



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
21.09.2011 Bulletin 2011/38

(51) Int Cl.:
A61H 3/04 (2006.01)

(21) Application number: **11150277.9**

(22) Date of filing: **06.01.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(72) Inventor: **Lauritsen, Mogens Bichel**
7500, St. Moritz (CH)

(74) Representative: **Bergheim, Olav**
Zacco Norway AS
Haakon VII's gt. 2
P.O. Box 2003 Vika
0125 Oslo (NO)

(30) Priority: **07.01.2010 NO 20100010**

(71) Applicant: **Handicare AS**
1533 Moss (NO)

(54) **Apparatus for locking a cross frame**

(57) Locking device (1) for a cross frame construction, the cross frame construction preferably constituting a part of a rollator (22) to facilitate folding of these, and the cross frame construction comprising a first cross bar (4), a first parallel bar (8) and a first hinge bar (6) pivotal connected with the cross bar (4) in a pivot point (11) and with the parallel bar (8). A locking hook part (12) is pivotal arranged at the hinge bar (6), the locking hook part comprising two locking hooks (14, 15) separated by a angle of rotation around a pivot pin (13) for the hook part (12); and at the cross bar (4), on each respective end of the pivot point (11), is arranged a first locking pin (2) for engagement with the locking hook (15) in a use position

and a second locking pin (3) for engagement with the locking hook (14) in a transport or storage position. Between the hinge bar (6) and the hook part (12) a spring device (16) is arranged, and the hinge bar (6) is arranged with a stop pin (21) for abutment with a first side of the locking hook part (12). Further, second (23) and third (24) sides of the locking hook part (12) against inner engagement surfaces on each respective locking pin (14, 15) are shaped such that in said use position and storage or transport position so that the locking device (1) "latches" in locking engagement by itself, and that only during release of the locking engagement in the two respective positions that a user must perform an action on the locking device (1).

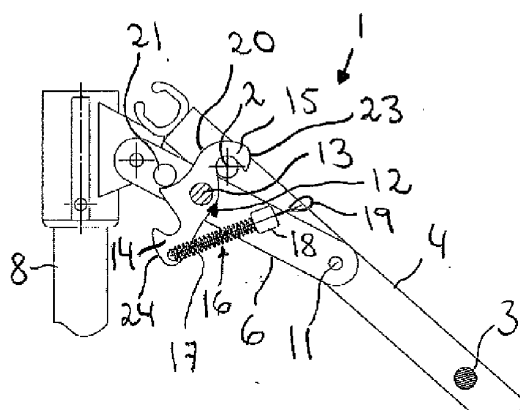


Fig. 2a

Description

[0001] The present invention relates to a locking device for a cross frame construction, the cross frame construction preferably constituting a part of a rollator to facilitate folding of the rollator. More specific, the invention is relating to a locking device as indicated in the preamble of claim 1.

[0002] A rollator is a product primarily intended for elderly and/or disabled users, in which case simple handling evidently is of particular importance. Most rollators may in one way or another be folded, for example by way of a on its own known cross frame construction, to be more easily transported for example in a car, or to occupy less space when not in use. For foldable rollators it is obviously advantageous to have a secure and simple device for locking the rollator both in a use position and in a storage or transport position.

[0003] The present invention aims at providing the above and/or other advantages by a locking device as indicated in the characterizing part of claim 1.

[0004] Other preferable embodiments of the invention are to be understood by the dependent claims.

[0005] In the following a non-limiting embodiment of the locking device according to the invention is disclosed with reference to the accompanying drawings, in which:

Fig. 1a and 1b is a side view of a locking device according to the present invention locking a cross frame construction in a use position and a storage position, respectively.

Fig. 2a and 2b is enlarged partial views of the locking device shown in Fig. 1a and 1b; and

Fig. 3a and 3b are perspective side views of a rollator comprising the locking device and cross frame construction shown in Fig. 1 and 2, in a use position and storage position, respectively.

