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(54) **WALKER**

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(56) References cited:

AU-B2- 688 640 DE-U1- 8 803 607

FR-A- 2 773 989 GB-A- 2 189 219

JP-A- 2006 193 240 US-A- 4 211 426

US-A- 4 359 242 US-A- 5 813 948

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Description

[0001] The present patent application relates to a walker.

[0002] As it is known, people unable to walk autonomously use a device designed to support them, which is normally defined as "walker". The walker allows the patient to keep his feet on the ground, in such a way to walk autonomously without the help of other people.

[0003] Moreover, the walker is an excellent device for the training and rehabilitation of patients who have suffered traumas to the lower limbs.

[0004] Generally, a walker comprising a cart mounted on swivelling wheels. Vertical rods are arranged on the cart to support means used to support the patient. The said support means can consist, for instance, in one or more belts that surround the patient's waist and/or a handlebar where the patient can place his hands.

[0005] Telescopic systems are known in order to adjust the support means to the correct height by making the vertical rods slide according to the height of the patient.

[0006] However, such a type of walker according to the known technique is impaired by a great drawback caused by the excessive height determined by the presence of the vertical rods. This results in difficult transportation, handling and storage of the walker when it is not used by the patient.

[0007] US 4 359 242 discloses a collapsible walker jumper according the preamble of claim 1.

[0008] US 5 813 948 discloses a walker comprising an adjustable support frame.

[0009] AU 688640 discloses a walker comprising adjustable arms, wherein the space between the arms can be varied.

[0010] FR 2 773 989 discloses lifting aid for a handicapped person, enabling person to be lifted to supported standing position.

[0011] US 4 211 26 discloses a walker including a support frame mounted on rear wheels.

[0012] JP2006 193240A discloses a table moving device comprising a lower four bar linkage and an upper four bar linkage connected each other by a connection rod. Each four bar linkage comprises two rods parallel and separated each other.

[0013] The purpose of the present invention is to eliminate the inconveniences of the known technique, by devising a walker that takes a space with reduced height when it is not used by the patient.

[0014] Another purpose of the present invention is to devise a versatile, practical and easy-to-use walker.

[0015] These purposes are achieved according to the present invention with the features are claimed in the independent claim 1.

[0016] Advantageous embodiments of the invention are disclosed in the dependent claims.

[0017] The walker of the invention comprises a base frame supported by wheels and support rods mounted on the said base frame to support, at a suitable height,

support means design to support the patient during walking.

[0018] The support rods are hinged mutually and to the base frame in such a way to go from the operating position, in which the support means are at a suitable height to support the patient, to a minimum volume position, in which the support means are near the base frame.

[0019] The advantages of the walker according to the present invention are clear. In fact, the system of hinged rods allows for closing the walker in minimum volume configuration to provide easy handling, transportation and storage. Moreover, said system of hinged rods allows for the fine adjustment of the support means in order to adjust the walker to patients with different height.

[0020] Additional characteristics of the invention will be clearer from the following detailed description, which refers to merely illustrative, not limiting embodiments, illustrated in the enclosed drawings, wherein:

Fig. 1 is a side elevation view of a first embodiment of the push-walker according to the invention, shown in operating position;

Fig. 1A is an axial sectional view of the walker of Fig. 1 in the axes of the lower and upper arms;

Fig. 2 is a top view of the walker of Fig. 1;

Fig. 3 is a rear view of the walker of Fig. 1;

Fig. 4 is the same as Fig. 1, except in that it shows the walker in operating position at a lower height than Fig. 1;

Fig. 5 is a view of the walker of Fig. 1 in minimum volume position;

Fig. 6 is a side view of a second embodiment of a pull-walker according to the present invention; and

Fig. 7 is a top view of the walker of Fig. 6.

[0021] With reference to Figs. 1-5, a first embodiment of the walker according to the present invention is disclosed, which is generally indicated with numeral (1).

[0022] The walker (1) comprises a base frame (2) with basically U-shape that extends on a horizontal plane. The base frame (2) is composed of two cross-pieces (20) connected by a slightly curved transversal rod (21).

[0023] Four swivelling wheels (22) with brakes (23) are mounted at the ends of the cross-pieces (20) of the base frame (2). The base frame (2) extends on a basically horizontal plane, when the wheels (22) rest on the ground.

[0024] The end of a first support rod (3) is hinged in the central part of each cross-piece (20) by means of a hinge (30). The hinge (30) is shaped as a cylindrical articulation with orthogonal axis to the axis of the cross-piece (20) and extends on a horizontal plane.

[0025] The first support rod (3) can rotate around the hinge (30) with respect to the cross-piece (20) by an angle (α) that varies from 0° to 180°. Preferably, the hinge (30) is regulated in such a way that the angle (α) varies from 0° to 80°. The first support rod (3) can go from a minimum

volume position ($\alpha = 0^\circ$), which is basically parallel to the cross-piece (20) (Fig. 5), to a maximum height position ($\alpha = 80^\circ$), which is almost orthogonal to the cross-piece (20) (Fig. 1).

