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(54) Rolling platform ladder

(57) The invention provides a rolling platform ladder (1) comprising a platform ladder part (2) having legs (3) for engaging with the ground and an undercarriage part (8) having wheels (9) for rolling on the ground. Both are movably fixed to each other such that the platform ladder part (2) is raisable, thereby lifting the legs (3) from the ground and enabling the ladder (1) to roll on the wheels (9). The ladder (1) comprises a lifting mechanism with a lever arm (10) for manually lifting the platform ladder part (2) from a lowered condition with the legs (3) on the ground to a raised condition with raised legs (3) and the ladder (1) supporting on the wheels (9). In the raised condition a grip (11) of the lever arm (10) is positioned against an elevated part of the platform ladder part (2), which are grippable with one hand for rolling the ladder (1). Upon release of the lever arm (10) the platform ladder part (2) is moved to the lowered condition.

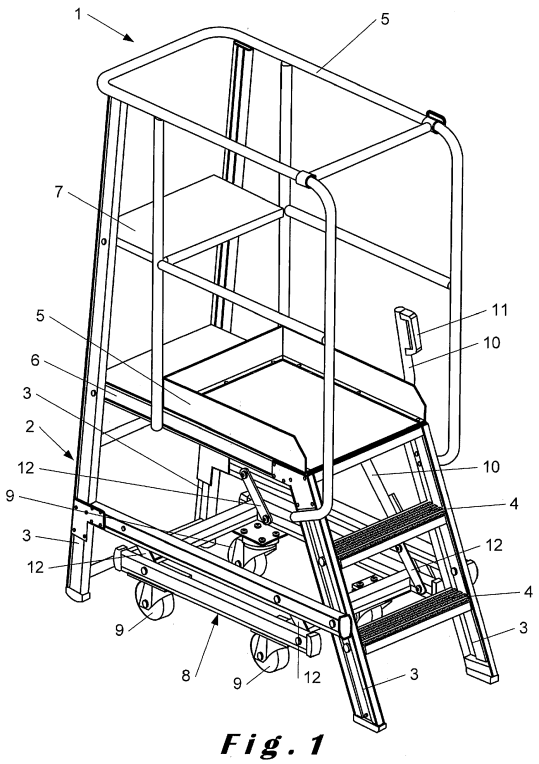

Fig. 1

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Description

Technical field

[0001] The present invention relates to a rolling platform ladder according to the preamble of the first claim.

Background art

[0002] A rolling platform ladder is for example known from US 2008/0093166 A1. This known rolling platform ladder comprises a platform ladder part and an undercarriage part. The undercarriage part comprises a set of wheels for engaging with the ground during rolling of the rolling platform ladder. The platform ladder part has legs for engaging with the ground when the ladder is to be climbed upon. The platform ladder part is raisable from the ground to lift the legs from the ground so that the platform ladder can be rolled. To this end, a lifting mechanism is provided, by means of which a user can lift the platform ladder part from a lowered condition, in which the legs of the platform ladder part are engaging with the ground, to a raised condition, in which the legs of the platform ladder part are raised from the ground and the rolling platform ladder is supported on the wheels of the undercarriage part. The lifting mechanism comprises a pair of lever arms by means of which a user can operate the lifting mechanism.

Disclosure of the invention

[0003] It is an aim of the present invention to provide a rolling platform ladder which is more user-friendly to operate.

[0004] This aim is achieved according to the invention with the rolling platform ladder showing the technical characteristics of the first independent claim.

[0005] According to the invention, the lifting mechanism has a lever arm which is provided such that the ladder part is raisable onto the undercarriage party by manual force. Furthermore, in raised condition a grip of the lever arm is positioned against an elevated part of the platform ladder part, the elevated part preferably being a predetermined height above the ground, such that in raised condition the grip of the lever arm and the elevated part of the platform ladder part are grippable together with one hand for moving the rolling platform ladder by rolling. Still further, upon release of the lever arm the platform ladder part is lowered by gravity to the lowered condition.

