



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 988 807 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.03.2000 Bulletin 2000/13

(51) Int. Cl.⁷: **A44B 1/18, A41H 37/00**

(21) Application number: **98830546.2**

(22) Date of filing: **21.09.1998**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(71) Applicant:
**Zavatti, Maria Cristina
20144 Milano (IT)**

(72) Inventor:
**Zavatti, Maria Cristina
20144 Milano (IT)**

(74) Representative:
**Adorno, Silvano et al
c/o SOCIETA' ITALIANA BREVETTI S.p.A.
Via Carducci, 8
20123 Milano (IT)**

(54) **Device and method for the quick manual attachment of buttons and the like**

(57) A device for the manual attachment of buttons and the like onto fabric or other supports includes two needles (1'), a stretchable ring (11) and a counterbutton (4) with a hole (6) and two pairs of fastening sites (7), each needle (1') having a point (2) at one end and means (8, 9) for releasably engaging the stretchable ring (11) at the other end.

A corresponding attachment method which makes use of said device includes the following steps:

- a) threading the needles (1') through the holes of the button;
- b) piercing the fabric from the outside until the needles (1') come out on the other side so as to have corresponding loops of the stretchable ring (11) projecting therefrom;
- c) threading the needles (1') through the hole (6) of the counterbutton (4);
- d) stretching a loop of the stretchable ring (11) by pulling the relevant needle (1') until the end (7a) of a fastening site (7) is introduced into said loop and then pulling the loop towards the other fastening site (7) until the other end (7a) is introduced therein;
- e) repeating the preceding step for the other loop of the stretchable ring (11);
- f) disengaging the needles (1') from the stretchable ring (11).

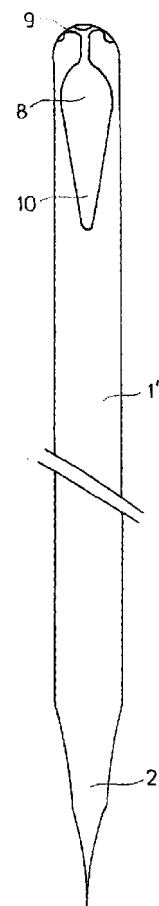


Fig. 2a

EP 0 988 807 A1

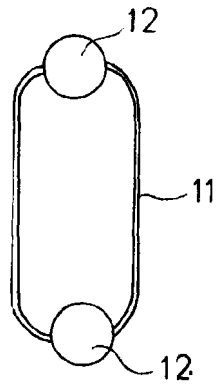
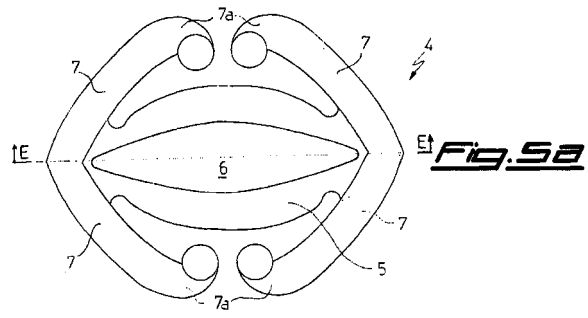


Fig. 7

Description

[0001] The present invention relates to devices and methods for the manual attachment of buttons and the like, in particular to a device and method which allow even a user inexperienced in sewing to quickly attach a button.

[0002] Reference will be made hereafter in particular to the attaching of a two-hole button onto a fabric, but it is clear that what is said is also valid for all other similar applications of the present device and method. For example, it is possible to attach also labels, decorations, plates and so on onto woven or knitted fabrics, leather, nets, cardboard and any other kind of easily pierceable support.

[0003] The conventional method for manually sewing a button is well known and can be divided into the following steps: a) obtaining a needle and a thread; b) cutting a suitable length of thread, threading it through the eye of the needle and making a knot at its end; c) piercing the fabric from inside and threading a first hole of the button until the needle comes out on the other side of the fabric; d) threading the second hole of the button and piercing the fabric from outside until the needle comes out on the other side of the fabric; e) piercing again the fabric from inside and threading again the first hole of the button, often searching blindly with the needle point to find the hole which is now close to the fabric; f) repeating steps d) and e) for some times; g) completing the work with two or three fixing stitches on the inside of the fabric and cutting the exceeding thread.

[0004] It is clear that such a procedure requires a significant amount of time (at least some minutes) and a proper ability in order to obtain a satisfactory attachment, besides obviously the availability of a needle and a thread. Moreover, this type of attachment is absolutely inextensible and this involves other two drawbacks.

