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## Paper C

Friday, 22 March 2002

6 hours, second day, morning

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### Instructions to candidates for preparing their answers

#### I. General provisions

1. Candidates are expected to be sufficiently familiar with
  - the Guidelines for Examination in the EPO and
  - the content of the Official Journal of the EPOas published up to the end of the year preceding their examination.
2. It will be assumed that candidates have read the examination paper in the language in which they give their answer. Where this is not the case, candidates should indicate on the front page of their answer the language in which they read the paper. The same applies to candidates who, having filed a corresponding request when enrolling for the examination, give their answer in a language other than English, French or German.
3. Candidates are to accept the facts given in the paper and to limit themselves to these facts. Whether and to what extent these facts are used is the responsibility of the candidate. Candidates are not to use any special knowledge they may have of the field of the invention.

#### II. Paper C

4. The notice of opposition prepared by candidates should comply with Article 100 and Rule 55 of the European Patent Convention (EPC), bearing in mind the relevant recommendations in the Guidelines for Examination in the EPO, Part D. However, in order to maintain anonymity, candidates must not give their real name, but should instead use the name of the representative to whom the client's letter is addressed.

5. The notice of opposition should contain all those (and no other) grounds – where possible against all the claims – which candidates consider in this particular case to be prejudicial to the maintenance of the patent. The omission of a good ground for opposition will lead to a loss of marks commensurate with the importance of the ground in the case concerned. The grounds of Article 100(b) will not be used.

Candidates must also briefly set out on a separate sheet reasons why they adopted or did not adopt the suggestions of the client. In addition any questions the client may have posed should be answered.

6. The paper will be presented in the form of a letter from a client to a professional representative accompanied by the European patent to be opposed and prior art documents. The annexed prior art will comprise at least three documents, including one in English and German only, one in English and French only, and one in German and French only.
7. The paper will contain a glossary of the specialist terminology used in the documents in the three official languages of the EPO as well as in any official language of a contracting state requested for that particular examination under Article 15(3), second sentence, REE.
8. Candidates are expected to put themselves in the position of the representative and, using only the information provided by the client, to prepare a notice of opposition which when typed would be ready for filing. The pre-printed opposition form provided may be used, but it is not obligatory and marks will not be lost if it is not used.
9. All claims should be treated separately taking due note of their dependencies.
10. Documents should be referred to by their annex number only, indicating the language used.
11. It is to be assumed that for all annexes which claim a priority, the disclosures of the annexes are identical with those of the corresponding priority documents unless there is evidence to suggest otherwise.

If, however, any facts presented need to be confirmed, eg in the case of an alleged prior public disclosure, candidates would be expected to state that such confirmation would be filed later.

Regardless of the date of the client's letter, candidates are to assume there is no possibility to confer with him.

12. Candidates should be aware that Annex 1 is fictitious and is not necessarily in a form that would have led to a patent granted by the European Patent Office.

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# EUROPEAN QUALIFYING EXAMINATION 2002

## PAPER C

This paper comprises:

- \* Letter from opponent to professional representative 2002/C/e/1-2
- \* Annex 1 2002/C/e/3-9
- \* Annex 2 (in English) 2002/C/d,e,f/10-12
- \* Annex 3 (in French) 2002/C/d,e,f/13-15
- \* Annex 4 (in English) 2002/C/d,e,f/16-18
- \* Annex 5 (in German) 2002/C/d,e,f/19
- \* Annex 6 (in German) 2002/C/d,e,f/20-23
- \* Index of translations 2002/C/d,e,f/24
- \* Annex 2 : in German 2002/C/d,e,f/25-27
- \* Annex 3 : in English 2002/C/d,e,f/28-30
- \* Annex 4 : in French 2002/C/d,e,f/31-33
- \* Annex 5 : in English 2002/C/d,e,f/34
- \* Annex 6 : in French 2002/C/d,e,f/35-38
- \* Glossary for Annexes 1 to 6 2002/C/d,e,f/39

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FASTENALL  
1002 Sun Drive  
**Colorado Springs**  
Colorado 80906 (USA)

17 March 2002

European Patent Attorney  
Whitcomb Judson  
18 High Street  
Stratford-upon-Avon  
Warwickshire CV3 7XJ (GB)

Dear Mr Judson,

We would like you to file an opposition on behalf of FASTENALL against the European Patent EP-B1-0 845 965 (Annex 1). Usually we use a one-man patent law firm in Sweden, but unfortunately the owner of that firm, Mr Pitt, has been taken ill and he has recommended your services. I have gone through the notes he sent us when preparing for filing the opposition himself, in order to be able to inform you of what we know. Since Mr Pitt has a general authorisation, please advise me how to proceed further with regard to authorisation.

A part of Mr Pitt's notes refer to the fact that claim 1 of Annex 1 as filed merely contained the features of the pre-characterising portion of granted claim 1. The characterising portion of granted claim 1 derives from a former dependent claim that was deleted during the examination procedure. The dependent claim however contained a further feature; namely the flat upper surface of the engaging head.

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We have noticed that only claims 4 to 6, Figure 3 and paragraphs 7, 11, 17-19 of Am were in the priority document.

We are in the middle of negotiations with Pooter and Grovel, who are a major, international competitor of Burretape A/S; these negotiations could result in at least partly transferring ownership of FASTENALL to Pooter and Grovel. Should the present opposition prove to be a "strong case", we would like to offer it to Pooter and Grovel as part of the negotiations. Could you please advise if this would be possible.

I have enclosed the documents which Mr Pitt considered relevant.

Yours sincerely,

Christopher Walker  
(Managing Director)

encl.:      EP-B1-0 845 965      (Annex 1)  
              WO98/01166      (Annex 2)  
              EP-A1-0 803 748      (Annex 3)  
              US-A-4 100 547      (Annex 4)  
              Advertisement      (Annex 5)  
              DE-A1-19418824      (Annex 6)

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

(11) **EP 0 845 965 B 1**

(12)

**EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**27.06.2001 Bulletin 2001/26**

(51) Int. Cl.<sup>6</sup>: **A44B 18/00**

(21) Application number: **97 245 876.1**

(22) Date of filing: **25.07.1997**

(54) **Surface fastener for sanitary products**  
Fermeture du type à éléments d'accrochage pour articles hygiéniques  
Klettverschluß für Hygieneartikel

(84) Designated Contracting States:  
**AT CH DE DK ES FR GB IT LI NL SE**

(73) Proprietor: **Burretape A/S**  
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(30) Priority: **26.07.1996 DK 0159/96**

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**Kobenhavn (DK)**  
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**Kobenhavn (DK)**

(43) Date of publication of application:  
**28.01.1998 Bulletin 1998/05**

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**2200 Kobenhavn N (DK)**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid (Art. 99(1) European Patent Convention).

[1] The present invention relates to a fastener which combines mechanical fastening elements and adhesive. The invention also relates to closure tabs for sanitary articles, such as diapers.

5 [2] The mechanical fastener is a surface fastener. One popular surface fastener is the fastener sold under the trademark "VELCRO", which generally comprises two elements. The first element comprises resilient, upstanding hooks projecting from a base and is referred to as a male surface fastener. The second element generally consists of a fabric containing upstanding loops and is referred to as a female surface fastener. When the  
10 the male and female fasteners are pressed together, the hooks entangle the loops such that the fasteners will not easily disengage.

[3] Another kind of surface fastener is the so-called mushroom-type fastener which comprises a male surface fastener having stems projecting from a base and an engaging  
15 head at the end of each stem. A special characteristic of the mushroom-type fasteners is that they can engage with loops in the known "VELCRO"-manner and with an identical fastener.

[4] The present invention improves mechanical surface fasteners by adding a pressure  
20 sensitive adhesive to the male surface fastener. This has advantages: firstly, the force needed to disengage the fastener is higher due to the combined effects of the mechanical surface fastener and the adhesive. Secondly, the adhesive has the effect that the male surface fastener may be attached to items other than another fastener.

25 [5] The fastener of the present invention is characterised by the features of claim 1.

[6] The pressure sensitive adhesive is preferably of the hot-melt pressure-sensitive type capable of being melted and applied to a substrate in their molten state, cooled and solidified quickly. They are called "pressure-sensitive " because they only adhere after  
30 being subjected to pressure. A particular advantage of these adhesives is that they can repeatedly exert their adhesive capabilities.

[7] The present fastener is particularly useful when used on a closure tab for a diaper. The secure closing of the diaper during use is ensured and, in addition, the used diaper can be rolled up and held securely closed by the adhesive on the tab.

5 [8] Fig. 1a shows a mushroom-type fastener having an adhesive applied.

[9] Fig. 1b shows the mushroom-type fastener in its engaged state.

10 [10] Fig. 2 shows a sectional view of an engaging head of a mushroom-type fastener according to a further embodiment.

[11] Fig. 3 shows a diaper having a closure tab.

## 15 Description of preferred embodiments

[12] The fastener of Figure 1a comprises a base (1) and rows of stems (2) having engaging heads (3) with flat upper surfaces. The fastener is integrally moulded from a thermoplastic material. The stems project from a first surface (12). Thermoplastic materials suitable for moulding may be used, for example polyesters, polyamides, polyolefines.

