

AUSTRALIA
Patents Act 1990

PATENT REQUEST : STANDARD PATENT

I, being the person identified below as the Applicant, request the grant of a Standard Patent to the person identified below as the Nominated Person, for an invention described in the accompanying complete specification.

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Invention Title: TAMPON.

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BASIC CONVENTION APPLICATION DETAILS

Application No:	Country:	Application Date:
63-12330	JP	22 January 1988

DATED: 17 June 1993

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GRIFFITH HACK & CO.



Patent Attorney for and
on behalf of the Applicant

M 046584 180693

NOTICE OF ENTITLEMENT

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JAPAN

being the applicant and nominated person in respect of Australian Patent Application No. 29345/89 for grant of a patent for an invention entitled "TAMPON" state the following:

- 1) The applicant/nominated person has, for the following reasons, gained entitlement from the actual inventors:
The applicant/nominated person is one of the actual inventors and the assignee of the other of the actual inventors.
- 2) The applicant/nominated person has, for the following reasons, gained entitlement from the applicant listed in the declaration under Article 8 of the PCT:
The applicant/nominated person is the assignee of the applicant of the basic application listed in the declaration under Article 8 of the PCT.
- 3) The basic application listed in the declaration made under Article 8 of the PCT is the first application made in a convention country in respect of the invention.



GRIFFITH HACK & CO.,
Patent Attorneys for and on
behalf of the applicant

DATED: 9 July 1993



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(56) Prior Art Documents
AU 23065/88 A61F 13/20
AU 22520/53 A61F 13/20

(57) Claim

1. A tampon comprising string-like bodies formed from inter-twisted string members, the string members being menstrual fluid absorbing, wherein the string-like bodies are coiled into a spiral to form intermediate spaces between the string-like bodies to improve absorption of the menstrual fluid and the string-like bodies being formed into a tampon body by longitudinal and radial compression.

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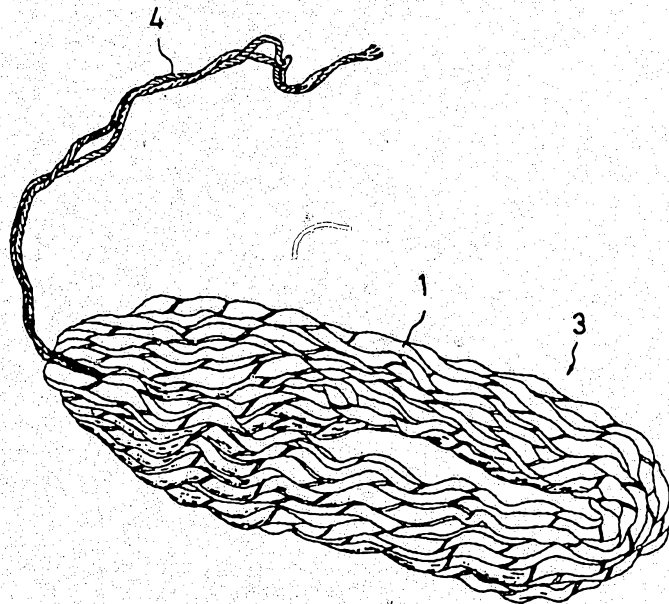
添付公開書類

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補正書

641120

(54) Title: TAMPON

(54) 発明の名称 タンポン



(57) Abstract

A tampon composed of a tampon body made of a stringy material is prepared by intertwining menstrual blood-absorbing threads, such as cotton threads of a high water absorptivity, and applying an external pressure to the formed tampon body so as to compress the same into a bullet. This tampon has a large surface area and a number of cavities among the intertwined and compressed threads. Accordingly the tampon can absorb the menstrual blood efficiently to swell. Thus the tampon can absorb the menstrual blood falling down along the wall of a vagina without fail, as it expands substantially to the volume which it had before the compression. In order to take out the tampon, a stringy member formed by intertwining reinforced threads is pulled out, so that the tampon can be removed from the vagina smoothly as it is loosened.

