenant:

un manchon (10), pouvant être fixé à un manche (190) et
doté d'un logement (20) destiné à recevoir une portion (40) d'une serpillière, le logement (20) étant accessible par une ouverture (120);
une serpillière (30) pour nettoyer des surfaces ayant une portion (40) qui peut être introduite dans le logement (20), de manière à ce qu'un périmètre (150) de ladite serpillière (30) soit entièrement situé à l'extérieur du manchon (10) ;
des moyens de compression, pouvant être introduits dans le logement (20), pour exercer une pression sur la portion (40) de la serpillière (30), ladite pression étant dirigée vers au moins une paroi intérieure du logement (20), et pour obtenir la fixation de ladite serpillière (30) au manchon (10) ;
caractérisé en ce que les moyens de compression comprennent un élément élastiquement déformable (60) destiné à être introduit, dans un état déformé et
partiellement enveloppé par la portion (40) de la serpillière (30), dans le logement (20) de manière à exercer une pression sur ladite portion (40) de la serpillière (30), ladite pression est dirigée vers au moins une paroi intérieure du logement (20).

2. Le dispositif selon la revendication précédente, dans lequel l'élément élastiquement déformable (60) est un anneau Seeger intérieur, un élément sphérique creux ou un élément essentiellement sphérique plein obtenu par bourrage d'un matériau textile.

3. Le dispositif selon l'une quelconque des revendications précédentes, dans lequel le logement (20) présente un resserrement (70) au niveau de l'ouverture (120), et dans lequel le logement (20) peut être accouplé par interférence avec l'élément élastiquement déformable (60) partiellement enveloppé par la portion (40) de la serpillière (30).

4. Le dispositif selon l'une quelconque des revendications précédentes, dans lequel au moins une paroi intérieure du logement (20) présente des moyens anti-rotation.

5. Le dispositif selon la revendication précédente, dans lequel les moyens anti-rotation comprennent une pluralité de rainures longitudinales (280) dans au moins une paroi des parois intérieures du logement.

6. Le dispositif selon l'une quelconque des revendications précédentes, dans lequel une paroi (110) part d'une extrémité du manchon (10) qui est proximale à l'ouverture (120) du logement (20), ladite paroi entoure le manchon (10) et a une surface (140) destinée, pendant l'utilisation, à faire face à une surface à nettoyer, la surface (140) étant inclinée par rapport à un axe du manchon (10) d'un angle (α) compris entre 10° et 90°, avec le périmètre (150) de la serpillière (30) entièrement situé à l'extérieur de la paroi (110).

7. Le dispositif selon la revendication précédente, comprenant deux serpillières (30) superposées, la première portion (40) des serpillières (30) étant centrale et où au moins un morceau de tissu (160) est interposé centralement entre les serpillières (30), ledit morceau de tissu (160) étant plus petit que les serpillières (30) et une portion centrale (170) dudit morceau de tissu (160) enveloppant partiellement l'élément élastiquement déformable (60) et sur laquelle ce même élément élastiquement déformable (60) introduit dans le logement (20) exerce une pression dirigée vers au moins une paroi intérieure du logement (20) avec le périmètre (180) du morceau de tissu (160) entièrement situé à l'extérieur de la paroi (110).

8. Le dispositif selon la revendication 6, comprenant une serpillière (30) pliée en deux, dans lequel au moins un morceau de tissu (160) est interposé entre les deux parties pliées, une portion centrale (170) du morceau de tissu (160) enveloppant partiellement l'élément élastiquement déformable (60), et sur la-

quelle ce même élément élastiquement déformable (60) introduit dans le logement (20) exerce une pression dirigée vers au moins une paroi intérieure du logement (20), dans lequel la taille du morceau de tissu (160) est inférieure de moitié à la taille de la serpillière (30) et dans lequel un périmètre (180) du morceau de tissu (160) est entièrement situé à l'extérieur de la paroi (110).