[0005] First of all, the sudden tensions which may be applied at the attachment due to the movements of the wearer may cause the tearing of the fabric. A possible remedy is to attach together with the button a so-called "counterbutton", i.e. a button attached on the inside of the fabric with the same thread. In this way, the fabric is sandwiched between the two buttons and therefore has a greater strength, but obviously the presence of the counterbutton makes the attachment procedure even longer and more complicated.

[0006] A second drawback comes forth during the ironing of the fabric close to the button, which does not allow the plate of the iron to get close enough. Moreover, if the user pushes the button with the plate in order to get closer, there is the risk of tearing the fabric as mentioned above.

[0007] Therefore the object of the present invention is to provide a device and a method suitable to overcome the above-mentioned drawbacks.

[0008] This object is achieved by means of a device having the characteristics disclosed in claim 1 and of a

method including the steps listed in claim 16. Other advantageous features of the device are disclosed in the depending claims.

[0009] A first fundamental advantage of the present device and method is that of providing the attachment of the button or the like in a much shorter time and through a very simple procedure which can be easily carried out even by an inexperienced user.

[0010] A second significant advantage of this device and method is that of obtaining a slightly elastic attachment, so as to prevent risks of tearing of the fabric and to make easier the ironing even close to the buttons.

[0011] Still another advantage of this device and method is the easy industrial applicability, both in terms of application in the clothing industry and in terms of manufacturing costs of the device itself.

[0012] A further advantage of the present device is that it can be easily made either in a disposable version or in a version with a partial recovery of its members.

[0013] These and other advantages and characteristics of the device and method according to the present invention will be clear to those skilled in the art from the following detailed description of some embodiments thereof, with reference to the annexed drawings wherein:

Figs.1a and 1b show a front and side view, respectively, of a first embodiment of a needle-shaped member of the present device;

Figs.2a and 2b show a front and side view, respectively, of a second embodiment of a needle-shaped member of the present device for a version with reusable needles;

Fig.3a is a top plan view of the needle-shaped member of fig.1a;

Figs.3b and 3c are partial sectional views taken along the lines A-A and B-B of fig.3a, respectively; Fig.4a is a top plan view of the needle-shaped member of fig.2a;

Figs.4b and 4c are partial sectional views taken along the lines C-C and D-D of fig.4a, respectively; Figs.5a and 5b show a top plan and side view, respectively, of a first embodiment of a fastening member of the device;

Fig.5c is a sectional view taken along the line E-E of fig.5a;

Figs.6a and 6b show a top plan and side view, respectively, of a second embodiment of a fastening member of the device;

Fig.6c is a sectional view taken along the line F-F of fig.6a;

Fig.7 is a top plan view of a first embodiment of a stretchable ring for the version of the device shown in fig.2a;

Fig.8 is a top plan view of a second embodiment of a stretchable ring for the version of the device shown in fig.2a; and

Fig.9 is a view, similar to fig.3c, of a third embodi-

ment of a needle-shaped member for a further version of the device with reusable needles.

[0014] The device and the method according to the present invention will be now described in the simplest embodiment with reference to figs. 1a, 1b, 3a to 3c and 5a to 5c.

[0015] In this embodiment, the device includes two needle-shaped members 1 conventionally having a body with a point 2 at one end and an eye 3 at the other end. However, contrary to conventional needles, the eye 3 is made so as to be easily torn or opened or broken away from the rest of the body. The programmed breaking may be obtained through a pre-cut suitable to create a preferential breakage line, or by making the eye 3 from a different weaker material, or through a significant decrease 3a in the cross-section at the region of connection to said body or by other means. The essential thing is that the user can easily break manually the eye 3 at the end of the procedure, yet the eye being able to resist axial tension stresses during the attachment as it will be made clear further on.

[0016] A ring of stretchable material, such as bare or coated elastic yarn, elastic knitting or the like, freely slides through the eyes 3 of the two needles. This stretchable ring can obviously be made of any colour, size, texture, etc. and is made from a material resistant to heat and to the detergents or solvents used for the cleaning or dry cleaning of the items. The stretchable ring is introduced into the two eyes 3 by joining the eyes to the corresponding needle-shaped bodies or vice versa by closing into a ring the elastic yarn after its threading through the eyes 3.