[0026] A second support rod (4) is connected at the upper end of each of the first support rods (3) by means of a mechanism (40). As shown in Fig. 1A, the first rod (3) and the second rod (4) respectively comprise an external pipe (32, 42) and an internal pipe (33, 43) arranged inside the external pipe.

[0027] The internal pipes (33, 43) are connected to corresponding elliptical shells (34, 44) that act as joints. The external pipes (32, 42) are mutually connected by means of a connection rod (9) with the ends hinged to the external pipes.

[0028] Because of the mechanism (40), the first support rod (3) and the second support rod (4) can simultaneously rotate, generating the vertical movement of the upper end of the second rod (4). An angle (β) that can vary from 0° to 180° is generated between the two rods (3, 4). Preferably, the mechanism (40) is adjusted in such a way that the angle (α) varies from 0° to 160° . The support rods (3, 4) can go from a minimum volume position ($\beta = 0^\circ$), in which the second rod (4) is almost overlapped to the first rod (3) (Fig. 5), to a maximum height position ($\beta = 160^\circ$), in which the second rod (4) is an extension of the first rod (3) (Fig. 1).

[0029] Stabilisation means (5) are provided between the two rods to stabilise the rotation of the second rod (4) with respect to the first rod (3). The stabilisation means (5) can comprise a cylinder - piston assembly, in which the cylinder (50) is hinged in a central portion of the second rod (4) and the piston (51) is hinged in the upper portion of the first rod (3).

[0030] The stabilisation means (5) also act as adjusting and lock means. To adjust the height of the walker and lock the two rods (3, 4) in position, the user can act on the cylinder-piston assembly (5).

[0031] An upper frame (6) is hinged with corresponding hinges (60) to the upper end of the two support rods (4). The upper frame (6) has a U-shape and acts as connection element of the two upper support rods (4). The upper frame (6) is provided with two padded rings (7, 8) that can be opened and locked, which are shaped as a C in the plan (Fig. 2) and designed to surround the patient's waist. The walker (1) shown in Figs. 1 - 5 is a back push walker, because it is dragged by the patient.

[0032] Preferably, each upper hinge (60) must be positioned in a vertical axis passing through the corresponding lower hinge (30). The mechanism (40) ensures that the upper hinge (60) is positioned on the same vertical axis as the lower hinge (30) and makes a vertical movement.

[0033] The lower support rods (3) and the upper support rods (4) form a knee or compass mechanism and can be easily adjusted in a maximum height position (Fig. 1), in a plurality of intermediate height positions (Fig. 4) and in a minimum volume position (Fig. 5) for easy han-

dling, transport and storage.

[0034] Figs. 6 and 7 illustrate a pull-walker (100) according to a second embodiment of the invention, in which the same elements as the ones illustrated above are indicated with the same reference numerals, omitting the detailed description.

[0035] The walker (100) differs from the walker (1) of the first embodiment only in the fact that, instead of being provided with padded rings, the upper frame (6) that connects the two upper rods (4) is provided with a handlebar (107) designed to be grabbed by the patient to pull the walker. In fact, the walker (100) is a pull-walker.

[0036] In this case the two front wheels (122) of the walker have a larger diameter than the back wheels (22) and are not swivelling wheels.

[0037] Numerous variations and modifications can be made to the present embodiments of the invention by an expert of the field, while still falling within the scope of the invention as claimed in the enclosed claims.

Claims

- Walker (1; 100) comprising a base frame (2) supported by wheels (22; 122) and support rods (3, 4) mounted on the said base frame (2) to support, at suitable height, support means (7, 8; 107) designed to support the patient while walking wherein the support rods (3, 4) are hinged mutually and to the base frame (2), in such a way to go from an operating position, in which the support means (7, 8; 107) are at a suitable height to support the patient, to a minimum volume position, in which the support means (7, 8; 107) are near the base frame (2), the walker comprising an upper frame (6), said upper frame being provided with said support means, wherein the support rods comprise at least a lower rod (3) hinged by means of a lower hinge (30) to the base frame (2) and at least an upper rod (4), **characterised in that** the lower rod (3) comprises an external pipe (32) in which an internal pipe (33) is arranged and the upper rod (4) comprises an external pipe (42) in which an internal pipe (43) is arranged, wherein a lower end of the internal pipe (33) of the lower rod is hinged by means of the lower hinge to said base frame (2) and the other end of the internal pipe (33) of the lower rod is connected to elliptical shells (34, 44), a lower end of the external pipe (32) of the lower rod is hinged by means of the lower hinge to said base frame (2) and the external pipe (32) of the lower rod is connected to said elliptical shells (34, 44); wherein an upper end of the internal pipe (43) of the upper rod is hinged by means of an upper hinge (60) to the upper frame (6) and the other end of the internal pipe

(43) of the upper rod is connected to said elliptical shells (34, 44),

an upper end of the external pipe (42) of the upper rod is hinged by means of the upper hinge (60) to said upper frame (6) and the other end of the external pipe (42) of the upper rod is connected to said elliptical shells (34, 44),

wherein

the external pipes (32, 42) of the lower rod and upper rod are connected mutually by a connection rod (9) with the ends of the connection rod (9) hinged to the external pipes (32, 42).

