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(54) **SEATING FURNITURE WITH STAND-UP AID**

SITZMÖBEL MIT AUFSTEHHILFE

MEUBLE D'ASSISE COMPRENANT UN DISPOSITIF D'AIDE À LA LEVÉE

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Description

[0001] The invention relates to seating furniture with a stand-up aid.

[0002] The advantage of an armchair with a stand-up aid is that the armchair can be lifted and moved forward using a remote control or a control button, so that the owner can easily get up from the cushions. This functionality is particularly gentle on the back, as no sudden effort is required when standing up. However, this mechanism also makes it possible to sit down particularly gently and comfortably.

[0003] Such armchairs are often designed as so-called relaxation armchairs, which also offer the possibility of extending a footrest and tilting the backrest backwards. Several actuators are often used to implement the various positions of the seating furniture. In order to reduce the electrical outlay, however, it has also been proposed that both the stand-up aid and the extension of the footrest and the actuation of the seat/backrest adjustment mechanism be carried out with just one actuator.

[0004] A corresponding armchair is known, for example, from DE 20 2019 100 213 U1. Activation of the actuator in a first direction activates the stand-up aid. If, on the other hand, the actuator is actuated in the second direction starting from the upright basic position, on the one hand the footrest is extended and the seat and the backrest are adjusted into a reclined position.

[0005] BE 1 018 255 A3 and DE 200 00 926 U1 make use of a reversible actuator to activate a stand-up aid, to activate the footrest and to position the seat into a first reclined position and a second reclined position.

[0006] US 9 241 855 B2 discloses a furniture member including a frame, a slide member, first and second bars, an axle, and first and second leg members. The frame includes a chair portion movable relative to a base among nominal, reclined and lift positions.

[0007] Mechanical and motor-driven couches are also known from practice which allow tilting backwards from a basic position so that the foot area is raised and the head area is lowered. In the tilted position, the head can be approximately at the level of the feet or even assume the lowest position of the body. Such a position is also referred to as a Trendelenburg position.

[0008] Proceeding from this, the invention was based on the object of further improving the comfort of the seating furniture without having to provide additional actuators.

[0009] According to the invention, the object is achieved by a piece of seating furniture with the following features:

- a. a seat,
- b. a backrest having an integrated or separate headrest,
- c. a seat-backrest adjustment mechanism for adjusting the seat and the backrest from an upright initial position to a reclined position,

d. a footrest having a footrest adjustment mechanism for extending and retracting the footrest,

e. a base frame for supporting the seating furniture on a standing surface, wherein the base frame comprises a tilting mechanism for tilting the seating furniture,

f. a stand-up aid for raising the seat and the backrest from the upright initial position to a raised position,

g. an actuator for actuating the seat-backrest adjustment mechanism, the footrest adjustment mechanism, the tilting mechanism and the stand-up aid, wherein

g1. - starting from the upright initial position, actuation of the actuator in a first direction activates the stand-up aid,

g2. - starting from the upright initial position, actuation of the actuator in a second (opposite) direction activates the footrest adjustment mechanism for extending the footrest and activates the seat-backrest adjustment mechanism for adjusting the seat and the backrest to the reclined position, and

g3. - Starting from the reclined position - a further actuation of the actuator in the second direction causes an actuation of the tilting mechanism for tilting the seat and backrest into a tilting position, the tilting mechanism causing the footrest to be raised and the backrest to be lowered relative to the standing surface.

[0010] To implement the tilting movement, the base frame of the seating furniture has a first frame part and a second frame part that are hingedly connected to one another about a transverse axis, the tilting mechanism being designed for relative adjustment of the first and second frame parts around the transverse axis. Furthermore, the seat-backrest adjustment mechanism has a stop element that blocks further rotation of the backrest relative to the seat between the reclined position and the tilted position, so that the angle between seat and backrest in the reclined position is the same as in the tilted position.

[0011] The additional provision of a tilting position, in which the seating furniture is tilted even further backwards from the reclined position, is brought about by the tilting mechanism coupled to the base frame of the seating furniture.

[0012] The upright basic position of the seating furniture is understood to mean a position in which the seat is oriented essentially horizontally, i.e. at an angle of $0^\circ \pm 10^\circ$ with respect to the horizontal. The backrest is essentially vertical or aligned at an angle of $0^\circ \pm 10^\circ$ to the vertical.

[0013] In the context of the invention, a raised position is understood to mean a position in which at least the rear region of the seat is raised, so that a seat surface that is slightly inclined forward results. The angle between the seat and the backrest can remain essentially unchanged between the upright basic position and the raised posi-

tion. In the raised position, the seat essentially has an angle in the range of $25^\circ \pm 20^\circ$ with respect to the horizontal.

[0014] The reclined position of the seating furniture is characterized on the one hand by the extended footrest and a backrest that is inclined backwards. The front region of the seat is preferably arranged somewhat higher than in the upright basic position. In the reclined position, there is in particular an increase in the angle between the seat and the back surface compared to the upright basic position. An angle between the seat and the backrest in the reclined position of $120^\circ \pm 20^\circ$ is considered particularly pleasant.

[0015] Compared to the tilted position, the tilted position is primarily characterized in that the footrest is at a greater distance and the backrest is at a smaller distance from the standing surface. The tilt position promotes blood circulation and the breakdown of fluid accumulations in the lower extremities. It can also optionally be provided that the distance between the footrest and the standing surface in the tilted position is approximately equal to or greater than the distance between the backrest and the standing surface, in order to further intensify this effect.

[0016] Further refinements of the invention are the subject of the subclaims.

[0017] A particularly simple possibility of adjusting the seating furniture results when the actuator is designed as a linear actuator, which is coupled with a first end to the base frame and a second end to the seat. The base frame can have a rotatably mounted shaft extending transversely to the seating furniture, the actuator being coupled with a first end to the shaft for rotating the same.

[0018] According to another embodiment, when the actuator is actuated in the first direction, the shaft is rotated as far as a first stop, which blocks further rotation of the shaft such that further actuation of the actuator in the first direction activates the stand-up aid for raising the seat and the backrest into the raised position. Furthermore, a second stop connected to the seat or to the seat-backrest adjustment mechanism can be provided, which blocks further rotation of the shaft in the event of active contact with the shaft when the actuator is actuated in the second direction, whereby with a further actuation the adjustment of the seat and backrest in the inclined position is triggered.

[0019] The tilting mechanism has at least one lever linkage, one end of which is non-rotatably attached to the shaft and the other end of which is hingedly coupled to the second frame part of the base frame, with further actuation of the actuator in the second direction, starting from the reclined position, leading to rotation of the shaft and a resulting relative adjustment of the first and the second frame part about the transverse axis. The at least one lever linkage can have a first actuating lever and a second actuating lever, the first actuating lever being non-rotatably attached at one end to the shaft that is rotatably mounted on the first frame part and being hingedly

coupled at its other end to the second actuating lever, which in turn is hingedly connected to the second frame part of the base frame.

[0020] According to a further embodiment of the base frame, the first frame part can have two front supporting feet, two rear supporting feet and two rear standing rollers, the base frame being supported in the raised position, in the upright base position and in the reclined position on the front supporting feet and the rear supporting rollers of the first frame part L4. The second frame part has front standing rollers which are used in the tilted position, in which the base frame is supported on the front standing rollers of the second frame part and the rear feet of the first frame part on the standing surface.

The rear supporting feet ensure that the seating furniture is held securely, while the front standing rollers roll on the standing surface during the tilting process, thus enabling the distance between the front standing rollers of the second frame part and the rear supporting feet of the first frame part to be shortened and thus the two frame parts to be adjusted relative to one another.

[0021] In this embodiment, it would also be conceivable that the base frame is supported in an intermediate position both on the front standing rollers of the second frame part and on the rear standing rollers of the first frame part, thereby enabling the seating furniture to be moved easily. This intermediate position is expediently a position that can be approached separately by remote control or operating button, which can then be used when the seating furniture is to be adjusted in the room.

[0022] According to an alternative embodiment of the base frame, the standing rollers on the first frame part can also be omitted so that the base frame is supported in the raised position, in the upright base position and in the reclined position on the front and rear supporting feet of the first frame part and the base frame is in the tilted position on the front standing rollers of the second frame part and the rear supporting feet of the first frame part.

[0023] An exemplary embodiment of the invention is described in greater detail with reference to the following description and the drawing.

[0024] In the drawings:

Fig. 1 is a schematic side view of the seating furniture in the upright basic position,

Fig. 2 is a schematic side view of the seating furniture in the raised basic position (activated stand-up aid),

Fig. 3 is a schematic side view of the seating furniture in the position with the footrest extended,

Fig. 4 is a schematic side view of the seating furniture in the reclined position,

Fig. 5 is a schematic side view of the seating furniture in the tilt position,

- Fig. 6 is a three-dimensional detailed view in the front area of the base frame,
- Fig. 7a is a side view of the swivel frame of the base frame during the adjustment of the seat and the backrests in the reclined position,
- Fig. 7b is a three-dimensional view of Fig. 7a,
- Fig. 8a is a side view of the swivel frame of the base frame during actuation of the stand-up aid,
- Fig. 8b is a three-dimensional view of Fig. 8a,
- Fig. 9 is a three-dimensional representation of the rear part of the seating furniture.

