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(54) **METHOD FOR AIDING PEOPLE WITH REDUCED MOBILITY IN GETTING DRESSED**

VERFAHREN ZUR UNTERSTÜTZUNG VON MENSCHEN MIT EINGESCHRÄNKTER MOBILITÄT BEIM ANZIEHEN

PROCÉDÉ PERMETTANT D'AIDER DES PERSONNES À MOBILITÉ RÉDUITE À S'HABILLER

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Description

Field of the invention

[0001] The invention relates to a method for aiding health care personnel in dressing hosiery on a person with reduced mobility.

Background of the invention

[0002] As people grow older or become sick so that they are physically impeded, the need for aid from health care personnel is vital for their well-being. One aspect of this task is to ensure that they are aided in getting bathed, undressed/dressed and other.

[0003] Thus, from US 2018/0271334 A1 it is known to provide a tiltable chair for assisting a person with bathing, getting dressed or getting a haircut and from DK 2018 700029 A1 it is known to provide a chair with a tiltable leg rest. Documents CN110314046A and JP2016123828A additionally disclose relevant prior art.

[0004] However, the problem with such chairs is that it is still difficult to e.g. dress hosiery on a person with reduced mobility as the back of the assisting person may be heavily strained.

[0005] It is therefore an object of the present invention to address these problems.

Summary of the invention

[0006] Disclosed is a method for aiding health care personnel in dressing hosiery on a person with reduced mobility, the method comprises the steps of:

placing the person with reduced mobility in a chair comprising a tiltable leg rest, wherein the tiltable leg rest comprises at least one first free-rolling roller arranged to support a first leg of the person and at least one second free-rolling roller arranged to support a second leg of the person, tilting the tiltable leg rest upward, sliding the hosiery onto one of the first leg and the second leg of the person so that at least a part of the hosiery slides between the first leg and the first free-rolling roller, or between the second leg and the second free-rolling roller, wherein the first free-rolling roller rotates around a first rotation axis and the second free-rolling roller rotates around a second rotation axis and the first rotation axis and the second rotation axis are transverse in relation to a longitudinal direction of the legs of the person with reduced mobility.

[0007] It is advantageous to aid a health care personnel in dressing hosiery on a person with reduced mobility according to the above-described method in that the health care personnel may easier dress the hosiery onto the person with reduced mobility. More specifically, the back of the health care personnel is less strained because the personnel may simply slide the hosiery onto the leg(s) of the user instead of lifting each of the legs away from the support, which especially contributes to heavy back strain as the legs may be positioned in a low

and awkward position or may be relatively bulky.

[0008] Furthermore, since the first and second free-rolling roller may roll, any unpleasant friction between the skin and the leg rest is avoided so that it is more comfortable for the user when being dressed.

[0009] It is advantageous if the free-rolling rollers rotate around their respective rotation axis in that they may rotate independently of each other so that each leg may be dressed independent of the other leg.

[0010] It is advantageous if the rotation axis is transverse in relation to the legs of the person with reduced mobility in that the friction between the hosiery and the free-rolling roller is thereby parallel with the legs of the user which is more comfortable for the user as no sideways friction is induced on the legs so that the dressing and undressing is more smooth.

[0011] The term "hosiery" should be understood as compression stockings, trousers, socks, leggings or other type of legwear.

[0012] In an embodiment of the invention, the method further comprises the step of elevating the chair before sliding the hosiery onto one of the first leg and the second leg of the person.

[0013] It is advantageous to elevate the chair before sliding hosiery onto either of the legs of the person in that the leg(s) may be adapted to the height of the health care personnel and thereby be brought into a more comfortable position for the helper so that the back strain on the helper is further reduced during dressing and undressing of the hosiery.

[0014] In an embodiment of the invention, the method further comprises the step of tilting a back rest of the chair backwards before sliding the hosiery onto one of the first leg and the second leg of the person.

[0015] It is advantageous to tilt a back rest of the chair backwards before sliding the hosiery onto either of the legs of the person with reduced mobility in that it may become easier for the health care personnel to pull the hosiery all the way up to or from the hips of the person with reduced mobility. Furthermore, it is advantageous in that the person with reduced mobility may be brought into a more comfortable position.

[0016] In an embodiment of the invention, the step of tilting the back rest is coupled to the step of folding the tiltable leg rest upward by a mechanical coupling means.

