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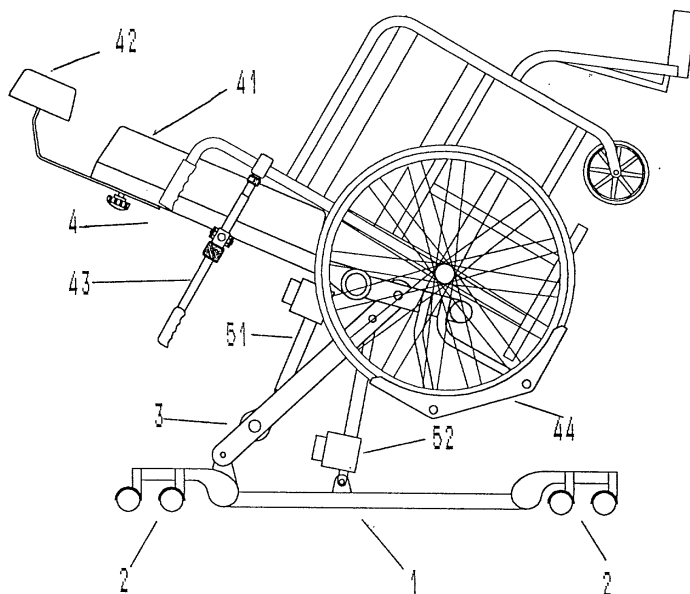
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(54) Transportable wheelchair positioning system

(57) This transportable wheelchair positioning system is used for handicapped people to achieve improved mobility since by facilitating elevation and inclination it facilitates any position by combination of the two movements, allowing total adaptability of the handicapped individual to any height and degree of inclination. It includes three structures joined by two articulations with movement controlled by two motors: a base structure that serves as a stabilising and movement element by set of wheels; an elevation structure articulat-

ed on the base that provides system height adjustment, an inclining and sustaining structure, providing the inclination of the wheelchair, including adjustable backrest and headrest, both cushioned, and two articulated support arms articulated by swivel joints, one on each side of the backrest, that freely revolve, being adjustable in length in order to adapt to different widths and different heights of wheelchairs. And a lower part that has some barer plates attached for the back wheels of the wheelchair to fit into.

Fig. 5



Description**OBJECT OF THE INVENTION**

[0001] As shown by its title, the present invention is related to a transportable wheelchair positioning system of the type used to elevate and position wheelchairs in order to facilitate and improve accommodation of handicapped persons in every-day wheelchair usage when undergoing dental examination, hairdressing, etc., and whenever it may be necessary to position the wheelchair by inclining and/or elevating it, being a positioning system with the capability to achieve the different degrees of inclination and/or elevation needed, as well as the combination of both movements. The inconvenience of having to move the handicapped person out of their wheelchair to the corresponding chair, for which two or more people may be necessary, is thus avoided, as well as the handicapped person's discomfort as a consequence. The positioning system of the present invention has been designed, as will be shown in detail below, in order to avoid these inconveniences.

BACKGROUND OF THE INVENTION

[0002] Currently there are several known inventions related to the present topic, although in none of them are the totality of movements and positions obtained with the positioning system object of this invention patent achieved. As background for the invention we will mention the following:

- U.S. Patent n° 4,834,411: DEVICE FOR RECLINING WHEELCHAIRS FOR SHAMPOOING ITS OCCUPANT: It is designed to be installed and positioned adjacent to a sink or washbasin and facilitates reclining or inclining user.
- U.S. Patent n° 5,472,307: WHEELCHAIR ELEVATOR-INCLINER: designed to carry out the same function as the device above, including two possible movements; elevation and inclination.
- U.S. Patent n° 6,015,256: WHEELCHAIR RECLINING DEVICE AND WHEELCHAIR RECLINING METHOD: The object of this invention is related to a device exclusively for reclining wheelchairs, but not for elevating them.
- U.S. Patent n° 4,830, 567: WHEELCHAIR ELEVATOR, PORTABLE: Includes rotational movements.
- U.S. Patent n° 4,192,549: WHEELCHAIR RECLINING BASE: Manually moved, mentioning two possible positions: an elevated and a reclined position.
- U.S. Patent n° 4,726,730: WHEELCHAIR MANOEUVRING DEVICE: includes the possibility of el-

evating and inclining, but has an excessive volume, which implies the need for a larger manoeuvring space, especially for the base platform.

