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(54) **Winding device, in particular for hoses and cables**

(57) A device is proposed to automatically wind hoses and cables by utilizing both an actuating motor unit and a particular guide unit so that the present device permits to wind hoses and cables by simply pushing a button while in the known solutions hoses and cables are usually wound manually.

Generally, the winding device according to the

present invention is provided with a motor (4) to actuate both the rotation of a winding drum (2) and the angular displacement of a guide and distribution unit (6).

The distribution unit (6) is supported by a hanger (S). Two swinging arms (13) are hinged to the hanger (S) and are operated by an arm (12). A 360° articulated guide cone (14) is fixed to the ends of both swinging arms (13).

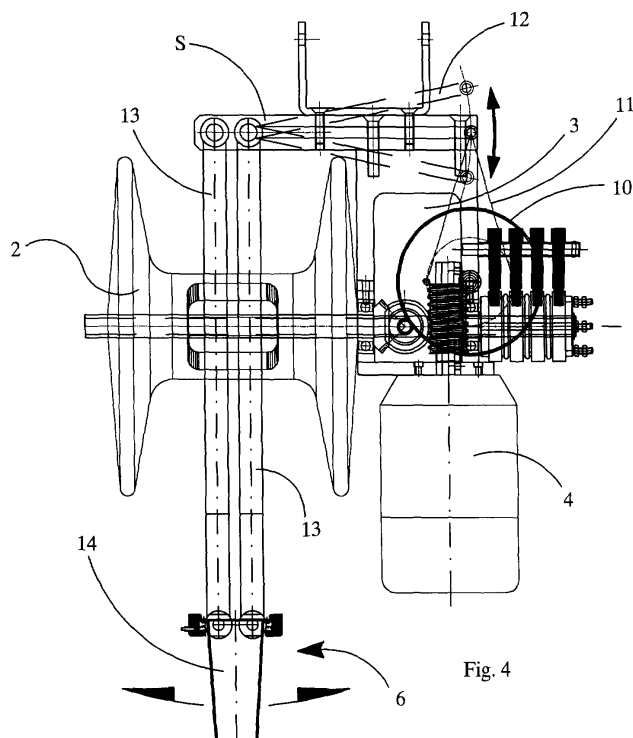


Fig. 4

EP 1 364 902 A2

Description

[0001] The present invention proposes a winding device to wind hoses and cables.

[0002] This device winds hoses and cables automatically by utilizing both an actuating motor unit and a guide unit so that the present device permits to wind hoses and cables by simply pushing a button while in known solutions hoses and cables are usually wound manually.

[0003] In particular, the advantage of this invention is the presence of a guide unit connected with an actuating motor unit. The guide unit permits a correct distribution of the hose or cable when the hose or cable is wound onto the drum, which avoids a bad winding.

[0004] As is known, the prior art supplies several winding devices for hoses and cables. Generally, these devices include a winding element that usually is a winding drum. The winding element or drum is either laid on the floor through a suitable structure or hanged to a wall by means of a hanger.

[0005] In both cases, the winding drum is provided with a handle through which the winding drum is rotated to wind the cable or hose to be wound.

[0006] The prior art discloses motor winding drums in which the motor facilitates the winding of the cable or hose. A motorized winding device avoids a manual winding but it costs more than a handle winding device.

[0007] However, in both the manual handle winding devices and the motorized winding devices of the prior art there is the problem of an irregular winding of the hose or cable onto the winding drum because there is no distributing element to regularly wind the hose or cable onto the drum, which may cause an excessive winding in some points and a scarce winding in other sectors and the resulting practical difficulties.

[0008] The object of the present invention is to conceive and carry out a motorized winding system to wind hoses or cables, this system being able to solve the aforesaid drawbacks in that it is provided with a distributing unit to permit a correct, regular distribution and a better winding of the cable or hose.

[0009] An immediate advantage of the present invention consists in that it utilizes a complete, self-contained winding system to wind a tubular element in the best manner, there being no necessity of a manual intervention.

[0010] All the above-mentioned objects and advantages are reached according to the present invention through a winding device for the winding of hoses or cables in general which comprises a motorized rotating winding drum which rotates around its axis, characterized in that the motorized means provided to rotate the drum are connected with swinging guide means which permit a correct distribution of the cable or hose onto the drum during the winding phase.

