(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 3 017 797 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
11.05.2016 Bulletin 2016/19

(51) Int Cl.:
A61G 5/00 *(2006.01)* ***A61G 5/10*** *(2006.01)*

(21) Application number: **15191162.5**

(22) Date of filing: **23.10.2015**

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

(30) Priority: **24.10.2014 BE 201405030**

(71) Applicant: **Yacura bvba**
1742 Ternat (BE)

(72) Inventor: **Raepsaet, Marc**
B-1742 Ternat (BE)

(74) Representative: **Paemen, Liesbet R.J. et al**
De Clercq & Partners
Edgard Gevaertdreef 10 a
9830 Sint-Martens-Latem (BE)

(54) CHAIR FOR SECURELY HOLDING A PERSON

(57) The present invention relates to a chair for securely holding a person, in particular a child with a mental disability. The chair comprises a seat base surrounded by two side walls, a back rest, a front wall and a tabletop; wherein the tabletop is movable and connected pivotably to the rest of the chair, so that the tabletop can be pushed away from the back rest and, in the pushed away position, can tilt down towards the front wall; and wherein at least one of the side walls is provided with a door.

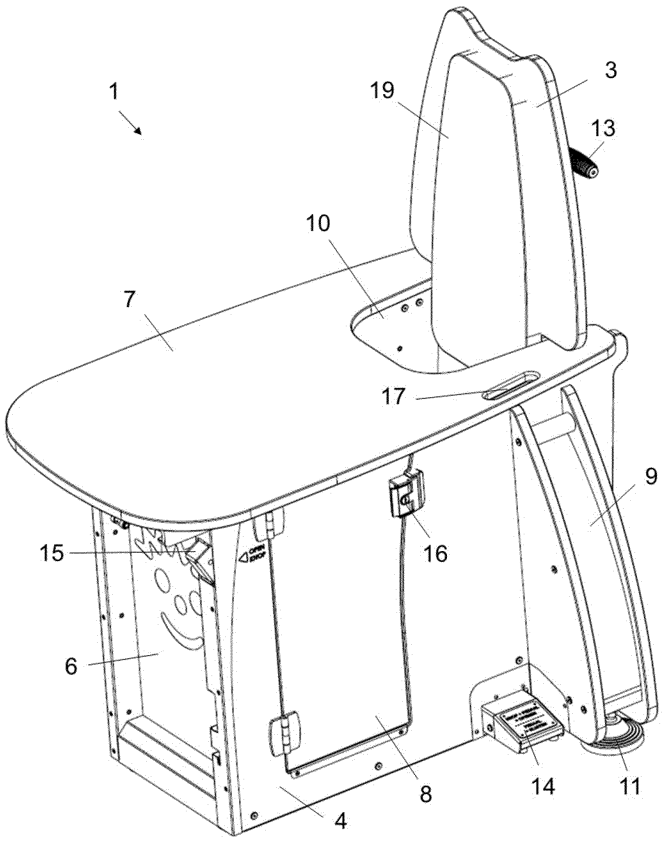

FIG. 1A

EP 3 017 797 A1

Description

AREA OF THE INVENTION

[0001] The present invention relates to a chair suitable for securely holding a person, and is in particular suitable for persons with a mental disability.

BACKGROUND OF THE INVENTION

[0002] Children with moderate to severe mental handicap need intensive care, wherein the provision of an individual carer is desirable. If no carer is present, for example if a carer has to care for several children or if an individual carer must perform another task, these children are often strapped into a chair.

[0003] Strapping may however provoke aggression, leading to an unsafe situation for both the child and the carer. The chair may for example fall over due to the powerful, uncontrolled movements of the child. The same powerful movements can also injure the carer while securing the child. There is also a chance that the child will free him/herself. Furthermore, in an emergency situation such as an epileptic fit, these strapped-in children can often not be released sufficiently quickly, whereby help cannot be offered quickly enough.

[0004] The provision of means and methods for holding children in a safer and more child-friendly manner will substantially improve the quality of life of children with mental disabilities, and greatly simplify the care of these children.

SUMMARY OF THE INVENTION

[0005] The present invention relates in general to a chair suitable for securely holding a person, in particular a person with mental disabilities. The chair is suitable above all for persons with a mental disability who however have considerable physical strength and therefore can often wriggle free from conventional chairs with straps, and/or cause these to move. It is therefore suitable for persons aged from 7 years.

[0006] More specifically, the present invention provides a chair for securely holding a person, comprising a seat base surrounded by two side walls, a back rest, preferably also a front wall and a tabletop. The chair is distinguished in that the tabletop is moveable and connected pivotably to the rest of the chair so that the tabletop can be placed in a closed position above the two side walls, can be pushed away from the back rest, and can tilt into a vertical open position substantially parallel to and on the opposite side of the side walls relative to the back rest. In addition, at least one of the side walls is provided with a door, the top edge of which is covered by the tabletop in the closed position but is exposed in the open position of the tabletop.

[0007] In certain embodiments, the chair is furthermore provided with a mechanism for locking the position of the tabletop.

[0008] In certain embodiments, the locking mechanism is also provided with a security mechanism which is not accessible to the user seated in the chair.

[0009] In certain embodiments, this security mechanism is unlocked when the tabletop is in the open position.

[0010] In certain embodiments, the chair is provided with retractable wheels, but in other embodiments the chair is provided as a standing piece of furniture.

[0011] In certain embodiments of the chair where wheels are provided, the retractable wheels may be operated via a lift system, wherein the lift system control is provided on the rear of the back rest. In further embodiments, it is provided that the lift system can be operated both with the hand and with the foot.

[0012] In certain embodiments, the chair is furthermore provided with a base surface.

[0013] In certain embodiments of the chair, at least one side wall and preferably both side walls are provided with a protruding support element.

[0014] In certain embodiments of the chair, the height of the seat base and/or the base surface is adjustable.

[0015] In certain embodiments of the chair, in closed state the tabletop overhangs the side walls, for example over a distance of at least 5 cm.

[0016] In certain embodiments of the chair, the width of the chair is configured such that it can pass through a door opening and hence for example is maximum 99 cm.

[0017] In certain embodiments of the chair, the seat base is provided with a crotch piece at the front. In further embodiments, this position of the crotch piece is adjustable.

[0018] The chair described herein makes it possible to secure children in a simple but child-friendly manner. In fact, while securing with straps often creates aggression, the child in the chair described herein can relax. The enveloping of the child leads to a feeling of security within a microworld, resulting in relaxation. Although the chair makes escape impossible, the child can be released quickly in the case of need. This greatly facilitates the work of the carers, which may benefit the accommodation capacity of care institutions. The chair can be operated easily so it may also be used at home by untrained persons. In preferred embodiments, all operating controls are provided such that the chair can be opened and closed single-handedly, and hence one hand always remains free for the carer to keep control of the user of the chair. These and further aspects and embodiments of the invention are explained in more detail in the sections below and in the claims, and illustrated by the non-restrictive examples.

BRIEF DESCRIPTION OF THE FIGURES

[0019]

Fig. 1 A, B: Perspective drawing of a particular embodiment of the chair (1) described herein with

the tabletop (7) closed and the door (8) closed.

Fig. 2 A, B: Perspective drawing of a particular embodiment of the chair (1) described herein with the tabletop (7) pushed away and the door (8) closed.

Fig. 3 A, B: Perspective drawing of a particular embodiment of the chair (1) described herein with the tabletop (7) pushed away and partly folded down and the door (8) closed.

Fig. 4 A, B: Perspective view of a particular embodiment of the chair (1) described herein with the tabletop (7) open and the door (8) open.

Fig. 5 Side view (A) and perspective view (B) of a particular embodiment of the chair (1) described herein with wheels (12) retracted.

Fig. 6 Side view (A) and perspective view (B) of a particular embodiment of the chair (1) described herein with wheels (12) extended.

[0020] The following references are used in the description and figures:

1 - chair; 2 - seat base; 3 - back rest; 4, 5 - side wall; 6 - front wall; 7 - tabletop; 8 - door; 9 - support element; 10 - recess; 11 - foot; 12 - wheel; 13 - wheel control; 14, 15 - tabletop release; 16 - lock; 17 - handle; 18 - crotch piece; 19 - cushion.

DETAILED DESCRIPTION OF THE INVENTION

[0021] Before the present method and the devices used in the invention are described, it must be understood that this invention is not restricted to methods, components or devices specifically described, since such methods, components and devices may naturally vary. It must also be understood that the terminology used herein is not intended to restrict, since the area of application of the present invention is restricted merely by the attached claims.

[0022] Unless specified otherwise, all technical and scientific terms used herein have the same meaning as generally understood by a person skilled in the field to which this invention belongs. Although in practice or during testing of the present invention, all methods and materials comparable or equivalent to those described here may be used, the preferred methods and materials are described here.

[0023] As used herein, the singular forms "a", "the" comprise both the singular and the plural of the item to which they refer unless the context clearly prescribes otherwise. The terms "comprising" and "comprise" as used herein are synonymous with "including", "containing" or "contains", and are inclusive or open, and do not exclude extra unnamed members, elements or method steps.

[0024] The terms "comprising" and "comprise" also include the term "consisting of".

[0025] The naming of numerical ranges by end points includes all numbers and fractions which lie within the respective ranges and also said end points.

[0026] The term "approximately" as used herein when referring to a measurable value such as a parameter, quantity, duration or similar, includes variations of +/- 10% or less, preferably +/- 5% or less, more preferably +/- 1% or less, and even more preferably +/- 0.1% or less of the specified value, insofar as such variations are applicable to the disclosed invention. It must be understood that the value to which the term "approximately" refers is itself also specific and disclosed as preference.

[0027] All documents cited in the present invention are hereby included as a whole by reference.

[0028] Unless specified otherwise, all terms used in the disclosure of the invention, including technical and scientific terms, have the meaning as generally understood by the person skilled in the field to which this invention belongs. As further aids, definitions for the terms used in the description are included in order to allow a better evaluation of the principles of the present invention.