[0006] With reference to the drawings, a locking device 1 according to the present invention comprises a first 2 and a second 3 locking pin arranged on a first end section of a first cross bar 4 of a cross frame construction. The cross frame construction further comprises a second cross bar 5, first 6 and second 7 hinge bars and also first 8 and second 9 parallel bar, wherein the first and second cross bars 4, 5 are pivotal connected by a central arranged pin connection 10, wherein a first end of each of the hinge bar 6, 7 are pivotal connected with a first end section of each of the respective cross bars 4, 5 and with a first end of each of the respective parallel bars 8, 9, wherein in the said end section, between the first and the second locking pin 2, 3, is arranged a rotary joint 11 for pivotal connection - via each respective hinge bar 6, 7 - of each respective cross bar 4, 5 to the first end of each respective parallel bar 8, 9, and wherein the second respective end of each cross bar 4, 5 is directly pivotal

connected with the other end of each respective parallel bar 8, 9. With particular reference to Fig. 1a and 1b, the cross frame construction is shown in an open and locked use position and in an closed and locked storage and transport position, wherein the construction and function of the locking device 1 is described in further detail below.

[0007] As is seen from Fig. 1a and 1b, the locking device 1 further comprises a locking hook part 12 pivotal connected on the first hinge bar 6 by pivot pin 13. The locking hook part 12 comprises to locking hooks 14, 15, wherein each respective locking hook 14, 15 is arranged in each respective end of each locking hook part 12, and wherein the locking hooks is separated by a angle of rotation substantially equal to 180° round the pivot pin 13. In an open use position is the locking hook 15 thus in locking engagement with the first locking pin 2 while the locking hook 14 is free, and in a closed storage or transport position is the locking hook 14 in locking engagement with the second locking pin 3 while the locking hook 15 is free.

[0008] Further, between each end of the locking hook part 12 comprising the locking hook 14 and a point on the hinge bar 6 near the rotary joint 11, is there arranged a spring device 16, in the present embodiment comprising a spiral spring 17. The spring device 16 further comprises a wire connected to the said end section of the locking hook element 12 penetrating a sleeve 18 arranged in said point on the hinge bar 6, and that serves as abutment for a end of the spiral spring 17, then ending in a release ring 19 on the other side of the sleeve 18. The spring power of the spiral spring 17 press a first side 20 of the locking hook part 12 in abutment with a stop pin 21 arranged on the hinge bar 6 close to a end of the hinge bar opposite the rotary joint 11, and thus hold the locking hook part 12 in one of the two locked positions mentioned above, and where the locking effect is released by a user pulling the release ring 19 by compressing the spring 17 and rotating the locking hook part. The shape of the side 20 is thus adapted to allow rotation of the locking hook part 12 around the pivot pin under actuation of the release ring 19. A second 23 and third 24 side of the locking hook part is shaped as inclined planes towards inner engagement surfaces for the respective locking hooks 14, 15, and in above mentioned use position and storage or transport position, the locking device 1 enters or "latches" thus locking engagement by itself, such that it is only during release of the locking engagement in the two respective positions that a user must perform an action by pulling the release ring 19.

[0009] The present invention thus provides a self-locking function both in a user position with unfolded cross frame construction and in folded storage or transport position. As a rollator 22 with a cross frame construction by way of a locking device 1 of the present invention is secure and easily locked both in a use position and in a storage or transport position ensures both safety during use and during transport or storage, and during handling under transport or storage, for example during on or off-

loading on a car is unintentional and sudden unfolding avoided. Simultaneously is it rendered possible to wheel or drive the rollator 22 also in the folded and locked position, which might be advantageously during handling under transport.

[0010] As shown in Fig. 3a and 3b, the parallel bars 8, 9 constitutes respective side poles of the rollator 22, in which side poles 8, 9 there are preferably telescopically arranged support handles 25, 26 respectively.

[0011] The present invention is not limited to the above described embodiment, and changes are this encompassed within the limits of the accompanying claims. As one example of the latter is it possible to replace the spiral spring 17 with a different type spring or elastomer.

when a user as an action pulls the release ring (19).

