



(12) **EUROPEAN PATENT APPLICATION**

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

(51) Int Cl.:
A61G 5/12 (2006.01)

(21) Application number: **07010024.3**

(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

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

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

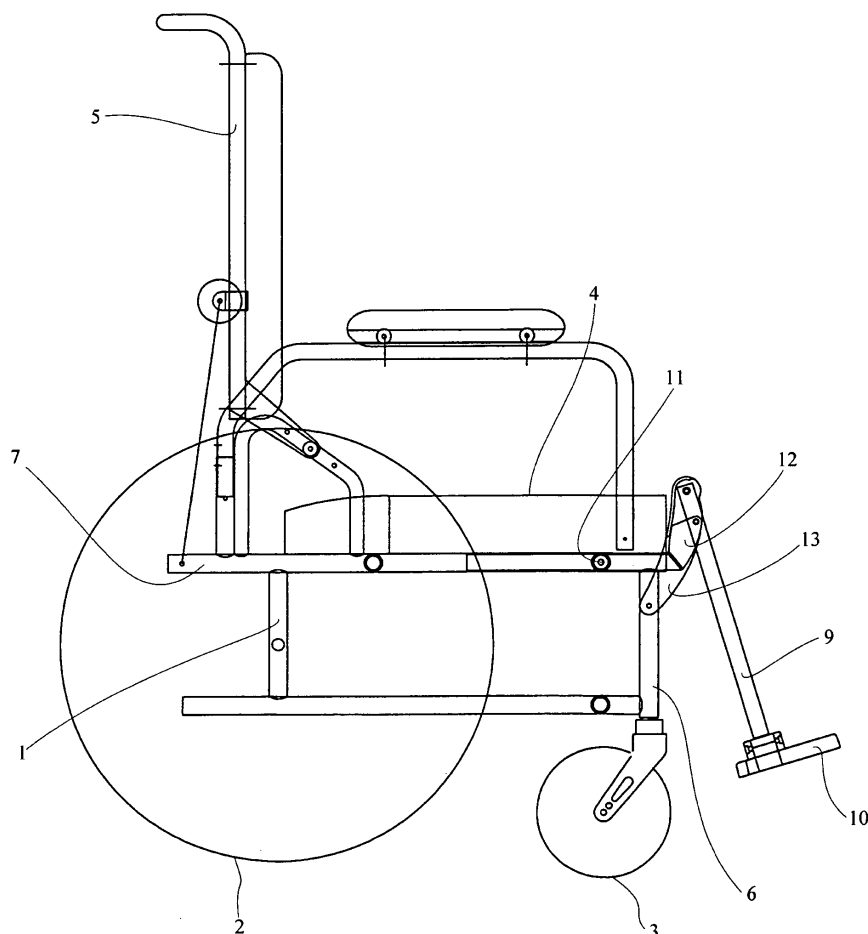
(30) Priority: **24.05.2006 IT PD20060207**

(54) **Wheelchair type "commode" improved**

(57) It is a wheelchair fitted up with a device which further to let move forwards progressively the hinging

points of the structure which support the footrest, provide to raise the same structure of the footrest to the level corresponding to the alignment of the leg.

Fig. 1



Description

[0001] It is known that in the domain of the wheelchairs as aids for disabled people or who are temporarily disabled named with the word "commode" the manufacturers research continuously to make improvements to purpose of obtaining more comfort for the users or at least to remove eventual possible discomforts.

[0002] These wheelchairs have the particular detail that both the backrest and the footrests reciprocally recline in a connect way i.e. while the backrest reclines lowering, the footrests recline upraising.

[0003] The tricks which are adopted are those to let that the above said inclinations can happen in accordance with the articulations of the body of the person who is using the wheelchairs in these stages of inclination.

[0004] One of the most considered points is referred to the area matching with the articulations of the knee when it occurs the changement of direction of the lower part which upraises.

[0005] Progressively to the raise of the lower limb it is necessary a progressive movement forwards of the related footrest following the stretching of the leg.

[0006] At present in the market are existing devices which provide that but which are complicate and expensive.

[0007] The said devices further to be complicate and expensive have the inconvenient that they don't raise the supporting elements of the footrest in order to obtain that the lower limb of the leg is aligned with the upper part of the leg, this last one placed over the seat padding.

