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(72) Inventor; and

(71) Applicant: ELBAZ, Noam Aliza [IL/IL]; Shprinzack 30, Petach Tikva (IL).

(74) Agent: FRIEDMAN, Mark; 7 Jabotinsky St., Moshe Aviv Tower, 54th Floor, 5252007 Ramat Gan (IL).

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(54) Title: PANTS FOR USE IN A WHEELCHAIR

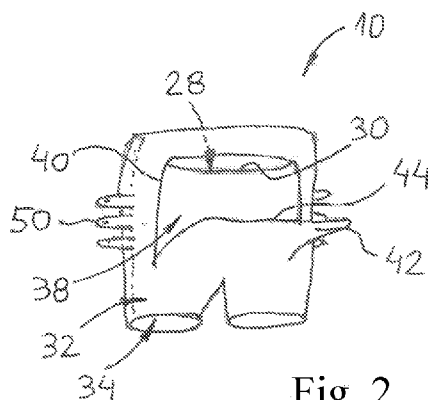


Fig. 2

(57) Abstract: A clothing item that is worn on a lower body part of a disabled person enables the person defecating when he sits on a sitting platform of a wheelchair. The clothing item has an upper opening in an upper portion thereof, and, at least one lower opening, opposite the upper opening, in a lower portion thereof. An intermediate opening is located between the upper opening and the lower opening, and, the intermediate opening is closed in a normal position, and, at least partially opened in a defecating position.



PANTS FOR USE IN A WHEELCHAIR

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FIELD OF THE INVENTION

The present invention relates to the field of pants used by disabled
10 people seated on a wheelchair, and more particularly to the field of pants used
by disabled people during defecation when seated on a wheelchair.

BACKGROUND OF THE INVENTION

Wheelchairs for disabled people who cannot stand on their feet are
15 known. The wheelchairs enable the disabled person, who cannot move by its
own, to move from one place to the other. Some wheelchairs are manually
self-driven by the person, and some wheelchairs are electrically driven.

Self-esteem and self-confidence of the disabled person are very
important when he knows he can take care of himself as much as possible,
20 without the need to be assisted by another person. Thus, some routine daily
tasks, e.g., moving, eating, drinking, etc., can be relatively easily done by the
disabled person. However, there are some routine daily tasks that require
extreme effort from the person, or, cannot be done without the assistance of
another person. Such tasks are, e.g., dressing, undressing, bathing, and
25 defecation.

It is common for a disabled person seated on a wheelchair to be assisted
by a caregiver each time he needs to go to the toilet for defecation. Such tasks
require that the caregiver be available for the disabled person at all times,
twenty-four hours a day, a task that is not always practical. In addition, the fact
30 that the disabled person has to be assisted by someone else for these routine
daily tasks reduces his self-esteem and self-confidence. Moreover, the

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undressing of the pants worn by the person is quite cumbersome, and, if the person has to pass from the wheelchair onto the toilet, it requires extra effort by him and extra space for the wheelchair.

It is the object of the present invention to provide pants or other leotard
5 that can be used by a disabled person while sitting on the wheelchair that significantly reduces or overcomes the aforementioned disadvantages.

It is a further object of the present invention to provide pants or other leotard that can be used by a disabled person while seated on a wheelchair and defecating.

10 It is still a further object of the present invention to provide a method for using pants or other leotard by a disabled person while seated on a wheelchair and defecating.

It is yet another object of the present invention to provide a system for enabling a disabled person sitting on a sitting platform of a wheelchair to
15 defecate without help of another person.

SUMMARY OF THE INVENTION

In accordance with the present invention there is provided a clothing item to be worn on a lower body part of a disabled person sitting on a
20 sitting platform of a wheelchair, the clothing item comprising:

an upper opening in an upper portion of the clothing item,
at least one lower opening, opposite the upper opening, in a lower portion of the clothing item, and
an intermediate opening located between the upper opening and the lower
25 opening, wherein;
the intermediate opening being closed in a normal position, and, at least partially opened in a defecating position.

Typically, the intermediate opening opens from a region adjacent the upper opening towards a region adjacent the lower opening.

30 Advantageously, the intermediate opening opens by a quick opening closure.

If desired, the quick opening closure of the intermediate opening consists of a hook-and-loop fastener.

Further if desired, the quick opening closure of the intermediate opening consists of a zipper.

5 Typically, the clothing item is provided with connection arrangement for connecting the clothing item to the wheelchair.

Advantageously, the clothing item has a front portion, a rear portion, and side portions between the front portion and the rear portion, and wherein;

10 the connection arrangement for connecting the clothing item to the wheelchair are at the side portions of the clothing item.