[0029] The present invention relates in general to a chair suitable for securely holding a person, referred to below as the "user". The chair described herein is particularly suitable for children with a mental disability, even more particularly children between the ages of 8 and 18 years. The chair described herein is however not restricted to these users and is also suitable for children under the age of 8 and for adult users. The chair is typically designed such that the user cannot leave the chair unaided, and therefore needs a carer. This may be a professional carer or another person such as a family member.

[0030] More specifically, the chair described herein comprises a seat base surrounded by two side walls, a back rest, a tabletop and optionally a front wall and a base surface. These elements are typically connected together into a rigid structure. In certain embodiments, the chair comprises a seat base surrounded by two side walls, a back rest, a tabletop, a front wall and a base surface, so that the whole forms a closed structure. This is optimal not just for the stability of the chair, but the complete enclosure also gives the user a feeling of security or concealment.

[0031] The tabletop of the chair is moveable and connected pivotably to the rest of the chair, so that the tabletop can assume a closed and an open position. More specifically, from the closed position in which it is placed above the side walls, the tabletop may be pushed away from the back rest and (in the pushed-away position) can tilt into an open position towards the front of the chair. If the chair is provided with a front wall, in the open position the tabletop stands in front of the front wall. Furthermore at least one of the side walls of the chair is provided with a door. The opening of the door is covered by the tabletop when the tabletop is in the closed position but is free when the tabletop is in the open position. This operating method and the different parts of the chair will be explained in more detail below.

[0032] The chair described herein comprises a seat base which is surrounded by two side walls, a back rest, optionally a front wall, and a tabletop when the latter is in the closed position. The seat base comprises a surface which is suitable for the user to sit on. The form of the surface may in certain embodiments be adapted to the user, in order to increase the user's comfort. The seat base is supported by a seat support, which may assume various forms such as a (vertical) column or post. In certain embodiments, the actual seat support is fully or partly screened from the view of the user by the side walls, and an additional seat base wall which transversely connects the two side walls of the chair. In certain embodiments, the seat support is provided with a system for adapting the height of the seat base. Thus the chair may be adapted to the anatomy of the user. This is particularly important for children and young users who are still growing. The chair can thus "grow with" the user.

[0033] In a preferred embodiment, the seat base is provided with a crotch piece which prevents the user from sliding out of the seat base. The crotch piece is typically provided centrally at the front of the seat base, so that two (equal) compartments are formed for the user's legs. The crotch piece typically comprises an upright rod, bar or block. Preferably the crotch piece has rounded side faces, even more preferably the crotch piece is cylindrical. In certain embodiments, the position of the crotch piece on the seat base is adjustable, more specifically forward or backward, in other words further away from or nearer to the back rest.

[0034] The tabletop of the chair described herein is movable and connected pivotably to the rest of the chair so that the tabletop can move between an "open" position and a "closed" position. In the closed position, the tabletop assumes a lying (or sloping, see below) position, where it assumes the function of a table. In a basic embodiment of the chair described herein, in closed state the tabletop is positioned lying, more particularly horizontally. It is however not excluded that, in certain embodiments, in closed state the tabletop is positioned slightly sloping with the surface of the table facing towards the user.

[0035] In the open position, the tabletop is vertical or slightly deviating from the vertical wall at the front of the chair, approximately parallel to the back rest. If the chair has a front wall, in the open position the table stands next to and typically approximately parallel to the front wall.

[0036] In certain embodiments, the tabletop may comprise one or more integrated elements, such as for example an integrated screen (where applicable, provided with a scratch-resistant and impact-resistant protection), recesses for objects (such as a beaker or plate) or accessories for the care, nursing and entertainment of the user. These elements may or may not be able to be covered so that the tabletop can remain clear when necessary. These elements may help with the care of the user and/or help the user relax and/or be used for educational purposes.

[0037] In certain embodiments, the tabletop may be provided with one or more handles. In this way the tabletop is easier to move between the open and closed position. The handle may assume different forms, e.g. a U-shaped handle mounted on the tabletop, an opening in the tabletop etc.

[0038] The tabletop may also have an upright edge so that objects cannot slide off the tabletop.

[0039] In a preferred embodiment, the tabletop spans as large a surface as possible of the chair, i.e. from the front end of the side walls to the back rest. It is however evident to the expert that in the closed position of the tabletop, an opening is provided between the edge of the tabletop and the back rest, which offers space for the body of the user. Such an opening may be provided in various ways.

[0040] For example, in certain embodiments the tabletop may be positioned at a fixed distance from the back rest. This allows use of a tabletop with a simple form, for example with straight edges. In such an embodiment, the chair may also be provided with arm rests to increase the user's comfort.

[0041] In a preferred embodiment, the edge of the tabletop at the edge of the back rest (in the closed position of the tabletop) is provided with an opening or recess for the user's body. Thus a tabletop may be provided such that the user's body is surrounded over an angle of at least 180°. In such an embodiment, the tabletop may also function as an arm rest, so that no separate arm rests need be provided.

[0042] The tabletop ensures that the user can still perform certain activities with his/her hands while being securely seated in the chair. Preferably, the tabletop overhangs the side walls. Even more preferably, the tabletop overhangs the front wall. The overhang over the side walls and/or front wall in certain embodiments is at least 3 cm, more preferably at least 5 cm, more preferably at least 10 cm. In a preferred embodiment, the width of the overhang is also determined by the total permissible width of the chair, for example the width of a door. A greater overhang implies a larger tabletop, which may benefit the user's comfort. Also, the overhang may ensure that certain parts of the chair such as the door lock (see below) remain outside the reach of the user. The shape of the tabletop is not critical. Preferably the tabletop has rounded edges and corners to prevent injury to the user or carer.

[0043] The chair described herein comprises two side walls, more specifically a left and a right side wall. The side walls partly provide the enclosure of the seat base and thus ensure the protection of the user and his environment. At least one of the side walls is provided with a door which gives access to the chair.

[0044] The door is typically positioned in a part of the side wall which is in front of the seat base, more specifically at the level of the leg room. The inventors have found that it is easier for users and their carers if the user takes his/her seat on the chair via a door in one of the

side walls, rather than via other access means such as a frontal opening.

[0045] The door opening typically extends to the top edge of the side wall, but does not necessarily extend to the bottom edge of the side wall. If the chair is provided with a base surface, the door opening preferably extends to the base surface or slightly above this. The door opening may have the same width over the complete length, but this is not essential. The door opening preferably has a minimum width of 30 cm, preferably at least 40 cm, even more preferably at least 50 cm.

[0046] In certain embodiments, the door is connected pivotably to the side wall. The door preferably opens towards the outside. In more particular embodiments, the door opens towards the front of the chair, in other words away from the back rest.

[0047] The door typically has the same shape as the door opening in the side wall, in order to ensure as complete a closure of the side wall as possible when the door is closed. Other configurations are not however excluded. In certain embodiments, the door may be a sliding door.

[0048] In a basic embodiment of the chair described herein, only one of the side walls has a door. The door may be provided in the left or right side wall. The provision of a single door may lower production costs, and it may benefit users who are sensitive to routine disruption. In other embodiments, each of the two side walls is provided with a door. The user or carer can then choose the most suitable door for the situation.

[0049] In certain embodiments, the door may be provided with a closing mechanism such as a lock or bolt. The closing mechanism is provided on the outside of the chair so that the user cannot hurt him/herself while in the locked state. The closing mechanism has a dual function: simultaneous enclosure of the user during the closing procedure of the tabletop, and keeping the door in closed position while the tabletop is pushed closed (to the closed position). After closure of the tabletop, the tabletop assumes the function of door closure because this makes the door inaccessible. We effectively have a double closure system.

[0050] In a preferred embodiment, the chair may also comprise a front wall. The front wall then forms part of the enclosure of the seat base and protects the environment in front of the chair from the user's kicking movements. In particular, the front wall offers protection to the tabletop in the open position. The front wall is an important construction module which can ensure that the enclosure is rigid. The front wall is typically positioned at some distance from the seat base in order to offer the necessary leg room for the user. In certain embodiments, the distance between the front wall and the seat base corresponds to a distance which is at least as large as the user's foot length. Usually, the distance between the front wall and the side face is usually at least 40 cm, preferably at least 50 cm.

[0051] The chair described herein is characterized in that it holds the user securely while still allowing a high degree of freedom of movement. Safety is ensured by the fact that, in the closed position, the tabletop blocks the opening of the door. More specifically, access to the seat base is provided by a combination of:

- pushing away and folding open the tabletop, and
- opening a door in one of the side walls.

[0052] In closed position, the tabletop blocks the opening of the door for the user. More specifically, this is ensured by the fact that in closed position, the tabletop covers the top edge of the side wall(s) in which the door(s) is/are located. As described herein, in specific embodiments, in the closed position the tabletop overhangs the side walls. This means that the door(s) in the side wall(s) cannot be opened by the user when he/she is seated in the chair.

[0053] The tabletop may be transferred from the closed to the open position by pushing the tabletop away, in a direction which points away from the back rest, and folding down or tilting. More specifically, the position change takes place by:

(a) pushing the tabletop in a horizontal direction away from the back rest, and
(b) tilting the tabletop into a vertical position at the front of the chair. More specifically, in the open position, the tabletop stands at the opposite edge of the side walls relative to the back rest and at the same time approximately parallel to the back rest.

[0054] The tabletop may for this be connected to the rest of the chair via a rail system. This allows the tabletop to be pushed in a controlled manner in a specific direction, without allowing movement in another direction. To allow the tilting of the tabletop, a hinge connection may be provided between the tabletop and the rest of the chair. The connection between the tabletop and the rest of the chair is preferably configured such that the tabletop cannot tilt before the tabletop has been pushed away from the back rest over a sufficient distance. The tabletop is thus preferably connected such that step (b) as described above can only be carried out when step (a) has been fully completed, for example when the tabletop has been pushed out of a rail. This increases the safety for the user and carer. The tilt movement may not take place automatically but must be largely controlled by the operator. Therefore in a preferred embodiment, the inventors have balanced the tabletop in the hinge position so that the tabletop cannot unintentionally accelerate under the influence of gravity or added force. In certain embodiments, an extra brake is provided to counter this acceleration.

