

Commonwealth of Australia
The Patents Act 1952
DECLARATION IN SUPPORT

683998

In support of the (Convention) Application made by:
Mölnlycke AB

for a patent for an invention entitled: Absorbent Pant Diaper

I (We) Stefan Olsson
of and care of the applicant company do solemnly and sincerely declare as follows:

~~XXXXXX I am (We are) authorised by the applicant(s) for the patent to make this declaration on its behalf.~~
or

b) I am (We are) authorised by the applicant(s) for the patent to make this declaration on its behalf.

~~XXXXXX I am (We are) authorised by the applicant(s) for the patent to make this declaration on its behalf.~~

The basic application(s) as defined by section 141 (142) of the Act was (were) made

in Sweden on 18 February 1994

in on

in on

by Mölnlycke AB

The basic application(s) referred to in this paragraph is (are) the first application(s) made in
a Convention country in respect of the invention the subject of the application.

~~XXXXXX I am (We are) authorised by the applicant(s) for the patent to make this declaration on its behalf.~~
or

b) Robert Kling
Väwaregatan 13, S-511 63 Skene, Sweden

~~XXXXXX I am (We are) authorised by the applicant(s) for the patent to make this declaration on its behalf.~~

I (are) entitled to make the application are as follows:

Applicant is the Assignee of the actual inventor.

Done at Göteborg this 5th day of July 1996

Stefan Olsson Status Patent Manager

The Inventor's Name Stefan Olsson



AU9518294

(12) PATENT ABRIDGMENT (11) Document No. AU-B-18294/95
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 683998

- (54) Title
ABSORBENT PANT DIAPER
- International Patent Classification(s)
(51)⁶ A61F 013/72 A41E 009/14 A41B 013/04
- (21) Application No. : 18294/95 (22) Application Date : 17.02.95
- (87) PCT Publication Number : WO95/22306
- (30) Priority Data
- | | | |
|-------------|-----------|--------------|
| (31) Number | (32) Date | (33) Country |
| 9400569 | 18.02.94 | SE SWEDEN |
- (43) Publication Date : 04.09.95
- (44) Publication Date of Accepted Application : 27.11.97
- (71) Applicant(s)
MOLNLYCKE AB
- (72) Inventor(s)
ROBERT KLING
- (74) Attorney or Agent
WATERMARK PATENT & TRADEMARK ATTORNEYS , Locked Bag 5, HAWTHORN VIC 3122
- (56) Prior Art Documents
WO 93/17648
US 3076201
US 1817991
- (57) Claim

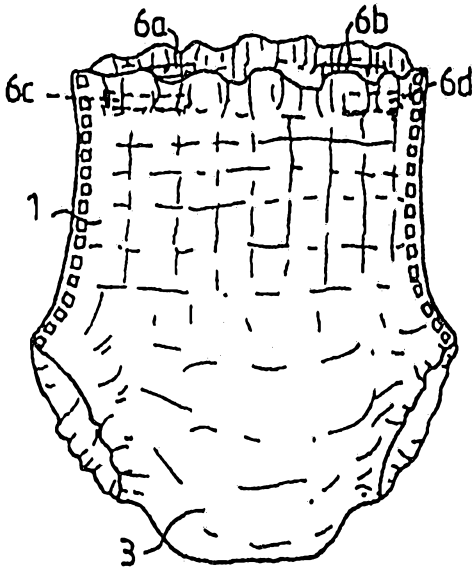
1. Disposable absorbent pant or pant diaper, comprising a crotch portion, front and back portions adjacent thereto, which are joined to form a waist portion surrounding the waist of the user, said portion being circumferentially elastic, an absorbent body, which is held tightly against the body of the user by the elastic waist portion, characterized in that at least portions of the surface of the waist portion facing the skin of the user are provided with a friction agent applied on said surface to increase the friction of said surface against the skin.