2. Walker (1; 100) as claimed in claim 1, **characterised in that** the lower hinge (30) comprises adjusting and lock means to adjust the inclination angle (α) between the frame (2) and the lower rod (3).
3. Walker (1; 100) as claimed in any of claims 1 or 2, **characterised in that** it comprises lock means (5) between the lower rod (3) and the upper rod (4) to lock the two rods in position.
4. Walker (1; 100) as claimed in claim, 3 **characterised in that** the lock means (5) comprise an assembly composed of a cylinder (50) and a piston (51).
5. Walker (1; 100) as claimed in any of the above claims, **characterised in that** the base frame (2) has a basically U-shape and comprises two cross-pieces (20) connected by a transversal rod (21) and **in that** in the central part of the cross-pieces (20) the corresponding lower rods (3) are hinged.
6. Walker (1; 100) as claimed in claim 5, **characterised in that** the upper frame (6) has a basically U-shape.
7. Walker (1) as claimed in any of the above claims, **characterised in that** it is a push walker and the support means (6, 7) comprise at least one openable padded ring designed to surround the patient's waist.
8. Walker (100) as claimed in any of claims 1 to 5, **characterised in that** it is a pull walker and the support means (107) comprise a handlebar designed to be grabbed by the patient.

Patentansprüche

1. Gehhilfe (1; 100), umfassend ein auf Räder (22; 122) gestütztes Basisgestell (2) und an dem Basisgestell (2) angebrachte Stützstäbe (3, 4), um auf einer angemessenen Höhe Stützmittel (7, 8; 107) zu tragen, die geeignet sind, den Patienten beim Gehen zu unterstützen, wobei die Stützstäbe (3, 4) aneinander und an dem Basisgestell (2) angeschlagen sind, um von einer Betriebsposition, in der die Stützmittel (7,

8; 107) sich auf einer zum Stützen des Patienten angemessenen Höhe befinden, zu einer Minimalvolumenposition überzugehen, in der die Stützmittel (7, 8; 107) sich nahe am Basisgestell (2) befinden, wobei die Gehhilfe ein oberes Gestell (6) umfasst, wobei das obere Gestell mit Stützmitteln versehen ist,

wobei die Stützstäbe mindestens einen unteren Stab (3) umfassen, der mittels eines unteren Scharniers (30) an dem Basisgestell (2) angeschlagen ist, und mindestens einen oberen Stab (4),

dadurch gekennzeichnet, dass

der untere Stab (3) ein äußeres Rohr (32) umfasst, in dem ein inneres Rohr (33) angeordnet ist, und der obere Stab (4) ein äußeres Rohr (42) umfasst, in dem ein inneres Rohr (43) angeordnet ist,

wobei

ein unteres Ende des inneren Rohres (33) des unteren Stabes mittels des unteren Scharniers an dem Basisgestell (2) angeschlagen ist und das andere Ende des inneren Rohres (33) des unteren Stabes mit elliptischen Schalen (34, 44) verbunden ist,

ein unteres Ende des äußeren Rohres (32) des unteren Stabes mittels des unteren Scharniers an dem Basisgestell (2) angeschlagen ist und das äußere Rohr (32) des unteren Stabes mit elliptischen Schalen (34, 44) verbunden ist;

wobei

ein oberes Ende des inneren Rohres (43) des oberen Stabes mittels eines oberen Scharniers (60) an dem oberen Gestell (6) angeschlagen ist und das andere Ende des inneren Rohres (43) des oberen Stabes mit elliptischen Schalen (34, 44) verbunden ist,

ein oberes Ende des äußeren Rohres (42) des oberen Stabes mittels des oberen Scharniers (60) an dem oberen Gestell (6) angeschlagen ist und das andere Ende des äußeren Rohres (42) des oberen Stabes mit elliptischen Schalen (34, 44) verbunden ist,

wobei

die äußeren Rohre (32, 42) des unteren Stabes und des oberen Stabes durch einen Verbindungsstab (9) mit den Enden des an den äußeren Rohren (32, 42) angeschlagenen Verbindungsstabes miteinander verbunden sind.