[0011] Further features and details of the present invention will be understood better from the following

specification which is to be considered as a nonlimiting example of the invention on the hand of the accompanying drawings, wherein:

Fig. 1 shows a schematic lateral view of the winding device on the whole;

Fig. 2 shows a schematic front view of the winding device;

Fig. 3 shows a schematic view of the winding device and rotation and guide mechanical means thereof;

Fig. 4 shows a detailed view of the transmission means for the guide unit.

[0012] With reference to the accompanying drawings, number 1 denotes a winding device on the whole according to the present invention. Generally, the winding device 1 comprises a drum 2 which is mounted on a support 3 which includes the rotating means which are driven by a motor 4.

[0013] In the present embodiment, the winding device 1 is mounted on a wall hanger 5.

[0014] The winding system is operated by a motor 4 which actuates both the rotation of the winding drum 2 and the angular displacement of a guide and distribution unit 6.

[0015] More precisely, the motor 4 actuates a pinion 7 which rotates both a gear 8, which in turn rotates the winding drum, and a bevel gear pair 9.

[0016] As can be seen in Fig. 2, the conical couple 9 in turn actuates a toothed wheel 10 which includes a connecting rod 11 which swings an arm 12 which moves the distribution unit 6. The arm 12 and the distribution unit 6 are mounted on a support S fixed to the wall hanger 5.

[0017] The said arm 12 is connected with a pair of swinging arms 13. A 360° articulated guide cone 14 is fixed to the ends of both swinging arms 13.

[0018] The swinging arms 13 are hinged on the support S and show an essentially arcuated shape, as can be seen in Fig. 1 in order to be arranged under the winding drum 2 and swing without interfering with the rotating movement of the winding drum 2.

[0019] A hose or cable 15 to be wound is passed through the guide cone 14. The swinging of the guide cone 14 permits a correct distribution of the hose or cable during the winding phase.

[0020] Obviously, the swinging degree of the guide cone 14 and displacement means thereof is set by selecting suitable kinematic transmission ratios, in particular, the length of the connecting rod 11, the toothed wheel 10 and the bevel gear pair 9.

[0021] For the utilization of the winding device according to the present invention it is sufficient to bring the initial part of the hose or cable to the centre of the winding drum 2 and then, to insert it in the guide cone 14.

[0022] At this stage, by pushing a button the motor 4 is operated and actuates both the rotating movement of the drum 2 and the swinging movement of the guide cone 14 so that the hose or cable is wound onto the

drum and the distribution of the hose or cable onto the drum takes place in a progressive, homogeneous manner so that the whole drum area is filled with the hose or cable.

[0023] The particular advantage of the guide cone 14 is evident in that it is articulated over 360° and therefore, it permits the insertion of the hose or cable from whatever angle the hose or cable comes. 5

[0024] A technician of this field can make changes and variants in the described embodiment and obtain solutions to be considered as included in the scope of protection of the present invention which is further defined in the following claims. 10

Claims 15

1. Winding device, in particular to wind hoses or cables in general, comprising a motorized rotating winding drum rotating around its axis, **characterized in that** the motorized means for the rotation of the drum are connected with swinging guide means for a correct distribution of the hose and/or cable onto the drum during the winding phase. 20
2. Winding device as claimed in the foregoing claim, **characterized in that** the said guide device comprises a distribution unit (6) supported by a hanger (S), two swinging arms (13) being hinged to the hanger (S) and operated by an arm (12), a 360° articulated guide cone (14) being fixed to the ends of both swinging arms (13). 25 30
3. Winding device as claimed in the foregoing claims, **characterized in that** it is provided with a motor (4) actuating both the rotation of the winding drum (2) and the angular displacement of the said guide and distribution unit (6). 35
4. Winding device as claimed in the foregoing claims, **characterized in that** the motor (4) actuates a pinion (7) which in turn rotates both a gear (8) for the rotation of the drum and a bevel gear pair (9). 40
5. Winding device as claimed in the foregoing claims, **characterized in that** the said bevel gear pair (9) actuates a toothed wheel (10) which comprises a connecting rod (11) which swings the arm (12) which actuates the distribution unit (6). 45 50
6. Winding device as claimed in the foregoing claims, **characterized in that** the said arm (12) is connected with the said pair of swinging arms (13) to the end of which a 360° articulated guide cone (14) is fixed. 55
7. Winding device as claimed in the foregoing claims, **characterized in that** the said motor (4) actuates

both the rotating movement of the drum (2) and the swinging movement of the guide cone (14) and permits thereby a winding of the hose and/or cable with a progressive, homogeneous distribution on the whole filling area of the drum.