25 [13] A pressure-sensitive adhesive (4) is applied to the base between the stems and also to the flat upper surface of the engaging heads (3). This improves the fastening strength of the fastener. As shown in Figure 1b, the flat upper surfaces of the engaging heads (3) become attached by the adhesive to the base between the stems of the opposing fastener. This is in addition to the normal mechanical connection between opposing heads.

30 [14] The adhesive is also applied to the second surface (13) of the base of the fastener; said second surface having no mechanical fastening means. Thus, during production,



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fasteners can be applied provisionally to an article before they are finally secured to article.

5 [15] The pressure-sensitive hot-melt adhesive is applied in its molten state to the fastener by conventional processes. During application the adhesive should preferably have a viscosity of between 6000 to 16000 MPa·s. This is to ensure that part of the adhesive stays on the flat heads and part of the adhesive flows off the heads and fills the space between the stems. Nevertheless, it is essential that the engaging heads have a flat upper surface, since otherwise the adhesive will not stay on the upper surface of the heads  
10 during application.

[16] The male elements can be, as shown in Figure 2, provided with an undercut (10) having an angle  $\alpha$  of between 25° and 50°. This undercut improves mechanical engagement between fasteners.

15

[17] Another aspect of the invention relates to closure tabs for sanitary articles. The tabs can be, as shown in Figure 3, used for closing diapers around the waist of a child. The improved tab is provided with a fastening region (6) and a non-fastening region. The fastening region (6) is provided with **a**) mechanical fastening elements for engaging with  
20 further mechanical fastening elements on a surface to which the tab is to be attached and **b**) an adhesive on the fastening elements for attaching to a surface of the sanitary article.

[18] The outer region (5) of the tab is preferably free of any fastening means, thus  
25 making it easier to grip and handle the tab.

[19] The closure tab can be used to secure a rolled up soiled diaper by means of the adhesive on the fastening elements. In order to make the diaper comfortable to wear and to ensure a close fit around the waist of the child, the tab is elastic.

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**Claims:**

1. A fastener suitable for engagement with a fastener of the same type, comprising a plurality of engaging heads (3) on stems (2) projecting from a first surface (12) of a base (1), wherein said base (1), stems (2) and engaging heads (3) are integrally moulded from a thermoplastic material, characterised by:

a pressure-sensitive adhesive (4) is applied on an upper surface of the engaging heads (3)

and

in that said adhesive (4) is also applied to the base between the stems (2)

and

in that a second surface (13) of the base (1) opposite to the first surface (12) is provided with said adhesive (4).

2. The fastener of claim 1, characterised in that the pressure-sensitive adhesive (4) has a viscosity of between 6000 and 16000 MPa·s when measured at the application temperature.
3. The fastener according to claim 2, characterised in that the engaging head (3) is of the mushroom type having a cylindrical stem (2) and an undercut (10) having an angle  $\alpha$  of between 25° and 50°.

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4. Closure tab for a sanitary article wherein the tab is provided with a fastening region (6) and a non-fastening region and wherein the fastening region (6) is provided with dual fastening means comprising **a)** mechanical fastening elements for engaging with further mechanical fastening elements on a surface to which the tab is to be attached and **b)** an adhesive on the fastening elements for attaching to a surface of the sanitary article.
  5. Closure tab according to claim 4 wherein the non-fastening region (5) is an outer region of the tab, thereby enabling easy handling of the tab.
  6. Tab according to claim 4 or 5, characterised in that the tab is elastic.

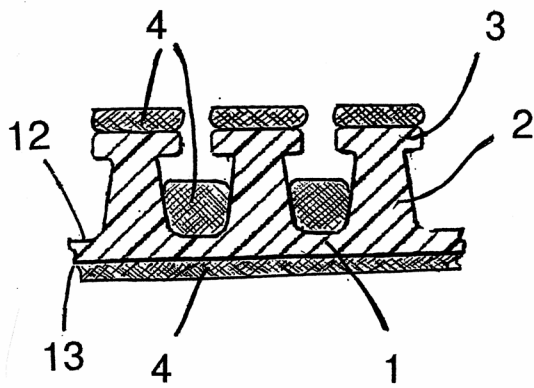


Fig. 1a

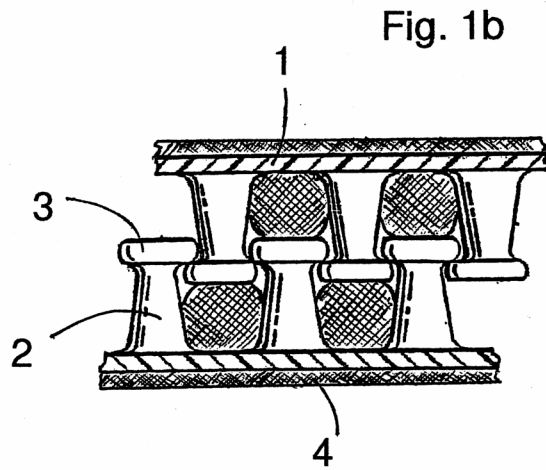


Fig. 1b

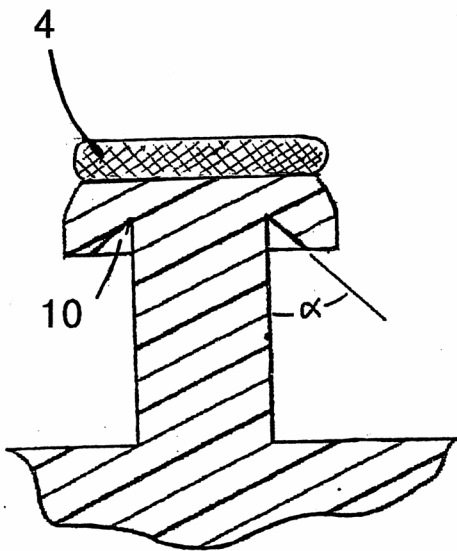


Fig. 2

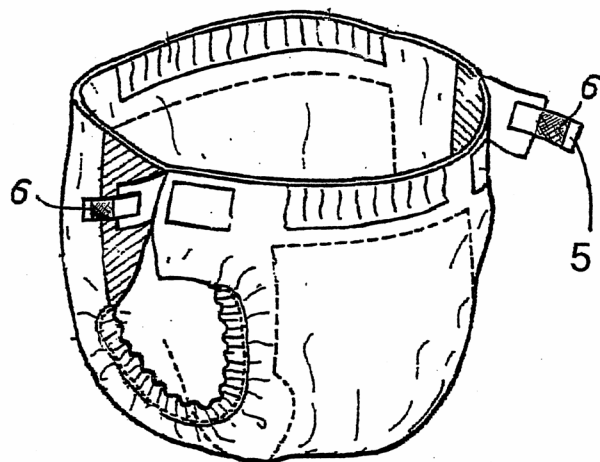


Fig. 3

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<b>(11) International Publication Number:</b>	<b>WO 98/01166</b>
<b>(21) International Application number:</b>	<b>PCT/US97/21455</b>
<b>(22) International filing date:</b>	<b>06 April 1998 (06.04.98)</b>
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<b>(43) International publication date:</b>	<b>15 October 1998 (15.10.98)</b>
<b>(51) International Patent Classification<sup>6</sup>:</b>	<b>A44B18/00; A61F13/56</b>
<b>(71)(72) Applicant and Inventor:</b>	<b>Alfred Giordino 420 South Pacific Coast Highway Green Beach, CA 90010 (US).</b>
<b>(84) Designated States:</b>	<b>CA, JP, NO, European Patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE).</b>
<b>(54) Title:</b>	<b>Pressure-sensitive adhesive fastener</b>

The present invention relates to pressure-sensitive adhesive fasteners having both mechanical and adhesive means for interengaging. Such fasteners are widely used, in particular in diapers.

- 5 The mechanical means is a backing web having bulbous elements protruding from its top surface. The adhesive is an adhesive coating.

Such fasteners combine the effect of both mechanical and adhesive interengaging. They thus have a far better performance in terms of strength than fasteners which rely solely  
10 on adhesive. Further, they also have a better performance in terms of strength than the well-known VELCRO-type fasteners.

An example of a fastener is shown in Figures 1 and 2.

Figure 1 shows two identical fasteners ready for engagement. Each fastener comprises a backing web (10) and bulbous elements (20), each comprising a stalk (30) connected to the backing web and an enlarged head (40). The web and bulbous elements are moulded from a suitable material, such as PolyPPPC or PolyBLE. When the two fasteners of Figure 1 are pressed together, the heads of one fastener are pressed past and underneath the heads of the opposing fastener, securing the two fasteners together.

10

Figure 2 shows a section of a fastener. It must be assured that the adhesive (50) is applied evenly over the entire top surface of the fastener and that it does not flow preferentially into the spaces between the bulbous heads. This ensures a uniform bonding between the bulbous elements. The flow characteristics of the adhesive should therefore be chosen so that the viscosity lies between 10.000 and approximately 20.000 MPa·s, depending on the application temperature.

