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(54) POWER-ASSISTED FIRE HOSE REEL

(57) A power-assisted fire hose reel (100) includes a body (10), a reel unit (20) rotatably disposed on the body (10), and a power unit (30) connected to the reel unit (20). The power unit (30) drives the reel unit (20) to rotate relative to the body (10). When in use, a fire hose (200) is placed on the reel unit (20), and then the power unit (30) is started to drive the reel unit (20) to rotate, such that the fire hose (200) can be quickly coiled into a roll for storage and subsequent use.

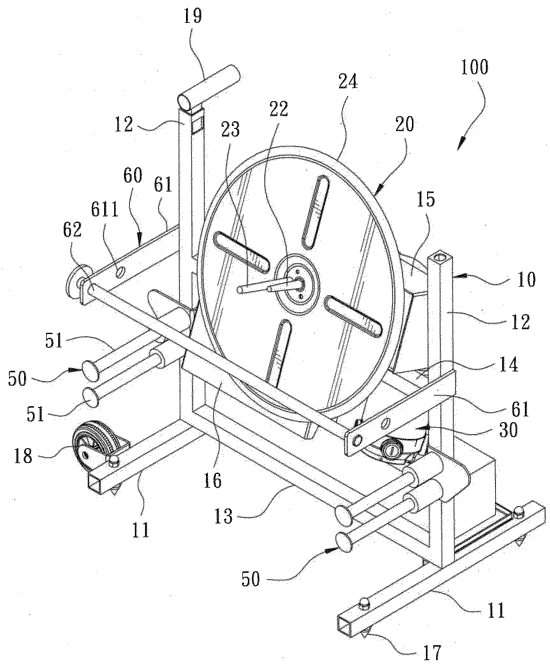

FIG. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a reel, and more particularly, to a power-assisted fire hose reel.

BACKGROUND OF THE INVENTION

[0002] A conventional fire hose reel includes a body, a rotating disk rotatably disposed on the body, a handle connected to the rotating disk. When in use, a fire hose is placed on the rotating disk, and the rotating disk is rotated by the handle to coil the fire hose into a fire hose roll. However, this design is slow, time-consuming and laborious in coiling in the fire hose. Besides, it is not easy for the user to remove the fire hose roll from the fire hose reel, and the fire hose roll is not flat. When the user rolls out the fire hose, the fire hose may be deflected and cannot be kept in a straight line.

SUMMARY OF THE INVENTION

[0003] The primary object of the present invention is to provide a power-assisted fire hose reel, which is used for coiling a fire hose into a roll for the user to store and use the fire hose with ease.

[0004] in order to achieve the foregoing object, the power-assisted fire hose reel provided by the present invention comprises a body, a reel unit rotatably disposed on the body, and a power unit connected to the reel unit. The power unit drives the reel unit to rotate relative to the body. The reel unit includes a shaft sleeve, a slide shaft, an eccentric shaft, and a rotating disk. The shaft sleeve is rotatably disposed in the body. The shaft sleeve has a slide hole. The slide shaft is slidably disposed in the slide hole. The eccentric shaft is eccentrically connected to the shaft sleeve. The rotating disk is disposed on a periphery of the shaft sleeve. The shaft sleeve is driven to rotate by the power unit, so that the eccentric shaft and the rotating disk are rotated synchronously along with the shaft sleeve.

[0005] When in use, the middle section of the fire hose is placed between the slide shaft and the eccentric shaft, and the power unit is started to drive the shaft sleeve, so that the eccentric shaft and the rotating disk are rotated synchronously along with the shaft sleeve. The fire hose is coiled into a fire hose roll. Finally, the user moves and pulls out the slide shaft, so that the slide shaft is detached from the fire hose roll, releasing the center of the fire hose roll. The user can remove the fire hose roll from the reel unit with ease. Thus, the power-assisted fire hose reel can quickly coil the fire hose into a roll for the user to store and use the fire hose with ease.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006]

FIG. 1 is a front perspective view according to a preferred embodiment of the present invention;

FIG. 2 is a rear perspective view according to the preferred embodiment of the present invention;

FIG. 3 is a cross-sectional view according to the preferred embodiment of the present invention;

FIG. 4 is a cross-sectional view at the position of axial line A in FIG. 3 according to the preferred embodiment of the present invention;

FIG. 5 is a schematic view of the preferred embodiment of the present invention when in use, wherein the fire hose is to be coiled; and

FIG. 6 is a schematic view of the preferred embodiment of the present invention when in use, wherein the fire hose is coiled into a roll.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0007] Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings.

