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(54) Nozzle boot for a fuel dispenser

(57) A nozzle boot arrangement (4) is provided. The nozzle boot arrangement (4) comprises a nozzle boot (8) for holding a nozzle (7). The nozzle boot arrangement is **characterised in that** it is adapted to be positioned at the front side of a fuel dispensing unit (1) between two vertical profiles (5).

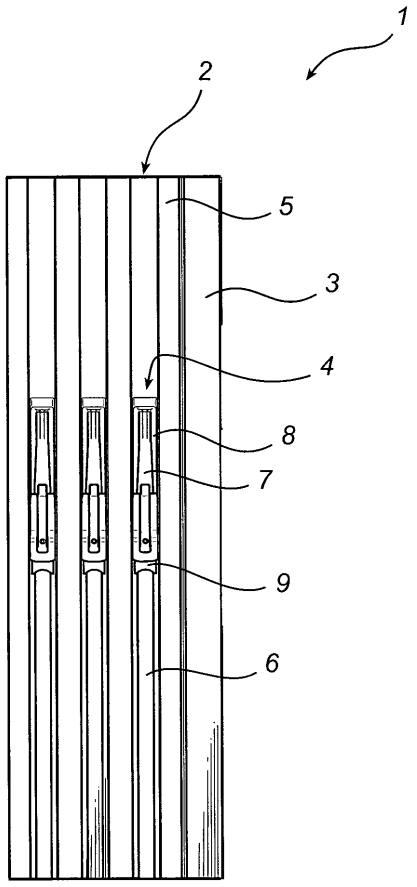

Fig. 1

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Description

Technical field

[0001] The present invention relates to nozzle boot arrangement comprising a nozzle boot for holding a nozzle and fuel dispensing unit comprising such a nozzle boot arrangement.

Technical background

[0002] A fuel dispensing unit, such as a petrol pump typically comprises a pump part standing on the ground, a display part positioned above the pump part and showing the chosen type of petrol, cash readout, volume readout etc., and a column to which one or more petrol hoses are connected.

[0003] When the tank of a vehicle is to be filled up, the driver parks the vehicle beside the petrol pump and opens the cover or cap of the petrol tank. The driver then selects the desired type of petrol, removes the pump nozzle from the nozzle boot and places the pump nozzle in the inlet of the vehicle's petrol tank and puts in the desired volume of petrol.

[0004] A difficulty that may arise in connection with filling-up is that the hose does not reach to the vehicle if parked a distance from the petrol pump. The reason why the vehicle has not been parked sufficiently close to the pump may be difficulty in manoeuvring owing to a limited space round the petrol pump. To allow the hose to reach the vehicle, it is usually necessary for the driver to park his vehicle so that the side of the vehicle where the filler cap is positioned faces the petrol pump. It is not always known to a driver of an unfamiliar vehicle whether the filler cap is positioned on the left or right side. This may result in the driver by mistake parking the vehicle on the wrong side of the pump and thus not being able to fill up the tank without moving the vehicle to the other side of the petrol pump since the hose does not reach all the way round the vehicle.

[0005] To be able to handle a hose of sufficient length it is important that the fuel dispensing unit is provided with a returning mechanism for the hose as well as proper guiding of said hose when it is pulled from a idle position within the fuel dispensing unit to an operating position outside of the fuel dispensing unit. Also, the construction of the fuel dispensing unit must be robust if several hoses along with the means for controlling them are to be incorporated in the fuel dispensing unit.

[0006] US4131218 discloses hose returning means for a fuel dispensing unit. According to the embodiment shown in Fig. 11 the hose is connected to a fuel supply connection arranged inside the housing and passes a floatingly suspended roller which is connected to a wire reel. When the hose is pulled, the roller is lowered in order to make more hose available for the user.

[0007] WO00/15542 discloses a hose storing device in which a flexible hose is passed over a roller which is accommodated in a housing in such manner as to be movable against a return force in substantially vertical direction.

[0008] A problem common for the hose returning mechanisms and their guiding means described above is their size, shape or extension within respective hose housings, which results in bulky and complicated structures. Also, the size of the devices directly reflect on the size of the entire fuel dispensing unit.

Summary of the invention

[0009] In view of the foregoing, it is an object of the present invention to provide a more efficient and space effective fuel dispensing unit.

