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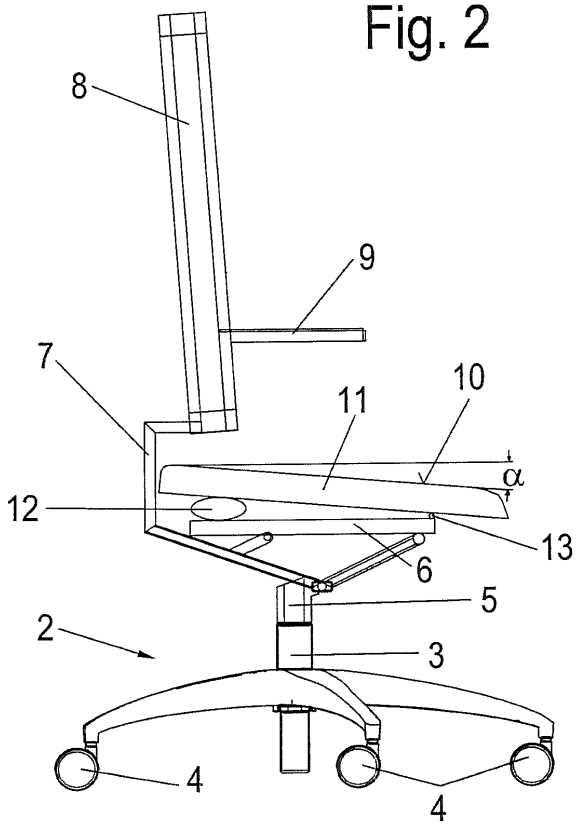
(54) **Chair**

(57) A chair (19), in particular an office chair, comprising a stand (2) supported on the floor, on which stand a seat face (10) is arranged, wherein the inclination of the seat face (10) in relation to the stand (2) is adjustable, wherein for the adjustment of the inclination of the seat face (10) pneumatic or hydraulic means (12) are arranged. Thereby, an adjustment of the inclination of the seat face (10) of the chair can be performed with ordinary means.

Fig. 2



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Description

[0001] The present invention relates to a chair, especially an office chair, with a stand resting on the floor, on which a seat face is arranged, the inclination of the seat face being adjustable in relation to the stand.

[0002] The publication DE 10 2010 042 913 discloses a chair, wherein a seat carrier is supported on a foot stand. A seat is pivoted in the seat support, the inclination of the seat being adjustable. In order to adjust the inclination an extensive mechanism is provided having adjustment elements and a toothing. The assembly of this adjustment mechanism is comparatively extensive and further there is a risk for the mechanical elements to become restrained.

[0003] Therefore, the object of the present invention is to provide a chair, in which with ordinary means an adjustment of the inclination of the seat face is obtained.

[0004] This object is achieved with a chair having the characterizing features defined in the claims.

[0005] According to the invention, for the adjustment of the inclination of the seat face, there are pneumatic or hydraulic means. Accordingly, there is no need for an extensive adjusting mechanism, which also has to be dimensioned according to the load case, i.e. it has to support the dead weight of a person sitting thereon.

[0006] In view of the pneumatic or hydraulic means the extensive mechanism is no longer required, and in addition thereto the seat face can be pivoted more flexibly.

[0007] According to a preferred embodiment of the invention, the pneumatic or hydraulic means comprises at least one cushion which can be filled with a fluid. The cushion can support the seat face, so that by inflating the cushion the seat face will be adjusted in relation to the stand of the chair. The cushion can for example be designed as a pleated bellows, which when inflated expands essentially in the vertical direction, and when deflated decreases correspondingly. Preferably, at least one valve is provided, with which the fluid pressure in the cushion can be adjusted. The valve can in particular be manually controlled through an actuator in order to reduce the pressure in the cushion, whereby the valve optionally is in direct communication with the cushion itself or in communication with the cushion via a conduit. Preferably, the valve is accessible at the underside of the seat face for a person sitting thereon.

[0008] According to a further embodiment of the invention a pump is provided, with which the cushion can be filled with fluid. Preferably the pump can be manually actuated in order to be able to perform an adjustment of the seat face independent from a driving means. The pump can for example be designed as a bellows with which through a corresponding valve control said at least one cushion can be inflated, and optionally also a discharge of the fluid through the pump can be undertaken.