[0017] The device finally includes a fastening member 4 (hereafter called "counterbutton") consisting of a body 5 with a central hole 6 and two pairs of arms 7, transversely projecting in opposite positions so as to obtain substantially a "double anchor" shape. The hole 6 is sized to allow the simultaneous passage of the two needle-shaped members 1, and the arms 7 are located on a plane slightly higher than the body 5 as seen in figs. 5b, 5c. The symmetric structure of the counterbutton 4 is preferable but not absolutely necessary, and said member may take any shape provided that it has at least one hole for the passage of the needles and a pair of arms or the like as fastening sites of the stretchable ring as it will be made clear further on.

[0018] Also the raised position of the arms 7 and the dome shape of their ends 7a is merely preferable to make easier the attachment procedure, but it is sufficient that even only the ends 7a of the arms 7 are raised to make easier the fastening of the stretchable ring. Furthermore, the body 5 can have more than one hole 6 for the passage of the single needles 1, said holes being possibly located in any position on the counterbutton 4. The latter can obviously be made from any suitable material, either in terms of colour, texture, etc. or as far as the resistance to heat, detergents, solvents and the

like is concerned.

[0019] The method for manually attaching a button by means of the simple device described above includes therefore the following steps: a) threading the two needles 1 through the button holes from the upper face thereof; b) piercing the fabric from outside until the needles 1 come out on the other side in order to have two loops of the stretchable ring projecting therefrom; c) threading the two needles 1 through the hole 6 of the counterbutton 4 from the lower side thereof; d) stretching an elastic loop by pulling the relevant needle 1 until the end 7a of an arm 7 is introduced into the loop and then stretching the loop towards the other arm 7 of the "anchor" until the other end 7a is introduced therein; e) repeating the preceding step for the other loop and the other pair of arms 7; f) holding tight the counterbutton 4 and removing the needles 1 by breaking the eyes 3 with a clean pull.

[0020] From the preceding description of the present method it is clear how easier and quicker it is with respect to the conventional sewing method with needle and thread described in the introduction. Furthermore, it can be easily deduced how the above-described steps may be changed and/or increased according to the specific needs.

[0021] For example, if the item to be attached has three holes it is necessary to provide a device with three needles 1 and therefore three fastening steps of the three loops of the stretchable ring, the counterbutton 4 being possibly made with three pairs of arms 7 or with two pairs only and two loops fastened onto a same pair. Similarly, if the button has four holes it is possible to use a device with four needles including a counterbutton with four "anchors" as shown in figs. 6a to 6c. Alternatively, it is possible to use two rings with two needles each by repeating twice the steps above, and/or to use the counterbutton 4 on which each "anchor" receives two elastic loops.

[0022] In order to attach a button without holes but with a noose on the underside, the above-described step a) will change into threading one of the needles 1 through the noose. A label can be attached by using two rings with two needles and two counterbuttons, or a single elongated counterbutton with the two "anchors" at the ends. Other changes to the device and/or method can be easily provided by a person skilled in the art according to the needs.

[0023] In particular, as shown in figs. 1a and 3b, the eye 3 is preferably made with a substantially flat and wide profile so as to keep apart the two sides of the elastic loop passing therethrough in order to make easier its introduction onto the fastening site. Furthermore, it is also preferable that the eye be made of a flexible material to make easier the passage thereof through the fabric thanks to a shrinking caused by the pull on the needle.

[0024] The connection between the needle and the ring may also be achieved through a simple plate

extending from the top of the needle and fixedly joined to the ring. In other words, the ring does not slide through an eye but is directly moulded into the needle top which is obviously arranged for disengagement through breakage.

[0025] It is also possible to make the device with a single needle and a counterbutton fixed onto the stretchable ring, for example moulded thereon or joined thereto through a noose, in this case, the method which uses this version of the device is more like the conventional method in that it includes the steps of: a) piercing the fabric from inside and threading a first hole of the button until the needle comes out on the other side of the fabric; b) threading the second hole of the button and piercing the fabric from outside until the needle comes out on the other side of the fabric in order to have a loop of the stretchable ring projecting therefrom; c) stretching the elastic loop by pulling the needle until it is fastened onto the counterbutton.

[0026] The device according to the present invention will be now described in a second embodiment concerning reusable needles with reference to figs.2a, 2b, 4a to 4c, 7 and 8.

[0027] In this version the counterbutton is the same previously described, whereas changes are made to the needles and to the stretchable ring. The needles 1' in the place of the conventional eye are provided with a hemispherical cavity 8 having a slot 9 at the top which is substantially Y-shaped (fig.4a), the access to the cavity 8 being formed on the front side with a draft plane 10. Furthermore, the stretchable ring 11 is provided with a pair of microspheres 12 at opposite positions, said microspheres 12 being directly formed on the ring 11 (fig.7) or joined thereto through nooses 13 (fig.8).