[0006] As a result of these characteristics, a user can raise the platform ladder part for rolling it by a single movement, which comprises gripping the lever arm at the grip and pulling the grip against the elevated part of the platform ladder part. Subsequently, by simply holding the grip against the elevated part with the same hand, the user can move the rolling platform ladder around by rolling it on the wheels of the undercarriage part, on which the rolling platform ladder is supported in the raised condition. Subsequently, upon release of the lever arm, the platform ladder part is lowered onto its legs by gravity, so that before the user climbs onto the ladder its position on the ground is secured.

[0007] So as a result of these characteristics, a more user-friendly rolling platform ladder can be achieved, which is quickly and easily raised to the raised condition for being moved and safely returned to the lowered condition upon release of the lever arm.

[0008] In an embodiment of the rolling platform ladder according to the present invention, the platform ladder part comprises a raised platform which is in lowered condition at a height of 20 cm to 100 cm above the ground.

[0009] The raised platform has the advantage that it provides the user of the rolling platform ladder with a platform on which the user can stand. Furthermore, the raised platform can also be advantageously used for storing objects, such as for example grocery goods, thereon. In this way, the objects stored on the raised platform, can be carried around on the rolling platform ladder when the rolling platform ladder is being moved around by the user. The raised platform having a height ranging from 20 cm to 100 cm above the ground in the lowered condition of the rolling platform ladder, is advantageous for the use of the rolling platform ladder for filling the shelves in a store, such as for example a supermarket or a grocery store. The raised platform being positioned at such height makes it easy for the user standing on the raised platform to reach to the upper shelves for filling those upper shelves with for example grocery goods.

[0010] In an embodiment of the rolling platform ladder according to the present invention, a front side of the platform ladder part comprises a ladder part with steps for climbing the platform ladder part and wherein the lever arm is positioned at a lateral side of the front side.

[0011] The ladder part with the steps provides a beneficial means for the user of the rolling platform ladder to move on or off the platform ladder part. The lever arm being positioned on the lateral side of the front side of the platform ladder part has the advantage that the lever arm is easy to reach by the user standing in front of the rolling platform ladder, and has the advantage that the lever arm does not hinder the user in moving on or off the platform ladder part.

[0012] In an embodiment of the rolling platform ladder according to the present invention, the platform ladder part comprises a safety rail construction, positioned for surrounding a user present on the platform ladder part, and wherein the elevated part is part of the safety rail construction.

[0013] The safety rail construction is beneficial for the safety of a user standing on the platform ladder part. The safety rail construction prevents the user from accidentally falling off the platform ladder part. The safety rail also has the advantage of providing a support for the user on which the user can lean, for example when reaching to shelves for filling those shelves. Providing the el-

evated part, against which the grip of the lever arm is positioned in the raised condition of the platform ladder part, as a part of the safety rail construction has the advantage that the construction of the rolling platform ladder is simplified since no additional means need to be provided to form the elevated part.

[0014] In an embodiment of the rolling platform ladder according to the present invention, the lifting mechanism comprises a plurality of pivot arms which are pivotably mounted to, on the one hand, the undercarriage part and, on the other hand, the platform ladder part, in such a way that the platform ladder part and the undercarriage part are movable with respect to each other in height direction of the rolling platform ladder, and wherein the lever arm is an extension of one of the pivot arms.

[0015] The inventors have found that the use of the pivot arms allows a simple construction of the lifting mechanism of the rolling platform ladder, which is easy to assemble and to maintain. The lever arm extending from one of the pivot arms has the advantage that the pivot arms are operated directly by the lever arm, and has the advantage that limited means are required for operating the lifting mechanism by means of the lever arm.

[0016] In an embodiment of the rolling platform ladder according to the present invention, the lever arm has an S-shape.

[0017] The inventors have found that the S-shape of the lever arm is an advantageous shape for positioning the grip of the lever arm near the front side of the ladder platform, where the grip of the lever arm is easily reachable by a user of the rolling platform ladder.

Brief description of the drawings

[0018] The invention will be further elucidated by means of the following description and the appended figures.