[0009] In order to obtain a simple adjustment of the inclination of the seat face, the chair preferably has a seat plate, on the upper surface of which being the seat face, and which is pivotally supported in a bearing. Thereby the seat plate can be supported on a bracket or support on the stand, and said at least one cushion, which can be inflated with a fluid, can be provided between the seat plate and the bracket. Thereby, by inflation of the cushion the seat plate can be pivoted in the bearing. The bearing can be designed as a pivot bearing or as a bridge bearing.

[0010] The cushion is preferably formed as a hose and extends in longitudinal direction over at least 50 %, esp. at least 70 %, of the width of the seat face. It is also possible to, instead of having only one cushion, provide two or several cushions, which are mutually connected through a hose. Thereby the volume to be inflated is reduced, which facilitates and accelerates the adjustment procedure. Through the pneumatic or hydraulic means the seat face can be adjusted in an interval between 0 and 20°, in particular 5° to 15°, preferably at least about 10°, depending on the specific application.

[0011] According to a further embodiment of the invention the seat and partly also a support underneath the seat are coated with fabric or leather, while a more elastic material can be arranged on the side surfaces in relation on the seat face. Thereby the pneumatic or hydraulic means, in particular the seat cushion, can be arranged to be covered by the coating, whereby during an inclination adjustment the increase or decrease of a distance between the seat face and a bracket or a support will be covered by the elastic material on the side surfaces.

[0012] For a stable support the seat plate might have a rigid lower part, in particular a plate formed lower part, and un upper part consisting of an elastic foam.

[0013] The invention will be explained more in detail below in connection with two embodiments shown in the accompanying drawings. In the drawings:

Fig. 1	shows a side view of a chair according to the invention in a first position;
Fig. 2	shows a side view of the chair in Fig. 1 with an adjusted inclination of the seat face;
Figs. 3A and 3B	show two views of the seat face area in different positions;
Fig. 4	a schematic view of the hydraulic or pneumatic adjustment means;
Figs. 5A and 5B	show two views of a further embodiment of a chair according to the invention;
Fig. 6	shows an exploded view in perspective of the chair in Fig. 5 in the seat area; and
Figs. 7A and 7B	show two perspective views of the chair in Fig. 5 without seat plate.

[0014] A chair 1, illustrated as a swivel office chair, comprises a stand 2, which has a foot part 3 with several rolls 4 which can be supported by the floor. A carrier 5 is height adjustably held by the foot element 4, a bracket 6 being arranged underneath the seat face 10.

[0015] Further, the chair 1 comprises a back rest 8 held on a support 7, on which the arm rests 9 are provided. The back rest 8 and the arm rests 9 can be adjustable via known adjustment mechanisms. Further the bracket 6 may comprise a seat depth adjustment in order to be able to adjust the horizontal extension of the seat face 10 in relation to the back rest 8.

[0016] The seat face 10 is formed by an upper surface of the seat plate 11, the inclination of which is adjusted. For this purpose pneumatic or hydraulic adjustable means are provided in the form of at least one cushion 12, which is arranged between the seat plate 11 and the bracket 6. In Fig. 1 the seat face 10 is arranged essentially horizontal.

[0017] If the seat face 10 is to be arranged inclined towards the front side, e.g. in an angle α between 5° and 15°, the cushion 12, which can be filled with fluid, is inflated and will then force the back part of the seat plate 11 upwards, while the seat plate 11 at its underside is supported in a bearing 13 on the bracket 6. This bearing 13 can be designed as a pivot bearing or as a bridge bearing, so that the seat plate 11 pivots in this bearing 13.

[0018] In Figs.3A and 3B the adjustment mechanism is shown in detail. The seat plate 11 can be configured in several parts and for example it might comprise a form-stable plate-like lower part and an upper part made from foam, so that the seat plate 11 can be pivoted as a single unit by the cushion 12. The seat plate 11 may be coated with a cover of fabric, which on the side surfaces at least in certain areas may be a more elastic material compared to on the upper side of the seat face 10. Thereby, a compensation through the fabric cover takes place when the seat plate 11 is pivoted.

[0019] In Fig. 3A the seat plate 11 is essentially horizontal, while in Fig. 3B the seat plate 11 has been pivoted over an angle α of for example 5°, which is accomplished by inflating the cushion 12 which can be filled with a fluid. The cushion 12 can thereby be designed as a hose and might extend over more than 70 % of the width of the seat face. The cushion 12 may have a cover made from an elastic material, in particular a gum, plastic or silicone.

