

(19)



(11)

EP 3 090 714 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
18.07.2018 Bulletin 2018/29

(51) Int Cl.:
A61G 1/02 (2006.01) **A61G 1/048** (2006.01)

(21) Application number: **15166850.6**

(22) Date of filing: **07.05.2015**

(54) **BASKET STRETCHER WITH DETACHABLE ROLLER GEARS**

KORBTRAGE MIT ABNEHMBAREN ROLLENLAUFWERKEN

BRANCARD-PANIER AVEC ROUES DÉTACHABLES

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(43) Date of publication of application:
09.11.2016 Bulletin 2016/45

(73) Proprietor: **IVECO MAGIRUS AG**
89079 Ulm (DE)

(72) Inventor: **HUEHN, Alexander**
89075 ULM (DE)

(74) Representative: **Franzolin, Luigi et al**
Studio Torta S.p.A.
Via Viotti, 9
10121 Torino (IT)

(56) References cited:
FR-A- 1 103 891 GB-A- 2 408 691
US-A1- 2002 041 084 US-A1- 2013 227 790

EP 3 090 714 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention is related to a basket stretcher comprising a stretcher body and a plurality of rollers carrying a stretcher body for moving the basket stretcher.

[0002] Basket stretchers of the above kind represent an important equipment part to be used by members of a rescue crew. For example, fire workers are often in the situation to transport an injured or unconscious patient to a safe place. The patient is placed within the stretcher body, which has a generally trough shape, and secured therein by a safety harness. It takes several rescue crew members to lift and carry the basket stretcher over a long distance.

Since the basket stretcher must be lifted by physical strength, problems arise with patients with a higher body weight than usual. In particular it is almost impossible even for several well-trained fire workers with good physical skills to lift a basket stretcher with an obese patient and to carry it over a long distance. If the space in which the basket stretcher is located is quite narrow, like a small room or a narrow passageway, it is even impossible to handle the basket stretcher with the help of enough persons for lifting its weight. Furthermore, lifting the basket stretcher by many persons always implies the danger that members of the rescue staff or the patient within the basket stretcher are hurt by falling or stumbling, or one of their limbs is hurt by getting jammed between the basket stretcher and a wall, etc.

For the above reasons basket stretchers have been developed that are equipped with rollers under the stretcher body. US 2013/227790 A1 discloses a stretcher comprising an undercarriage with at least one wheel or a castor arranged thereon, wherein the undercarriage is arranged foldably on the lying arrangement. However, such basket stretchers can move accidentally on an unlevelled ground if they are not secured manually, which is often the case in rescue situations in which the attention of the members of the rescue team must be focused to many different items.

[0003] It is therefore an object of the present invention to provide a basket stretcher that can be moved easily on rollers if desired, making it possible to transport even obese patients with high body weight, but decreasing a danger of undesired accidental movements of the basket stretcher, for example, on an uneven ground.

This object is achieved by a basket stretcher comprising the features of claim 1.

The basket stretcher according to the present invention comprises rollers that are suspended within roller gears provided with manual handling means comprising a lever configured to push the roller gear from an unloaded position into a loaded position supporting the stretcher body or a rim of said stretcher body. These manual handling means provide control over the state of the basket stretcher, i. e. if the stretcher body rests on the ground with the rollers unloaded so that accidental motions of

the basket stretcher are impossible, or if the stretcher body rests on the rollers so that it can be moved easily to transport the patient lying within the stretcher body. With other words, a manual operation of the handling means is necessary to bring the basket stretcher into the position in which it rests on its rollers. The degree of control over the basket stretcher and its position or movement is increased to a great extent.

[0004] Preferably the roller gears are detachable from the stretcher body.

[0005] According to another preferred embodiment of the present invention, the roller gear comprises a roller brake to stop the roller.

[0006] More preferably, this roller brake can be operated by the manual handling means. For one example, the roller brake is operated by a brake handle provided at the end of the lever as described above.

According to another preferred embodiment of the present invention, a roller brake is releasable by a handle of the manual handling means and keeps the braking position when the handle is not operated. In this case the handle for releasing the brake operates like a dead man switch so that it must be activated by manual force to move the roller. If this force is released, the roller brake automatically takes its braking position to secure the basket stretcher and to prevent accidental movements.

According to another preferred embodiment of the present invention, the roller gear is equipped with a load sensor to measure the total load of the stretcher body and its content.

[0007] More preferably, the basket stretcher is equipped with display means to display the load measured by the load sensor. The measured load is an important information for a paramedic or a physician at the rescue site for dosing the amount of a drug to be dispensed to the patient within the basket stretcher according to her/his body weight.

