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

(11) **EP 1 859 764 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.11.2007 Bulletin 2007/48

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

(21) Application number: **07010021.9**

(22) Date of filing: **21.05.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **24.05.2006 IT PD20060209**

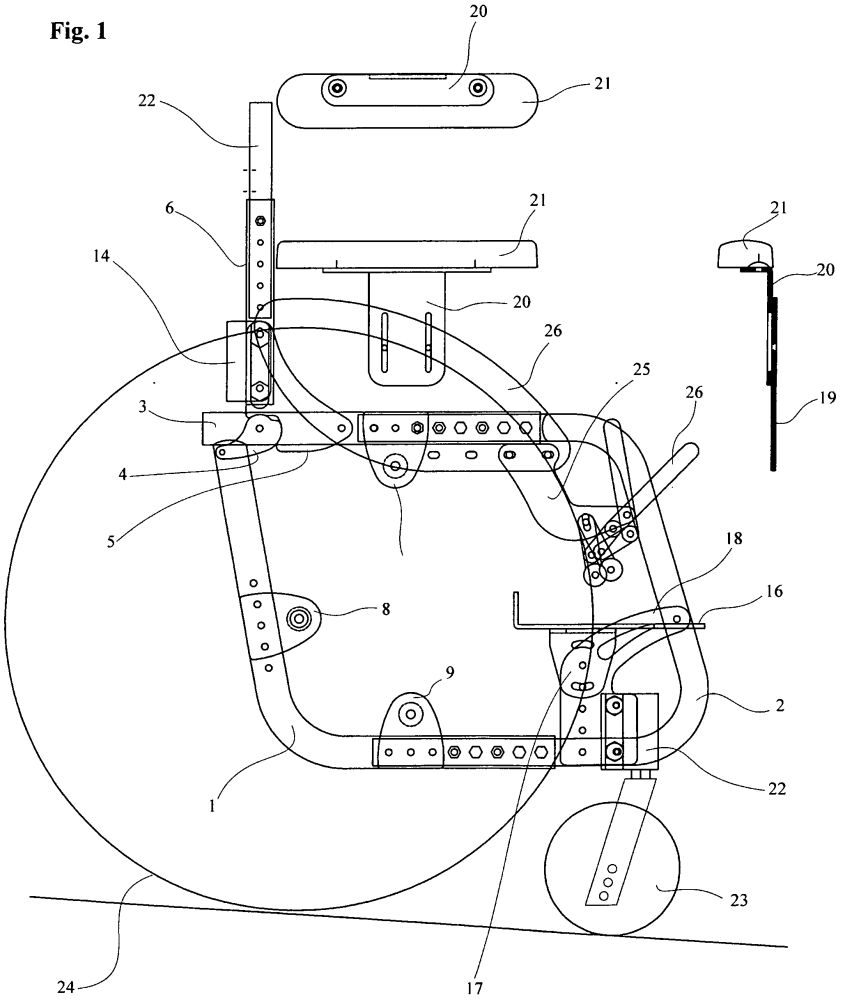
(71) Applicant: **Vassilli s.r.l.**
35020 Saonara (PD) (IT)

(72) Inventor: **Vassilli, Berto**
35020 Saonara PD (IT)

(54) **Adjustable wheelchair for disabled children**

(57) It is a wheelchair suitable for children from two to eight years old, modifying all the parameters of width, depth, and height making all adjustments through telescopic matches whose all parts are provided.

Fig. 1



EP 1 859 764 A2

Description

[0001] In the field of aids destined to disabled children there is a particular range.

[0002] Among these devices are included wheelchairs.

[0003] Actually considering the age of the children that can go from two years to eight years old where his physic structure and his shape can be available and a certain number with proportional sizes, which can approach to the features of the specific, disable children.

[0004] Valuating that the considered age as mentioned before can be included from two to eight years where the physic structure and the shape is continuously evolving, with difficulty it can always find a wheelchair on the market of the right size.

[0005] Although it is clear that a wheelchair suitably chosen, which can fit for a certain age will be rapidly no more useful after the children grow up and it will be necessary to do a new purchase.

[0006] After a further period has gone, with the growth of the children the problem will arise again and it must be provided for a further purchase. This will continuously repeat having to provide with further purchases adapting to the evolving of the growth of the children.

