(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 November 2006 (16.11.2006)

PCT

(10) International Publication Number
WO 2006/121404 A1

(51) International Patent Classification:
A61H 3/04 (2006.01) *A45B 1/02* (2006.01)

(21) International Application Number:
PCT/SE2006/050113

(22) International Filing Date: 9 May 2006 (09.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0501063-2 10 May 2005 (10.05.2005) SE

(71) Applicant and
(72) Inventor: **BLOMGREN, Gunnel** [SE/SE]; Rostvägen 8, S-462 60 Vänersborg (SE).

(74) Agents: **KYLIN, Peter** et al.; Hynell Patenttjänst AB, Patron Carls väg 2, S-683 40 Hagfors/Uddeholm (SE).

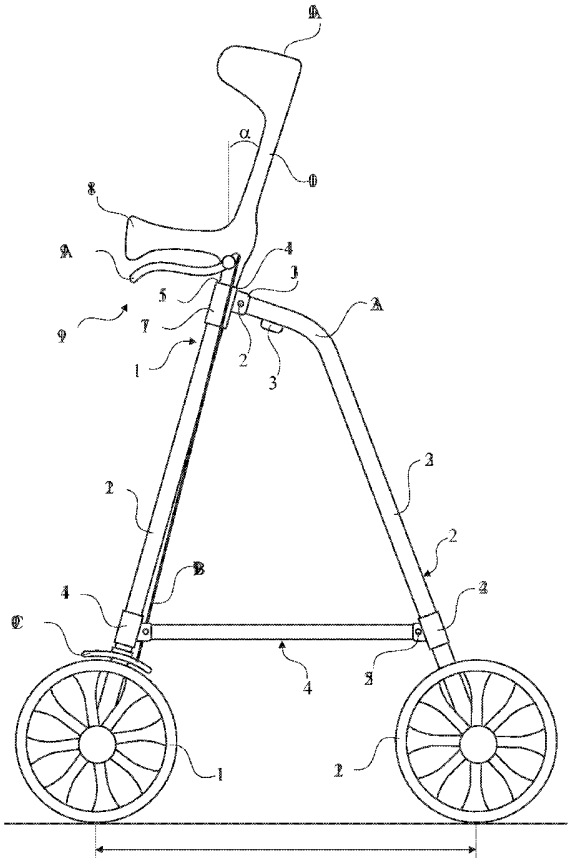
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** WALKING AID



(57) **Abstract:** This invention relates to a walking aid, comprising a frame structure (1, 2) comprising a first part (1) and a second part (2), a handle (18) connected at the upper part of said first part (1), a first wheel (11) arranged at the lower end of said first part (1) and a second 5 wheel (21) arranged at the lower end of said second part (2), wherein said wheels (11, 21) are arranged to said frame structure (1, 2) to provide stability in a first plane when gravitational load is applied to said handle (18) and wherein said walking aid device is arranged to extend along one side of the user, wherein one of said wheels (11, 21) is steerably arranged by means of said handle (18).

WO 2006/121404 A1

WALKING AID

TECHNICAL FIELD

This invention relates to a walking aid, comprising a frame structure comprising a first part and a second part, a handle connected at the upper part of said first part, a first wheel arranged at the lower end of said first part and a second wheel arranged at the lower end of said second part, wherein said wheels are arranged to said frame structure to provide stability in a first plane when gravitational load is applied to said handle and wherein said walking aid device is arranged to extend along one side of the user.

PRIOR ART

Many people, especially elder people, suffer from illness/wear/injuries that make them more or less disabled, resulting in different problems, e.g. problems in keeping the balance when up-right, difficulties in carrying items (e.g. shopping bag), a knee or a hip that causes pain when putting the whole body weight on one leg, etc. It is well known that four wheeled aid device as disclosed in US 4 341 381 can drastically improve the quality of life for people in a situation as mentioned above.

However, such a device does present some disadvantages in some cases. For instance, due to its construction it is relatively space requiring, which in itself can cause different kind of problems, e.g. difficult to bring about if space is restricted. Moreover the relatively large construction leads to a relatively large amount of material being required implying disadvantages both from a cost and weight perspective.