(57) 要約

綿糸等の吸水性に富んだ経血吸収能を有する糸材をより合わせて紐状体によってタンポン本体を形成し、このタンポン本体に外圧を加えて圧縮し弾丸状に圧縮形成してなる生理用タンポンである。このタンポンは表面積が大きく編み目による空隙部が多数形成されているので、使用時に経血を効率良く吸収でき、経血を吸収したタンポンが膨潤するので、ほぼ圧縮前のタンポン本体の状態に復元して腔壁をつたい落ちる経血を確実に吸収し得、取り出しに際しては、強化糸をからませた紐状体を引っ張ることにより、タンポンがほぐれつつ腔外に無理なく取り出し得る。

情報としての用途のみ

PCTに基づいて公開される国際出願のパンフレット第1頁にPCT加盟国を同定するために使用されるコード

AT	オーストリア	FR	フランス	MR	モーリタニア
AU	オーストラリア	GA	ガボン	MW	マラウイ
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TAMPON

Background of the Invention

The present invention relates to a tampon.

5 As shown in Fig. 11, a conventional sanitary tampon comprises a wide block-shaped tampon body A made from absorbing materials such as cotton wool, absorbing papers and the like. The block-shaped tampon body A is wound tightly in a spiral and is formed into a bullet-like
10 shape by adding pressure on the outer periphery of the body. In another way, the tampon body A is formed into a stick shape by compressing the block-shaped body in the upper and lower directions as well as in the lateral directions.

15 However, such a conventional tampon in which the tampon body A merely forms a continuous, simple and flat body, the tampon body A lacks a restoring force when it absorbs menstrual blood and expands in radial directions thereof. Therefore, it cannot wipe a stain sufficiently
20 from the wall of the vagina.

Summary of the Invention

The present invention attempts to overcome one or more of the above problems.

25 According to the present invention there is provided a tampon comprising string-like bodies formed from inter-twisted string members, the string members being menstrual fluid absorbing, wherein the string-like bodies are coiled into a spiral to form intermediate spaces
30 between the string-like bodies to improve absorption of the menstrual fluid and the string-like bodies being formed into a tampon body by longitudinal and radial compression.

Preferably, the tampon body is formed by binding



the string-like bodies, such as cotton wool which absorbs menstrual blood, and it is compressed into a bullet-like shape. In use, when the tampon body absorbs the menstrual blood, it expands greatly due to a restoring force of each of the string-like bodies such that the tampon fits against the wall of the vagina so as to absorb the menstrual blood more efficiently.

Brief Description of the Drawings

Preferred embodiments of the present invention will now be described, by way of example only, with reference to and as illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of string-like bodies forming the tampon in accordance with a preferred embodiment of the present invention.

Fig. 2 is a perspective view of the string-like bodies when bound in the form of a loop,

Fig. 3 is a perspective view of forming the bound string-like bodies into a tampon body,

Fig. 4 is a perspective view of a tampon body as another type,

Fig. 5 and Fig. 6 are perspective views of the tampon bodies wound twistedly,

Fig. 7 is a perspective view of the tampon formed into a bullet-like shape by compressing the twisted tampon bodies,

Fig. 8 is a perspective view of the tampon in the state after use,

Fig. 9 is a perspective view of string-like bodies forming a tampon according to another preferred embodiment of the present invention,

Fig. 10 is a perspective view of the tampon bodies bound, and



Fig. 11 is a perspective view of a tampon body of a conventional type.

Detailed Description of the Preferred Embodiments

5 The preferred embodiments of the present invention will be described in detail with reference to the drawings.

10 Fig. 1 shows string-like bodies 1 forming a tampon body 3 according to a preferred embodiment of this invention.

15 A string-like body 1 is formed by intertwisting strings, such as cotton wool and the like, which has a great absorbency of menstrual blood, to have a diameter of, for instance, 2mm or 3mm. Further, one or two strings 2 are entwisted with the outer periphery of the string-like body 1 so as to increase the tensile strength in the longitudinal directions thereof.

20 The string forming the string-like body 1 may be made of any material which just provide the above-mentioned function, and is not limited in its material. Further, the reinforcing strings 2 are not limited in its material.

