(19) Octrooicentrum Nederland

(11) **2014484**

(12) A **OCTROOIAANVRAAG**

(21) Aanvraagnummer: **2014484**

(22) Aanvraag ingediend: **18/03/2015**

(51) Int. Cl.:
A61G 7/018 (2015.01)

(41) Aanvraag ingeschreven:
10/10/2016

(43) Aanvraag gepubliceerd:
10/01/2017

(71) Aanvrager(s):
't Tilcentrum B.V. te Vierhouten.

(72) Uitvinder(s):
Mattheas Robertus van Scheppingen te Vierhouten.

(74) Gemachtigde:
ir. F.A. Geurts c.s. te Den Haag.

(54) **Actuating device and a patient transport device comprising such an actuating device.**

(57) The invention relates to an actuating device for manually actuating driving and steering means for a wheeled power driven object or vehicle. Such an actuating device is especially suitable for manually actuating a drive system for a patient transport device. Said actuating device comprises a substantially rigid center shaft which is arranged for rigid attachment to said object or vehicle, a series of pressure sensors which are arranged on an outer surface of said center shaft and are distributed over a circumferential area of said center shaft, an elastically deformable sleeve which is arranged substantially around said center shaft and said series of pressure sensors, and a substantially rigid cylinder which is arranged around said elastically deformable sleeve, wherein the elastically deformable sleeve is arranged in contact with the outer surface of the center shaft and with an inner surface of the cylinder.

No. NLP196805A

Actuating device and a patient transport device comprising such an actuating device

BACKGROUND

The invention relates to an actuating device, in particular for manually actuating the driving and steering of an object or vehicle. Such an actuating device is especially suitable for manually actuating a drive system for a patient transport device.

Patient transport devices, such as a hospital bed or a patient lift, are often heavy and difficult to maneuver. In order to reduce the physical effort required to move these transport devices, known patient transport devices are provided with a powered drive system. An example of such a power driven patient transport device is disclosed in EP 2.208.487 of the applicant. In order to operate such a transport device it is preferred to use a steering handle which is adapted for generating a signal representing one or more force components manually applied to the handle.

Such a handle is, for example, disclosed in US 6,276,471. This Patent publication discloses a delivery cart comprising a chassis, one or two castors pivotable about a vertical axis, two support wheels for supporting the chassis on a ground, and a gearless, load-actuated reversible electric motor formed integrally with the respective support wheels. The cart further comprises a control system for controlling power supply to the electric motors, and a displacement stirrup which is formed as a shaft pole provided with a single handle. The handle is provided with a first pair of force meters for sensing displacement forces

applied to the shaft pole in a longitudinal direction of the cart, and a second pair of force meters for sensing steering forces applied to the shaft pole in a direction transverse to the longitudinal direction of the cart. Each of the force meters is formed of strips of a foil material an electric resistance of which changed dependent on a pressure force applied to a horizontal surface thereof. The handle has a grip bar comprising a vertical extending square-shaped member. The force meters of the first pair of force meters and the force meters of the second pair of the force meters are arranged opposite each other in a respective direction on the square-shaped member. The grip bar of the handle has a sheathing which is elastically deformable.

A disadvantage of the handle of the prior art is that it is more or less incidental which fraction of a manual driving force applied to the grip bar is transferred to the respective force meters, this structure does not allow a reliable and accurate control of the driving motors, which is an absolute requirement for moving and/or lifting patients.

It is an object of the present invention to provide a reliable and accurate manual actuating device, in particular for use on a patient transport devices.

SUMMARY OF THE INVENTION

According to a first aspect, the invention provides an actuating device for manually actuating driving and steering means for a wheeled power driven object or vehicle, said actuating device comprising:

a substantially rigid center shaft which is arranged for rigid attachment to said object or vehicle,

a series of pressure sensors which are arranged on an outer surface of said center shaft and are distributed over a circumferential area of said center shaft,

an elastically deformable sleeve which is arranged substantially around said center shaft and said series of pressure sensors, and

a substantially rigid cylinder which is arranged around said elastically deformable sleeve, wherein the elastically deformable sleeve is arranged in contact with the outer surface of the center shaft and with an inner surface of the cylinder.

When a manually actuating force is applied on the substantially rigid cylinder, said cylinder elastically deforms the sleeve, which provides an actuating pressure force to one or more of said pressure sensors arranged on the circumferential area of the center shaft. Due to the substantially rigid cylinder, the manual driving force applied to the cylinder provides a movement of the cylinder with respect to the center shaft only in the direction of the applied manual driving force, and consequently provides an actuating pressure force on the center shaft only in the direction of the applied manual driving force. Although this actuating pressure force may be distributed over more than one pressure sensor arranged on the center shaft, these pressure sensor(s) are univocally actuated which provides a reliable and accurate control of driving and steering means for a wheeled power driven object or vehicle.

In an embodiment, the pressure sensors of said series of pressure sensors is arranged at a distance from the elastically deformable sleeve, at least when no manually actuating force is applied on the substantially rigid cylinder. When not manually actuated, the actuating device is arranged in a neutral position. According to this embodiment, the elastically deformable sleeve does not touch the pressure sensors when the actuating device is in the neutral position. Thus in the neutral position, no pressure is applied to any one of the pressure sensors, which provides an univocal and reliable determination of the actuating device in the neutral position.