[0055] In a preferred embodiment, the tabletop is provided with a locking mechanism for locking, bolting or fixing the position of the tabletop, more specifically in the closed position and/or the open position. Preferably, the locking mechanism ensures that the tabletop is automat-

ically locked in the open and/or closed position when it reaches these positions. The position locking may be achieved in various ways, for example via a physical bolt or an (electro)magnetic system.

[0056] In certain embodiments, an intervention of a carer is necessary to unlock the tabletop because the unlock mechanism does not lie within the reach of the user. More specifically, this may require activation of an unlocking mechanism via a knob, pedal, key etc. The unlocking mechanism control is thus preferably positioned so that this is inaccessible to the user. For example, the control may be provided at the bottom edge of a side wall, preferably a side wall with door, as a pedal.

[0057] In certain embodiments, the unlocking mechanism may be secured so that a secondary action is required to unlock the tabletop. One example of this security mechanism is a secondary clip or knob which must be pressed before the tabletop can be unlocked. In certain embodiments, it may be provided that this security mechanism is mainly used for pushing the tabletop to the open position, so that on closure, the tabletop can be unlocked directly. In certain embodiments, this is achieved by coupling the security mechanism to the position of the tabletop. Thus for example, in the open position, the tabletop may ensure the pressing of the security button. In certain embodiments, the locking mechanism may also be operated by the carer's foot. The latter configuration has the advantage that if the user is not yet seated in the chair, the carer can perform all actions with one hand and thus has one hand free for the user.

[0058] In certain embodiments, the pushing of the tabletop to the open position may itself give access to the door, which can then be freely opened. In other embodiments, a secondary lock or locking mechanism is provided on the door. In further embodiments, the locking mechanism of the door is coupled to the state of the tabletop.

[0059] In certain embodiments, the chair described herein is provided with a base surface or base plate. The base surface is typically connected to the side walls and front wall and possibly also to the back rest.

[0060] The base surface may perform different functions. The base surface may for example serve to support the user's feet. The base surface may also offer protection against movements of the user on the ground on which the chair is resting, or on any underlying structure of the chair, such as a subframe with wheels (see below). The base surface may also be used to ensure that the chair forms a closed tub. In certain embodiments, the base may be made water-tight, which can simplify cleaning of the chair.

[0061] The walls of the chair described herein preferably do not rest on the ground directly but indirectly via a number of feet. In certain embodiments, the chair is provided with three, four, five, six, seven, eight or more feet for supporting the chair. The feet are preferably adjustable in height, for example via a screw thread, so that the chair can be positioned stably on most floors.

[0062] The purpose of the chair described herein is to hold the user securely, and hence it typically has a structure which is difficult or impossible for one person to move. Although not critical for the basic design of the invention, in certain cases however it may be desirable to move the chair. In a preferred embodiment, the chair described herein is therefore provided with a set of wheels, more specifically retractable wheels. This means that the vertical position of the wheels may be varied between a retracted position, wherein the wheels do not touch the ground and the chair cannot be moved, and an extended position, wherein the wheels touch the ground and the chair can be moved. The wheels may be provided on a subframe provided for this which is connected movably to the rest of the chair. The presence of a subframe for the wheels not only ensures the movability of the chair, but may also lower the centre of gravity of the chair and hence increase the stability.

[0063] Extension of the wheels means that the rest of the chair is lifted over a small distance, for example between 1 cm and 5 cm. For this the chair may be provided with a lift system which allows the chair to be lifted, so that only the wheels make contact with the ground. The lift system preferably forms a lever so that a relatively small force is required to lift the chair.

[0064] The lift system may be a manual system, wherein the required force is exerted by a person, or may be automated, wherein the force is exerted by a motor such as an electric motor, a pneumatic or hydraulic system, or another system known to the person skilled in the art.

[0065] The lift system control may take various forms such as a lever arm, pedal or button. Preferably the lift system control is provided at a point which is inaccessible or almost inaccessible to the user when positioned on the seat base, so that the user cannot himself operate the lift system. In certain embodiments, the lift system control may be provided on the rear of the back rest. Such a position is difficult for the user to reach but easy for the carer.

[0066] In certain embodiments, the lift system may be provided so that it can be operated both with a hand or with a foot from a (standing) position behind the chair.

[0067] In certain embodiments, the lift system control may be provided with a security mechanism so that the lift system cannot be activated accidentally. In certain embodiments, the chair is automatically lowered again, for example under the influence of gravity, when the lift system control (lever arm, pedal, button etc.) is released. In such embodiments, the lift system may furthermore be provided with a damper to prevent the chair from dropping too quickly and the return of the handle from injuring the user.

[0068] Preferably the chair comprises three or more wheels, more preferably four or more wheels. The size of the wheels is not critical. Preferably the wheels have a diameter of between 2 and 20 cm, for example around 10 cm.

[0069] In certain embodiments, the seat base, the back

rest and/or other elements of the chair may be provided with one or more cushions. This increases the comfort of the user. The cushions are preferably water-tight so that the cushions are easy to clean.

[0070] To prevent the chair from collapsing under strong movements of the user or external causes, the chair may be provided with support elements for increasing the stability of the chair. Depending on need for further stability, support elements may be attached to the front wall, side walls and/or back rest. Such support elements protrude from the outside of these walls and rest on the ground, so that the base on which the chair rests is widened and the stability thus increased. The support elements typically reach the ground via a foot, the height of which can be adjusted to optimise the stability.

[0071] The support elements may assume different forms, from an extending foot to a wing (with foot). In certain embodiments, at least one of the side walls is provided with a wing, preferably perpendicular to the side wall and perpendicular to the ground surface.

[0072] Further optional conditions for the chair:

> The chair described herein is preferably no wider than 99 cm. This ensures smooth passage in most care institutions. For domestic use, a smaller width is desirable, for example maximum 90 cm, preferably maximum 85 cm, more preferably maximum 80 cm, and ideally maximum 75 cm. In certain embodiments, folding support elements may be provided, more particularly pivoting support elements. Thus the base of the chair may be widened to obtain stability, and narrowed if necessary, for example when the chair is moved and must pass through a small opening.

[0073] The expert will understand that the walls of the chair, more precisely the side walls, the back rest and where applicable the front wall, may assume different forms. The walls may be flat or curved, solid or fitted with openings etc. In certain embodiments, the walls may be made of a material with regular recesses which gives the chair a lighter appearance. The use of flat solid walls however has advantages for the rigidity and maintenance of the chair.

[0074] In a basic embodiment, the side walls and/or front wall have a flat rectangular form. Such walls can easily be produced in most materials.

[0075] In certain embodiments, two or more walls may be provided as a single piece. For example, the side walls and the front wall may be made of one piece. In this way the angles between the walls may be rounded if necessary so that the walls transform into each other.

[0076] The form of the walls of the chair is not critical. In a basic embodiment, one or more walls have a rectangular form.

[0077] In certain embodiments, the back rest may have a form adapted to increase the comfort of the user.

[0078] The expert will furthermore understand that the front wall, side walls, back rest, tabletop and optional base surface may be made of various materials, for example one or more materials selected from wood, plastic and metal (alloy). These elements may, in certain embodiments, be produced from composite material, for example wooden boards with a water-tight plastic coating. In certain embodiments, the leg space formed by the side walls, seat base, base surface and any front wall is water-tight.

[0079] The present invention is furthermore provided for the user of the furniture described herein as a chair.

[0080] The present invention will be illustrated by the following non-limitative embodiments.

EXAMPLES

[0081] Figs. 1A and 1B show a perspective drawing of particular embodiments of the chair (1) described herein with closed tabletop (7) and door (8). Figs. 2A and 2B show the same chair (1), wherein the tabletop (7) is pushed away from the back rest (3). Figs. 3A and 3B show the same chair (1) with tabletop (7) pushed away and partly folded down and door (8) closed. Figs. 4A and 4B show the same chair (1) with door (8) and tabletop (7) open (i.e. pushed away and folded down).

[0082] The chair (1) comprises a seat base (2) which is surrounded by a front wall (6), two side walls (4, 5), a back rest (3) and a tabletop (7). When a user is seated on the seat base, these elements surround the legs and part of the body of the user. The tabletop (7) is provided with a recess (10) to offer space for the user's body on the seat base (2). The chair (1) rests on the ground via a number of feet (11), the height of which is adjustable. The seat base (2) is provided with a crotch piece (18) which prevents the user from sliding off the seat base. The back rest (3) and/or seat base (2) may be provided with a cushion (19) to increase the user's comfort.

[0083] One of the side walls (4) is provided with a door (8). Access to the chair (1) is created by pushing away and folding down the tabletop (7) and opening the door (8). More specifically, the tabletop (7) is first pushed away from the back rest (3) as shown in Figs. 2A and 2B, and then folded down as shown in Figs. 3A and 3B, 4A and 4B. Then the door (8) is opened so that the user can be seated on the seat base, after which the door (8) and tabletop (7) are closed again. To simplify the movement of the tabletop between the open and closed position, the tabletop (7) may be provided with a handle (17).

[0084] The tabletop (7) is provided with a lock so that the position of the tabletop is locked in the open and closed position. To be able to move the tabletop (i.e. push and/or tilt) the tabletop must be unlocked by pressing a pedal (14). The pedal (14) is secured and cannot be pressed unless first a security button (15) has been engaged (pressed). This security button (15) is automatically disengaged when the pedal (14) is pressed. In certain embodiments, the security button (15) is automatically pressed by the tabletop (7) when the tabletop is in

the open position. The door (8) is also provided with a lock or bolt (16). The overhang of the tabletop (7) over the side walls (4, 5) and front wall (6) makes it difficult or impossible for the user him/herself to unlock the tabletop and door.

