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(54) SUPPORT DEVICE

STÜTZVORRICHTUNG

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(56) References cited:
**DE-A- 3 032 052 DE-B- 1 086 026
FR-A- 373 063 US-A- 4 908 906**

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Description

The present invention relates to a supporting device, in particular for use in a toilet for the disabled and the like, comprising an essentially elongated supporting element with an essentially flat, elongated supporting surface, which flat, elongated supporting surface is substantially horizontal when in the working position, and a fixing element interacting with one end of the supporting element.

Such a supporting device is known. In this case the supporting device is in the form of a straight tube, one end of which is mounted on a plate-shaped fixing element. Two of these supporting devices are fixed in the usual manner at a desired height to a wall behind a lavatory bowl, on either side of the lavatory bowl. The desired height can be a standard height of 24 cm of the supporting surface above a seat height of 48 cm of the lavatory bowl, for example in accordance with the Dutch guideline "Standards for access offered". This standard height corresponds to the average distance between the elbow and the seat in the seated position. The flat supporting surface at the top side of each of the tubes thus offers a user of the toilet some support in the seated position and, through gripping the tubes, the body can be supported to some extent when the user is in the process of sitting down on the lavatory bowl and getting up from it. For reinforcement of the tube, each of the two supporting devices can comprise a second tube situated vertically below the first tube, the two tubes each determining one of the legs of a U-shaped element.

US-A-4 908 906 also discloses such a supporting device having a further part, staggered in at least the upward vertical direction relative to the flat elongated supporting surface and interacting with the fixing element and/or the wall for supporting the elongated supporting element against the wall, according to the preamble of claim 1.

Known supporting devices have, however a number of disadvantages in practice. It has been found that, although adequate body support is provided in the seated position when the user has sat down on the lavatory bowl, when getting up from the bowl there is not sufficient support to reach a completely upright position of the body. Nor is there enough support at the start of sitting down on the lavatory bowl from an upright position of the body. It is in fact the end phase of getting up and the beginning phase of sitting down that are characterised by an unstable position of the body. This known supporting device does not provide adequate supporting facilities for use of the toilet standing up either.

The object of the present invention is to eliminate these disadvantages, and for this purpose according to the invention a supporting device of the type mentioned in the preamble is provided, characterised in that the further supporting surface of the further supporting part connects to the flat elongated arm supporting surface

slanting down and forming an angle (α) lying between 120° and 170° with the flat elongated arm supporting surface at their junction device.

The invention will be explained in greater detail on the basis of a number of embodiments with reference to the drawing, in which:

Figure 1 shows a perspective view of a first embodiment of the supporting device according to the invention;

Figure 2 shows a perspective view of a second embodiment of the supporting device according to the invention;

Figure 3 shows a cross-section along the line III-III in Figure 2;

Figure 4 shows a top view of the embodiment according to Figure 2; and

Figure 5 shows a perspective view of a third embodiment of a supporting device according to the invention.

Figure 1 shows a first embodiment of a supporting device 1 according to the invention, in which the supporting device comprises a supporting element in the form of a straight tube 2 with a flat, elongated horizontal supporting surface 3, and a fixing element 4 which interacts, preferably by means of a hinge joint, with one end of the tube 2. The tube 2 together with a further reinforcement tube 5 forms part of a flat and essentially U-shaped element. The supporting device 1 can be made of any suitable material which is strong enough, for example steel or aluminum. The tube diameter can be, for example, approximately 3 cm, and the total length of the supporting device 1 can be between 60 and 90 cm.

At the end facing away from the fixing element 4, the tube 2 has a further tubular supporting part 6 with a further horizontal supporting surface 7 which relative to the elongated horizontal supporting surface 3 in the working position is fitted staggered in the vertical direction over a distance A. The supporting surface 7 at a part 8 passes slanting down into the flat, elongated supporting surface 3, enclosing an angle α .

The distance from the supporting surface 7 to the supporting surface 3 is preferably around 5 cm.

