

(19)



(11)

EP 3 246 491 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
13.04.2022 Bulletin 2022/15

(51) International Patent Classification (IPC):
E04G 21/04 ^(2006.01) **A01G 25/09** ^(2006.01)
B65H 75/00 ^(2006.01)

(21) Application number: **17153251.8**

(52) Cooperative Patent Classification (CPC):
E04G 21/0436; B65H 75/00

(22) Date of filing: **26.01.2017**

(54) MOBILE DISTRIBUTOR APPARATUS FOR DISTRIBUTING THICK MATTER

MOBILE VERTEILERVORRICHTUNG ZUR VERTEILUNG VON DICKSTOFFEN

APPAREIL DISTRIBUTEUR MOBILE POUR DISTRIBUER DES MATIÈRES ÉPAISSES

(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**

(30) Priority: **17.05.2016 DK 201600295**

(43) Date of publication of application:
22.11.2017 Bulletin 2017/47

(73) Proprietor: **Fasterholt Maskinfabrik A/S
7330 Brande (DK)**

(72) Inventor: **Jensen, Mogens Bode
7840 Højslev (DK)**

(74) Representative: **Larsen & Birkeholm A/S
Banegårdspladsen 1
1570 Copenhagen V (DK)**

(56) References cited:
**JP-A- H07 207 941 US-A- 4 488 683
US-A- 4 655 399**

EP 3 246 491 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

Technical field of the invention

[0001] The present invention relates to distribution of thick matter, such as uncured concrete. More particularly, the present invention relates to mobile distributor apparatuses for distributing thick matter, such as uncured concrete.

Background of the invention

[0002] Developments in concrete construction methods include the mechanized transfer of concrete from a source, such as a ready-mix concrete truck or the like, to a relatively remote and/or confined location on the building or construction site.

[0003] This permits the positioning of the heavy-duty concrete trucks at a convenient location in spaced relation to the application points, and avoids the difficult and time-consuming manual transfer of the concrete from the truck to the application point. However, even with motorized wheelbarrows and the like, the transfer requires a suitable path as well as a significant amount of time to effectively distribute the concrete. This not only results in a relatively high labor cost, but also results in a significant delivery time for the ready-mix truck or the like.

[0004] Other systems have employed a mobile concrete pump unit with a detachable conduit hose of a flexible material, which is manually mounted along a predetermined path or the like. The flexible hose is heavy and requires a plurality of workers to manipulate the hose. Furthermore, it is extremely difficult to evenly distribute the discharging material, and additional personnel is required to more evenly spread the concrete material.

[0005] JPH07207941 discloses a boom supporting member that is attachable to and detachable from a structure. The boom is connected to the boom supporting member so that it can be swung up and down, and the boom can be extended and retracted. A concrete distribution hose is provided to the boom support member or the boom, and a hose reel member that is retractable is provided. A concrete hose that can supply concrete to the hose reel member can be connected to the concrete distribution hose.

Summary of the invention

[0006] It is an object of the present invention to overcome the above-mentioned problems.

[0007] The invention therefore provides a mobile distributor apparatus according to claim 1.

[0008] The mobile distributor apparatus comprises a frame, a steering mechanism, a rotatable drum with a hose wound thereon, a hose-guide, and a distributor arm.

[0009] The frame is supported for movement over a surface by wheels or belts, and the steering mechanism is associated therewith.

[0010] The hose is wound on the rotatable drum in a plurality of side-by-side convolutions in at least one layer. The hose and the rotatable drum make it possible for the mobile distributor apparatus to move away from the thick matter pump unit, such as a heavy-duty concrete truck, from which it is coupled when active. Hence, the hose leaves the rotatable drum as the mobile distributor apparatus moves forward and is thereby placed behind the mobile distributor apparatus. When the mobile distributor apparatus moves backward, the hose will be rewound by the rotatable drum. In one or more embodiments, the rotatable drum is configured to unwind the hose as the mobile distributor apparatus moves forward. In one or more embodiments, the rotatable drum is configured to rewind the hose as the mobile distributor apparatus moves backward.

[0011] In one or more embodiments, the mobile distributor apparatus further comprises a motor unit and during an unwinding operation, when the hose is unwound from the rotatable drum at a speed above a pre-set speed, said motor unit is configured to increase torque in the opposite direction of the rotatable drum rotation until the speed has reached the pre-set speed. This configuration is present to avoid an uncontrolled unwinding of the rotatable drum during the forward movement of the mobile distributor apparatus.

[0012] In one or more embodiments, the mobile distributor apparatus further comprises a motor unit configured to rotate the rotatable drum and further configured to oppose the unwinding operation with a counterforce.

[0013] This configuration is present to avoid an uncontrolled unwinding of the rotatable drum during the forward movement of the mobile distributor apparatus.

[0014] In one or more embodiments, the rotatable drum is adapted to unwind and rewind the hose with a speed adjusted to the speed of the mobile distributor apparatus.

[0015] In one or more embodiments, the rotatable drum is coupled to the wheels by a speed reduction gear unit. This is to overcome the differences in diameter of the wheels and the drum, whereby the rotatable drum can unwind and rewind the hose with a speed adjusted to the speed of the mobile distributor apparatus.

[0016] The hose-guide is reciprocated parallel to the axis of rotation of the rotatable drum as said drum is rotated. Thereby, the hose is positioned in the right position on the drum during unwinding and rewinding.