If desired, the connection arrangement are elastic.

In most cases, the clothing item are pants.

Further in accordance with the present invention there is provided a system comprising a clothing item and a wheelchair for enabling a disabled person
15 sitting on a sitting platform of the wheelchair to defecate without help of another person, the clothing item comprising:

an upper opening in an upper portion of the clothing item,

at least one lower opening, opposite the upper opening, in a lower portion of the clothing item, and

20 an intermediate opening located between the upper opening and the lower opening, wherein;

the intermediate opening being closed in a normal position, and, at least partially opened in a defecating position.

Practically, the sitting platform of the wheelchair has a central aperture.

25 If desired, the central aperture is provided with a lid, and wherein the lid is movable between a closed position of the sitting platform to an open position of the sitting platform.

Still in accordance with the present invention there is provided a method for enabling a disabled person sitting on a sitting platform of a wheelchair
30 defecating without help of another person, the method comprising the steps of:

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a. providing a clothing item to be worn on a lower body part of the disabled person sitting on the sitting platform of the wheelchair, the clothing item comprising:

- an upper opening,
- 5 at least one lower opening, opposite the upper opening, and
- an intermediate opening located between the upper opening and the lower opening, wherein;
- the intermediate opening being closed by a tongue in a normal position, and, at least partially opened in a defecating position.

- 10 b. opening the intermediate opening and folding the tongue.

If desired, the clothing item having a front portion, a rear portion, and side portions between the front portion and the rear portion,

connecting arrangements are provided at the side portions of the clothing item, and

- 15 the method further comprising the step of:

c. connecting to the wheelchair the connecting arrangements provided at the side portions of the clothing item.

Typically, the method further comprising the step of:

- d. opening a lid of the sitting platform from a closed position to an opened
- 20 position.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the present invention and to show how the same may be carried out in practice, reference will now be made to the

25 accompanying drawings, in which:

Fig. 1 is a perspective rear view of the clothing item according to the present invention with the intermediate opening shown in a closed position;

Fig. 2 is a perspective rear view of the clothing item of Fig. 1 with the intermediate opening shown in an opened position;

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Fig. 3 is a partial perspective side view of a disabled person sitting on a sitting platform of a wheelchair and wearing the clothing item of Fig. 1 with the connection arrangement shown in an unconnected position;

Fig. 4 is an enlarged perspective view of the connection arrangement shown in a connected position; and

Fig. 5 is an enlarged perspective view of the connection arrangement shown in an unconnected position.

DESCRIPTION OF PRFERRED EMBODIMENTS

Attention is drawn to Figs. 1 to 5. As shown, a clothing item (10), that constitutes pants, is worn on a lower body part (12) of a disabled person (14) seated on a sitting platform (16) of a wheelchair (18). The clothing item (10) having a front portion (20), a rear portion (22) opposite the front portion (20), and side portions (24) extending between the front portion (20) and the rear portion (22).

The clothing item (10) comprises, in an upper portion (26) thereof, an upper opening (28) that extends along an entire circumference (30) between the front portion (20), the rear portion (22) and the side portions (24) therebetween.

The clothing item (10) comprises, in a lower portion (32) thereof, two lower openings (34) for enabling passage of person's legs (36) therethrough.

As can be clearly seen in Figs. 1 and 2, the clothing item (10) comprises, in the rear portion (22) thereof, an intermediate opening (38) that extends along a major portion of the rear portion (22) of the clothing item (10). Fig. 1 shows the intermediate opening (38) in a closed position, and Fig. 2 shows the intermediate opening (38) in an opened position. As will be later described, the intermediate opening (38) being closed in a normal position, i.e., in a non-defecating position, and, at least partially opened in a defecating position.

When closed, the intermediate opening (38) forms a closing line (40) by a tongue (42) that extends generally along three sides of a rectangle. As shown, the intermediate opening (38) opens from a region adjacent the upper opening (28) of the clothing item (10) towards a region adjacent the lower

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openings (34) of the clothing item (10). When opened, the tongue (42) moves away from the upper portion (26) of the clothing item (10) and folds towards the lower portion (32) of the clothing item (10).

The tongue (42) is kept in a closed position by means of a hook-and-loop fastener (44) (often referred to as Velcro®) that extends along the entire closing line (40) of the intermediate opening (38), or along a portion of the closing line (40). It was found that a Velcro® fastener is specifically useful for use in this case so that it could be quickly and easily opened, however, any other adequate fasteners known in the art may be used as well, such as buttons, zipper, etc.