In this embodiment shown in Figure 1, the further supporting part 6 is formed by a deformation in the outward direction, corresponding to the arrow (a), of a U-shaped element on the end facing away from the fixing element 4 and in the plane of the U-shaped element.

Two of these supporting devices 1 can be fixed on either side of a lavatory bowl to the wall behind it with a distance of, for example, 65 cm between them, in which case the supporting surface 3 can be at a standard height (h) of 24 cm above a seat height of 48 cm of the lavatory bowl, in order to provide a suitable support during sitting.

Since the further supporting surface 7 of the supporting part 6 lies higher up than the standard height (h)

of the supporting surface 3, gripping the supporting part 6 with the hand provides a body support in the course of sitting down and getting up, and in particular in the beginning phase and the end phase of sitting down on the lavatory bowl from an upright position of the body, and getting up from said bowl.

In the process of sitting down the hand can be moved gradually from the supporting part 6 to the tube 2 via the slanting part 8. For a gradual transition the angle α lies on average preferably between 120° and 170°. When getting up the hand can be moved in a similar way gradually from the tube 2 to the supporting part 6. Reaching over is therefore not necessary in order to reach the tube 2 from the supporting part 6, and vice versa, so that a suitable body support can be provided constantly. Moreover, the slanting transition here prevents a dorsiflexion of the wrist, so that this joint is not placed under too much strain, something which is very important in the case of rheumatic patients.

In order to permit lateral transfer from a wheelchair, the U-shaped element can be flapped up to a position which is shown by dashed lines in Figure 1. The U-shaped element can preferably be locked in any of the two positions shown.

Figure 2 shows a second embodiment of the supporting device according to the invention, in which parts corresponding to parts shown in Figure 1 are indicated by the same reference numbers. A top view of this second embodiment is shown in Figure 4. Formed on the supporting element 2, at the end facing away from the fixing element 4, is a further tubular supporting element 9 with a supporting surface 10 which relative to the supporting surface 3 in the working position is fitted both horizontally and vertically staggered relative to the tube 2. The staggered fitting of the further supporting part 9 is shown in greater detail in Figure 3. The tubular supporting part 9 and the tube 2 thus each form a leg of a U-shaped element with staggered legs. The distance B between the legs, measured parallel to the arrow (b) is preferably at least 4 cm. The distance between the legs from central axis to central axis is preferably between 10 and 30 cm. In the embodiment shown the tube 2 is deformed, and the tube 9 is straight. It is, however, clear that a straight tube 2 and a deformed tube 9 are also possible, or there can be two staggered straight tubes. Figure 5 shows an example in perspective view of the latter embodiment.

As shown schematically in Figure 3, support for the body is provided by the supporting part 9, on the one hand through gripping the tube 2 and, on the other, through resting the upper part of the lower arm against the supporting part 9, which permits a stable body position during getting up from and sitting down on the toilet. Just as in the case of the embodiment shown in Figure 1, when the user is sitting down or getting up the hand can be moved towards or away from the slanting part 8 situated higher up than the tube 2.

When the toilet is being used standing up, the sup-

porting parts 6 and 9 provide additional support, in particular at their curved ends which are in fact higher up than the tube 2, which is at the standard height (h). These higher up curved ends also provide a gripping face for moving over forwards from a wheelchair.

It will be clear that the supporting device according to the invention is not limited to use in a toilet for disabled people, but is suitable for any application where it is desirable to provide body support in a similar manner.

The number of further supporting parts and their exact form will depend partly on the degree of invalidity of the users. The latter can be, for example, the elderly, paraplegics or rheumatic patients.

It will therefore be clear to an expert that many modifications to the embodiments described above are possible without going beyond the scope of the invention as claimed in the appending claims.