From US 2001-0038186 there is known less space requirements aid device, which in contrast to US 4 341 381 presents a device that merely extends along one of the sides of the user. However, the device known from US 2001-0038186 provides a very restricted/limited field of application, since it is merely intended to assist people who are totally disabled in one leg and therefore has a certain support device for this purpose. Moreover it has a special kind of wheels (enabling 360° movability) of a very small size, which drastically limits the possibility of use of the device. Merely on very even and planar surfaces environments, e.g. an indoor floor, it may be used. Accordingly the latter known device does not in any way minimize or eliminate the disadvantages of the frequently used four wheel device mentioned above.

SUMMARY OF THE INVENTION

It is an object of the invention to eliminate or at least minimize the above mentioned disadvantages, which is achieved by means of a walking aid, comprising a frame structure comprising a first part and a second part, a handle connected at the upper part of said first part, a first wheel arranged at the lower end of said first part and a second wheel arranged at the lower end of said second part, wherein said wheels are arranged to said frame structure to provide stability in a first plane when gravitational load is applied to said handle and wherein said walking aid device is arranged to extend along one side of the user wherein one of said wheels is steerably arranged by means of said handle.

Thanks to making such an aid device having a steerable wheel surprising advantages are achieved. A user will in fact experience a feeling of safety similar to a walking aid device having four wheels. As a synergetic effect it also achieves a very neat vehicle, which is easy to use also in crowded places. Moreover it is more easy to use on places where there is an uneven ground or obstacles. In all, this provides a solution that increases the area of applicability significantly.

According to further aspects of the invention:

- it further comprises a carrier device, which provides a very efficient aid device for carrying different loads, e.g. a shopping bag, without any difficulty. Indeed that solution also is advantageous for people without any handicap since it facilitates a very flexible carrying aid device, which may be used for many different items, which also may be bulky.

- said first part is rotatable in relation to said second part, to arrange for said first wheel to be steerable, which provides a very cost efficient design.

- the second part is pivotally connected to said first part by means of a pivot device, which provides an especially compact design.

- the upper portion of the frame structure comprises an arm rest device, extending from the handle (18) and upwards, preferably including a U-shaped arm rest means, providing a cost effective, comfortable and compact design.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following the invention will be described more in detail with reference to the appended drawings in which :

Fig. 1 shows a preferred embodiment according to the invention seen in a side-view,

Fig. 2 shows the device of Fig. 1 seen from above, and

Fig. 3 shows a side-view of the device of Fig. 1 in a folded state.

DETAILED DESCRIPTION

In Fig. 1 there is shown a side view of a preferred embodiment according to the invention. In general the construction of the invention comprises a first frame part and a second frame part 2. The first frame part 1 generally has the design of a conventional kind of crutch 10, 12, 18 having a wheel 11 attached to its lower end. Accordingly this part comprises an elongated tube member 12 at the top of which there is attached a plastic member 10, which plastic member 10 comprises a handle 18 and an upper U-shaped arm rest portion 10A.

At the upper portion of the tube 12, there is positioned a casing 17, fixed in the axial direction, but arranged with a bearing 15 between the tube 12 and the casing 17 to allow for rotational movement of the first part 1 in relation to said casing 17.

A second part 2 of the construction is pivotally attached to said casing 17 by means of pivot hinge 22 arranged in a protrusion 13 from said casing 17. The pivot hinge 22 allows for a pivoting action in the vertical plane, i.e. a plane comprising the elongated tube 12. The second part 2 comprises a second elongated tube 23, which at its upper portion is arranged with a bend 23A. At the lower end of the tube 23 there is attached a second wheel 21.

There is a further connection between the first frame part 1 and the second frame part 2, in the form of a support rod 4. The support rod 4 is pivotally attached to the second tube 23 by means of a pivot hinge 25, which is arranged on a casing 24 fixedly attached to the second tube 23. At the other end the support rod 4 there is a further casing 41 which is slideably arranged onto the first elongated tube 12. Accordingly the front end 41 of the support rod 4 may slide onto the first elongated tube 12. In Fig. 1 it is shown position of said support rod 4 where the walking aid is intended for use, i.e. extending substantially horisontally between the two tubes 12, 23 to secure a sufficient distance L

between the two wheels 11, 21. That distance L ought to be at least 30 cm and should preferably not be more than 1 m. In the shown example the distance L is about half a meter. The reason for having such a distance between the wheels 11, 21 is to arrange for sufficient stability when using the walking aid. As can be seen the crutch like part 1 is arranged at an angle α in relation to a vertical line, to assure that gravitational load that is applied to the handle 18 will be directed to fall within the space between the two wheels 11, 21. Accordingly this feature of the design safeguards that stability will be achieved when the user applies load to the handle 18. The angle α might be varied within a relatively wide range, e.g. 10-60°, depending on individual needs of the user. In the shown example the angle is about 25-35°.