[0007] One of the disadvantages of these wheelchairs, is that if they are not manufactured on customized sizes, there is the difficulty of finding the wheelchair having dimensions suitable for the children. It must not be neglected the high cost of these wheelchairs, since they must be updated frequently.

[0008] As said before, a further disadvantage is given by the fact that the problem arise continuously until the growth of the children is not completed, whose structure and shape change continuously and fast.

[0009] The aim of the patent is that to realize wheelchair for children adjustable in all the dimensions and in detail in width as depth of the seat, width and height of the backrest, and the adjustable level of the seat.

[0010] A further aim of the patent is that one to allow for each age to adapt the single dimensional parameters to the specific body structure of the specific disable child like the adjustment in the right position of the footrests.

[0011] A further aim of the patent is that one to allow the registration also to the non technical people, facilitating the adaptation of the structural dimensions of the wheelchair also to the persons who attend to the specific disabled children.

[0012] A further aim of the patent is that one to use on the wheelchair which is adjustable in its dimensions for the children from two years to eight years a single bottom for the seat and a single bottom for the constantly backrest tensioning settling them with Velcro belts.

[0013] The setting of widening and narrowing on the metallic structure is performed adopting appropriate telescopic couplings loosening and closing the appropriate screws.

[0014] For the non-metallic parts and i.e. for the bottoms of the seats and of the backrest the widening and the closings, the adjustments are made by setting the reciprocal couplings or uncoupling with the Velcro elements suitable positioned.

[0015] Advantageously most of the settings are configured by with simple couplings of repeating type so that the person attending to the child can without any difficulty proceed directly without the help of specific technical persons.

[0016] What previously explained is clarified by the examination of the enclosed drawings.

Fig. 1 is the side view of a wheelchair for children adjustable in each of its parameters with the schematic wheels and with two details regarding the armrests.

Fig. 2 shows the holding adjustable frame of one laterally viewed.

Fig. 3 shows the holding adjustable frame on the opposite side laterally viewed.

Fig. 4a is the frontal view of the right and left frames, jointed, together where all the connection elements are adjustable making the smallest width allowed.

Fig. 4b shows a look down view of the backrest where the jointing elements are adjusted in the same condition of the smaller allowed width.

Fig. 5a is the frontal view corresponding to fig 4a where the jointing elements are adjusted to the biggest width allowed.

Fig. 5b shows a look down view of the backrest where the jointing elements are adjusted in the conditions of the biggest width allowed.

Fig. 6 is the frontal view of the footplate adjusted in the condition of smaller adjusting width allowed by the side frames and positioned to the maximum level allowed. To simplify the completing by the adjusting elements has been done only on one side.

Fig. 7 is the look down view of the corresponding Fig. 6 of the adjusted footplate in the condition of smaller width of the side frames.

Fig. 8 is the frontal view of the footplate corresponding to fig. 6 where now the footplates is located in the condition of the bigger width allowed by the side frames and positioned to the lower level of adjustment allowed.

To simplify, the completing with the adjusting elements has been done only on one side.

Fig. 9 is the look down view of the corresponding fig. 8 of the footplate adjusted in the conditions of the bigger adjusting width allowed by the side frames.

Fig. 10 shows with a side view how it is performed the adjustment of footplate from the lowest position to the highest position. The figure shows also the possibility of adjusting the inclination of the footplate. It is visible the assembling of the front wheel applied to the wheelchair.

Fig. 11 shows referring to figure 3 and figure 1 the possibility of adjusting the carrying side frames in

comparison to the determined level of the axis of the rear wheels.

[0017] From an examination of the figures it is evidenced that the settings to adjust the structure of the wheelchair to adapt for the different ages of the children between two years and eight years is done by the way below explained.

[0018] The adjustment of the depth of the seat is done changing the size of the telescopic crosses of the side elements carrying frames 2, 2', with the corresponding elements 1, and 1' and likewise 2,2' with 3, and 3'.

[0019] The junction of the non-telescopic edge of the element 1, 1' with the non-telescopic edge of 3, 3' is made by the stirrups 4,4'.

[0020] The adjustment in the way of the width of the seat is done adjusting the size of the telescopic cross of the crossbar 10, 11, 10' which connects the stirrups 7, 7' applied to the upper tubes 2, 3, and 2', 3' of the carrying side frames and adjusting the size of the telescopic cross of the crossbar 12, 13, 12', that joints the stirrups 9, 9' applied to the lower tubes 2, 1 and 2', 1' of the said side carrying frame.