The bottom surface (60) of the backing web may also be covered with the pressure sensitive adhesive. This adhesive layer must be of a certain thickness, so that a reliable adhesion is achieved when stretching or deforming the fastener.

20

**Claim:**

1. A pressure-sensitive adhesive fastener comprising a backing web (10) characterised by a plurality of bulbous elements (20) protruding from the web, each bulbous element comprising a stalk (30) connected to the backing web and an enlarged head (40) at the end of the stalk and coated with an adhesive.

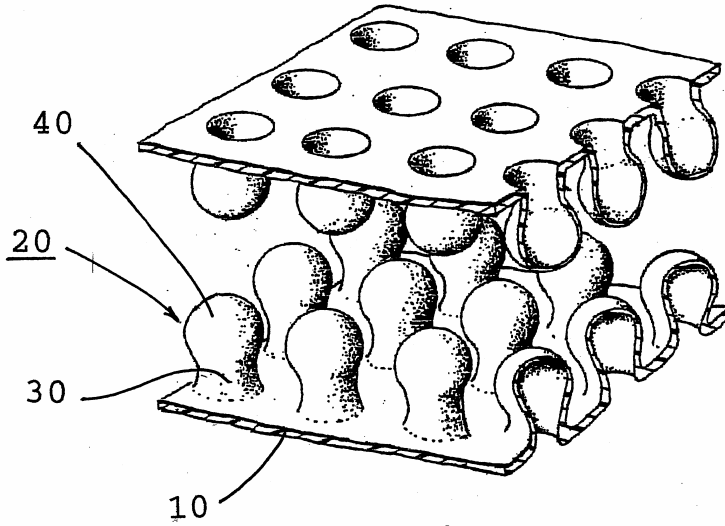


Fig. 1

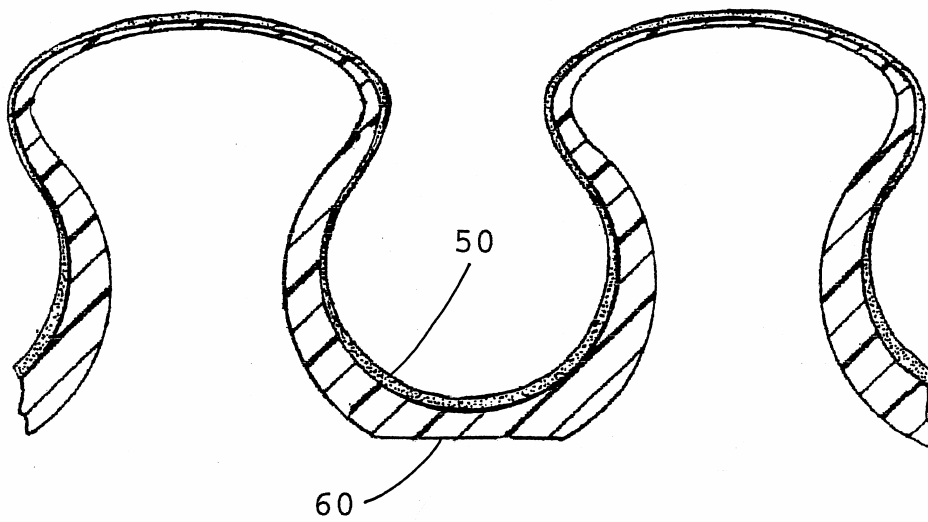


Fig. 2

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- (11) EP 0 803 748 A1
- (12) Demande de brevet européen
- (43) Date de publication : 29.10.1997, Bulletin 1997/44
- (21) Numéro de la demande : 97201004.2
- (22) Date de dépôt : 09.04.1997
- (84) Etats contractants désignés:  
AT BE CH DE DK ES FR GB IT LI NL SE
- (30) Priorité : 26.04.1996 FR9605267
- (71) Déposant : Rune T. Kidde

### Attache composée

La présente invention concerne des attaches du type VELCRO. Ces attaches sont devenues récemment populaires pour être utilisées dans des articles jetables.

Une attache mécanique est une attache de surface du type connu à crochets et à boucles, qui comprend une partie mâle, ayant des crochets, et une partie femelle avec des boucles, avec laquelle la partie mâle peut s'engager.

Il est connu d'améliorer la résistance à l'ouverture d'une attache à crochets et à boucles en ajoutant un composant adhésif aux crochets. Toutefois, aucune antériorité n'a posé le problème du contrôle de la force d'attachement en choisissant l'emplacement de l'adhésif plutôt que la force de l'adhésif.

De manière surprenante, nous avons découvert que suivant l'endroit où l'adhésif est appliqué, la force d'attachement peut être influencée.

La figure 1 montre une partie mâle où l'adhésif sensible à la pression (71) est appliqué seulement sur certains des crochets (61). De plus, une partie du tissu de support (85) est également recouvert par l'adhésif. Lorsque les crochets sont accouplés par contact



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avec la partie opposée (partie femelle), les boucles s'engagent non seulement avec les crochets de manière mécanique, mais aussi avec l'adhésif. En fonction de l'importance du recouvrement des crochets et du tissu de support, la force d'attachement est améliorée.

- 5 La figure 2 montre une attache mâle, où l'adhésif est appliqué de manière à éviter le revêtement du tissu support (85). Ceci a pour résultat une connexion sélectivement plus faible entre les parties mâle et femelle.

10 Afin d'améliorer la manipulation durant la fabrication, la surface du tissu de support opposée aux crochets peut être revêtue avec l'adhésif sensible à la pression.

L'attache de surface peut être utilisée comme patte de fermeture pour une couche. La patte est élastique pour donner un ajustement confortable autour de la taille du porteur. Afin d'être sûr que la patte se replie facilement sur elle-même, une partie centrale de la patte est dépourvue de crochets et d'adhésif pour définir une ligne de pliage.

15

L'adhésif permet d'utiliser la patte pour fermer la couche lorsqu'elle est portée, et pour fermer la couche après utilisation lorsque celle-ci est enroulée pour être jetée. Quand elle est portée, les crochets s'attachent avec les boucles sur la partie de la couche correspondant à la taille, tandis que quand elle est enroulée, l'adhésif sur la partie supérieure des crochets adhère à la surface extérieure de la couche.

20

### **Revendication :**

Attache composée dans laquelle un adhésif (71) est appliqué sur une partie mâle (61) ayant des éléments mâles, caractérisée en ce que l'adhésif (71) est appliqué sélectivement à tout ou partie des éléments mâles et à tout ou partie d'un tissu support (85) portant les éléments mâles afin de contrôler la force d'attachement de l'attache.

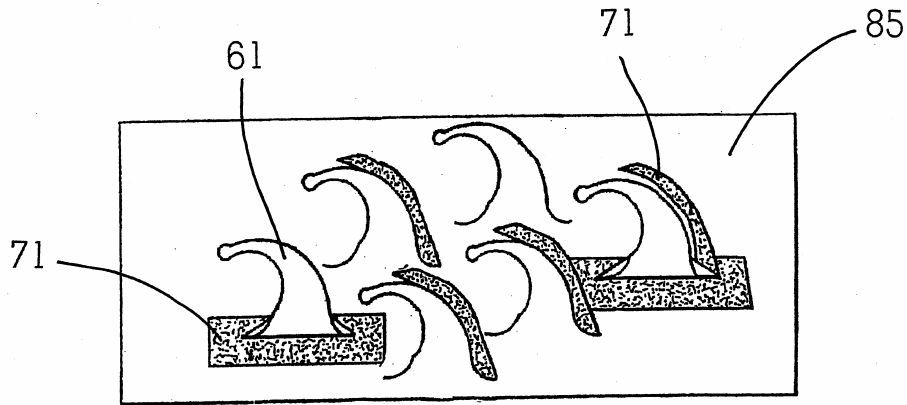


Fig. 1

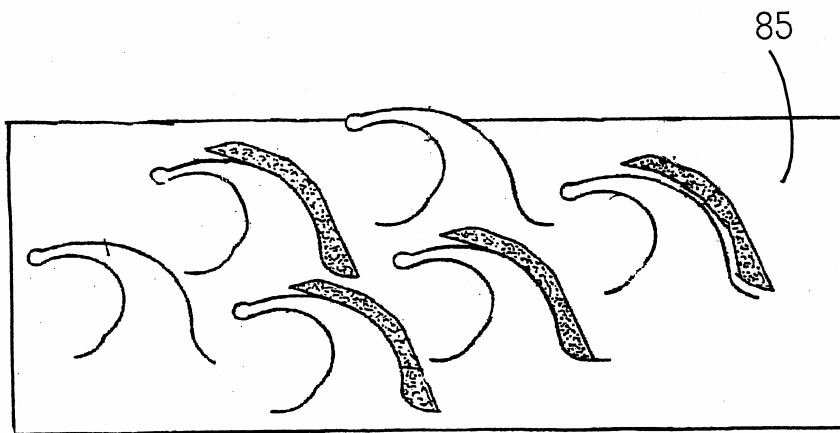


Fig. 2

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- [19]        **United States Patent**
- [11]        **Patent Number 4,100,547**
- [21]        **Appl. No. 401 322**
- [22]        **Filed: December 23, 1982**
- [45]        **Date of Patent: September 15, 1988**
- [51]        **Int. Cl.: A44B18/00**
- [54]        **Title: Separable fastener**
- [75]        **Inventor: David Bowman; Frank Poole**

### **Separable fastener**

This invention relates to fasteners including two connecting means, each including a field of identical headed stems adapted to releasably interengage with the other connecting means.