[0010] This and other objects and advantages that will be apparent from the following description of the present invention are achieved according to a first aspect of the invention by a nozzle boot arrangement, comprising a nozzle boot for holding a nozzle. The nozzle boot arrangement is **characterised in that** said nozzle boot arrangement is adapted to be positioned at the front side of a fuel dispensing unit between two vertical profiles. This is advantageous in that the profiles in the fuel dispensing unit will be unoccupied and space for arranging other means needed for proper handling of a hose is provided. Also, the width of the profiles do not control the width of the nozzle boot.

[0011] The nozzle boot arrangement may further comprise a hose guiding means for guiding a hose connected to said nozzle, wherein a vertical axis of said nozzle boot substantially coincides with a vertical axis of said hose guiding means. This is advantageous in that the hose is guided by said hose guiding means in order to provide a proper extraction of the hose.

[0012] A vertical centre axis of said nozzle boot may substantially coincide with a vertical centre axis of said hose guiding means. This is advantageous in that the hose handled by a retracting mechanism arranged on a profile opposite to the nozzle boot will be extracted straight out of the fuel dispensing unit. No lateral displacement of the hose occur.

[0013] The hose guiding means may be attached to one end of the nozzle boot, which is advantageous in that the nozzle boot may be manufactured in a simpler and more cost-effective way.

[0014] The hose guiding means may be attached to a lower end of the nozzle boot, which is advantageous in that the nozzle boot may be manufactured in a simpler and more cost-effective way.

[0015] The hose guiding means may be integral with the nozzle boot, which is advantageous in that the nozzle boot may be manufactured in a simpler and more cost-effective way.

[0016] The hose guiding means may comprise a roller, which is advantageous in that the hose guiding means may be manufactured in a simpler and more cost-effective way.

[0017] The distance between the two profiles may be substantially the same as the width of the nozzle booth, which is advantageous in that the width of the entire fuel dispensing unit may be decreased.

[0018] According to a second aspect of the invention, a fuel dispensing unit comprising a nozzle boot arrangement according to the first aspect of the invention is provided.

[0019] The fuel dispensing unit may further comprise at least one vertical profile, which together with the opposing nozzle boot arrangement defines a hose storage space in said fuel dispensing unit. This is advantageous in that the width of said hose storage space may be decreased.

[0020] The lateral distance between two profiles may be substantially the same as the width of the nozzle boot, which is advantageous in that the width of the entire fuel dispensing unit may be decreased.

[0021] The hose storage space may further comprise at least one hose connection, wherein a vertical axis of said hose connection and a vertical axis of said nozzle arrangement substantially coincides in a plane parallel to an outer side wall of said fuel dispensing unit. Accordingly, no lateral displacement of the hose will occur inside the fuel dispensing unit as well as outside the fuel dispensing unit.

[0022] The hose storage space may further comprise at least one second hose guiding means, wherein a vertical axis of said second hose guiding means and the vertical axis of said nozzle arrangement substantially coincides in a plane parallel to an outer side wall of said fuel dispensing unit. Accordingly, no bending of the hose will occur inside the fuel dispensing unit as well as outside the fuel dispensing unit.

Brief description of the drawings

[0023] The invention will now be described in more detail with reference to the accompanying schematic drawings, which shows examples of presently preferred embodiments of the invention.

Fig. 1 is a front view of a fuel dispensing unit according to the second aspect of the present invention.
Fig. 2 is a top view of a fuel dispensing unit according to the second aspect of the present invention.
Fig. 3 is a front view of a first embodiment of a nozzle boot arrangement.
Fig. 4 is a perspective view of a second embodiment of a nozzle boot arrangement.
Fig. 5 is a perspective view of a device for handling a hose with a nozzle boot arrangement according to the first embodiment.