Connection arrangements (46) for connecting the clothing item (10) to the wheelchair (18) are formed in each of the side portions (24) of the clothing item (10). According to a specific embodiment of the present invention, the connection arrangement (46) are three similar elastic straps (48) extending sideways from the clothing item (10). Each of the straps (48) is provided at an open end (50) thereof with a snap fastener (52). Each snap fastener (52) is mated with a complementary snap fastener (54) connected to the wheelchair (18) as will be later described.

In order to advantageously use the clothing item (18), the wheelchair (18) is respectively amended to comply with the clothing item (10). Thus, the sitting platform (16) of the wheelchair (18) has a central aperture (not shown) that is provided with a lid (not shown). The lid is movable between a closed position of the sitting platform (16) to an open position of the sitting platform (16).

The lid may be opened manually or mechanically. Furthermore, the lid may be opened rearward or sideways. According to a specific embodiment of the present invention (not shown), the lid is divided into two halves, which open sideways, away from each other.

In use, when the disabled person (14) wearing the clothing item (10) needs defecating, the clothing item (10) according to the present invention

enables the disabled person to perform this task by his own, without requiring assistance of another person. In this position, the intermediate opening (38) is aligned with the central aperture of the wheelchair.

Thus, at a first stage, the disabled person (14) opens the intermediate opening (38) and folds downwardly and forwardly the tongue (42). At a second stage, if the sitting platform (16) is provided with a lid, the lid is opened. At a third stage, the disabled person (14) connects the connection arrangement (46) to the wheelchair (18). This is done by connecting the snap fasteners (52) of the straps (48) to the snap fasteners (54) of the wheelchair (18), as shown in Fig. 4.

Now the disabled person (14) may defecate into a collecting vessel, such as a toilet bowl, chamber pot, and the like (not shown) located under the sitting platform (16).

The clothing item (10) and the wheelchair (18), when used in combination, form a system for enabling a disabled person (14) sitting on the sitting platform (16) of the wheelchair to defecate without help of another person, according to certain embodiments of the present invention.

Although the present invention has been described to a certain degree of particularity, it should be understood that various alterations and modifications could be made without departing from the spirit or scope of the invention as hereinafter claimed.

For example, the clothing item can be in a form of pants, thus having two lower openings, one for each leg of the disabled person. However, the clothing item may be in a form of a skirt, in which case it will have one lower opening, wherein both legs of the disabled person pass together through the lower opening.

The clothing item described above is in a form of short pants, thus covering the lower body portion of the disabled person. However, the clothing item may be in a form of long pants, thus covering the entire length of the person's legs or any portion thereof.

The clothing item may be elastic or non-elastic.

The connection means may be elastic or non-elastic.

The connection of the connection means to the wheelchair may be performed by snap fasteners, hook-and-loop fastener connection, bayonet
5 connection, or any other suitable connection known in the art.

The connection means do not have to consist of three independent straps and any other number of straps may be used.

The snap fasteners are made of metal, plastic, or any other adequate material.

10 The sitting platform of the wheelchair is provided with a lid that is movable between a closed position of the sitting platform to an open position of the sitting platform. However, the sitting platform of the wheelchair may be provided without a lid, in which case the sitting platform is in an open position all the time.

15 According to a specific embodiment of the present invention, when opening the intermediate opening, the tongue folds downwardly and forwardly. However, the present invention is not limited to a single direction of folding of the tongue. Thus, according to another embodiment of the present invention, when opening the intermediate opening of the clothing item, the tongue folds
20 rearwardly and upwardly. According to another embodiment of the present invention, when opening the intermediate opening of the clothing item, the tongue folds sideways, toward a side portion of the clothing item.

CLAIMS:

1. A clothing item (10) to be worn on a lower body part (12) of a disabled person (14) sitting on a sitting platform (16) of a wheelchair (18), the clothing item (10) comprising:
- 5 an upper opening (28) in an upper portion (26) of the clothing item,
at least one lower opening (34), opposite the upper opening, in a lower portion (32) of the clothing item, and
an intermediate opening (38) located between the upper opening and the lower opening, wherein;
- 10 the intermediate opening being closed in a normal position, and, at least partially opened in a defecating position.
2. The clothing item according to claim 1, wherein;
the intermediate opening opens from a region adjacent the upper opening
15 towards a region adjacent the lower opening.
3. The clothing item according to claim 1, wherein;
the intermediate opening opens by a quick opening closure.
- 20 4. The clothing item according to claim 3, wherein;
the quick opening closure of the intermediate opening consists of a hook-and-loop fastener.
5. The clothing item according to claim 3, wherein;
25 the quick opening closure of the intermediate opening consists of a zipper.
6. The clothing item according to claim 1, wherein;
the clothing item is provided with connection arrangement (46) for
connecting the clothing item to the wheelchair.