[0008] The purpose of the patent is that one to make a device simple and cheap which further to let move forwards progressively the hinging point of the element which supports the footrest in order to satisfy the stretching of the leg during the stage of raising of the lower part providing to let that this element of support of the footrest to be placed to the suitable level of alignment of the leg in order to allow the continuative support.

[0009] The additional purpose of the patent it that one of make the above said device with the minimum of moving elements which could create problems of shearing and which would therefore to be protected by suitable protection crankcase.

[0010] The said device is manufactured as below described.

[0011] To the external edge of the tubular element sliding telescopically inside the side tube of the framing which support the seating, it is welded a fork with the opening upwards. The edge of the said fork is coupled with hinging in an area spaced out from the upper edge of the tubular element which supports the lower edge of the footrest.

[0012] The upper edge of the tubular element which supports the footrest is connected by hinging to the edge of a plate which opposite edge is hinged to the structure of the framing of the wheelchair in an area beneath the seat.

[0013] The programmed reciprocal distance of the

three hinging axis parallel between them, the placing and the configuration of the fork welded to the telescopic element sliding inside the tubular side element of the seat and the configuration of the plate with the edges hinged, one to the upper edge of the tubular support element of the footrest and the other to the structure of the wheelchair in an area beneath to the seat frame, define the extent of outcoming of the telescopic element (and therefore the extent of advancing outwards of the footrest) and the level assumed by the support of the footrest referring to the seat.

[0014] Those previously described is clarified by the examination of the enclosed drawings.

[0015] The fig. 1 shows the wheelchair with the footrest in the lowered position equipped with the device made following the patent for the raising of the element which supports the footrest.

[0016] The fig. 2 shows the detail enlarged of the raising device referring to fig. 1.

[0017] The fig. 3 shows the wheelchair referring to the fig. 1 where the element which supports the footrest is raised to a level higher than the structure where the seat lays and with its defined advancing outwards.

[0018] The fig. 4 shows enlarged the detail of the raising device referring to the fig. 3.

[0019] From the examination of the figures it is possible to note that the wheelchair complete with the bearing structure 1,6,7, of the rear big wheels 2, of the small front wheels 3, of the seat 4 and of the backrest 5, shows the supporting elements 9 of the footplates 10, connected to the bearing structure not in a rigid way but by a particular device made following the patent which allow to them to be raised at a defined level and to be moved spacing out from the seat of a defined distance.

[0020] The device applied in reciprocity to the front part of each side of the seat include an element 8 telescoping in the tubular element 7 which supports the seat 4 and to which free edge is welded a fork 12 with opening upwards.

[0021] The said fork couples by the hinging 14 to the support element 9 of the footplate 10 in an area close to the upper free edge.

[0022] The device includes further at least a plate 13 hinged 15 to an edge with the upper part of the support element 9 of the footplate 10 and hinged 16 to the other edge with the element 6 of the beneath structure of the wheelchair.

[0023] Raising the footplate 10 and therefore the supporting element there is a combined action of the rotation of the above said element 9 around the pin 15, of the plate 13 which rotates around the pin 16 placing between them in reciprocal opening.

[0024] By this moving while the hinging pin 15 lowers and spaces out from the seat 5 it is exercised a traction in reciprocity of the hinging 14 of the fork 12 which defines its moving and those of the telescopic element 8 welded to it, which slides outcoming.

[0025] Once reached the raising position defined for

the element 9 and the referred footplate 10 it must be made the lockage acting on the knob 11 which avoids the sliding of the element 9 inside the tubular element 7.

[0026] After everything above explained it results the validity of the invention referring to the device of the patent which in a simple and functional way allows to let in raising the element 9 which supports the footplate 10 and to place it at the suitable level in order to guarantee a laying with continuity of the raised leg having allowed the stretching during the raising stage. It doesn't go out from the patent for solutions that persons expert of that field could carry out also with improvements in case it uses the teachings of this patent.