9. Le dispositif selon l'une quelconque des revendications précédentes, comprenant en outre une articulation par l'intermédiaire de laquelle le manche (190) est accouplé avec le manchon (10), l'articulation étant située au niveau d'une extrémité du manchon (10) qui est distale par rapport à l'ouverture (120) du logement (20).

10. Le dispositif selon l'une quelconque des revendications précédentes, dans lequel le matériau textile avec lequel sont réalisés la serpillière (30) et/ou l'élément élastiquement déformable (60) et/ou le morceau (160) de tissu est un matériau microfibre.

11. Le dispositif selon l'une quelconque des revendications précédentes, dans lequel la microfibre est une microfibre en polyester/polyamide à nid d'abeilles.

12. Une méthode d'assemblage d'un dispositif pour nettoyer des surfaces, selon l'une quelconque des revendications de 1 à 11, comprenant une phase suivante :

arranger les moyens de compression et la portion (40) de la serpillière (30) à l'intérieur du logement (20) de manière à ce que le périmètre (150) de la serpillière (30) soit entièrement situé à l'extérieur du manchon (10) de manière à exercer une pression sur ladite portion (40) de la serpillière (30), ladite pression étant dirigée vers au moins une paroi intérieure du logement (20) via les moyens de compression, et à obtenir la fixation de la serpillière (30) au manchon (10) ; **caractérisée en ce qu'**elle comprend les phases suivantes :

préparer un élément élastiquement déformable (60) destiné à être introduit, dans un état déformé et partiellement enveloppé par la portion (40) de la serpillière (30), dans le logement (20) ;
envelopper partiellement l'élément élastiquement déformable (60) avec la portion (40) de la serpillière (30) ;
introduire l'élément élastiquement déformable (60) partiellement enveloppé par la portion (40) de la serpillière (30) à l'intérieur du logement (20), en déformant élastiquement l'élément élastiquement déformable (60) de manière à exercer une pression sur la portion (40) de la serpillière (30) vers au moins une paroi intérieure du logement (20).

13. La méthode selon la revendication précédente, dans laquelle le logement (20) s'accouple par interférence avec l'élément élastiquement déformable (60) partiellement enveloppé par la portion (40) de la serpillière (30).