[0017] In one or more embodiments, the distributor arm comprises a rotary joint connected to the frame such that the distributor arm can move from a position along a side of the mobile distributor apparatus and up to 270 degrees horizontally relative thereto. This configuration allows for a very compact mobile distributor apparatus where the distributor arm is protected during storage and positioning. The distributor arm will only swing out when needed for the distributing operation.

[0018] In one or more embodiments, the frame is supported for movement over a surface by wheels, and

wherein the rotatable drum is coupled to the wheels by a speed reduction gear unit. This is to overcome the differences in diameter of the wheels and the drum.

[0019] In one or more embodiments, the distributor arm is configured for up/down and sideways movement. This configuration makes it easier to distribute the thick matter within a confined space.

[0020] In one or more embodiments, the mobile distributor apparatus does not comprise a thick matter pump unit. The main purpose of the mobile distributor apparatus is not to pump the thick matter, but to reach a position within a confined space, and to provide connection to a thick matter pump unit, such as a heavy-duty concrete truck, such that the thick matter can be transported thereto.

[0021] In one or more embodiments, the mobile distributor apparatus further comprises a motor unit (e.g., a hybrid motor unit) operatively connected to the wheels or belts.

[0022] In one or more embodiments, the mobile distributor apparatus further comprises an electric motor unit and a combustion motor unit, both operatively connected to the wheels or belts. This is an advantage when the mobile distributor apparatus is entering a confined space, where there is little air exchange. The mobile distributor apparatus can then run on battery rather than fuel to avoid using the oxygen in the air and expelling toxic gasses thereto.

[0023] In one or more embodiments, the mobile distributor apparatus further comprises a rotatable cable drum operatively connected to the electric motor, and wherein the rotatable cable drum is a) configured to unwind the cable as the mobile distributor apparatus moves forward, whereby the unwound cable is placed behind the mobile distributor apparatus and b) configured to rewind the cable as the mobile distributor apparatus moves backward. This configuration secures that the hose and the cable will not become tangled.

[0024] In one or more embodiments, the steering mechanism and/or motor unit and/or distributor arm are responsive to remotely-controlled electrical signals.

[0025] Preferably, the hose is adapted for the working pressure of the thick matter pump unit, such as a heavy-duty concrete truck.

[0026] In one or more embodiments, the hose is adapted for a working pressure of at least 5 bar, such as at least 10 bar, such as at least 15 bar, such as at least 20 bar, such as at least 25 bar, such as at least 30 bar, such as at least 35 bar, at least 30 bar, such as at least 35 bar, such as at least 40 bar, such as at least 45 bar, such as at least 50 bar, such as at least 55 bar, such as at least 60 bar, such as at least 65 bar, such as at least 70 bar, such as at least 75 bar, such as at least 80 bar, preferably at least 85 bar, such as at least 90 bar, such as at least 100 bar, such as at least 120 bar, such as at least 140 bar, such as at least 160 bar, such as at least 180 bar, such as at least 200 bar, which is the operating pressure of a thick matter pump unit, such as a heavy-

duty concrete truck.

[0027] In one or more embodiments, the mobile distributor apparatus further comprises a tensioning apparatus engaging the outer surface of the hose at a position adjacent the hose-guide; wherein the tensioning apparatus comprises driving means therefore, and operable on the hose as the drum is rotating, thereby to maintain said hose in tension and thereby to prevent the convolutions on the drum from becoming loose on said drum.

[0028] It should be noted that embodiments and features described in the context of one of the aspects of the present invention also apply to the other aspects of the invention, as long as they fall under the scope of the invention as defined by the claims.

Brief description of the figures

[0029]

Figure 1 shows a perspective view of a mobile distributor apparatus in accordance with various embodiments of the invention.

Figure 2 shows a top view of a mobile distributor apparatus in accordance with various embodiments of the invention.

Figure 3 shows a rear view of a mobile distributor apparatus in accordance with various embodiments of the invention.

Figure 4 shows a left-side view of a mobile distributor apparatus in accordance with various embodiments of the invention.

Figure 5 shows a right-side view of a mobile distributor apparatus in accordance with various embodiments of the invention.

Figure 6 shows a front view of a mobile distributor apparatus in accordance with various embodiments of the invention.

Detailed description of the invention

[0030] Referring to Figure 1, the general scheme of the invention is shown in perspective view. Figure 1 shows a mobile distributor apparatus 100 comprising a frame 200, a steering mechanism (not shown), a rotatable drum 300 with a hose 400 wound thereon, a hose-guide 500, and a distributor arm 600.

[0031] The frame 200 is supported for movement over a surface by wheels, and the steering mechanism (not shown) is associated therewith.

[0032] The hose 400 is wound on the rotatable drum 300 in a plurality of side-by-side convolutions in one layer. The hose 400 and the rotatable drum 300 makes it possible for the mobile distributor apparatus 100 to move

away from a thick matter pump unit, such as a heavy-duty concrete truck, from which it is coupled when active (not shown). Hence, the hose 400 leaves the rotatable drum 300 as the mobile distributor apparatus 100 moves forward and is thereby placed/released behind the mobile distributor apparatus. When the mobile distributor apparatus moves backward, the hose will be rewound by the rotatable drum. To avoid an uncontrolled unwinding of the rotatable drum during the forward movement of the mobile distributor apparatus, a motor unit configured to unwind the rotatable drum is further configured to oppose the unwinding with a counterforce. The motor unit 800 configured to unwind the rotatable drum is shown in Figure 4, and is shown functioning through a chain drive 810, 310 (the chain is not shown).