OPI DATE 04/09/95 APPLN. ID 18294/95
AOJP DATE 19/10/95 PCT NUMBER PCT/SE95/00169



AU9518294

JT)

(51) International Patent Classification 6 : A61F 13/72 // A41B 9/14, 13/04		A1	(11) International Publication Number: WO 95/22306
			(43) International Publication Date: 24 August 1995 (24.08.95)
(21) International Application Number: PCT/SE95/00169		(81) Designated States: AU, CA, CZ, HU, JP, NZ, PL, SK, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(22) International Filing Date: 17 February 1995 (17.02.95)			
(30) Priority Data: 9400569-1 18 February 1994 (18.02.94) SE		Published With international search report.	
(71) Applicant (for all designated States except US): MÖLNLYCKE AB [SE/SE]; S-405 03 Göteborg (SE).		683998	
(72) Inventors; and			
(75) Inventors/Applicants (for US only): KLING, Robert [SE/SE]; Våvaregatan 13, S-511 63 Skene (SE). DREVH, Selgun [SE/SE]; Hultbäcksvägen 16, S-435 35 Mölnlycke (SE).			
(74) Agents: PLATT, Timothy et al.; H. Albihs Patentbyrå AB, P.O. Box 3137, S-103 62 Stockholm (SE).			
(54) Title: ABSORBENT PANT DIAPER			
(57) Abstract			
In order to solve the problem of pant diapers (1) slipping down, without an excessive number of elastic threads or large and strong, and thus uncomfortable, elastic threads, at least portions of the surface of the waist portion facing the skin of the user have been provided with a hot-melt adhesive, for example to form a friction increasing surface (6a-d) against the skin, preferably sprayed on as points in a pattern, possibly only at the right and left hip portions of the waist portion.			
			

ABSORBENT PANT DIAPER

The present invention relates to a pair of absorbent pants or a pant diaper for one-time use, comprising a crotch portion, front and back portions adjacent thereto, which are joined to form a waist portion surrounding the waist of the user, said portion being circumferentially elastic, an absorbent body, which is held tightly against the body of the user by the elastic waist portion. Such an absorbent pant diaper is known by our own Swedish patent application 9200663-4, having around the waist elastically extensible elements, for example elastically extensible strings, strips, film, fibre fabric, laminates or the like, which are designed to hold the pant diaper in place on the user and prevent it from slipping down from its intended position of use. In order to prevent the elastic tension from being uncomfortable for the user, the known pant diaper is provided with a large number of elastic elements, which, by virtue of their number, on one hand exert a sufficient total tightening force around the waist of the user for the pant diaper to not slip down, and, on the other hand, each does not exert an excessive local pressure on the user. However, the use of a large number of elastic elements involves a relatively high material cost. It is therefore desirable to be able to reduce the need for elastic elements in the waist portion of the pant diaper without having to deviate from the requirement that the pant diaper should stay up comfortably on the user.

These and other problems are solved by a disposable absorbent pant diaper of the type described by way of introduction which is characterized in that at least portions of the surface of the waist portion facing the skin of the user are provided with a friction agent to form a friction increasing surface against the skin. This

prevents the pant diaper from slipping down, in a very inexpensive and simple manner without having to use many elastic threads. This makes it possible to supply a very limited number of pant waist sizes while still requiring that the pant diaper should stay in place during use. The present invention can, however, also be used with advantage on a pant diaper having a large number of elastic elements in the waist portion. In this case, it is possible to reduce the tension which the elastic elements exerts on the user, since the frictional force of the friction agent compensates for the reduced friction resulting from the lowering of the elastic tension. It is of course possible to use the invention on other types of pant diapers as well, which do not use a large number of elastic elements in the waist, for the purpose of improving the friction against the body of the user, i.e. improving the stay-up capacity of the pant diaper.

US-A-4 834 739 describes the use of friction coatings on a sanitary napkin to keep the napkin in place relative to the underpants and thighs of the wearer. This invention is, however, directed to an entirely different problem as is mentioned above and an entirely different field, namely a sanitary napkin which is held up by the user's underpants.