[0025] Fig. 1 shows a piece of seating furniture according to the invention in its upright basic position. Essentially only the mechanics are shown, so that in particular padding and side bolsters have been omitted to better explain the invention. The seating furniture has a seat 1, a backrest 2 and a footrest 3. Furthermore, a base frame 4 is provided for supporting the seating furniture on a standing surface 5.

[0026] By actuating an actuator 6 in a first (rotational) direction, a stand-up aid 7 is activated for lifting the seat 1 and the backrest 2 from the upright basic position according to Fig. 1 to a raised position according to Fig. 2. If the actuator 6 is actuated in a second, opposite (rotational) direction starting from the upright basic position according to Fig. 1, a footrest adjustment mechanism 8 is activated for extending the footrest 3 into the position shown in Fig. 3. Possibly, the front end of the seat 1 is also slightly raised. A further actuation of the actuator 6 in the second direction activates a seat adjustment mechanism 91 and a backrest adjustment mechanism 92, whereby the seat 1 and the backrest 2 are adjusted into the reclined position shown in Fig. 4.

[0027] Starting from the reclined position shown in Fig. 4, a further actuation of the actuator 6 in the second direction causes the actuation of a tilting mechanism 10, whereby the seat 1 and backrest 2 are tilted into the tilted position shown in Fig. 5. The tilting mechanism 10 causes the footrest 3 to be raised and a headrest 21 integrated in or separate from the backrest 2 to be lowered with respect to the standing surface 5.

[0028] The base frame 4 is described in more detail below with reference to Fig. 4, 5 and 6. It consists essentially of a first frame part 41 and a second frame part 42, which are hingedly connected to one another around a transverse axis 43. The base frame 4 also has a fastening flange 44 which is fixedly arranged in a central region of the first frame part 41 and extends upward from the standing surface 5.

[0029] Furthermore, the first frame part 41 provides two front supporting feet 45, two rear supporting feet 46 and two rear standing rollers 47, the base frame 4 being

supported in the raised position, in the upright basic position and in the reclined position on the front supporting feet 45 and the rear standing rollers 47 of the first frame part. The second frame part 42, on the other hand, only has front standing rollers 48, which are only used during the tilting process, so that the base frame is supported in the tilted position according to Fig. 5 on the front standing rollers 48 of the second frame part 42 and the rear supporting feet 46 of the first frame part 41 on the standing area 5. The rear standing rollers 47 of the first frame part 41 are therefore fastened between the front supporting feet 45 and the rear supporting feet 46 on the first frame part 41. The rear supporting feet 46 define the pivot point about which the seating furniture tilts backwards during the tilting process. The front standing rollers 48 of the second frame part 42 roll on the standing surface 5 during the tilting process.

[0030] The base frame 4 also has a swivel frame 49, which is shown in more detail in Fig. 7a to 8b. It essentially consists of two lateral swivel levers 491, 492 parallel to each other which are articulated at one end about a common hinge axis 497 on the mounting flange 44 of the first frame part 41. In a central area, the two swivel levers 491, 492 are connected to one another via a cross-member 494. At the ends of the swivel levers 491, 492 opposite the hinge axis 497, a shaft 493 extending transversely to the pivot levers 491, 492 is rotatably articulated, on which a coupling arm 495 is rotatably attached approximately in the middle.

[0031] In the embodiment shown, the actuator 6 is designed as a linear motor with a nut 62 which can be linearly adjusted via a spindle 61. At the end of the actuator 6 on the motor side, a coupling eye 63 is provided, with which the actuator 6 is hingedly connected to the coupling arm 495 about a second hinge axis 498. The nut 62 is coupled to the seat 1 via a connecting element 11.

[0032] The various positions according to Fig. 1 to 5 are each achieved by moving the nut 62 along the spindle 61. In other words, each position of the seating furniture is defined by a characteristic distance between the coupling eyelet 63 or the second joint axis 498 and the nut 62. By actuating the actuator 6, the nut 62 can be moved along the spindle 61 to the respectively desired distance from the coupling eyelet 63, in which the chair assumes the position assigned to the distance. When the actuator rotates in the first direction of rotation, the distance between the coupling eyelet 63 and the nut 62 is shortened, while activation in the opposite second direction of rotation increases the distance.

[0033] In the upright basic position, the nut 62 is in a central position on the spindle 61, in which it is at a distance a_1 from the coupling eyelet 63. If the actuator 6 is actuated in a first direction (direction of rotation of the spindle 61), the nut 62 moves in the direction of the coupling eyelet 63 and thereby shortens the distance between the coupling eyelet 63 and nut 62. This in turn activates the stand-up aid so that the seat 1 and the

backrest 2 move into the raised position according to Fig. 2. In this position, the nut 62 is only a distance a_0 from the coupling eyelet 23. During this actuation of the actuator 6, the connection of the nut 62 to the seat 1 via the connecting element 11 acts as an abutment, so that a tensile force in the direction of the arrow 499 (Fig. 7a) acts on the coupling arm 495 in the region of the coupling eyelet 63. After the coupling arm 495 is non-rotatably connected to the shaft 493, this tensile force causes the shaft 493 to rotate clockwise until two first actuating levers 101, which are non-rotatably connected to the shaft 493, come into contact with a first stop 500 and prevent further rotation of the shaft 493 (Fig. 7a and 7b).

[0034] According to Fig. 2, the stand-up aid 7 is essentially formed by two lifting rods 71 and the swivel frame 49. For this purpose, the two lifting rods 71 are likewise articulated at the lower end to the two lateral fastening flanges 44 of the base frame 4 so as to be pivotable about a third hinge axis 72. The upper ends of the lifting rods 71 are each articulated to a lateral coupling element 12 about a fourth articulation axis 73. The first coupling elements 12 are laterally firmly connected to the seat 1 or an associated seat frame. After the swivel frame 49 is rotatable about the first hinge axis 497 and, on the other hand, is connected to the actuator 6 via the coupling arm 495, a tensile force in the direction of the arrow 499 causes the lever linkage 71 and the swivel frame 49 to pivot about the third hinge axis 72 or the first hinge axis 497 until the shortest distance a_0 between coupling eyelet 63 and nut 62 according to Fig. 2 is reached. The seat 1 and the backrest 2 are in a raised position compared to the upright basic position according to Fig. 1, in which raised position the seat 1 and the backrest 2 are also equally tilted forward in order to facilitate standing up or sitting down. If the actuator 6, starting from the raised position according to Fig. 2, is actuated in the second opposite direction, the seating furniture initially assumes the upright basic position according to Fig. 1 again.

[0035] Starting from the upright basic position according to Fig. 1, a further actuation of the motor 6 in the second direction causes a further displacement of the nut 62 in the sense of an increase in the distance between the nut 62 and the coupling eyelet 63, which in turn initially actuates the footrest adjustment mechanism 8, causing the footrest 3 to extend. The footrest adjustment mechanism is designed, for example, in the manner of a scissor mechanism. The implementation of the footrest 3 with the aid of the footrest adjustment mechanism 8 is well known to those skilled in the art and is ultimately based on the fact that the seat 1 is at least moved backwards, the footrest adjustment mechanism 8 connected to the seat 1 or the seat adjustment mechanism 91 causing the footrest 3 to extend. The angle between seat 1 and backrest 2 is hardly or not at all changed when the footrest 3 is extended.

[0036] The backrest 2 is coupled to the seat and the seat-adjusting mechanism 91 via a backrest adjustment mechanism 92. In the region of the backrest adjustment

mechanism 92, spring elements 921 are provided which initially only extend the footrest 3 and do not yet adjust the backrest 2 relative to the seat 1 when the actuator is activated from the upright basic position according to Fig. 1 into the reclined position according to Fig. 4. Only when the footrest 3 is extended and the actuator 6 is further actuated is the backrest 2 adjusted against the force of the spring elements 921, in that the angle between the seat 1 and the backrest 2 is increased by the backrest adjustment mechanism 92. In addition, the front region of the seat 1 can be raised.

[0037] So that, starting from the reclined position according to Fig. 4, further actuation of the actuator in the sense of increasing the distance between the nut 62 and the coupling eyelet 63 does not cause any further inclination of the backrest 2 with respect to the seat 1, the backrest adjustment mechanism has a stop element 922 (Fig. 9), which blocks a further rotation of the backrest 2 relative to the seat 1 between the reclined position according to Fig. 4 and the tilted position according to Fig. 5. The stop element 922 now causes the actuator 6 to exert a compressive force on the coupling arm 495 in the direction of the arrow 501 so that the shaft 493 rotates counterclockwise in Fig. 8a.