[0017] It is advantageous if the step of tilting the back rest is coupled to the step of folding the tiltable leg rest upwards by a mechanical coupling means in that the helper may bring the person with reduced mobility to a reclined position and simultaneously bring the legs upwards in one motion.

[0018] The term "mechanical coupling means" should be understood as a truss structure, pulley system, multi-link connection structure or any other type of mechanical coupler.

[0019] In an embodiment of the invention, the method further comprises the step of adjusting the position of the first free-rolling roller and/or the second free-rolling roller

in relation to a seat of the chair.

[0020] It is advantageous to adjust the position of the first or second free-rolling roller in relation a seat of the chair in that the point of contact between the roller and the lower leg of the person with reduced mobility may be adjusted. This is advantageous in that the dressing and undressing of hosiery is more comfortable for the person with reduced mobility in that the rollers are adjusted so that the supporting point may be adjusted to the preference of the person on the chair.

[0021] In an embodiment of the invention, the step of displacing the tiltable leg rest upwards is performed by use of actuation means.

[0022] It is advantageous if the step of displacing the leg rest upwards is performed by use of actuation means in that the health care personnel may displace the leg rest by use of mechanical/electrical/hydraulic power whereby the strain on the back is further reduced. Furthermore, using such actuation means is advantageous in that the health care person does not have to e.g. bend down to the leg rest for tilting it upwards.

[0023] The term "actuation means" should be understood as a hydraulic actuator, pneumatic actuator, electric actuator, rack and pinion mechanism, pulley system or other type of actuator for displacing the leg rest.

[0024] In an aspect of the invention, use of a method according to any of the previously described methods for aiding health care personnel in dressing compression stockings on a person with reduced mobility is provided.

[0025] Compression stockings are usually relatively troublesome to dress on a person with reduced mobility due to the compressive fabric. In order to do so, a health care personnel must usually lift the entire leg so that the compressive stocking may be dressed onto the leg. Obviously, this is very strenuous, hard work and therefore inherently time consuming. Thus, it is advantageous if a method according to any of the previously described methods is used to dress compressions stockings on a person with reduced mobility in that the strain on the health care personnel is reduced, the dressing/undressing process is more comfortable for the person with reduced mobility and the dressing/undressing process is more time efficient.

[0026] In an embodiment of the invention, the first and second free-rolling rollers releasable mounted on the tiltable leg rest.

[0027] This is advantageous in that the free-rolling rollers may easily be replaced e.g. due to wear or to switch to different roller sizes.

[0028] This is advantageous in that the dressing and undressing of hosiery may be performed in connection with bathing of the user. And using the chair for bathing the user with reduced mobility is advantageous in that the person may remain in the seat after undressing so that the user does not have to be moved for being bathed. Furthermore, after the bathing, the user may simply remain seated on the chair and be dressed directly after bathing.

[0029] In an embodiment of the invention, the first and/or the second free-rolling roller is padded.

[0030] It is advantageous if the free-rolling rollers are padded/stuffed in that a soft support is provided to the legs of the user with reduced mobility.

[0031] For a more complete understanding of the disclosure, reference is now made to the following brief description of various combinable embodiments of the invention.

Figures

[0032]

Fig. 1 illustrates the steps of the method,

Fig. 2 illustrates a chair for aiding health care personnel in dressing hosiery on a person with reduced mobility, as seen in perspective, and

Fig. 3 illustrates a chair for aiding health care personnel in dressing hosiery on a person with reduced mobility, as seen from the side.

Detailed description

[0033] Fig. 1 illustrates the steps of the method.

[0034] The step of placing/positioning the person with reduced mobility (not shown) may be performed in numerous ways, depending on the condition of the person with reduced mobility. If the person has reduced mobility due to obesity, severe illness, age or other condition severely prohibiting independent movement, it may be necessary to place the person on the tiltable chair 1 by use of a lifting crane. However, the person with reduced mobility may also have sufficient strength to position himself onto the chair 1 but less mobile for dressing hosiery independently due to e.g. back rigidity.

[0035] When the person is positioned/placed onto the chair 1, the tiltable leg rest 2 may be tilted upwards so that the person with reduced mobility is adjusted to a more suitable position for dressing the hosiery.