Figure 1 shows a perspective view of the rolling platform ladder according to an embodiment of the present invention.

Figure 2 shows a side view of the rolling platform ladder of Figure 1 in the lowered condition.

Figure 3 shows a side view of the rolling platform ladder of Figure 1 in the raised condition.

Figure 4 shows a separate view of the lever arm of the rolling platform of Figure 1.

Modes for carrying out the invention

[0019] The present invention will be described with respect to particular embodiments and with reference to certain drawings but the invention is not limited thereto but only by the claims. The drawings described are only schematic and are non-limiting. In the drawings, the size of some of the elements may be exaggerated and not drawn on scale for illustrative purposes. The dimensions and the relative dimensions do not necessarily correspond to actual reductions to practice of the invention.

[0020] Furthermore, the terms first, second, third and the like in the description and in the claims, are used for distinguishing between similar elements and not necessarily for describing a sequential or chronological order. The terms are interchangeable under appropriate circumstances and the embodiments of the invention can operate in other sequences than described or illustrated herein.

[0021] Moreover, the terms top, bottom, over, under and the like in the description and the claims are used for descriptive purposes and not necessarily for describing relative positions. The terms so used are interchangeable under appropriate circumstances and the embodiments of the invention described herein can operate in other orientations than described or illustrated herein.

[0022] Furthermore, the various embodiments, although referred to as "preferred" are to be construed as exemplary manners in which the invention may be implemented rather than as limiting the scope of the invention.

[0023] The term "comprising", used in the claims, should not be interpreted as being restricted to the elements or steps listed thereafter; it does not exclude other elements or steps. It needs to be interpreted as specifying the presence of the stated features, integers, steps or components as referred to, but does not preclude the presence or addition of one or more other features, integers, steps or components, or groups thereof. Thus, the scope of the expression "a device comprising A and B" should not be limited to devices consisting only of components A and B, rather with respect to the present invention, the only enumerated components of the device are A and B, and further the claim should be interpreted as including equivalents of those components.

[0024] Figure 1 shows a perspective view of the rolling platform ladder 1 according to an embodiment of the present invention. The rolling platform ladder 1 comprises an undercarriage part 8 and a platform ladder part 2, which are movably fixed to each other by means of pivot arms 12. The pivot arms 12 are part of a lifting mechanism of the rolling platform ladder 1, which lifting mechanism is provided for moving the platform ladder part 2 between a lowered condition wherein the platform ladder part 2 supports on the ground, and a raised condition wherein the platform ladder part 2 is raised from the ground. The lifting mechanism is operated by means of a lever arm 10, shown in more detail in Figure 4, which extends from one of the pivot arms 12. The lever arm 10 is preferably arranged such that the lever arm 10 is easy to reach by a user of the rolling platform ladder 1 for operating the lifting mechanism. In this embodiment, this is achieved, among other things, by the S-shape of the lever arm 10. Because of the S-shape the grip 11 on the lever arm 10 is positioned near the front side of the rolling platform ladder 1, at which position the grip 11, and thereby the lever arm 10, is easily reachable by a user of the rolling

platform ladder 1. Another advantage of this S-shape is that the lower end of the lever arm 10 and the respective pivot arm 12 which is an extension of the lever arm 10 are in the lowered condition of Fig. 2 in a suitable, relatively sharp angle with respect to horizontal, which facilitates the raising of the platform ladder part 2 to the raised condition. Then, in the raised condition, shown in Fig. 3, the lower end of the lever arm 10 and the respective pivot arm 12 are still in a sharp angle with respect to horizontal, which can ensure that the platform ladder part 2 drops to the lowered condition due to gravity as soon as the lever arm 10 is released.

[0025] In the embodiment shown in figures 2 and 3, the angle is respectively around 45° in the raised condition and around 60° in the lowered condition. In alternative embodiments, however, the angle may vary, for example between 30° and 60° in the raised condition and between 50° and 80° in the lowered condition.