FIG. 1

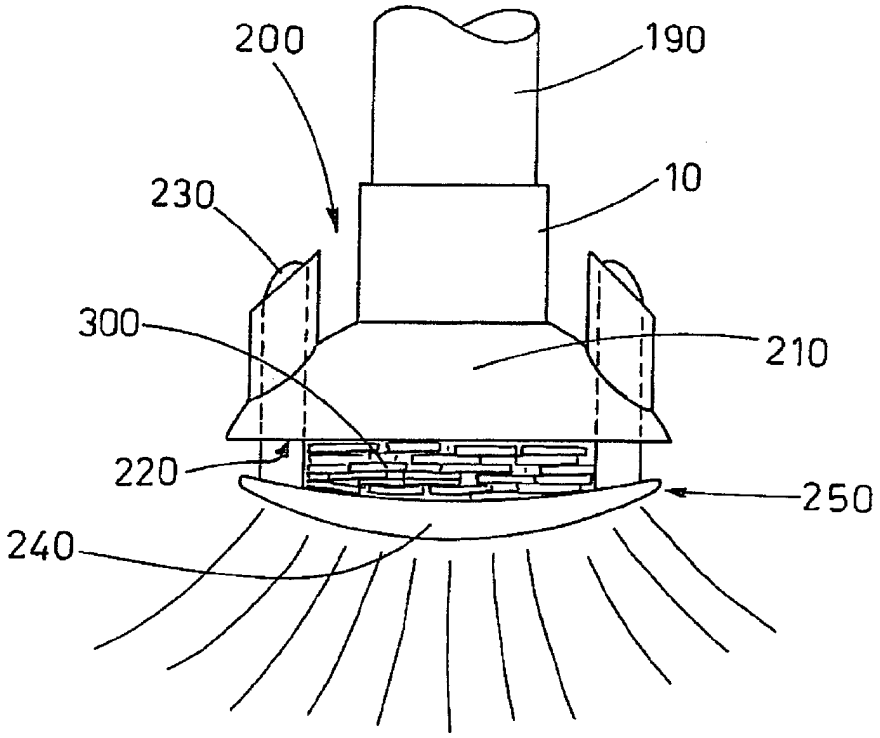
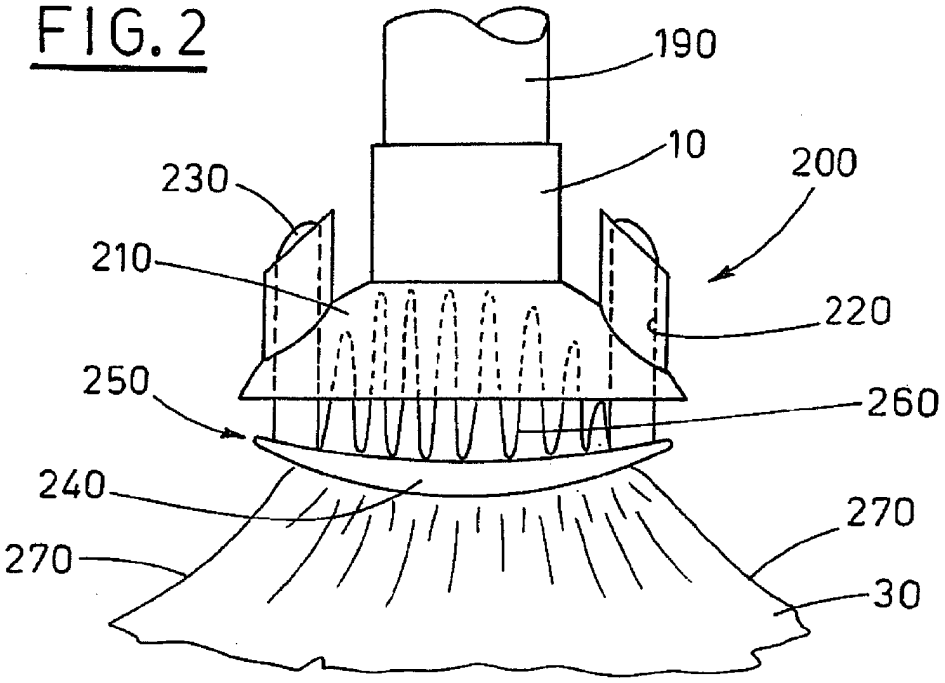