[0028] The size of a microsphere 12 is such that it can be introduced into the cavity 8 of the needle 1' with an upwards movement along the draft plane 10. The stretchable ring 11 can follow it by frontally entering the slot 9 and then coming out laterally at the ends 9a of the two arms of the "Y" which keep apart the adjacent lengths of the ring 11. In this way, the stretchable ring is "threaded" through the cavity 8 similar to a conventional eye as in the first embodiment. However, in order to disengage the needle 1' from the ring 11 it is not necessary to break it since it is sufficient to pull out the microsphere 12 from the cavity 8, whereby the needle 1' can be used again for another attachment.

[0029] Figure 9 finally shows a third embodiment also relating to reusable needles wherein only the needles are changed, the stretchable ring and the counterbutton being the same as in the first embodiment.

[0030] In this case, the needle still has an eye 3' but said eye is made as a "spring catch", i.e. with a side 3'b which can be resiliently bent inwards for introducing and removing the stretchable ring so as to disengage easily the stretchable ring once the attachment is completed. Furthermore, it is possible to hook onto the ring as many needles as necessary according to the number of

holes of the button or other item to be attached.

[0031] Obviously, the method which uses this second or third embodiment of the device is totally identical with the method described above. Moreover, the possible changes to the device are also similar to those already discussed above, for example providing three or four microspheres 12 on the ring 11 for attaching buttons with three or four holes.

[0032] In the same way, it is possible to use said embodiments with reusable needles also in the version with the counterbutton fixed onto the ring.

[0033] It is clear that the above-described and illustrated embodiments of the device and method according to the invention are just examples susceptible of various modifications. In particular, the material used for the needles 1, 1' and for the microspheres 12 will be metal, plastic or wood in general and the size of all members making up the device can be freely changed according to the needs.

Claims

1. A device for the manual attachment of buttons and the like onto fabric or other supports, characterized in that it includes at least one needle-shaped member (1, 1'), a stretchable ring (11) and at least one fastening member (4) provided with at least one fastening site (7), said needle-shaped member (1, 1') having a point (2) at one end and means for releasably engaging said stretchable ring (11) at the other end.
2. A device according to claim 1, characterized in that the means for engaging the stretchable ring (11) are an eye (3) arranged for manual breaking by the user.
3. A device according to claim 1, characterized in that the means for engaging the stretchable ring (11) are a plate moulded onto the stretchable ring (11) and arranged for manual breaking by the user.
4. A device according to claim 2 or 3, characterized in that said arrangement for manual breaking is achieved through a pre-cut suitable to create a preferential breakage line.
5. A device according to claim 1, characterized in that the means for engaging the stretchable ring (11) are suitable to allow the disengagement of the needle-shaped member (1') so that the latter is reusable.
6. A device according to claim 5, characterized in that the means for engaging the stretchable ring (11) are a "spring catch" eye (3') having a side (3'b) which can be resiliently bent inwards for introducing and removing the stretchable ring (11).

7. A device according to claim 5, characterized in that the means for engaging the stretchable ring (11) are a hemispherical cavity (8) having a slot (9) at the top which is substantially Y-shaped, the access to said cavity (8) being formed on the front side with a draft plane (10), the stretchable ring (11) being provided with at least a pair of microspheres (12) each of which is sized so as to be received into said cavity (8). 5 10
8. A device according to claim 7, characterized in that the microspheres (12) are formed directly on the stretchable ring (11). 10
9. A device according to claim 7, characterized in that the microspheres (12) are joined to the stretchable ring (11) through nooses (13). 15
10. A device according to one or more of the preceding claims, characterized in that the means for engaging the stretchable ring (11) are suitable to keep apart the lengths of said stretchable ring (11) adjacent to said means. 20
11. A device according to claim 10 depending on claim 2 or 3, characterized in that the distance is kept through a substantially flat and wide profile of said means. 25
12. A device according to one or more of the preceding claims, characterized in that the fastening member (4) consists of a body (5) with a central hole (6) and two pairs of arms (7) or lugs transversely projecting in opposite positions so as to obtain substantially a "double anchor" shape. 30 35
13. A device according to one or more of the preceding claims, characterized in that in the fastening member (4) the ends (7a) of the fastening sites (7) are located in a position slightly raised with respect to the lower side of said fastening member (4). 40
14. A device according to one or more of the preceding claims, characterized in that in the fastening member (4) the at least one hole (6) is sized so as to allow the simultaneous passage of at least two needle-shaped members (1). 45
15. A device according to one or more of the preceding claims, characterized in that the fastening member (4) is fixed onto the stretchable ring (11). 50
16. A method for the manual attachment of buttons and the like onto fabric or other supports by means of a device according to one or more of the preceding claims, characterized in that it includes the following steps: 55
- a) threading at least one needle-shaped member (1, 1') through at least one hole or noose of the button or the like;
- b) piercing the fabric or other support from the outside until the needle-shaped members (1, 1') come out on the other side so as to have corresponding loops of the stretchable ring (11) projecting therefrom;
- c) threading the needle-shaped members (1, 1') through at least one hole (6) of the fastening member (4);
- d) stretching a loop of the stretchable ring (11) by pulling the relevant needle-shaped member (1, 1') until the end (7a) of at least one fastening site (7) is introduced into said loop;
- e) repeating the preceding step for any other loop of the stretchable ring (11);
- f) disengaging each needle-shaped member (1, 1') from the stretchable ring (11).