The present invention will now be described in more detail with reference to the accompanying drawings, where:

Fig. 1 shows a schematic plan view of an absorbent pant diaper according to one embodiment of the invention as seen towards the outside of the pant diaper in a state in which the front and back portions of the pant diaper have still not been joined for forming the waist opening and the leg opening, and in which the elastic elements in the pant diaper are in their stretched-out state;

Fig. 2 shows a section along the line II-II in Fig. 1;

Fig. 3 shows a section along the line III-III in

Fig. 1;

Fig. 4 shows a view from the front of the pant diaper in its assembled state;

Fig. 5 shows a pant diaper according to the invention with the hot-melt material laid out in a spiral shape; and

Fig. 6 shows the invention embodied in a pair of disposable menstrual briefs.

Fig. 1 thus shows an absorbent pant diaper in its still non-assembled state, i.e. the waist and leg openings of the diaper have still not been formed. The pant diaper comprises a front portion 1, intended to be applied to the front of a user, a back portion 2, intended to be applied to the rear of the user, and a crotch portion 3 between the front and rear portions 1, 2 intended to be applied between the legs of the user. The front and back portions 1 and 2 also each have two side edges 4, 5 intended to be attached together to form a pant diaper according to Fig. 4. The pant diaper further comprises an absorbent body 14 extending in the longitudinal direction of the diaper and which is enclosed between an inner cover layer 15 and an outer cover layer 16. The inner cover layer 15 is applied on the wetting side of the absorbent body 14 facing the user. It is liquid-permeable and consists, for example, of fibre fabric, a so-called non-woven. The outer cover layer 16 is liquid-impermeable or at least hydrophobic and can, for example, consist of a layer of polyethylene or a fibre fabric which has been coated or laminated with polyolefines, for example, so that it is made liquid-impermeable or at least hydrophobic. The absorbent body 14 can, for example, comprise cellulose fibres as absorbent material. Furthermore, it can comprise other absorbent materials such as polymer hydrocolloid materials, for example in particle form.

Such materials are usually called super-absorbents defined as materials with a capacity to absorb liquid many times its own weight. A plurality of transverse elastic elements 17, for example elastic threads, tapes or the like, are applied in a pretensioned state across both the front and back portions 1, 2. The required number of such elastic threads is, however, less here than in previously known pant diapers with the same stay-up capacity.

In the front and back portions 1 and 2, respectively, layers 27 and 28, respectively, of textile-like material, for example fibre fabric, are arranged on the outermost layer of the pant diaper. The elastic threads 17 are applied between these layers 27, 28, and the outer cover layer 16 or the inner cover layer 15, respectively, within those portions of the front or back portion in which the outer cover layer 16 does not extend.

The rear layer 28, as as does the front layer 27, extends somewhat in over the rear or front edge of the absorbent body, thus also covering a portion of the outer cover layer 16. Along the front and back waist portions of the pant diaper, there extend two elastic elements 33, which can consist of elastic threads, tapes or the like applied pretensioned and which in this embodiment have a greater contractive force than the individual elastic elements 17 described above.

According to the invention, the surface 15 of the waist portion facing the user has portions 6a-d of a friction agent in order to increase the friction against the skin and thus prevent the pant diaper from slipping down.

The friction agent can be, for example, a flexible material of hot-melt type, i.e. a fusible glue, which provides a coating with a surface which is smooth and

non-porous. It must, however, not stick fast to the skin of the user, even at such high temperatures as 50°C. Flexible in this context means that the material is compliant and thus can follow and be stretched to the same extent as the material in the waist of the pant diaper when it is stretched as the user moves.

A suitable hot-melt material for use in this context is a material based on thermoplastic rubber, for example styrene isoprene rubber (SIS), styrene butadiene rubber (SBR), or styrene ethylene butadiene styrene rubber (SEBS). Other hot-melt materials can also be used, for example within the following groups: ethylene vinyl acetate copolymers, cellulose acetate butyrate, ethyl cellulose, and acrylic materials.

Other examples of friction agents are material of foam-type and water-based materials, for example polyvinyl acetate.

Portions 6a-d applied at the hip portions but not over the seams between the edge portions 4, 5 and not directly in the centre of the front and back portions have proved to be advantageous since the hands are placed there when pulling the pant diaper on and off. But the elastic hot-melt material can, of course, be applied in a strip or string extending around the entire inside of the waist portion, but this can, however, mean that certain portions of the hot-melt strip will stick to the stomach or backside when the pant diaper is pulled on or off. The hot-melt material can also be applied in the form of drops of glue or in spiral patterns which have been sprayed on various areas around the waist. One example of such an alternative application of hot-melt adhesive is shown in Fig. 5, where the material has been applied by a spray nozzle in a spiral form extending in a strip around the entire waist portion.