- 5    Prior art fasteners suffer from the drawback that the stiffness of the fastener is determined by means of the thickness of the layer from which the headed projections project.

10    The present invention overcomes this disadvantage by providing a fastener whose stiffness is easily controllable. The stiffness is determined according to the flexibility requirements of the product onto which the fastener is attached.

A fastener according to the invention is defined in the claims.

### Preferred embodiment

Figure 1 shows a moulded fastener. A stiffening layer (P) is provided between an adhesive layer (A) and the base (B), from which the headed stems (L) project.

- 5 Depending on the thickness and/or material of the stiffening layer (P), the overall stiffness of the fastener can be adjusted.

Figure 2 shows fasteners in their engaged state. The headed stems are made from suitable thermoplastic materials such as PolyPPPC, PolyBLE or Verodrix and are  
10 sufficiently resilient to allow the heads of each fastener to engage, thereby securely closing the fasteners.

The stiffening layer (P) can be made of a great variety of materials, depending on the overall required stiffness of the fastener. Suitable materials include paper, glass fibres or  
15 sheet metal.

Figure 3 shows a headed stem which can be used together with the fastener described above. By carefully selecting the undercut (F), the mechanical strength of the connection between the fasteners can be adjusted to the actual needs of the intended use. Tests  
20 have shown that an undercut of more than approximately  $60^\circ$  has no measurable effect. Further, an undercut of less than  $20^\circ$  has been shown to render the heads prone to breakage.

### Claims:

1. A fastener suitable for engaging with itself or another, identical fastener, said fastener comprising a base layer (B) and a plurality of headed stems (L) projecting therefrom, wherein a stiffening layer (P) is provided on the side of the base layer opposite the headed stems.
2. A fastener according to claim 1, wherein the heads are provided with undercuts (F).

Fig. 1

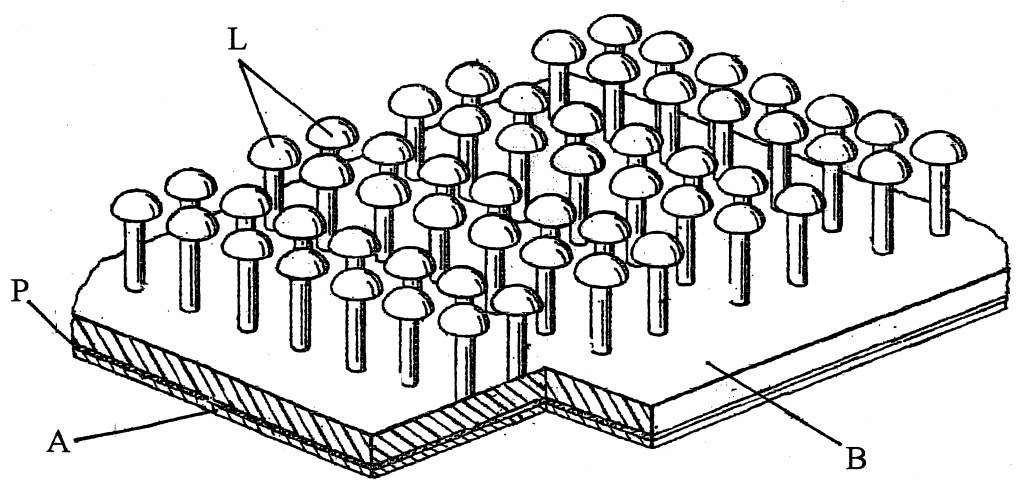


Fig. 2

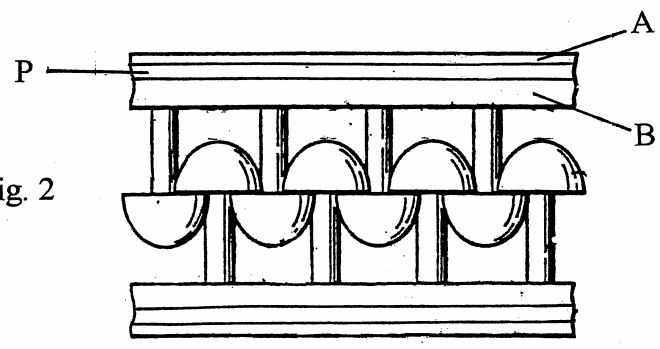
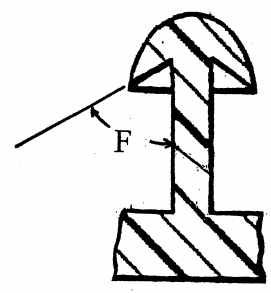
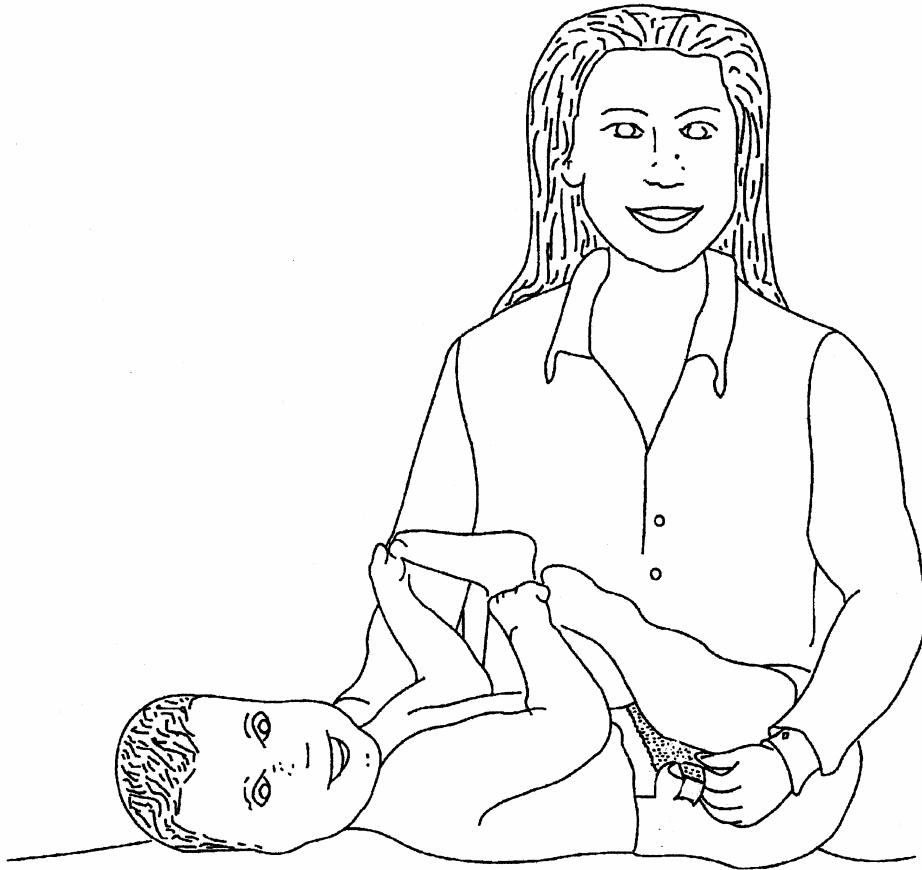


Fig. 3



Anzeige in "Windeln Heute", Nummer 8 (August) 1995



Der kleine Johannes hat einen guten Grund fröhlich zu sein – seine Mutter hat nämlich die neue Babymaas gekauft. Diese neue High-Tech-Windel ist mit einer patentierten Verschußlasche versehen, die durch eine einfache und doch geniale Idee gekennzeichnet ist.

Statt wie bei früheren Verschußlaschen die ganze Lasche mit einem Klettverschluß zu versehen, ist das Ende der Lasche frei von Befestigungsmitteln. Somit liegt das Ende der Lasche bei geschlossener Windel nicht, wie es bei minderwertigen Windeln oft üblich ist, dicht an der Außenseite der Windel an, sondern ist leicht greifbar.

Es ist deshalb viel einfacher die verschmutzte Windel zu öffnen, da die elastische Lasche stets griffbereit ist.

0000/0/1/10

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- 19) **Bundesrepublik Deutschland**  
**Deutsches Patent- und Markenamt**
- (12) **Offenlegungsschrift**
- (10) **DE 194 18 824 A1**
- (22) **Anmeldetag:** **08.11.94**
- (43) **Offenlegungsdatum:** **14.03.96**
- (54) **Bezeichnung des Gegenstands:** **Kombiniertes mechanisches und klebendes Verschlusssystem**
- (73) **Name und Wohnsitz des Inhabers:** **Adam Oehlenschlaeger  
Elfenhöhe 1  
45467 Stevns (DE)**

### **Kombiniertes mechanisches und klebendes Verschlusssystem**

Die vorliegende Erfindung betrifft Verschlusssysteme, wie sie zum Beispiel bei Hygieneartikeln zum einmaligen Gebrauch verwendet werden.

