

(19)



(11)

EP 1 919 429 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

08.06.2011 Bulletin 2011/23

(21) Application number: **06783989.4**

(22) Date of filing: **28.08.2006**

(51) Int Cl.:

A61H 3/02 (2006.01)

(86) International application number:

PCT/NO2006/000306

(87) International publication number:

WO 2007/027098 (08.03.2007 Gazette 2007/10)

(54) **CRUTCH**

KRÜCKE

BÉQUILLE

(84) Designated Contracting States:

**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR**

(30) Priority: **30.08.2005 NO 20054028**

(43) Date of publication of application:

14.05.2008 Bulletin 2008/20

(73) Proprietor: **Jacob Aalls Gate 28 AS**

0364 Oslo (NO)

(72) Inventor: **RODAHL, Torbjørn**

0364 Oslo (NO)

(74) Representative: **Bergheim, Olav**

Zacco Norway AS

Haakon VII's gt. 2

P.O. Box 2003 Vika

0125 Oslo (NO)

(56) References cited:

JP-A- 07 124 209

US-A- 2 408 604

US-A- 2 696 826

US-A- 2 707 478

US-A- 3 174 494

US-A- 5 458 143

US-A- 5 725 005

US-A1- 2003 106 576

US-A1- 2004 139 995

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 919 429 B1

Description

[0001] The present invention relates to a crutch, and more specifically to a crutch as disclosed in the preamble of independent claim 1.

[0002] A crutch with a shoulder support and a spring-mounted hand support is previously known from US-A1 5901724. Apart from the spring-mounted hand support, this crutch differs little from crutches of the type that have been known from way back and which are, inter alia, known from old war films.

[0003] Furthermore, a crutch for simultaneous support of the user's hand and forearm is previously known from DE 195 47 484 A1, the said publication describing a crutch where the hand grip at one end is rigidly connected to the forearm support and at its other end is rigidly connected to the rod-shaped part of the crutch by means of a continuous tube.

[0004] Still further, US-A 5 725 005, US-A 5 458 143 and JP 07 124 209 A each discloses a crutch according to the introducing part of independent claim 1 of the present disclosure.

[0005] The crutch according to the present invention endeavours to provide an improvement of the previously known crutches for a more natural gait and better support of the user's body when using the crutch.

[0006] The crutch according to the invention is characterised by the features disclosed in the characterising clause of independent claim 1.

[0007] Advantageous embodiments of the invention are set forth in the dependent claims.

[0008] The invention is described in more detail below, with reference to the attached drawings, wherein

Figure 1 is a perspective partial view of the crutch according to the invention; and

Figure 2 is a schematic diagram of the crutch shown in Figure 1 in different positions while in use.

[0009] In the following description, expressions of direction such as "upper", "lower", "forward", "backward" etc. are related to the orientation of the crutch while in use unless otherwise specified.

[0010] Figure 1 is a partial view of a crutch 50 according to an advantageous embodiment of the invention, which crutch includes a rod 1, a handgrip 3 connected to the upper end of the rod 1, and a forearm support 5, and wherein an armpit support 7 is pivotally mounted to the forearm support 5.

[0011] The pivot point 9 of the armpit support 7 is advantageously adjustable essentially in the vertical direction by means of a first adjustment device 11 arranged between the pivot point 9 of the armpit support 7 and the forearm support 5.

[0012] A second adjustment device 13 is advantageously arranged between the pivot point 9 and the armpit support 7 for essentially vertical adjustment of the dis-

tance between the armpit support 5 and the pivot point 9.

[0013] The first and the second adjustment devices 11, 13 make it possible to adjust the pivot point 9 to lie level with the elbow joint of a user.

5 [0014] The first adjustment device 11 is advantageously an adjustment bracket attached to the back of the forearm support 5.

[0015] The second adjustment device 13 is advantageously an adjustable rod or telescopic connection.

10 [0016] The pivoting of the armpit support 7 about the pivot point 9 in the form of an armpit support link takes place advantageously against the action of a spring 15, the crutch 50 being essentially extended when the spring 15 is not loaded.

15 [0017] The pivoting of the armpit support link 9 is advantageously limited by a stop 17 to an essentially extended state of the crutch 50, essentially only forward swinging of the rod 1 relative to the armpit support 7 being allowed, as shown in Figure 2. In the position marked 1. in Figure 2 the load on handgrip 3, forearm support 5 and armpit support 7 is further indicated by respective arrows.

[0018] Although it cannot be seen from the figures, the armpit support 7 and/or forearm support 5 are advantageously padded.

Claims

1. A crutch (50), including a rod (1), a handgrip (3) connected to the upper end of the rod (1), a forearm support (5), and an armpit support (7) pivotally mounted to the forearm support (5), said pivoting substantially occurring alternatively in and against a gait direction, **characterised in that** the pivot point (9) of the armpit support (7) is adjustable essentially in the vertical direction by means of a first adjustment device (11) arranged between the pivot point of the armpit support (7) and the forearm support (5), and **in that** a second adjustment device (13) is arranged between the pivot point (9) and the armpit support (7) for essentially vertical adjustment of the distance between the armpit support (7) and the pivot point (9), said first and second adjustment devices (11, 13) making it possible to adjust the pivot point to lie level with the elbow joint of a user.