[0008] As shown in FIG. 1 and FIG. 2, the present invention discloses a power-assisted fire hose reel 100. The power-assisted fire hose reel 100 comprises a body 10, a reel unit 20 on the body 10, a power unit 30 connected to the reel unit 20, and a control unit 40. The power unit 30 is electrically connected to the control unit 40 through which the user can operate the power unit 30. The body 10 further includes two guide units 50 and a restricting unit 60 on the body 10, which will be described below.

[0009] As shown in FIG. 1 and FIG. 2, in this embodiment, the body 10 includes two bottom rods 11, two side rods 12 extending upward from the respective bottom rods 11, a connecting rod 13, and a mounting rod 14. The connecting rod 13 and the mounting rod 14 are connected between the side rods 12. The mounting rod 14 has a mount 15 for mounting the reel unit 20 and the power unit 30. The mounting rod 14 further has a connecting seat 16 for mounting the control unit 40. A plurality of positioning posts 17 are provided on the undersides of the bottom rods 11, so as to increase the stability of the body 10 when standing. A plurality of casters 18 are provided on the circumferential side of at least one of the bottom rods 11, and a retractable handle 19 is provided on the corresponding side rod 12, which facilitates the user to drag and move the body 10.

[0010] As shown in FIG. 3, the mount 15 has an accommodation space 151 therein. The mount 15 has a shaft hole 152. In this embodiment, the mount 15 has a pair of shaft holes 152 communicating with the accommodation space 151. The reel unit 20 has a shaft sleeve 21 rotatably disposed in the shaft hole 152. The shaft sleeve 21 has a slide hole 211. A slide shaft 22 is slidably disposed in the slide hole 211. The length of the slide shaft 22 is greater than that of the shaft sleeve 21 so that both ends of the slide shaft 22 extend out of the shaft

sleeve 21. An eccentric shaft 23 is eccentrically connected to the shaft sleeve 21. A rotating disk 24 is provided on the periphery of the shaft sleeve 21. The shaft sleeve 21, the slide shaft 22 and the eccentric shaft 23 are parallel to an axial line A. An included angle θ is formed between the axial line A and a horizontal line B. The rotating disk 24 has a disk face 241. The disk face 241 is perpendicular to the axial line A.

[0011] As shown in FIG. 4, the mount 15 has a connecting hole 153 communicating with the accommodation space 151. The power unit 30 includes a motor 31 fixed to the mount 15. An output shaft 311 of the motor 31 is inserted in the connecting hole 153 and connected to a driving gear 32. The power unit 30 further includes a driven gear 33. The driven gear 33 is disposed on the shaft sleeve 21 and meshes with the driving gear 32, so that the motor 31 drives the driven gear 33 through the driving gear 32 to rotate the shaft sleeve 21. The control unit 40 may be a conventional switch box and is connected to the motor 31 by means of a cable or the like for controlling the operation of the motor 31.

[0012] Referring to FIG. 1, the guide units 50 are disposed on the body 10 and located at two sides of the reel unit 20. The guide units 50 each have at least one guide rod 51. The guide rod 51 is disposed at a position lower than the slide shaft 22 and the eccentric shaft 23. In this embodiment, the guide units 50 each have a plurality of guide rods 51, and the guide rods 51 are arranged at intervals in a vertical direction. The restricting unit 60 is disposed on the body 10 and has two extension rods 61. The extension rods 61 are located at the two sides of the reel unit 20. The extension rods 61 each have a plurality of spaced restricting holes 611. The restricting holes 611 of the extension rods 61 are arranged symmetrically. The restricting unit 60 further has a restricting rod 62. Both ends of the restricting rod 62 are inserted in one pair of the restricting holes 611, so that the restricting rod 62 is connected between the extension rods 61.

[0013] As shown in FIG. 5 and FIG. 6, the power-assisted fire hose reel 100 is used for coiling a fire hose 200. When in use, the middle section of the fire hose 200 is placed between the slide shaft 22 and the eccentric shaft 23, and two ends of the fire hose 200 are placed between the guide rods 51 of the respective guide units 50. After that, the power unit 30 is started by the control unit 40, so that the power unit 30 drives the eccentric shaft 23 and the rotating disk 24 to rotate synchronously, and the two ends of the fire hose 200 are coiled into a roll in the direction of the reel unit 20 along with the rotation of the reel unit 20, thereby forming a fire hose roll. Finally, the user moves and pulls out the slide shaft 22 towards the back of the rotating disk 24, so that the slide shaft 22 is detached from the fire hose roll, releasing the center of the fire hose roll. The user can remove the fire hose roll from the reel unit 20 with ease. Thus, the power-assisted fire hose reel 100 can quickly coil the fire hose 200 into a roll for the user to store and use the fire hose 200 with ease.