[0036] Once the person is positioned and the leg rest is tilted to an appropriate position, the health care personnel may dress the hosiery onto one of the legs of the person with reduced mobility. Due to the free-rolling rollers 3,4 it is possible to simply position the hosiery opening onto the lower end of the legs and slide the hosiery onto the leg. Since the rollers 3,4 are free rolling, it is possible to slide the hosiery onto the legs without lifting the leg to overcome any friction. Thereby, the health care personnel do not have to lift the leg of the person with reduced mobility and simultaneously pull the hosiery onto the leg, whereby the strain on the back of the health care personnel is greatly reduced.

[0037] Fig. 2 illustrates a chair 1 for aiding health care personnel in dressing hosiery on a person with reduced mobility, as seen in perspective.

[0038] The chair is shown in a tilted position in which the person with reduced mobility may be aided with dressing or undressing of hosiery.

[0039] As shown in the figure, it is possible to tilt the back 5 of the chair 1 by means of the handle 11 or by mechanical actuation means 8.

[0040] In this embodiment, the mechanical actuation means is an electric actuator. However, in another embodiment, the mechanical actuation means 8 could be a pneumatic actuator, hydraulic actuator, pulley system or other type of mechanical actuator 8.

[0041] Depending on the height, strength or preference of the health care personnel, it may also be possible to adjust the height of the chair, i.e. the height of the seat 7, rollers 3,4 and the back 5 so that the person with reduced mobility may be adjusted up/down. For example, the chair may be lowered down so that it is easier for the person with reduced mobility to mount the chair where after the chair could be elevated to a more suitable working position for the health care personnel. The elevation/lowering is, in this embodiment, performed by use of the mechanical actuator 8, but in another embodiment could be adjusted manually with a gearing system, pulley system, scissor lift mechanism or other.

[0042] The chair 1 may be provided with a hole 13 in the seat 7 so that the user may go to toilet while remaining seated. And in such a situation it is advantageous if the chair 1 comprises free-rolling rollers 3,4 so that it is easier to undress the hosiery before going to toilet. Naturally, when dressing the person with reduced mobility afterwards, the free-rolling rollers 3,4 may aid in dressing the hosiery back on.

[0043] The chair 1 could be used to bath a person with reduced mobility. For such use, the rollers 3,4 may tremendously aid the health care personnel in bathing the person with reduced mobility in that the undressing may be carried out on the same chair which is to be used for the bathing, i.e. the person with reduced mobility may, after being undressed, remain seated for the subsequent bathing. Accordingly, the chair 1 may also be used to dress the person with reduced mobility after the bathing is finished. Thus, the method tremendously reduces strain and workload on the health care personnel.

[0044] Fig. 3 illustrates a chair 1 for aiding health care personnel in dressing hosiery on a person with reduced mobility, as seen from the side.

[0045] Since the chair 1 is to be used for different persons with different body types, the chair 1 is preferably adjustable. As already mentioned, one way of adjusting the chair 1 is by elevating/lowering the chair 1 as well as tilting it. However, the size of the legs of the person with reduced mobility may also be very different from person to person. Thus, in this embodiment, the free-rolling rollers are arranged so that they may be adjusted in relation to the seat 7 of the chair 1. This could be done by pivoting the rollers 3,4 or translating them in relation to the rest of the chair 1 so that the rollers 3,4 may be adjusted to the leg size and length of the person occupying it.

[0046] In this embodiment, the movement of the chair back 5 and the leg rest 2 is coupled via a mechanical coupling means 6 so that inclining/declining the back 5 also tilts the leg rest 2 up/down. In this embodiment, this is achieved by a multi-link structure 6. However, in another embodiment, it could be achieved by actuators, gear system, pulley system or other.

[0047] In this embodiment, the movement of the back 5 is coupled to the leg rest 2. However, in another embodiment, the movement of the leg rest 2 and the back 5 could be uncoupled.

[0048] In an embodiment, the free-rolling rollers 3,4 may be adjusted by use of an actuator (not shown) so that the rollers 3,4 may be adjusted even if a person is occupying the seat whereby it may the step of adjusting the rollers may be eased for the health care personnel to adjust the rollers once the person's legs are supported by the leg rest 2 and the rollers 3,4.

[0049] One or both of the rollers 3,4 could be padded with different types of fabric so that it is comfortable for the person occupying the seat to rest the legs on.

[0050] The free-rolling rollers may be replaceable so that a roller with larger or smaller diameter may be mounted on the leg rest or they may simply be replaced due to wear on e.g. if the rollers are padded.

Adjusting the diameter of the free-rolling rollers could be necessary in order to adjust to different types of users so that the comfortability is increased.