[0020] A pneumatic or hydraulic adjustment mechanism is shown in Fig. 4, in which two cushions are used, being mutually connected via a hose 18. By using two cushions 12 the volume for adjusting the inclination of the seat face 12 can be reduced. A first cushion 12 is thereby connected to a pump 15 via a conduit 14, which is designed as a manual pump, e.g. a bellows, which is arranged within the area of the bracket 6 underneath the seat face 10. Further the second cushion 12 is connected with a valve 17 via a conduit 16, with which the pressure in the two cushions 12 can be reduced, for example by pressing by hand a corresponding discharge button. The valve 17 may be arranged in the area of the bracket 6 underneath the seat face 10 as well. It is also possible to provide the pump 15 and valve 17 adjacent to each other, or to provide the pump 15 with a corresponding valve 17.

[0021] The cushions 12 are preferably inflated with surrounding air, since this can be drawn into the pump 15 without any problems. Of course it is also possible to inflate the cushions with any other fluid or to deflate it, e. g. using a gaseous or liquid medium, which is kept in a supply.

[0022] In the Figs. 5A and 5B is shown a further embodiment of the chair according to the invention, wherein the like parts have been provided with the same reference numbers as in the previous Figs. The chair comprises a stand 2 with a foot element 3, which is supported on rolls 4 on the side facing the floor. A support 5 is held at the stand 2, on the upper side of which a seat plate 11 with a seat face 10 is arranged. In order to be able to adjust the inclination of the seat plate 11 two cushions 12' are arranged underneath the seat plate 11, which cushions are formed as bellows, and they are extended/retracted substantially in the vertical direction when inflated/deflated with a fluid. Thereby the seat plate 11 can be pivoted.

[0023] The seat plate 11 is thereby mounted on a pivotable plate 20, which has an angled protrusion 21, which is pivoted in a retension or a bearing 22 at the support 5.

[0024] As is shown in Fig. 6, in the space between the plate 20 with the angled rib-formed protrusion 21 and the support 5 lying underneath it, there is a pneumatic means for the adjustment of the seat plate 11, which comprises two cushions 12', being inflatable through a pump 15'. The pneumatic means is thereby arranged on a shell formed retension 23 of the support 5. Further there is a valve 17' for discharge of air from the cushions 12'. The seat plate 11 is covered with a covering, which has a flexible material 24 at the side areas, which material is stretchable and thus can cover the side areas also during inclination adjustment of the seat plate 11. The covering is thereby fastened so that it surrounds the support.

[0025] I the Figs. 7A and 7B the chair is shown without seat plate 11, illustrating that the two cushions 12' are mutually connected through a hose 18' and that a conduit 14' opens in the hose 18'. The conduit 14' will be supplied with a fluid through the pump 15', in particular ambient air. Adjacent to the pump 15' there is a valve 17', which is operable from the underside of the support 5, in order to discharge air from the cushions 12'. Thereby the inclination of the seat plate 11 can be adjusted by inflating the cushions 12' or discharging air therefrom. By constructing the cushions 12' as bellows an adjustment can be obtained with a smaller air volume, since the bellows are not stretched uniformly in all directions, but instead an extension takes place essentially only in a vertical direction. With the bellows annular wall parts can be folded in meander form onto each other, when the air is discharged from the bellows. Instead of the circular cushions 12', cushions having other designs can be used as bel-

lows.

List of reference numerals

[0026]

1	chair
2	stand
3	foot element
4	roll
5	carrier
6	bracket
7	support
8	back rest
9	arm rest
10	seat face
11	seat plate
12, 12'	cushion
13	bearing
14, 14'	conduit
15, 15'	pump
16	conduit
17, 17'	valve
18,18'	hose
20	plate
21	protrusion
22	bearing
23	retension
α	angle

Claims

1. A chair (1), in particular an office chair, having s stand (2) supported on the floor, on which a seat face (10) is arranged, the inclination of the seat face (10) in relation to the stand (2) being adjustable, **characterized in that** pneumatic or hydraulic means (12) are arranged for the adjustment of the inclination of the seat face 10).

2. A chair according to claim 1, **characterized in that** the pneumatic or hydraulic means comprise at least on cushion (12), which can be filled with a fluid.

3. A chair according to claim 2, **characterized in that** at least one valve (17) is arranged, with which the fluid pressure in the cushion (12) can be adjusted.

4. A chair according to claim 3, **characterized in that** the valve (17) is manually operable through a actuator in order to reduce the pressure in the cushion (12).

5. A chair according to any of the claims 2 - 4, **characterized in that** a pump (15) is provided, with which the cushion (12) can be filled with fluid.