Claims

1. Supporting device, in particular for use in a toilet for the disabled and the like, comprising an essentially elongated arm supporting element with an essentially flat, elongated arm supporting surface, which flat, elongated arm supporting surface is substantially horizontal when in the working position, and a fixing element interacting with one end of the elongated arm supporting element, the elongated arm supporting element (2) at least near its other end having a further supporting part (6, 9) with a further supporting surface (7, 10) which in the working position is essentially horizontal, and disposed staggered in at least the upward vertical direction relative to the flat, elongated arm supporting surface (3) characterized in that the further supporting surface of the further supporting part (6, 9) connects to the flat, elongated arm supporting surface (3) slanting down and forming an angle (α), lying between 120° and 170°, with the flat, elongated arm supporting surface (3) at their junction.
2. Supporting device according to Claim 1, characterised in that the staggered further supporting surface (7) is fitted at a distance (A) of around 5 cm in a direction at right angles from the flat, elongated arm supporting surface (3).
3. Supporting device according to Claim 1 or 2, in which the supporting device has a flat and at least essentially U-shaped element, while a side of one of the legs of the U-shape facing away from the other leg forms the essentially flat, elongated arm supporting surface and the ends of the U-shaped element interact with the fixing element, characterised in that the further supporting part (6) is formed by a deformation of the U-shaped element at the end facing away from the fixing element in the plane of the U-shaped element in an outward direction.

4. Supporting device according to Claim 1 or 2, in which the supporting device has an essentially U-shaped element, while a longitudinal side of one of the legs of the U-shape forms the essentially flat, elongated arm supporting surface, characterised in that the other leg (9) of the U-shaped element relative to the one leg (2) in the working position is disposed staggered in both the horizontal and the vertical directions.

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5. Supporting device according to Claim 4, characterised in that in the working position the distance (B) from the vertical plane through the other leg (9) to the vertical plane through the flat, elongated arm supporting surface (3) is at least 4 cm.

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6. Supporting device according to Claim 4 or 5, characterised in that the average distance from central axis to central axis of the legs of the U-shaped element lies between 10 and 30 cm.

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Patentansprüche

1. Stützvorrichtung, insbesondere zum Gebrauch in einer Toilette für Körperbehinderte und dergleichen, mit einem im wesentlichen gestreckten Armstützelement mit einer im wesentlichen ebenen, gestreckten, den Arm unterstützenden Oberfläche, welche ebene, gestreckte, den Arm unterstützende Oberfläche im wesentlichen horizontal ist, wenn sie sich in der Arbeitsstellung befindet, und mit einem Halteelement, das mit einem Ende des gestreckten Armstützelements zusammenwirkt, wobei das gestreckte Armstützelement (2) wenigstens nahe seinem anderen Ende ein weiteres Stützteil (6, 9) mit einer weiteren Stützfläche (7, 10) aufweist, welche in Arbeitsstellung im wesentlichen horizontal und in bezug auf die ebene, den Arm unterstützende, gestreckte Oberfläche (3) zumindest in vertikaler Richtung versetzt angeordnet ist, dadurch gekennzeichnet, daß die weitere unterstützende Oberfläche des weiteren Stützteils (6, 9) schräg nach unten an die ebene Stützfläche (3) anschließt und an der Anschlußstelle mit der ebenen Stützfläche (3) einen Winkel (α) bildet, der zwischen 120° und 170° liegt.
2. Stützvorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die versetzte weitere Stützfläche (7) im Abstand (A) von etwa 5 cm in rechtwinkliger Richtung zur weiteren ebenen Stützfläche (3) angebracht ist.
3. Stützvorrichtung nach Anspruch 1 oder 2, bei welcher die Stützvorrichtung ein ebenes und zumindest im wesentlichen U-förmiges Bauteil aufweist, während eine Seite eines der Schenke des vom anderen Schenke abgewandten U-Profils die im

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wesentlichen ebene, gestreckte, den Arm stützende Fläche bildet und die Enden des U-förmigen Bauteils mit dem Halteteil zusammenarbeiten, dadurch gekennzeichnet, daß das weitere Stützteil (6) von einer Anformung an dem U-förmigen Bauteil gebildet ist, die an dem vom Halteteil abgewandten Ende in der Ebene des U-förmigen Bauteils in einer nach außen weisenden Richtung angeordnet ist.