[0085] To provide additional stability, the chair (1) may be provided with one or more support elements (9).

[0086] In certain embodiments, the chair (1) may be provided with retractable wheels (12). Figs. 5A and 5B show a side view and perspective view of a particular embodiment of the chair (1) described herein with retracted wheels. Here the wheels are not visible and the chair rests on the ground via the feet (11). Figs. 6A and 6B show the same chair (1) with extended wheels (12). Here the chair (1) is lifted up by a few centimetres and rests on the ground via the wheels (12).

[0087] The wheels (12) are retracted and extended via a control (13), more particularly a lever arm, which is provided behind the back rest (3).

Claims

1. Chair (1) for securely holding a person, comprising a seat base (2) surrounded by two side walls (4, 5), a back rest (3), a front wall (6) and a tabletop (7); wherein the tabletop (7) is movable and connected pivotably to the rest of the chair so that the tabletop (7) can be placed in a closed position above the two side walls (4, 5) and then pushed away from the back rest (3), and can tilt into a vertical open position substantially parallel to and on the opposite side of the side walls (4, 5) relative to the back rest (3); wherein at least one of the side walls is provided with a door (8), the top edge of which is covered by the tabletop (7) in the closed position but is exposed in the open position of the tabletop (7).

2. Chair according to Claim 1, furthermore provided with a mechanism for locking the position of the tabletop.

3. Chair according to Claim 2, wherein the locking mechanism is also provided with a security mechanism which is not accessible to the user seated in the chair.

4. Chair according to Claim 3, wherein the security mechanism is unlocked when the tabletop is in the open position.

5. Chair according to any of Claims 1 to 4, furthermore provided with retractable wheels.

6. Chair according to Claim 5, wherein the retractable wheels are operated via a lift system, wherein the lift system control is arranged on the rear of the back rest.

7. Chair according to Claim 6, wherein the lift system is configured such that it can be operated both with the hand and with the foot from a position behind the chair.

8. Chair according to any of Claims 1 to 7, furthermore provided with a base surface.

9. Chair according to any of Claims 1 to 8, wherein at least one side wall is provided with a protruding support element.