Although the center shaft may comprise a circular or a polygonal cross section, in an embodiment, the substantially rigid center shaft comprises a square shaped cross section. In an embodiment, the series of pressure sensors comprises four pressure sensors, wherein at each substantially flat outer side surface of said square shaped center shaft, one of said pressure sensors is arranged. In an embodiment, one of said substantially flat outer side surface of the square shaped center shaft is arranged to face in a direction of forward movement of the wheeled power driven object or vehicle. In this case the forward facing surface and the backward facing surface of the square shaped center shaft comprises sensors for substantially actuating the driving means for a wheeled power driven object or vehicle, whereas the sideward facing surfaces of the square shaped center shaft comprises sensors for substantially actuating the steering means for a wheeled power driven object or vehicle.

In an embodiment, the elastically deformable sleeve is arranged to substantially fill the space between the outer surface of the center shaft and the an inner surface of the cylinder, at least above and/or below said circumferential area. Above and/or below the circumferential area at which the pressure sensors are arranged on the center shaft, the space between the outer surface of the center shaft and the inner surface of the cylinder is filled with elastically deformable material of the sleeve. On the one hand, this provides a ring shaped part of the sleeve which keeps the center shaft substantially in the center of the cylinder, at least in the neutral position of the actuating device. On the other hand, this ring shaped part isolates and protects the sensors from ambient influences.

In an embodiment, the substantially rigid cylinder is movably attached to the center shaft, at least at a position at a distance above or below said circumferential area. Due to the attachment of the

cylinder to the center shaft, the movement of the cylinder with respect to the center shaft is limited which provides a further improvement of the univocal actuating of the pressure sensors due a manually actuating of the cylinder.

In an embodiment, the rigid cylinder is attached to the center shaft by means of a ball-and-socket joint. In an embodiment, said actuating device comprises a ball member which is attached to the center shaft at a distance above or below said circumferential area, and wherein the substantially rigid cylinder comprises a socket member which is arranged at least partially around said ball member. The ball-and-socket joint allows to rotate the cylinder with respect to the center shaft. The elastically deformable sleeve limits the angle of rotation to a few degrees, for example 1,5 degrees. The rotation provides a pressure force on the pressure sensors on the center shaft, which pressure sensors are arranged at a distance from said ball-and socket joint.

In an embodiment, elastically deformable sleeve comprises a silicone-rubber sleeve.

In an embodiment, each pressure sensor of said series of pressure sensors comprises a strip of foil material comprising an electrical property, such as the electrical resistance, which varies dependent on a pressure force applied to the surface of said strip.

According to a second aspect, the present invention provides a patient transport device, comprising:

a chassis,

one or more support wheels for supporting the chassis on a ground,

at least one drive wheel provided with an electric motor for driving and/or steering said patient transport device, and

a control system for controlling power supply to the electric motors, wherein said control system comprises at least one actuating device according to the first aspect or an embodiment thereof as described above.

In an embodiment, the center shaft is rigidly attached to said chassis, or is a part of said chassis.

In an embodiment, the control system comprises a pair of mutually spaced actuating devices according to the first aspect or an embodiment thereof as described above. The two mutually spaced actuating devices are provided for fail safe reasons. The control system of this embodiment is controlled by both hands of an operator, which needs to manually actuate both actuating devices for driving and steering said patient transport device. When only one actuating device is actuated, this is considered by the control system as an unintentional activation and the control system will not activate the driving and/or steering of the patient transport device.

In an embodiment, the patient transport device comprises a patient lifting device or a hospital bed.

According to a third aspect, the present invention relates to a use of an actuating device according to the first aspect or an embodiment thereof as described above, for controlling power supply to the electric motors of a patient transport device according to the second aspect or an embodiment thereof as described above.

The various aspects and features described and shown in the specification can be applied, individually, wherever possible. These individual aspects, in particular the aspects and features described in the attached dependent claims, can be made subject of divisional patent applications.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be elucidated on the basis of an exemplary embodiment shown in the attached drawings, in which:

Figure 1 shows a schematic cross section of an

actuating device according to the invention;

Figure 2 shows a schematic cross section along the line II-II of figure 1;

Figure 3 shows the schematic cross section of figure 2 when an actuating force is applied;

Figure 4 shows a perspective view of a patient lift device comprising an actuating device of the invention; and

Figure 5 shows a partial bottom view of a hospital bed comprising an actuating device of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows a schematic cross section of an actuating device 1, which is particularly suitable for manually actuating driving and steering means for an object or vehicle, in particular an patient transport device.

The actuating device 1 comprises a substantially rigid center shaft 2. In this example, the substantially rigid center shaft 2 comprises a square shaped cross section as schematically shown in figure 2. The center shaft 2 may be a solid shaft, however in the example shown in figure 2, the center shaft is hollow. This allows to arrange the cables for connecting the series of pressure sensors 11, 12, 13, 14 inside the center shaft 2.

The actuating device 1 comprises a series of pressure sensors 11, 12, 13, 14 which are arranged on an outer surface of said center shaft 2 and are distributed over a circumferential area of said center shaft 2. In the example shown in figures 1 and 2, the series of pressure sensors comprises four pressure sensors 11, 12, 13, 14. At each substantially flat outer side surface of said square shaped center shaft 2, one of said pressure sensors 11, 12, 13, 14 is arranged.

The actuating device 1 further comprises an elastically deformable sleeve 3, which is arranged

substantially around said center shaft 2 and said series of pressure sensors 11, 12, 13, 14. Figure 2 shows the actuating device 1 in a neutral position when no manually actuating force is applied on the actuating device 1, in which neutral position the pressure sensors 11, 12, 13, 14 are arranged at a distance from the elastically deformable sleeve 3. The thin gap between the sleeve 3 and the pressure sensors 11, 12, 13, 14 ensures that no pressure is applied to any one of the pressure sensors 11, 12, 13, 14 when no manually actuating force is applied on the actuating device 1. The elastically deformable sleeve 3 is preferably made from silicone-rubber.