4. Stützvorrichtung nach Anspruch 1 oder 2, bei welcher die Stützvorrichtung ein im wesentlichen U-förmiges Bauteil aufweist, während eine Längsseite eines der Schenkel des U-Profils die im wesentlichen ebene, gestreckte, den Arm stützende Fläche bildet, dadurch gekennzeichnet, daß der andere Schenke (9) des U-förmigen Bauteils in bezug auf den einen Schenke (2) in Arbeitsstellung sowohl in horizontaler als auch in vertikaler Richtung versetzt ist.

5. Stützvorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß in der Arbeitsstellung der Abstand (B) von der vertikalen Ebene durch den anderen Schenkel (9) zu der vertikalen Ebene durch die ebene, gestreckte, den Arm stützende Fläche (3) wenigstens 4 cm beträgt.

6. Stützvorrichtung nach Anspruch 4 oder 5, dadurch gekennzeichnet, daß der durchschnittliche Abstand von Mittelachse zu Mittelachse der Schenkel des U-förmigen Bauteils zwischen 10 und 30 cm liegt.

Revendications

1. Appareil d'appui, notamment destiné à être utilisé dans les toilettes par les personnes handicapées et analogues, comprenant un élément essentiellement allongé d'appui de bras ayant une surface allongée essentiellement plate d'appui de bras, cette surface étant pratiquement horizontale en position de travail, et un élément de fixation interagissant avec une première extrémité de l'élément allongé d'appui de bras, l'élément allongé (2) d'appui de bras, au moins près de son autre extrémité, possédant une partie supplémentaire d'appui (6, 9) ayant une surface supplémentaire d'appui (7, 10) qui, en position de travail, est essentiellement horizontale et est décalée au moins en direction verticale par rapport à la surface allongée et plate (3) d'appui de bras, caractérisé en ce que la surface supplémentaire d'appui de la partie supplémentaire d'appui (6, 9) est raccordée à la surface allongée plate d'appui (3) inclinée vers le bas et formant un angle (α) compris entre 120° et 170° avec la surface allongée plate d'appui de bras (3) à leur jonction.

2. Appareil d'appui selon la revendication 1, caracté-
risé en ce que la surface supplémentaire décalée
(7) d'appui est montée à une distance (A) d'environ
5 cm en direction perpendiculaire à la surface allon-
gée et plate (3) d'appui de bras. 5
3. Appareil d'appui selon la revendication 1 ou 2, dans
lequel l'appareil d'appui a un élément plat et au
moins pratiquement en U, alors qu'un côté de l'une
des branches de la forme en U tournée du côté 10
opposé à l'autre branche forme la surface allongée
et pratiquement plate d'appui de bras et les extré-
mités de l'élément en U interagissent avec l'élé-
ment de fixation, caractérisé en ce que la partie
supplémentaire (6) d'appui est formée par une 15
déformation vers l'extérieur de l'élément en U à
l'extrémité opposée à l'élément de fixation dans le
plan de l'élément en U.
4. Appareil d'appui selon la revendication 1 ou 2, dans 20
lequel l'appareil d'appui possède un élément prati-
quement en U, alors qu'un côté longitudinal de l'une
des branches de la forme en U constitue la surface
allongée et pratiquement plate d'appui de bras,
caractérisé en ce que l'autre branche (9) de l'élé- 25
ment en U, par rapport à la première branche (2) en
position de travail, est décalée à la fois en direc-
tions horizontale et verticale.
5. Appareil d'appui selon la revendication 4, caracté- 30
risé en ce que, dans la position de travail, la dis-
tance (B) du plan vertical passant par l'autre
branche (9) au plan vertical passant par la surface
plate et allongée (3) d'appui de bras est d'au moins
4 cm. 35
6. Appareil d'appui selon la revendication 4 ou 5,
caractérisé en ce que la distance moyenne de l'axe
central d'une branche à l'axe central de l'autre de
l'élément en U est comprise entre 10 et 30 cm. 40