Detailed description of preferred embodiments

[0024] Fig. 1 shows a fuel dispensing unit 1, having six hose storage spaces 2 and a column 3 extending vertically between and separating the electrical cabinet (not shown) and the hydraulic cabinet (not shown) from the hose storage spaces 2. Each hose storage space 2 is defined by a nozzle boot arrangement 4 and a opposing profile 5. The profiles 5 extends vertically from the bottom of the fuel dispensing unit 1 to the top. Accordingly, the profiles 5 constitute the structural construction of the fuel dispensing unit 1. Protection against insight can be placed between the profiles 5. The fuel dispensing unit 1 is connected to an underground fuel container (not shown). When filling up the tank of a vehicle, the fuel is pumped from the underground container by means of a pump (not shown) which is located in the hydraulic cabinet, and from there to the column 3 and out to a nozzle 6 via a fuel hose 7. When filling-up does not take place, the fuel hose 7 is accommodated in a hose storage place 2 and the nozzle 6 is inserted in a nozzle boot 8. The hose 7 is can be handled by a retracting mechanism (not shown), which is arranged in every hose storage space 2. The nozzle boot arrangement 4 comprises a hose guiding means 9 in order to provide a proper extraction of the hose 7, wherein a vertical centre axis of said nozzle boot 8 substantially coincides with a vertical centre axis of said hose guiding means 9. The hose guiding means 9 comprises a roller. The electronics located in the electrical cabinet, such as means for choosing the desired type of fuel and display means for showing the chosen type of fuel, the volume of dispensed fuel etc, are securely isolated in order to encapsulate electronic components from possible presence of flammable gases. The electronics can also include a payment terminal.

[0025] Fig. 2 shows a fuel dispensing unit 1, viewed from the top. Each nozzle boot arrangement 4 is positioned at the front side of a fuel dispensing unit 1 between two vertical profiles 5 and thus the distance between the two profiles 5 is substantially the same as the width of the nozzle booth 8. Because of this mounting of the nozzle boot arrangements 4 in the fuel dispensing unit 1, free space is provided between each nozzle boot arrangement 4 and its opposing profile 5. This space can be used for a retracting mechanism (not shown). Accordingly, in each hose storage space 2, the nozzle boot arrangement 4 is provided on one side of the fuel dispensing unit 1 and a retracting mechanism is provided on the opposite side of the fuel dispensing unit 1. The vertical axis of the retracting mechanism and the vertical axis of said nozzle boot arrangement 4 substantially coincides in a plane parallel to an outer side wall of said fuel dispensing unit 1. The nozzle boot 8 serve as a connecting element between the profiles 5, improving the structural construction of the fuel dispensing unit 1.

[0026] In Fig. 3 a first embodiment of a nozzle boot arrangement 4 is shown. The nozzle boot 8 and the hose guiding means 9 is separated from each other. The hose guiding means 9 comprises a roller. When the nozzle boot arrangement 4 is implemented in a fuel dispensing unit 1 the vertical centre axis of said nozzle boot 8 substantially coincides with a vertical centre axis of said hose

guiding means 9. However, the hose guiding means 9 can also be mounted in a way where the vertical centre axis of said nozzle boot 8 do not coincide with a vertical centre axis of said hose guiding means 9.

[0027] In Fig. 4 a second embodiment of a nozzle boot arrangement 4 is shown. The hose guiding means 9 is attached to the lower end of nozzle boot 8. The hose guiding means 9 can be integral with the nozzle boot 8.

[0028] Fig. 5 is a perspective view of a retracting mechanism and nozzle boot arrangement 4 according to a second embodiment. Also, a hose connection 10, wherein a vertical axis of said hose connection and a vertical axis of said nozzle arrangement substantially coincides in a plane parallel to an outer side wall of said fuel dispensing unit, is shown. The retracting mechanism comprises a second guiding means 11, wherein a vertical axis of said second hose guiding means and the vertical axis of said nozzle arrangement substantially coincides in a plane parallel to an outer side wall of said fuel dispensing unit.

[0029] The skilled person realises that a number of modifications of the embodiments described herein are possible without departing from the scope of the invention, which is defined in the appended claims.

Claims

1. A nozzle boot arrangement (4), comprising a nozzle boot (8) for holding a nozzle (7), **characterised in that** said nozzle boot arrangement (4) is adapted to be positioned at the front side of a fuel dispensing unit (1) between two vertical profiles.

2. A nozzle boot arrangement (4) according to claim 1, further comprising a hose guiding means (9) for guiding a hose (6) connected to said nozzle (7), wherein a vertical axis of said nozzle boot (8) substantially coincides with a vertical axis of said hose guiding means (9).

3. A nozzle boot arrangement (4) according to claim 2, wherein a vertical centre axis of said nozzle boot substantially coincides with a vertical centre axis of said hose guiding means (9).

4. A nozzle boot arrangement (4) according to any one of claims 2 or 3, wherein the hose guiding means (9) is attached to one end of the nozzle boot (8).