[0038] With this counterclockwise rotational movement, the tilting mechanism 10 is triggered, which comprises the first actuating lever 101 and a second actuating lever 102, which are each present on either side of the seating furniture. The two first actuating levers 101 are each connected non-rotatably to the shaft 493 of the swivel frame 49 at one end. At the other end of the first actuating levers 101, the second operating levers 102 are hingedly connected, which actuating levers are in turn hingedly connected at their other end to the second frame part 42, specifically at the end facing away from the front standing rollers 48. A counterclockwise rotation of the shaft 493 then causes a relative adjustment of the first frame part 41 with respect to the second frame part 42 about the transverse axis 43, the two frame parts 41, 42 forming an X (Fig. 5). The first frame part 41 is supported on its rear supporting feet 46 on the standing surface 5 and form the tilting axis around which the seating furniture is tilted. The front standing rollers 48 of the second frame part roll on the standing surface 5 during the tilting process in the sense of a shortening of the distance between the rear (stationary) supporting feet 46 and the front standing rollers 48. Starting from the reclined position according to Fig. 4, the footrest 3, the seat 1 and the backrest 2 are tilted backwards as a unit during the tilting process, so that the footrest 3 is raised and the headrest 21 is lowered relative to the standing surface 5.

[0039] If the motor is reversed in its direction of rotation, starting from the tilted position according to Fig. 5, the reclined position according to Fig. 4 is first reached before the footrest 3 is retracted and the upright basic position is reached again.

[0040] If the seating furniture is adjusted without loading by a person, the spring element 921 can cause the

shaft 493 to rotate in the direction of the arrow 501 before the backrest 2 is inclined relative to the seat 1. In order to prevent the shaft 493 from being rotated beyond a maximum rotational position by the actuator 6 and thereby damaging the motor, a second stop 13 can be provided on the seat 1 or on the seat adjustment mechanism 91 or at another suitable point (Fig. 6), which blocks the rotation of the shaft 493 until the seating furniture has reached the reclined position shown in Fig. 4.

Claims

1. Seating furniture comprising

- a. a seat (1),
- b. a backrest (2) having an integrated or separate headrest (21),
- c. a seat-backrest adjustment mechanism (91, 92) for adjusting the seat (1) and the backrest (2) from an upright initial position to a reclined position,
- d. a footrest (3) having a footrest adjustment mechanism (8) for extending and retracting the footrest (3),
- e. a base frame (4) for supporting the seating furniture on a standing surface (5), wherein the base frame (4) comprises a tilting mechanism (10) for tilting the seating furniture,
- f. a stand-up aid (7) for raising the seat (1) and the backrest (2) from the upright initial position to a raised position,
- g. an actuator (6) for actuating the seat/backrest adjustment mechanism (91, 92), the footrest adjustment mechanism, the tilting mechanism (10) and the stand-up aid (7), wherein
 - g1. - starting from the upright initial position, actuation of the actuator (6) in a first direction activates the stand-up aid (7),
 - g2. - starting from the upright initial position, actuation of the actuator (6) in a second (opposite) direction activates the footrest adjustment mechanism (8) for extending the footrest and activates the seat-backrest adjustment mechanism (91, 92) for adjusting the seat (1) and the backrest (2) to the reclined position, and
 - g3. - starting from the reclined position - a further actuation of the actuator (6) in the second direction causes an actuation of the tilting mechanism (10) for tilting the seat (1) and backrest (2) into a tilted position, the tilting mechanism (10) raising the footrest (3) and lowering the backrest (2) relative to the standing surface (5),

characterized in that

the base frame (4) has a first frame part (41) and a second frame part (42) which are hingedly connected to one another about a transverse axis (43) and the tilting mechanism (10) being

designed for relative adjustment of the first frame part (41) and the second frame part (42) around the transverse axis (43) and the seat-backrest adjustment mechanism (91, 92) has a stop element (922) that blocks further rotation of the backrest (2) relative to the seat (1) between the reclined position and the tilted position, so that the angle between seat (1) and backrest (2) in the reclined position is the same as in the tilted position.

2. Seating furniture according to claim 1, **characterized in that** the actuator (6) is designed as a linear actuator which is coupled at a first end to the base frame and at a second end to the seat (1).

3. Seating furniture according to claim 1, **characterized in that** the base frame (4) has a rotatably mounted shaft (493) extending transversely to the seating furniture and the actuator (6) is coupled with a first end to the shaft (493) for rotating the same.

4. Seating furniture according to claim 3, **characterized in that**, when the actuator (6) is actuated in the first direction, the shaft (493) is rotated as far as a first stop (500), which blocks further rotation of the shaft (493) such that further actuation of the actuator (6) in the first direction activates the stand-up aid (7) for raising the seat (1) and the backrest (2) into the raised position.

5. Seating furniture according to claim 4, , **characterized in that** a second stop (13) is provided which is connected to the seat (1) or to the seat-backrest adjustment mechanism (91, 92) and which blocks further rotation of the shaft (493) in the event of active contact with the shaft (493) when the actuator (6) is actuated in the second direction.

6. Seating furniture according to claim 3, **characterized in that** the tilting mechanism (10) has at least one lever linkage, one end of which is non-rotatably attached to the shaft (493) and the other end of which is hingedly coupled to the second frame part (42) of the base frame (4), with further actuation of the actuator (6) in the second direction, starting from the reclined position, leading to rotation of the shaft (493) and a resulting relative adjustment of the first and the second frame part (41, 42) about the transverse axis (43).

7. Seating furniture according to claim 6, **characterized in that** the at least one lever linkage has a first actuating lever (101) and a second actuating lever (102), the first actuating lever (101) being non-rotatably attached at one end to the shaft (493) that is rotatably mounted on the first frame part (41) and being hingedly coupled at its other end to the second

actuating lever (102), which in turn is hingedly connected to the second frame part (42) of the base frame (4).

8. Seating furniture according to claim 1, **characterized in that** the first frame part (41) has two front supporting feet (45), two rear supporting feet (46) and two rear supporting rollers (47), the base frame (4) being supported on the front supporting feet and the rear supporting rollers (47) of the first frame part (41) in the raised position and in the reclined position, and the second frame part (42) has two front supporting rollers (48), the base frame (4) being supported in the reclined position on the front supporting rollers (47) of the second frame part (42) and the rear supporting feet (46) of the first frame part (41) on the standing surface (5).

Patentansprüche

1. Sitzmöbel mit

- a. einem Sitz (1),
- b. einer Rückenlehne (2) mit einer integrierten oder separaten Kopfstütze (21),
- c. einem Sitz-Rückenlehen-Verstellmechanismus (91, 92) zum Verstellen des Sitzes (1) und der Rückenlehne (2) von einer aufrechten Grundstellung in eine zurückgeneigte Stellung,
- d. einer Fußstütze (3) mit einem Fußstützen-Verstellmechanismus (8) zum Aus- und Einfahren der Fußstütze (3),
- e. einem Grundgestell (4) zum Abstützen des Sitzmöbels auf einer Standfläche (5), wobei das Grundgestell (4) einen Kippmechanismus (10) zum Kippen des Sitzmöbels umfasst,
- f. einer Aufstehhilfe (7) zum Anheben des Sitzes (1) und der Rückenlehne (2) von der aufrechten Grundstellung in eine angehobene Stellung,
- g. einem Stellmotor (6) zur Betätigung des Sitz-Rückenlehen-Verstellmechanismus (91, 92), des Fußstützen-Verstellmechanismus, des Kippmechanismus (10) und der Aufstehhilfe (7), wobei
 - g1. - ausgehend von der aufrechten Grundstellung - eine Betätigung des Stellmotors (6) in eine erste Richtung eine Aktivierung der Aufstehhilfe (7) bewirkt,
 - g2. - ausgehend von der aufrechten Grundstellung - eine Betätigung des Stellmotors (6) in eine zweite (entgegengesetzte) Richtung eine Aktivierung des Fußstützen-Verstellmechanismus (8) zum Ausfahren der Fußstütze und des Sitz-Rückenlehen-Verstellmechanismus (91, 92) zum Verstellen des Sitzes (1) und der Rückenlehne (2) in die zurückgeneigte Stellung bewirkt, und

g3. - ausgehend von der zurückgeneigten Stellung - eine weitere Betätigung des Stellmotors (6) in die zweite Richtung eine Betätigung des Kippmechanismus (10) zum Kippen von Sitz (1) und Rückenlehne (2) in eine Kippstellung bewirkt, wobei der Kippmechanismus (10) ein Anheben der Fußstütze (3) und ein Absenken der Rückenlehne (2) gegenüber der Standfläche (5) bewirkt,

dadurch gekennzeichnet, dass das Grundgestell (4) einen ersten Rahmenteil (41) und einen zweiten Rahmenteil (42) aufweist, die um eine Querachse (43) gelenkig miteinander verbunden sind und der Kippmechanismus (10) zur Relativverstellung des ersten Rahmenteils (41) und zweiten Rahmenteils (42) um die Querachse (43) ausgebildet ist und der Sitz-Rückenlehen-Verstellmechanismus (91, 92) ein Stoppelement (922) aufweist, das eine weitere Drehung der Rückenlehne (2) gegenüber dem Sitz (1) zwischen der zurückgeneigten Stellung und der Kippstellung blockiert, sodass dass der Winkel zwischen Sitz (1) und Rückenlehne (2) in der zurückgeneigten Stellung und der Kippstellung gleich ist.