[0026] In the embodiment shown in the figures, the lever arm 10 is an extension of one of the pivot arms 12 near the front side of the rolling platform ladder. In alternative embodiments, the lever arm 10 could however also be attached to a pivot arm 12 near the back side of the rolling platform ladder, or to a pivot arm in any position between the front and back sides.

[0027] The platform ladder part 2 comprises legs 3, which are provided for engaging with the ground when the platform ladder part 2 is supported on the ground in the lowered condition. In between the legs 3 at the front side of the platform ladder part 2, steps 4 are arranged, which form the ladder part of the platform ladder part 2. The ladder part is provided for climbing on and off the platform ladder part, and facilitates a user of the rolling platform ladder 1 in moving between the ground and a raised platform 6 of the platform ladder part 2. The raised platform 6 is provided for a user to stand on, for example while filling the shelves in a store with goods. These goods can be stored on the raised platform 6 or one ore more shelves 7 provided on the platform ladder part 2. The platform ladder part 2 further comprises a safety rail construction 5 for surrounding a user present on the platform ladder part 2. In this embodiment, the safety rail construction 5 comprises a number of rods arranged around the raised platform 6, together with some side walls attached onto the raised platform 6, which side walls prevent the feet of the user from sliding of the raised platform 6. At the top and front side of the platform ladder part 2, the safety rail construction 5 is further provided with a tiltable closing element, which can be lifted up to allow the user to step on and off the raised platform 6, and put back such that the safety rail construction 5 is closed off to surround the user again.

[0028] The undercarriage part 8 comprises a set of wheels 9, which are provided for rolling the rolling platform ladder 1 around on the ground, such that the user can move the rolling platform ladder 1 between different positions. In the lowered condition of the platform ladder part 2, the rolling platform ladder 1 is prevented from being rolled around because of the grip of the legs 3 of the platform ladder part 2 engaging on the ground. This allows the user to safely get on and off the platform ladder part 2, and to work safely from the rolling platform ladder while standing on the platform ladder part 2, without a risk of the rolling platform ladder suddenly 1 rolling away. In the raised condition, however, the legs 3 are lifted up from the ground and the rolling platform ladder 1 can be rolled around freely on the ground. This allows the user to walk around with the rolling platform ladder 1.

[0029] Figures 2 and 3 show a side view of the rolling platform ladder 1 of Figure 1 respectively in the lowered condition of the platform ladder part 2 and the raised condition of the platform ladder part 2. These figures show how the lever arm 10 is used for operating the lifting mechanism of the rolling platform ladder 1. To move the platform ladder part 2 from the lowered condition to the raised condition, a user grabs the grip 11 of the lever arm 10 and pulls the grip 11 against an elevated part of the platform ladder part 2. In this embodiment, the elevated part is a part of the safety rail construction 5. As a result of this movement, the lever arm 10 pulls on the pivot arm 12 from which the lever arm 10 is extending, in such a way that the platform ladder part 2 is raised with respect to the undercarriage part 8 and the ground, thereby disengaging the legs 3 of the platform ladder part 2 from the ground. Because of the use of the lever arm 10, this operation requires limited force from the user, and the user can easily hold the platform ladder part 2 in the raised condition by grabbing with one hand around the grip 11 of the lever arm 10 and the elevated part of the platform ladder part 2. This has the advantage that one hand of the user remains free for other uses. To move the platform ladder part 2 back to the lowered condition, the lever arm 10 is released and the platform ladder part 2 is lowered back to the ground by gravity.

List of references:

[0030]

1	rolling platform ladder
2	platform ladder part
3	leg
4	step
5	safety rail construction
6	raised platform
7	shelf
8	undercarriage part
9	wheel
10	lever arm
11	grip
12	pivot arm