6. A chair according to claim 5, **characterized in that** the pump (15) can be manually operated.

7. A chair according to any of the preceding claims, **characterized in that** the chair (1) has a seat plate (11), on the upper surface of which the seat face (10) is formed and which is pivotally supported in a bearing (13).

8. A chair according to claim 7, **characterized in that** the seat plate (11) is supported on a bracket of the stand (2) and **in that** at least one cushion (12), which can be filled with fluid, is arranged between the seat plate (11) and the bracket (6).

9. A chair according to any of the preceding claims, **characterized in that** the cushion (12) is formed as a hose and extends in a longitudinal direction over at least 50 %, in particular at least 70 %, of the width of the seat face (10).

10. A chair according to any of the claims 2 - 8, **characterized in that** two cushions (12), which can be filled with fluid, are arranged, which are mutually connected through a hose (18).

11. A chair according to any of the preceding claims, **characterized in that** the seat face (10) is adjustable within an interval between 2° and 20°, in particular 5° to 15°.

12. A chair according to any of the preceding claims, **characterized in that** the seat plate (11) is covered with a fabric, wherein a more elastic material is arranged at least over certain parts of the side areas than over the seat face.

13. A chair according to any or the preceding claims, **characterized in that** the seat plate (11) has a form-stable lower part and an upper part made from elastic foam.

14. A chair according to any of claims 2 - 13, **characterized in that** at least one cushion (12') is made as a bellows.