As can be seen from Fig. 1 there is arranged a carrying device 3, e.g. in the form of a hanger hook, to allow for hanging different items, e.g. shopping bags, onto the walking aid, by means of which an easy way of carrying items is achieved.

Moreover it is shown that there is brake mechanism 19, comprising braking handle 19A arranged adjacent to the handle 18 and a pivot mechanism comprising a rod 19B with a friction element 19C at its lower end. Accordingly this braking mechanism 19 allows a user to control the speed and/or holding the walking aid still. The wheels 11, 21 being used could be of any design, but it is preferred to use some kind of cheap mass-produced plastic wheels, e.g. used for golf bags or similar known devices.

In Fig. 2 there is shown device from above. As is clearly evident from this view the walking aid 1, 2, is extremely compact in one plane, e.g. generally extending merely in a vertical plane. Thanks to this design the walking aid is easy to move around in crowded and tricky areas and does also require extremely little space. Moreover this view clarifies that the walking aid is merely stable in the plane of movement of it, but not in a plane perpendicular to the movement, i.e. sideways. However thanks to making the first part of the structure 1 rotatable in relation to second part 2, the front wheel 11 will be steerable and thereby the user has no problem in keeping the walking aid at a position that provides for sufficient stability, together with the user also sideways. Indeed the use thereof is similar to the use of a bike, which provides a synergetic effect since the most people are familiar with the use/steering of a bike. In contrast to an ordinary crutch the walking aid according to the invention should preferably be used on the opposite side, in relation to the leg that is problematic, e.g. causes pain. Hence the walking aid 1, 2 should preferably be applied along the side opposite to the one of the

leg that causes problems. Indeed this provides an easier way of walking for people having that kind of problem, compared to using a crutch.

In Fig. 3 there is shown a side view of the device shown in Fig. 1, but in a folded state. As can be seen this folded state is achieved by sliding the casing 41 upwards along the first tube 12 whereby the second tube 23 will pivot in the pivot joint 22 to move close to the first tube 12, whereby an extremely compact unit is achieved, for easy transportation etc.

The invention is not limited by the preferred embodiment described above, but the skilled person realizes that many modifications may be performed within the scope of the appended claims. For instance, it is evident that the arrangement of the moveable/pivotable support rod 4 is not a requirement, i.e. the main purpose of the walking aid is fulfilled also if this is fixed between the two tubes 12, 23. Moreover, the support rod 4 may be eliminated if instead a more solid connection is arranged between the attachment device 17, between the first and second tube 12, 23. Furthermore the skilled person realizes that the invention is not limited to the use of merely two wheels, but that for example two wheels may be applied to the second part 2, e.g. to obtain the possibility of having the walking aid positioned upright without supporting it. Indeed this might be achieved also by using sufficiently wide wheels 11, 21. Moreover the invention is not limited to merely having the front wheel 11 steerable, but the skilled person does understand that it is feasible to arrange for steering of the rear wheel by appropriate transmission of the steering movement of the handle 18, e.g. by the use of a suitable wire that controls a pivoting rear wheel 21. Further it is evident that many different kind of carrying devices 3, e.g. hooks, ropes, shelves, etc. may be attached to the walking aid depending on different needs. Finally it is realized that many different kind of materials may be used to produce the walking aid, e.g. plastic rods, homogenous rods, metal tubes, form moulded parts, forged parts, etc. within a variety without departing from the scope of the invention.

CLAIMS

1. Walking aid, comprising a frame structure (1, 2) comprising a first part (1) and a second part (2), a handle (18) connected at the upper part of said first part (1), a first wheel (11) arranged at the lower end of said first part (1) and a second wheel (21) arranged at the lower end of said second part (2), wherein said wheels (11, 21) are arranged to said frame structure (1, 2) to provide stability in a first plane when gravitational load is applied to said handle (18) and wherein said walking aid device is arranged to extend along one side of the user, c h a r a c t e r i z e d in that one of said wheels (11, 21) is steerably arranged by means of said handle (18).