4. Locking device according to any of the proceeding claims, **characterized in** that the parallel bar (8) constitute a side pole of the rollator 22, in which there is telescopically arranged a support handle.

Claims

1. Locking device (1) for a cross frame construction, the cross frame construction preferably constituting a part of a rollator (22) to facilitate folding of these, and the cross frame construction comprising a first cross bar (4), a first parallel bar (8) and a first hinge bar (6) pivotal connected with the cross bar (4) in a pivot point (11) and with the parallel bar (8), **characterized in** that a locking hook part (12) is pivotal arranged at the hinge bar (6), the locking hook part comprising two locking hooks (14, 15) separated by a angle of rotation around a pivot pin (13) for the hook part (12); and at the cross bar (4), on each respective end of the pivot point (11), is arranged a first locking pin (2) for engagement with the locking hook (15) in a use position and a second locking pin (3) for engagement with the locking hook (14) in a transport or storage position, wherein the between hinge bar (6) and the hook part (12) is arranged a spring device (16), and the hinge bar(6) is arranged with a stop pin (21) for abutment with a first side of the locking hook part (12), and that second (23) and third (24) sides of the locking hook part (12) against inner engagement surfaces on each respective locking pin (14, 15) are shaped such that in said use position and storage or transport position so that the locking device (1) "latches" in locking engagement by itself, and that only during release of the locking engagement in the two respective positions that a user must perform an action on the locking device (1).
2. Locking device according to claim 1, **characterized in** that the angle of rotation between the locking hooks (14, 15) is substantially equal to 180 °.
3. Locking device according to claim 1 or 2, **characterized in** that the spring device (16) comprises a spiral spring (17), through which a wire is extended ending in release ring (19), wherein the spiral spring (17) is compressed and the locking hook part (12) is rotated