It is thus possible with the present invention to make the elastic threads 17 and/or 33 with less tension or fewer number and at the same time achieve the same stay-up capacity with better wearer comfort. In order to achieve the same wearer comfort without the present invention, it would have been necessary to provide pant
5 diapers with many different waist sizes, and this would make the product much more expensive and more difficult to use for the consumer.

Fig. 6 shows the invention embodied in a pair of menstrual briefs where correspondingly labeled strips of hot-melt friction increasing material 6a-d have been applied around the elasticized waist portion of a pair of menstrual briefs to achieve the same advantages as regards comfort and holding up capacity as are achieved in the pant diaper example discussed above.

The menstrual briefs are also provided with friction increasing hot-melt patches 19 along the leg openings facing the buttocks. They prevent the edges of the leg openings in the rear of the briefs from sliding across the buttocks and into the crease between the buttocks, causing discomfort and bunching of the absorbent material.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Disposable absorbent pant or pant diaper, comprising a crotch portion, front and back portions adjacent thereto, which are joined to form a waist portion surrounding the waist of the user, said portion being circumferentially elastic, an absorbent body, which is held tightly against the body of the user by the elastic waist portion, characterized in that at least portions of the surface of the waist portion facing the skin of the user are provided with a friction agent applied on said surface to increase the friction of said surface against the skin.
2. Disposable absorbent pant or pant diaper according to claim 1, characterized in that the friction agent is flexible and compliant with the elastic waist portion.
3. Disposable absorbent pant or pant diaper according to claim 1 or 2, characterized in that the friction agent consists of a material of hot-melt type.
4. Disposable absorbent pant or pant diaper according to claim 3, characterized in that the hot-melt material is based on a thermoplastic rubber.
5. Disposable absorbent pant or pant diaper according to one of claims 1 to 2, characterized in that the friction agent consists of a water-based material.
6. Disposable absorbent pant or pant diaper according to one of claims 1 to 2, characterized in that the friction agent consists of a material of foam-type.
7. Disposable absorbent pant or pant diaper according to one of the preceding claims, characterized in that the



friction agent is arranged in portions extending in a row around the entire inside of the waist portion.

5 8. Disposable absorbent pant or pant diaper according to one of Claims 1-6, characterized in that the friction agent is arranged in portions which only extend along the right and left hip portion of the waist portion.

10 9. Disposable absorbent pant or pant diaper according to one of the preceding Claims, characterized in that the friction agent extends in a continuous strip along the waist portion.

15 10. Disposable absorbent pant or pant diaper according to one of Claims 1-8, characterized in that the friction agent is arranged in the form of points on the inside of the waist portion.