10. Chair according to any of Claims 1 to 9, wherein the height of the seat base and/or the base surface is adjustable.

11. Chair according to any of Claims 1 to 10, wherein the seat base is provided with a crotch piece at the front.

12. Chair according to Claim 11, wherein the position of the crotch piece is adjustable.

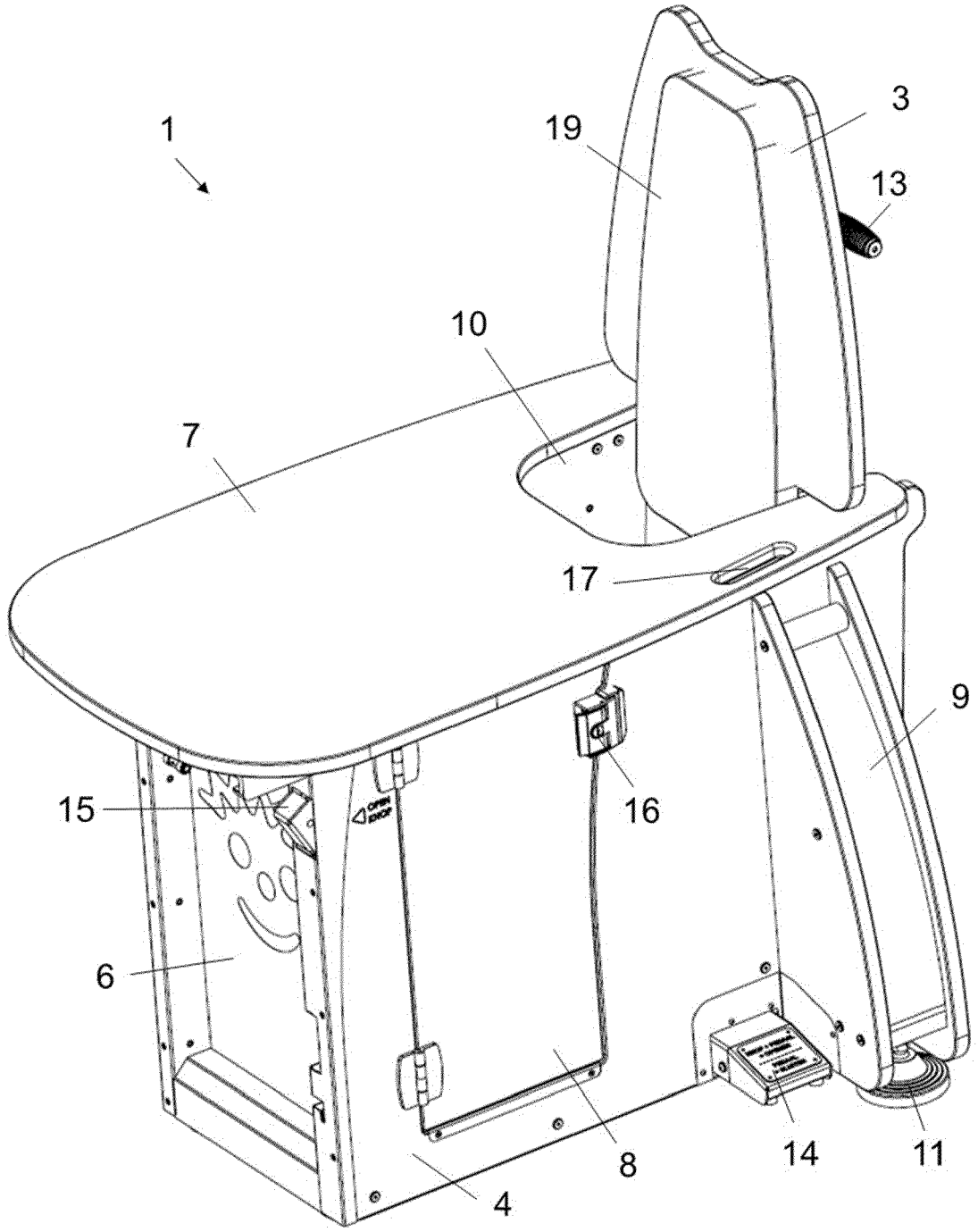

FIG. 1A

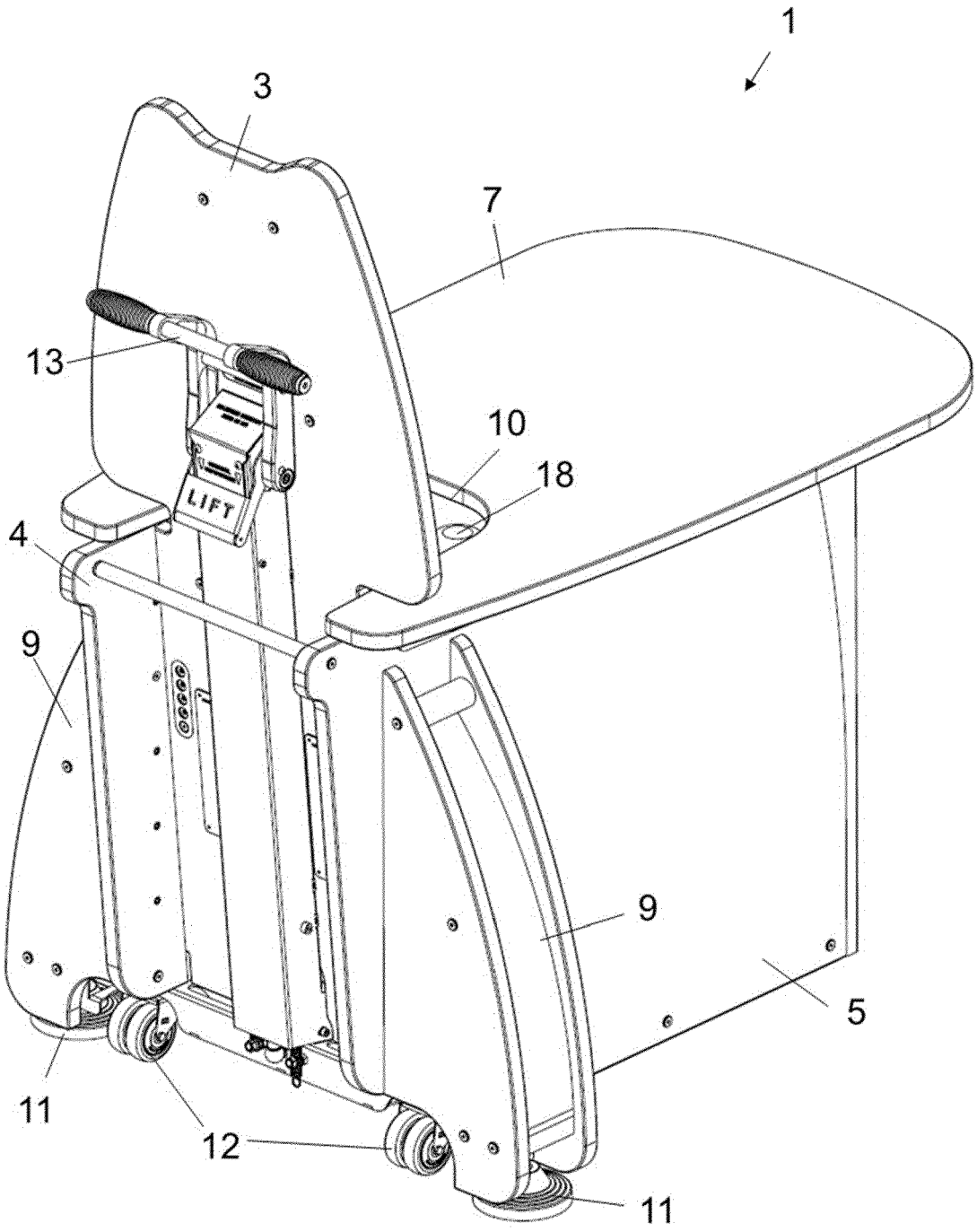

FIG. 1B