[0021] There is another telescopic crossbar (in the figure not evidenced in the picture) that joints the stirrups 8, 8' applied in the middle elevation area of the elements 1, 1'.

[0022] The said stirrups 8, 8' can adjust their positioning along the elevation area of the elements 1, 1' allowing to adjust the level of the seat, being such stirrups 8, 8' provided by pins for the hubs of the rear wheels 24 (mark: the pins and the wheel hubs are not evidenced in the figure).

[0023] The backrest 15 is maintained in the central position while the lower structure changes in width (allowing the adjustment of the wheelchair from the minimum width to the maximum one allowed) by the laminar elements 14, 14' with it telescoped.

[0024] The telescoped elements 14, 14' are jointed to the straight tubes 6, 6' applied in the corresponding of the rear upper tubes 3, 3' by the stirrup 5, 5'. Such stirrup are jointed to the straight tubes 6, 6' are coupled to the elements 3, 3' of the frame by hinging to allow the rotation of the backrest towards the seat.

[0025] The footplates 16 is maintained in the central position in the changing of the width of the two side carrying frames (allowing the adjusting of the wheelchair from the minimum width till the maximum one allowed) by the folded laminar elements with the suitable angularity at the edges 17, 17' with it telescoped.

[0026] The sides of the edges 17, 17' angled are fixed with distances inserted 25, 25' to the stirrups 18, 18' applied in the area of the lower angle of the elements 2, 2' of the carrying side frames. ,

[0027] The level adjustment of the footplates 16 is made using the foreseen holes of the stirrups 18, 18' and using the possibility to upset the laminar elements 17, 17'.

[0028] The front wheels 23, 23' are applied through their support with vertical hinging 19, 19' to the stirrups 18, 18'.

[0029] The armrest 21, 21' applied to the stirrups 20 are adjustable in height being such stirrups 20 coupled with the wheel side guards 26, 26' fixed to the upper tubes of the side frames 19 by sliding screws in the slits with which are equipped such stirrups 20, 20'.

[0030] The wheelchair is equipped with a parking brake 25, 26.

[0031] Telescopic tubes 22, 22' of the backrest, complete the wheelchair.

[0032] After all previously explained it is clear the outstanding inventive power to solve the problem till now never solved to manufacture a wheelchair that has the possibility of adjustment that allows the continuing use for the entire evolution cycle of growth of the children, that can be considered from two years to eight years. No exit from the patent for solutions that an expert person of the field could to actuate also with improvements in case of using the teachings of this patent.

Claims

1. Adjustable wheelchair for disable children **characterized by** the fact that is liable to be completely adjusted like the telescopic depth of the seat between the upper tubes (3,2 - 3',2') and the lower ones (1.2 - 1'2') of the side carrying frames and like the width of the seat, telescoping the junction cross (10,11,10',12,13,12') of the two side carrying frames, as for the width of the backrest (14,15,14') telescoping the sides (14,14') with the central part (15), as level of the seat moving the stirrups (8,8') holding pins of the wheels (24) along the stroke of elevation of the elements (1,1') of the lateral frames (1,2,3-1', 2',3').

2. Adjustable wheelchair for disable children following claim 1 **characterized by** the liability to adjust the position of the central footplate (16) telescoping the side supporting stirrups (17,17') with the central part (16).

3. Adjustable wheelchair for disable children following claim 1 or 2 **characterized by** the liability of adjusting spacing the footplate (16) to the seat moving the side stirrups (17,17') using a series of holes which are vertical in the stirrups (18,18') applied to the side frames and/or upsetting the side support stirrups (17,17') of the footplates.

4. Adjustable wheelchair for disable children following one of the previous claims **characterized by** the adjustment of the base frame that is made by telescoping in the same way for all the elements.

5. Adjustable wheelchair for disable children following

one of the previous claims **characterized by** the fact that all the elements allowing the dimensional adjustments of the frame itself are all included in the same frame, avoiding the use of every other element or replacement of elements.