Bei den bekannten Verschlusssystemen wird entweder ein ausschließlich mechanisches Verschlusmittel oder ein ausschließlich klebendes Verschlusmittel verwendet.  
5 Mechanische Verschlusmittel sind u. a. die sogenannten Klettverschlüsse, auch VELCRO genannt. Klebende Verschlusmittel sind oftmals mit einem Haftkleber versehen, welcher mehrmaliges Öffnen und Schließen erlaubt.

10 Erfindungsgemäß wird ein Verschlusssystem gemäß Patentanspruch vorgeschlagen, welches zugleich mechanisch und klebend schließen kann.

15 Figur 1 zeigt eine Ausführungsform, bei welcher Verschlus Elemente (10) in einer pilzförmigen Ausgestaltung auf den vorzugsweise flachen Köpfen (11) mit einem Haftkleber (12) versehen sind.

Figur 2 zeigt eine weitere Ausführungsform, bei welcher der Haftkleber (12) nicht auf den Köpfen der pilzförmigen Verschlusselemente aufgetragen ist, sondern auf der Oberfläche des Trägerelements (20).

5 Bei der ersten Ausführungsform gemäß Figur 1 erhält man einen Klettverschluß, welcher sich mit einem identischen Klettverschluß mechanisch und klebend verbinden kann. Des Weiteren kann dieser Verschluß auch auf einer Oberfläche eines Hygieneartikels haften.

10 Bei der Ausführungsform gemäß Figur 2 erhält man einen Klettverschluß, welcher auf Grund des Klebers eine verbesserte Verbindung von zwei identischen Verschlusselementen ermöglicht. Ein bei manchen Anwendungen unerwünschtes Verkleben mit z. B. Oberflächen von Hygieneartikeln wird vermieden, weil kein Kleber auf der Oberseite der pilzförmigen Verschlusselemente vorhanden ist.

15 Die Viskosität des Klebers muß bei der Ausführungsform gemäß Figur 1 genügend hoch sein, daß nur eine minimale Menge an Kleber von den Köpfen auf das Trägerelement abtropft, da sonst ein für manche Anwendungen zu stark klebendes Verschlußsystem erzielt wird.

20 Bei der Ausführungsform gemäß Figur 2 wird der Kleber z. B. mittels Erwärmung dünnflüssiger als bei der Ausführungsform gemäß Figur 1 gemacht. Dies gewährleistet, daß der Kleber beim Auftragen nicht auf den Köpfen haften bleibt, sondern sich gleichmäßig zwischen den Verschlusselementen verteilt.

25 Durch eine geeignete Wahl der Viskosität kann somit erreicht werden, daß der Kleber an den Köpfen haften bleibt oder sich zwischen den Verschlusselementen verteilt. Ist z. B. der Kleber bei der Ausführungsform gemäß Figur 2 nicht dünnflüssig genug, kann dieser nicht völlig von den Köpfen ablaufen, sondern verteilt sich sowohl zwischen den  
30 Verschlusselementen als auch auf den Köpfen.



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Die pilzförmigen Verschlusselemente und das Trägerelement werden einstückig in endlosen Bahnen aus einem thermoplastischen Kunststoff gegossen.

5 Zusätzlich kann der Kleber (12) auch auf der Unterseite (82) des Trägerelements aufgetragen werden.

**Patentanspruch:**

Verschlusssystem, vorzugsweise zur Verwendung bei Hygieneartikeln zum einmaligen Gebrauch, dadurch gekennzeichnet, daß das Verschlusssystem mechanische und klebende Verschlusselemente beinhaltet.

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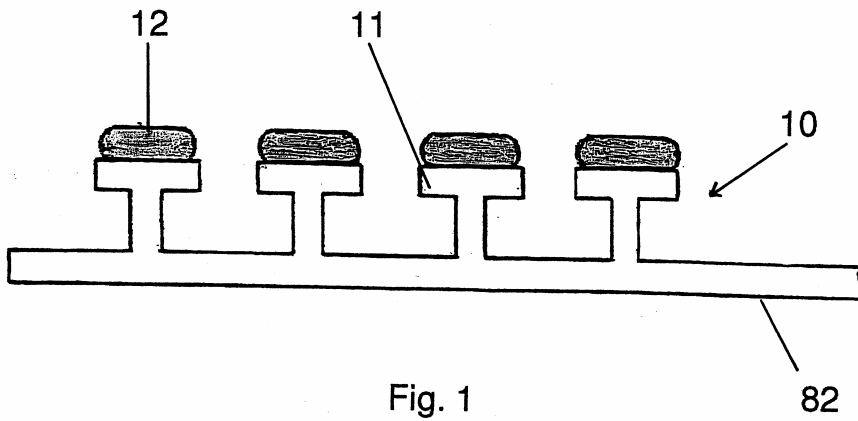


Fig. 1

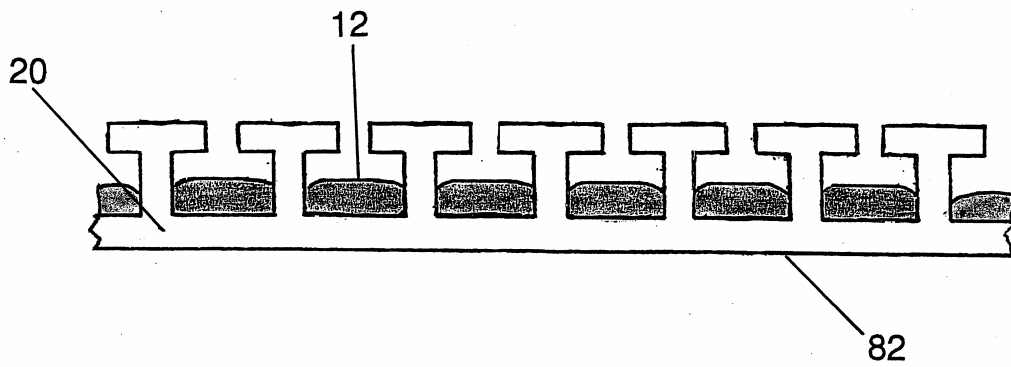


Fig. 2

## ÜBERSETZUNG DER ANLAGEN 2 BIS 6

Anlage 2:	in Deutsch
Anlage 3:	in Englisch
Anlage 4:	in Französisch
Anlage 5:	in Englisch
Anlage 6:	in Französisch

## TRANSLATION OF ANNEXES 2 TO 6

Annex 2:	into German
Annex 3:	into English
Annex 4:	into French
Annex 5:	into English
Annex 6:	into French

## TRADUCTION DES ANNEXES 2 À 6

Annexe 2 :	en allemand
Annexe 3 :	en anglais
Annexe 4 :	en français
Annexe 5 :	en anglais
Annexe 6 :	en français

<b>(11) Internationale Veröffentlichungsnummer:</b>	<b>WO 98/01166</b>
<b>(21) Internationale Anmeldenummer:</b>	<b>PCT/US97/21455</b>
<b>(22) Internationales Anmeldedatum:</b>	<b>06 April 1998 (06.04.98)</b>
<b>(30) Angaben zur Priorität:</b>	<b>08/756,547 US 08 April 1997 (08.04.97)</b>
<b>(43) Internationales Veröffentlichungsdatum:</b>	<b>15 Oktober 1998 (15.10.98)</b>
<b>(51) Internationale Patentklassifikation<sup>6</sup>:</b>	<b>A44B18/00; A61F13/56</b>
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<b>(84) Bestimmungsstaaten:</b>	<b>CA, JP, NO, europäisches Patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE)</b>
<b>(54) Titel:</b>	<b>Haftklebender Verschuß</b>

Die vorliegende Erfindung betrifft einen haftklebenden Verschuß, der sowohl mechanische als auch klebende Mittel zum Verbinden aufweist. Solche Verschlüsse werden umfangreich eingesetzt, insbesondere bei Windeln.

5 Das mechanische Mittel ist ein stützendes Gewebe mit knollenförmigen Elementen, die aus der oberseitigen Oberfläche hervorstehen. Das klebende Mittel ist ein klebender Überzug.

10 Solche Verschlüsse kombinieren den Effekt von sowohl mechanischen als auch klebenden Mitteln zum Verbinden. Demgemäß weisen sie eine weitaus bessere Leistung in Bezug auf die Festigkeit auf als Verschlüsse, die sich lediglich auf Kleber verlassen. Weiter haben sie eine bessere Leistung in Bezug auf die Festigkeit als die wohlbekanntesten Verschlüsse vom Typ VELCRO.