The actuating device 1 further comprises a substantially rigid cylinder 5 which is arranged around said elastically deformable sleeve 3. The elastically deformable sleeve 3 is arranged in contact with the outer surface of the center shaft 2, in particular in an area 21 above the position of the pressure sensors 11, 12, 13, 14, and with an inner surface of the cylinder 5. In the example shown in figures 1 and 2, the elastically deformable sleeve 3 is arranged to substantially fill the space between the outer surface of the center shaft 2 and the an inner surface of the cylinder 5, at the area 21 above the position of the pressure sensors 11, 12, 13, 14.

As shown in figure 1, the substantially rigid cylinder 5 is movably attached to the center shaft 2 by means of a ball-and-socket joint 6. The ball-and-socket joint 6 is arranged at a distance d from the pressure sensors 11, 12, 13, 14. The ball-and-socket joint 6 comprises a ball member 7 which is attached to the center shaft 2. The substantially rigid cylinder 5 comprises a socket member 8 at a proximal end 9 thereof, which socket member 8 is arranged at least partially around said ball member 7. The socket member 8 is rotatable around the ball member 7, which allows the cylinder 5 to rotate with respect to the center shaft 2. The cylinder 5 is preferably made from a rigid synthetic material or plastic.

When a manually actuating force is applied in a direction F on the substantially rigid cylinder 5, said cylinder 5 rotates around said ball-and-socket joint 6, which provides a displacement of the cylinder 5 at the distal end 10 thereof with respect to the center shaft 2. This displacement is counteracted by the elastically deforming sleeve 3. Due to the displacement, part of the sleeve 3 facing the direction F is pushed against one or more sensors 11 which provides an actuating pressure force P to one or more of said pressure sensors 11.

Due to the substantially rigid cylinder 5, the manual driving force applied to the cylinder 5 provides a movement of the cylinder 5 with respect to the center shaft 2 only in the direction F of the applied manual driving force as schematically shown in figure 3. This provides an actuating pressure force P on the center shaft 2 only in the direction F of the applied manual driving force. The pressure sensors 11, 12, 13, 14 comprises a strip of foil material comprising an electrical property, such as the electrical resistance, which varies dependent on a pressure force P applied to the surface A of said strip. By monitoring said electrical property of the pressure sensors 11, 12, 13, 14 it can be established whether or not an actuating force is applied. In addition the direction F of the applied driving force can be established by comparing the electrical properties of the separate sensors 11, 12, 13, 14 with respect to each other, and a magnitude of the applied driving force can be established by monitoring the magnitude of the change of the electrical properties of the pressure sensors 11, 12, 13, 14.

The pressure sensors 11, 12, 13, 14 are connect to an electronic circuit, which electronic circuit is arranged for monitoring the electrical properties and to provide an output for driving and steering of an object or vehicle.

As already indicated, the actuating device of the present invention is especially suitable for manually actuating a drive system for a patient transport device.

Hospitalized patients or incapacitated persons are often moved about relatively long distances while lying on a bed or shorter distances using a for instance a patient lift device. These patient transport devices are often heavy and difficult to maneuver, especially when space is scarce. To reduce the physical effort required to move these patient supports, prior art inventions provide patient transport devices comprising powered drive systems.

A first example of such a patient transport device is a patient lift device 40 as shown in figure 4. The patient lift device 40 comprises two support legs 41, 42 with castor wheels 43, 44 for supporting the patient lift device 40 on a ground. The support legs 41, 42 are attached to a central chassis part 46, which comprises at least one drive wheel 47 provided with an electric motor for driving and/or steering said patient lift device 40. The patient lift device 40 further comprises a lifting boom 45 for attaching a sling system as known in the art for lifting a person. A steering handle 48 is mounted on a support column 49 which in turn is mounted on the central chassis part 46. The steering handle 48 is rigidly connected to the support column 49 which is rigidly connected to the central chassis part 46.

The steering handle 48 is provided with a pair of mutually spaced actuating devices 481, 482 as described above with reference to figures 1, 2 and 3. The center shaft 2 is formed as on unit with the steering handle 48. The center shaft 2 inside the actuating devices 481, 482 comprises a square shaped cross section. In particular, one of said substantially flat outer side surface of the square shaped center shaft 2 is arranged to face in a direction V of forward movement of the patient lift device 40. In this case the forward facing surface and the backward facing surface of the square shaped center shaft 2 comprises sensors 11, 12 for substantially actuating the driving of the patient lift device 40, whereas the

sideward facing surfaces of the square shaped center shaft comprises sensors 13, 14 for substantially actuating the steering of the patient lift device 40.

The steering handle 48 is provided with two mutually spaced actuating devices 481, 482 to operate the driving and steering of the patient lift device 40 using both hands of an operator. The operator needs to manually actuate both actuating devices 481, 482 for driving and steering said patient lift device 40. When only one of said actuating devices 481, 482 is actuated, this is considered by the control system as an unintentional activation and the control system will not activate the driving and/or steering of the patient lift device 40.

The actuating devices 481, 482 on the steering handle 48 are arranged for controlling power supply to the electric motors of the one or more drive wheels 47 for driving and/or steering of the patient lift device 40.

A second example of such a patient transport device is a hospital bed 50 as shown in figure 5. The hospital bed comprises a chassis 51, and supporting castor wheels 52 for supporting the chassis 51 on the ground. The hospital bed 50 is provided with two drive wheels 53, 53' provided with an electric motor for driving the hospital bed 50, and a rotation system 54, 54' for individually rotating R, R' the drive wheels 53, 53' for steering the hospital bed 50. The drive wheels are preferable arranged at a center line C of the hospital bed 50.