[0014] As shown in FIG. 5 and FIG. 6, in the process of coiling the fire hose 200, the guide units 50 effectively guide the two ends of the fire hose 200 forward to prevent the fire hose 200 from becoming tangled. Because the guide rods 51 are located at a position lower than the slide shaft 22 and the eccentric shaft 23, the water in the fire hose 200 can be drained out in the process of coiling the fire hose 200, so as to avoid the water remaining in the fire hose 200. As shown in FIG. 6, the user may adjust the position of the restricting rod 62 inserted in the restricting holes 611 according to the width of the fire hose 200, so as to prevent the fire hose 200 from detaching in the process of coiling the fire hose 200.

[0015] As shown in FIG. 6 and FIG. 3, because the shaft sleeve 21, the slide shaft 22 and the eccentric shaft 23 are parallel to the axial line A, and the included angle θ is formed between the axial line A and the horizontal line B, and the disk face 241 of the rotating disk 24 is perpendicular to the axial line A, in the process of coiling the fire hose 200, one side of the fire hose 200, adjacent to the rotating disk 24, will lean against the disk face 241 of the rotating disk 24 due to gravity. That is, the position of each loop of the fire hose 200 is the same. When the fire hose 200 is coiled into a roll, the fire hose roll will have very flat sides. This allows the user to roll out the fire hose in a straight line without deflection.

Claims

1. A power-assisted fire hose reel (100), comprising:

a body (10);
a reel unit (20), including a shaft sleeve (21), a slide shaft (22), an eccentric shaft (23) and a rotating disk (24), the shaft sleeve (21) being rotatably disposed in the body (10), the shaft sleeve (21) having a slide hole (211), the slide shaft (22) being slidably disposed in the slide hole (211), the eccentric shaft (23) being eccentrically connected to the shaft sleeve (21), the rotating disk (24) being disposed on a periphery of the shaft sleeve (21);
a power unit (30), connected to the shaft sleeve (21), the shaft sleeve (21) being driven to rotate by the power unit (30) so that the eccentric shaft (23) and the rotating disk (24) are rotated synchronously along with the shaft sleeve (21).

2. The power-assisted fire hose reel (100) as claimed in claim 1, wherein the shaft sleeve (21), the slide shaft (22) and the eccentric shaft (23) are parallel to an axial line (A), an included angle **(θ)** is formed between the axial line (A) and a horizontal line (B), the rotating disk (24) has a disk face (241), and the disk face (241) is perpendicular to the axial line (A).

3. The power-assisted fire hose reel (100) as claimed in

claim 1, further comprising two guide units (50) on the body (10), the guide units (5) being located at two sides of the reel unit (20), the guide units (50) each having at least one guide rod (51), the guide rod (51) being located at a position lower than the eccentric shaft (23) and the slide shaft (22).

4. The power-assisted fire hose reel (100) as claimed in claim 3, wherein the at least one guide rod (51) includes a plurality of guide rods (51), and the guide rods (51) are arranged at intervals in a vertical direction.

5. The power-assisted fire hose reel (100) as claimed in claim 1, further comprising a restricting unit (60) on the body (10), the restricting unit (60) including two extension rods (61) and a restricting rod (62), the extension rods (61) being located at two sides of the reel unit (20), the restricting rod (62) being detachably connected between the extension rods (61).

6. The power-assisted fire hose reel (100) as claimed in claim 1, wherein the power unit (30) includes a motor (31), a driving gear (32) connected to the motor (31), and a driven gear (33), and the driven gear (33) is disposed on the shaft sleeve (21) and meshes with the driving gear (32).

7. The power-assisted fire hose reel (100) as claimed in claim 6, further comprising a control unit (40) on the body (10), the control unit (40) being electrically connected to the motor (31) for controlling operation of the motor (31).

8. The power-assisted fire hose reel (100) as claimed in claim 1, wherein the body (10) includes two bottom rods (11), two side rods (12) extending upward from the respective bottom rods (11), a connecting rod (13) and a mounting rod (14), the connecting rod (13) and the mounting rod (14) are connected between the side rods (12), a mount (15) is provided on the mounting rod (14), the mount (15) has a shaft hole (152), and the shaft sleeve (21) of the reel unit (20) is rotatably disposed in the shaft hole (152).

9. The power-assisted fire hose reel (100) as claimed in claim 8, wherein a plurality of positioning posts (17) are provided on undersides of the bottom rods (11).

10. The power-assisted fire hose reel (100) as claimed in claim 8, wherein a plurality of casters (18) are provided on a circumferential side of at least one of the bottom rods (11), and a handle (19) is provided on a corresponding one of the side rods (12).