15 Ein Beispiel eines Verschlusses ist in den Figuren 1 und 2 gezeigt.

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Figur 1 zeigt zwei identische Verschlüsse, die fertig zum Verbinden sind. Jeder Verschluss enthält ein stützendes Gewebe (10) und knollenförmige Elemente (20), von denen jedes einen mit dem stützenden Gewebe verbundenen Stiel (30) und einen vergrößerten Kopf (40) umfaßt. Das Gewebe und die knollenförmigen Elemente sind aus einem geeigneten Material, wie PolyPPPC oder PolyBLE gegossen. Wenn die zwei Verschlüsse gemäß Figur 1 zusammengepreßt werden, werden die Köpfe des einen Verschlusses hinter und unter die Köpfe des gegenüberliegenden Verschlusses gepreßt und so die beiden Verschlüsse miteinander verbunden.

10 Zur Verbesserung der Verbindung werden das Gewebe und die knollenförmigen Elemente mit einem Kleber, vorzugsweise einem Haftkleber, überzogen.

Figur 2 zeigt einen Ausschnitt eines Verschlusses. Es muß sichergestellt werden, daß der Kleber (50) gleichmäßig über die gesamte oberseitige Oberfläche des Verschlusses verteilt ist und daß er nicht vorzugsweise in die Räume zwischen den knollenförmigen Köpfen fließt. Dies stellt eine gleichmäßige Bindung zwischen den knollenförmigen Elementen sicher. Die Fließcharakteristik des Klebers sollte deshalb derart gewählt werden, daß die Viskosität zwischen 10.000 und ungefähr 20.000 Mpa·s liegt, in Abhängigkeit von der Anwendungstemperatur.

20 Die rückseitige Oberfläche (60) des stützenden Gewebes kann ebenfalls von dem Haftkleber bedeckt sein. Diese klebende Schicht muß eine gewisse Dicke aufweisen, derart, daß eine zuverlässige Adhäsion erreicht wird, wenn der Verschluss gestreckt oder deformiert wird.

### **Anspruch:**

1. Ein haftklebender Verschluss umfassend ein stützendes Gewebe (10), dadurch gekennzeichnet daß eine Vielzahl von knollenförmigen Elementen (20) aus dem Gewebe hervorsticht, bei dem jedes knollenförmige Element aus einem mit dem stützenden Gewebe verbundenen Stiel (30) und einem am Ende des Stiels vergrößerten Kopf (40) besteht und mit einem Kleber überzogen ist.

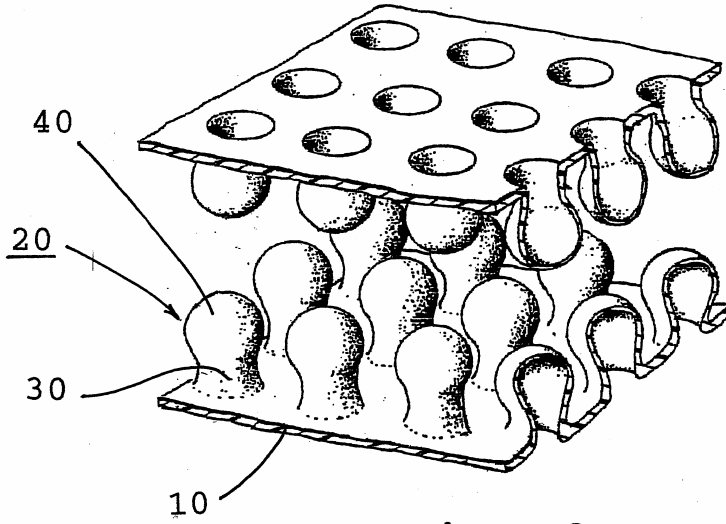


Fig. 1

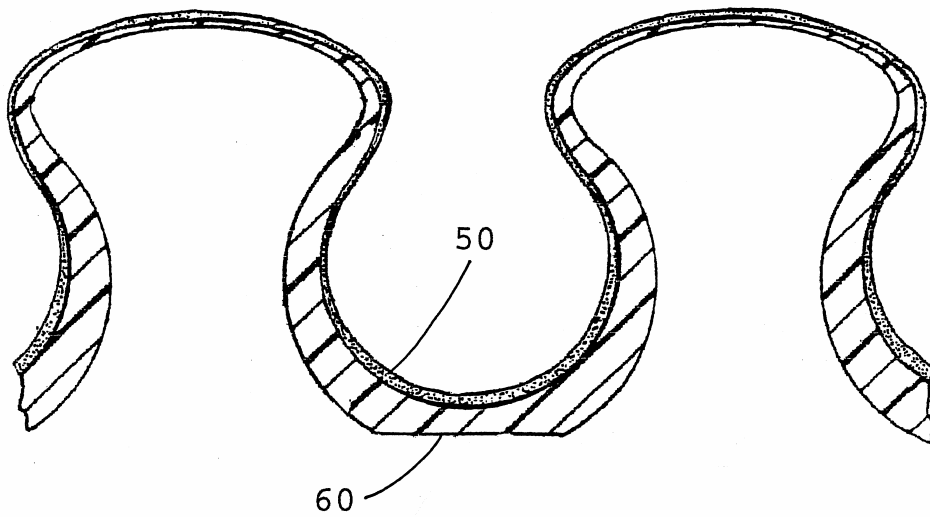


Fig. 2

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- (11) EP 0 803 748 A1
- (12) European Patent Application
- (43) Date of publication: 29.10.1997, Bulletin 1997/44
- (21) Application number: 97201004.2
- (22) Date of filing: 09.04.1997
- (84) Designated Contracting states:  
AT BE CH DE DK ES FR GB IT LI NL SE
- (30) Priority: 26.04.1996 FR9605267
- (71) Applicant: Rune T. Kidde

### Compound fastener

The present invention relates to fasteners of the VELCRO type. These fasteners have in recent years become popular for use in disposable articles.

The mechanical fastener is a surface fastener of the known hook-and-loop type, which  
5 comprises a male part, having hooks, and a female part with loops with which the male part can engage.

It is known to improve the opening resistance of the hook-and-loop fastener by adding an adhesive component to the hook. However, no prior art has addressed the problem  
10 of controlling the fastening strength by means of selecting the location of the adhesive, rather than choosing the strength of the adhesive.

Surprisingly we have discovered that depending on where the adhesive is applied, the fastening strength can be influenced.

15 In Figure 1 a male part is shown wherein the pressure-sensitive adhesive (71) is applied only to some of the hooks (61). Further, part of the support fabric (85) is also covered by

---

the adhesive. When the hooks are brought into mating contact with the opposing part (female part), the loops engage not only with the hooks in a mechanical manner but also with the adhesive. Depending to which extent the hooks and the support fabric are covered by the adhesive, the fastening strength is improved.

5

Figure 2 shows a male fastener, wherein the adhesive is applied in a manner that avoids covering the support fabric (85). This results in a selectively weaker connection between the male and female parts.

10 To improve handling during manufacture, the surface of the support fabric opposite the hooks can be covered with the pressure-sensitive adhesive.

The surface fastener can be used on a closure tab for a diaper. The tab is elastic to provide a comfortable fit around the waist of the wearer. To ensure that the tab easily  
15 folds onto itself, a central part of the tab is free of hooks and adhesive to define a folding line.

The adhesive means that the tab can be used for closing the diaper when worn and for closing the diaper when it has been used and is rolled up for disposal. When being  
20 worn, the hooks engage the loops on the waist part of the diaper, whereas when the diaper is rolled up, the adhesive on the upper side of the hooks adheres to the outer surface of the diaper.

### Claim:

A compound fastener wherein an adhesive (71) is applied to a male part (61) having male elements, characterised in that the adhesive (71) is selectively applied to all or part of the male elements and to all or part of a support fabric (85) carrying the male elements in order to control the fastening strength of the fastener.



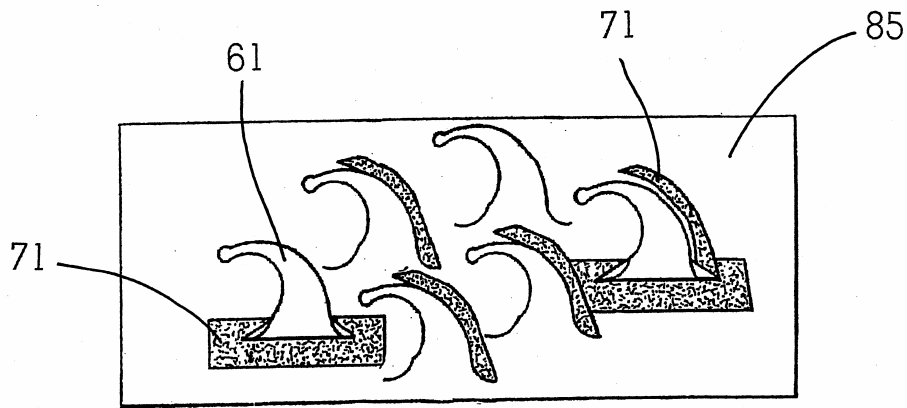


Fig. 1

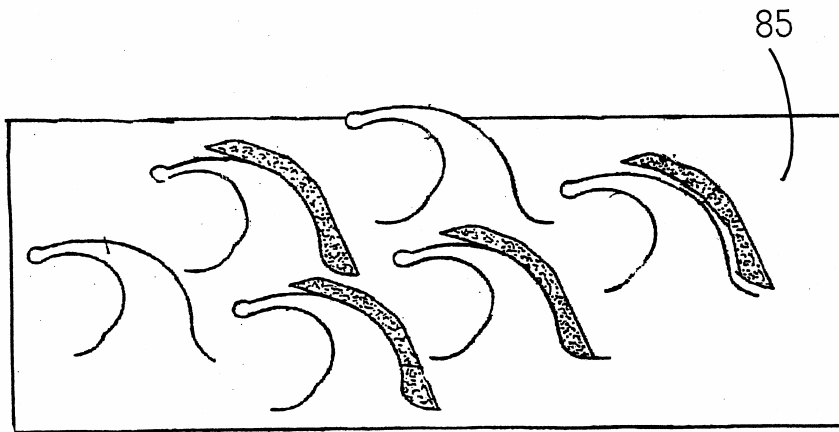


Fig. 2

- 
- [19]            **Brevet US**
- [11]            **Numéro du brevet 4,100,547**
- [21]            **Numéro de la demande 401 322**
- [22]            **Déposée le 23 décembre 1982**
- [45]            **Date de délivrance : 15 septembre 1988**
- [51]            **Int. Cl. : A44B18/00**
- [54]            **Titre : Attache séparable**
- [75]            **Inventeur : David Bowman ; Frank Poole**