Fig. 1

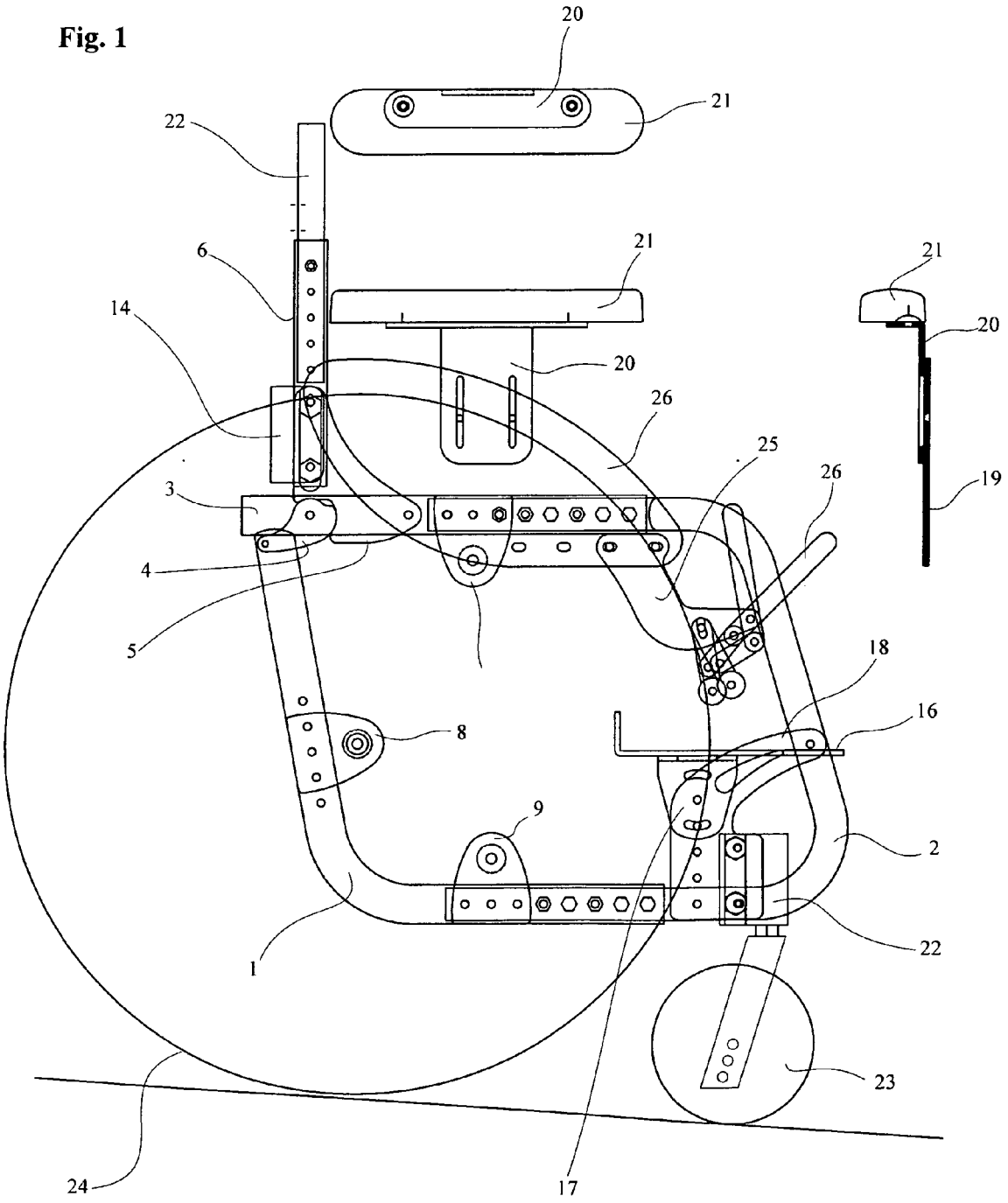


Fig. 3