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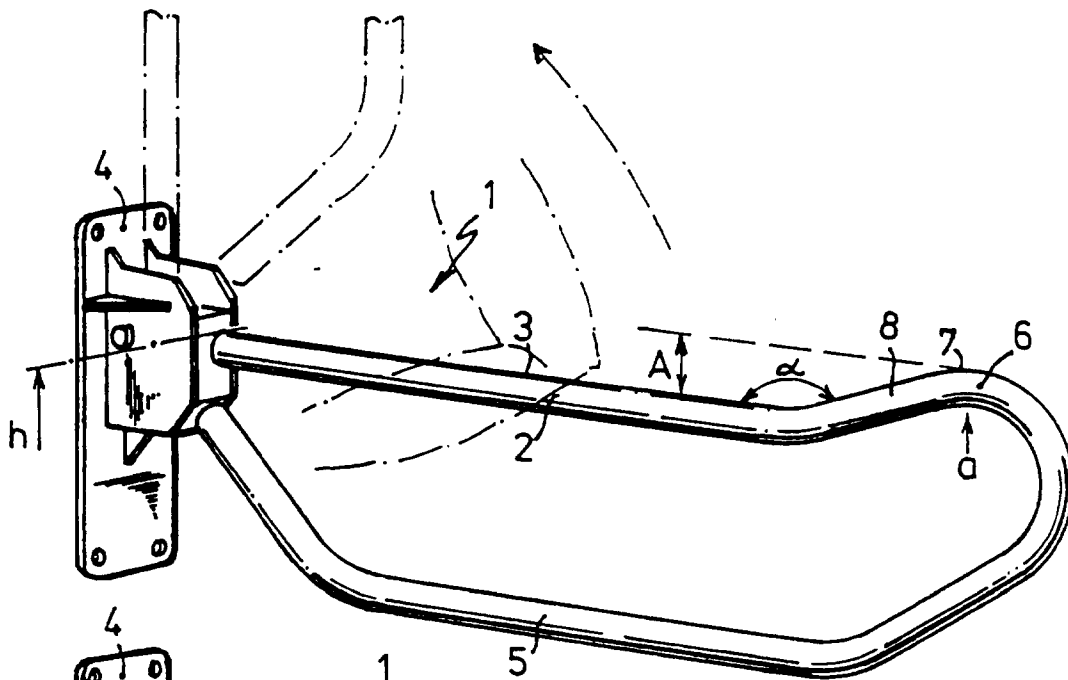