The hospital bed 50 further comprises a steering handle 55 which is mounted at a head end 56 of said hospital bed 50. The steering handle 55 is rigidly connected to the chassis 51 of the hospital bed 50. The steering handle 55 is provided with a pair of mutually spaced actuating devices 551, 552 as described above with reference to figures 1, 2 and 3. The center shaft 2 is formed as on unit with the steering handle 55. The center shaft 2 inside the actuating devices 551, 552 comprises a square shaped cross

section. In particular, one of said substantially flat outer side surface of the square shaped center shaft 2 is arranged to face in a direction V of forward movement of the hospital bed 50. In this case the forward facing surface and the backward facing surface of the square shaped center shaft 2 comprises sensors 11, 12 for substantially actuating the driving of the hospital bed 50, whereas the sideward facing surfaces of the square shaped center shaft comprises sensors 13, 14 for substantially actuating the steering of the hospital bed 50.

The steering handle 55 is provided with two mutually spaced actuating devices 551, 552 to operate the driving and steering of the hospital bed using both hands of an operator. The operator needs to manually actuate both actuating devices 551, 552 for driving and steering said hospital bed 50. When only one of said actuating devices 551, 552 is actuated, this is considered by the control system as an unintentional activation and the control system will not activate the driving and/or steering of the hospital bed 50.

In figure 5 a bottom view of the drive system 57 is shown, which drive system is attached to the hospital bed 50. Although the steering handle 55 is preferably arranged at the head end 57 so that a patient can view in the forward moving direction V, the steering handle 55 may also be arranged at a food end of the hospital bed 50 so that the operator can observe the face of the patient.

The actuating devices 551, 552 on the steering handle 55 are arranged for controlling power supply to the electric motors of the drive wheels 53, 53’ and the rotation systems 54, 54’ for driving and/or steering of the hospital bed 50.

It is to be understood that the above description is included to illustrate the operation of the preferred embodiments and is not meant to limit the scope of the invention. From the above discussion, many variations will

be apparent to one skilled in the art that would yet be encompassed by the spirit and scope of the present invention.

In summary, the present invention relates to an actuating device for manually actuating driving and steering means for a wheeled power driven object or vehicle. Such an actuating device is especially suitable for manually actuating a drive system for a patient transport device. Said actuating device comprises a substantially rigid center shaft which is arranged for rigid attachment to said object or vehicle, a series of pressure sensors which are arranged on an outer surface of said center shaft and are distributed over a circumferential area of said center shaft, an elastically deformable sleeve which is arranged substantially around said center shaft and said series of pressure sensors, and a substantially rigid cylinder which is arranged around said elastically deformable sleeve, wherein the elastically deformable sleeve is arranged in contact with the outer surface of the center shaft and with an inner surface of the cylinder.

C O N C L U S I E S

1. Bedieningsinrichting voor het handmatig bedienen van aandrijfmiddelen en stuurmiddelen van een krachtbron aangedreven object of voertuig met wielen, waarbij de bedieningsinrichting omvat:

een in hoofdzaak rigide middenstang die is ingericht voor een rigide bevestiging aan het object of voertuig,

een reeks druksensoren die geplaatst zijn op een buitenoppervlak van de middenstang en die verdeeld zijn over een omtrekoppervlak van de middenstang,

een elastisch vervormbare huls die in hoofdzaak rond de middenstang en de reeks druksensoren geplaatst is, en

een in hoofdzaak rigide cilinder die rond de elastisch vervormbare huls geplaatst is, waarbij de elastisch vervormbare huls in aanraking geplaatst is met het buitenoppervlak van de middelstang en met een binnenoppervlak van de cilinder.

2. Bedieningsinrichting volgens conclusie 1, waarbij de druksensoren van de reeks druksensoren op afstand van de elastisch vervormbare huls geplaatst zijn, ten minste indien er geen handmatige bedieningskracht wordt uitgeoefend op de in hoofdzaak rigide cilinder.

3. Bedieningsinrichting volgens conclusie 1 of 2, waarbij de in hoofdzaak rigide middenstang een vierkant gevormde dwarsdoorsnede omvat.

4. Bedieningsinrichting volgens conclusie 3, waarbij de reeks van druksensoren vier druksensoren omvat, waarbij op elk in hoofdzaak vlak buitenzijvlak van de vierkant gevormde middenstang, één van de druksensoren geplaatst is.

5. Bedieningsinrichting volgens één van de

conclusies 1 – 4, waarbij de elastisch vervormbare huls is ingericht om de ruimte tussen het buitenoppervlak van de middenstang en het binnenoppervlak van de cilinder in hoofdzaak op te vullen, althans boven en/of onder het omtrekoppervlak.

6. Bedieningsinrichting volgens één van de conclusies 1 – 5, waarbij de in hoofdzaak rigide cilinder beweegbaar bevestigd is aan de middenstang, ten minste op een positie op een afstand boven of onder het omtrekoppervlak.

7. Bedieningsinrichting volgens conclusie 6, waarbij de rigide cilinder bevestigd is aan de middenstang door middel van een kogelscharnier.

8. Bedieningsinrichting volgens conclusie 7, waarbij de bedieningsinrichting een kogeldeel omvat dat bevestigd is aan de middenstang op een afstand boven of onder het omtrekoppervlak, en waarbij de in hoofdzaak rigide cilinder een komdeel omvat dat althans ten dele rond het kogeldeel geplaatst is.