2. Gehhilfe (1; 100) nach Anspruch 1, **dadurch gekennzeichnet, dass** das untere Scharnier (30) Einstell- und Sperrmittel zur Einstellung des Neigungswinkels (α) zwischen dem Gestell (2) und dem unteren Stab (3) umfasst.
3. Gehhilfe (1; 100) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** sie Sperrmittel (5) umfasst, die zwischen dem unteren Stab (3) und dem oberen Stab (4) angeordnet sind, um die Position der beiden Stäbe zu sperren.

4. Gehhilfe (1; 100) nach Anspruch 3, **dadurch gekennzeichnet, dass** die Sperrmittel (5) eine Gruppe bestehend aus einem Zylinder (50) und einem Kolben (51) umfassen.
5. Gehhilfe (1; 100) nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** das Basisgestell (2) im Wesentlichen "U"-förmig ist und zwei Querträger (20) umfasst, die durch einen querlaufenden Stab (21) verbunden sind und im zentralen Teil der Querträger (20) die jeweiligen unteren Stäbe (3) angelenkt sind.
6. Gehhilfe (1; 100) nach Anspruch 5, **dadurch gekennzeichnet, dass** das obere Gestell (6) im Wesentlichen "U"-förmig ist.
7. Gehhilfe (1) nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** es eine schiebbare Gehhilfe ist und die Stützmittel (6, 7) mindestens einen öffenbaren, gepolsterten Ring umfassen, der dazu geeignet ist, die Taille des Patienten zu umschließen.
8. Gehhilfe (100) nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** es eine ziehbare Gehhilfe ist und die Stützmittel (107) eine Griffstange umfassen, die dazu geeignet ist, vom Patienten ergriffen zu werden.

Revendications

1. Déambulateur (1; 100) comprenant un châssis de base (20) supporté par des roues (22; 122) et des tiges de support (3, 4) montées sur ledit châssis de base (2) pour soutenir à une hauteur appropriée des moyens de support (7, 8; 107) aptes à seconder le patient pendant la déambulation, où lesdites tiges de support (3, 4) sont pivotées entre elles et au châssis de base (2), de façon à pouvoir passer d'une position de fonctionnement où lesdits moyens de support (7, 8; 107) se trouvent à une hauteur appropriée pour soutenir le patient à une position d'encombrement minimal où lesdits moyens de support (7, 8; 107) se trouvent rapprochés au châssis de base (2),
le déambulateur comprenant un châssis supérieur (6), ledit châssis supérieur étant muni de moyens de support,
où les tiges de support comprennent au moins une tige inférieure (3) pivotée, moyennant une charnière inférieure (30), au châssis de base (2) et au moins une tige supérieure (4),
caractérisé en ce que
la tige inférieure (3) comprend un tube externe (32) dans lequel un tube interne (33) est disposé et la tige supérieure (4) comprend un tube externe (42)

dans lequel un tube interne (43) est disposé,
où
une extrémité inférieure du tube interne (33) de la tige inférieure est pivotée, moyennant la charnière inférieure, au dit châssis de base (2) et l'autre extrémité du tube interne (33) de la tige inférieure est reliée à des coques elliptiques (34, 44),
une extrémité inférieure du tube externe (32) de la tige inférieure est pivotée, moyennant la charnière inférieure, au dit châssis de base (2) et le tube externe (32) de la tige inférieure est relié aux dites coques elliptiques (34, 44) ;
où
une extrémité supérieure du tube interne (43) de la tige supérieure est pivotée, moyennant une charnière supérieure (60), au châssis supérieur (6) et l'autre extrémité du tube interne (43) de la tige supérieure est reliée aux dites coques elliptiques (34, 44),
une extrémité supérieure du tube externe (42) de la tige supérieure est pivotée, moyennant la charnière supérieure (60), au dit châssis supérieur (6) et l'autre extrémité du tube externe (42) de la tige supérieure est reliée aux dites coques elliptiques (34, 44),
où
les tubes externes (32, 42) de la tige supérieure et de la tige inférieure sont mutuellement reliés par une tige de connexion (9) avec les extrémités de la tige de connexion (9) pivotées aux tubes externes (32, 42),

2. Déambulateur (1; 100) selon la revendication 1, **caractérisé en ce que** ladite charnière inférieure (30) comprend des moyens de réglage et de blocage pour régler l'angle d'inclinaison (α) entre le châssis (2) et la tige inférieure (3).
3. Déambulateur (1; 100) selon la revendication 1 ou 2, **caractérisé en ce qu'il** comprend des moyens de blocage (5) interposés entre la tige inférieure (3) et la tige supérieure (4) pour bloquer les deux tiges sur la position.
4. Déambulateur (1; 100) selon la revendication 3, **caractérisé en ce que** lesdits moyens de blocage (5) comprennent un groupe constitué d'un cylindre (50) et d'un piston (51).
5. Déambulateur (1; 100) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit châssis de base (2) a une forme pratiquement en « U » et comprend deux tiges courantes (20) reliées par une tige transversale (21) et **en ce que** dans la partie centrale sont pivotées les respectives tiges inférieures (3) des dites tiges courantes (20).
6. Déambulateur (1; 100) selon la revendication 5, **caractérisé en ce que** ledit châssis supérieur (6) a une forme pratiquement en « U ».