200
190
230
10
300
210
220
250
240

FIG. 2


190
10
230
200
210
220
250
260
240
270
270
30

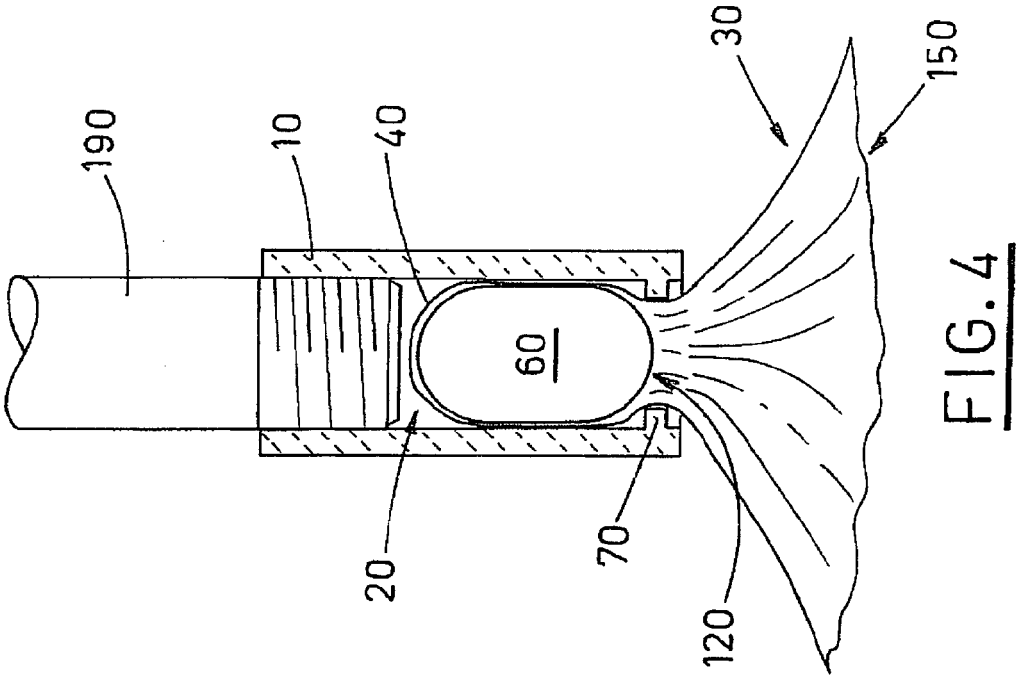


FIG. 4