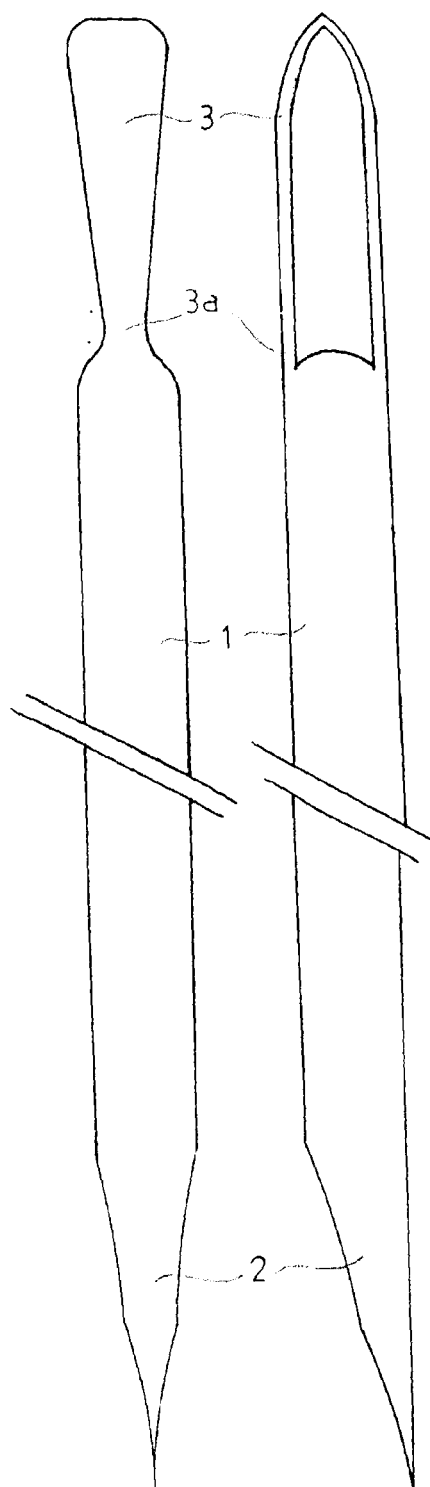


Fig. 1a

Fig. 1b

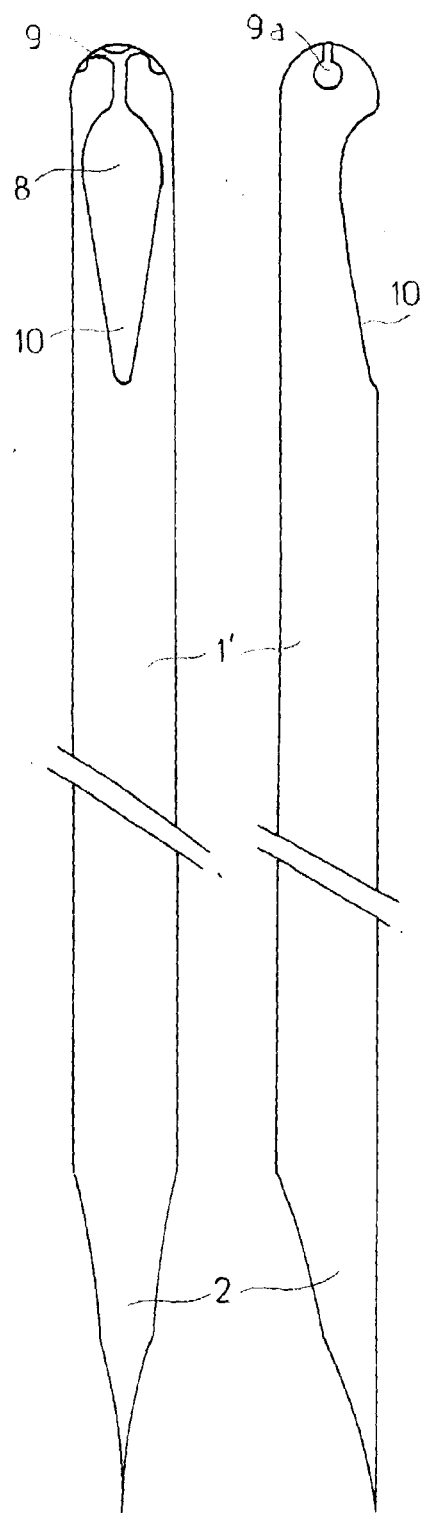


Fig. 2a

Fig. 2b

Fig. 3b

Fig. 3c