[0033] The hose-guide 500 is reciprocated parallel to the axis of rotation of the rotatable drum 300 as said drum is rotated. Thereby, the hose 400 is positioned in the right position on the drum 300 during unwinding and rewinding. Figure 3 shows a rear view of the mobile distributor apparatus 100 with the hose-guide 500 positioned in the rear end of said apparatus.

[0034] The distributor arm comprises a rotary joint 610 (Figure 6) connected to the frame 200 such that the distributor arm 600 can move from a position along a side of the mobile distributor apparatus 100 and up to 270 degrees horizontally relative thereto. This configuration allows for a very compact mobile distributor apparatus where the distributor arm is protected during storage and positioning. The distributor arm will only swing out when needed for the distributing operation.

[0035] The distributor arm 600 is also configured for up and down movement with the aid of the rotary joint 620 (Figure 5). This configuration makes it easier to distribute the thick matter within a confined space.

[0036] The mobile distributor apparatus is shown with a motor unit 700 operatively connected to the wheels (Figures 2 and 3).

References

[0037]

100	Mobile distributor apparatus
200	Frame
300	Rotatable drum
310	Part of chain drive
400	Hose
500	Hose-guide
600	Distributor arm
610	Rotary joint
620	Rotary joint
700	Motor unit
800	Motor unit
810	Part of chain drive

Claims

1. A mobile distributor apparatus (100) for distributing thick matter, in particular for distributing uncured concrete, comprising:

- a frame (200) supported for movement over a surface by wheels or belts of the apparatus (100);
- a rotatable drum (300) with a hose (400) having an inlet and an outlet and being wound thereon in a plurality of side-by-side convolutions in at least one layer; and
- a distributor arm (600) connected to the outlet of the hose (400);

characterized in that the mobile distributor apparatus (100) further comprises:

- a steering mechanism associated with the wheels or belts; and
- a hose-guide (500) reciprocated parallel to the axis of rotation of the rotatable drum (300) as said drum (300) is rotated;

wherein the inlet of the hose (400) comprises means for releasably fastening to an outlet of a thick matter pump unit; wherein the rotatable drum (300) is a) configured to unwind the hose (400) as the mobile distributor apparatus (100) moves forward, whereby the unwound hose is placed behind the mobile distributor apparatus (100) and b) configured to rewind the hose (400) as the mobile distributor apparatus (100) moves backward.

2. The mobile distributor apparatus (100) according to claim 1, further comprising a motor unit (800) and wherein during an unwinding operation, when the hose (400) is unwound from the rotatable drum (300) at a speed above a pre-set speed, said motor unit (800) is configured to increase torque in the opposite direction of the rotatable drum (300) rotation until the speed has reached the pre-set speed.

3. The mobile distributor apparatus (100) according to claim 1, further comprising a motor unit (800) configured to rotate the rotatable drum (300) and further configured to oppose the unwinding operation with a counterforce.

4. The mobile distributor apparatus (100) according to any one of the claims 1-3, wherein the distributor arm (600) is configured for up/down and sideways movement.

5. The mobile distributor apparatus (100) according to any one of the claims 1-4, wherein the distributor arm (600) comprises a rotary joint (610) connected

to the frame (200) such that the distributor arm (600) can move from a position along a side of the mobile distributor apparatus (100) and up to 270 degrees horizontally relative thereto.

6. The mobile distributor apparatus (100) according to any one of the claims 1-5, wherein the mobile distributor apparatus (100) does not comprise a thick matter pump unit. 5
7. The mobile distributor apparatus (100) according to any one of the claims 1-6, wherein the rotatable drum (300) is adapted to unwind and rewind the hose (400) with a speed adjusted to the speed of the mobile distributor apparatus (100). 10
8. The mobile distributor apparatus (100) according to any one of the claims 1-7, wherein the frame (200) is supported for movement over a surface by wheels, and wherein the rotatable drum (300) is coupled to the wheels by a speed reduction gear unit. 15
9. The mobile distributor apparatus (100) according to any one of the claims 1-8, further comprising a motor unit (700), such as a hybrid motor unit, operatively connected to the wheels or belts. 20
10. The mobile distributor apparatus (100) according to any one of the claims 1-8, further comprising an electric motor unit and a combustion motor unit, both operatively connected to the wheels or belts. 25
11. The mobile distributor apparatus (100) according to claim 10, wherein the mobile distributor apparatus (100) further comprises a rotatable cable drum operatively connected to the electric motor, and wherein the rotatable cable drum is a) configured to unwind the cable as the mobile distributor apparatus moves forward, whereby the unwound cable is placed behind the mobile distributor apparatus and b) configured to rewind the cable as the mobile distributor apparatus moves backward. 30
12. The mobile distributor apparatus (100) according to any one of the claims 1-8, wherein the steering mechanism and/or motor unit (800) and/or distributor arm (600) are responsive to remotely-controlled electrical signals. 35
13. The mobile distributor apparatus (100) according to any one of the claims 1-12, wherein the hose (400) is adapted for a working pressure of at least 70 bar. 40
14. The mobile distributor apparatus (100) according to any one of the claims 1-13, further comprising a tensioning apparatus engaging the outer surface of the hose at a position adjacent the hose-guide; wherein the tensioning apparatus comprises driving means 45

therefore, and operable on the hose as the drum is rotating, thereby to maintain said hose in tension and thereby to prevent the convolutions on the drum from becoming loose on said drum.