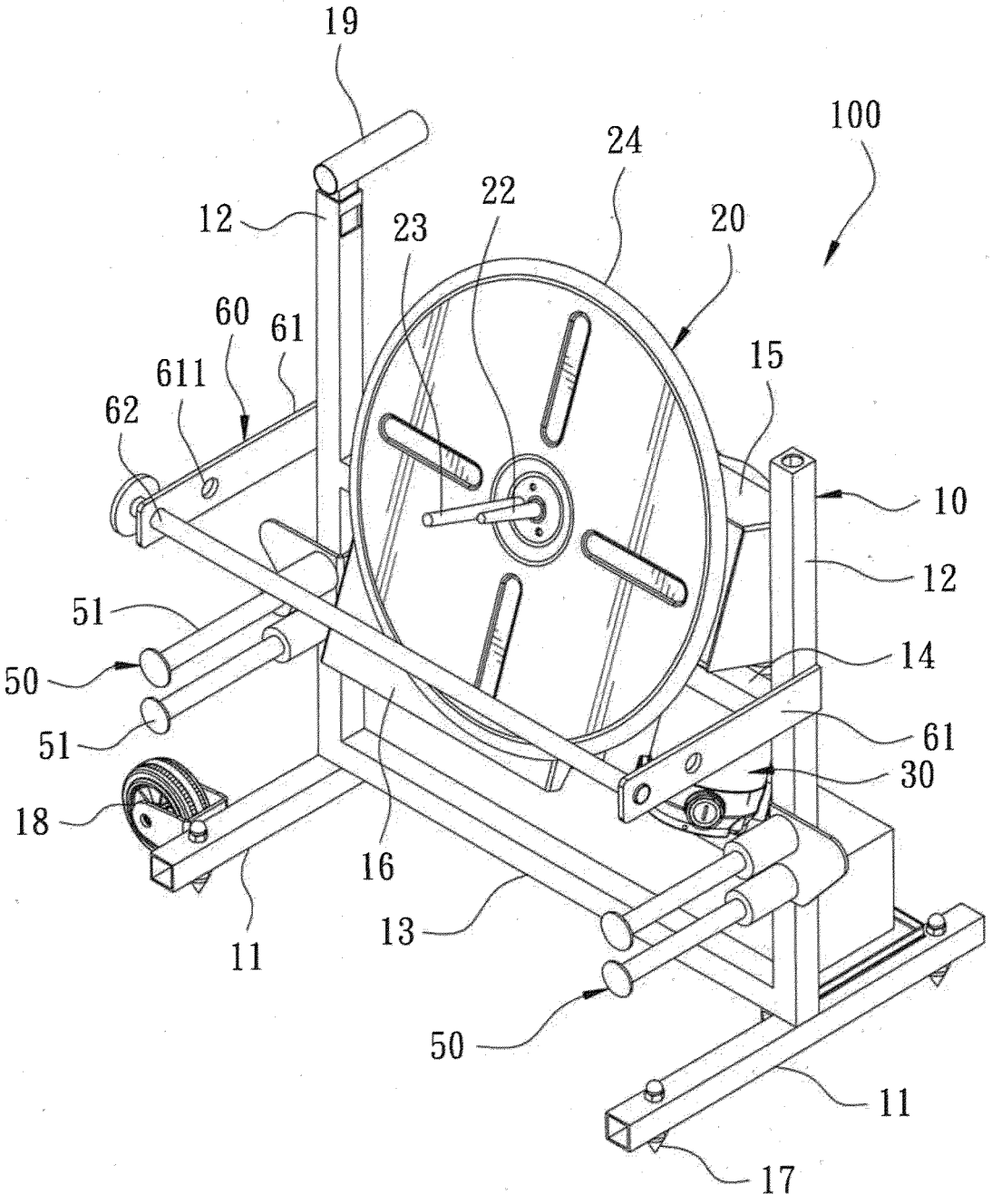
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FIG. 1