[0008] According to another preferred embodiment of the present invention, the basket stretcher is equipped with transmission means to transmit data representing the load measured by the load sensor to an external receiver.

[0009] These and other aspects of the present invention will be apparent from and elucidated with reference to embodiments of the present invention described in the following figures.

The only figure is a schematic partial view of an embodiment of a basket stretcher according to the present invention.

[0010] The figure shows a part of a basket stretcher 10, with a generally trough-shaped stretcher body 12 that is shown in section. It has an inclined right side wall 14 delimited at its upper end by a rim 16 with a generally circular cross-section. The bottom 18 of the stretcher body 12 is mainly flat. Inside the stretcher body 12, a safety harness (not shown) for securing a patient lying therein is disposed.

[0011] At the right side of the basket stretcher 10, a

roller gear 20 is attached that is provided with a roller 22 at its bottom. The roller 22 can rotate around a horizontal axis 24, which lies within a lower suspension part 26 encompassing the roller 22 from above with opposite vertical flanges 28. This suspension part 26 itself can be turned around a vertical axis so that the roller 22 can be positioned into any desired driving direction.

[0012] The suspension part 26 is rotatably mounted below an attachment part 30 with an attachment portion 32 engaging the rim 16 of the stretcher body 12 from below and abutting at the inclined side wall 14. In the position shown in the figure, the bottom 18 of the stretcher body 12 is positioned above the ground such that the load of the stretcher body 12 and its content (not shown) rests on the roller. With other words, in the position shown in the figure, the roller 22 is loaded by the weight of the stretcher body 12 and its contents. This position shall be noted as the loaded position in the following description.

[0013] The roller gear 20 shown in the figure is only one example of a plurality of roller gears 20 distributed along the rim 16 around the stretcher body 12. In particular the roller gears 20 are detachable from the stretcher body 12 and can be attached at laterally opposed positions at the stretcher body 12 individually.

[0014] As shown in the figure, each roller gear 20 further comprises a lever 34 extending vertically above the attachment part 30. At its top end, the lever 34 is equipped with a handle 36 for manually operating the lever. If the lever 34 is turned from the vertical position shown in the figure in the counterclockwise direction around the axis defined by the circular cross-section of the rim 16, the attachment portion 32 of the attachment part 30 is released from the side wall 14 of the stretcher body 12, and the basket stretcher 10 is lowered to the ground until its bottom 18 touches the ground. In this position the roller gear 20 can be released completely from the stretcher body 12. The position in which the bottom 18 of the stretcher body 12 is supported by the ground and not by the roller 22 shall be denoted as an unloaded position with respect to the roller 22.

[0015] For attaching the roller gear 20 to the stretcher body 12, the attachment part 30 is attached by its attachment portions 32 at the rim 16 of the stretcher body 12, and the lever 34 is turned in the clockwise direction until it reaches the vertical position shown in the figure, in which the attachment portion 32 touches the side wall 14 of the stretcher body 12 again. During this movement the roller 22 is increasingly loaded by the weight of the stretcher body 12 and its content.

[0016] The roller gear 20 further comprises a roller brake 21 to stop the roller 22 and to prevent accidental movements of the basket stretcher 10. This roller brake 21 can be operated by a brake handle 38 disposed within a handle 36 for turning the lever 34. The brake handle 38 is a pulling handle that keeps a braking position if it is not operated, i. e. no upward pulling force acts on the brake handle 38. The brake handle 38 is connected to a brake at the bottom of the roller gear 20 within the support

portion 26 by a vertical bar 40 extending through the lever 34. If the brake handle 38 is lifted manually, the brake 21 is released, and the roller 22 can run freely.

[0017] The roller gear 20 is further equipped with a load sensor (not shown) to measure the total load of the stretcher body 12 and its content. The load measured by the load sensor can be displayed by a suitable display means. The data representing the load measured by the load sensor may also be transmitted by a transmission means disposed within the roller gear 20 to an external receiver. This external receiver is comprised within a control unit of a lifting device, for example, within a telescopic ladder of a fire fighting vehicle that is provided at its end with an attachment means to attach the basket stretcher 10. The control unit is provided for controlling this telescopic ladder as one example for an aerial device. With such aerial devices, it is of high importance to calculate extension limits of the telescopic arm depending on the load acting on the tip of the telescopic arm. This load is represented by the data transmitted by the transmission means to the external receiver within the control unit. Depending on these data, the control unit can calculate the extension limits of the telescopic arm. If certain load limits are exceeded, the control unit may indicate that it is impossible to carry the basket stretcher because of an overload.