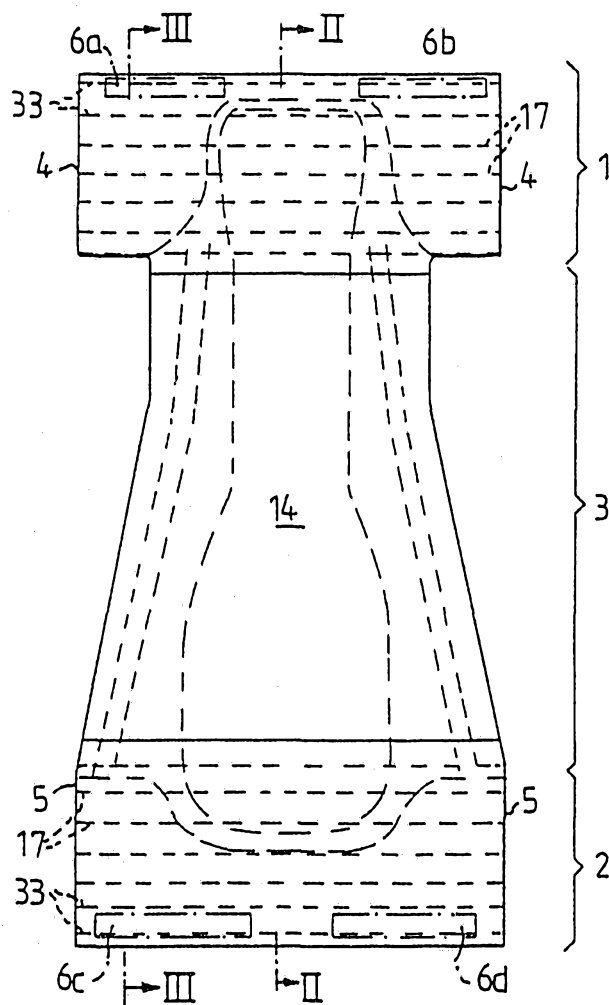


FIG. 1

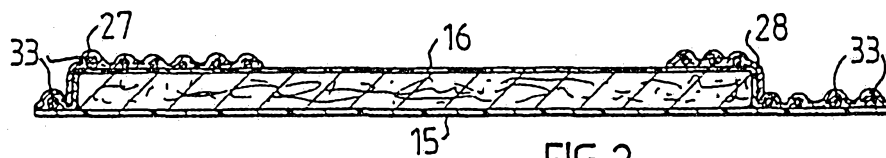


FIG. 2

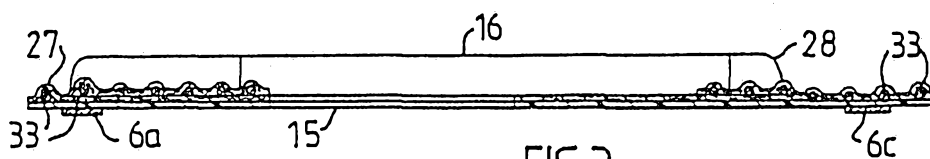
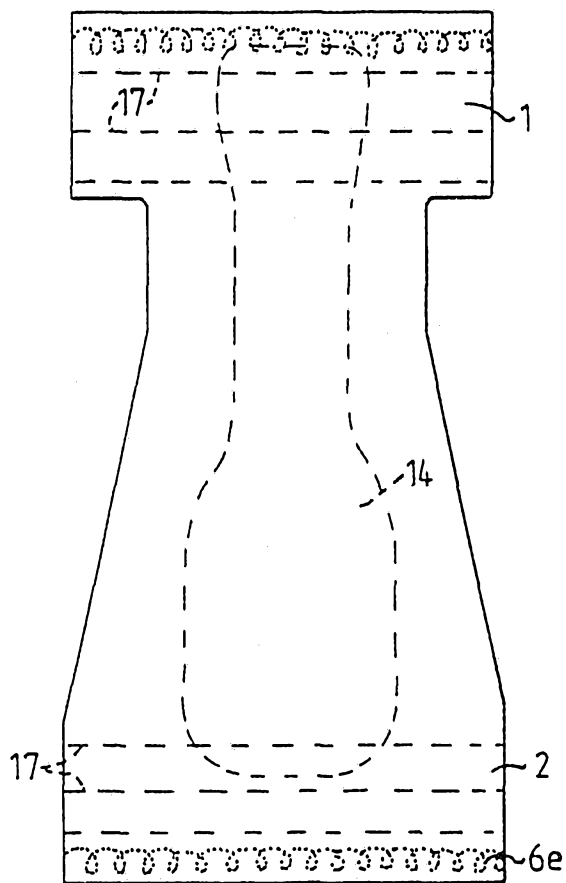
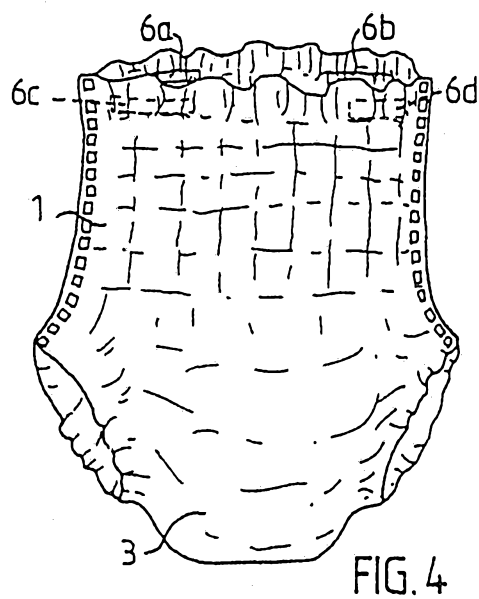