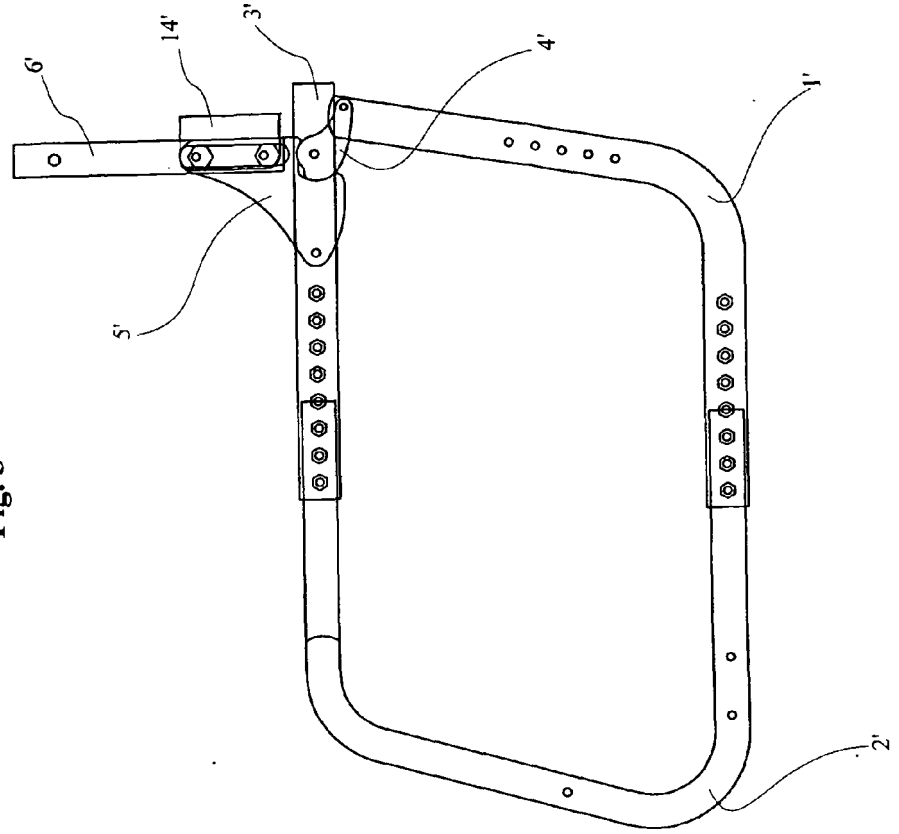
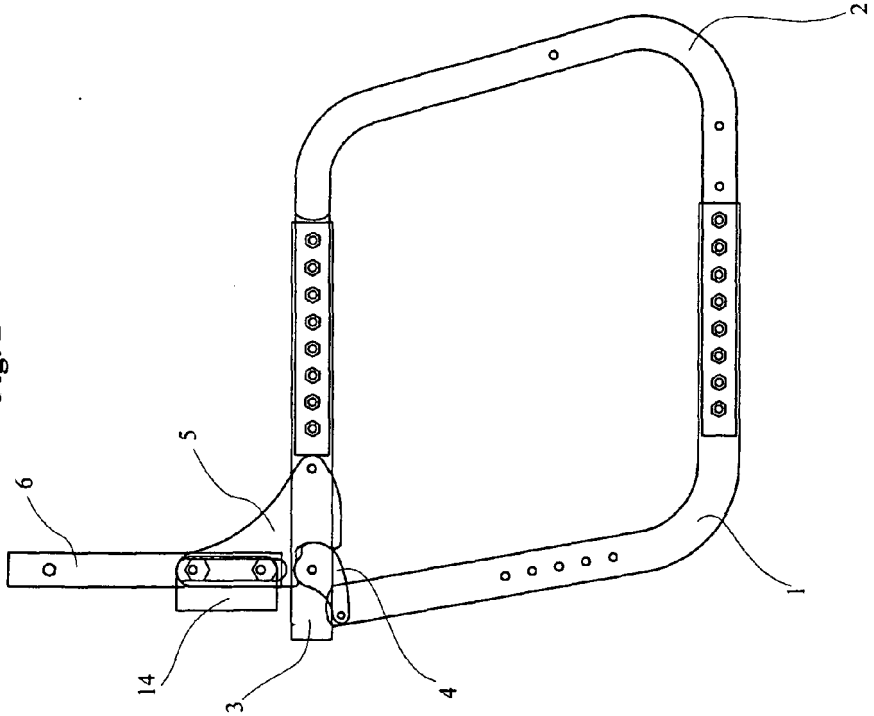