2. Sitzmöbel gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der Stellmotor (6) als Linearaktuator ausgebildet ist, der mit einem ersten Ende mit dem Grundgestell und mit einem zweiten Ende mit dem Sitz (1) gekoppelt ist.

3. Sitzmöbel gemäß Anspruch 1, **dadurch gekennzeichnet, dass** das Grundgestell (4) eine sich quer zum Sitzmöbel erstreckende, drehbar gelagerte Welle (493) aufweist und der Stellmotor (6) mit einem ersten Ende mit der Welle (493) zum Drehen derselben gekoppelt ist.

4. Sitzmöbel gemäß Anspruch 3, **dadurch gekennzeichnet, dass** - bei Betätigung des Stellmotors (6) in die erste Richtung - die Welle (493) bis zu einem ersten Anschlag (500) gedreht wird, der eine weitere Drehung der Welle (493) blockiert, sodass eine weitere Betätigung des Stellmotors (6) in die erste Richtung die Aktivierung der Aufstehhilfe (7) zum Anheben des Sitzes (1) und der Rückenlehne (2) in die angehobene Stellung bewirkt.

5. Sitzmöbel gemäß Anspruch 4, **dadurch gekennzeichnet, dass** ein mit dem Sitz (1) oder dem Sitz-Rückenlehen-Verstellmechanismus (91, 92) verbundener zweiter Anschlag (13) vorgesehen ist, der bei einem Wirkkontakt mit der Welle (493) - bei Betätigung des Stellmotors (6) in die zweite Richtung - eine weitere Drehung der Welle (493) blockiert.

6. Sitzmöbel gemäß Anspruch 3, **dadurch gekennzeichnet, dass** der Kippmechanismus (10) wenigstens ein Hebelgestänge aufweist, das mit einem Ende drehfest an der Welle (493) befestigt ist und mit einem anderen Ende gelenkig mit dem zweiten Rahmenteil (42) des Grundgestells (4) gekoppelt ist, wobei - ausgehend von der zurückgeneigten Stellung - eine weitere Betätigung des Stellmotors (6) in die zweite Richtung eine Drehung der Welle (493) und eine dadurch bedingte Relativverstellung des ersten und des zweiten Rahmenteils (41, 42) um die Querachse (43) bewirkt.
7. Sitzmöbel gemäß Anspruch 6, **dadurch gekennzeichnet, dass** das wenigstens eine Hebelgestänge einen ersten Betätigungshebel (101) und einen zweiten Betätigungshebel (102) aufweist, wobei der erste Betätigungshebel (101) mit einem Ende drehfest an der drehbar am ersten Rahmenteil (41) gelagerten Welle (493) befestigt ist und mit seinem anderen Ende gelenkig mit dem zweiten Betätigungshebel (102) gekoppelt ist, der wiederum gelenkig mit dem zweiten Rahmenteil (42) des Grundgestells (4) verbunden ist.
8. Sitzmöbel gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der erste Rahmenteil (41) zwei vordere Standfüße (45), zwei hintere Standfüße (46) und zwei hintere Standrollen (47) aufweist, wobei sich das Grundgestell (4) in der angehobenen Stellung, in der aufrechten Grundstellung und in der zurückgeneigten Stellung auf den vorderen Standfüßen und den hinteren Standrollen (47) des ersten Rahmenteils (41) abstützt und der zweite Rahmenteil (42) zwei vordere Standrollen (48) aufweist, wobei sich das Grundgestell (4) in der Kippstellung auf den vorderen Standrollen (47) des zweiten Rahmenteils (42) und den hinteren Standfüßen (46) des ersten Rahmenteils (41) auf der Standfläche (5) abstützt.

Revendications

1. Meuble d'assise comprenant :
- un siège (1),
 - un dossier (2) ayant un appui-tête (21) intégré ou séparé,
 - un mécanisme de réglage (91, 92) de l'ensemble siège-dossier pour régler le siège (1) et le dossier (2) passant d'une position initiale droite à une position inclinée,
 - un repose-pieds (3) ayant un mécanisme de réglage (8) du repose-pieds, ledit mécanisme de réglage permettant de déployer et de rentrer le repose-pieds (3),
 - un châssis de base (4) pour supporter le

meuble d'assise sur une surface d'appui au sol (5), meuble d'assise dans lequel le châssis de base (4) comprend un mécanisme de basculement (10) pour basculer le meuble d'assise, f. une aide à la verticalisation (7) pour relever le siège (1) et le dossier (2) passant de la position initiale droite à une position relevée,

g. un actionneur (6) pour actionner le mécanisme de réglage (91, 92) de l'ensemble siège-dossier, le mécanisme de réglage du repose-pieds, le mécanisme de basculement (10) et l'aide à la verticalisation (7), meuble d'assise dans lequel :

g1. - à partir de la position initiale droite, l'actionnement de l'actionneur (6) dans une première direction active l'aide à la verticalisation (7),

g2. - à partir de la position initiale droite, l'actionnement de l'actionneur (6), dans une seconde direction (opposée), qui active le mécanisme de réglage (8) du repose-pieds, ledit mécanisme de réglage permettant de déployer le repose-pieds, et qui active le mécanisme de réglage (91, 92) de l'ensemble siège-dossier, ledit mécanisme de réglage permettant de régler le siège (1) et le dossier (2) en position inclinée, et

g3. - à partir de la position inclinée, un autre actionnement de l'actionneur (6) dans la seconde direction provoque un actionnement du mécanisme de basculement (10) pour basculer le siège (1) et le dossier (2) en position basculée, le mécanisme de basculement (10) relevant le repose-pieds (3) et abaissant le dossier (2) par rapport à la surface d'appui au sol (5),

caractérisé

en ce que le châssis de base (4) comprend une première partie de châssis (41) et une seconde partie de châssis (42) qui sont reliées l'une à l'autre de manière articulée autour d'un axe transversal (43), et le mécanisme de basculement (10) est conçu pour le réglage relatif de la première partie de châssis (41) et de la seconde partie de châssis (42) autour de l'axe transversal (43), et

en ce que le mécanisme de réglage (91, 92) de l'ensemble siège-dossier a un élément de butée (922) qui bloque une rotation ultérieure du dossier (2) par rapport au siège (1) entre la position inclinée et la position basculée, de sorte que l'angle formé entre le siège (1) et le dossier (2) en position inclinée est le même que celui formé en position basculée.

2. Meuble d'assise selon la revendication 1, **caractérisé en ce que** l'actionneur (6) est conçu comme un actionneur linéaire qui, au niveau d'une première extrémité, est couplé au châssis de base et, au

- niveau d'une seconde extrémité, est couplé au siège (1).
3. Meuble d'assise selon la revendication 1, **caractérisé en ce que** le châssis de base (4) comprend un arbre (493) monté en rotation, ledit arbre s'étendant transversalement par rapport au meuble d'assise, et l'actionneur (6), par une première extrémité, est couplé à l'arbre (493) pour le faire tourner.
4. Meuble d'assise selon la revendication 3, **caractérisé en ce que**, lorsque l'actionneur (6) est actionné dans la première direction, l'arbre (493) est en rotation jusqu'à une première butée (500) qui bloque une rotation ultérieure de l'arbre (493), de manière telle qu'un actionnement ultérieur de l'actionneur (6) dans la première direction active l'aide à la verticalisation (7) pour relever le siège (1) et le dossier (2) passant en position relevée.
5. Meuble d'assise selon la revendication 4, **caractérisé en ce qu'il est prévu** une seconde butée (13) qui est reliée au siège (1) ou au mécanisme de réglage (91, 92) de l'ensemble siège-dossier et qui bloque une rotation ultérieure de l'arbre (493) en cas de contact actif avec l'arbre (493) lorsque l'actionneur (6) est actionné dans la seconde direction.
6. Meuble d'assise selon la revendication 3, **caractérisé en ce que** le mécanisme de basculement (10) comprend au moins une tringlerie à levier dont une extrémité est fixée à l'arbre (493) de manière non rotative, et dont l'autre extrémité est couplée de manière articulée à la seconde partie de châssis (42) du châssis de base (4), mécanisme de basculement qui, avec un actionnement supplémentaire de l'actionneur (6) dans la seconde direction, à partir de la position inclinée, entraîne la rotation de l'arbre (493) et un réglage relatif - qui en résulte - de la première et de la seconde partie de châssis (41, 42) autour de l'axe transversal (43).
7. Meuble d'assise selon la revendication 6, **caractérisé en ce que** l'au moins une tringlerie à levier comprend un premier levier d'actionnement (101) et un second levier d'actionnement (102), le premier levier d'actionnement (101) étant fixé de manière non rotative, au niveau d'une extrémité, à l'arbre (493) qui est monté en rotation sur la première partie de châssis (41), ledit premier levier d'actionnement étant couplé de manière articulée, au niveau de son autre extrémité, au second levier d'actionnement (102) qui, à son tour, est relié de manière articulée à la seconde partie de châssis (42) du châssis de base (4).
8. Meuble d'assise selon la revendication 1, **caractérisé en ce que** la première partie de châssis (41)