Patentansprüche

1. Mobile Verteilervorrichtung (100) zur Verteilung von Dickstoffen, insbesondere zur Verteilung von ungehärtetem Beton, umfassend:

- einen Rahmen (200), der zur Bewegung über eine Oberfläche durch Räder oder Riemen der Vorrichtung (100) getragen wird;
- eine drehbare Trommel (300) mit einem Schlauch (400), der einen Einlass und einen Auslass aufweist und darauf in einer Vielzahl von nebeneinanderliegenden Windungen in mindestens einer Ebene gewickelt ist; und
- einen Verteilerarm (600), der mit dem Auslass des Schlauchs (400) verbunden ist;

dadurch gekennzeichnet, dass die mobile Verteilervorrichtung (100) ferner Folgendes umfasst:

- einen Lenkmechanismus, der mit den Rädern oder Riemen verknüpft ist; und
- eine Schlauchführung (500), die sich parallel zur Drehachse der drehbaren Trommel (300) hin- und herbewegt, wenn die Trommel (300) gedreht wird;

wobei der Einlass des Schlauchs (400) Mittel zum lösbaren Befestigen an einem Auslass einer Pumpeinheit für Dickstoffe umfasst; wobei die drehbare Trommel (300) a) konfiguriert ist, um den Schlauch (400) abzuwickeln, wenn sich die mobile Verteilervorrichtung (100) vorwärtsbewegt, wodurch der abgewickelte Schlauch hinter der mobilen Verteilervorrichtung (100) platziert wird, und b) konfiguriert ist, um den Schlauch (400) wieder aufzuwickeln, wenn sich die mobile Verteilervorrichtung (100) rückwärts bewegt.

2. Mobile Verteilervorrichtung (100) nach Anspruch 1, ferner umfassend eine Motoreinheit (800) und wobei während eines Abwickelvorgangs, wenn der Schlauch (400) von der drehbaren Trommel (300) mit einer Geschwindigkeit oberhalb einer voreingestellten Geschwindigkeit abgewickelt wird, die Motoreinheit (800) konfiguriert ist, um ein Drehmoment in der entgegengesetzten Richtung der Drehung der drehbaren Trommel (300) zu erhöhen, bis die Geschwindigkeit die voreingestellte Geschwindigkeit erreicht hat.
3. Mobile Verteilervorrichtung (100) nach Anspruch 1,

ferner umfassend eine Motoreinheit (800), die konfiguriert ist, um die drehbare Trommel (300) zu drehen, und ferner konfiguriert ist, um dem Abwickelvorgang eine Gegenkraft entgegenzusetzen.

4. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-3, wobei der Verteilerarm (600) für eine Bewegung nach oben/unten und zur Seite konfiguriert ist.

5. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-4, wobei der Verteilerarm (600) ein Drehgelenk (610) umfasst, das mit dem Rahmen (200) verbunden ist, sodass sich der Verteilerarm (600) von einer Position entlang einer Seite der mobilen Verteilervorrichtung (100) und bis zu 270 Grad horizontal in Bezug darauf bewegen kann.

6. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-5, wobei die mobile Verteilervorrichtung (100) keine Pumpeinheit für Dickstoffe umfasst.

7. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-6, wobei die drehbare Trommel (300) ausgelegt ist, um den Schlauch (400) mit einer Geschwindigkeit abzuwickeln und wieder aufzuwickeln, die an die Geschwindigkeit der mobilen Verteilervorrichtung (100) angepasst ist.

8. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-7, wobei der Rahmen (200) zur Bewegung über eine Oberfläche durch Räder getragen wird, und wobei die drehbare Trommel (300) durch eine Untersetzungsgetriebeeinheit an die Räder gekoppelt ist.

9. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-8, ferner umfassend eine Motoreinheit (700), wie etwa eine Hybridmotoreinheit, die mit den Rädern oder Riemen wirkverbunden ist.

10. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-8, ferner umfassend eine Elektromotoreinheit und eine Verbrennungsmotoreinheit, die beide mit den Rädern oder Riemen wirkverbunden sind.

11. Mobile Verteilervorrichtung (100) nach Anspruch 10, wobei die mobile Verteilervorrichtung (100) ferner eine drehbare Kabeltrommel umfasst, die mit dem Elektromotor wirkverbunden ist, und wobei die drehbare Kabeltrommel a) konfiguriert ist, um das Kabel abzuwickeln, wenn sich die mobile Verteilervorrichtung vorwärtsbewegt, wodurch das abgewickelte Kabel hinter der mobilen Verteilervorrichtung platziert wird, und b) konfiguriert ist, um das Kabel wieder aufzuwickeln, wenn sich die mobile Verteilervorrichtung rückwärts bewegt.

12. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-8, wobei der Lenkmechanismus und/oder die Motoreinheit (800) und/oder der Verteilerarm (600) auf ferngesteuerte elektrische Signale reagiert bzw. reagieren.

13. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-12, wobei der Schlauch (400) für einen Arbeitsdruck von mindestens 70 bar ausgelegt ist.