DESCRIPTION OF THE INVENTION

[0003] The transportable wheelchair positioning system of the present invention is used to provide improved mobility to handicapped people and, having the capability for elevation and inclination, facilitates any position by combining the two movements, so that for activities such as hair washing or dentist appointments, among others, these movements give the handicapped person total adaptability to any height or degree of inclination.

[0004] This positioning system is formed by three structures joined by two articulations whose movement is controlled by two motors:

- A base structure which serves as a stabilising and mobility element since it can be transported with the set of wheels.
- An elevation structure that is articulated on the base structure and provides system height adjustment.
- An inclining and sustaining structure which, articulated on the inclining structure, provides for wheelchair inclination, consisting of adjustable backrest and headrest, both cushioned, and two support arms that are articulated by swivel joints situated one on each side of the backrest and which revolve freely so that they adapt to different widths and heights of the chairs, these arms being adjustable in their length by moving them within the swivel joint attached onto the backrest; and having a security device that will allow the chair to remain fixed and unmoveable whilst the device is activated. Finally, it possesses a lower section that includes barer plates or shoes so the back wheels of the wheelchair fit perfectly into the inside and allow the attachment of wheelchairs of different widths.

[0005] To complete the present description and in order to offer a better understanding of the characteristics of the invention, this descriptive account is accompanied, as an integrated part, by a set of drawings, where the following is represented as a non-limiting illustration:

DESCRIPTION OF THE ILLUSTRATIONS

[0006] Figure 1 shows a side view of the transportable wheelchair positioning system, and a wheelchair about to be installed onto the positioning system.

[0007] Figure 2 shows a side view of the combination of the positioning system with an elevated and inclined wheelchair.

[0008] Figure 3 shows a side view of that which is represented in figure 1 and includes a view of the articulated

zone.

[0009] Figure 4 shows a side view of the whole of the positioning system and wheelchair in static position.

[0010] Figure 5 shows a side view of the whole of the positioning system and wheelchair in elevated-inclined position. 5

PREFERRED EMBODIMENT OF THE INVENTION

[0011] The transportable wheelchair positioning system of the present invention consists of a base structure (1) that serves as a stabilising and movement element, as it includes wheels (2) that facilitate transportability; an elevation structure (3) (see figure 3), two drives (51) and (52) that facilitate elevation and inclination movements controlled by a button. An structure for inclining and sustaining the wheelchair (4) that includes a backrest (41), an adjustable headrest (42), both cushioned, and two wheelchair support arms (43) that adapt to different widths and heights, located one on each side of the backrest; these support arms being adjustable in length by moving them inside a swivel joint attached to the backrest, and also including a security device that keeps the wheelchair fixed on with no possibility of release when the device is activated. And a lower part with barer plates or shoes (43) attached so that the back wheels of the wheelchair fit perfectly into the inside facilitating the fitting of different wheel widths. 10 15 20 25

[0012] As can be seen, the elevation structure (3) is articulated over the base structure (1), and over the former, the wheelchair inclining and sustaining structure (4) is articulated. The movement of the two articulations is governed by two thrust and traction motors. The first motor (51) makes the inclining structure revolve around the elevation structure to obtain wheelchair inclination. The second motor (52) makes the elevation structure, and with it the inclining structure that sustains the wheelchair, revolve around the axis that joins it to the base, obtaining the elevation of the system. The two motors act independently, so that for each degree of elevation the wheelchair can be inclined to horizontal position, and through all intermediate degrees of the two extreme positions. 30 35 40

[0013] It is not considered necessary to make this description any more extensive in order for any expert in the field to understand the scope of the invention and the advantages that can be derived from it. The terms in which this description has been set out in are to be understood in the broad, non-limiting sense. 45

[0014] The materials, form, size and disposition of the elements may be susceptible to alteration as long as this does not vary the essential characteristics of the invention as claimed below: 50