5

10

15

Claims

1. Wheelchairs type "commode" improved **characterized by** the device of raising and advancing of the element (9) which supports the footplate (10), this device applied to the front part at the same level of the sides of the seat of the wheelchair composed of a plate (13) hinged (16) with the lower edge to an element (6) of the structure (1,7,6) and with the upper edge hinged (16) to the upper edge of the element (9) which supports the footplate (10) and further composed by an element (8) telescopic in a tubular element (7) of the structure which support the seat (4) provided with the telescopic element (8) of a fork (12) with opening upwards jointed to him, hinged, the said fork (13) with the element (9) in an area close (14) to the upper edge (15).
2. Wheelchair type "commode" improved following claim 1 **characterized by** the fact that the level of lifting of the footrest is practically coplanar to that one of the seating.
3. Wheelchair type "commode" improved **characterized** following the claim 1 or 2 **characterized by** that the elements which create the device are composed essentially by a reduced number of moving elements in particular for each single footplate, in addition to the structure which supports the footplate, by a tubular telescopic element (8) inside to the tubular element of the structure (7) with suitable fork (12) joint to it and by the plate (13) hinged to the structure (9) which supports the footplate (10) and to the structure (6) of the wheelchair.
4. Wheelchair type "commode" improved following the claim 1 or 2 or 3 **characterized by** that all the elements in movement related between them allow a protection against the shearing without the need of protection crankcase.