14. Mobile Verteilervorrichtung (100) nach einem der Ansprüche 1-13, ferner umfassend eine Spannvorrichtung, die in die Außenfläche des Schlauchs in einer Position angrenzend an die Schlauchführung eingreift; wobei die Spannvorrichtung Antriebsmittel dafür umfasst und an dem Schlauch betriebsfähig ist, wenn sich die Trommel dreht, wodurch der Schlauch unter Spannung gehalten wird und wodurch verhindert wird, dass die Windungen auf der Trommel sich auf der Trommel lösen.

Revendications

1. Appareil distributeur mobile (100) pour la distribution de matières épaisses, en particulier pour la distribution de béton non durci, comprenant :

- un cadre (200) supporté pour se déplacer sur une surface par des roues ou des courroies de l'appareil (100) ;
- un tambour rotatif (300) avec un tuyau (400) ayant une entrée et une sortie et étant enroulé sur celui-ci en une pluralité de spires côte à côte en au moins une couche ; et
- un bras distributeur (600) relié à la sortie du tuyau (400) ; **caractérisé en ce que** l'appareil distributeur mobile (100) comprend en outre :

- un mécanisme de direction associé aux roues ou aux courroies ; et
- un guide-tuyau (500) effectuant un mouvement de va-et-vient parallèlement à l'axe de rotation du tambour rotatif (300) lorsque ledit tambour (300) est mis en rotation ;

dans lequel l'entrée du tuyau (400) comprend un moyen de fixation amovible à une sortie d'une unité de pompe à matière épaisse ; dans lequel le tambour rotatif (300) est a) conçu pour dérouler le tuyau (400) à mesure que l'appareil distributeur mobile (100) avance, moyennant quoi le tuyau déroulé est placé derrière l'appareil distributeur mobile (100) et b) conçu pour rembobiner le tuyau (400) à mesure que l'appareil distributeur mobile (100) recule.

2. Appareil distributeur mobile (100) selon la revendication 1, comprenant en outre une unité de moteur

- (800) et dans lequel, pendant une opération de déroulement, lorsque le tuyau (400) est déroulé du tambour rotatif (300) à une vitesse supérieure à une vitesse préétablie, ladite unité de moteur (800) est conçue pour augmenter un couple dans la direction opposée à la rotation du tambour rotatif (300) jusqu'à ce que la vitesse ait atteint la vitesse préétablie.
3. Appareil distributeur mobile (100) selon la revendication 1, comprenant en outre une unité de moteur (800) conçue pour faire tourner le tambour rotatif (300) et conçue en outre pour s'opposer à l'opération de déroulement avec une contre-force.
 4. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 3, dans lequel le bras distributeur (600) est conçu pour un mouvement ascendant/descendant et latéral.
 5. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 4, dans lequel le bras distributeur (600) comprend un joint rotatif (610) relié au cadre (200) de sorte que le bras distributeur (600) puisse se déplacer d'une position le long d'un côté de l'appareil distributeur mobile (100) et jusqu'à 270 degrés horizontalement par rapport à celui-ci.
 6. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 5, dans lequel l'appareil distributeur mobile (100) ne comprend pas d'unité de pompe à matière épaisse.
 7. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 6, dans lequel le tambour rotatif (300) est adapté pour dérouler et rembobiner le tuyau (400) avec une vitesse ajustée à la vitesse de l'appareil distributeur mobile (100).
 8. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 7, dans lequel le cadre (200) est supporté pour se déplacer sur une surface par des roues, et dans lequel le tambour rotatif (300) est couplé aux roues par une unité de réducteur de vitesse.
 9. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 8, comprenant en outre une unité de moteur (700), telle qu'une unité de moteur hybride, reliée fonctionnellement aux roues ou aux courroies.
 10. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 8, comprenant en outre une unité de moteur électrique et une unité de moteur à combustion, toutes deux reliées fonctionnellement aux roues ou aux courroies.
 11. Appareil distributeur mobile (100) selon la revendication 10, dans lequel l'appareil distributeur mobile (100) comprend en outre un tambour d'enroulement de câble rotatif relié fonctionnellement au moteur électrique, et dans lequel le tambour d'enroulement de câble rotatif est a) conçu pour dérouler le câble à mesure que l'appareil distributeur mobile avance, moyennant quoi le câble déroulé est placé derrière l'appareil distributeur mobile et b) conçu pour rembobiner le câble à mesure que l'appareil distributeur mobile recule.
 12. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 8, dans lequel le mécanisme de direction et/ou l'unité de moteur (800) et/ou le bras distributeur (600) sont sensibles à des signaux électriques télécommandés.
 13. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 12, dans lequel le tuyau (400) est adapté pour une pression de travail d'au moins 70 bar.
 14. Appareil distributeur mobile (100) selon l'une quelconque des revendications 1 à 13, comprenant en outre un appareil tendeur venant en prise avec la surface extérieure du tuyau à une position adjacente au guide-tuyau ; dans lequel l'appareil tendeur comprend par conséquent un moyen d'entraînement, et actionnable sur le tuyau à mesure que le tambour tourne, pour ainsi maintenir ledit tuyau en tension et empêcher ainsi les spires sur le tambour de se détacher sur ledit tambour.