2. Walking aid according to claim 1, c h a r a c t e r i z e d in that it further comprises a carrier device (3).

3. Walking aid according to claim 1 or 2, c h a r a c t e r i z e d in that said first part (1) is rotatable in relation to said second part (2), to arrange for said first wheel (11) to be steerable.

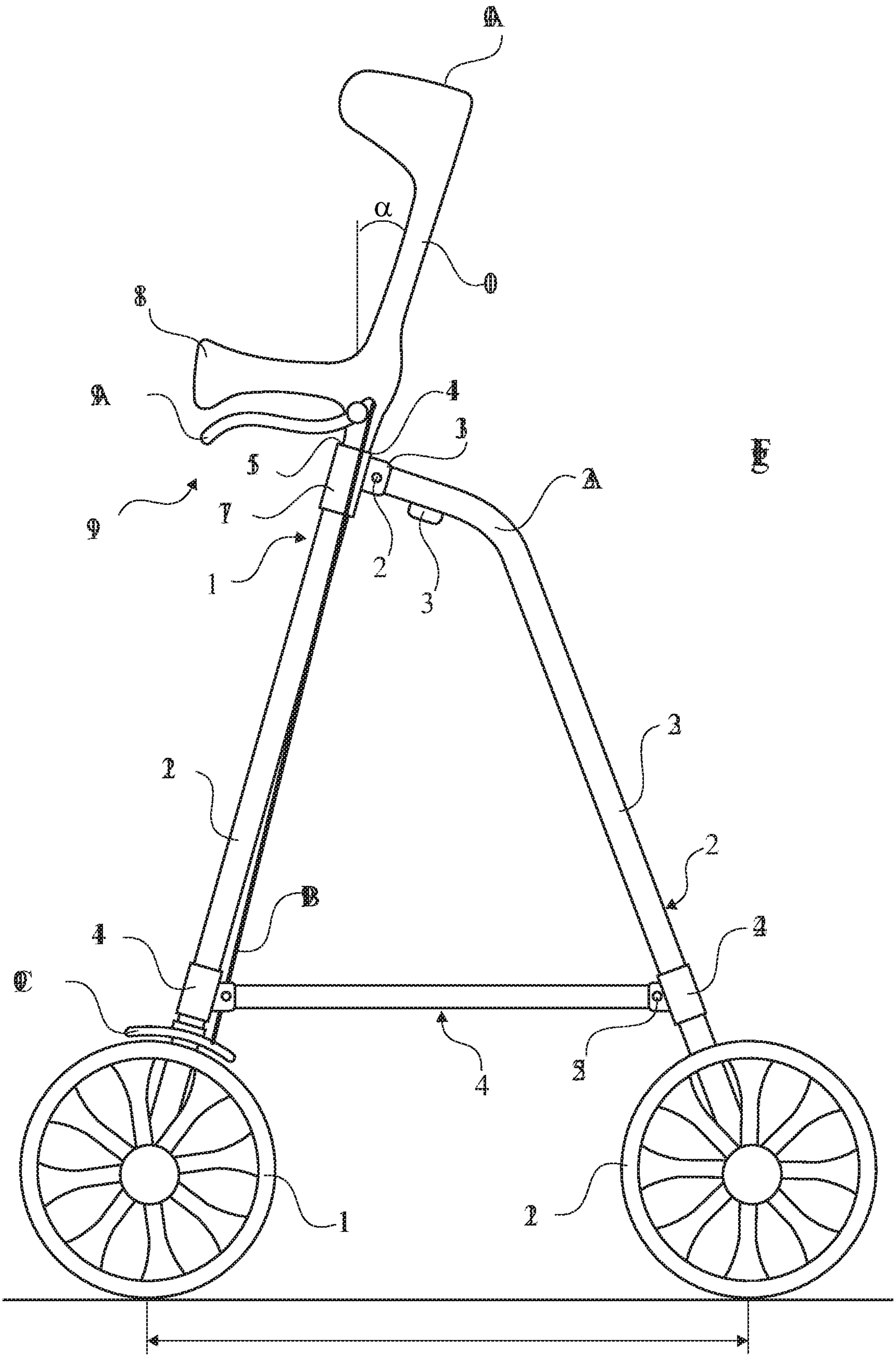
4. Waking aid according to claim 3, c h a r a c t e r i z e d in that said first part (1) includes an elongated tube member (12) being rotatably attached to said second part (2) by means of a pivot arrangement (17), preferably in the form of a cylindrical hub (17) arranged outside of said tube (12) and an intermediate bearing device (15).