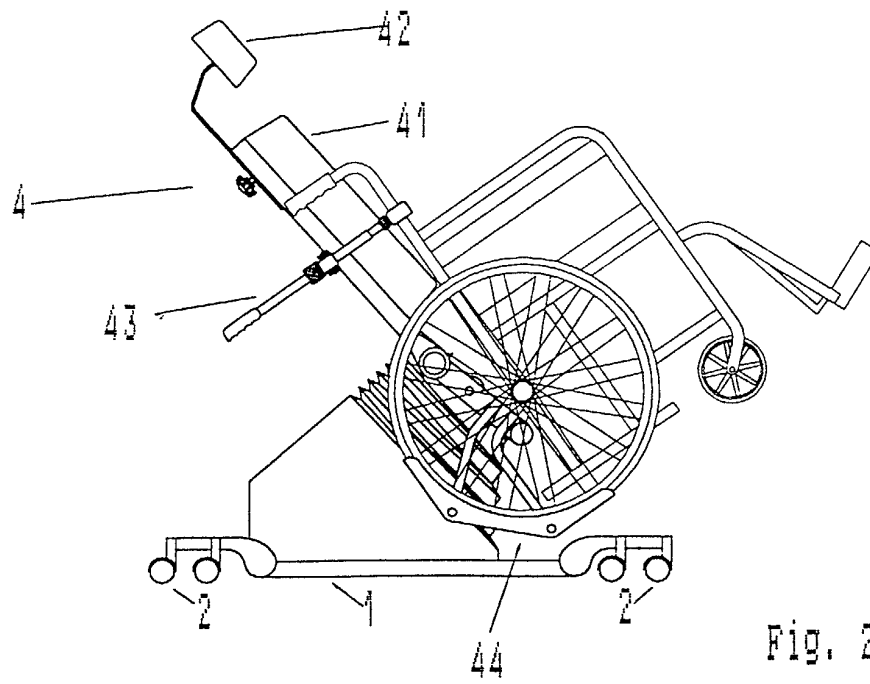
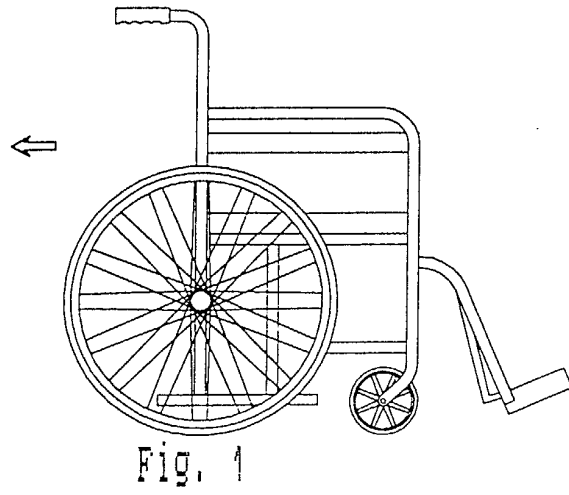
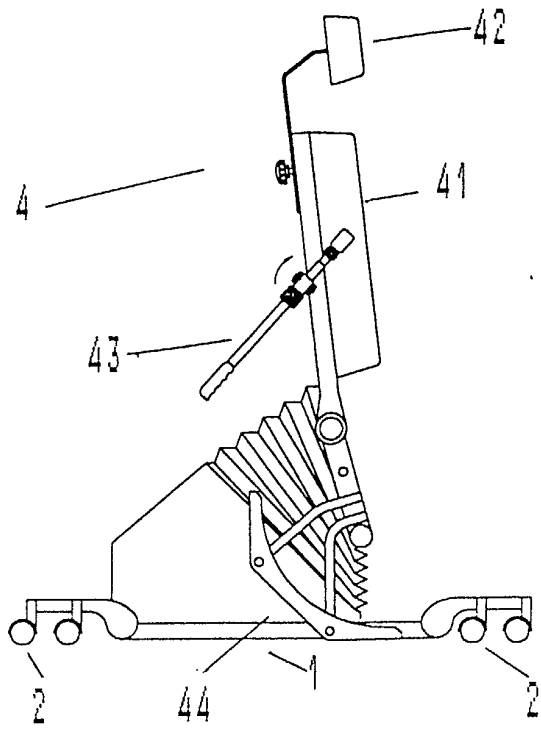
type used to elevate and incline wheelchairs, this positioner being easily transported from one place to another, **characterised in that** it includes three structures joined by two articulations whose movement is controlled by two electric motors:

- A base structure that serves as a stabilising and movement element since, with the set of wheels, it facilitates transportability.
- An elevation structure which, articulated on the base structure, provides system height adjustment.
- A wheelchair inclining and sustaining structure that is articulated on the elevation structure and which provides the inclination of the wheelchair. It includes barer plates into which the back wheels of the wheelchair fit, a cushioned backrest and headrest, and support arms.