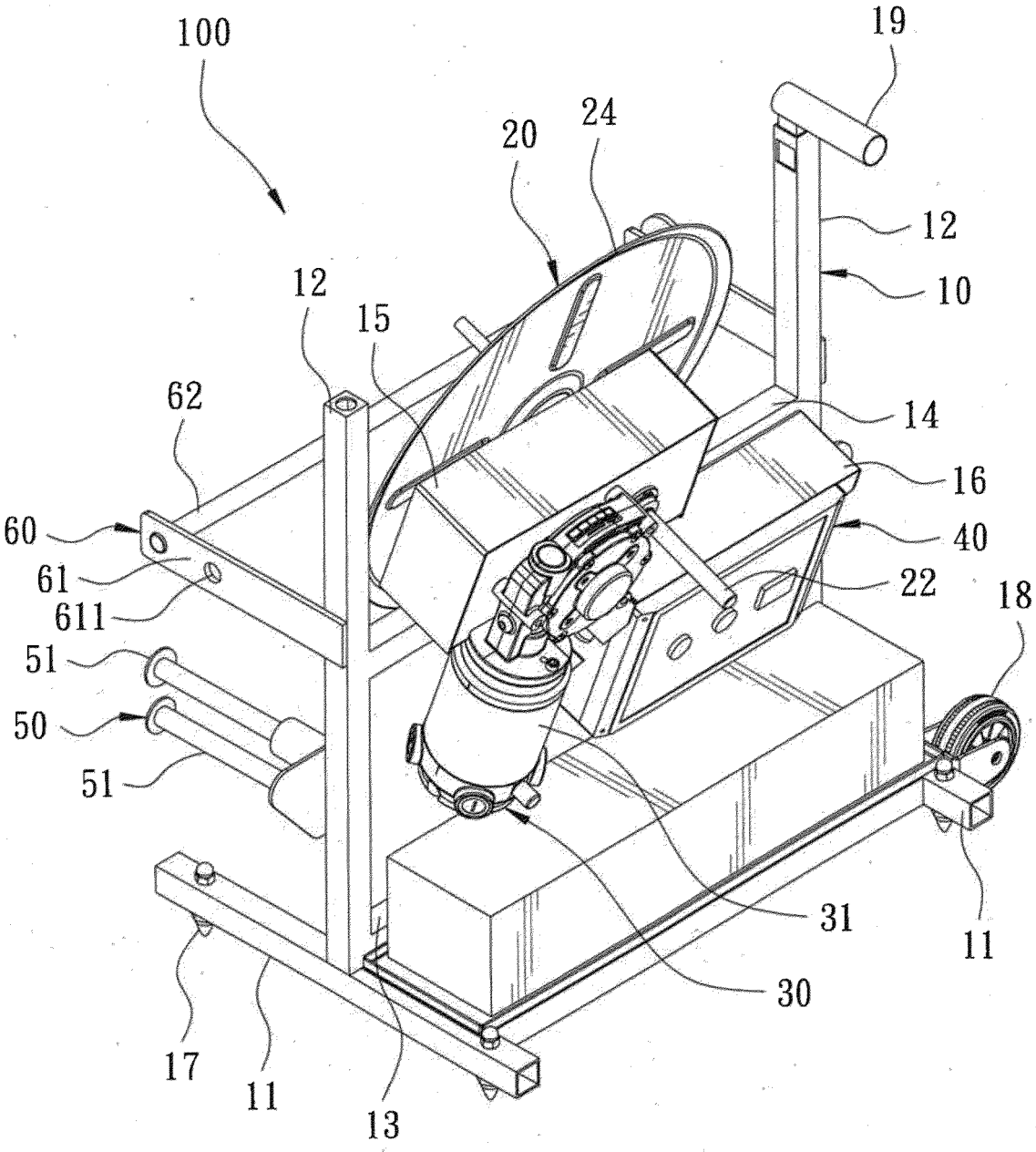
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FIG. 2