### **Attache séparable**

Cette invention concerne des attaches comprenant deux moyens de connexion comprenant chacun un ensemble de tiges identiques munies d'une tête, adaptées pour s'engager de manière libérable avec l'autre moyen de connexion.

- 5 Les attaches de l'art antérieur présentent l'inconvénient que la rigidité de l'attache est déterminée au moyen de l'épaisseur de la couche d'où les projections munies d'une tête font saillie.

- 10 La présente invention remédie à cet inconvénient en mettant à disposition une attache dont la rigidité est facilement contrôlable. La rigidité est déterminée en fonction des exigences de flexibilité du produit auquel l'attache est attachée.

Une attache selon l'invention est définie dans les revendications.

## Mode de réalisation préféré

La figure 1 montre une attache moulée. Une couche rigidifiante (P) est disposée entre une couche adhésive (A) et la base (B), d'où les tiges munies d'une tête (L) font saillie.

5 En fonction de l'épaisseur et/ou de la matière de la couche rigidifiante (P), la rigidité globale de l'attache peut être ajustée.

10 La figure 2 montre des attaches à l'état engagé. Les tiges munies d'une tête sont fabriquées en une matière thermoplastique appropriée comme le PolyPPPC, le PolyBLE ou le Verodrix, et sont suffisamment flexibles pour permettre aux têtes de chaque attache de s'engager et de fermer ainsi les attaches de manière fiable.

15 La couche rigidifiante (P) peut être fabriquée en un grand nombre de matières en fonction de la rigidité globale requise pour l'attache. Des matières appropriées incluent le papier, les fibres de verre ou le métal en feuille.

20 La figure 3 montre une tige munie d'une tête qui peut être utilisée avec l'attache décrite ci-dessus. En sélectionnant avec précaution la dépouille (F), la force mécanique de la connexion entre les attaches peut être ajustée au besoin réel de l'utilisation prévue. Des tests ont montré qu'une dépouille supérieure à environ  $60^\circ$  n'a pas d'effet mesurable. De plus, il a été montré qu'une dépouille inférieure à  $20^\circ$  donne des têtes susceptibles de se casser.

## Revendications

1. Attache appropriée pour s'engager avec elle-même ou avec une autre attache identique, ladite attache comprenant une base (B) et une pluralité de tiges munies d'une tête (L) faisant saillie à partir de celle-ci, où une couche rigidifiante (P) est disposée sur le côté de la couche de base opposé aux tiges munies d'une tête.
2. Attache selon la revendication 1, où les têtes sont munies d'une dépouille (F).

Fig. 1

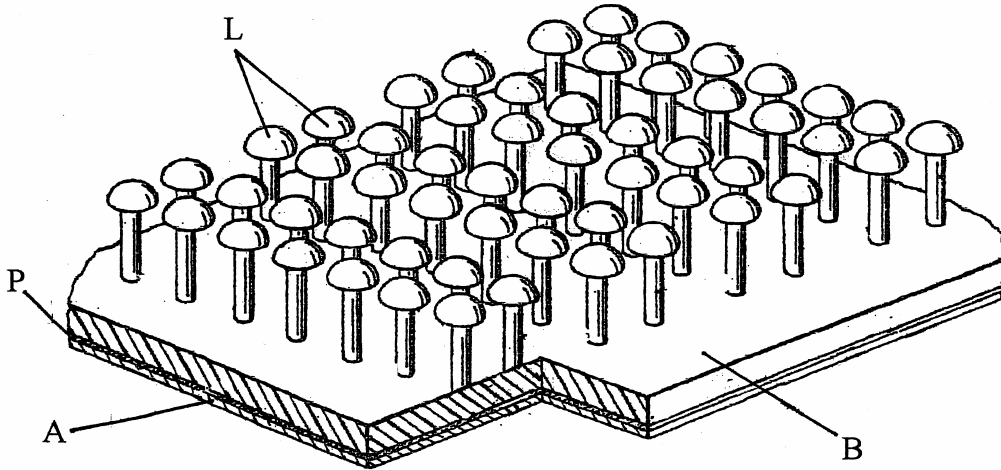


Fig. 2

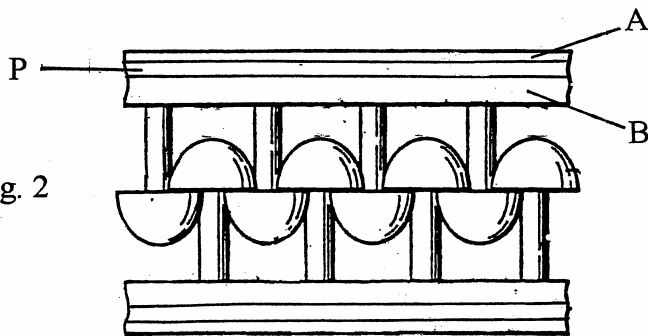
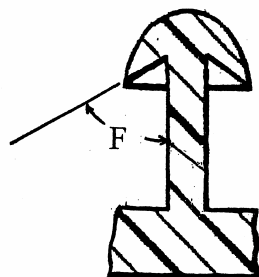
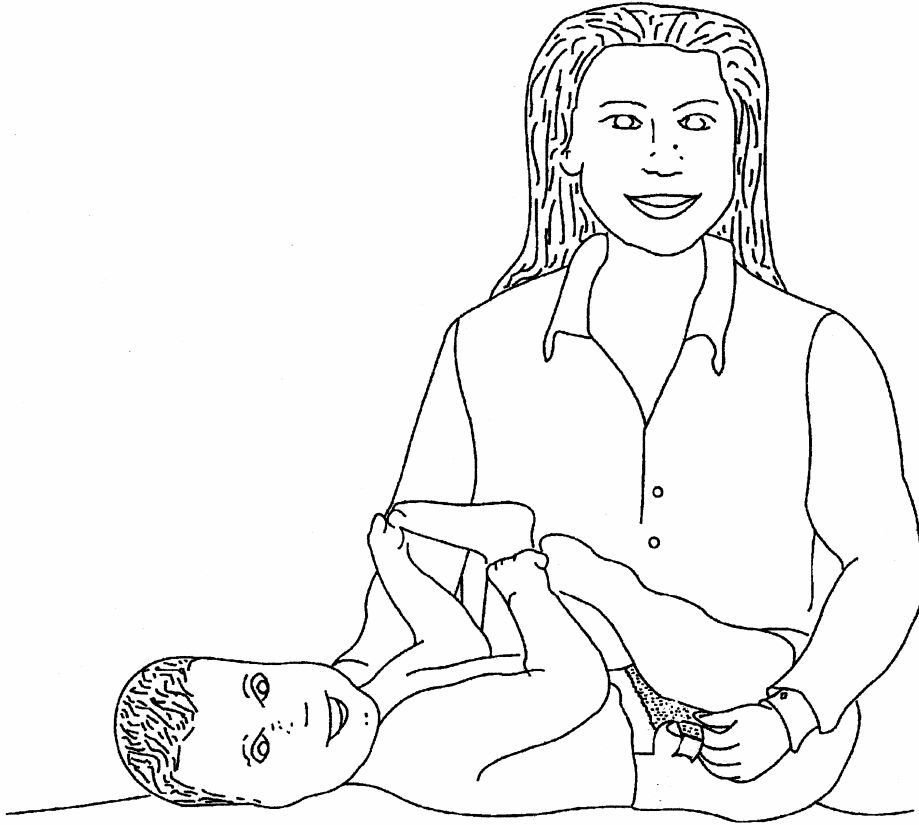


Fig. 3



Advertisement in "Diapers Today", Number 8 (August) 1995



Little Johnny has good reason to be happy – his mother has bought him the new Babymaas diaper. This new high-tech diaper is provided with a patented tab fastener, characterised by a simple but ingenious idea.

Instead of the traditional tab-fasteners, where the whole tab is covered with a surface fastener, here the end of the tab is free from any fastening means. Because of this, the end of the fastener does not lie flat against the outside of the diaper, as it is usual with lower quality diapers, and consequently it is easy to grasp.