7. Déambulateur (1) selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** est du type à poussée et que lesdits moyens de support (6, 7) comprennent au moins une attache en forme d'anneau rembourré ouvrable, apte à entourer la taille du patient. 5
8. Déambulateur (100) selon l'une quelconque des revendications de 1 à 5, **caractérisé en ce qu'il** est du type à traction et que lesdits moyens de support (107) comprennent un guidon apte à être empoigné par le patient. 10

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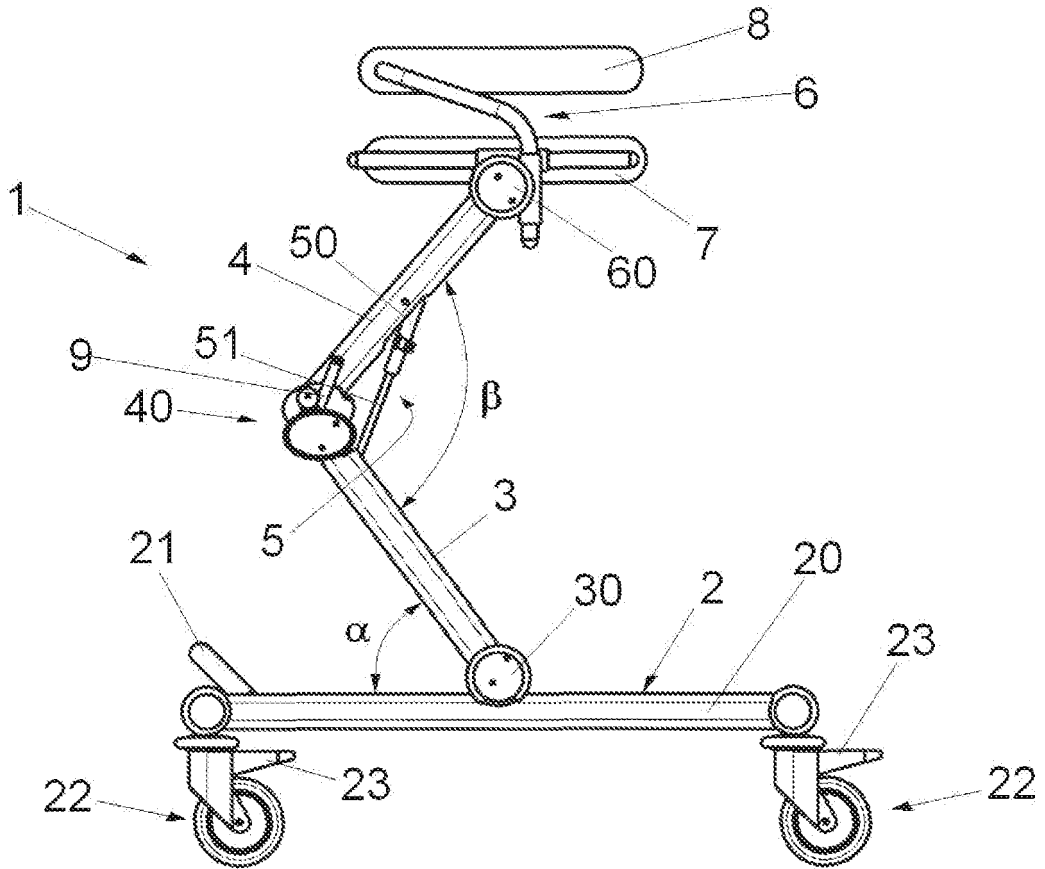