FIG.1

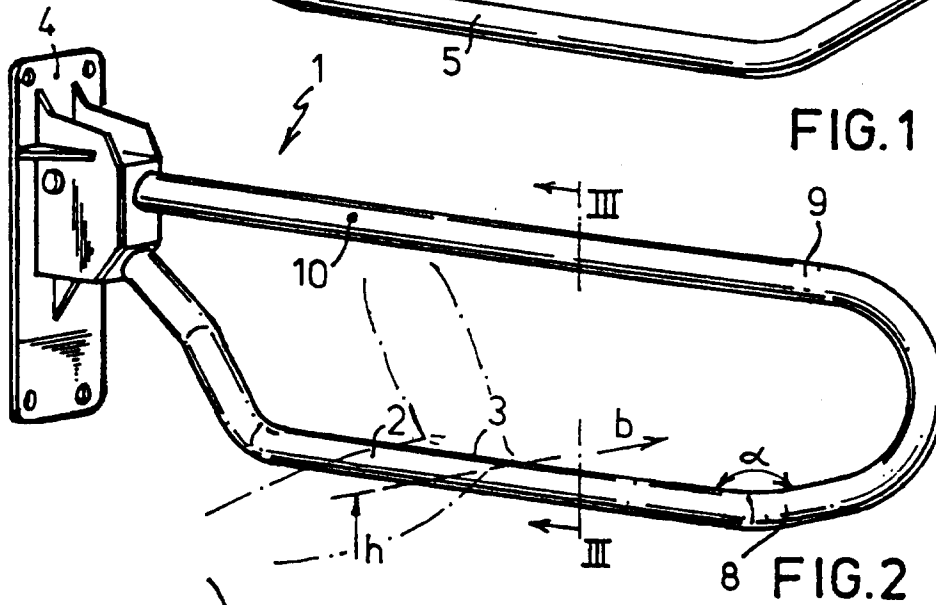


FIG.2

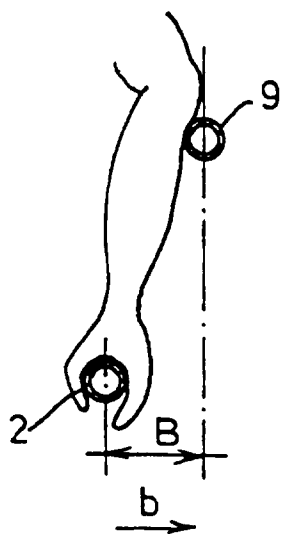


FIG.3

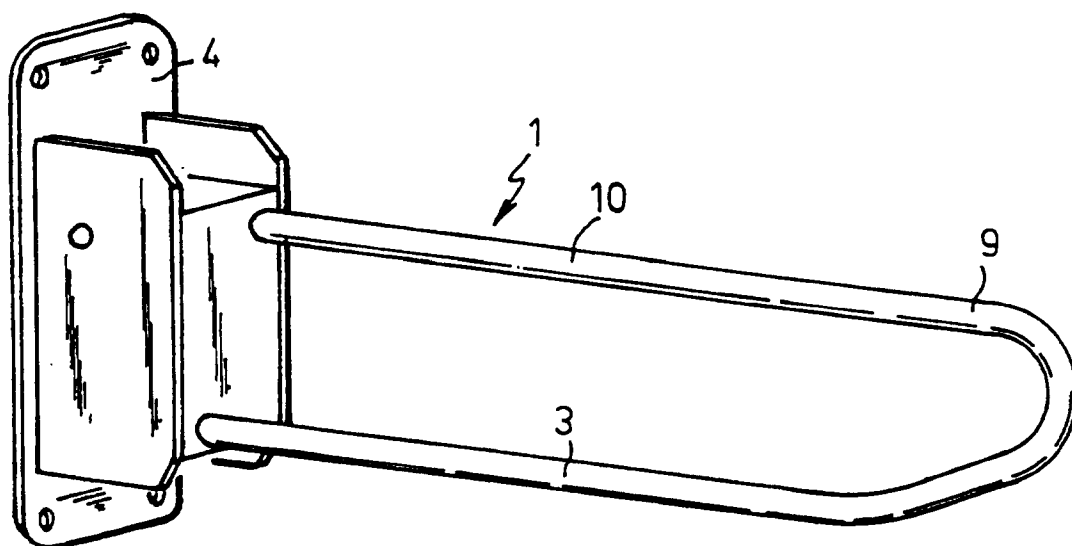
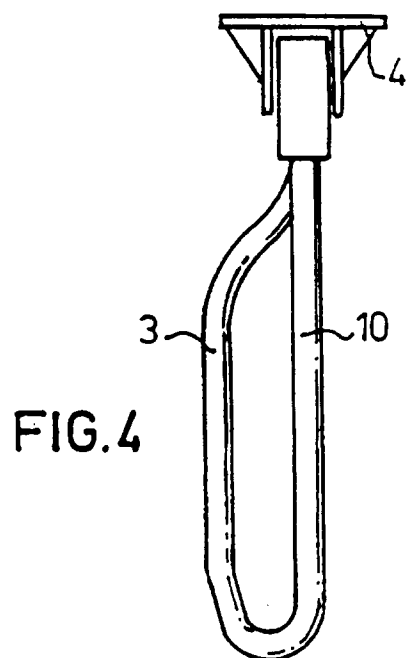


FIG. 5