5. Walking aid according to any of the above claims, c h a r a c t e r i z e d in that said second part (2) of the frame structure comprises an elongated tube portion (23), which tube portion (23), preferably is pivotally connected to said first part (1) by means of a pivot device (22).

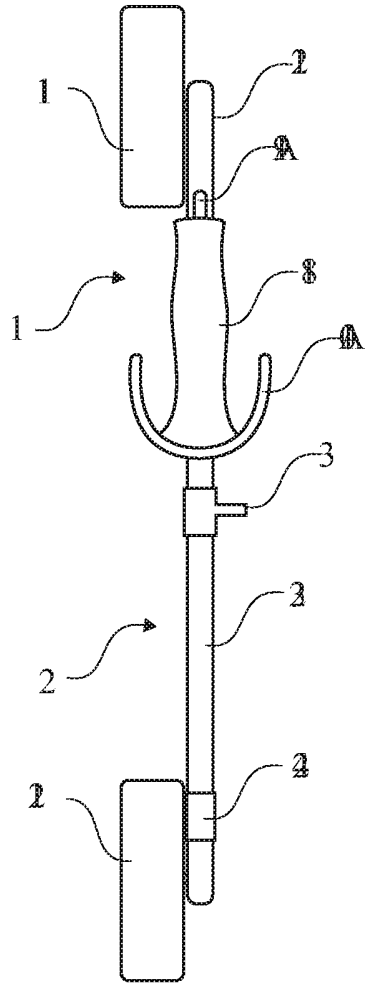
6. Walking aid according to claim 5, c h a r a c t e r i z e d in that there is a support arm (4) arranged between the lower portions of said frame parts (1, 2), wherein preferably said support arm is pivotally attached at one point (25) and slideably attached at the other end point (41) enabling sliding along one of said tube portions (23, 12).

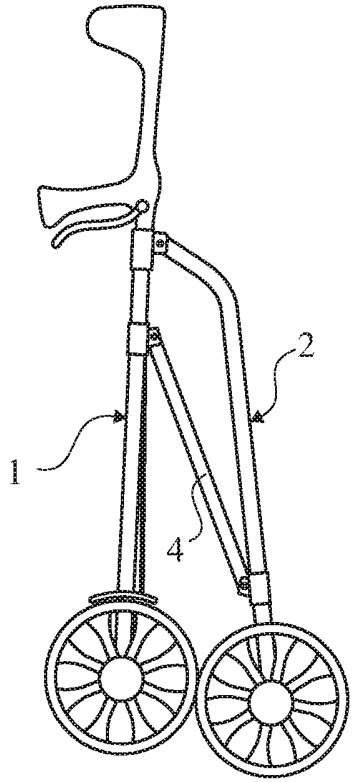
7. Walking aid according to any of the above claims, c h a r a c t e r i z e d in that the upper portion of the frame structure comprises an arm rest device (10, 10A)), extending from the handle (18) and upwards.

8. Walking aid according to claim 7, c h a r a c t e r i z e d in that said arm rest (10) includes a U-shaped arm rest means (10A), wherein the symmetry line of said U-shaped means (10A) extends in the same direction as the handle (18).


α
1
2
3
4
1
2

Fig





Fig

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2006/050113

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet
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)

IPC: A61H, A45B

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)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NL 8701079 A (FREDERIK NIJEN TWILHAAR TE MUIDEN), 1 December 1988 (01.12.1988) -- --------	1-8

☐ 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 application or patent 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
3 July 2006	04 -07- 2006
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 Mimmi Westman/EK Telephone No. +46 8 782 25 00

International patent classification (IPC)
A61H 3/04 (2006.01)
A45B 1/02 (2006.01)

Download your patent documents at www.prv.se
The cited patent documents can be downloaded at www.prv.se by following the links:

- In English/Searches and advisory services/Cited documents (service in English) or
- e-tjänster/anförda dokument(service in Swedish).

Use the application number as username.
The password is **VWEILXWVGM**.

Paper copies can be ordered at a cost of 50 SEK per copy from PRV InterPat (telephone number 08-782 28 85).

Cited literature, if any, will be enclosed in paper form.

NL	8701079	A	01/12/1988	NONE