5. A nozzle boot arrangement (4) according to claim 4, wherein the hose guiding means (9) is attached to a lower end of the nozzle boot (8).

6. A nozzle boot arrangement (4) according to any one of claims 2-5, wherein the hose guiding means (9) is integral with the nozzle boot (8).

7. A nozzle boot arrangement (4) according to any one of claims 2-6, wherein the hose guiding means (9) comprises a roller.

8. A nozzle boot arrangement (4) according to any one of the preceding claims, wherein the distance between the two profiles is substantially the same as the width of the nozzle boot (8).

9. A fuel dispensing unit (1), such as a petrol pump, **characterised in that** it comprises a nozzle boot arrangement (4) as claimed in any one of claims 1-8.

10. A fuel dispensing unit (1) according to claim 9, further comprising at least one vertical profile (5), which together with the opposing nozzle boot arrangement (4) defines a hose storage space (2) in said fuel dispensing unit (1).

11. A fuel dispensing unit (1) according to claim 10, wherein the lateral distance between two profiles (5) is substantially the same as the width of the nozzle boot (8).

12. A fuel dispensing unit (1) according to any one of the claims 10 or 11, wherein said hose storage space (2) further comprises at least one hose connection (10), wherein a vertical axis of said hose connection (10) and a vertical axis of said nozzle arrangement substantially coincides in a plane parallel to an outer side wall of said fuel dispensing unit (1).

13. A fuel dispensing unit (1) according to any one of the claims 10-12, wherein said hose storage space (2) further comprises at least one second hose guiding means (10), wherein a vertical axis of said second hose guiding means (10) and the vertical axis of said nozzle arrangement substantially coincides in a plane parallel to an outer side wall of said fuel dispensing unit (1).