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7. The clothing item according to claim 6, wherein the clothing item (10) has a front portion (20), a rear portion (22), and side portions (24) between the front portion and the rear portion, and wherein;
the connection arrangement for connecting the clothing item to the
5 wheelchair are at the side portions of the clothing item.
8. The clothing item according to claim 6, wherein;
the connection arrangement are elastic.
- 10 9. The clothing item according to claim 1, wherein;
the clothing item are pants.
10. A system comprising a clothing item (10) and a wheelchair (18) for enabling a disabled person (14) sitting on a sitting platform (16) of the
15 wheelchair to defecate without help of another person, the clothing item (10) comprising:
an upper opening (28) in an upper portion (26) of the clothing item,
at least one lower opening (34), opposite the upper opening, in a lower portion (32) of the clothing item, and
20 an intermediate opening (38) located between the upper opening and the lower opening, wherein;
the intermediate opening being closed in a normal position, and, at least partially opened in a defecating position.
- 25 11. The system according to claim 10, wherein;
the sitting platform of the wheelchair has a central aperture.
12. The system according to claim 11, wherein;
the central aperture is provided with a lid, and wherein
30 the lid is movable between a closed position of the sitting platform to an open position of the sitting platform.

13. A method for enabling a disabled person sitting on a sitting platform of a wheelchair defecating without help of another person, the method comprising the steps of:

- 5 a. providing a clothing item to be worn on a lower body part of the disabled person sitting on the sitting platform of the wheelchair, the clothing item comprising:
- an upper opening,
- at least one lower opening, opposite the upper opening, and
- 10 an intermediate opening located between the upper opening and the lower opening, wherein;
- the intermediate opening being closed by a tongue in a normal position, and, at least partially opened in a defecating position.
- b. opening the intermediate opening and folding the tongue.

15

14. The method according to claim 13, wherein the clothing item having a front portion, a rear portion, and side portions between the front portion and the rear portion,

- connecting arrangements are provided at the side portions of the
- 20 clothing item, and
- the method further comprising the step of:

 c. connecting to the wheelchair the connecting arrangements provided at the side portions of the clothing item.

- 25 **15.** The method according to claim 13, further comprising the step of:

 d. opening a lid of the sitting platform from a closed position to an opened position.