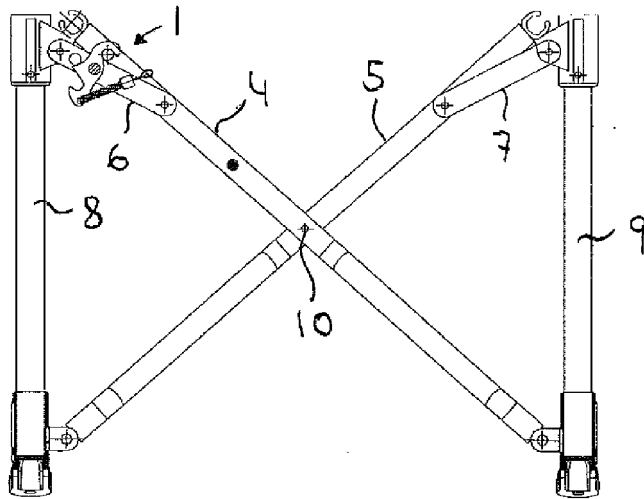


Fig. 1a

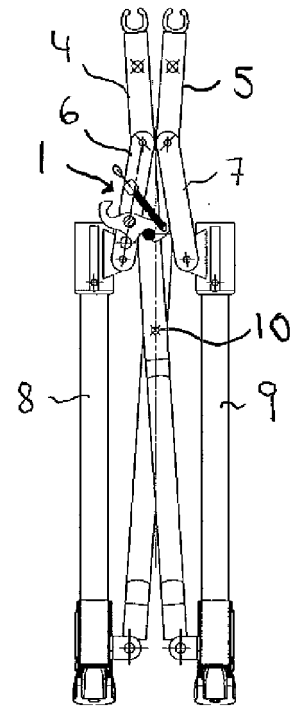


Fig. 1b

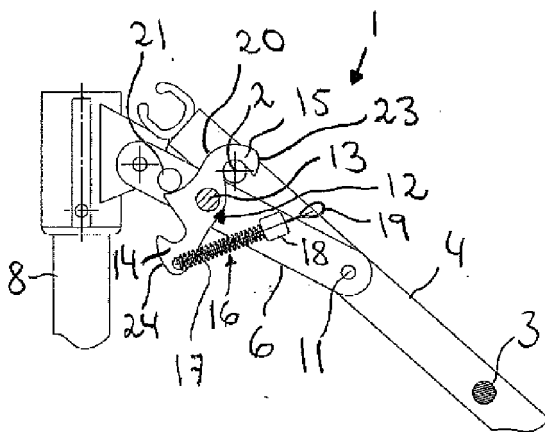


Fig. 2a

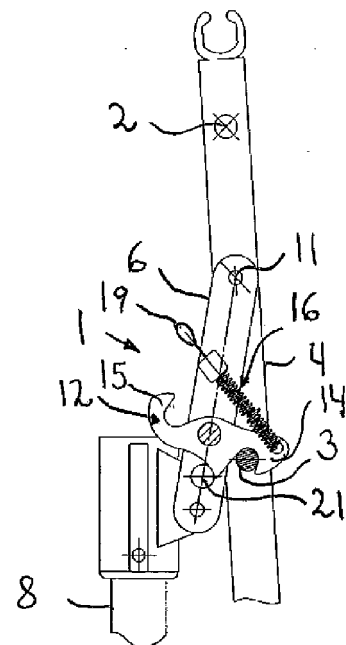


Fig. 2b

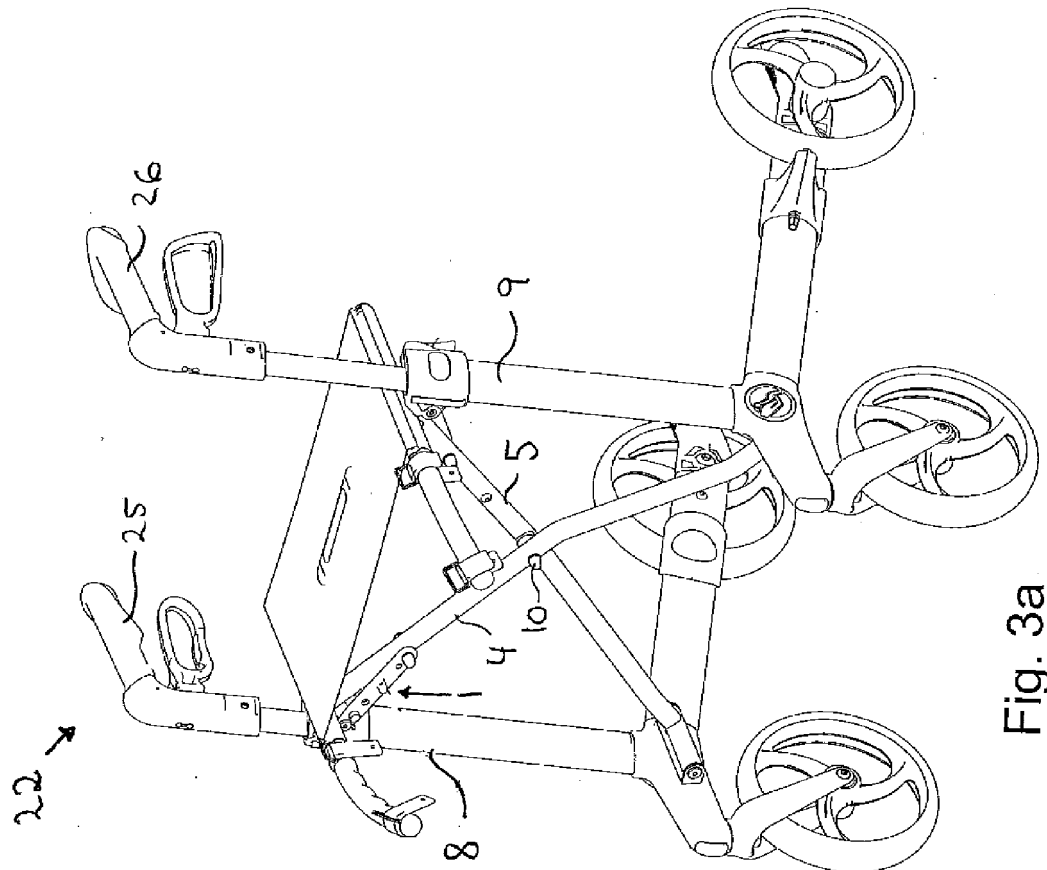


Fig. 3a

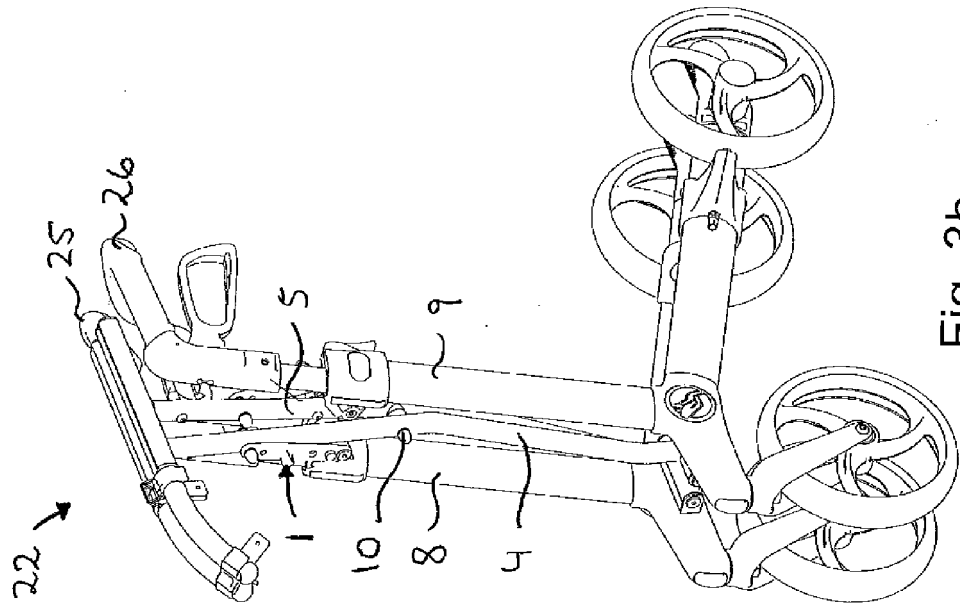


Fig. 3b



EUROPEAN SEARCH REPORT

Application Number
EP 11 15 0277

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 660 850 A (NAKAO SHINROKU [JP] ET AL) 28 April 1987 (1987-04-28) * column 3, lines 11-32; figures 1-5 *	1-4	INV. A61H3/04
A	DE 20 2006 006621 U1 (GENTEEL HOMECARE PRODUCTS CO L [CN]) 17 August 2006 (2006-08-17) * paragraph [0023]; figures 1,2 *	1-4	
A	EP 0 904 760 A1 (BOCK ORTHOPAED IND [DE]) BOCK HEALTHCARE GMBH [DE] 31 March 1999 (1999-03-31) * figures 1,5 *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC)
			A61H A61G A47C B62B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 August 2011	Examiner Fischer, Elmar
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03/02 (P04C01)

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

EP 11 15 0277

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

16-08-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4660850 A	28-04-1987	NONE	

DE 202006006621 U1	17-08-2006	CN 2875405 Y	07-03-2007
		DK 200600120 U3	23-06-2006
		ES 1063346 U	16-10-2006
		FR 2896407 A3	27-07-2007
		IT MI20060184 U1	27-07-2007
		US 2007170699 A1	26-07-2007

EP 0904760 A1	31-03-1999	DE 19742267 A1	08-04-1999
		JP 3839596 B2	01-11-2006
		JP 11164852 A	22-06-1999
		US 6050582 A	18-04-2000