It is therefore much easier to open those full diapers, since the elastic tab is always accessible.

000/0/01

- 
- (19) **Brevet allemand**
- (12) **Publication de la demande**
- (10) **DE 194 18 824 A1**
- (22) **Date de dépôt:** **08.11.94**
- (43) **Date de publication:** **14.03.96**
- (54) **Titre:** **Système combiné de fermeture mécanique et adhésive**
- (73) **Nom et adresse du titulaire:** **Adam Oehlenschlaeger  
Elfenhöhe 1  
45467 Stevns (DE)**

### **Système combiné de fermeture mécanique et adhésive**

L'invention présente concerne des systèmes de fermeture, tels que ceux qui sont utilisés par exemple pour des articles hygiéniques à usage unique.

5 Dans les systèmes de fermeture connus il est utilisé soit un moyen de fermeture exclusivement mécanique soit un moyen de fermeture exclusivement adhésif. Les moyens de fermeture mécaniques sont entre autres ceux appelés rubans auto-accrochants ou fermeture VELCRO. Les moyens de fermeture adhésifs sont souvent prévus avec un adhésif sensible à la pression, qui permet de multiples ouvertures et fermetures.

10

Selon l'invention il est proposé un système de fermeture conforme à la revendication, lequel peut se fermer à la fois mécaniquement et par adhésion.

15 La figure 1 montre un exemple de mise en oeuvre de l'invention, dans laquelle il est prévu des éléments de fermetures (10) ayant la forme de champignon avec un adhésif sensible à la pression (12) sur leur tête (11), qui de préférence est plate.

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La figure 2 montre un autre exemple de mise en oeuvre de l'invention, dans lequel l'adhésif sensible à pression (12) n'est pas appliqué sur la tête des éléments de fermeture (10) en forme de champignon, mais sur la surface de l'élément porteur (20).

- 5 Dans le premier exemple de mise en oeuvre de l'invention selon la figure 1 on obtient un ruban auto-accrochant, qui peut s'attacher mécaniquement et par adhésion à un ruban auto-accrochant identique. En outre, ce système de fermeture peut adhérer aussi à la surface d'un article hygiénique.
- 10 Dans l'exemple de mise en oeuvre de l'invention selon la figure 2 on obtient un ruban auto-accrochant, qui permet grâce à l'adhésif une liaison améliorée entre deux éléments de fermeture identiques. Dans certaines applications un collage, qui n'est pas souhaité avec, par exemple, les surfaces des articles hygiéniques, est évité parce que l'adhésif n'est pas présent sur la face supérieure des éléments de fermeture en forme de
- 15 champignon.

La viscosité de l'adhésif doit être, dans l'exemple de mise en oeuvre de l'invention selon la figure 1, suffisamment élevée pour que seulement une quantité minimale d'adhésif goutte des têtes sur l'élément porteur, sinon il est obtenu un système de fermeture

20 adhésif trop solide pour certaines applications.

Dans l'exemple de mise en oeuvre de l'invention selon la figure 2 l'adhésif est rendu plus fluide, par exemple par échauffement, que dans l'exemple de mise en oeuvre de l'invention selon la figure 1. Ceci garantit que l'adhésif ne reste pas collé sur les têtes

25 durant son application, mais se répand uniformément entre les éléments de fermeture.

On peut ainsi obtenir par un choix approprié de la viscosité que l'adhésif reste collé sur les têtes ou se répande entre les éléments de fermeture. Si, par exemple dans l'exemple de mise en oeuvre de l'invention selon la figure 2, l'adhésif n'est pas assez fluide, il ne

30 pourra pas s'écouler totalement des têtes, mais il se répandra aussi bien entre les éléments de fermeture que sur les têtes.

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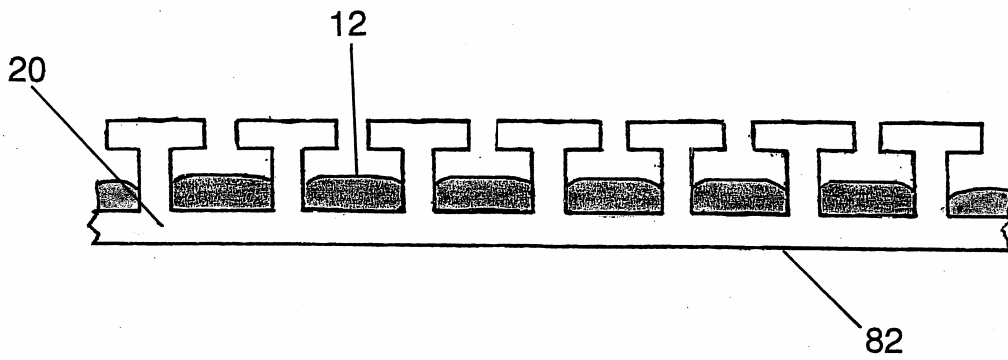
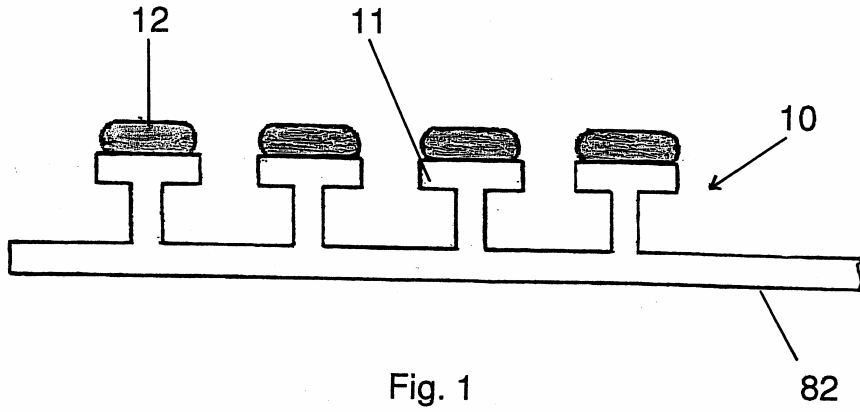
Les éléments de fermeture en forme de champignon sont coulés intégralement en une bande sans fin à partir d'une matière synthétique thermoplastique.

- 5 De plus, l'adhésif (12) peut être déposé également sur le dessous (82) de l'élément porteur.

**Revendication:**

Système de fermeture, de préférence pour article hygiénique à usage unique, caractérisé en ce que le système de fermeture comprend des éléments de fermeture mécaniques et adhésifs.





Anlage 1 / Annexe 1									
English	German	French	Danish	Spanish	Finnish	Italian	Dutch	Swedish	
closure tab	Verschlussstreifen	bande de fermeture	lukketab	oreja adhesiva	kiinnitysteippi	linguetta di chiusura	sluiststrook	förslutnings tape	
surface fastener	Kletverschluss	attache de surface	burretape	adhesivo de superficie	tarrakiinnitys	connettore di superficie	klittenband	karborre-knäppning	
pressure-sensitive adhesive	Haftkleber	adhésif sensible à la pression	trykfølsom lim	adhesivo sensible a la presion	kontaktilima	adesivo sensibile alla pressione	drukgevoelige lijm	tryckhäftande lim	
diaper	Windel	couche	ble	pañal	vaippa	pannolino	luier	blöja	
mushroom type	pilzförmig	type champignon	svampeformet	fungi-forme	sienenuotainen	del tipo a fungo	paddestoelvormig	svampförmig	
undercut	Hinterschneidung	dépouille	indskaering	vaciado	uurre	sottosquadro	uitsnijding	urskäring	
resilient	elastisch	élastique	fjedrende	elástico	kimmoisa	elastico	verend	fjädrande	
integrally	einstückig	en une pièce	i et stykke	en una pieza	yksiosainen	in un pezzo	in één stuk	i ett stycke	
disengage	aufgehen	se séparer	åbne	abrir	avata	aprire	openen	öppna	
Anlage 2 / Annexe 2									
English	German	French	Danish	Spanish	Finnish	Italian	Dutch	Swedish	
bulbous element	knollenförmiges Element	élément à bulbe	knopformet element	elemento bulboso	sipulinmuotainen osa	elemento a bulbo	knopvormig element	knoppformat element	
stalk	Stiel	tige	stamme / stilk	tallo	varsi	stelo	steel	stam	
Anlage 3 / Annexe 3									
English	German	French	Danish	Spanish	Finnish	Italian	Dutch	Swedish	
disposable	Einweg	jetable	engangs	desechable	kertakäyttöinen	usa-e-getta	eenweg	engångs	
Anlage 4 / Annexe 4									
English	German	French	Danish	Spanish	Finnish	Italian	Dutch	Swedish	
stem	Stamm	tige	stamme / stilk	tallo	varsi	gambò	steel	skaf	
Anlage 6 / Annexe 6									
English	German	French	Danish	Spanish	Finnish	Italian	Dutch	Swedish	
thin	dünnflüssig	fluide	tyndflydende	fluido ligero	juokseva (nestä)	fluido	dunvloeibaar	lättyflytande	