2. Transportable wheelchair positioning system according to the first claim, **characterised in that** the wheelchair is fit onto the system by its wheels being supported by the barer plates or shoes and by the wheelchair backrest being fixed by the support arms.
3. Transportable wheelchair positioning system according to the first claim, **characterised in that** the support arms are articulated by swivel joints that freely articulate and are adjustable in length by movement inside the swivel joint attached to the backrest, to adapt to different widths and heights of the wheelchairs.
4. Transportable wheelchair positioning system according to the first claim, **characterised in that** the support arms include a security device that makes the wheelchair stay fixed and unmoveable when the device is activated.
5. Transportable wheelchair positioning system according to the first claim, **characterised in that** the motors act independently to adjust indifferently the height and the inclination of the wheelchair.

Claims

1. Transportable wheelchair positioning system of the



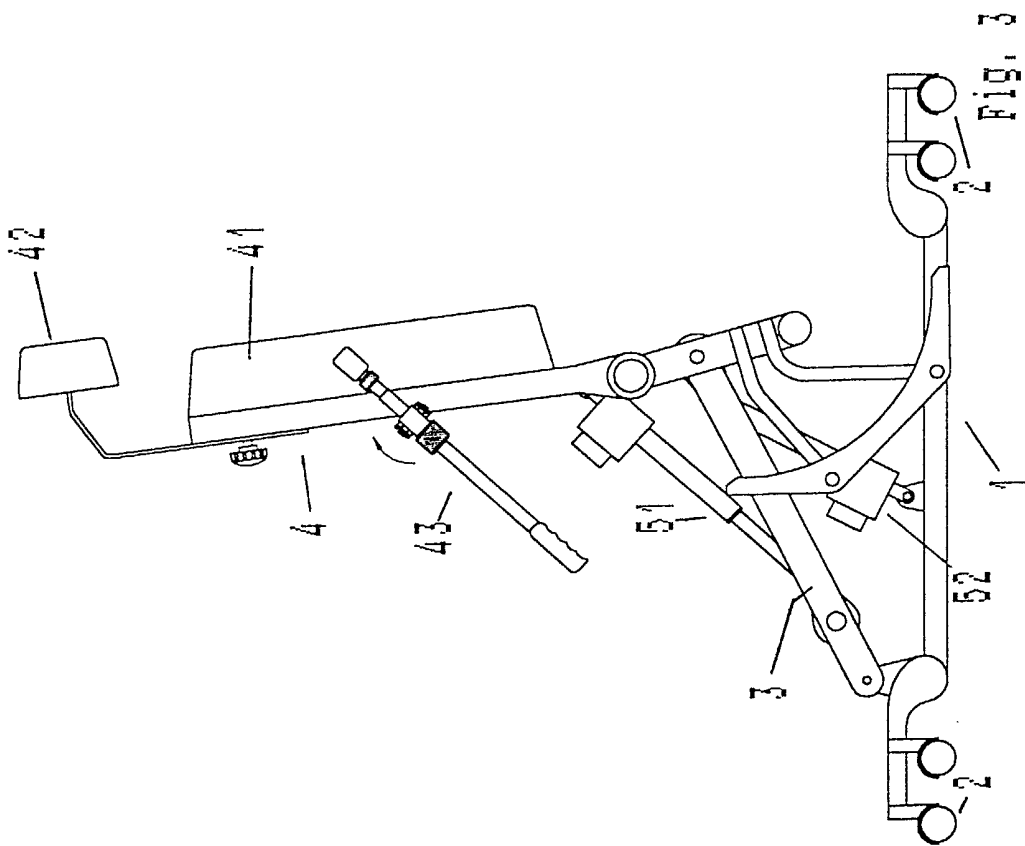
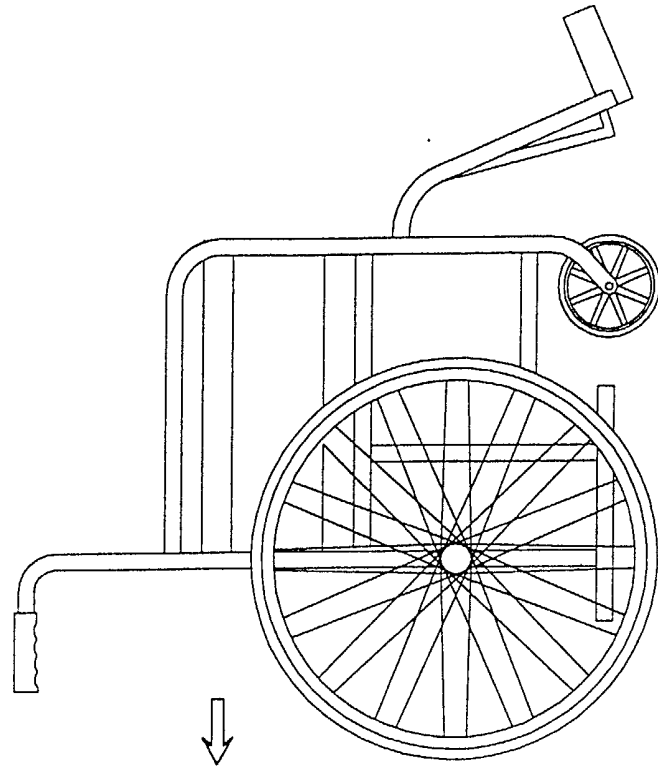