[0051] In this embodiment, the free rolling rollers 3,4 are attached onto a roller support structure 12, which in this embodiment is a support pin, which may then be slidably mounted onto the remaining structure of the leg rest. In another embodiment, the roller support structure 12 could be attached to the leg rest by screws, bolts, a bayonet coupling, or other coupling means which allows for releasable connection between the roller support structure 12 and the remaining leg rest structure.

[0052] The handle 11 is arranged so that it may be adjusted by adjusting the length of the handle 11 protruding away from the chair back 5. This is performed by the adjusting means 14, which in this embodiment is a screw which may be loosened so that the handle 11 may slide in the handle support 15. When the handle 11 has been adjusted, the screw 14 may then be tightened again.

[0053] In this embodiment, the adjusting means 14 is a tightening screw. However, in another embodiment, the adjusting means could be a spring-loaded button/detent mechanism, a twist lock mechanism, tightening lever clamp or other type of adjuster.

[0054] The chair 1 may be controlled by a remote-control device so that the health care personnel may move the chair around by use of machine power (electrical, hydraulic, mechanical or other) instead of manual power. This is advantageous in that if the user occupying the seat is very overweight, moving the chair 1 becomes less strenuous for the health care personnel.

[0055] In an embodiment of the invention, a foldable support plate (not shown) may be arranged at the end of

the leg rest which may be folded up so that the user may push against the plate for adjusting their position on the chair 1.

[0056] The invention has been exemplified above with reference to specific examples of mechanical actuation means, coupling means and other. However, it should be understood that the invention is not limited to the particular examples described above but may be designed and altered in a multitude of varieties within the scope of the invention as specified in the claims.

List

[0057]

1. Chair
2. Tilttable leg rest
3. First free-rolling roller
4. Second free-rolling roller
5. Back rest
6. Mechanical coupling means
7. Chair seat
8. Actuation means
9. First rotation axis
10. Second rotation axis
11. Chair handle
12. Roller support structure
13. Seat hole
14. Adjusting means
15. Handle support

Claims

1. A method for aiding health care personnel in dressing hosiery on a person with reduced mobility, said method comprises the steps of:

- placing said person with reduced mobility in a chair (1) comprising a tilttable leg rest (2), wherein said tilttable leg rest (2) comprises at least one first free-rolling roller (3) arranged to support a first leg of said person and at least one second free-rolling roller (4) arranged to support a second leg of said person,
- tilting said tilttable leg rest (2) upward, wherein
- sliding said hosiery onto one of said first leg and said second leg of said person so that at least a part of said hosiery slides between said first leg and said first free-rolling roller (3), or between said second leg and said second free-rolling roller (4), wherein said first free-rolling roller (3) rotates around a first rotation axis (9) and said second free-rolling roller (4) rotates around a second rotation axis (10) and wherein said first rotation axis (9) and said second rotation axis (10) are transverse in relation to a longitudinal direction of the legs of said person with

reduced mobility.

2. A method according to claim 1, wherein said method further comprises the step of elevating said chair (1) before sliding said hosiery onto one of said first leg and said second leg of said person.
3. A method according to claim 1 or 2, wherein said method further comprises the step of tilting a back rest (5) of said chair backwards before sliding said hosiery onto one of said first leg and said second leg of said person.
4. A method according to claim 3, wherein said step of tilting said back rest (5) is coupled to the step of folding said tilttable leg rest (2) upward by a mechanical coupling means (6).
5. A method according to any of the preceding claims, wherein said method further comprises the step of adjusting the position of said first free-rolling roller (3) and/or said second free-rolling roller (4) in relation to a seat (7) of said chair (1).
6. A method according to any of the preceding claims, wherein said step of displacing said tilttable leg rest (1) upwards is performed by use of actuation means (8).
7. Use of a method according to any of claims 1-6 for aiding health care personnel in dressing compression stockings on a person with reduced mobility.