FIG. 1

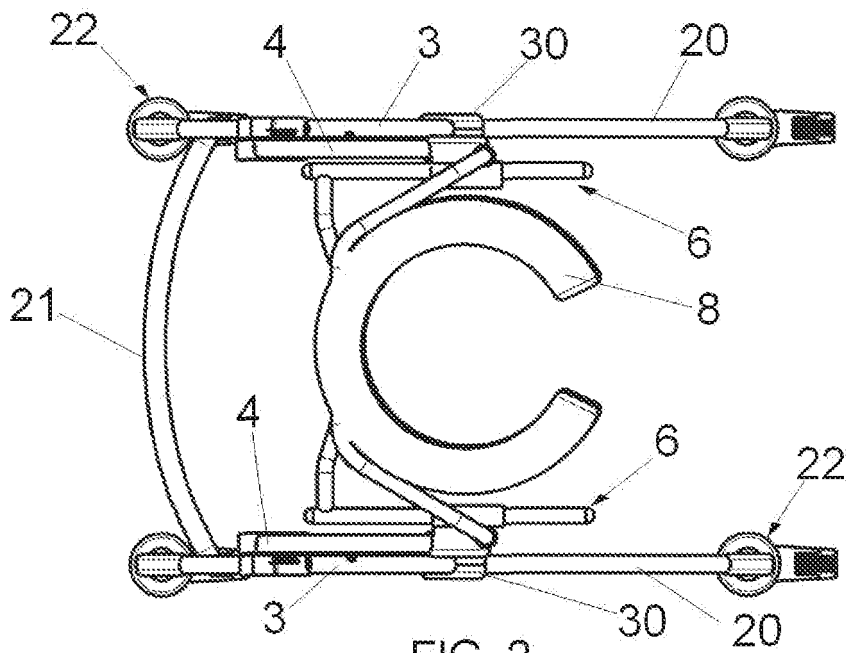


FIG. 2

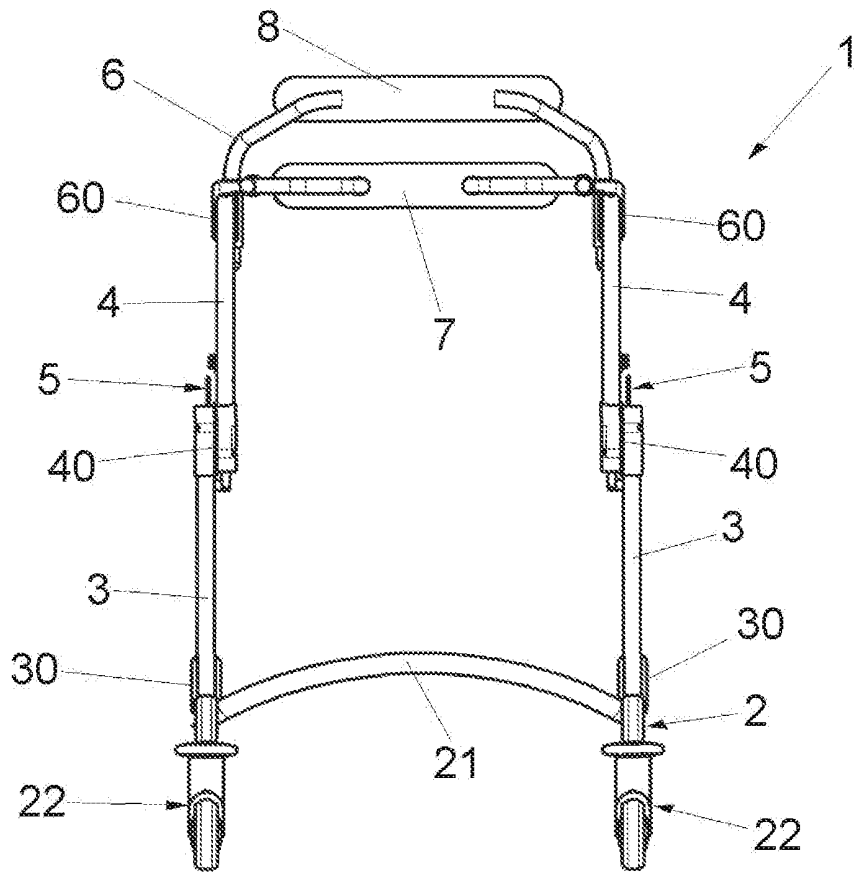


FIG. 3

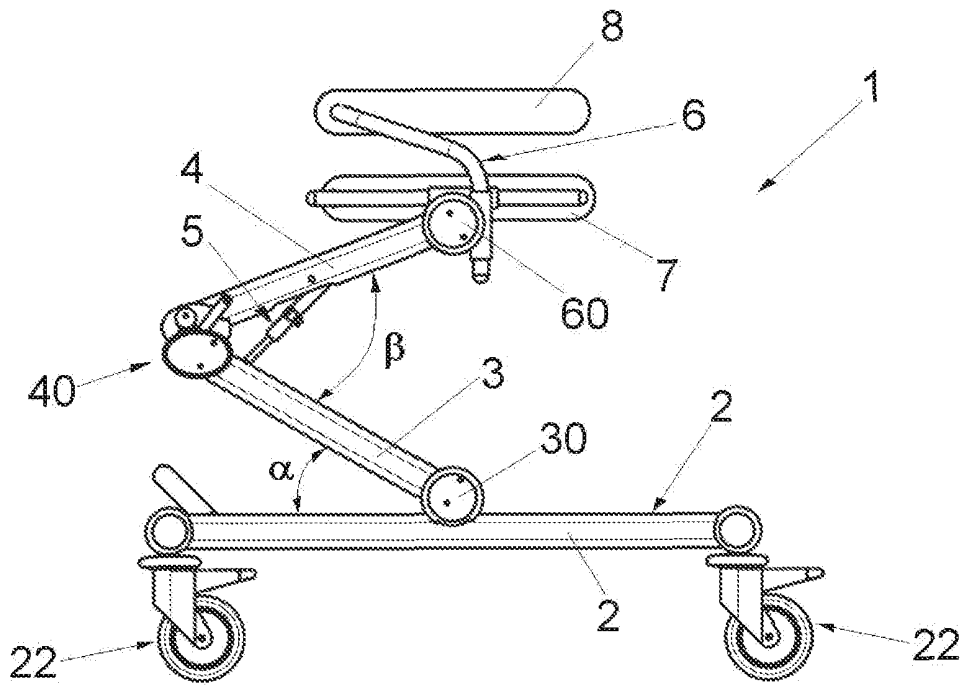


FIG. 4