9. Bedieningsinrichting volgens één van de conclusies 1 – 8, waarbij de elastisch vervormbare huls een huls van siliconenrubber omvat.

10. Bedieningsinrichting volgens één van de conclusies 1 – 9, waarbij elke druksensor van de reeks van druksensoren een strip foliemateriaal omvat dat een elektrische weerstand omvat die varieert in afhankelijkheid van een op het oppervlak van de strip uitgeoefende drukkracht.

11. Transportinrichting voor een patiënt, omvattende:

een frame,

één or meer steunwielen voor het ondersteunen van het frame op een ondergrond,

ten minste één aandrijfwiel voorzien van een elektrische motor voor het aandrijven en/of sturen van de transportinrichting voor een patiënt, en

een besturingssysteem voor het besturen van een

energietoevoer aan de elektrische motoren, waarbij het besturingssysteem ten minste één bedieningsinrichting volgens één van de conclusies 1 – 10 omvat.

12. Transportinrichting voor een patiënt volgens conclusie 11, waarbij de middenstang star verbonden is met het frame, of een deel van het frame is.

13. Transportinrichting voor een patiënt volgens conclusie 11 of 12, waarbij het besturingssysteem een tweetal onderling op afstand geplaatste bedieningsinrichtingen volgens één van de conclusies 1 – 10 omvat.

14. Transportinrichting voor een patiënt volgens conclusie 11, 12, of 13, waarbij de transportinrichting voor een patiënt een tilinrichting voor een patiënt of een ziekenhuisbed omvat.

15. Gebruik van een bedieningsinrichting volgens één van de conclusies 1 – 10 voor het besturen van de energietoevoer aan de elektrische motoren van een transportinrichting voor een patiënt volgens één van de conclusies 11 – 14.