25 The string-like bodies 1 may be wound many times in a loop to form a tampon body 3 having desired thickness, width and length (See Figs. 2 and 3). It is possible to just entwist thereinto the starting end portion and the closing end portion of the string-like bodies 1 without tieing up both of the end portions.

30 In the drawings, numeral 4 is a string removing the tampon. The string 4 may be comprised of part of the string-like body 1 by projecting a portion of the string-like body 1 from the tampon body 3, as shown in Fig. 4.

As shown in Figs. 5 and 6, the tampon body 3 may be formed by intertwisting the string-like bodies 1 in a spiral so as to form a space slightly at an intermediate



portion thereof and then in that state, compressed with external force added in the longitudinal directions and in the radial directions from the outer periphery thereof. The compressed tampon T forms a bullet-like shape, as shown in Fig. 7

The tampons according to the preferred embodiments of the present invention are used similarly to the conventional tampons. When the tampon T absorbs the menstrual blood in the vagina, it gradually expands in the radial and longitudinal directions and returns to its untwisted original shape of the tampon body 3. Since the tampon body 3 is formed from a bunch of the string-like bodies 1 which are superior in water-absorbency, it returns to its original shape rapidly by means of the restoring force of the string-like bodies 1 when it absorbs even a small amount of the menstrual blood.

Furthermore, as the tampon body 3 is restored to its original shape, the tampon body 3 increases its surface area greatly and therefore even more of the menstrual blood may be absorbed.

Further, when the tampon body 3, which comprises a plurality of string-like bodies 1, expands, their surfaces contact the wall of the vagina gently, and so it may absorb the menstrual blood running on the wall of the vagina without leaking from the vagina.

After use, when the removal string 4 is pulled, the tampon T is loosened from the state in Fig. 6 to the state in Fig. 8 and then smoothly taken out from the vagina. In the case in which the removal string 4 is made of a part of the string-like body 1, the string-like body 1 is preferably not formed with only simple cotton yarns, but the reinforcing string 2 is entwisted with the outer periphery thereof, and therefore it has a sufficient tensile strength so that it may not be cut off at an



intermediate portion thereof.

In an alternative preferred embodiment, the tampon T formed with the string-like bodies 1, may be compressed to be a bullet-like shape by simply adding external force from the state in Fig. 3, as is used in the conventional tampon.

Further, when a plurality of the string-like bodies are bound in a bunch, they may be bunched up as shown in Fig. 10 after they are weaved in advance in the state, for instance, as shown in Fig. 9, in order to make them expandable in the longitudinal or radial directions and also to be able to increase its surface area.

The preferred embodiments of the present invention provides a tampon which rapidly restores to its original expanded shape and fits tightly against the wall of the vagina so as to improve absorption and reduce leakage.

Further, the tampon body has a large surface area due to each of the string-like bodies, and it thus has a high ability of absorbency.

The preferred embodiment of the present invention also controls napping or pilling of the tampon body in comparison with conventional tampons which are merely formed with cotton wool. Furthermore, it is easier to manufacture the tampon, since it is not necessary to treat the outer surface of the tampon body.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS

1. A tampon comprising string-like bodies formed from inter-twisted string members, the string members being menstrual fluid absorbing, wherein the string-like bodies are coiled into a spiral to form intermediate spaces between the string-like bodies to improve absorption of the menstrual fluid and the string-like bodies being formed into a tampon body by longitudinal and radial compression.
2. A tampon according to claim 1, wherein the string-like bodies are wound in a loop before being coiled into a spiral and compressed to form the tampon body with a desired width and length.
3. A tampon according to any one of the preceding claims, wherein a reinforcing string is entwisted with the string-like members.
4. A tampon according to any one of the preceding claims, wherein at least one of the string-like bodies projects from an end of the tampon to form a removal string.
5. A tampon substantially as hereinbefore described with reference to and as illustrated in the Figures 1 to 10 of the accompanying drawings.

DATED THIS 29TH DAY OF MARCH 1993

SUMIE SHIMATANI

By Its Patent Attorneys

GRIFFITH HACK & CO.