Fig. 3

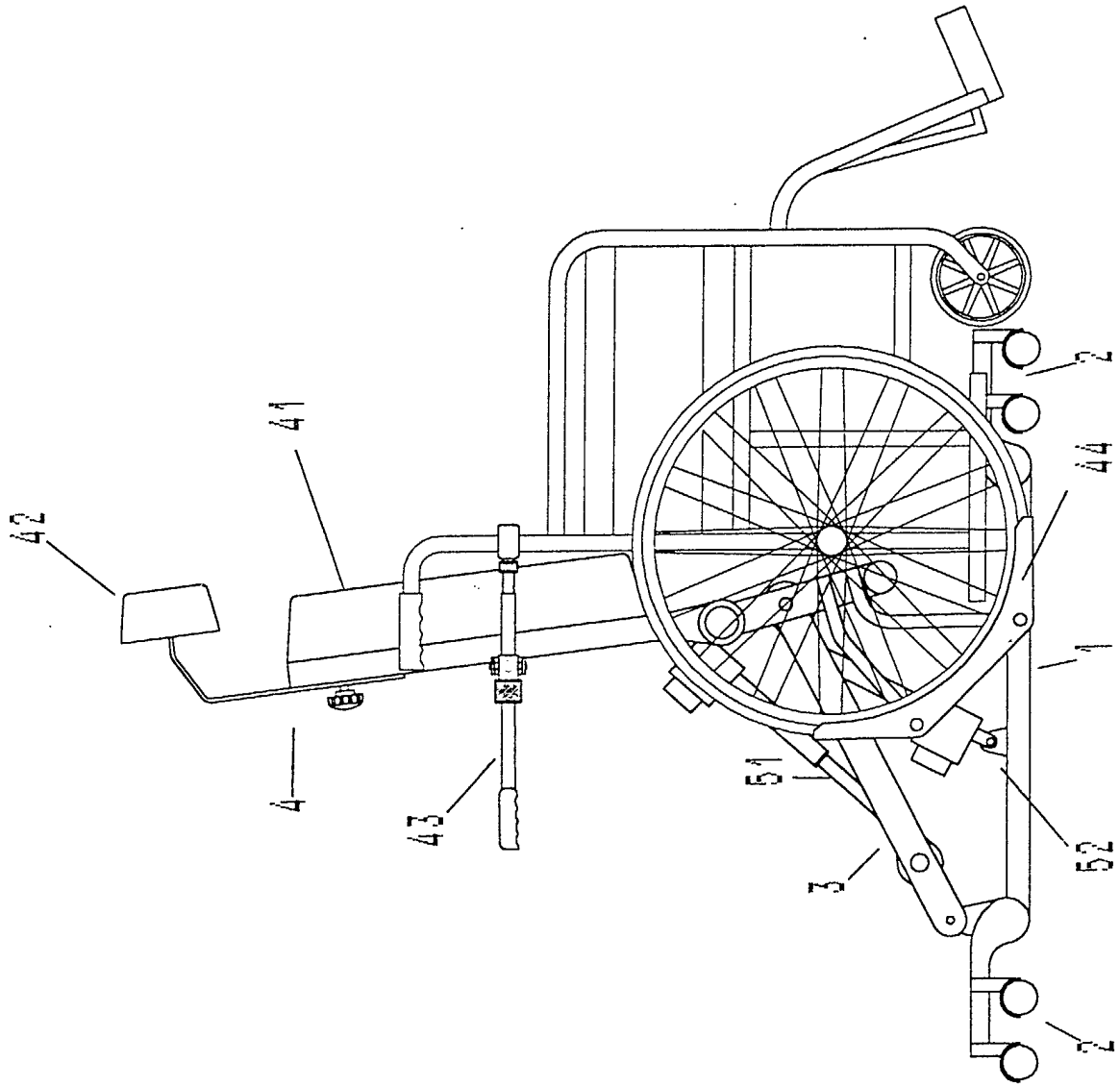