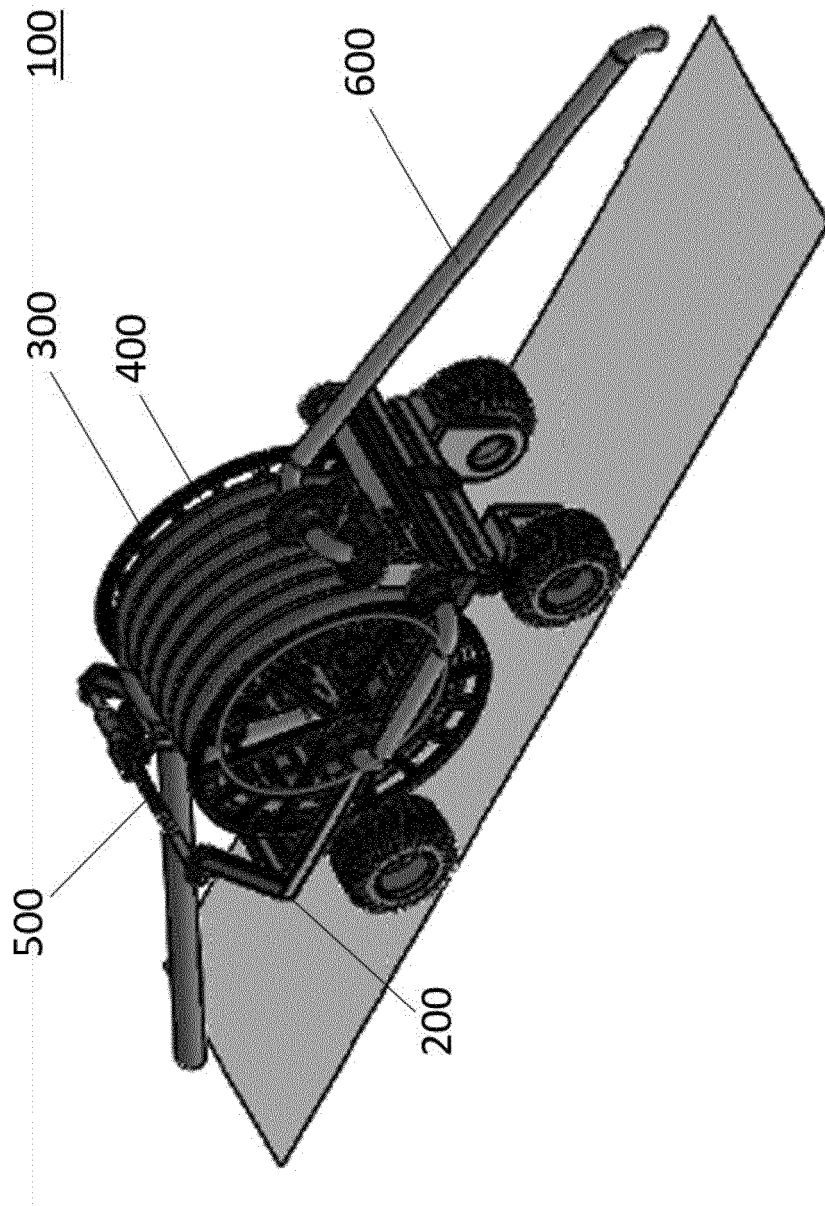


Fig. 1

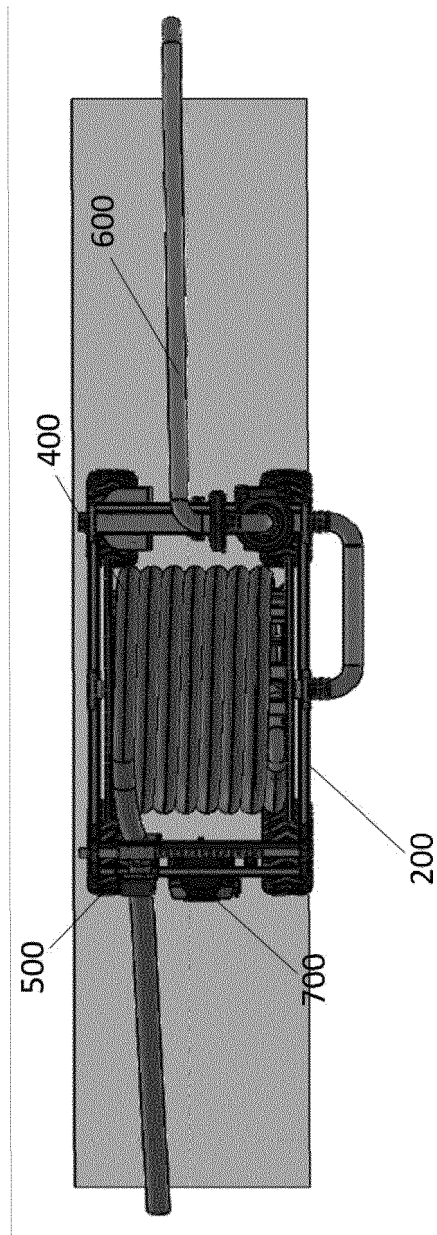
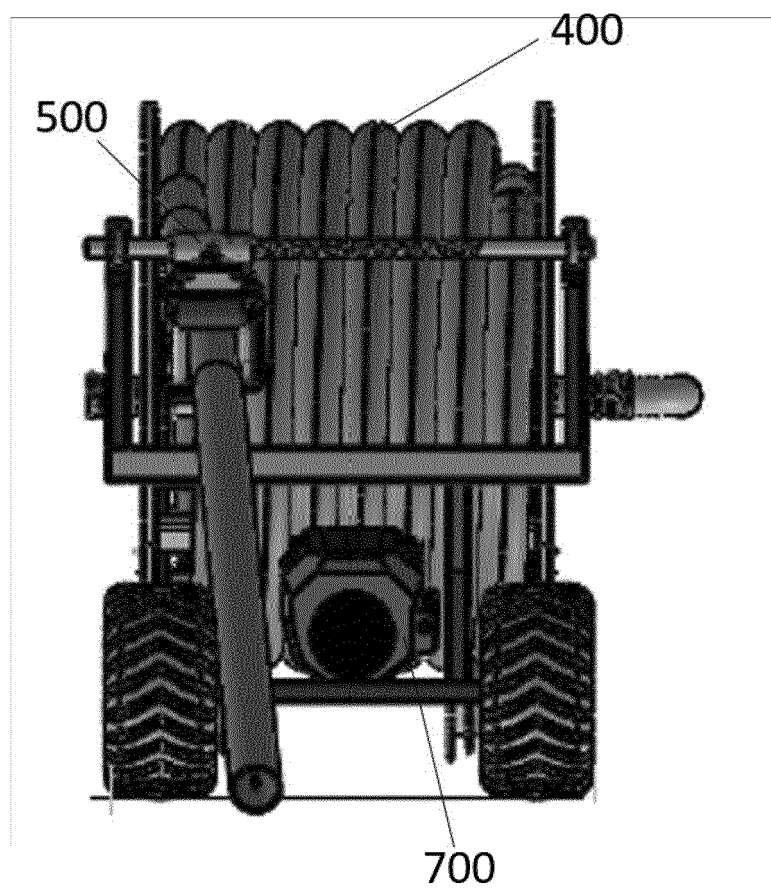