FIG. 3

2 / 3



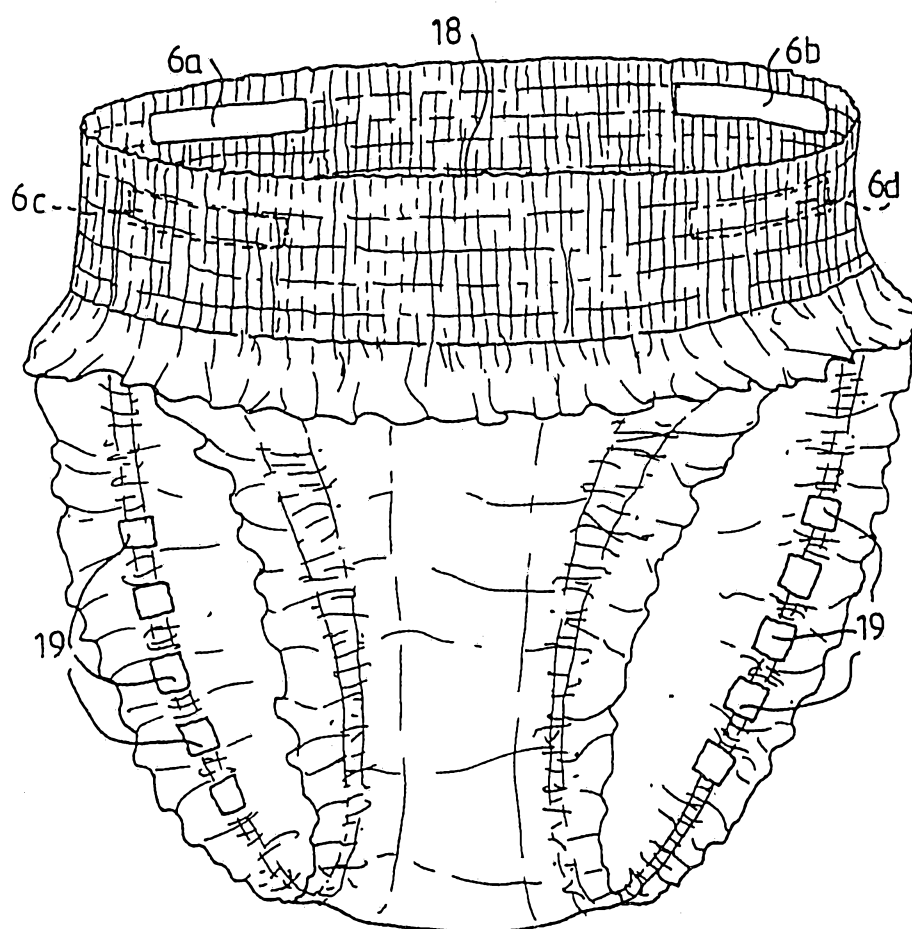


FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 95/00169

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: A61F 13/72 // A41B 9/14, A41B 13/04
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: A61F, A41B, A41F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, CLAIMS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 3076201 (JACK A. WINTER), 5 February 1963 (05.02.63), column 1, line 9 - line 12; column 1, line 53 - line 56; column 2, line 11 - line 14	1,2,9
Y	---	3-8,10
Y	US, A, 1817991 (JOSEPH H. LANGROCK), 11 August 1931 (11.08.31), page 1, line 1 - line 5; page 2, line 20 - line 25	3-8,10

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

- * Special categories of cited documents:
- * "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 when the document is taken alone
- * "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
- * "&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

17 May 1995

09-06-1995

Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer

Ingrid Falk
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 95/00169

Patent document cited in search report	Publication date	Patent fam: member:	Publication date
US-A- 3076201	05/02/63	NONE	
US-A- 1817991	11/08/31	NONE	