-o-o-o-o-o-o-o-o-

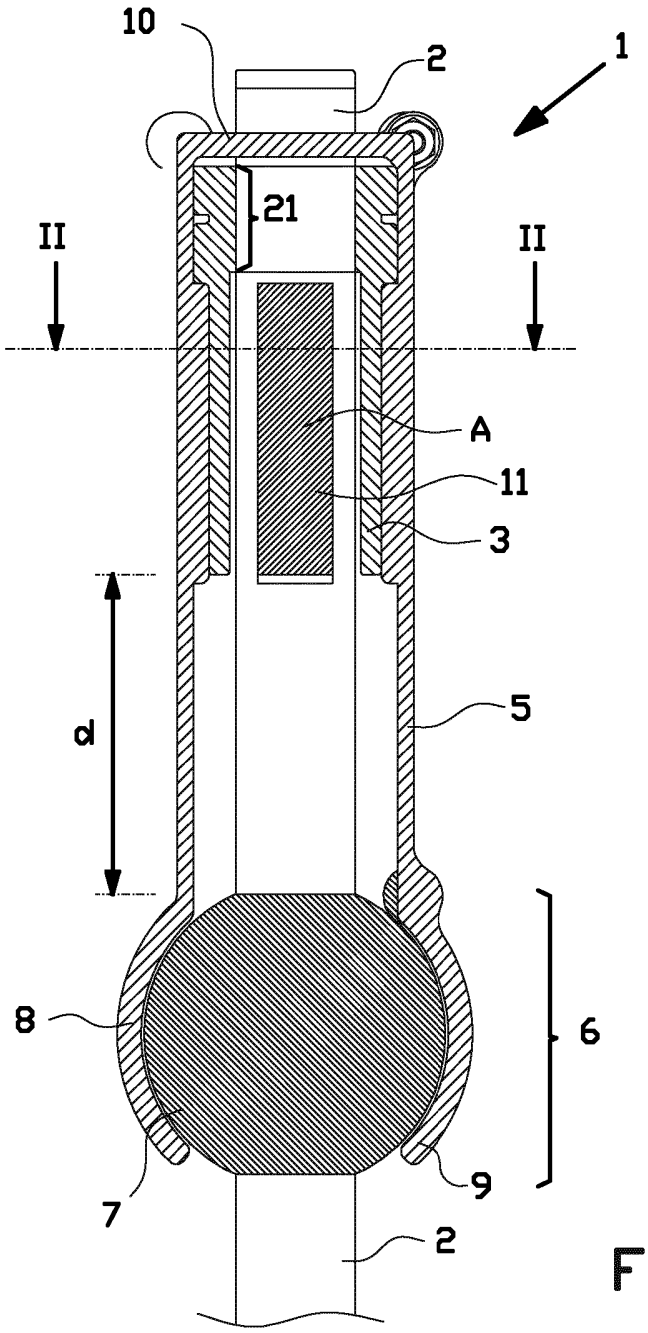

FIG. 1

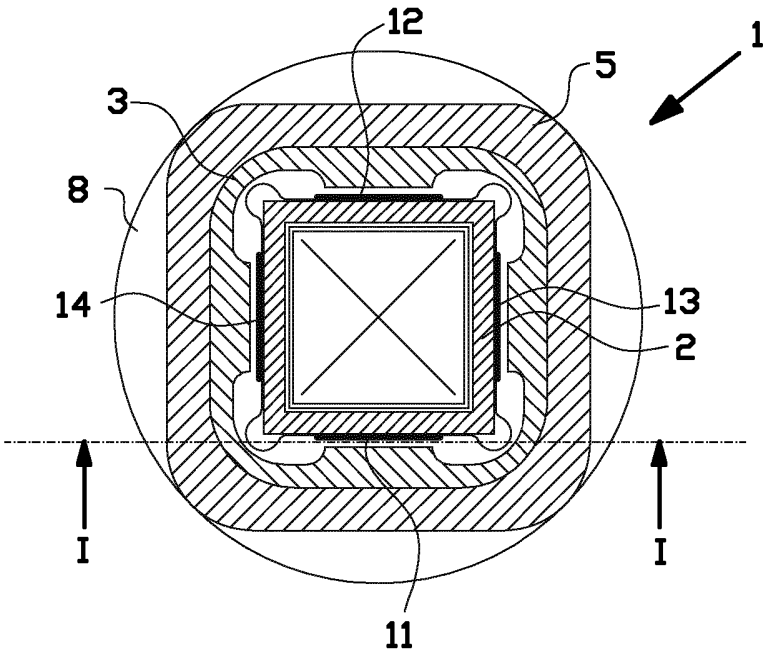

FIG. 2

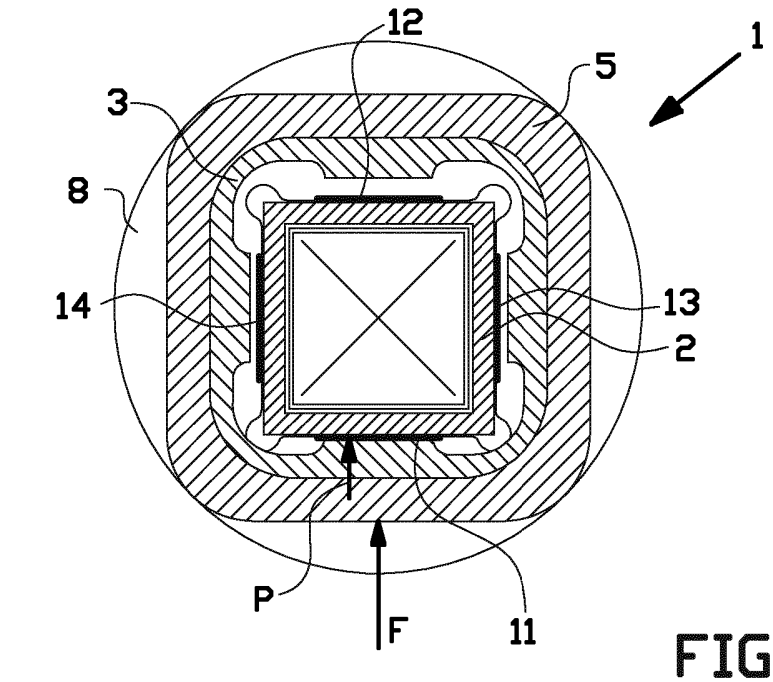

FIG. 3

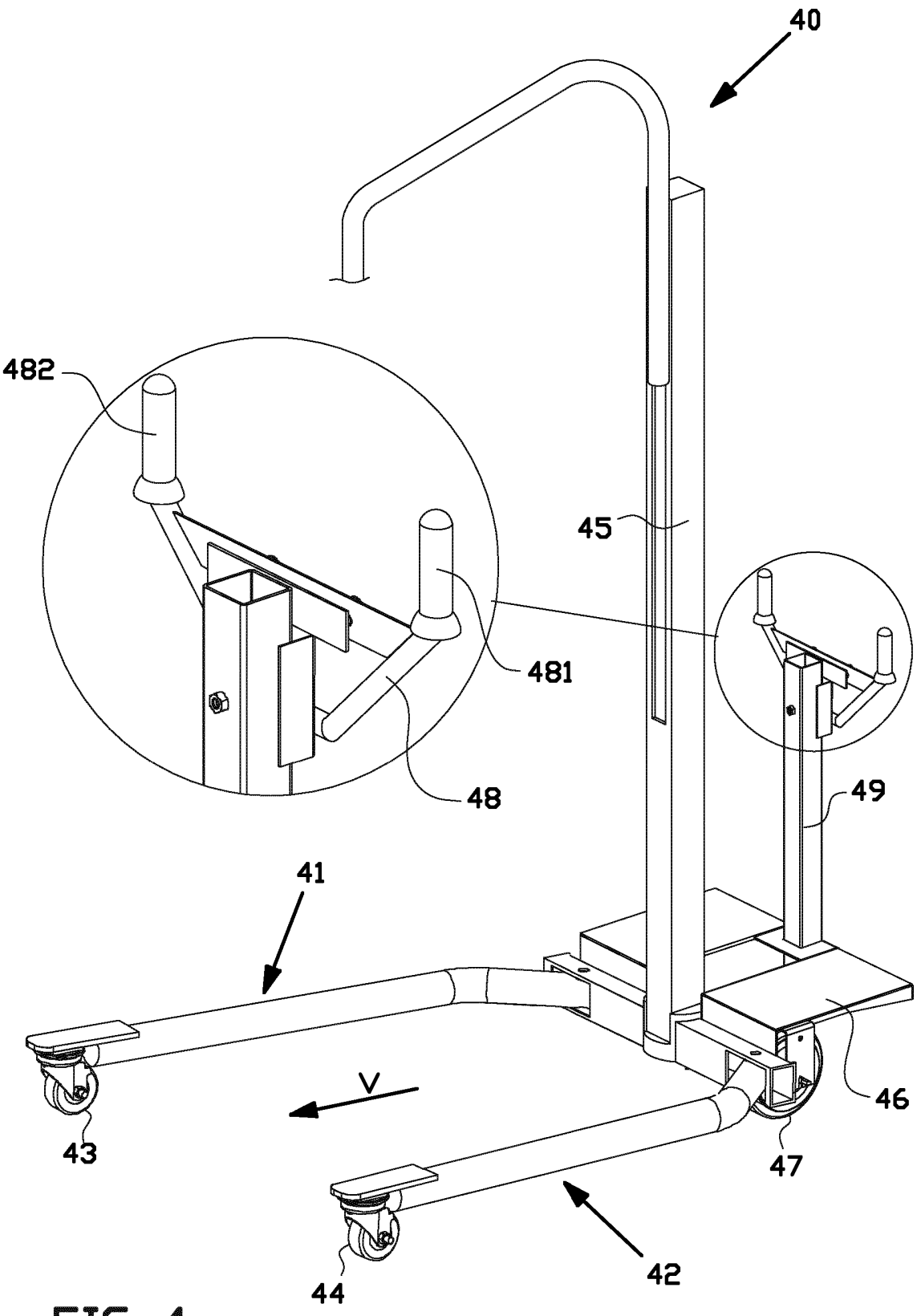

FIG 4

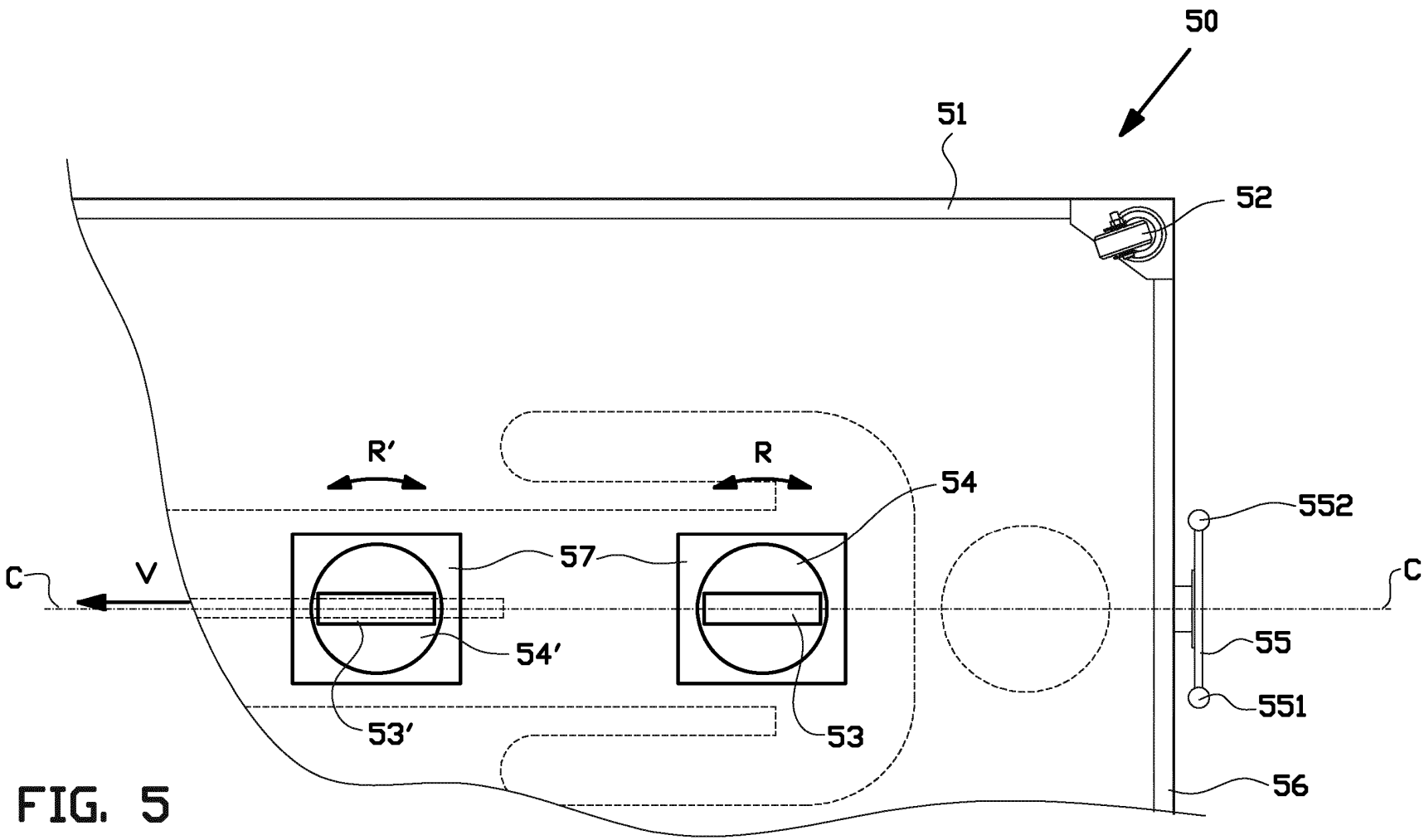

FIG. 5

A B S T R A C T

The invention relates to an actuating device for manually actuating driving and steering means for a wheeled power driven object or vehicle. Such an actuating device is especially suitable for manually actuating a drive system for a patient transport device. Said actuating device comprises a substantially rigid center shaft which is arranged for rigid attachment to said object or vehicle, a series of pressure sensors which are arranged on an outer surface of said center shaft and are distributed over a circumferential area of said center shaft, an elastically deformable sleeve which is arranged substantially around said center shaft and said series of pressure sensors, and a substantially rigid cylinder which is arranged around said elastically deformable sleeve, wherein the elastically deformable sleeve is arranged in contact with the outer surface of the center shaft and with an inner surface of the cylinder.