Fig. 2



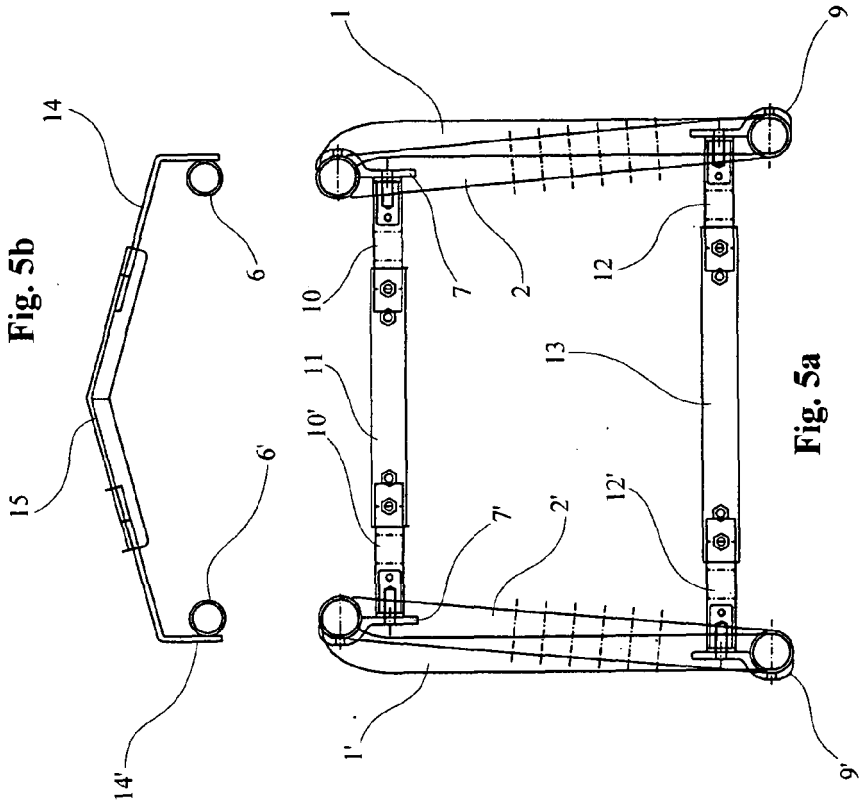


Fig. 5a

Fig. 5b

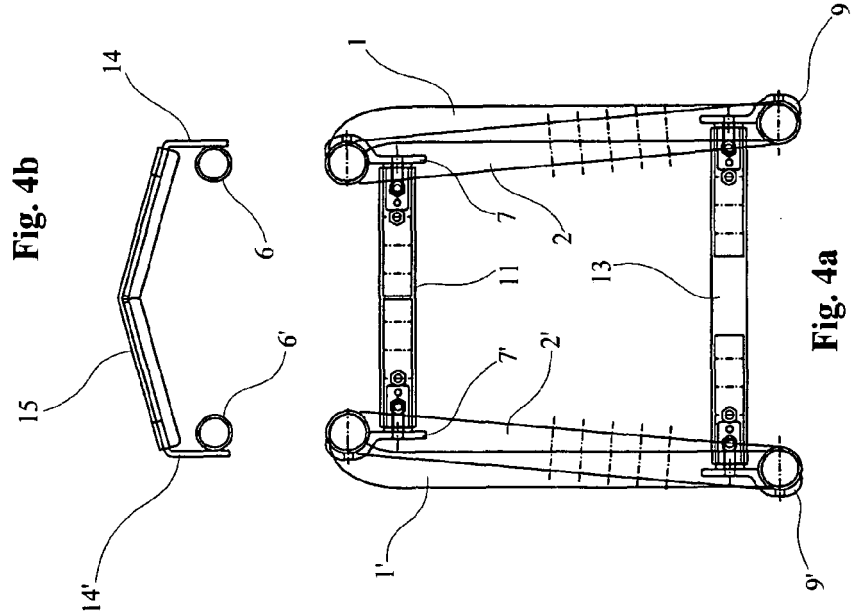


Fig. 4a

Fig. 4b