2. A crutch according to claim 1, **characterised in that** the first adjustment device (11) is an adjustment bracket attached to the back of the forearm support (5).

3. A crutch according to claim 1 or 2, **characterised in that** the second adjustment device (13) is an adjustable rod or telescopic connection.

4. A crutch according to any one of the preceding claims, **characterised in that** the pivoting of the armpit support (7) about the pivot point (9) in the form

of an armpit support link takes place against the action of a spring (15), the crutch (50) being essentially extended when the spring (15) is unloaded.

5. A crutch according to claim 4, **characterised in that** the pivoting of the armpit support link (9) is limited by a stop (17) to an essentially extended state of the crutch (50), only forward swinging of the rod (1) relative to the armpit support (7) being allowed.
6. A crutch according to any one of the preceding claims, **characterised in that** the armpit support (7) and/or the forearm support (5) are padded.

Patentansprüche

1. Krücke (50), umfassend einen Stab (1), einen mit dem oberen Ende des Stabes (1) verbundenen Griff (3), eine Unterarmunterstützung (5) und eine an der Unterarmunterstützung (5) drehbar montierte Achselhöhleunterstützung (7), wobei das Drehen im Wesentlichen wahlweise in oder entgegen einer Gangrichtung erfolgt, **dadurch gekennzeichnet, dass** der Drehpunkt (9) der Achselhöhleunterstützung (7) mittels einer ersten, zwischen dem Drehpunkt der Achselhöhleunterstützung (7) und der Unterarmunterstützung (5) angeordneten Justiereinrichtung (11) im Wesentlichen in vertikaler Richtung justierbar ist, und dass zwischen dem Drehpunkt (9) und der Achselhöhleunterstützung (7) eine zweite Justiereinrichtung (13) zur im Wesentlichen vertikalen Justierung des Abstandes zwischen der Achselhöhleunterstützung (7) und dem Drehpunkt (9) angeordnet ist, wobei die erste und die zweite Justiereinrichtung (11, 13) eine Justierung der Lage des Drehpunktes auf gleicher Höhe mit dem Ellbogengelenk eines Benutzers ermöglichen.
2. Krücke nach Anspruch 1, **dadurch gekennzeichnet, dass** die erste Justiereinrichtung (11) ein an der Hinterseite der Unterarmunterstützung (5) befestigter Justierbeschlag ist.
3. Krücke nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die zweite Justieranordnung (13) ein justierbarer Stab oder eine Teleskopverbindung ist.
4. Krücke nach einem der vorgehenden Ansprüche, **dadurch gekennzeichnet, dass** das Drehen der Achselhöhleunterstützung (7) um den Drehpunkt (9) in der Form eines Achselhöhleunterstützungsglieds gegen die Wirkung einer Feder (15) erfolgt, wobei die Krücke (50) bei einer Entspannung der Feder (15) im Wesentlichen ausgestreckt wird.
5. Krücke nach Anspruch 4, **dadurch gekennzeichnet, dass** das Drehen des Achselhöhleunterstüt-

zungsglieds (9) durch einen Anschlag (17) auf einen im Wesentlichen ausgestreckten Zustand der Krücke (50) beschränkt ist, wobei lediglich eine Schwenkung des Stabes (1) vorwärts relativ zur Achselhöhleunterstützung (7) erlaubt wird.

6. Krücke nach einem der vorgehenden Ansprüche, **dadurch gekennzeichnet, dass** die Achselhöhleunterstützung (7) und/oder die Unterarmunterstützung (5) gepolstert sind.

Revendications

1. Béquille (50), comprenant une tige (1), une poignée (3) reliée à l'extrémité supérieure de la tige (1), un support d'avant-bras (5), et un support d'aisselle (7) monté à pivotement au support d'avant-bras (5), ledit pivotement ayant lieu alternativement dans et vers une direction de marche, **caractérisée en ce que** le point de pivotement (9) du support d'aisselle (7) est réglable essentiellement dans la direction verticale à l'aide d'un premier dispositif de réglage (11) disposé entre le point de pivotement du support d'aisselle (7) et du support d'avant-bras (5), et **en ce qu'**un deuxième dispositif de réglage (13) est disposé entre le point de pivotement (9) et le support d'aisselle (7) pour le réglage essentiellement vertical de la distance entre le support d'aisselle (7) et le point de pivotement (9), lesdits premier et deuxième dispositifs de réglage (11, 13) permettant de régler le point de pivotement au même niveau que celui de l'articulation du coude d'un utilisateur.
2. Béquille selon la revendication 1, **caractérisée en ce que** le premier dispositif de réglage (11) est un étrier de réglage fixé à l'arrière du support d'avant-bras (5).
3. Béquille selon la revendication 1 ou 2, **caractérisée en ce que** le deuxième dispositif de réglage (13) est une tige réglable ou un raccordement télescopique.
4. Béquille selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le pivotement du support d'aisselle (7) autour du point de pivotement (9) dans la forme d'un lien de support d'aisselle a lieu contre l'action d'un ressort (15), la béquille (50) étant essentiellement étendue quand le ressort (15) est déchargé.
5. Béquille selon la revendication 4, **caractérisée en ce que** le pivotement du lien de support d'aisselle (9) est limité par une butée (17) vers un état essentiellement prolongé de la béquille (50), seule oscillation de la tige (1) vers l'avant par rapport au support d'aisselle (7) étant permise.