Rijksdienst voor Ondernemend Nederland

RAPPORT BETREFFENDE HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK

Octrooiaanvrage 2014484

Classificatie van het onderwerp[1]: A61G 7/018	Onderzochte gebieden van de techniek[1]: A61G
Computerbestanden: EPODOC, WPI	Omvang van het onderzoek: Volledig
Datum van de onderzochte conclusies: 23 april 2015	Niet onderzochte conclusies:

Van belang zijnde literatuur

Categorie[2]	Vermelding van literatuur met aanduiding, voor zover nodig, van speciaal van belang zijnde tekstgedeelten of figuren.	Van belang voor conclusie(s) nr.:
X	NL 2 002 903 C (Exodus Holding B.V.) 22 juli 2010	1, 11, 15
Y	* blz. 6, regels 31-37 + figuren *	1 – 15
	- - -	
Y	WO 2012/055 407 A (Hecare Systems) 3 mei 2012 * uittreksel + figuren *	1 – 15
	- - -	
D, A	US 6 276 471 B (W. Kratzenberg e.a.) 21 augustus 2001 * uittreksel + figuren *	1, 11, 15
	- - -	
A	EP 1 589 923 B (Hecare Systems) 2 november 2005 * uittreksel + figuren *	1, 11, 15
	- - - - -	

Datum waarop het onderzoek werd voltooid: 24 november 2015	De bevoegde ambtenaar: ir A.A.M. Bexkens **Octrooicentrum Nederland**

[1] Gedefinieerd volgens International Patent Classification (IPC).
[2] Verklaring van de categorie-aanduiding: zie apart blad.

Categorie van de vermelde literatuur:

X: op zichzelf van bijzonder belang zijnde stand van de techniek

Y: in samenhang met andere geciteerde literatuur van bijzonder belang zijnde stand van de techniek

A: niet tot de categorie X of Y behorende van belang zijnde stand van de techniek

O: verwijzend naar niet op schrift gestelde stand van de techniek

P: literatuur gepubliceerd tussen voorrangs- en indieningsdatum

T: niet tijdig gepubliceerde literatuur over theorie of principe ten grondslag liggend aan de uitvinding

E: octrooiliteratuur gepubliceerd op of na de indieningsdatum van de onderhavige aanvrage en waarvan de indieningsdatum of de voorrangsdatum ligt voor de indieningsdatum van de onderhavige aanvrage.

D: in de aanvrage genoemd

L: om andere redenen vermelde literatuur

&: lid van dezelfde octrooifamilie; corresponderende literatuur

Rijksdienst voor Ondernemend Nederland

SCHRIFTELIJKE OPINIE

Octrooiaanvrage 2014484

Indieningsdatum: 18 maart 2015	Voorrangsdatum:
Classificatie van het onderwerp[1]: A61G 7/018	Aanvrager: Exodus Holding B.V.

Deze schriftelijke opinie bevat een toelichting op de volgende onderdelen:

☑	Onderdeel I	Basis van de schriftelijke opinie
☐	Onderdeel II	Voorrang
☐	Onderdeel III	Vaststelling nieuwheid, inventiviteit en industriële toepasbaarheid niet mogelijk
☐	Onderdeel IV	De aanvraag heeft betrekking op meer dan één uitvinding
☑	Onderdeel V	Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid
☐	Onderdeel VI	Andere geciteerde documenten
☐	Onderdeel VII	Overige gebreken
☐	Onderdeel VIII	Overige opmerkingen

De bevoegde ambtenaar:
Ir A.A.M. Bexkens
Octrooicentrum Nederland

[1] Gedefinieerd volgens International Patent Classification (IPC).

Schriftelijke Opinie

Octroolaanvrage **2014484**

Onderdeel I Basis van de schriftelijke opinie

Deze schriftelijke opinie is opgesteld op basis van de meest recente conclusies ingediend voor aanvang van het onderzoek.

Onderdeel V Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid

1. Verklaring

Nieuwheid	Ja	: Conclusie(s) 2 -10, 12 - 14
	Nee	: Conclusie(s) 1, 11, 15
Inventiviteit	Ja	: Conclusie(s)
	Nee	: Conclusie(s) 1 -15
Industriële toepasbaarheid	Ja	: Conclusie(s) 1 - 15
	Nee	: Conclusie(s)

2. Literatuur en toelichting

Van de literatuur, die in het rapport betreffende het onderzoek naar de stand van de techniek is vermeld, worden de volgende documenten besproken:
D1 = NL 2 002 903 C
D2 = WO 2012/055 407 A

Uit D1 is een bedieningsinrichting bekend voor het handmatig bedienen van aandrijfmiddelen en stuurmiddelen van een krachtbron aangedreven object of voertuig met wielen, waarbij de bedieningsinrichting een joystick omvat, zie bladzijde 6, regels 31 t/m 37. De maatregelen van de hoofdconclusie waarin de precieze uitvoeringsvorm van een joystick wordt beschreven, betreffen geen bijzondere maatregelen en zijn algemeen bekend bij een vakman van joysticks voor transportinrichtingen. De maatregelen van de hoofdconclusie 1 en volgconclusies 11 en 15 zijn daarmee nieuw noch inventief.

Uit D2 is eveneens een bedieningsinrichting bekend voor voor het handmatig bedienen van aandrijfmiddelen en stuurmiddelen van een krachtbron aangedreven object of voertuig met wielen. Het toepassen van een joystick voor het aandrijven en besturen van een transportinrichting is algemeen bekend en in de maatregelen 1 t/m 15 worden geen voor de vakman inventieve maatregelen gezien.