Fellows Institute of Patent
Attorneys of Australia



Abstract of the Disclosure

This is a sanitary tampon which comprises a tampon body formed with a plurality of string like bodies made of a string member such as cotton yarn and the like which is superior in water-absorbency and capable of absorbing menstrual blood, and the tampon body is compressed and formed into a bullet like shape by adding external force thereto. Since the tampon has a great surface area and is formed to make a number of spaces by means of weave meshes, it may absorb the menstrual blood effectively in use. Further, since the tampon absorbing the menstrual blood expands, it almost returns to its original state prior to compression so as to surely absorb the menstrual blood running on the wall of the vagina. When taking out it from the vagina, it is possible to smoothly take out it from the vagina while it gets loose, by pulling one of the string like bodies entwisted with a reinforcing string.

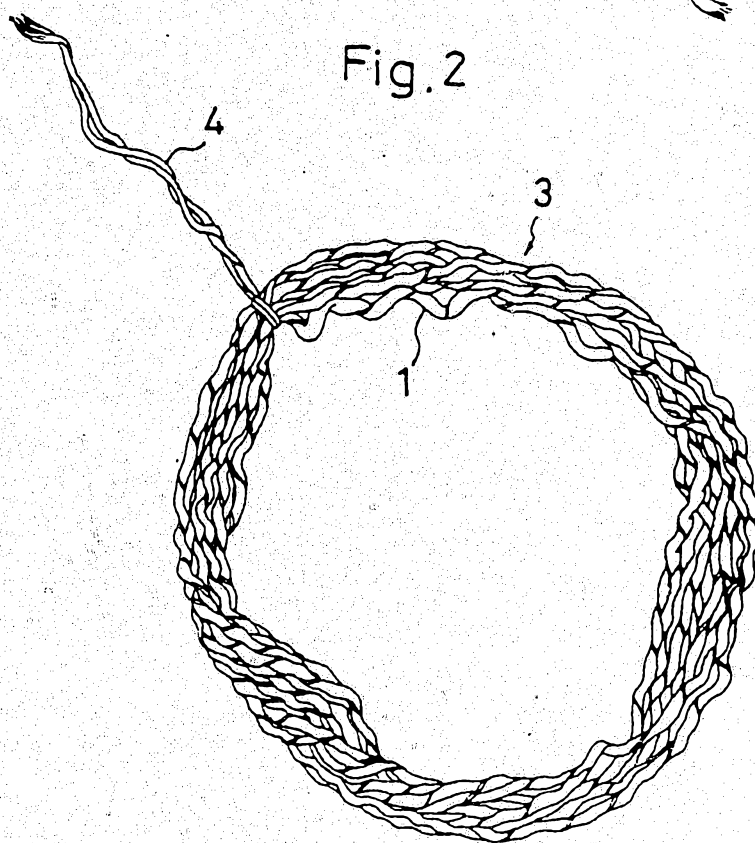
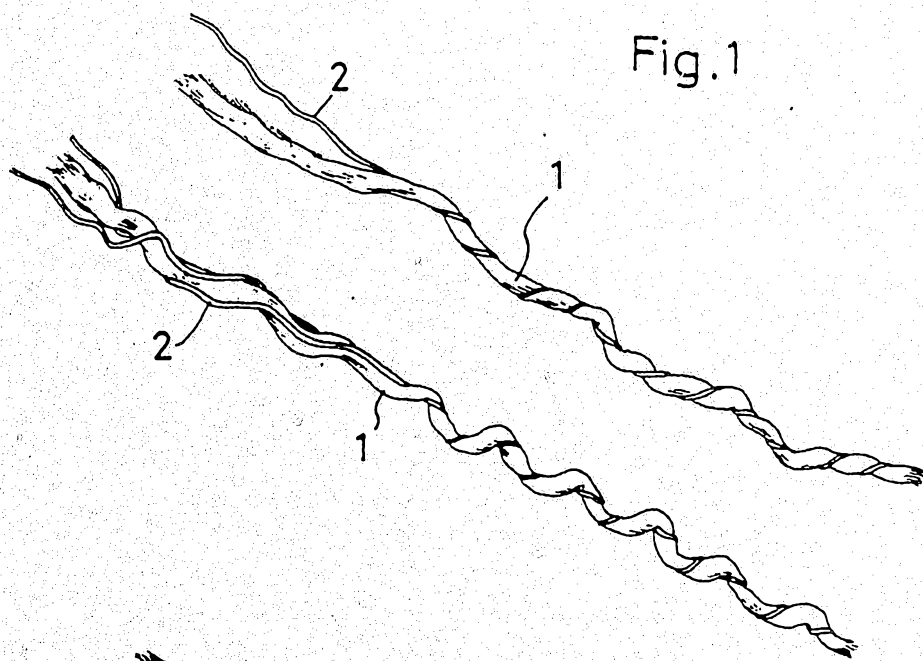