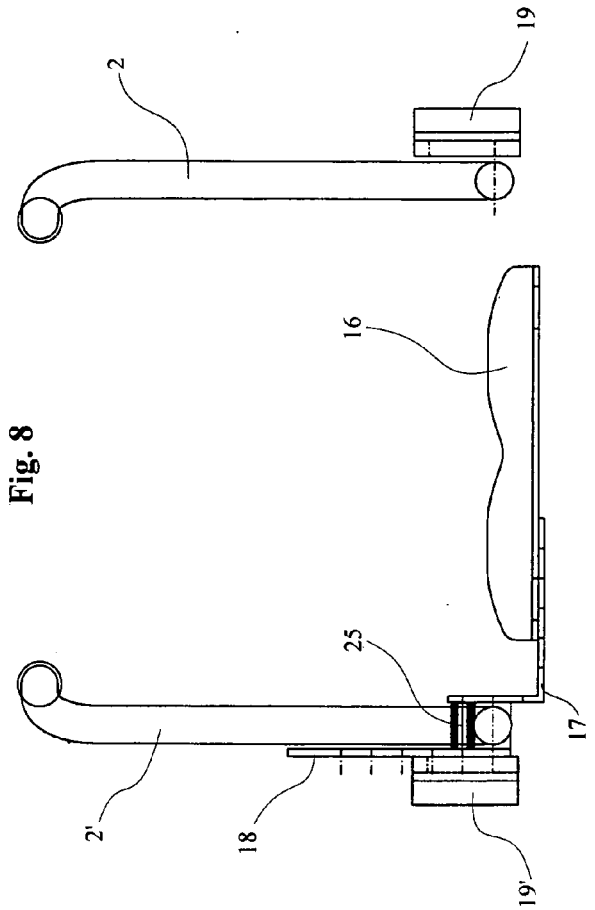


Fig. 8

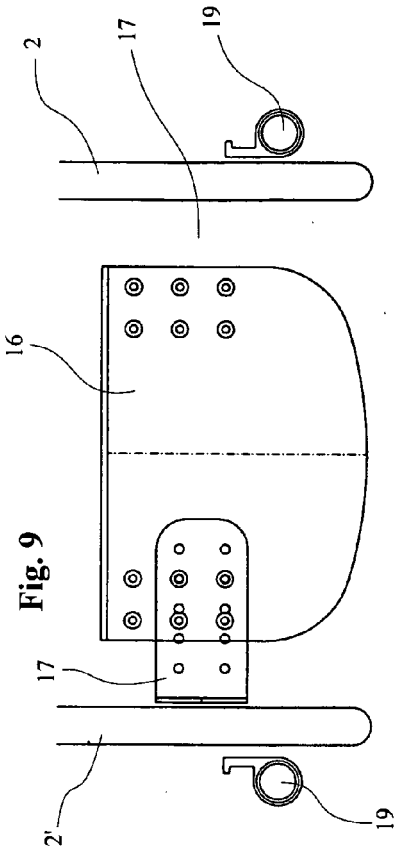


Fig. 9

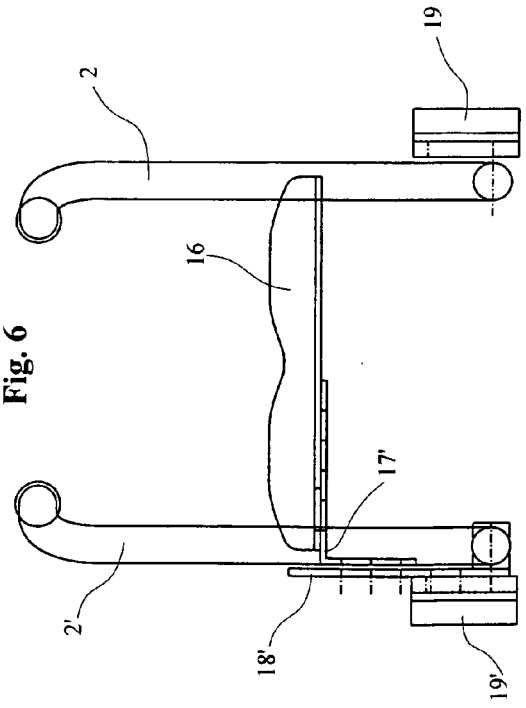


Fig. 6