Fig. 2

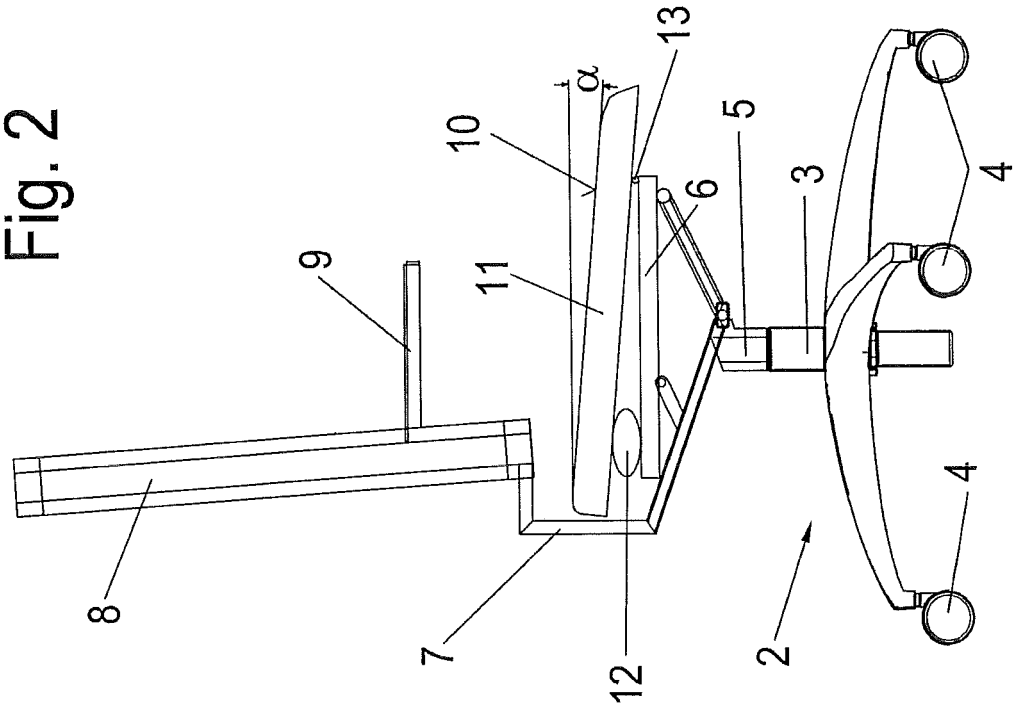


Fig. 1

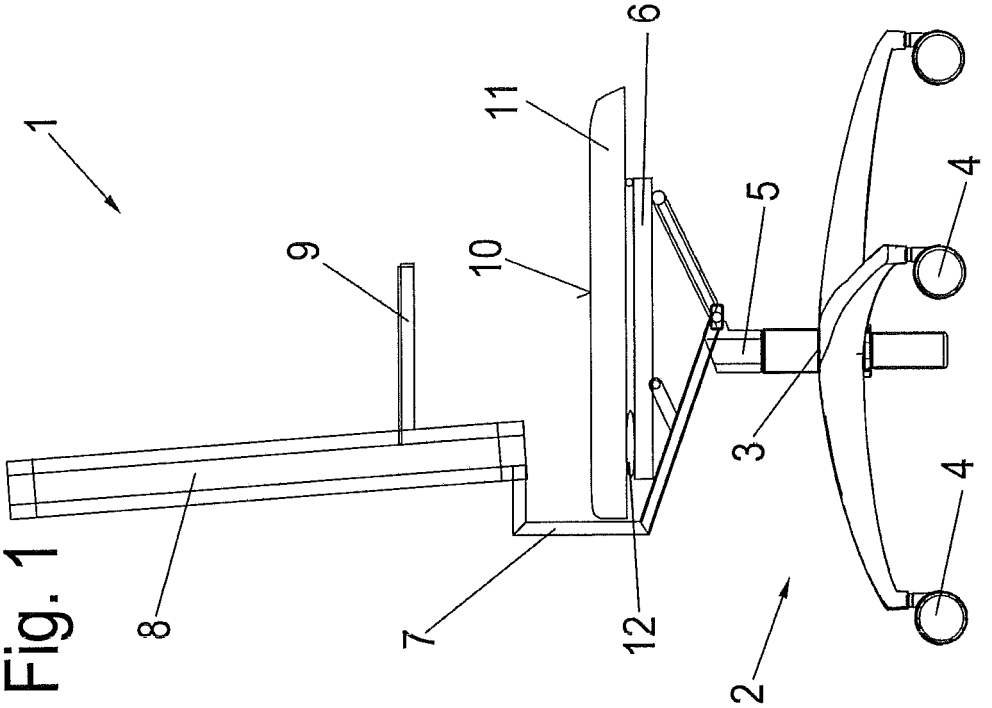


Fig. 3A

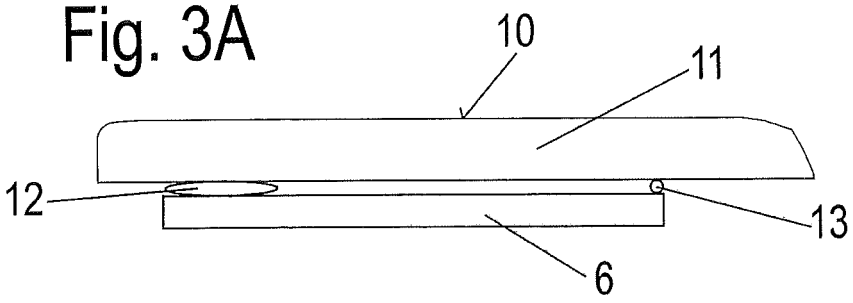
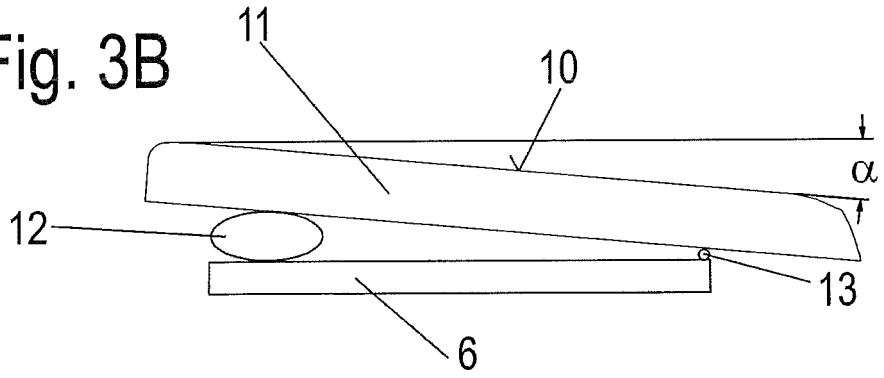