Patentansprüche

1. Verfahren zum Unterstützen von medizinischem Pflegepersonal beim Anziehen von Strumpfwaren bei einer Person mit eingeschränkter Mobilität, wobei das Verfahren die folgenden Schritte umfasst:

- Platzieren der Person mit eingeschränkter Mobilität in einem Stuhl (1), der eine neigbare Beinstütze (2) umfasst, wobei die neigbare Beinstütze (2) mindestens eine erste freilaufende Rolle (3), die angeordnet ist, um ein erstes Bein der Person zu stützen, und mindestens eine zweite freilaufende Rolle (4) umfasst, die angeordnet ist, um ein zweites Bein der Person zu stützen,
- Neigen der neigbaren Beinstütze (2) nach oben, dabei
- Aufschieben der Strumpfware auf eines von dem ersten Bein und dem zweiten Bein der Person, so dass sich mindestens ein Teil der Strumpfware zwischen dem ersten Bein und der ersten freilaufenden Rolle (3) oder zwischen dem zweiten Bein und der zweiten freilaufenden Rolle (4) aufschiebt, wobei die erste freilaufende

- Rolle (3) um eine erste Rotationsachse (9) rotiert und die zweite freilaufende Rolle (4) um eine zweite Rotationsachse (10) rotiert und wobei die erste Rotationsachse (9) und die zweite Rotationsachse (10) quer in Bezug auf eine Längsrichtung der Beine der Person mit eingeschränkter Mobilität sind. 5
2. Verfahren nach Anspruch 1, wobei das Verfahren ferner den Schritt eines Anhebens des Stuhls (1) vor dem Aufschieben der Strumpfware auf eines von dem ersten Bein und dem zweiten Bein der Person umfasst. 10
3. Verfahren nach Anspruch 1 oder 2, wobei das Verfahren ferner den Schritt eines Neigens einer Rückenlehne (5) des Stuhls nach hinten vor dem Aufschieben der Strumpfware auf eines von dem ersten Bein und dem zweiten Bein der Person umfasst. 15
4. Verfahren nach Anspruch 3, wobei der Schritt des Neigens der Rückenlehne (5) mit dem Schritt eines Hochklappens der neigbaren Beinstütze (2) durch ein mechanisches Kopplungsmittel (6) gekoppelt ist. 20
5. Verfahren nach einem der vorhergehenden Ansprüche, wobei das Verfahren ferner den Schritt eines Einstellens der Position der ersten freilaufenden Rolle (3) und/oder der zweiten freilaufenden Rolle (4) in Bezug auf einen Sitz (7) des Stuhls (1) umfasst. 25
6. Verfahren nach einem der vorhergehenden Ansprüche, wobei der Schritt eines Verschiebens der neigbaren Beinstütze (1) nach oben unter Verwendung von Betätigungsmitteln (8) durchgeführt wird. 30
7. Verwendung eines Verfahrens nach einem der Ansprüche 1-6 zum Unterstützen von medizinischem Pflegepersonal beim Anziehen von Kompressionsstrümpfen bei einer Person mit eingeschränkter Mobilität. 35
- Revendications**
1. Procédé permettant d'aider le personnel soignant à enfiler des articles de bonneterie sur une personne à mobilité réduite, ledit procédé comprenant les étapes de : 40
- placement de ladite personne à mobilité réduite dans une chaise (1) comprenant un repose-jambes inclinable (2), ledit repose-jambes inclinable (2) comprenant au moins un premier rouleau à roulement libre (3) agencé pour supporter une première jambe de ladite personne et au moins un second rouleau à roulement libre (4) agencé pour supporter une seconde jambe de ladite personne,
 - inclinaison dudit repose-jambes inclinable (2) vers le haut,
 - glissement dudit article de bonneterie sur l'une de ladite première jambe et de ladite seconde jambe de ladite personne afin qu'au moins une partie dudit article de bonneterie glisse entre ladite première jambe et ledit premier rouleau à roulement libre (3), ou entre ladite seconde jambe et ledit second rouleau à roulement libre (4), ledit premier rouleau à roulement libre (3) tournant autour d'un premier axe de rotation (9) et ledit second rouleau à roulement libre (4) tournant autour d'un second axe de rotation (10) et ledit premier axe de rotation (9) et ledit second axe de rotation (10) étant transversaux par rapport à une direction longitudinale des jambes de ladite personne à mobilité réduite.
2. Procédé selon la revendication 1, ledit procédé comprenant en outre l'étape d'élévation de ladite chaise (1) avant de faire glisser ledit article de bonneterie sur l'une de ladite première jambe et de ladite seconde jambe de ladite personne. 45
3. Procédé selon la revendication 1 ou 2, ledit procédé comprenant en outre l'étape d'inclinaison d'un dossier (5) de ladite chaise vers l'arrière avant de faire glisser ledit article de bonneterie sur l'une de ladite première jambe et de ladite seconde jambe de ladite personne. 50
4. Procédé selon la revendication 3, ladite étape d'inclinaison dudit dossier (5) étant couplé à l'étape de pliage dudit repose-jambes inclinable (2) vers le haut par un moyen de couplage mécanique (6). 55
5. Procédé selon l'une quelconque des revendications précédentes, ledit procédé comprenant en outre l'étape de réglage de la position dudit premier rouleau à roulement libre (3) et/ou dudit second rouleau à roulement libre (4) par rapport à un siège (7) de ladite chaise (1).
6. Procédé selon l'une quelconque des revendications précédentes, ladite étape de déplacement vers le haut dudit repose-jambes inclinable (1) étant réalisée à l'aide de moyens d'actionnement (8).
7. Utilisation d'un procédé selon l'une quelconque des revendications 1 à 6 pour aider le personnel soignant à enfiler des articles de bonneterie sur une personne à mobilité réduite.