Claims

1. A rolling platform ladder (1) comprising a platform

ladder part (2) and an undercarriage part (8), the undercarriage part (8) comprising a set of wheels (9) for engaging with the ground during rolling of the rolling platform ladder (1), the platform ladder part (2) having legs (3) for engaging with the ground when the rolling platform ladder (1) is to be climbed upon, the platform ladder part (2) and the undercarriage part (8) being movably fixed to each other in such a way that the platform ladder part (2) is raisable from the ground to thereby lift the legs (3) from the ground and enable rolling of the rolling platform ladder (1) on the wheels (9) of the undercarriage part (8), the rolling platform ladder (1) further comprising a lifting mechanism with a lever arm (10), provided such a user can lift the platform ladder part (2) from a lowered condition, in which the legs (3) of the platform ladder part (2) are engaging with the ground, to a raised condition, in which the legs (3) of the platform ladder part (2) are raised from the ground and the rolling platform ladder (1) is supported on the wheels (9) of the undercarriage part (8), **characterised in that** the lever arm (10) of the lifting mechanism is provided such that the ladder part is raisable onto the undercarriage by manual force, **in that** in raised condition a grip (11) of the lever arm (10) is positioned against an elevated part of the platform ladder part (2), the elevated part being a predetermined height above the ground, such that in raised condition the grip (11) of the lever arm (10) and the elevated part of the platform ladder part (2) are grippable with one hand for moving the rolling platform ladder (1) by rolling, and **in that** upon release of the lever arm (10) the platform ladder part (2) is lowered by gravity to the lowered condition.

2. The rolling platform ladder (1) according to claim 1, wherein the platform ladder part (2) comprises a raised platform (6) which is in lowered condition at a height of 20 cm to 100 cm above the ground.

3. The rolling platform ladder (1) according to any one of the preceding claims, wherein a front side of the platform ladder part (2) comprises a ladder part with steps (4) for climbing the platform ladder part (2) and wherein the lever arm (10) is positioned at a lateral side of the front side.

4. The rolling platform ladder (1) according to any one of the preceding claims, wherein the platform ladder part (2) comprises a safety rail construction (5), positioned for surrounding a user present on the platform ladder part (2), and wherein the elevated part is part of the safety rail construction (5).

5. The rolling platform ladder (1) according to any one of the preceding claims, wherein the lifting mechanism comprises a plurality of pivot arms (12) which are pivotably mounted to, on the one hand, the undercarriage part (8) and, on the other hand, the platform ladder part (2), in such a way that the platform ladder part (2) and the undercarriage part (8) are movable with respect to each other in height direction of the rolling platform ladder (1), and wherein the lever arm (10) is an extension of one of the pivot arms (12).

6. The rolling platform ladder (1) according to any one of the preceding claims, wherein the lever arm (10) has an S-shape.