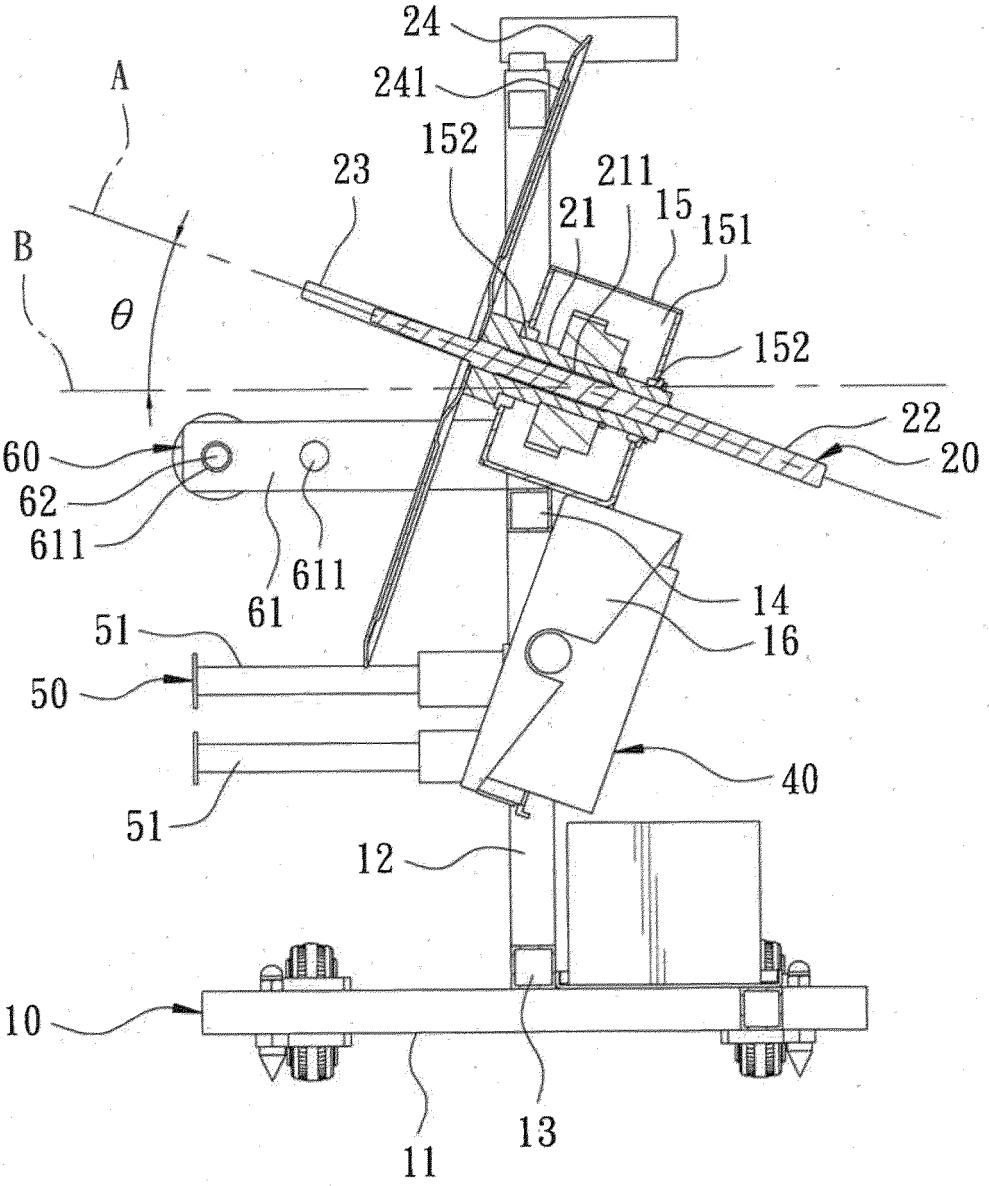
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FIG. 3