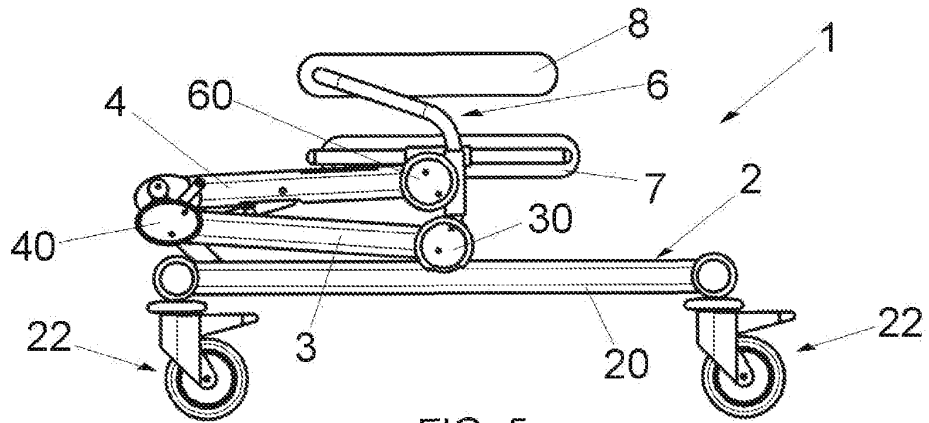


FIG. 5

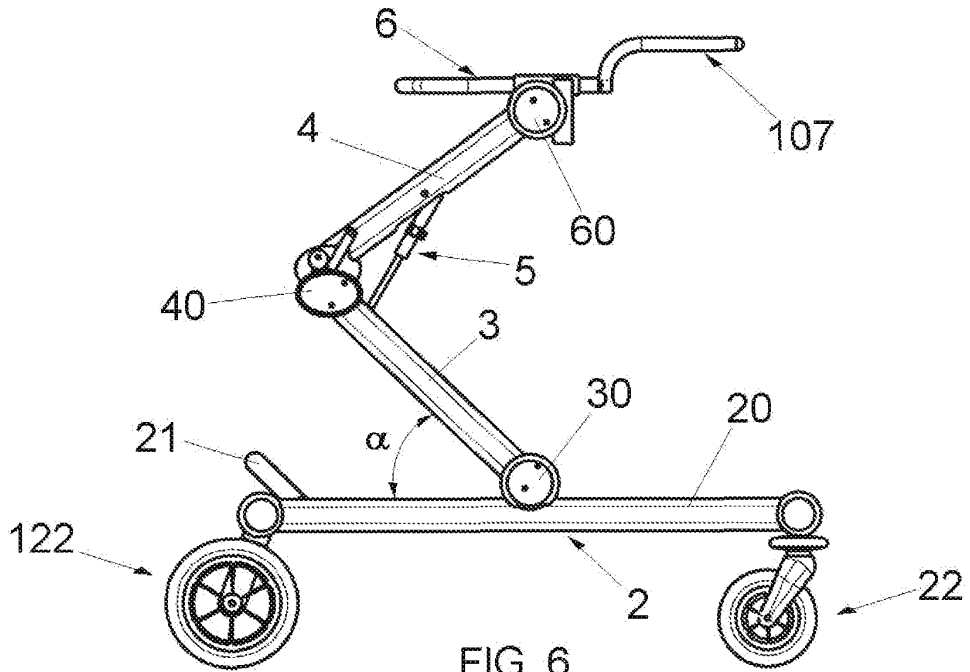


FIG. 6

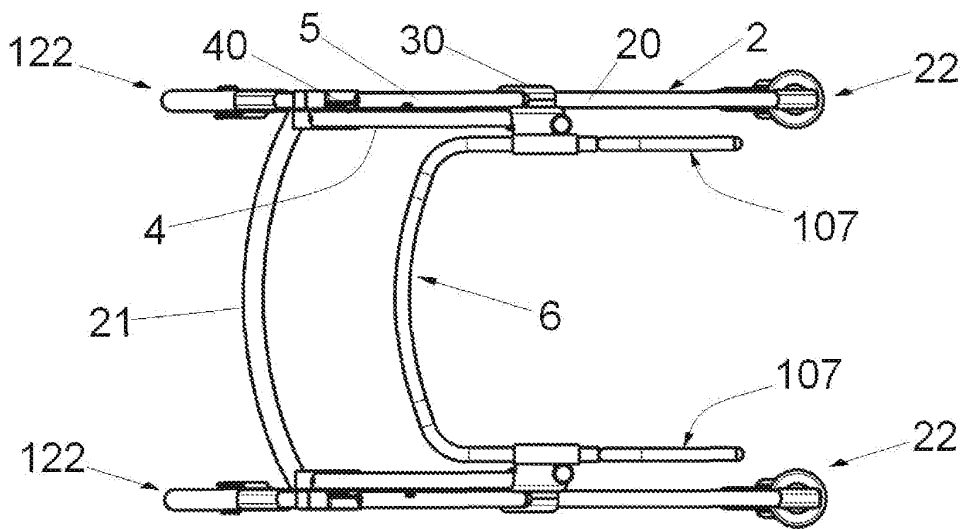


FIG. 7

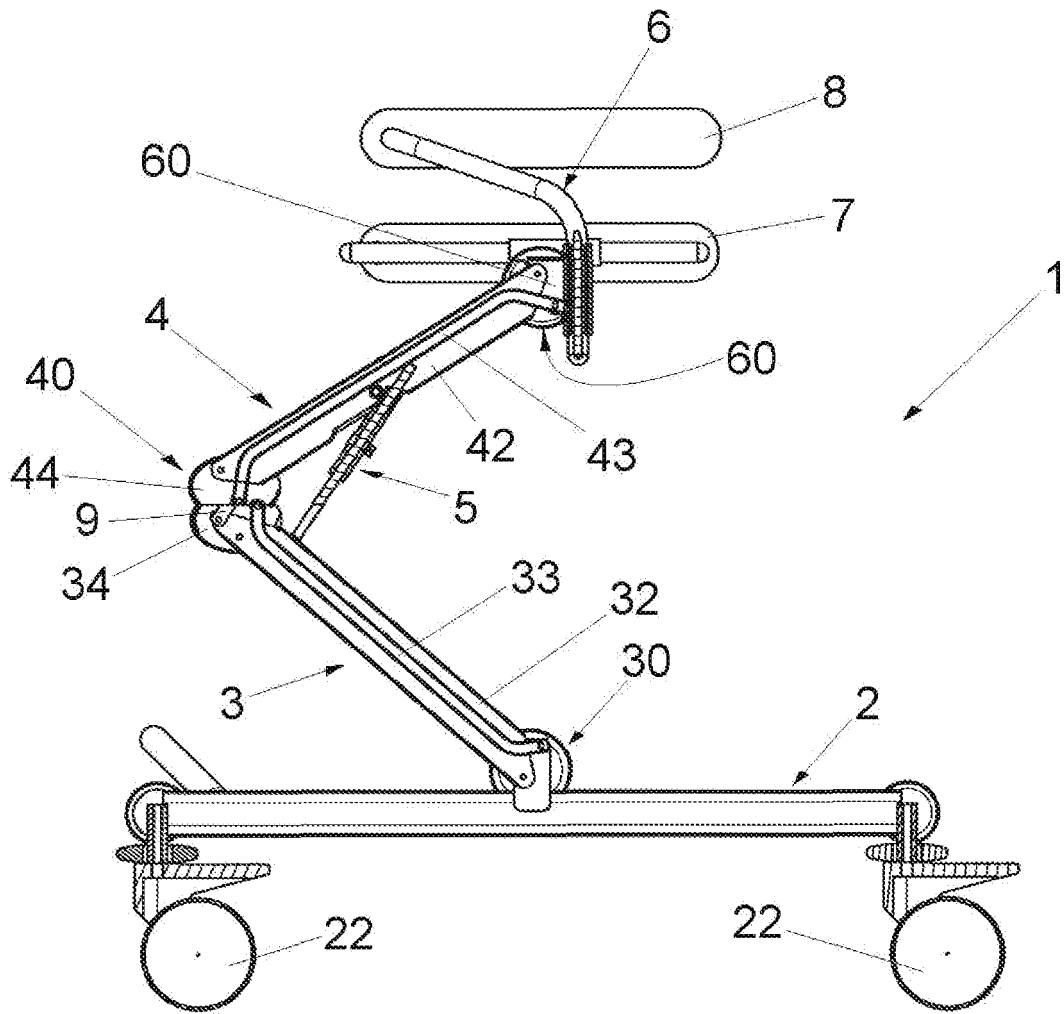


FIG. 1A

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 4359242 A [0007]
- US 5813948 A [0008]
- AU 688640 [0009]
- FR 2773989 [0010]
- US 421126 A [0011]
- JP 2006193240 A [0012]