Fig.3

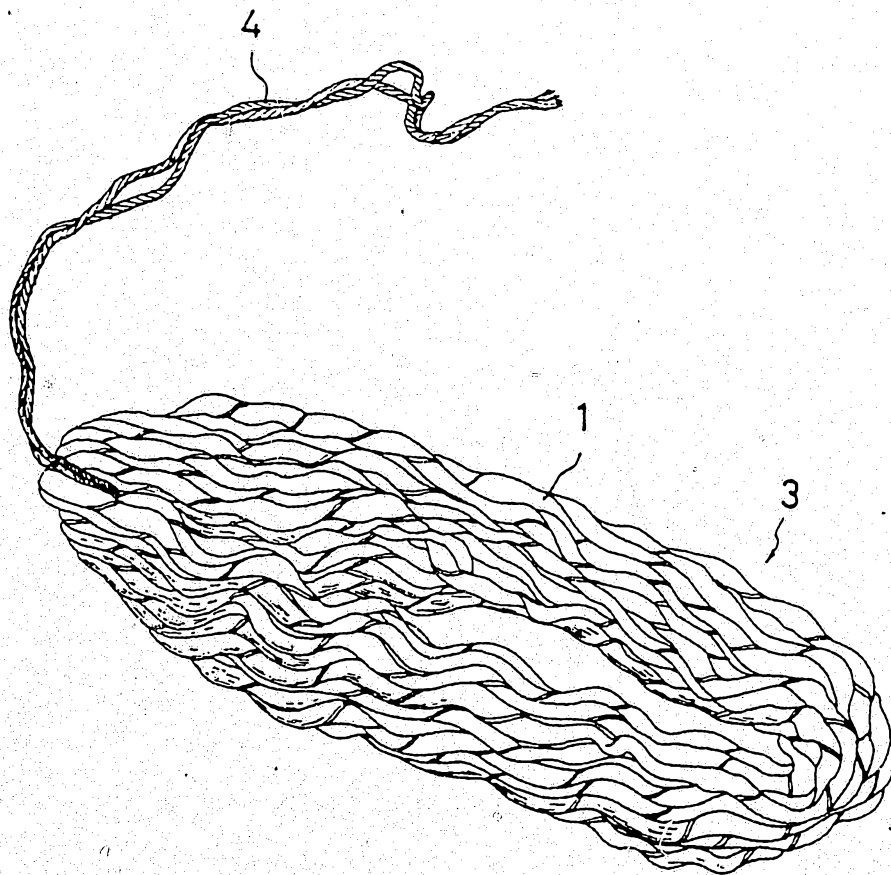


Fig.4

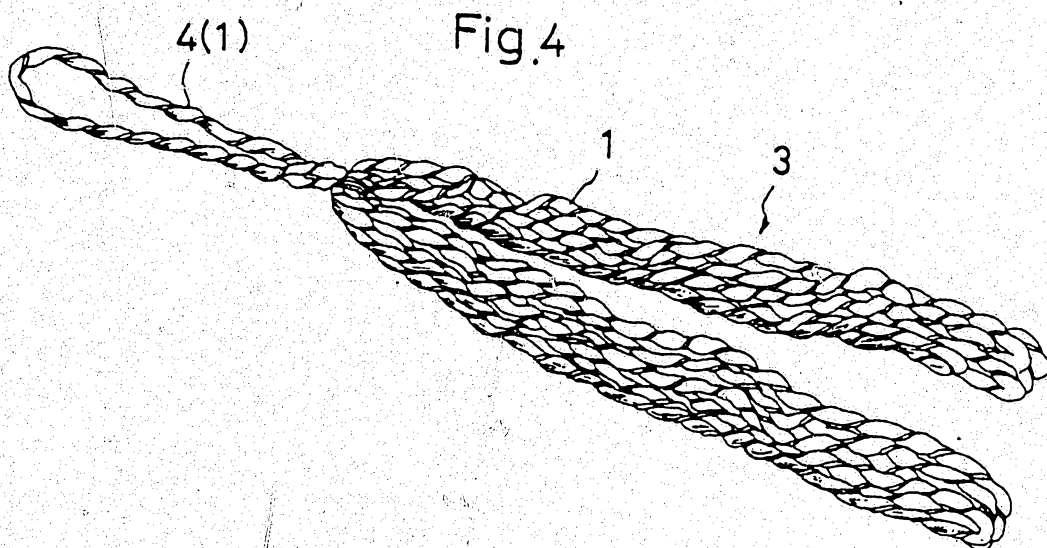


Fig.5

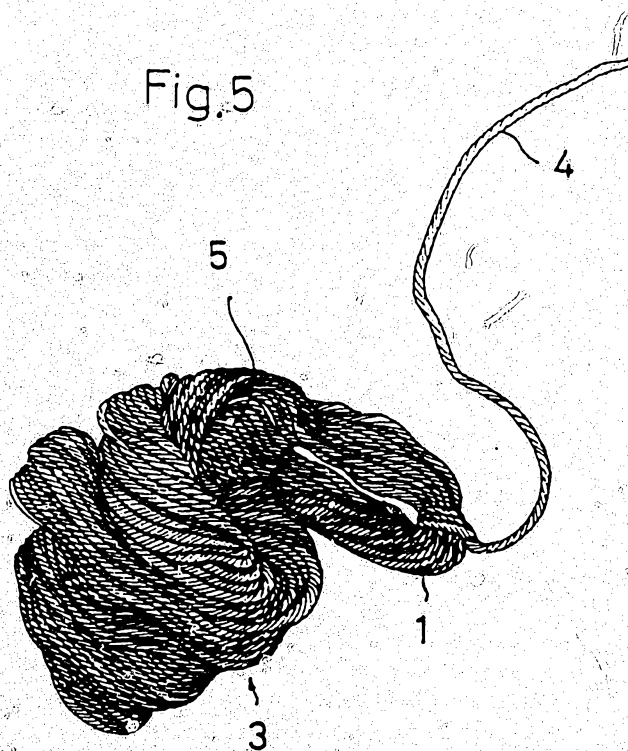


Fig.6

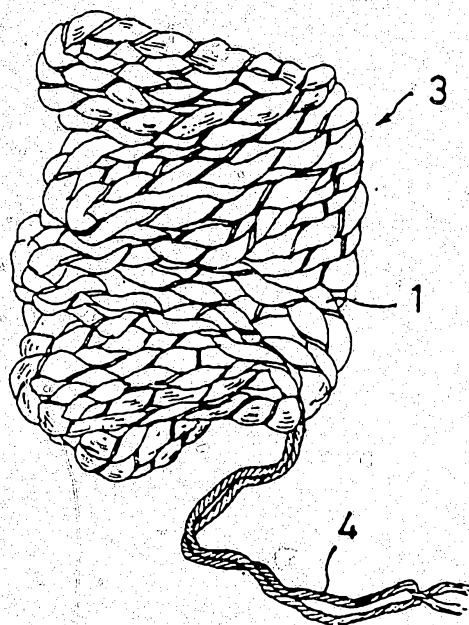


Fig. 7

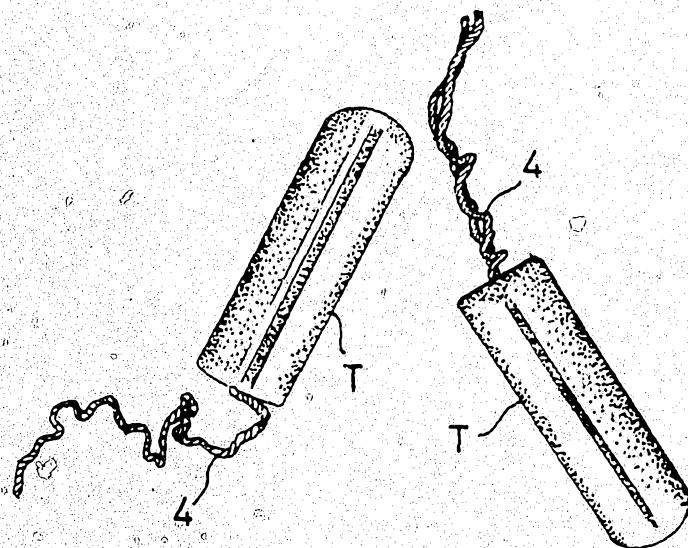


Fig. 8

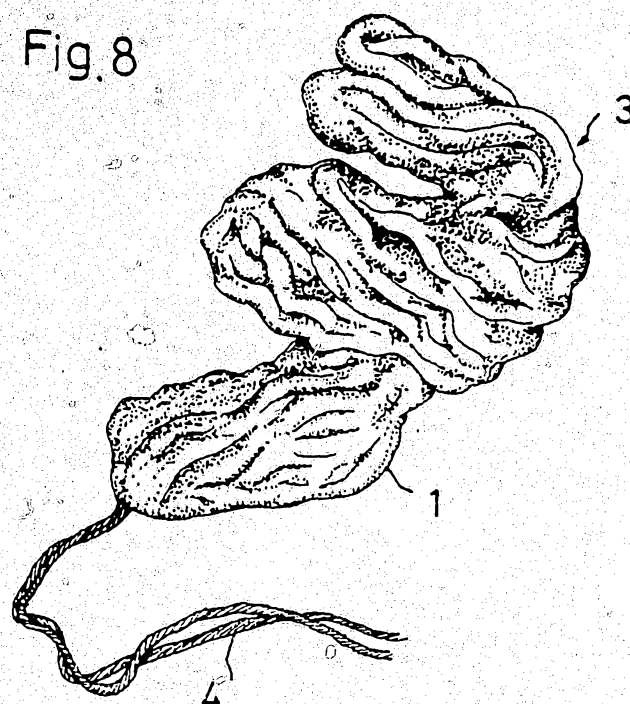


Fig.9

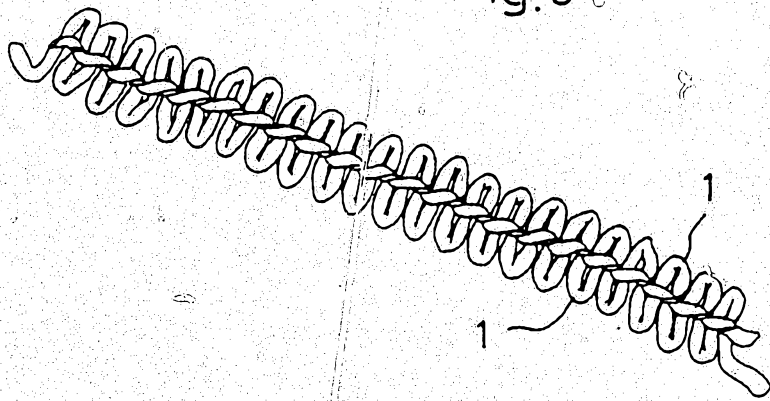


Fig.10

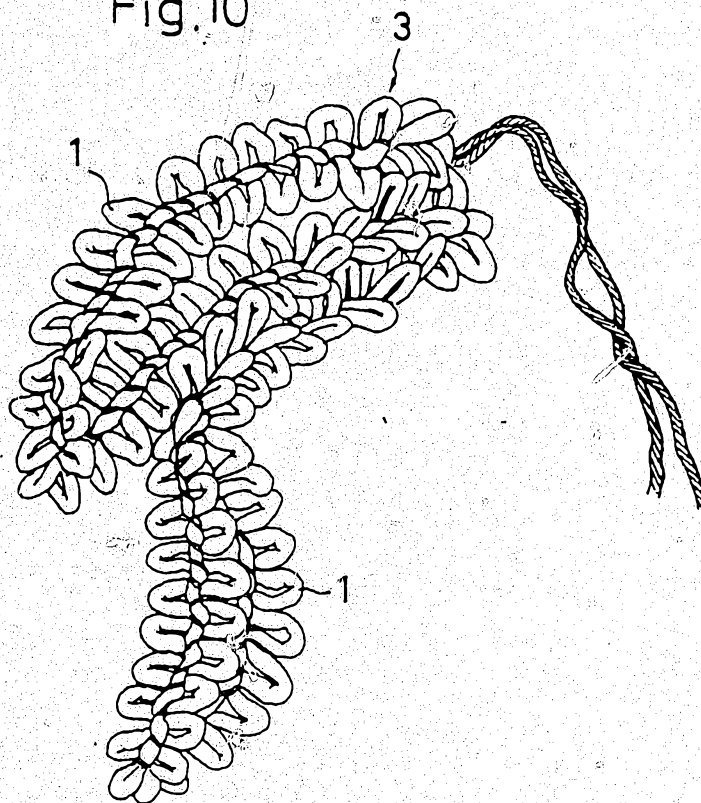