20

25

30

35

40

45

50

55

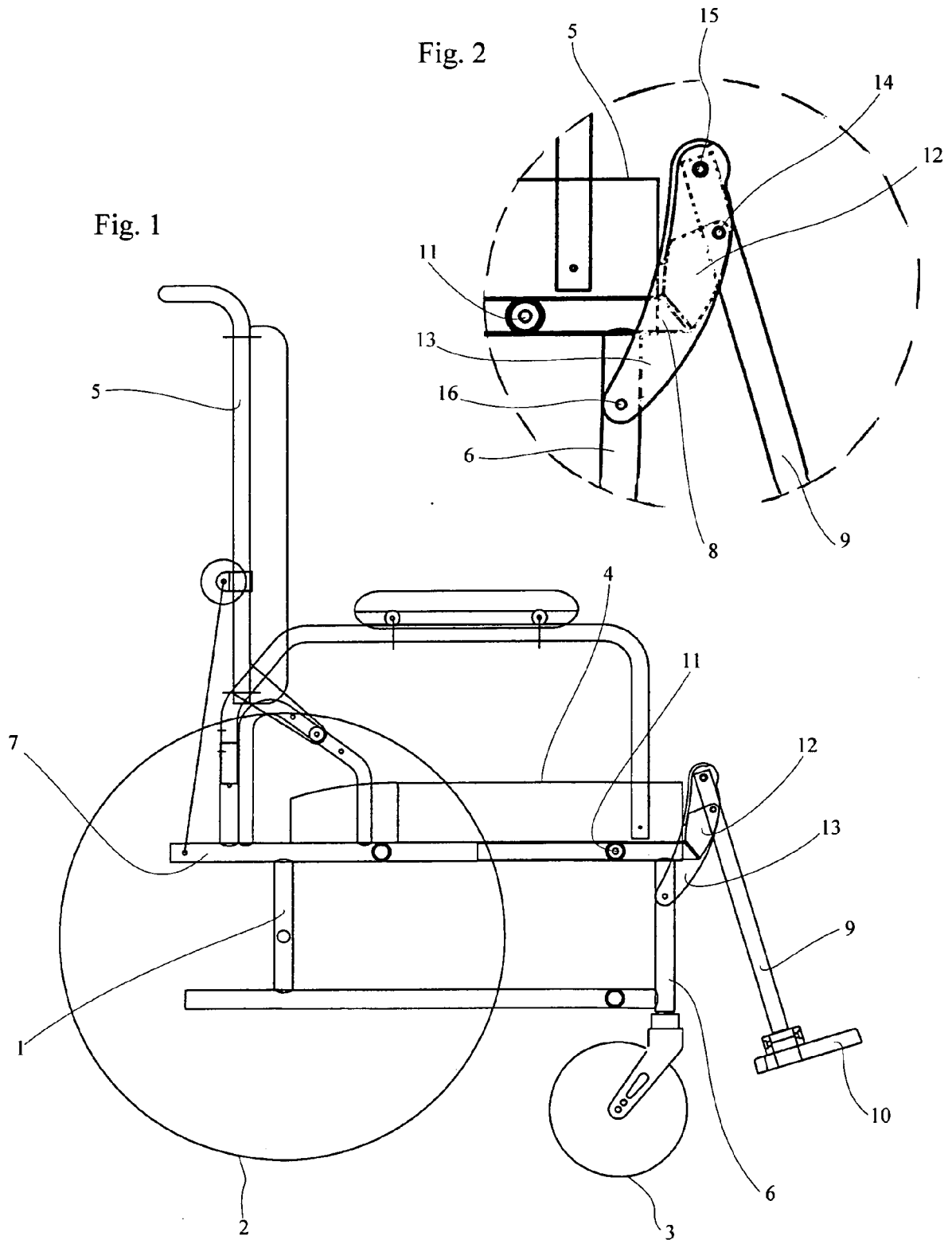


Fig. 3

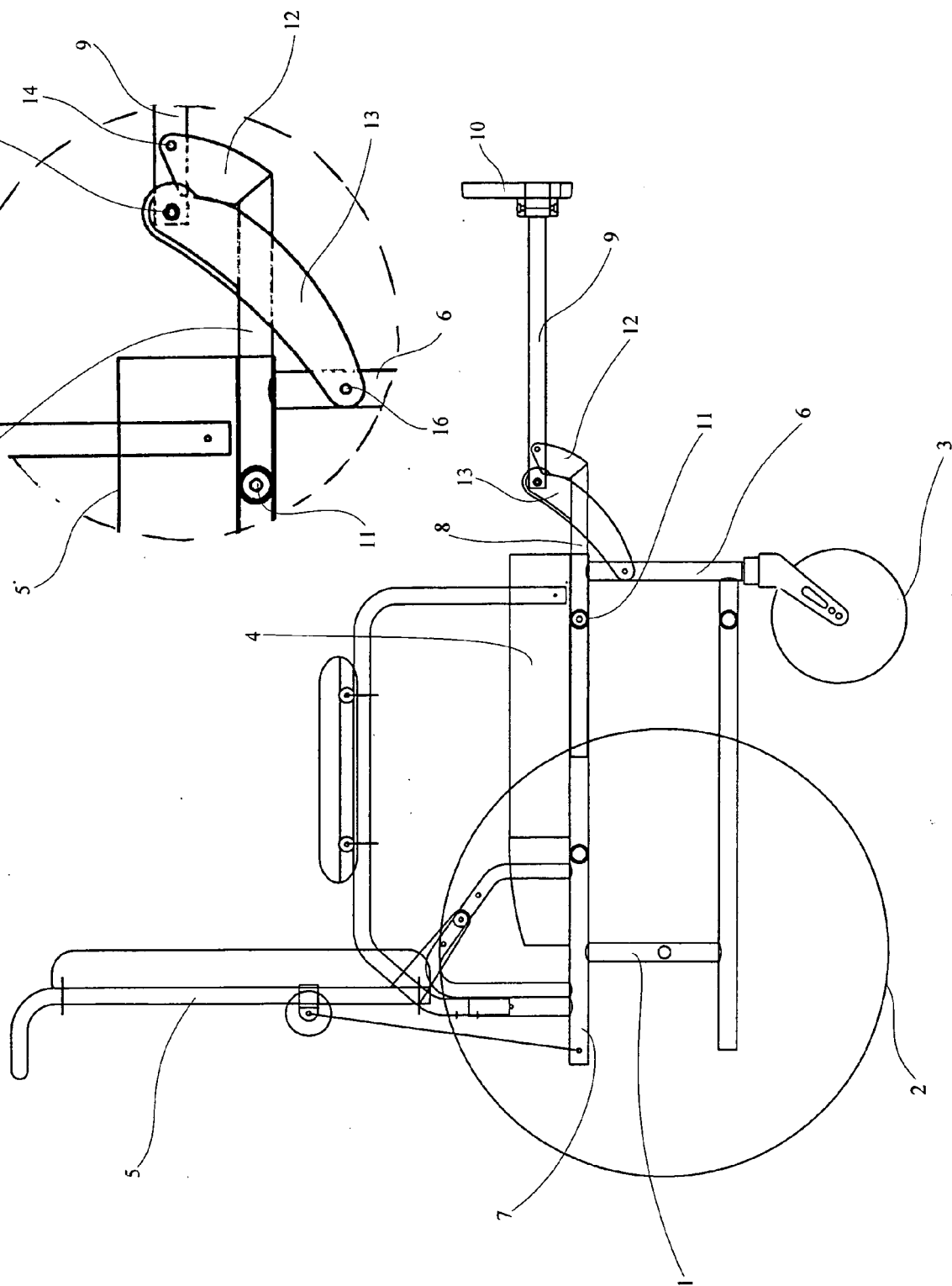


Fig. 4