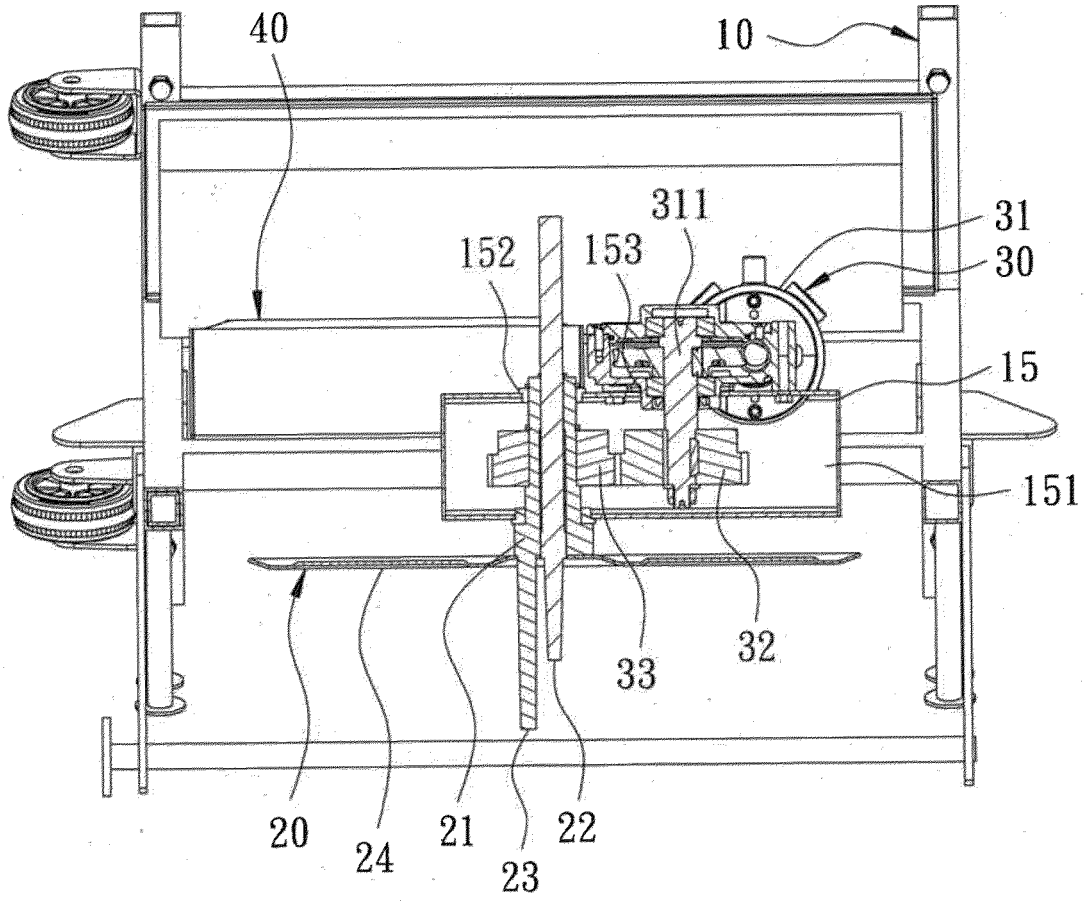

FIG. 4

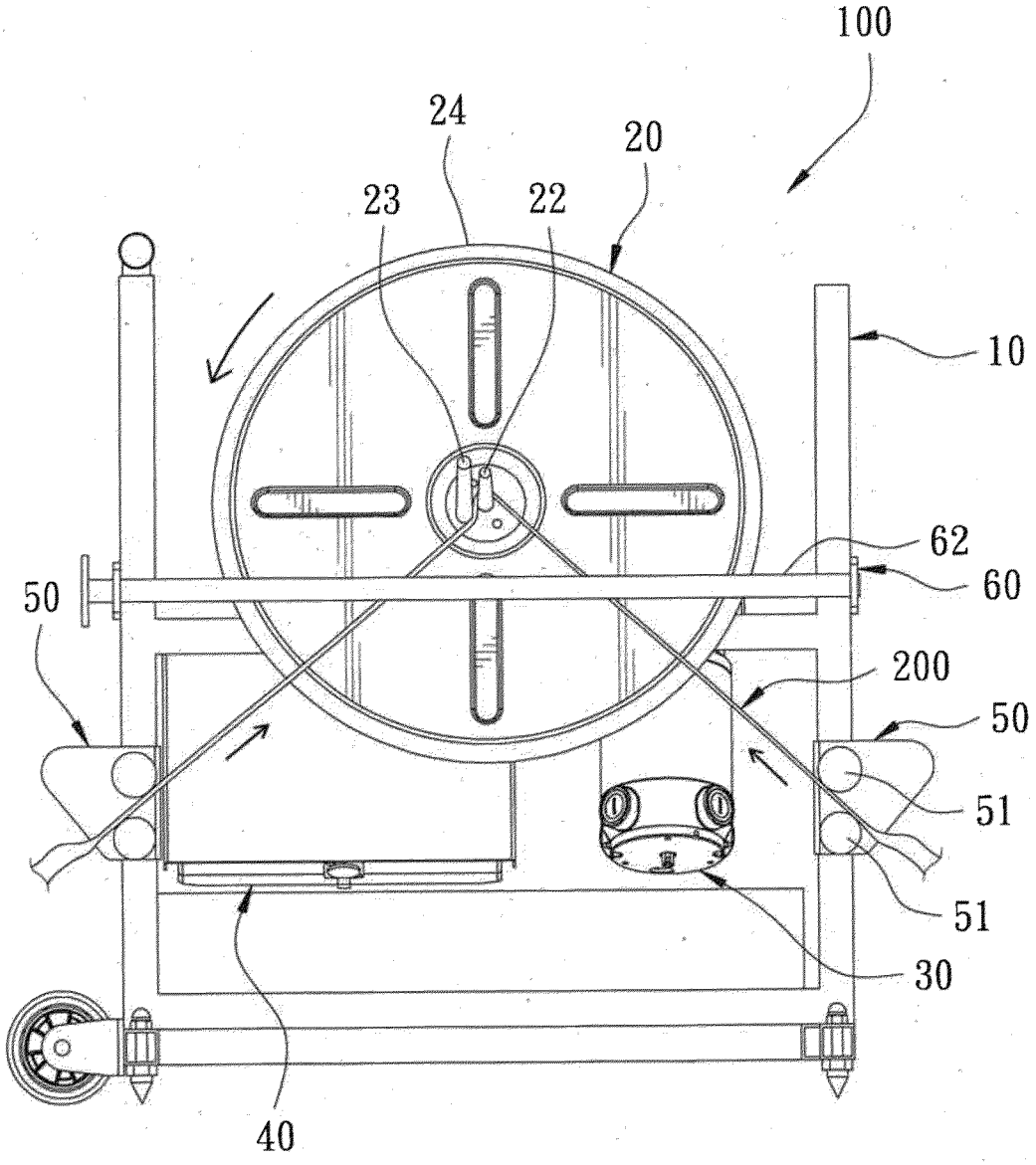

FIG. 5

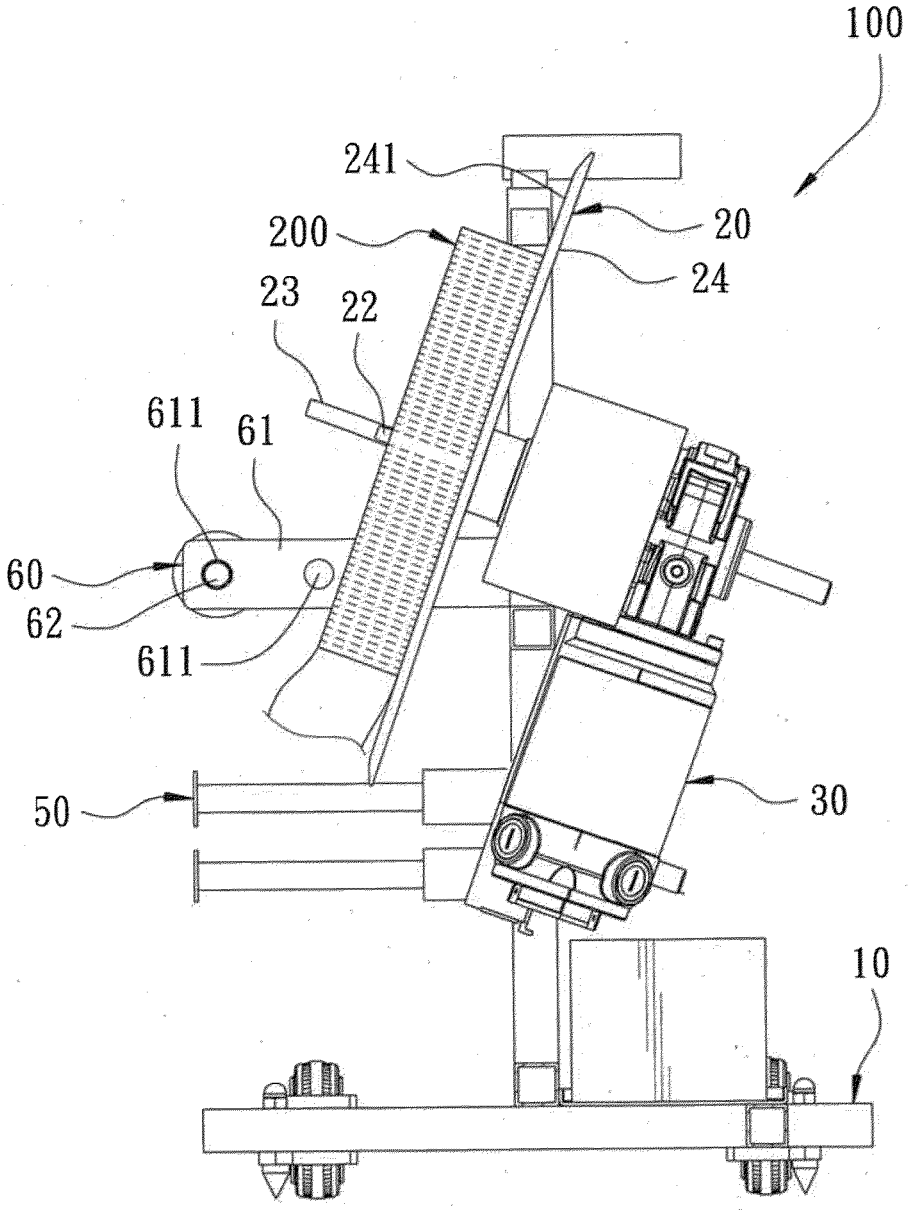

FIG. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 24 19 6380

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 2004/089761 A1 (TSAO CHEONY-SUN [TW]) 13 May 2004 (2004-05-13) * paragraphs [0001], [0003], [0004], [0010] - [0012]; figures *	1,5-8 2-4,9,10	INV. B65H54/58
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Y	US 4 198 010 A (KNAPP ORVILLE J [US]) 15 April 1980 (1980-04-15) * column 2, lines 25-49 * * column 3, lines 35-41 * * column 4, lines 4-20; figures *	9,10	
A	JP H04 253869 A (OGURA CLUTCH CO LTD) 9 September 1992 (1992-09-09) * the whole document *	1-10	TECHNICAL FIELDS SEARCHED (IPC) B65H A62C
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	29 January 2025	Lemmen, René

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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29-01-2025

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