Fig. 2



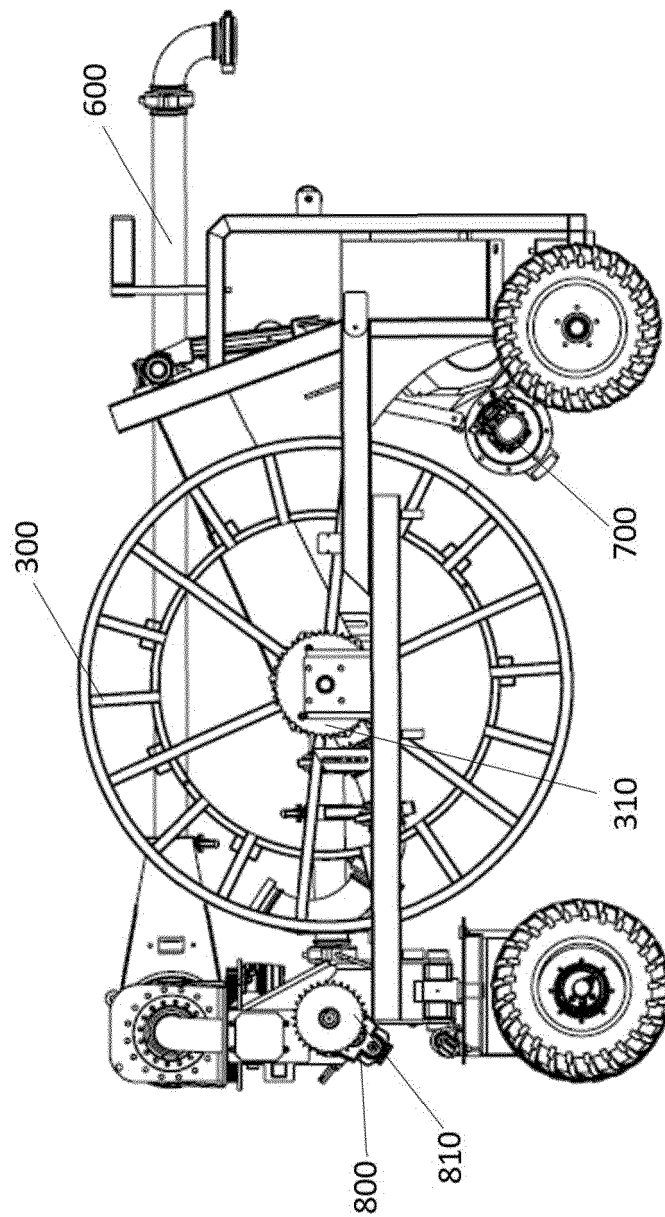


Fig. 4