Fig. 3B



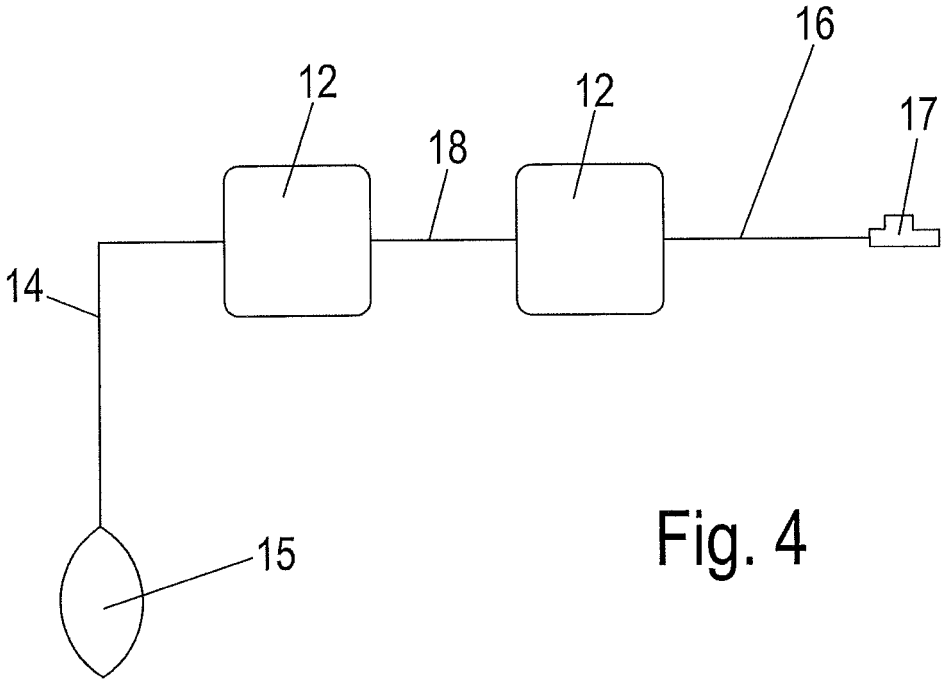


Fig. 4

Fig. 5B

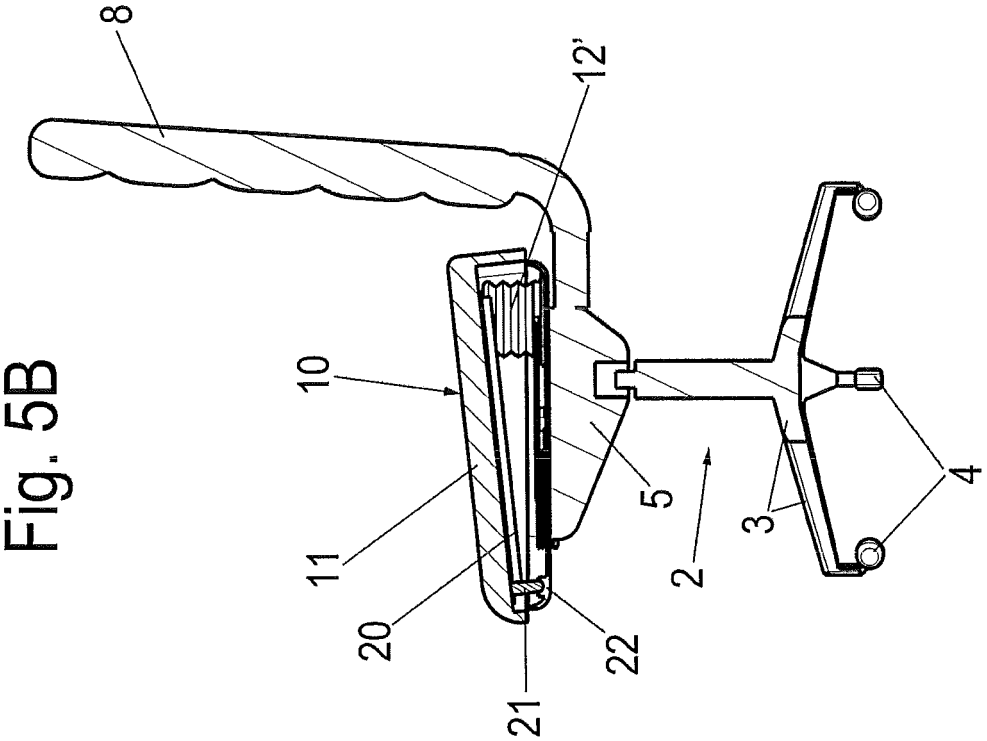
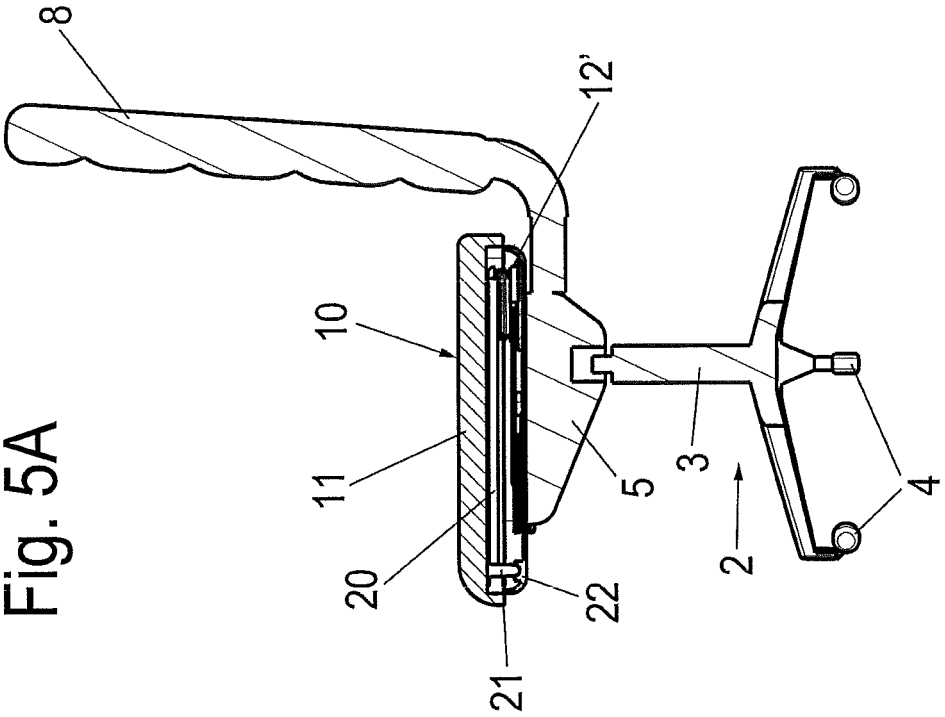