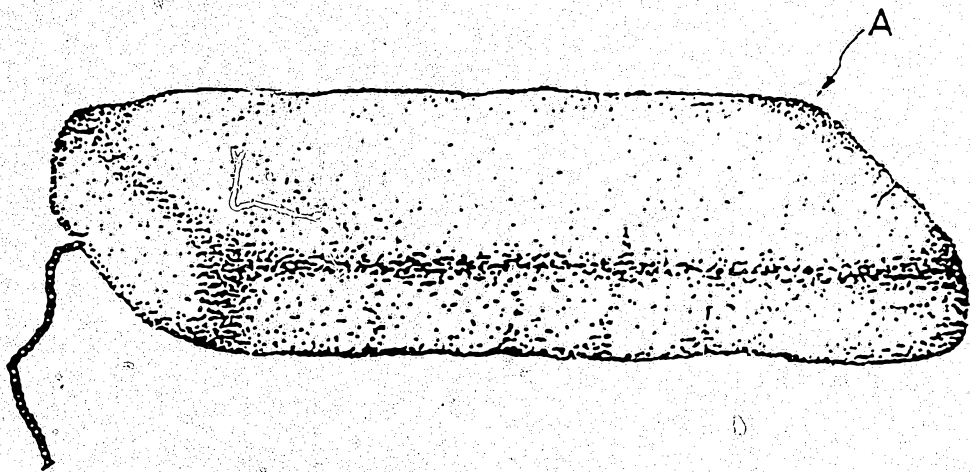


Fig.11



INTERNATIONAL SEARCH REPORT

International Application No PCT/JP89/00045

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. Cl. ⁴	A61F13/20	
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System ¹	Classification Symbols	
IPC	A61F13/20	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
Jitsuyo Shinan Koho	1946 - 1988	
Kokai Jitsuyo Shinan Koho	1971 - 1988	
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	JP, B1, 44-5520 (Kimberly-Clork Corp.) 7 March 1969 (07. 03. 69) (Family: none)	1-4
A	JP, U, 51-29794 (Anne Co., Ltd.) 3 March 1976 (03. 03. 76) (Family: none)	1-4
* Special categories of cited documents: ¹⁰ "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the International filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the International filing date but later than the priority date claimed "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "Z" document member of the same patent family		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
April 5, 1989 (05. 04. 89)		April 17, 1989 (17. 04. 89)
International Searching Authority		Signature of Authorized Officer
Japanese Patent Office		