[0018] Moreover, the measured load is an important information for a paramedic or a physician at the rescue site for dosing the amount of a drug to be dispensed to the patient within the basket stretcher according to her/his body weight.

[0019] In case of a plurality of roller gears 20 attached at different positions of the rim 16, the loads determined by the load sensors within the different roller gears 22 can be summarized to a total load that is used by the control unit to calculate the extension limits of the telescopic arm of the aerial device.

Claims

1. Basket stretcher (10), comprising a stretcher body (12) and a plurality of rollers (22) carrying the stretcher body (12) for moving the basket stretcher (10), **characterized in that** the rollers (22) are suspended within roller gears (20) provided with manual handling means comprising a lever (34) configured to push the respective roller gear (20) from an unloaded position into a loaded position supporting the stretcher body (12) or a rim (16) of said stretcher body (12).
2. Basket stretcher according to claim 1, **characterized in that** the roller gears (20) are detachable from the stretcher body (12).
3. Basket stretcher according to one of the preceding claims, **characterized in that** the roller gear (20) comprises a roller brake (21) to stop the roller (22).

4. Basket stretcher according to claim 3, **characterized in that** the roller brake (21) can be operated by the manual handling means.
5. Basket stretcher according to claim 4, **characterized in that** the roller brake (21) is releasable by a handle (38) of the manual handling means and keeps a braking position when the handle (38) is not operated.
6. Basket stretcher according to one of the preceding claims, **characterized in that** the roller gear (20) is equipped with a load sensor to measure the total load of the stretcher body (12) and its content.
7. Basket stretcher according to claim 6, **characterized by** display means to display the load measured by the load sensor.
8. Basket stretcher according to one of claims 6 or 7, **characterized by** transmission means to transmit data representing the load measured by the load sensor to an external receiver.

Patentansprüche

1. Korbtrage (10), umfassend einen Tragenkörper (12) und eine Vielzahl von Rollen (22), die den Tragenkörper (12) tragen, um die Korbtrage (10) zu bewegen, **dadurch gekennzeichnet, dass** die Rollen (22) in Rollvorrichtungen (20) aufgehängt sind, welche mit Mitteln zur manuellen Bedienung ausgestattet sind, die einen Hebel (34) umfassen, dazu eingerichtet, die betreffende Rollvorrichtung (20) aus einer unbelasteten Stellung in eine belastete Stellung zu drücken, in welcher der Tragenkörper (12) oder eine Kante (16) des Tragenkörpers (12) unterstützt wird.
2. Korbtrage gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Rollvorrichtungen (20) vom Tragenkörper (12) abnehmbar ausgebildet sind.
3. Korbtrage gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Rollvorrichtung (20) eine Rollenbremse (21) umfasst, um die Rolle (22) zu stoppen.
4. Korbtrage gemäß Anspruch 3, **dadurch gekennzeichnet, dass** die Rollenbremse (21) über die Mittel zur manuellen Bedienung betätigt werden kann.
5. Korbtrage gemäß Anspruch 4, **dadurch gekennzeichnet, dass** die Rollenbremse (21) über einen Griff (38) der Mittel zur manuellen Bedienung gelöst werden kann und in einer Bremsstellung verbleibt, wenn der Griff (38) nicht betätigt wird.

6. Korbtrage gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Rollvorrichtung (20) mit einem Lastsensor ausgestattet ist, um die gesamte Last des Tragekörpers (12) und seines Inhalts zu messen.
7. Korbtrage gemäß Anspruch 6, **gekennzeichnet durch** Mittel zur Anzeige der durch den Lastsensor gemessenen Last.
8. Korbtrage gemäß Anspruch 6 oder 7, **gekennzeichnet durch** Übertragungsmittel zur Übertragung von Daten bezüglich der durch den Lastsensor gemessenen Last an einen externen Empfänger.