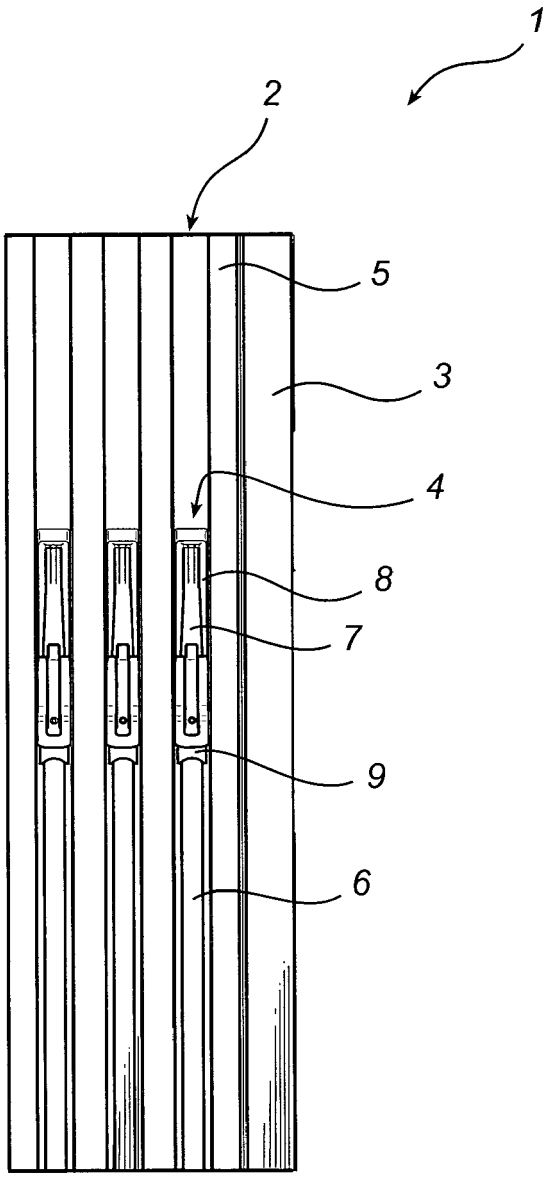


Fig. 1

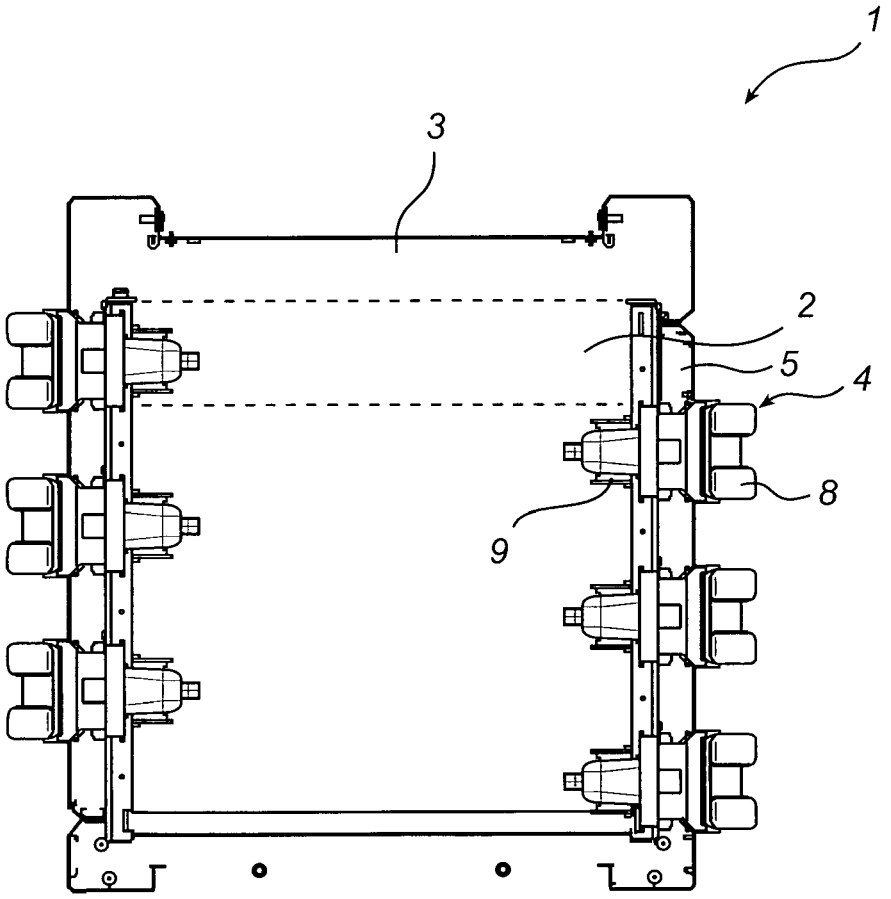
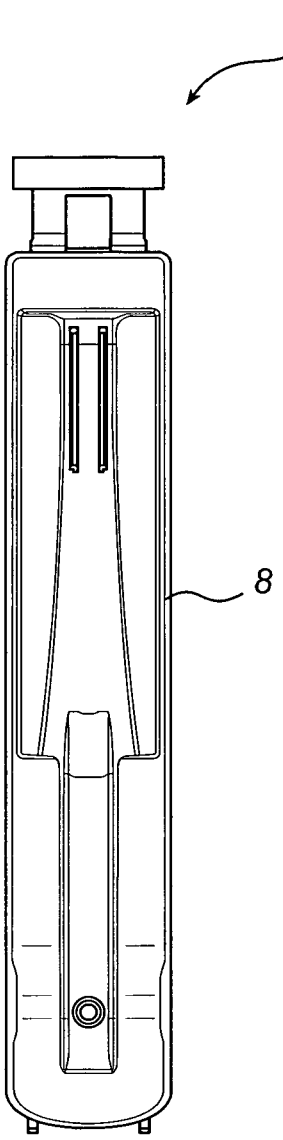