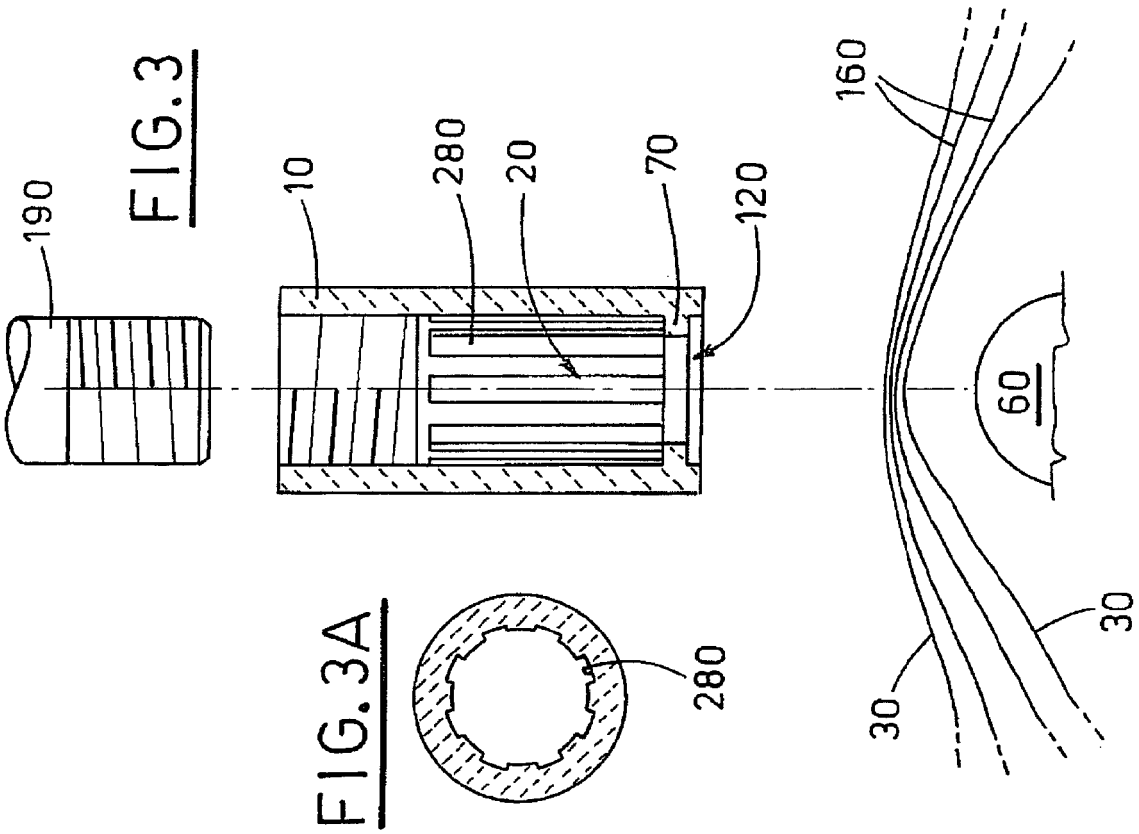


FIG. 3

FIG. 3A

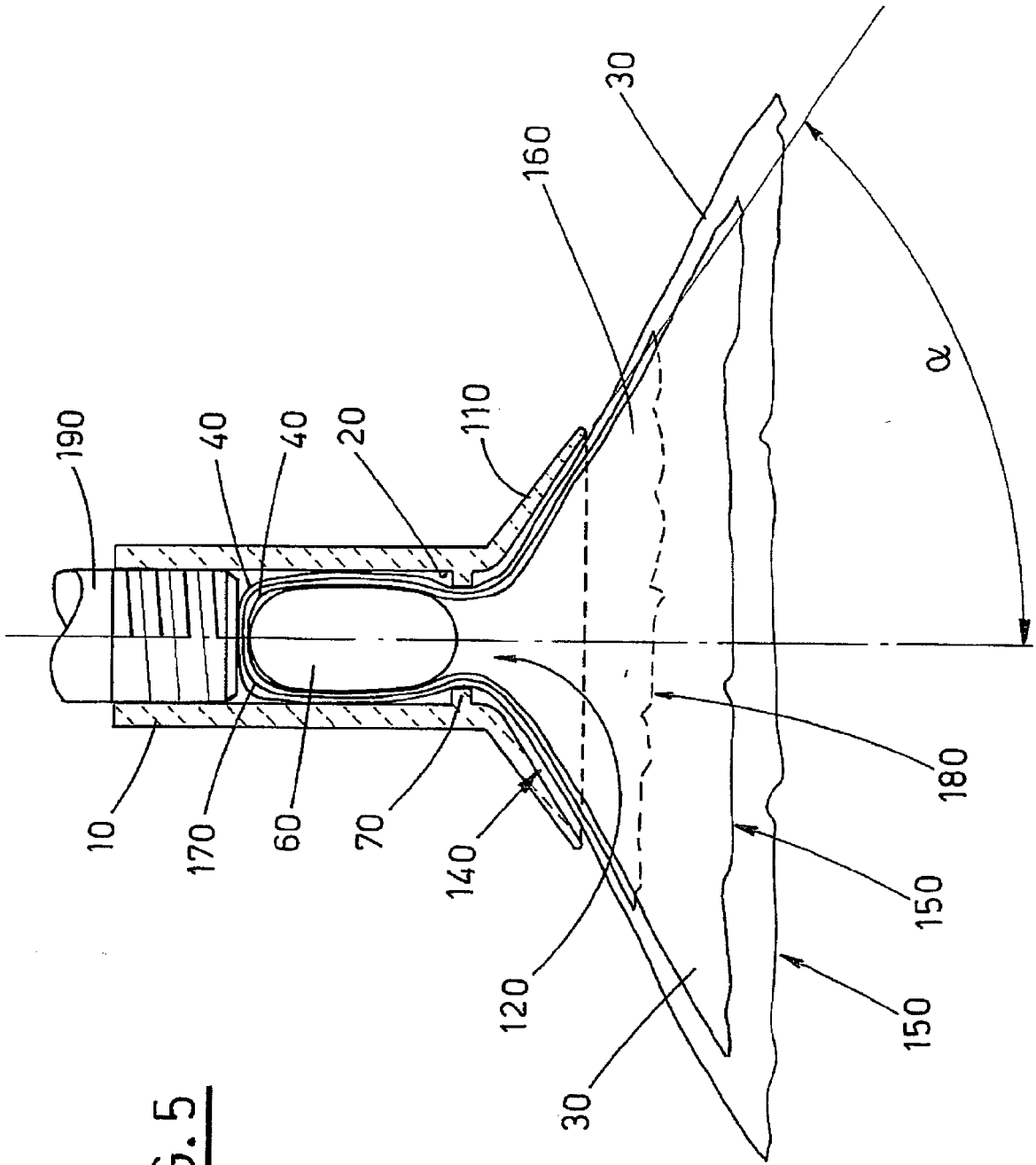


FIG.5

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 3792505 A **[0003]**