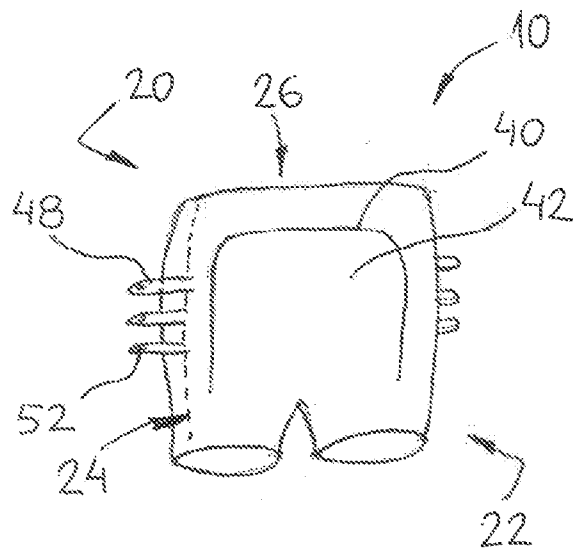


Fig. 1

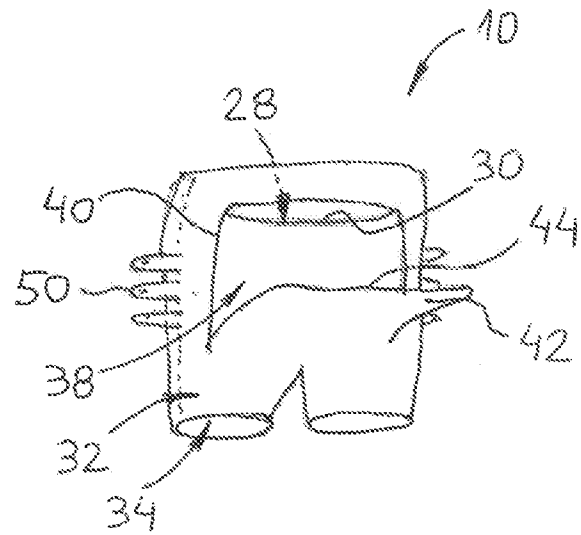


Fig. 2

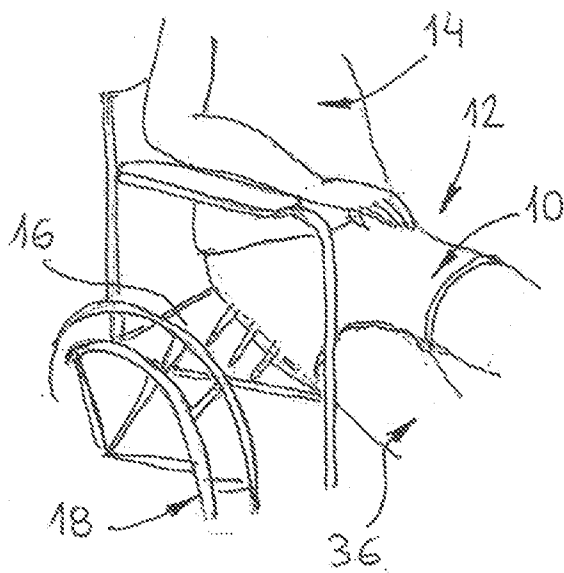


Fig. 3

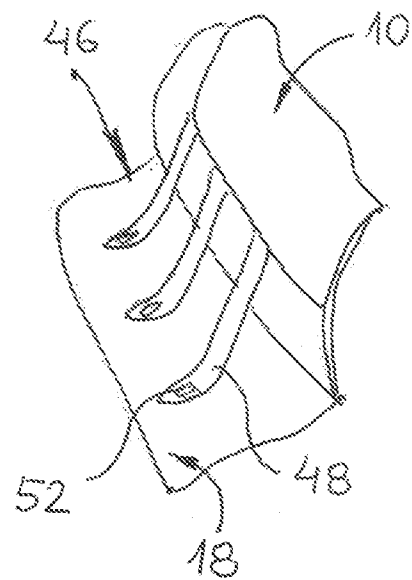


Fig. 4

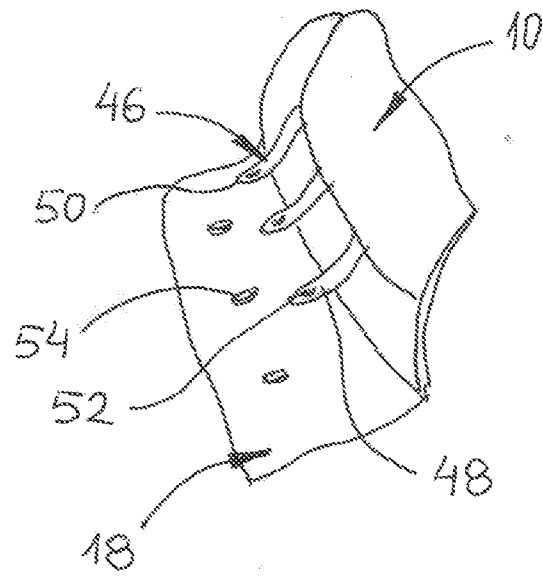


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB2022/056449

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - INV. - A41D 13/12; A61G 5/10 (2022.01)

ADD. - A41D 1/089 (2022.01)

CPC - INV. - A41D 13/1254; A61G 5/1002 (2022.08)

ADD. - A41D 2400/00; A41D 1/089 (2022.08)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2019/0021416 A1 (LAI et al) 24 January 2019 (24.01.2019) entire document	1-5, 9-11, 13
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Y		6-8, 12, 14, 15
Y	✓ CN 209359737 U (NANNING MUNICIPAL SOCIAL WELFARE HOSPITAL) 10 September 2019 (10.09.2019) see machine translation	6-8, 14
Y	✓ CN 203315193 U (MAO FANGSHENG) 04 December 2013 (04.12.2013) see machine translation	12, 15
A	US 2016/0219945 A1 (CHEN) 04 August 2016 (04.08.2016) entire document	1-15
A	US 2013/0104294 A1 (EDWARDS) 02 May 2013 (02.05.2013) entire document	1-15
A	US 2016/0331041 A1 (O'CONNOR) 17 November 2016 (17.11.2016) entire document	1-15

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Further documents are listed in the continuation of Box C.

☐

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P.O. Box 1450, Alexandria, VA 22313-1450

Facsimile No. 571-273-8300

Authorized officer

Taina Matos

Telephone No. PCT Helpdesk: 571-272-4300