comprend deux pieds de support avant (45), deux pieds de support arrière (46) et deux rouleaux de support arrière (47), le châssis de base (4), en position relevée et en position inclinée, étant supporté sur les pieds de support avant et sur les rouleaux de support arrière (47) de la première partie de châssis (41), et la seconde partie de châssis (42) comprend deux rouleaux de support avant (48), le châssis de base (4), en position inclinée, étant supporté - sur la surface d'appui au sol (5) - sur les rouleaux de support avant (48) de la seconde partie de châssis (42) et sur les pieds de support arrière (46) de la première partie de châssis (41).

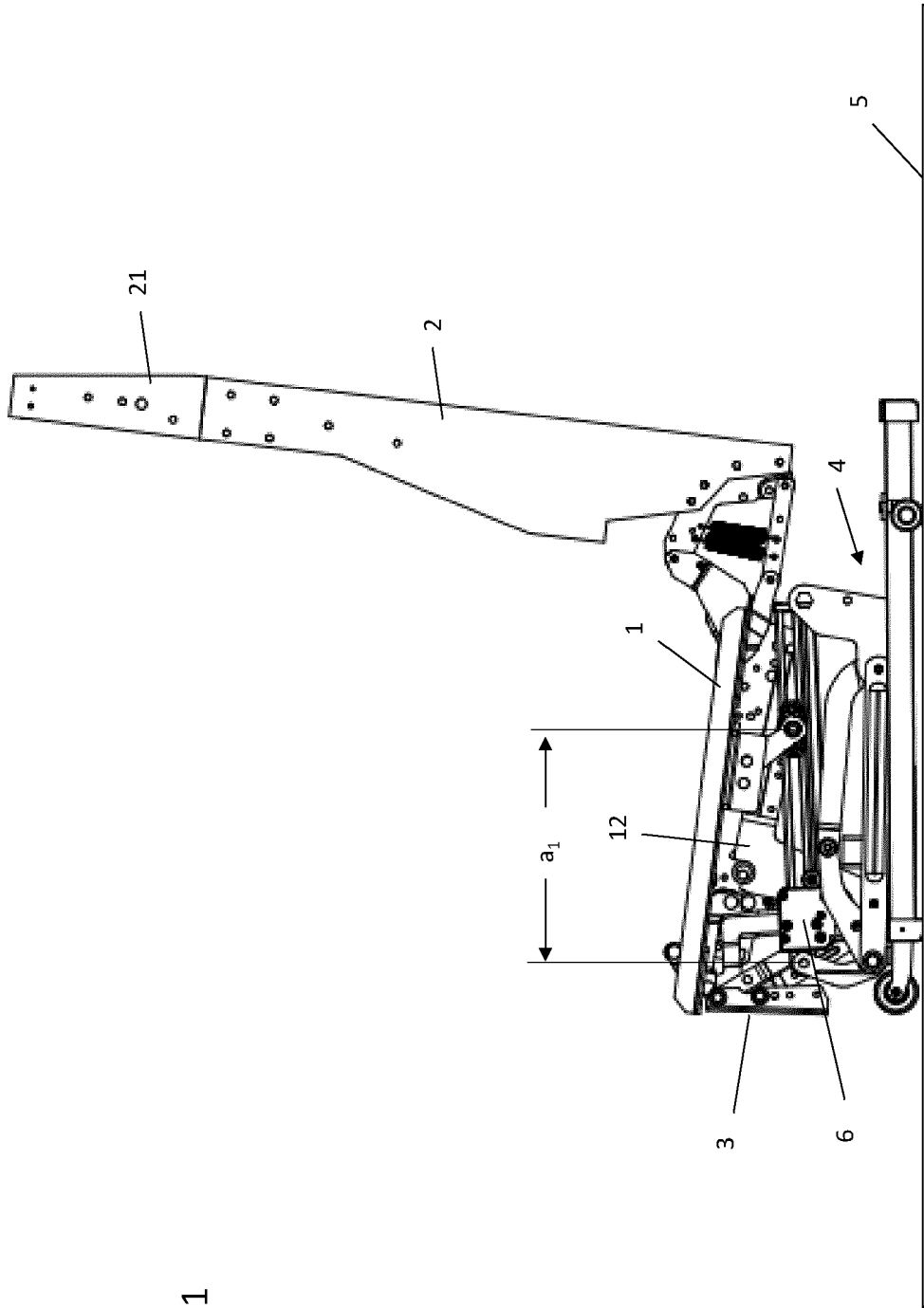


Fig. 1

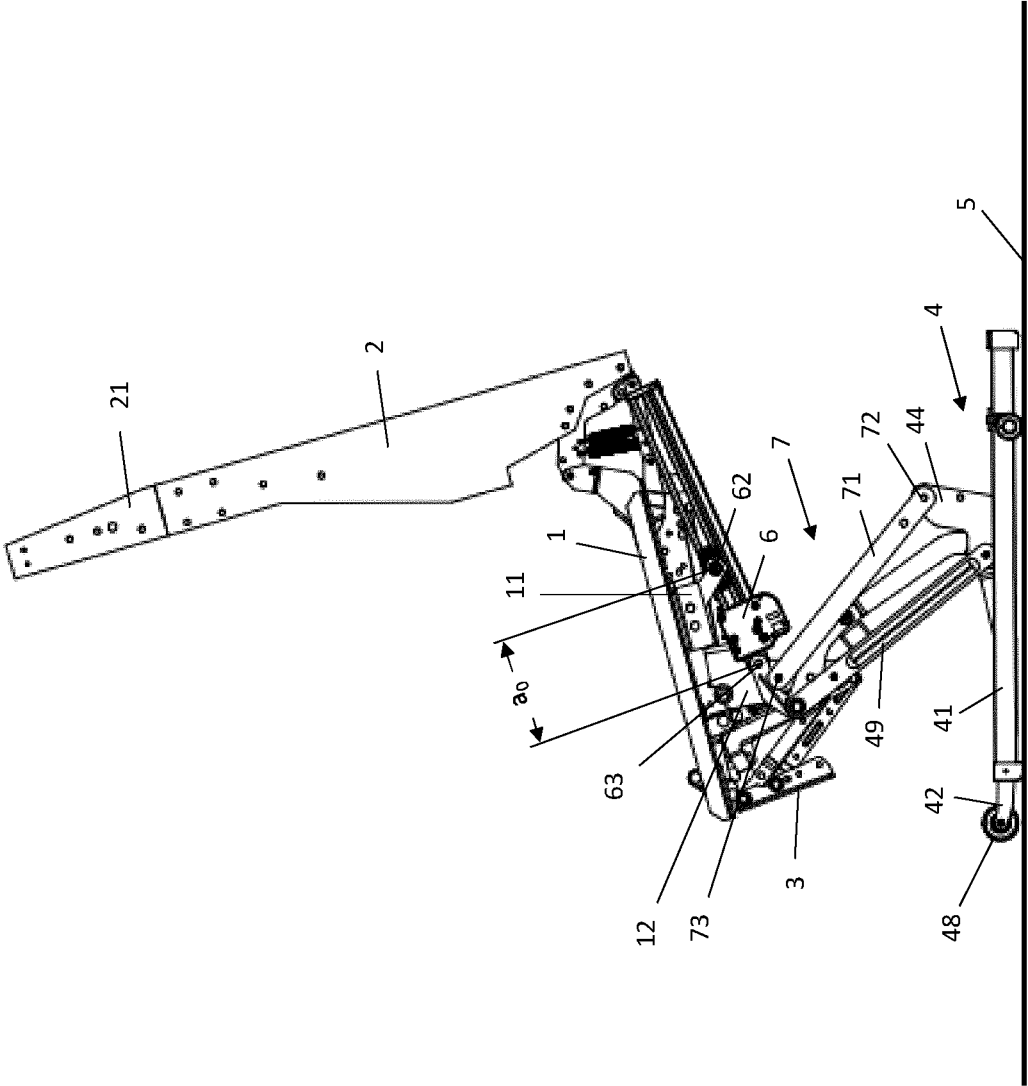


Fig. 2

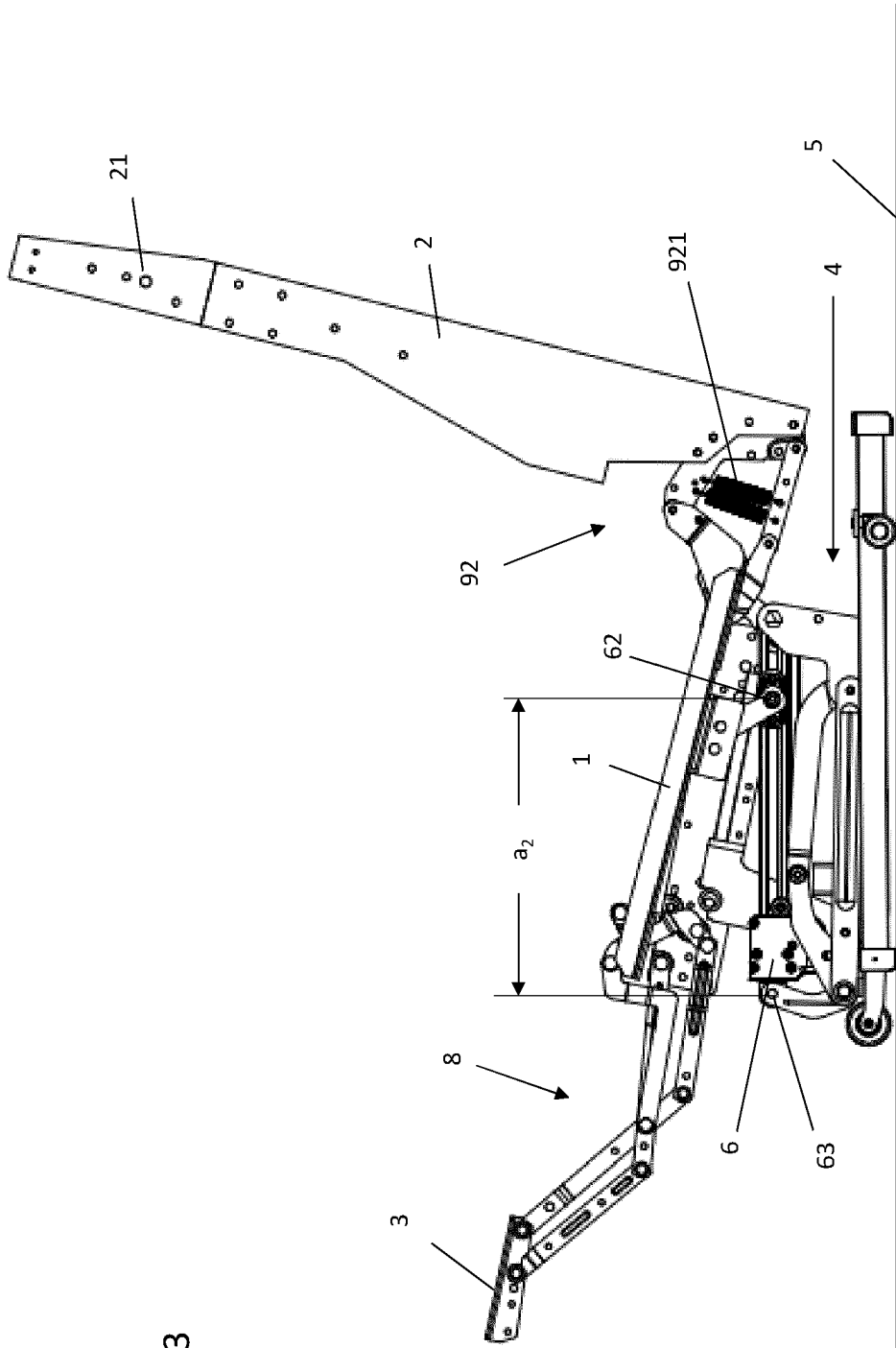


Fig. 3

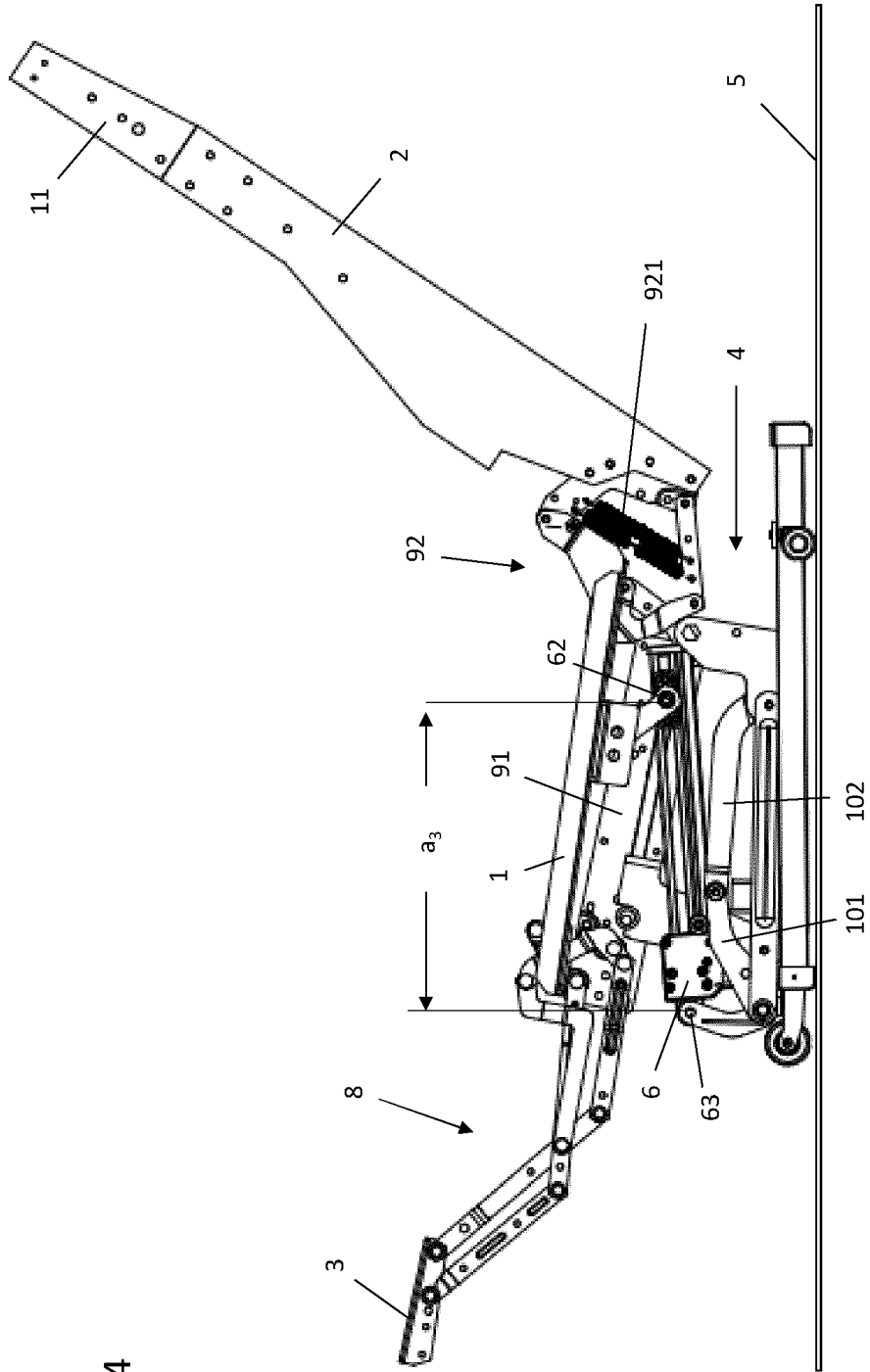


Fig. 4

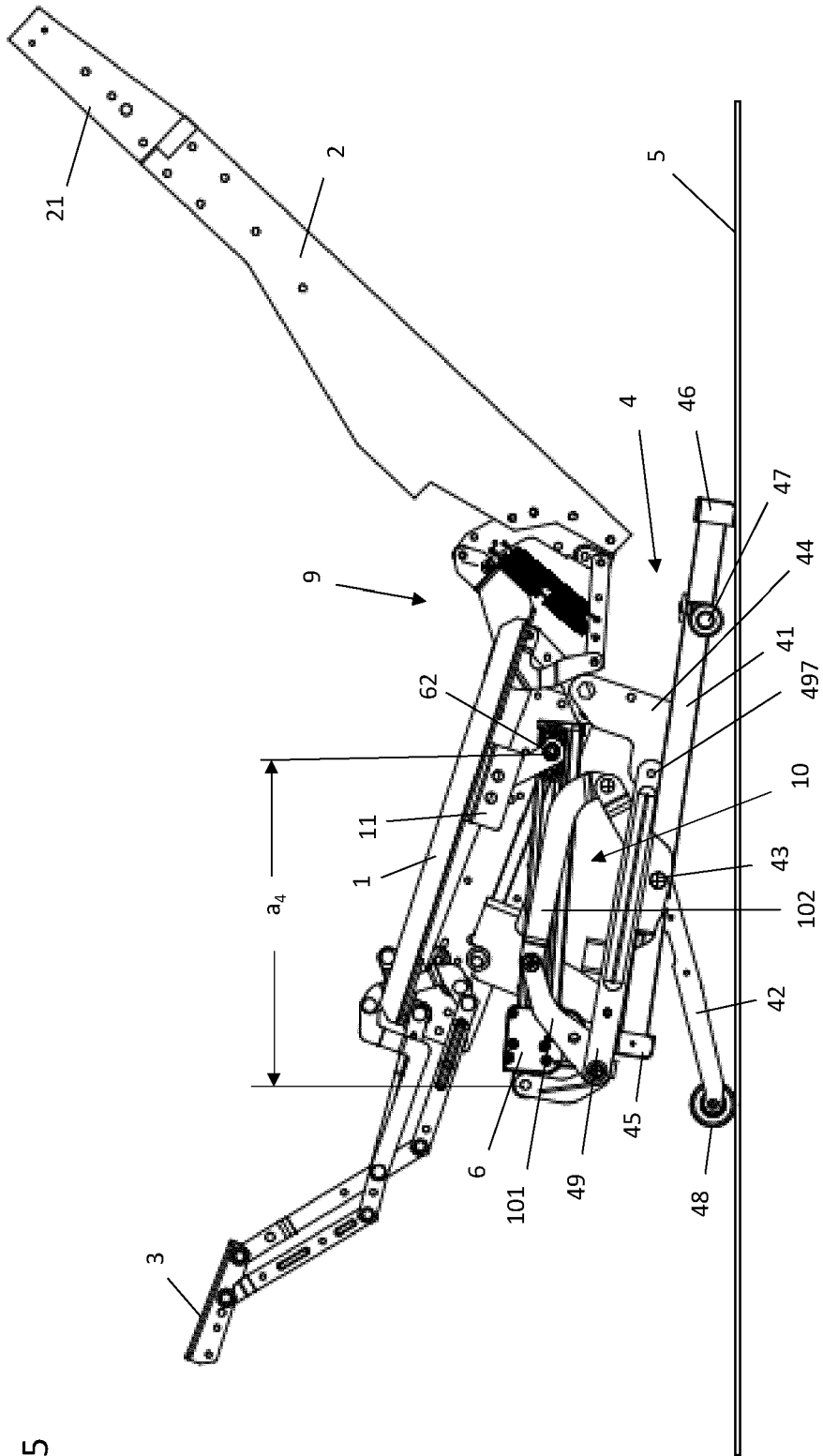


Fig. 5

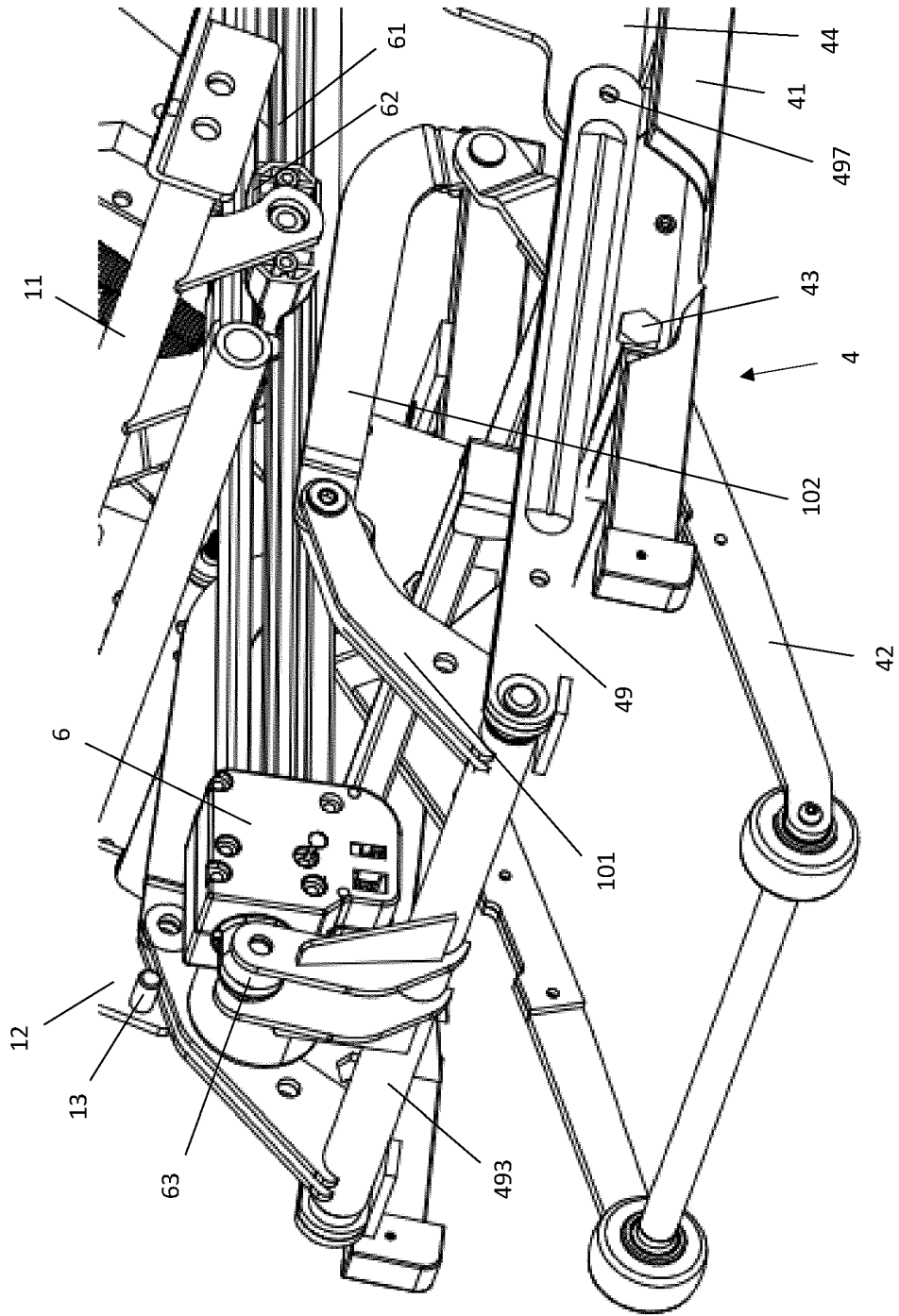


Fig. 6