Fig. 1

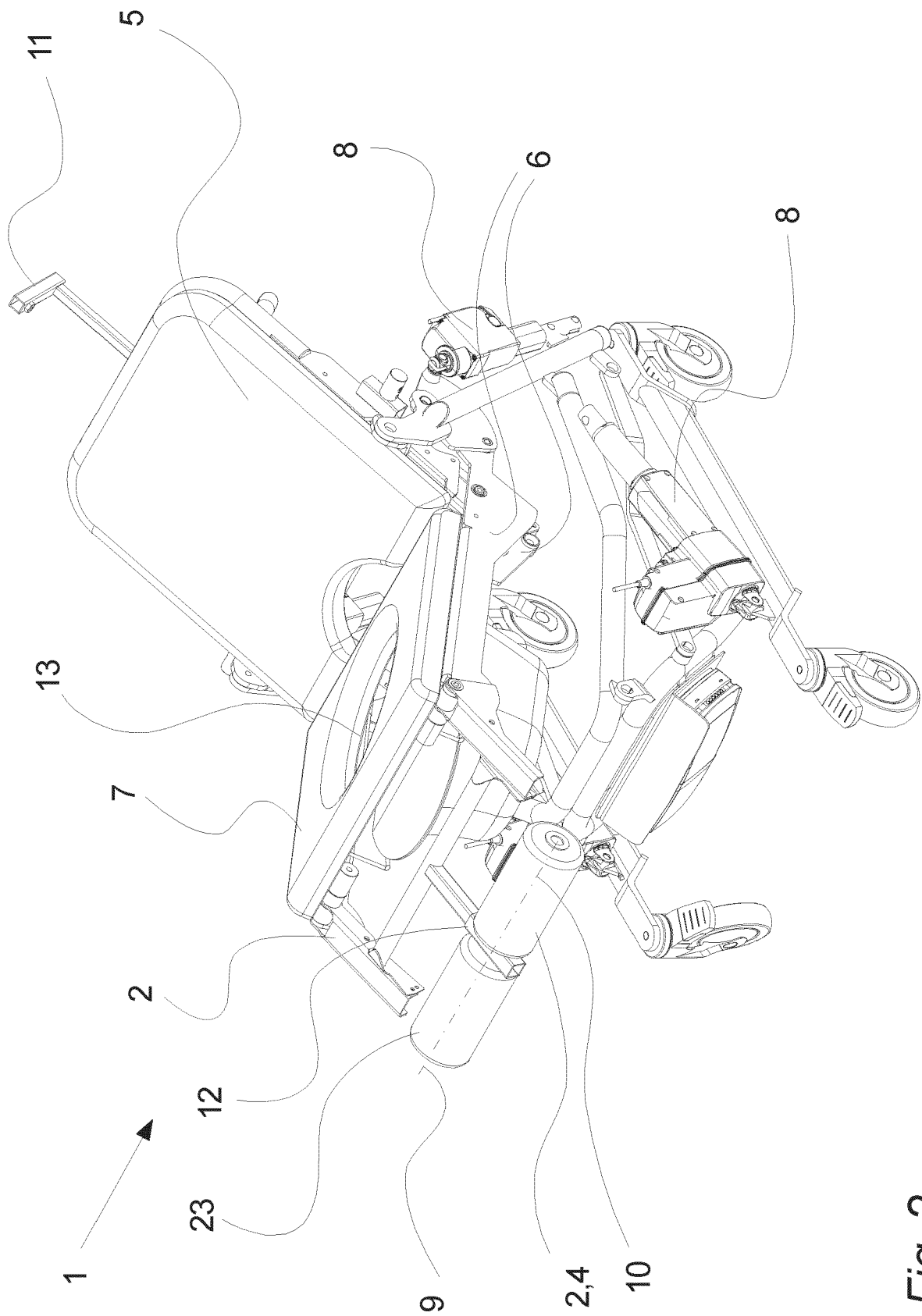


Fig. 2

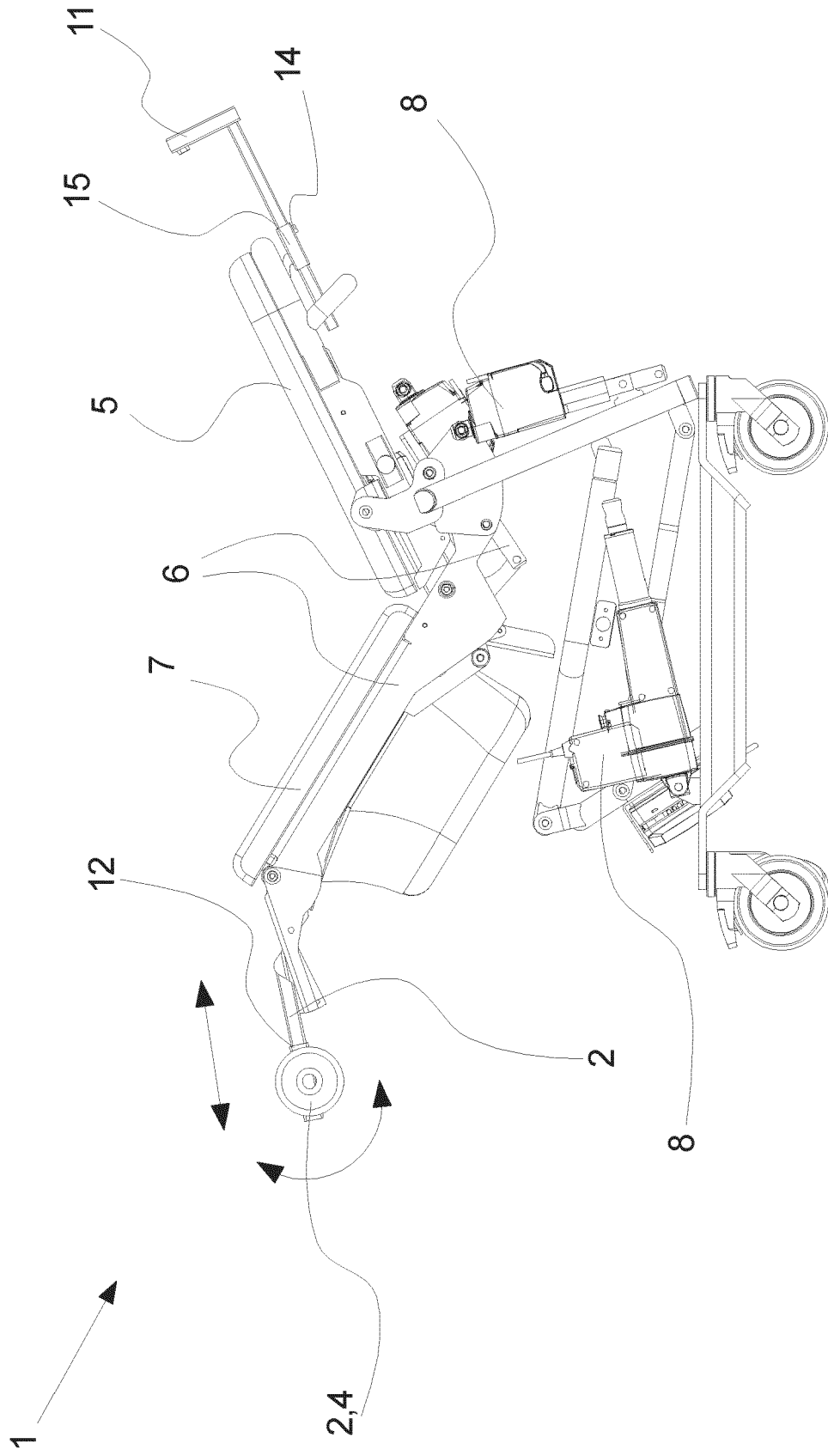


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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