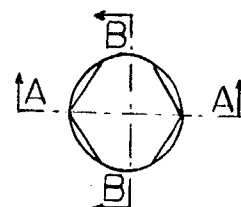
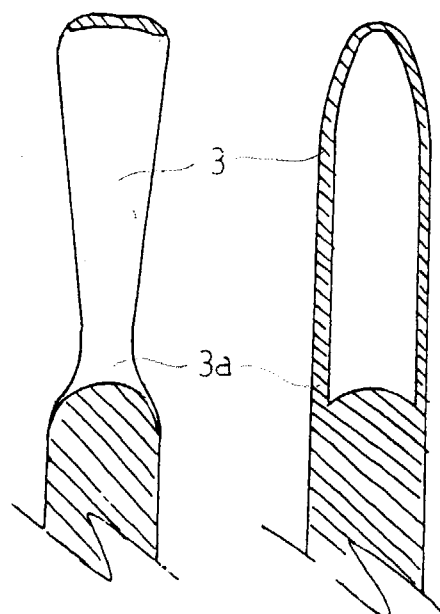


Fig. 3a

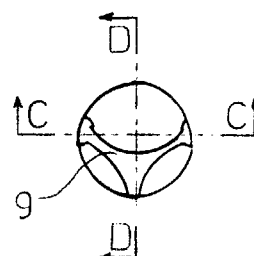
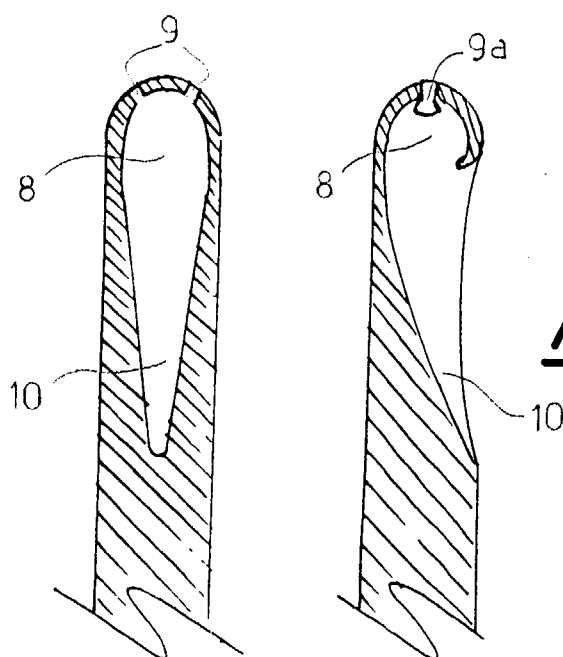