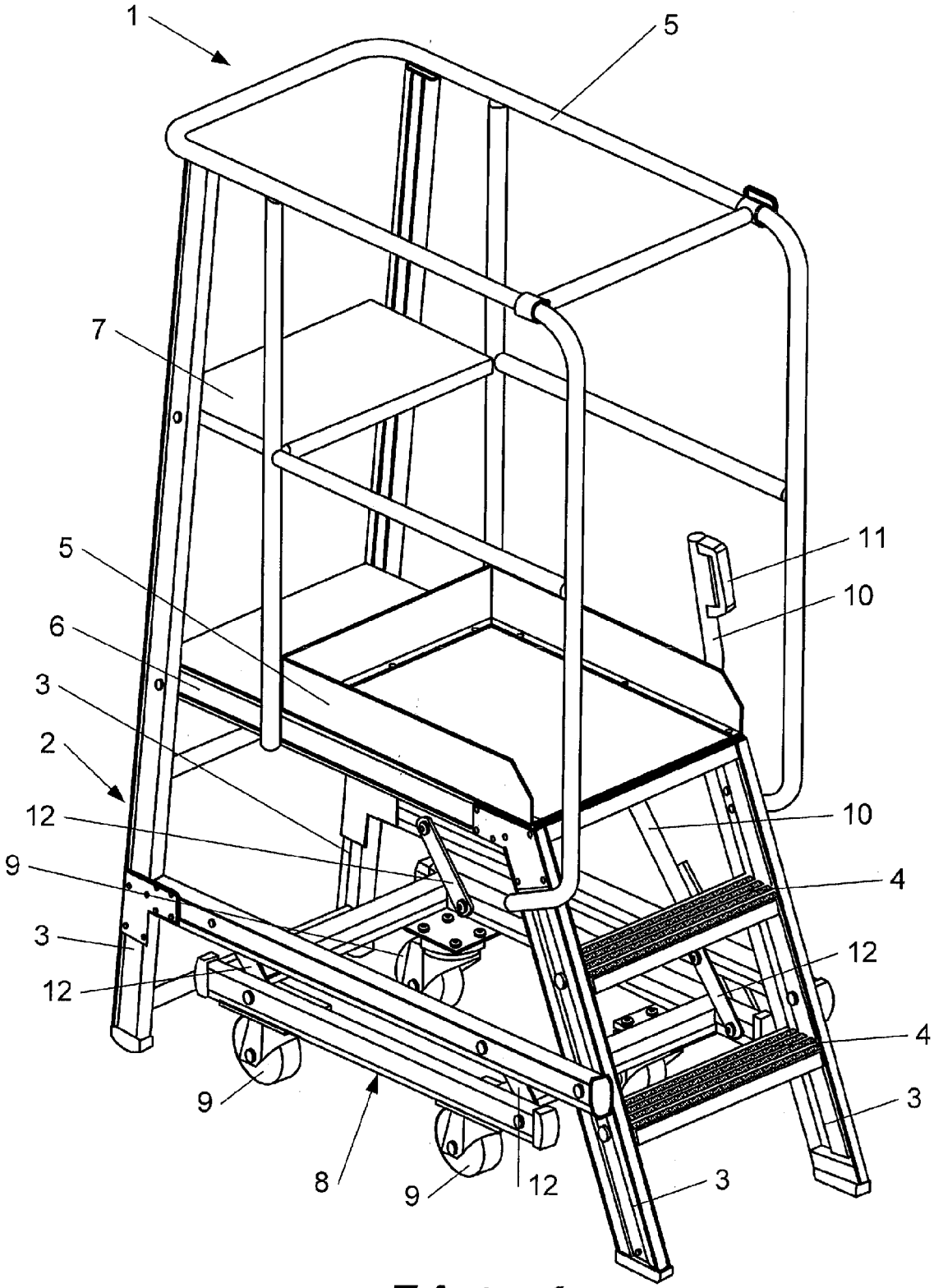

Fig. 1

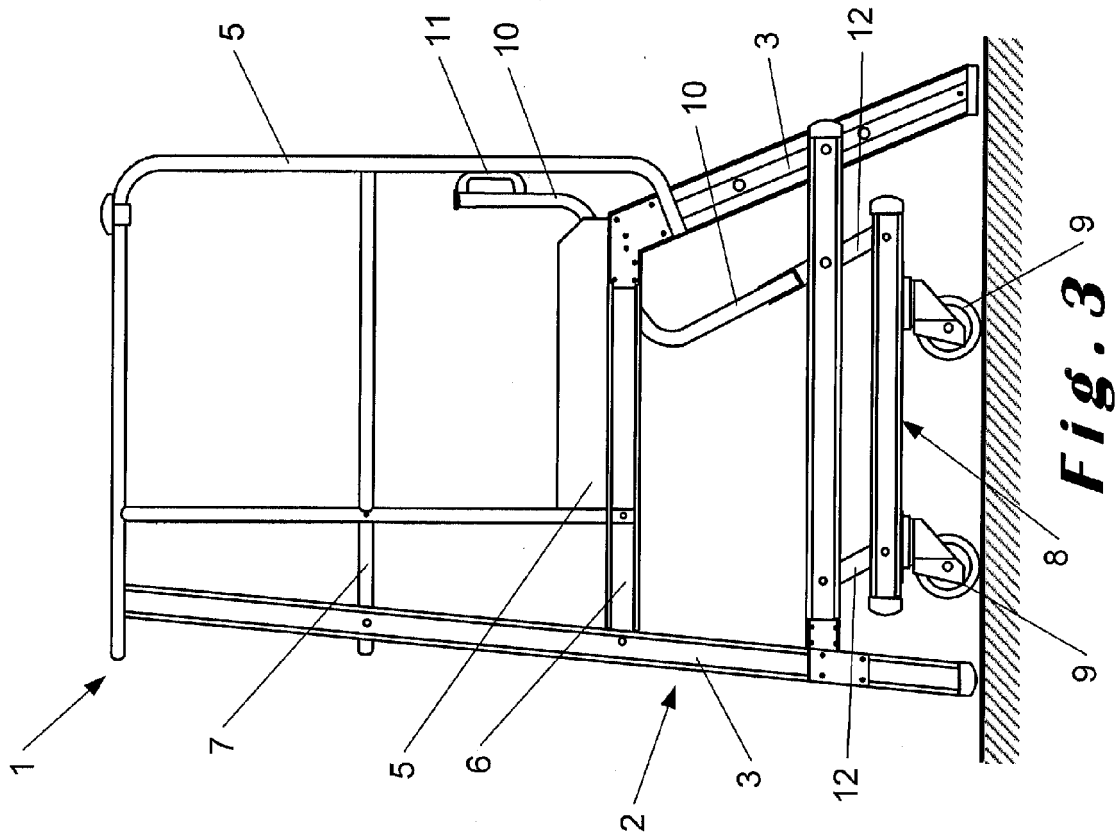

Fig. 3

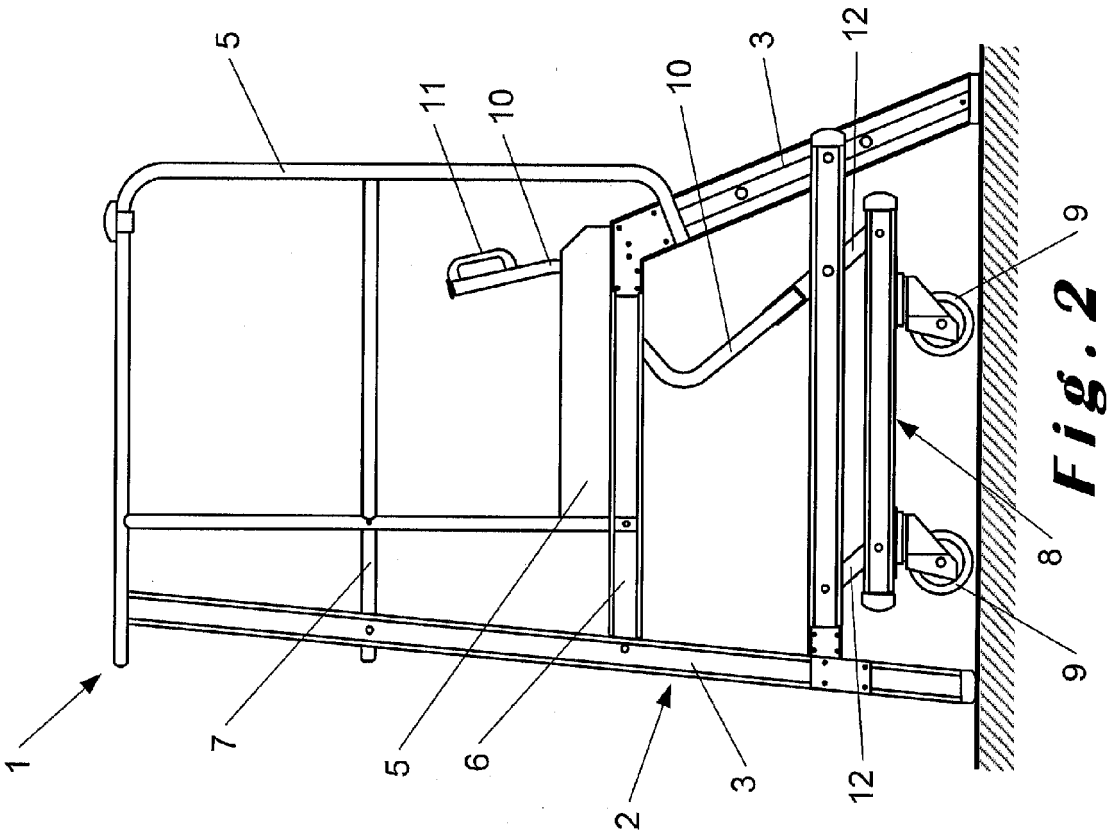

Fig. 2

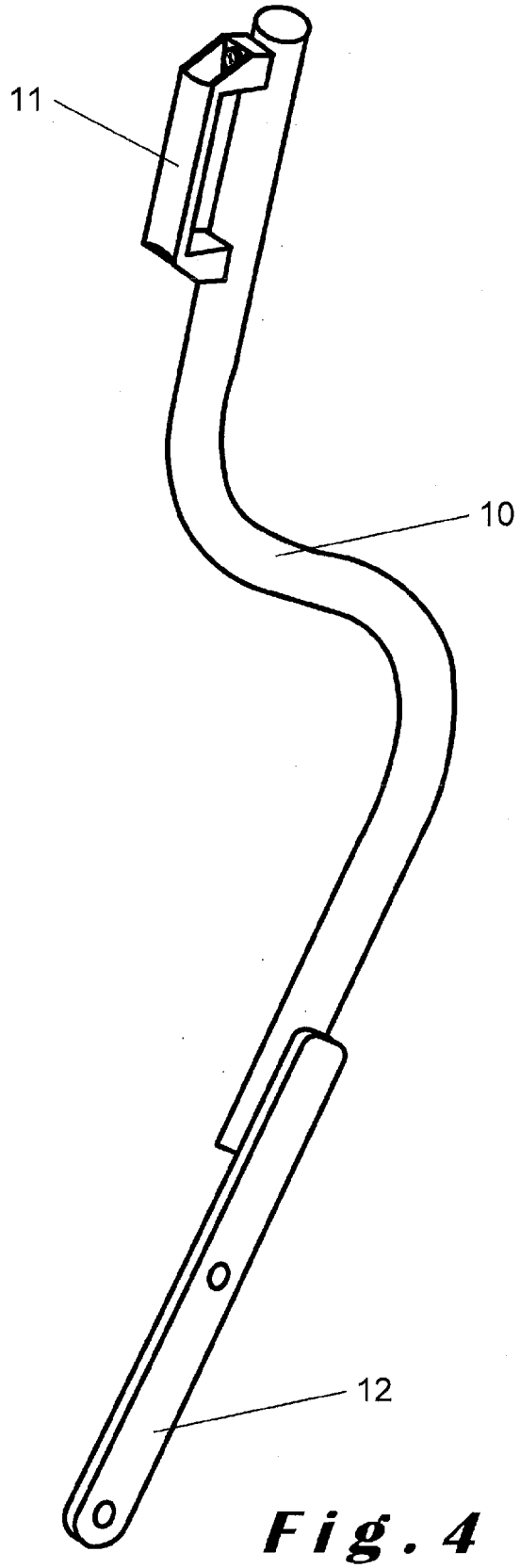

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 14 17 0280

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	mondial-media.com: "Warehouseking: Safe, fast and innovative!", , 7 April 2014 (2014-04-07), XP054975603, Retrieved from the Internet: URL:http://www.youtube.com/watch?v=HpRvhuetwTc [retrieved on 2014-11-07] * minute 0:21; 0:55; 0:57 of the video citation *	1-6	INV. B62B5/04 E06C1/39 E06C1/397 E06C7/18 ADD. E04G1/24 E04G1/28
X	FR 2 171 571 A5 (HERVIEU ET CIE [FR]) 21 September 1973 (1973-09-21) * figures 1,2 * * sentence 25, paragraph 3 - sentence 34 *	1-6	

TECHNICAL FIELDS SEARCHED (IPC)

A47C
B62B
E04G
E06C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	7 November 2014	Tryfonas, N

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2171571 A5	21-09-1973	NONE	

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Patent documents cited in the description

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