Fig. 4

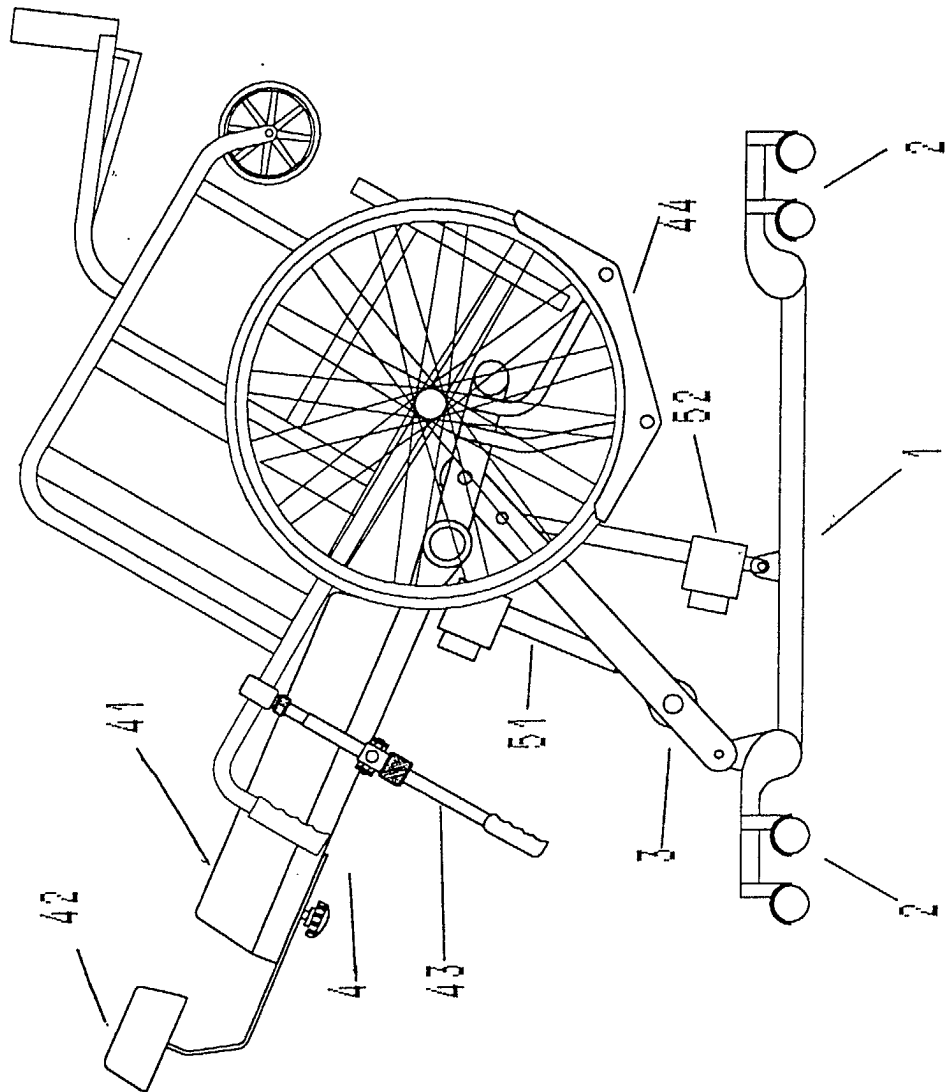


Fig. 5