Fig. 4a

Fig. 4b

Fig. 4c

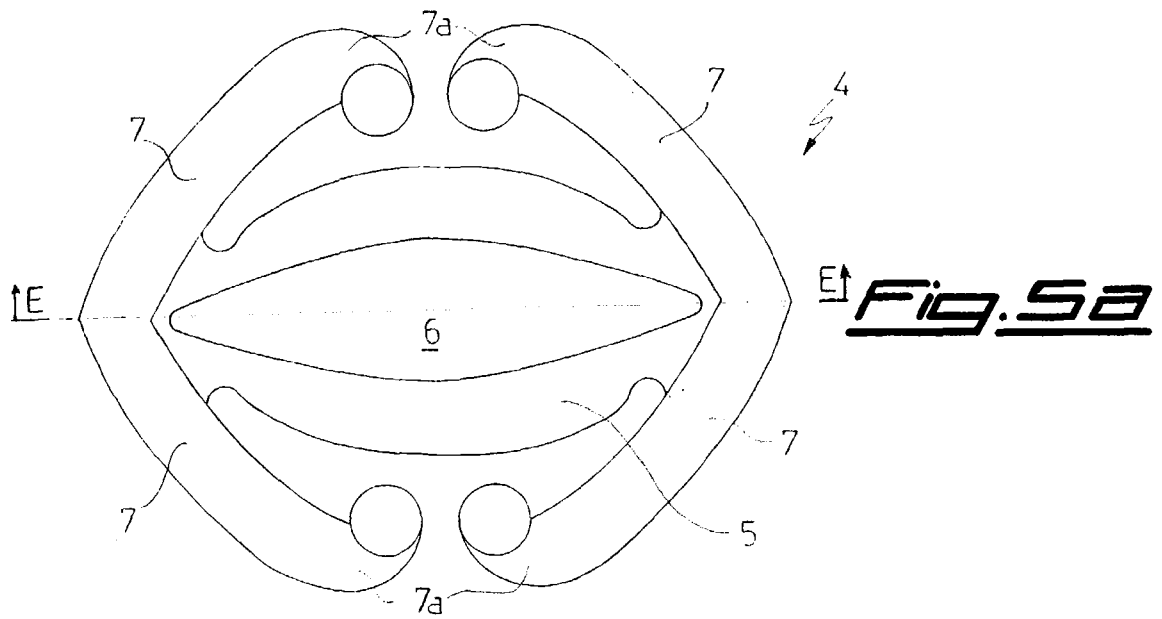


Fig. 5a

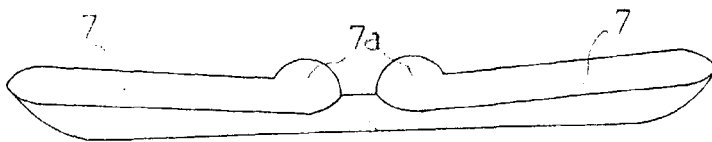


Fig. 5b

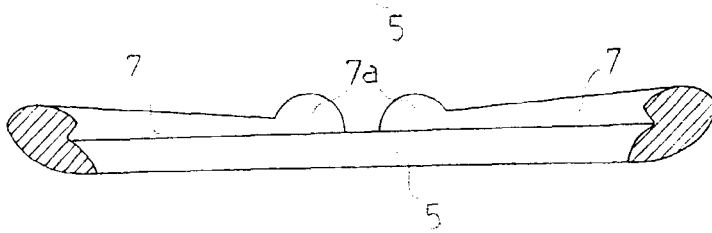


Fig. 5c

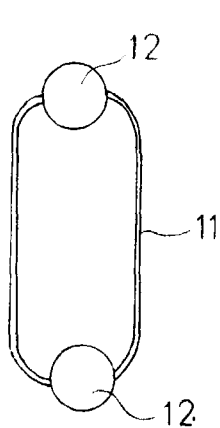


Fig. 7

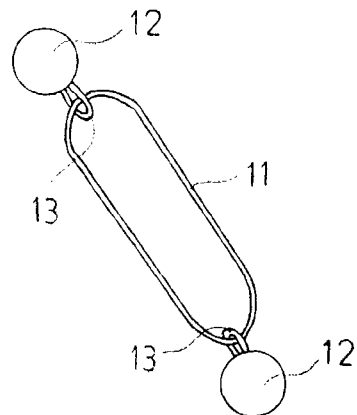
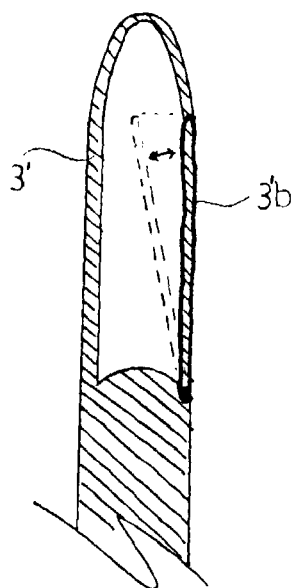
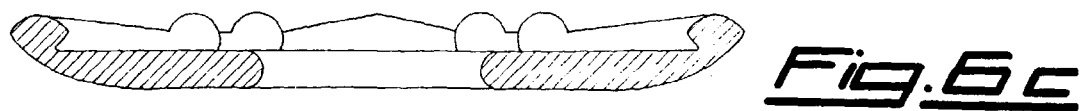
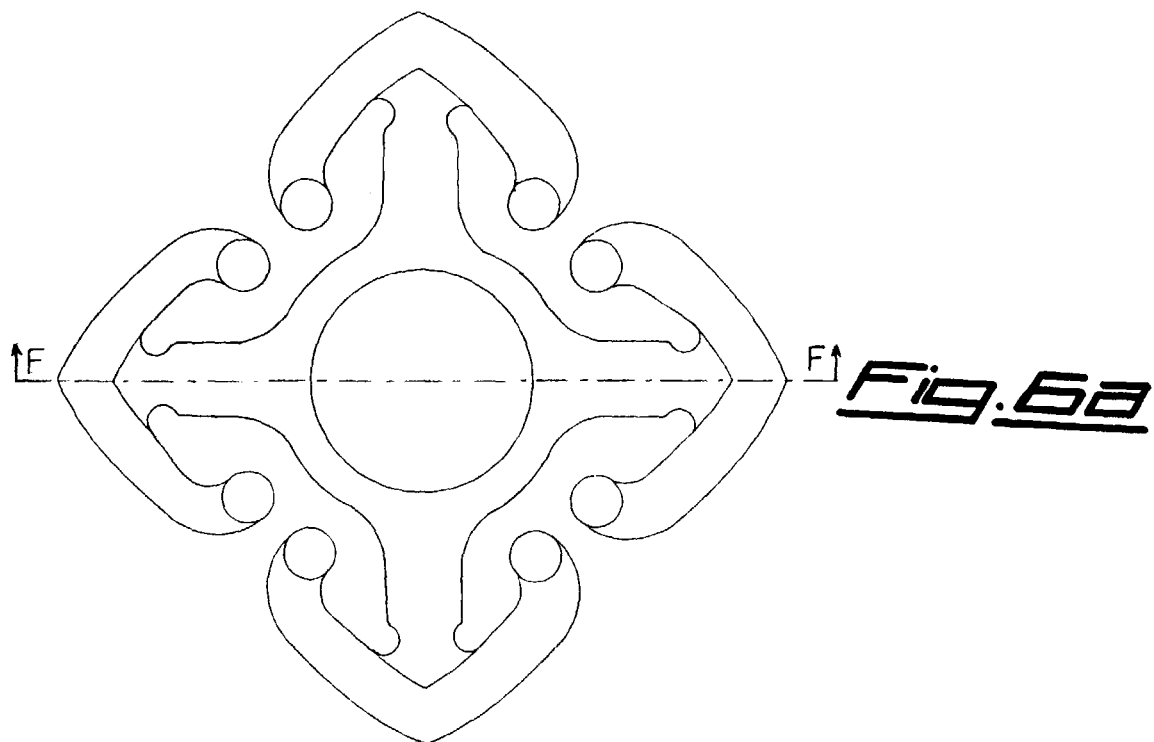


Fig. 8





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 83 0546

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|--|--|--|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
| A | FR 2 017 939 A (CHELLY ALBERT) 29 May 1970 * page 2, line 26 - page 3, line 25; figures 3,4,6 * | 1,3,5,6, 11 | A44B1/18 A41H37/00 |
| A | US 2 025 663 A (IULIANO) 24 December 1935 * page 1, line 30 - line 55; figures 1,4 * | 1,12 | |
| A | WO 98 21990 A (AVERY DENNISON CORP ;DESCHENES CHARLES L (US); COOKE DOUGLAS A (US) 28 May 1998 * page 7, line 2 - page 8, line 14; figures 6,9 * | 1,3,5 | |
| A | DE 11 48 407 B (GEISSEN) * claim 1; figure 4 * | 1 | |
| A | DE 35 14 705 A (HEDRICH BEATE) 31 October 1985 * claims 1,2,5; figures 1,2 * | 1 | |
| | | | TECHNICAL FIELDS SEARCHED (Int.Cl.6) |
| | | | A44B A41H |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 19 February 1999 | Examiner Monné, E |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | | | |

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 83 0546

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-02-1999

| Patent document cited in search report | | Publication date | Patent family member(s) | | Publication date |
|---|---|---------------------|----------------------------|-----------|---------------------|
| FR 2017939 | A | 29-05-1970 | NONE | | |
| US 2025663 | A | 24-12-1935 | NONE | | |
| WO 9821990 | A | 28-05-1998 | AU | 5180298 A | 10-06-1998 |
| DE 1148407 | B | | NONE | | |
| DE 3514705 | A | 31-10-1985 | NONE | | |