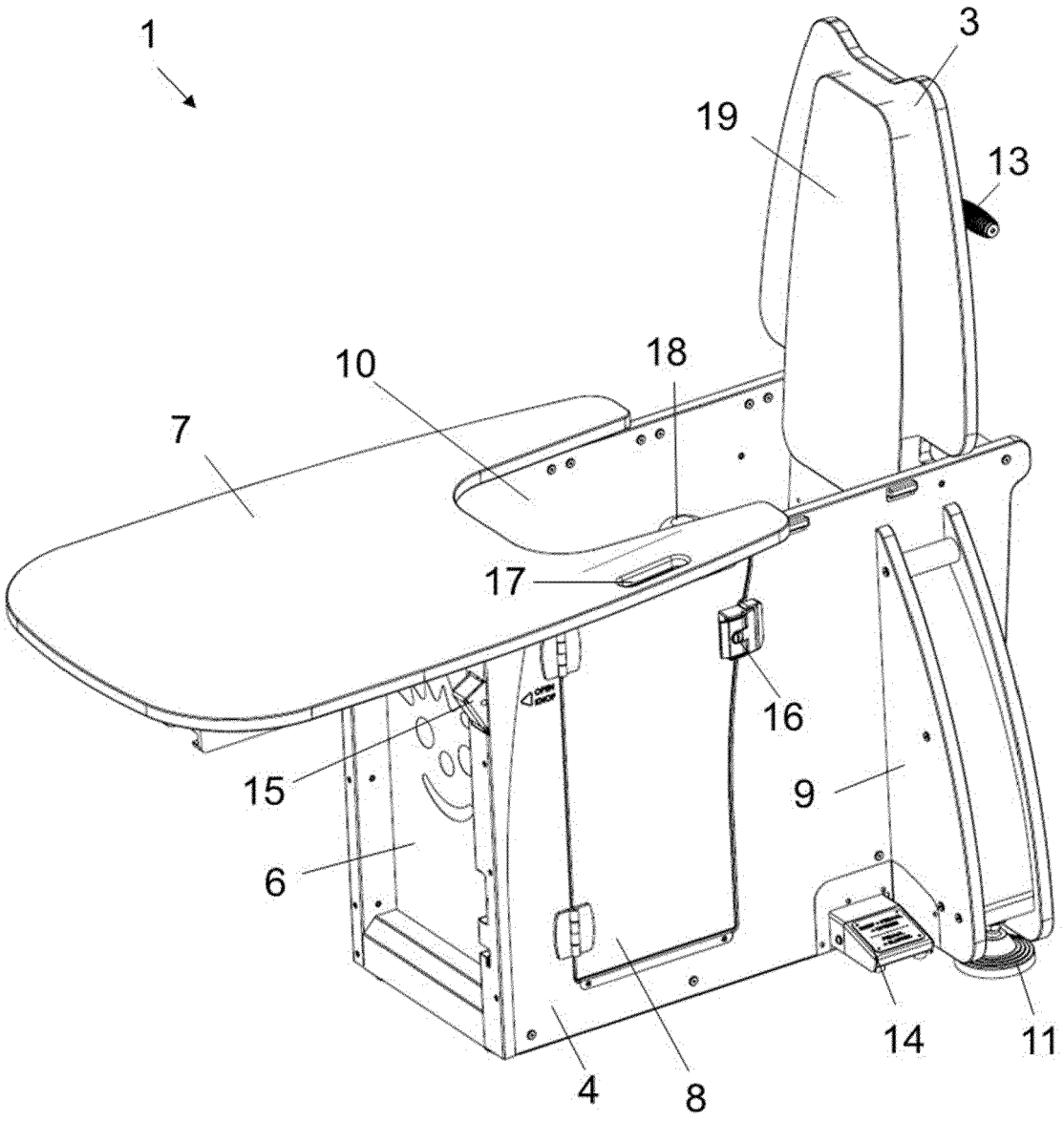

FIG. 2A

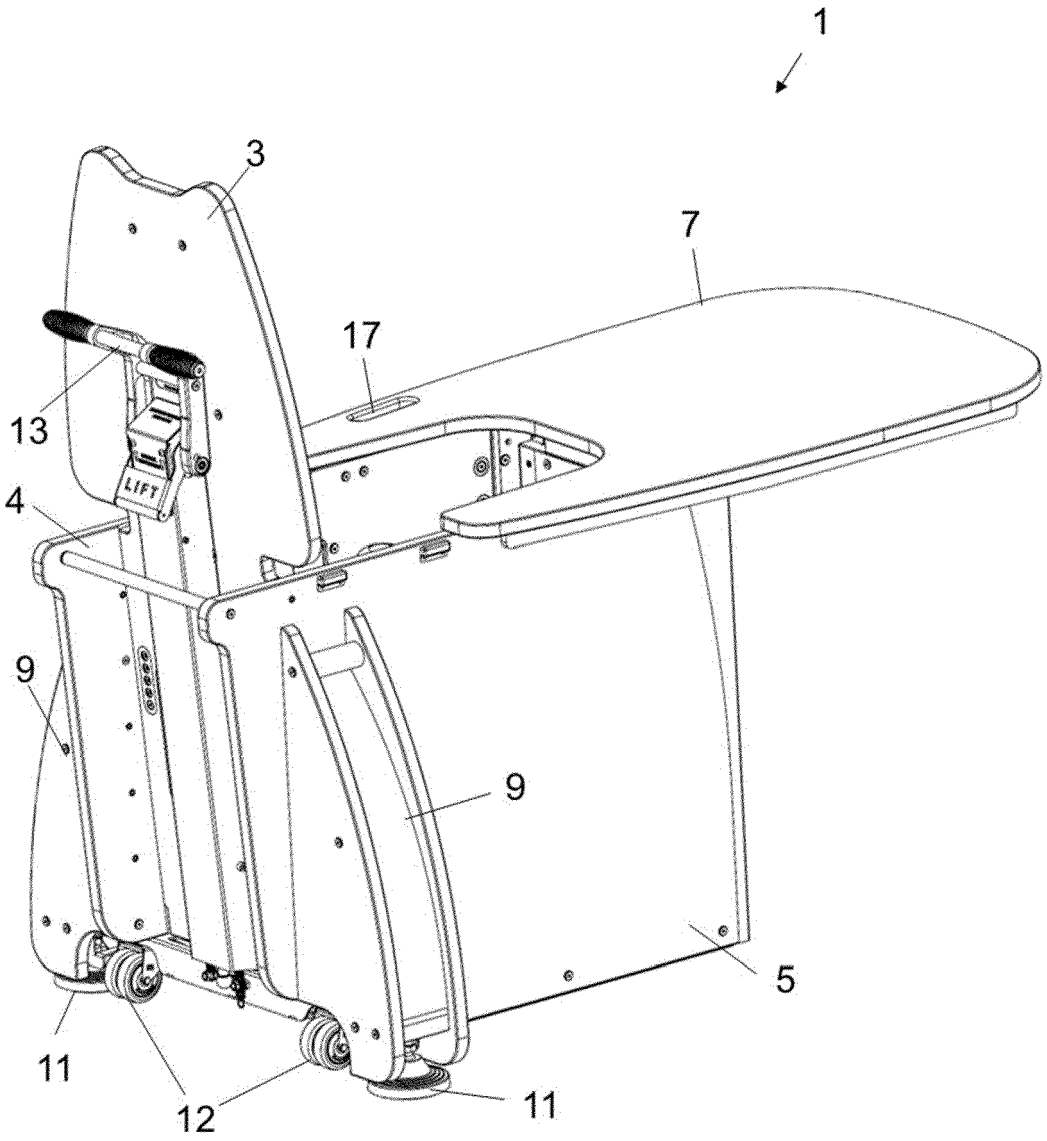

FIG. 2B

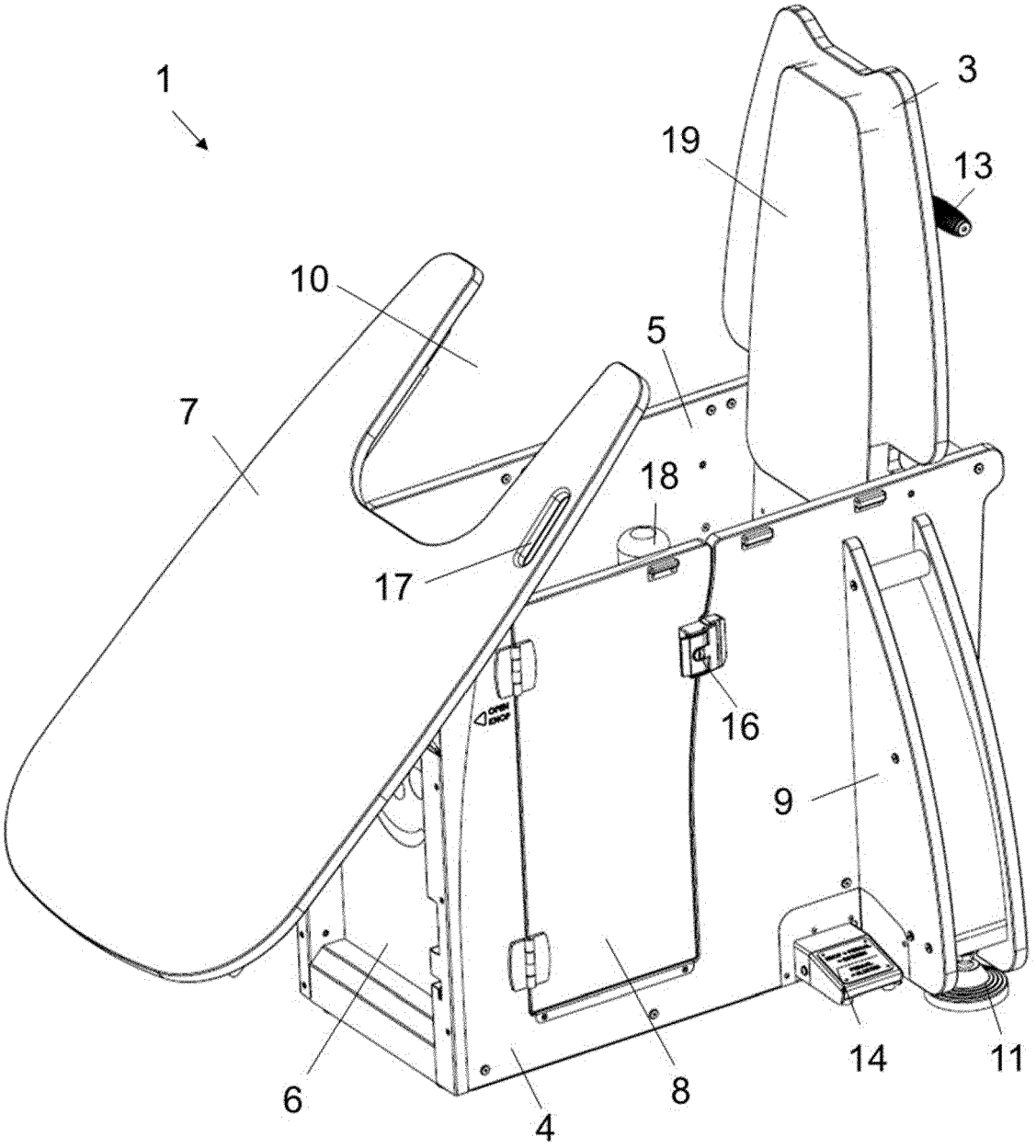

FIG. 3A

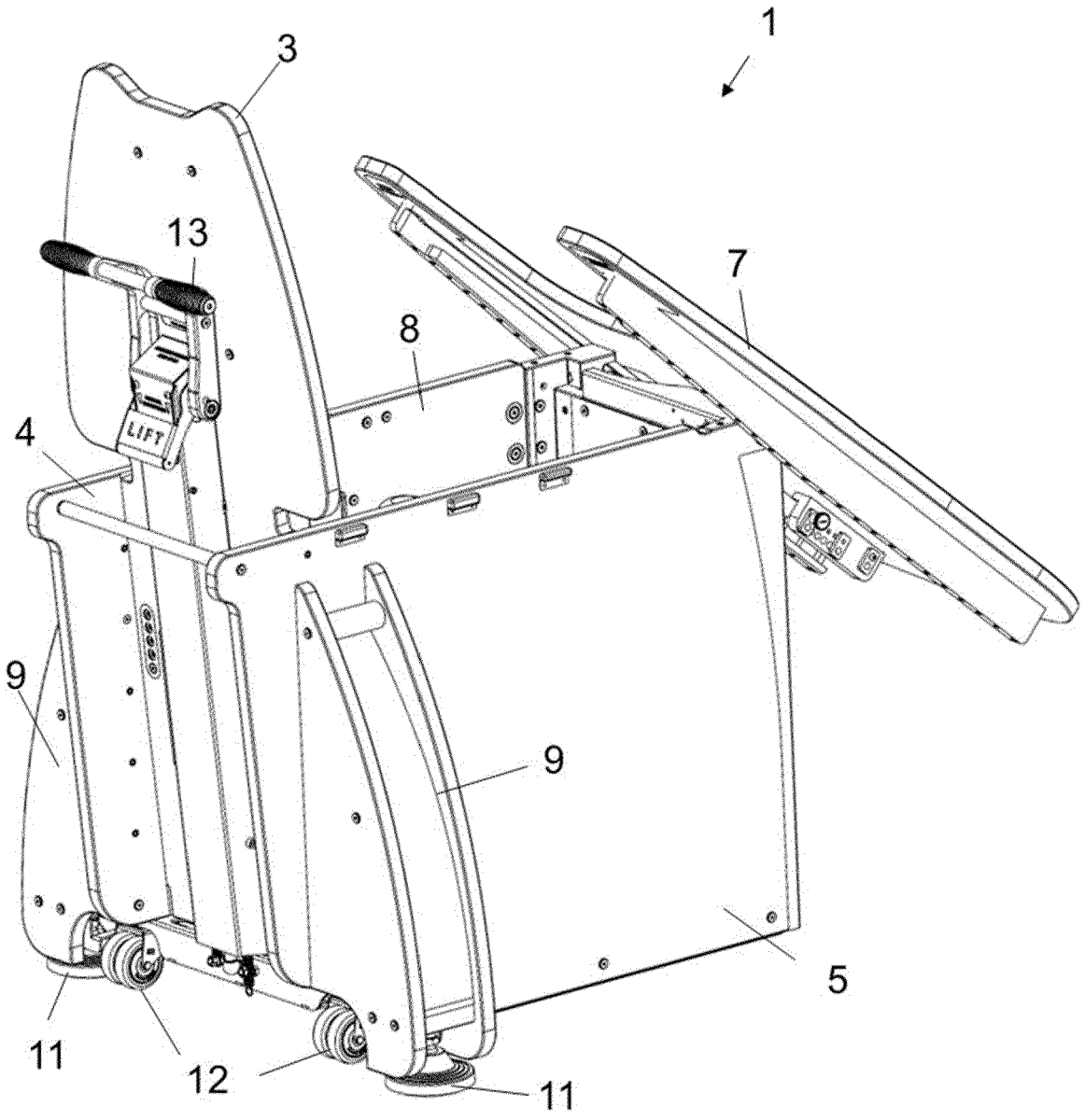

FIG. 3B

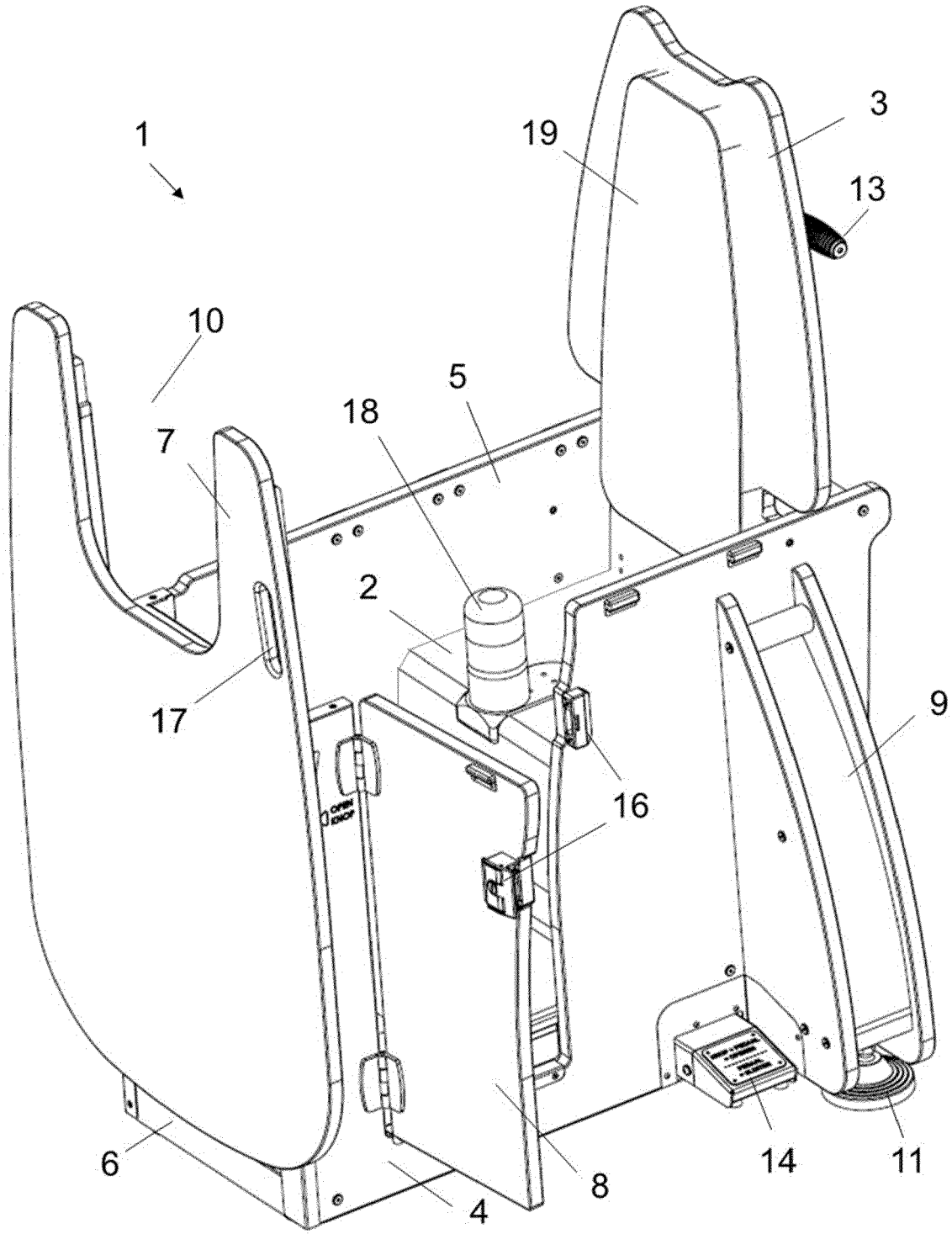

FIG. 4A

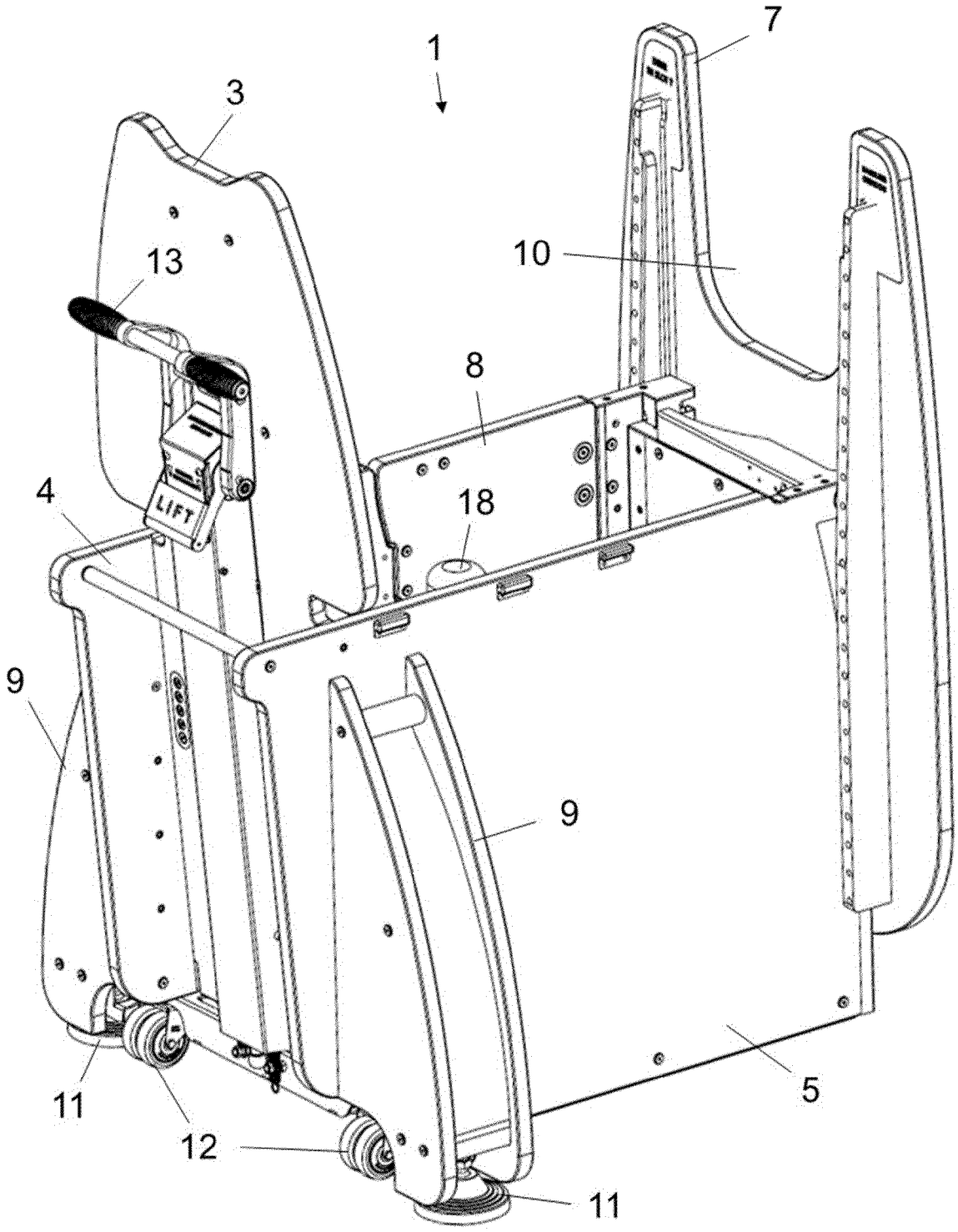

FIG. 4B

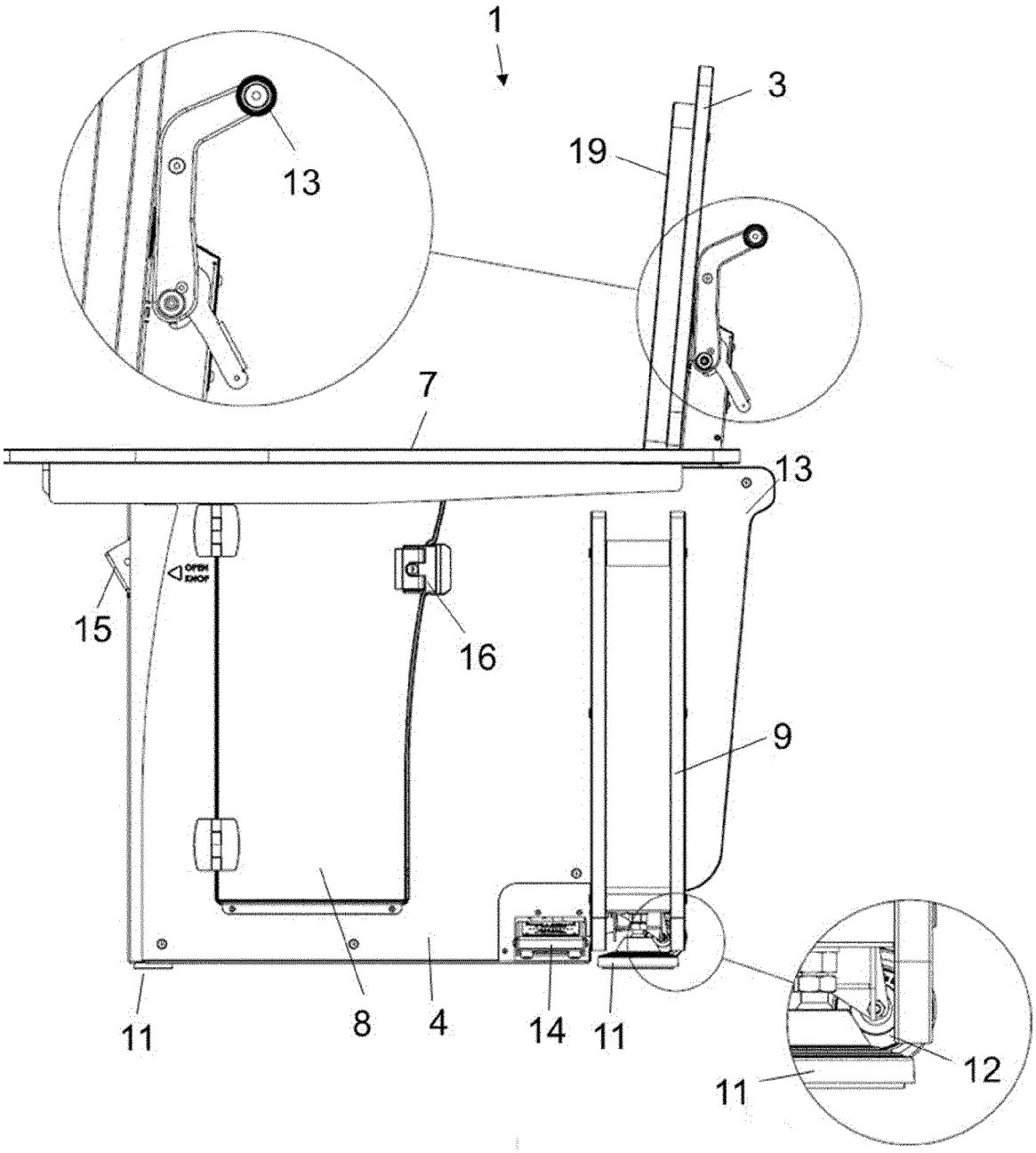

FIG. 5A

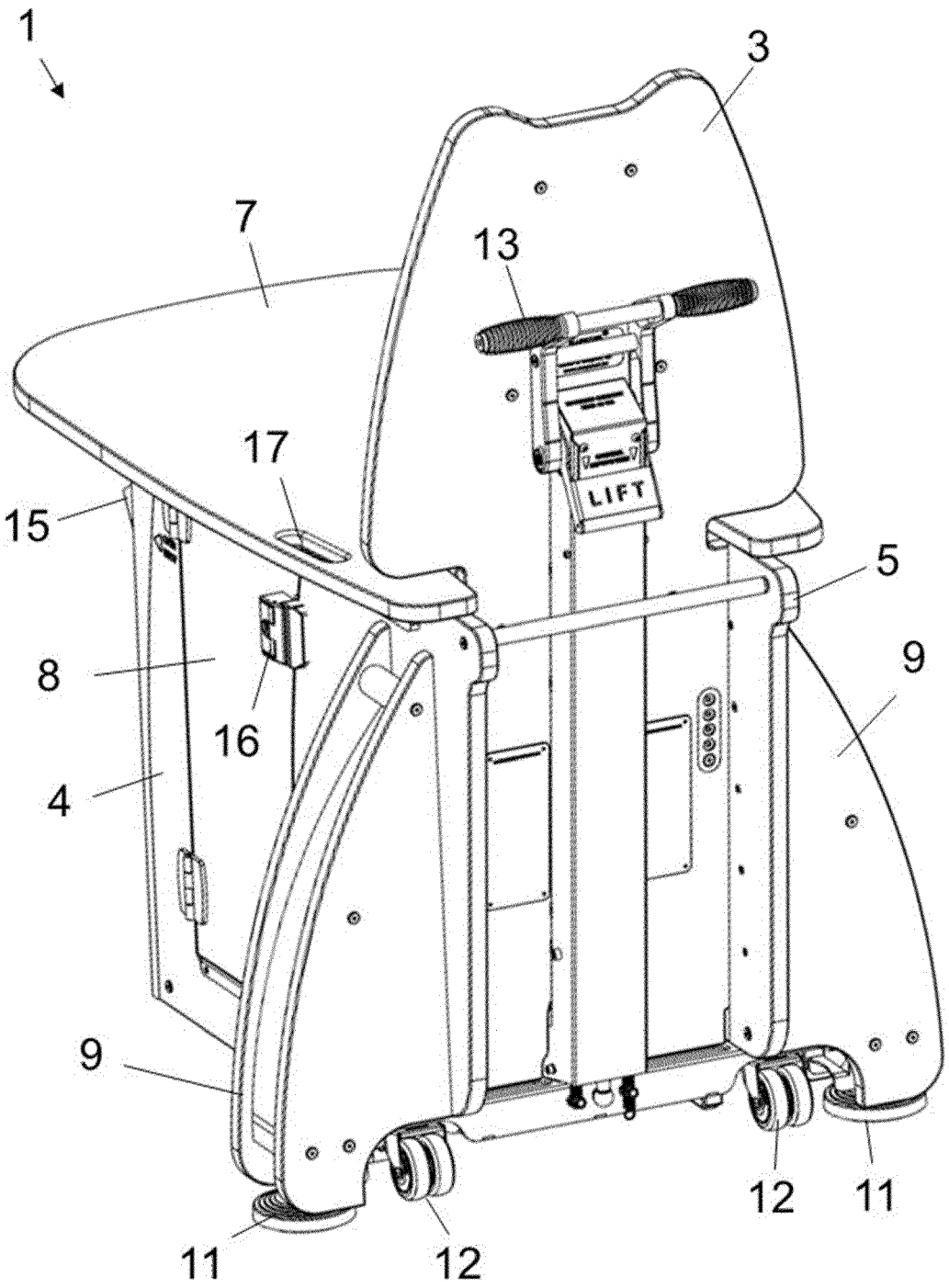

FIG. 5B

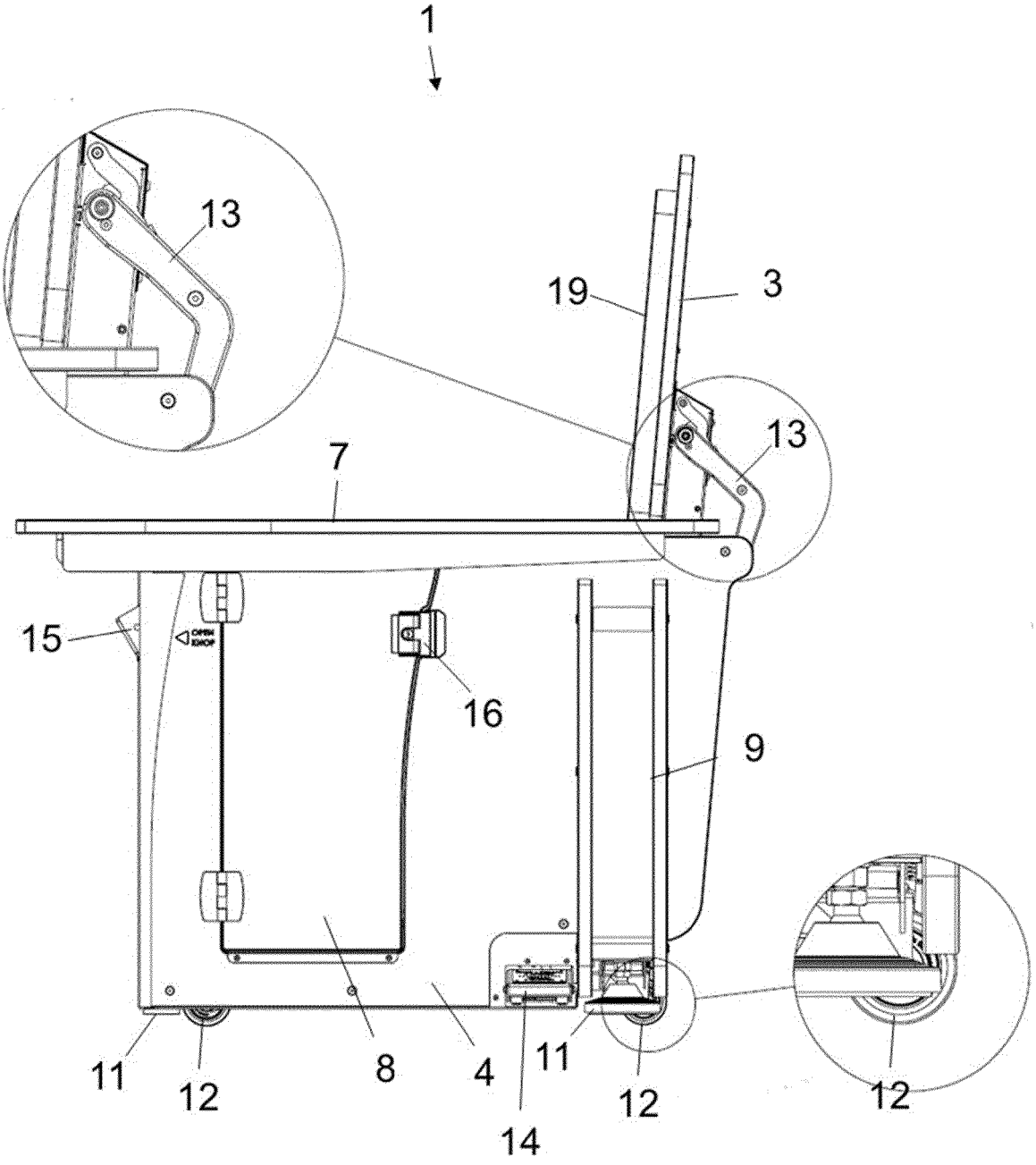