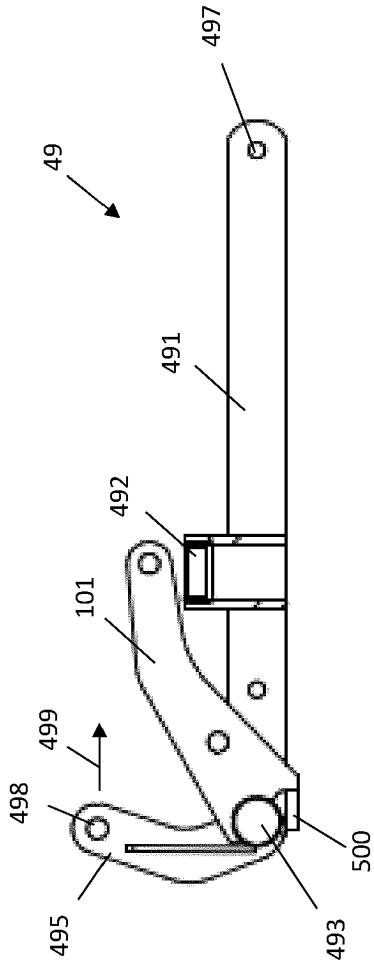


Fig. 7a

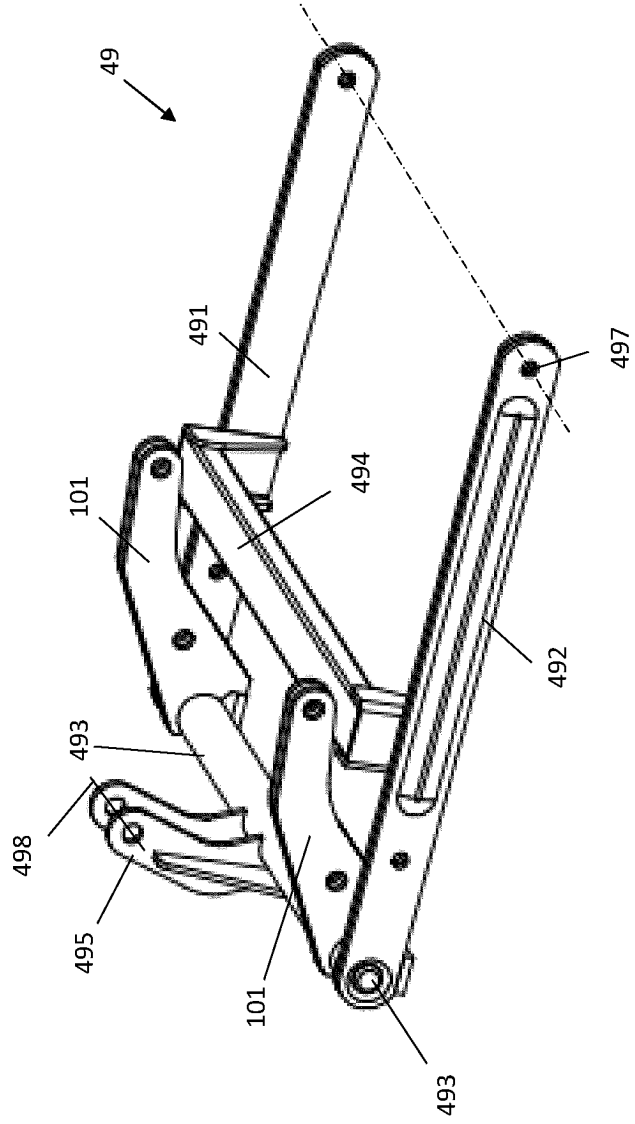


Fig. 7b

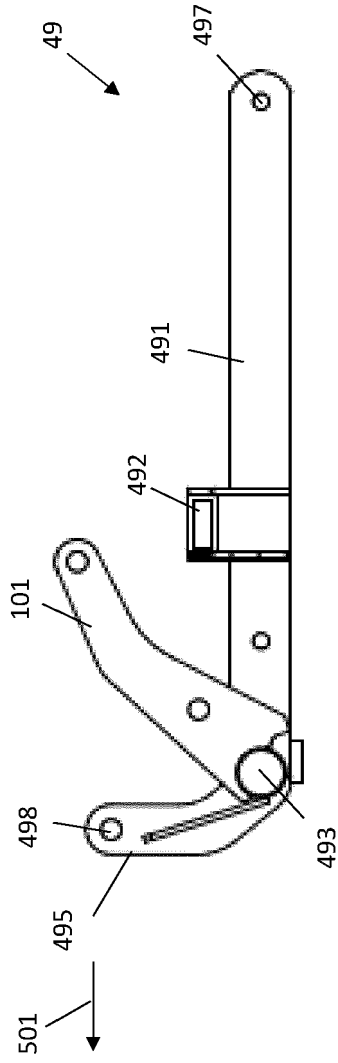


Fig. 8a

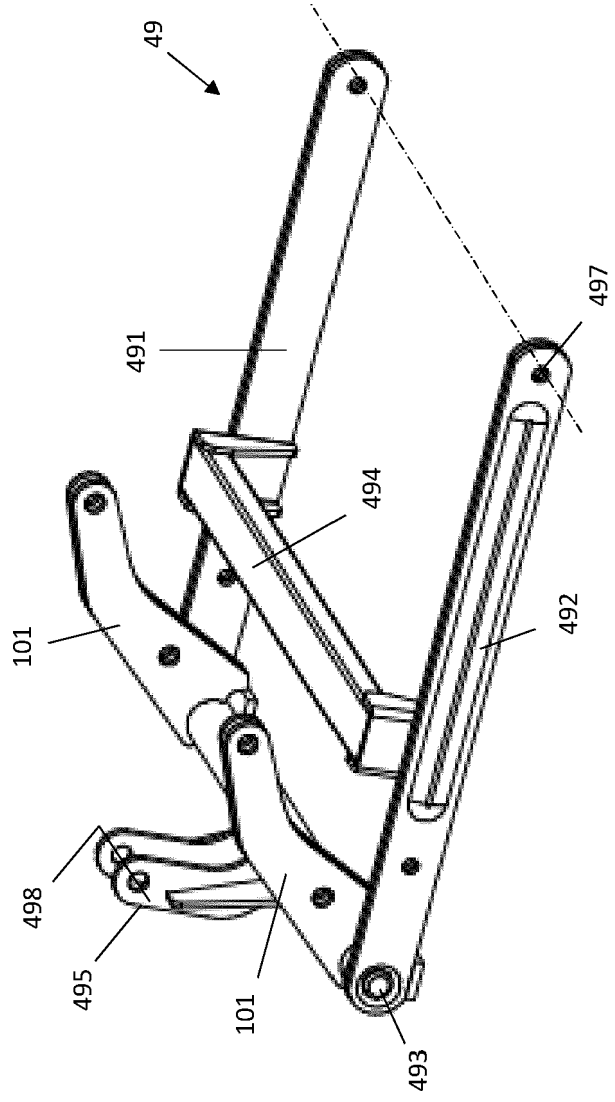


Fig. 8b

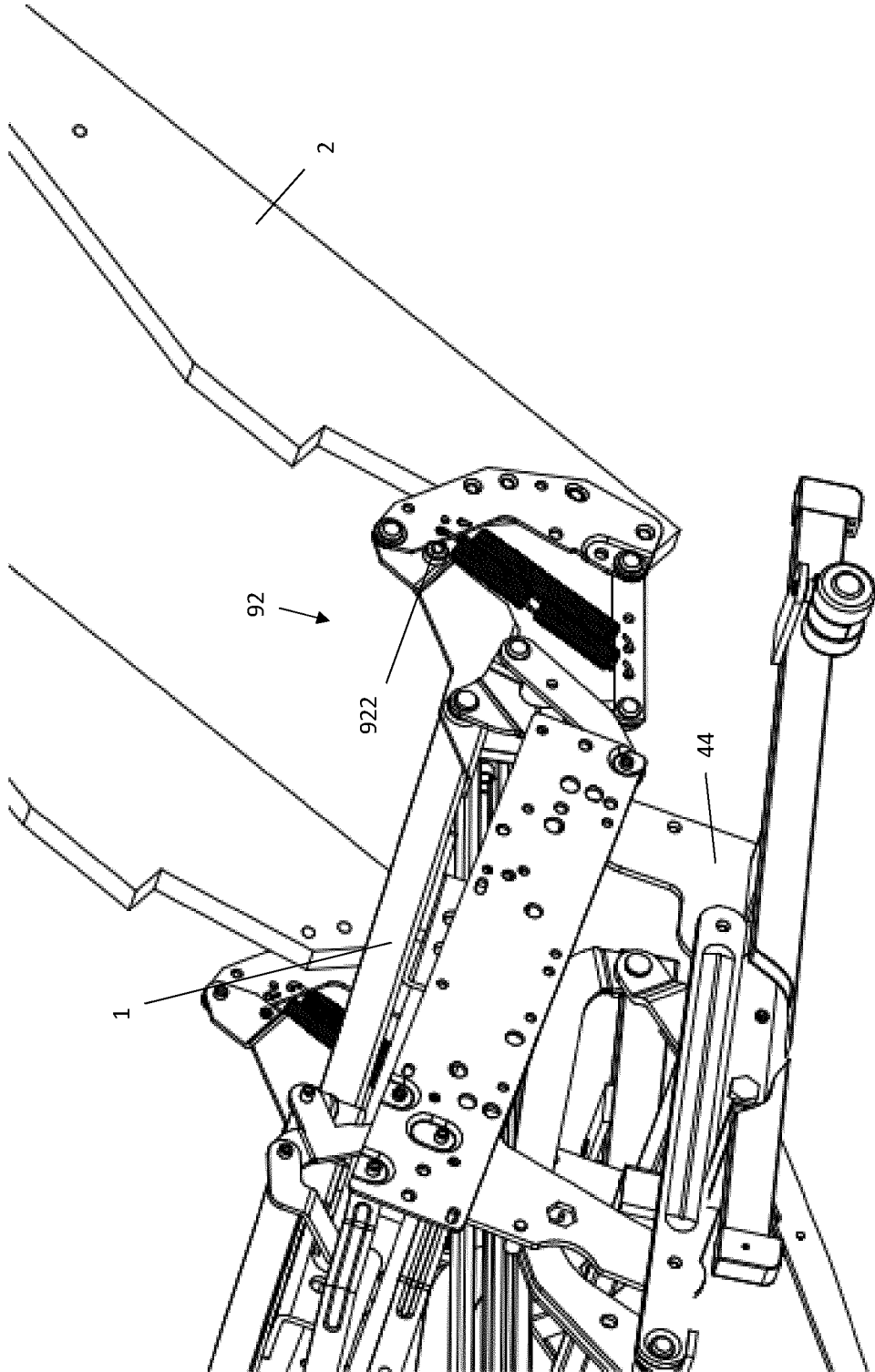


Fig. 9

REFERENCES CITED IN THE DESCRIPTION

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