Revendications

1. Brancard panier (10), comprenant un corps de brancard (12) et une pluralité de roues (22) portant le corps de brancard (12) pour déplacer le brancard panier (10), **caractérisé en ce que** les roues (22) sont suspendues dans des engrenages de roue (20) dotés de moyens de manipulation manuels comprenant un levier (34) configuré pour pousser l'engrenage de roue respectif (20) d'une position non chargée à une position chargée supportant le corps de brancard (12) ou un bord (16) dudit corps de brancard (12).
2. Brancard panier selon la revendication 1, **caractérisé en ce que** les engrenages de roue (20) sont détachables du corps de brancard (12).
3. Brancard panier selon l'une des revendications précédentes, **caractérisé en ce que** l'engrenage de roue (20) comprend un frein de roue (21) pour arrêter la roue (22).
4. Brancard panier selon la revendication 3, **caractérisé en ce que** le frein de roue (21) peut être actionné par les moyens de manipulation manuels.
5. Brancard panier selon la revendication 4, **caractérisé en ce que** le frein de roue (21) peut être libéré par une poignée (38) des moyens de manipulation manuels et conserve une position de freinage lorsque la poignée (38) n'est pas actionnée.
6. Brancard panier selon l'une des revendications précédentes, **caractérisé en ce que** l'engrenage de roue (20) est équipé d'un capteur de charge pour mesurer la charge totale du corps de brancard (12) et de son contenu.
7. Brancard panier selon la revendication 6, **caractérisé par** des moyens d'affichage pour afficher la charge mesurée par le capteur de charge.

8. Brancard panier selon l'une des revendications 6 ou 7, **caractérisé par** des moyens de transmission pour transmettre des données représentant la charge mesurée par le capteur de charge à un récepteur externe.

5

10

15

20

25

30

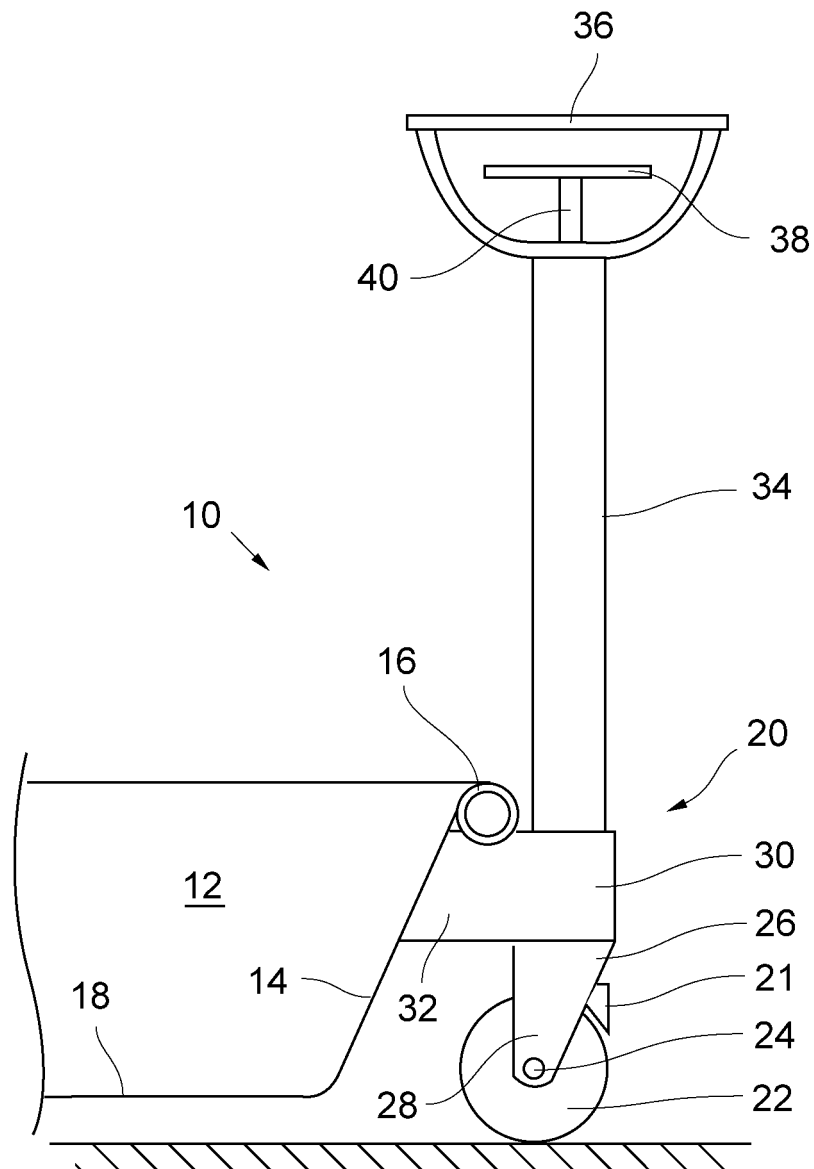
35

40

45

50

55



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 2013227790 A1 [0002]