FIG. 6A

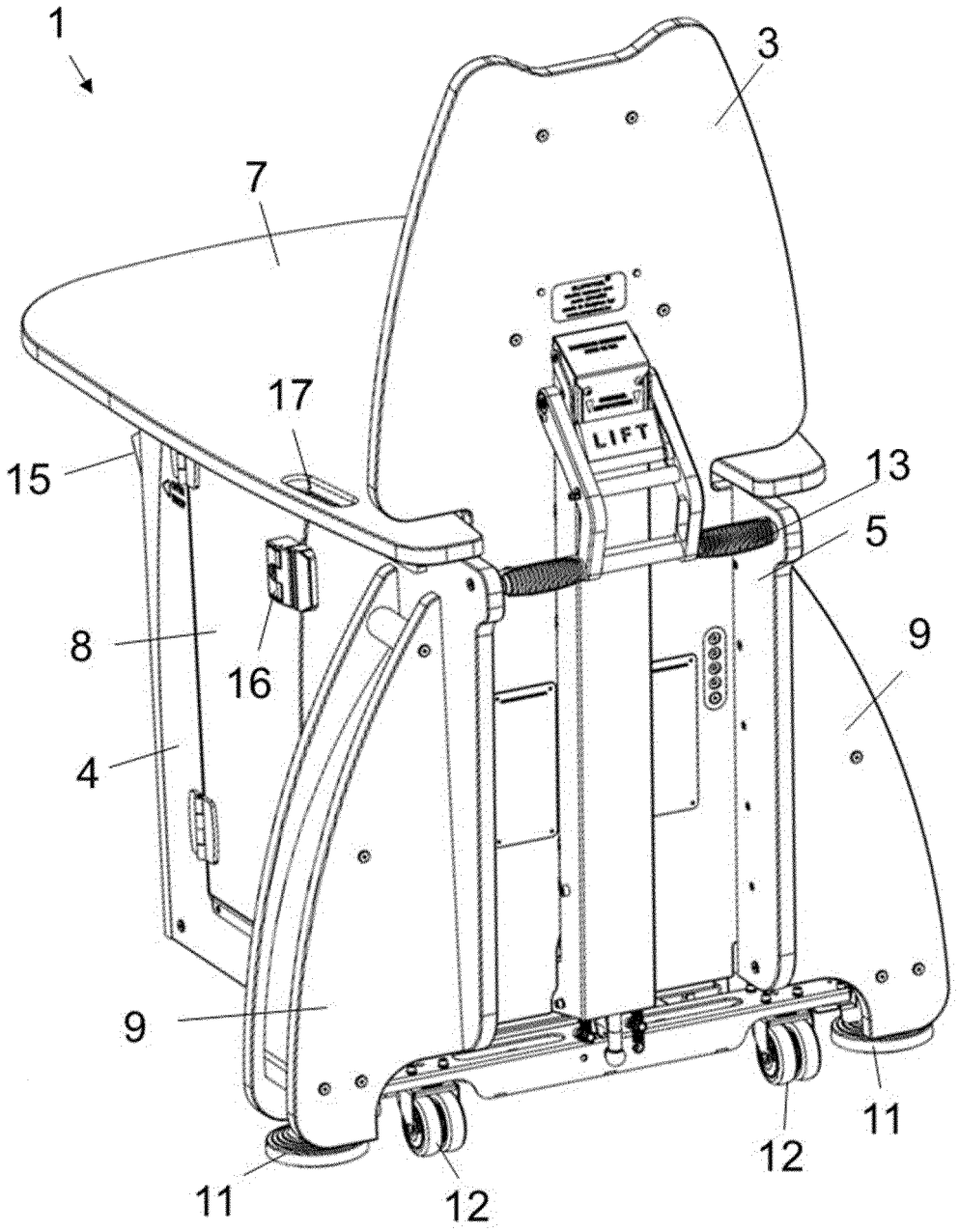

FIG. 6B

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 15 19 1162

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 3 016 266 A (MARVIN CAPLAN) 9 January 1962 (1962-01-09) * column 2, line 41 - column 3, line 49 * * figures 1-5 * -----	1-12	INV. A61G5/00 A61G5/10
A	GB 932 781 A (JAMES ALBERT LING) 31 July 1963 (1963-07-31) * page 2, line 74 - page 3, line 13 * * figures 1-4 * -----	1-12	

TECHNICAL FIELDS SEARCHED (IPC)

A61G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	12 February 2016	Ong, Hong Djien

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 19 1162

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

12-02-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3016266 A	09-01-1962	NONE	
GB 932781 A	31-07-1963	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82