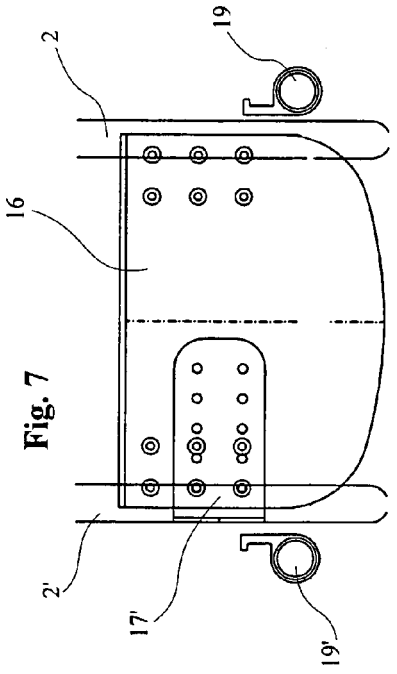


Fig. 7

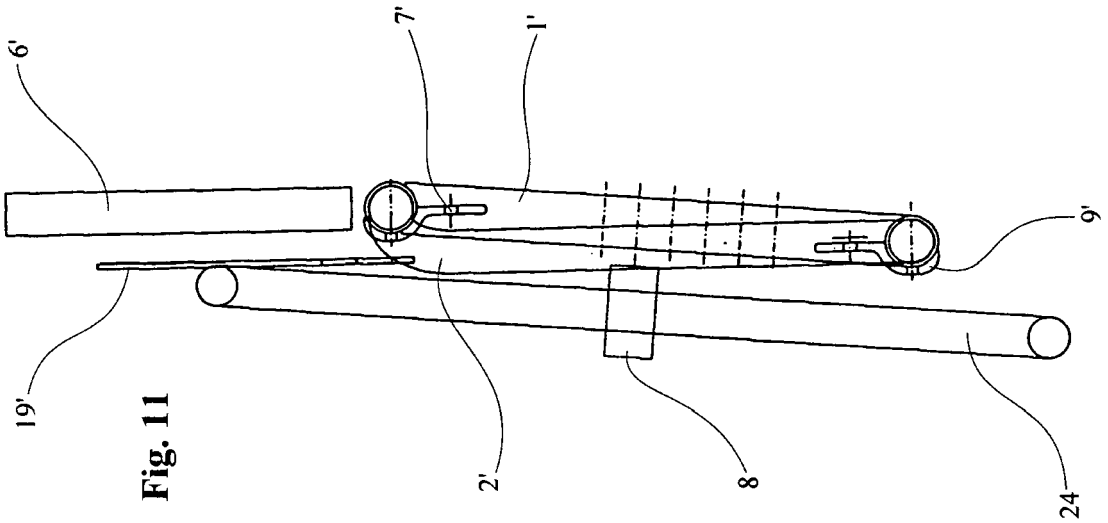


Fig. 11

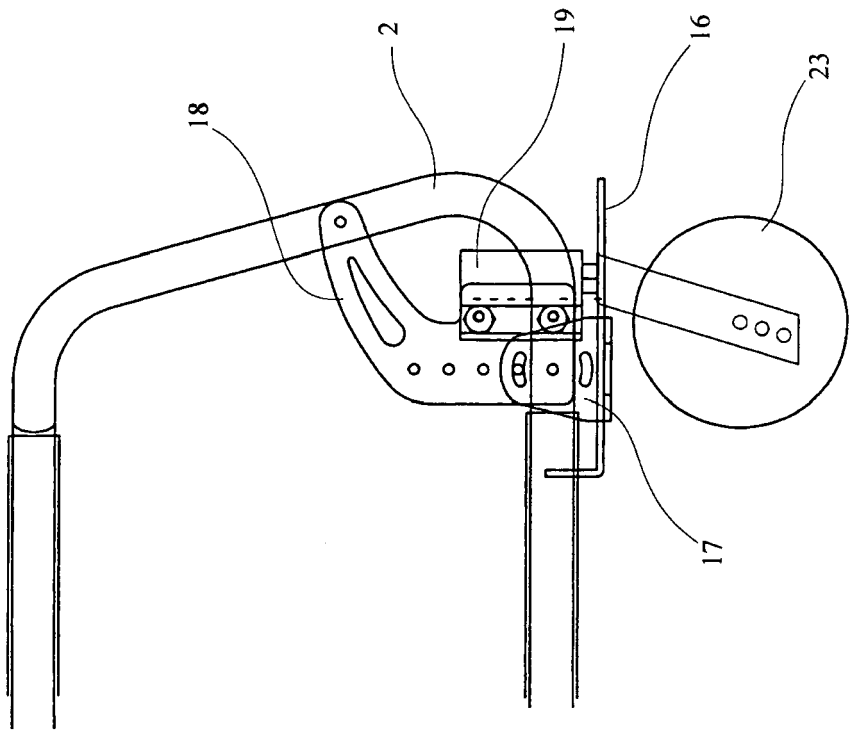


Fig. 10