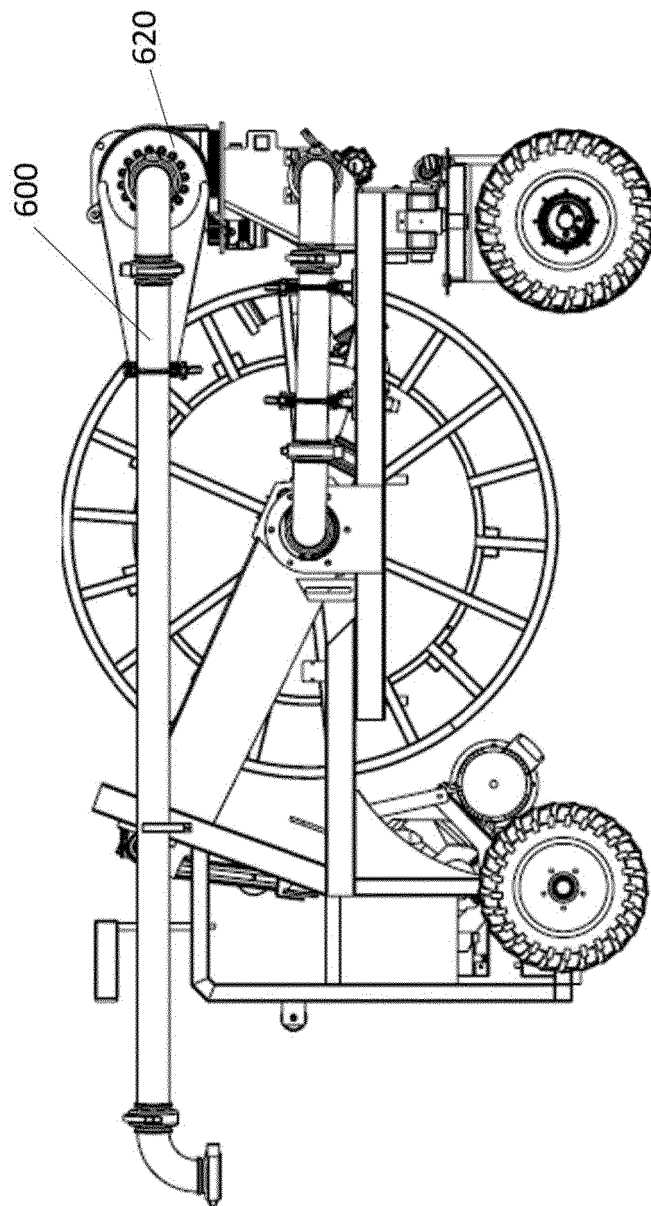


Fig. 5

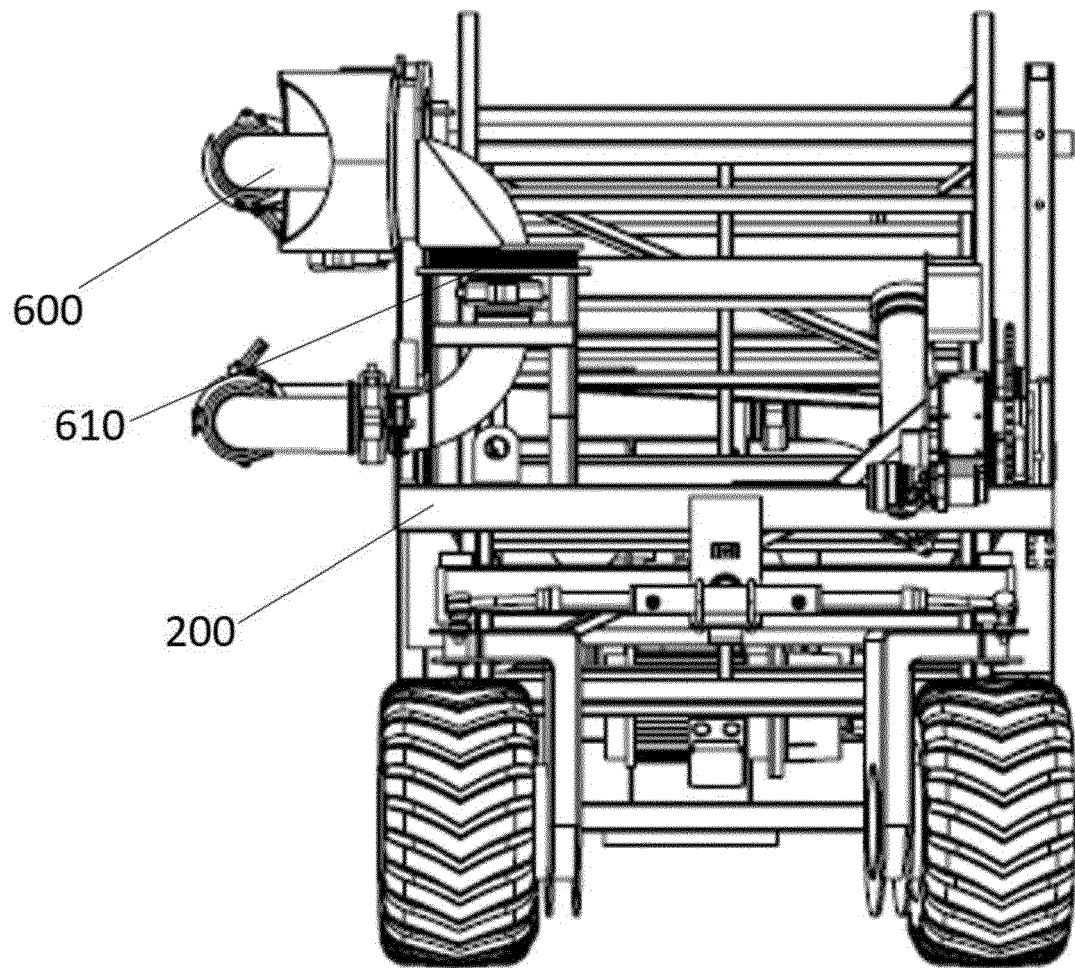


Fig. 6