Fig. 5A



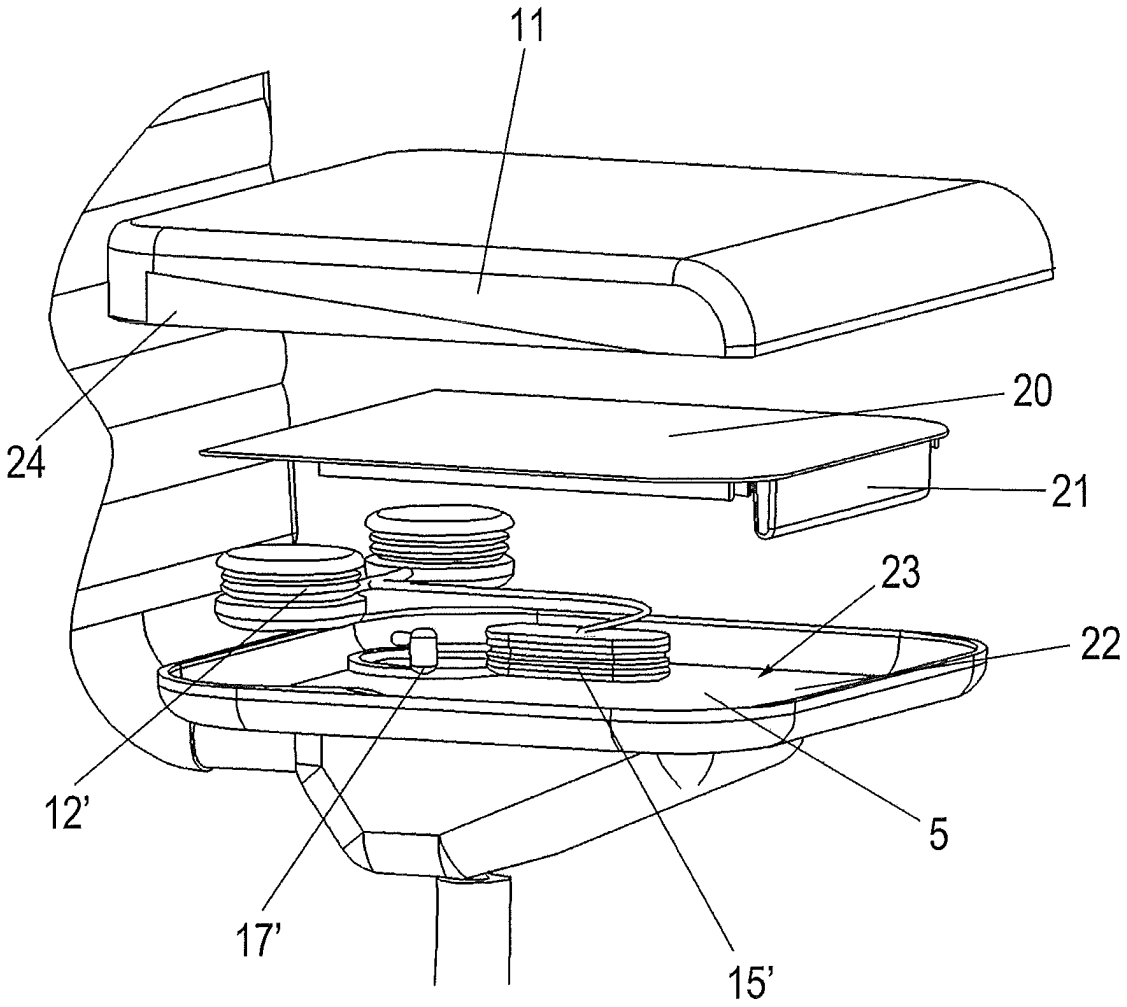


Fig. 6

Fig. 7A

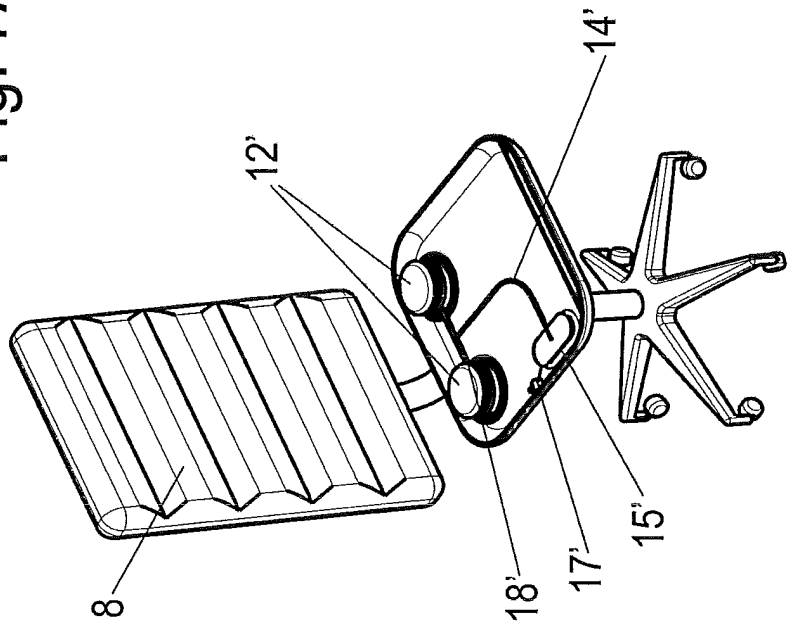
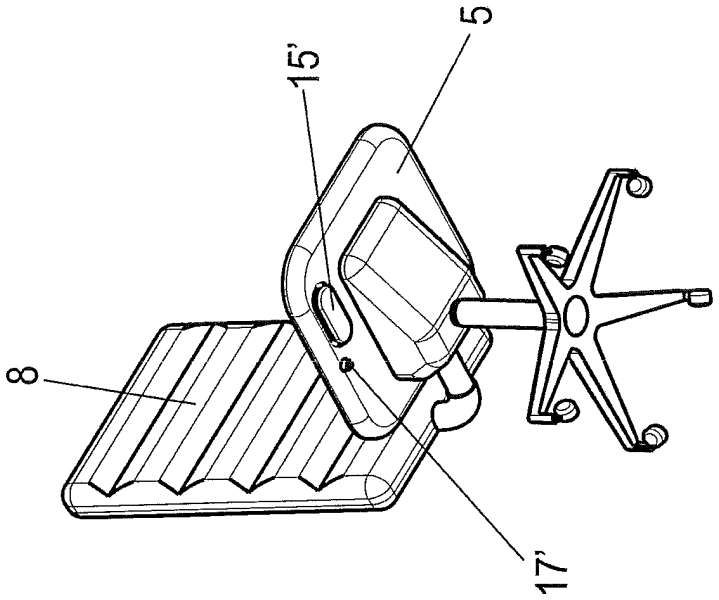


Fig. 7B



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EUROPEAN SEARCH REPORT

Application Number
EP 14 15 4682

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 April 2014	Kis, Pál

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15-04-2014

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