Fig. 2



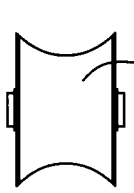


Fig. 3

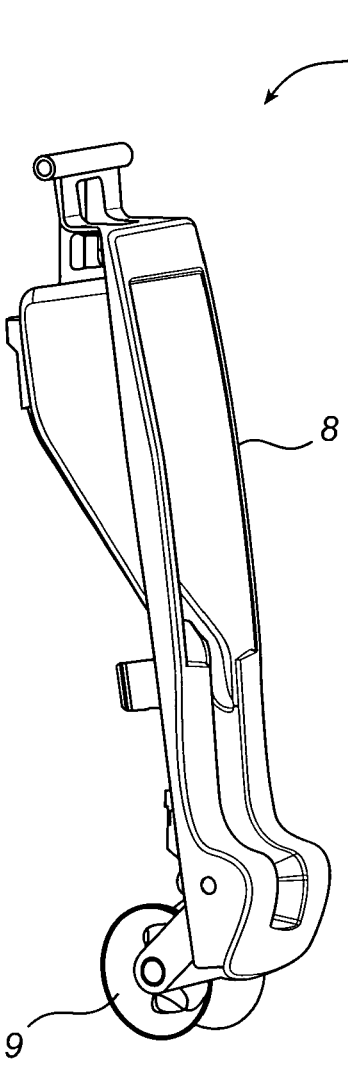


Fig. 4

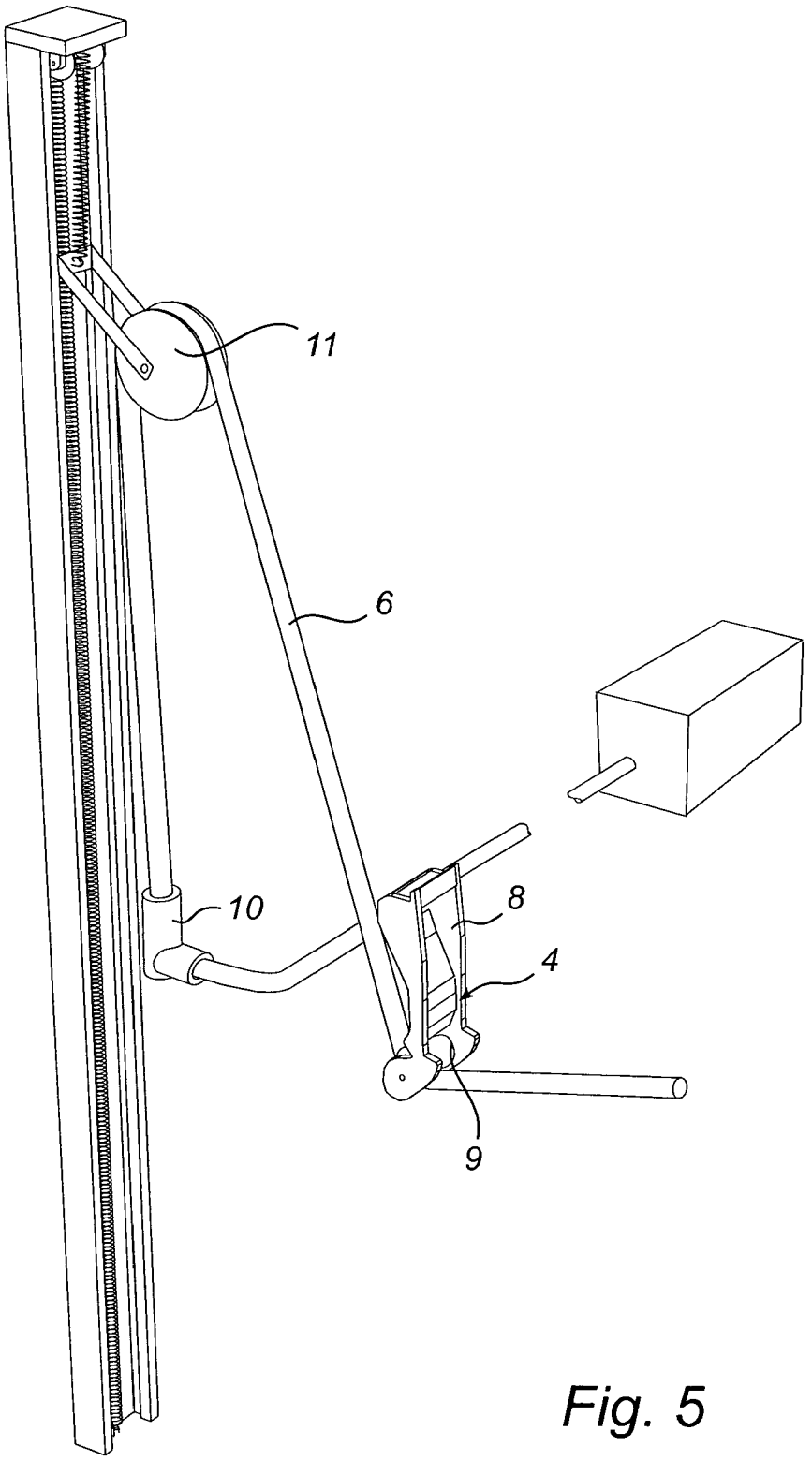


Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 08 16 3889

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TECHNICAL FIELDS SEARCHED (IPC)

B67D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 July 2009	Desittere, Michiel

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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