6. Béquille selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le support d'aisselle (7) et/ou le support d'avant-bras (5) sont rembourrés.

5

10

15

20

25

30

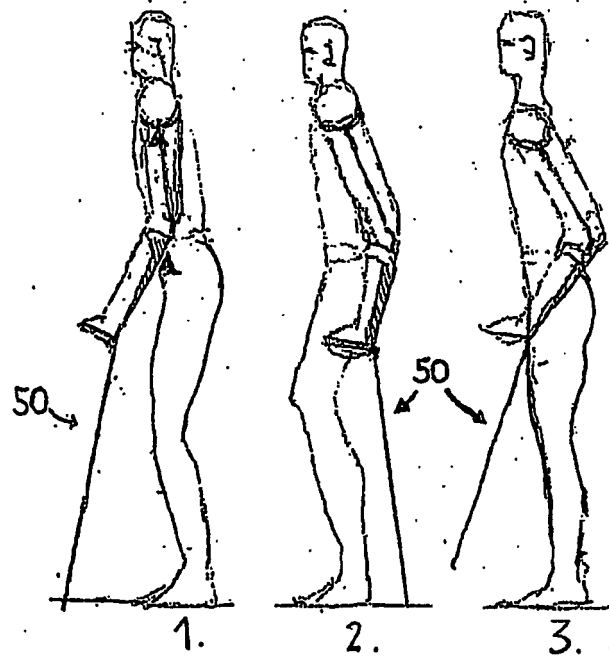
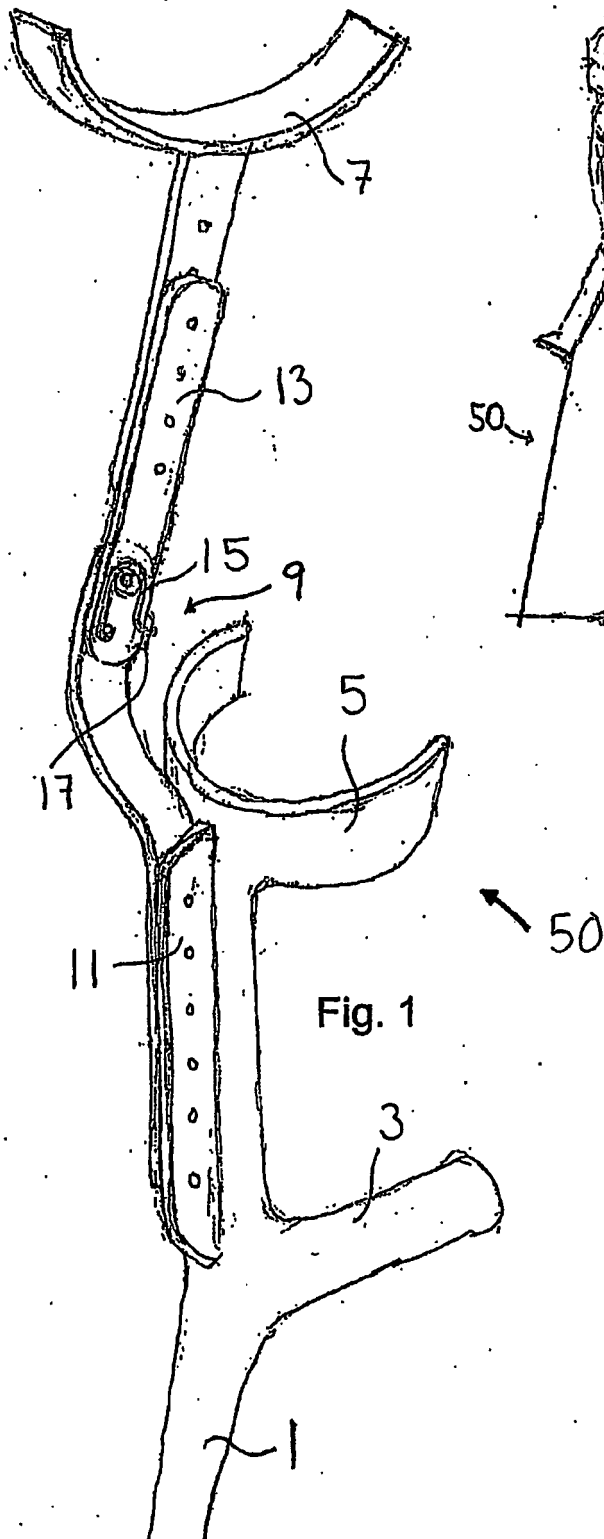
35

40

45

50

55



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 5901724 A1 [0002]
- DE 19547484 A1 [0003]
- US 5725005 A [0004]
- US 5458143 A [0004]
- JP 07124209 A [0004]