



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
24.07.2019 Bulletin 2019/30

(51) Int Cl.:
E06B 7/086 ^(2006.01) **E06B 9/06** ^(2006.01)
E06B 9/302 ^(2006.01) **E06B 9/34** ^(2006.01)

(21) Application number: **19460001.1**

(22) Date of filing: **04.01.2019**

(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
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

• **Walecki, Jaroslaw**
61-058 Poznan (PL)

(72) Inventors:
• **Madaj, Miroslaw**
PL 61-124 Poznan (PL)
• **Walecki, Jaroslaw**
PL 61-058 Poznan (PL)

(30) Priority: **17.01.2018 PL 42429818**

(74) Representative: **Piatkowska, Elzbieta**
Kancelaria Patentowa
Skorzewo, ul. Truskawkowa 12
60-185 Poznan (PL)

(71) Applicants:
• **Madaj, Miroslaw**
61-124 Poznan (PL)

(54) **LAMELLAR ROLLER BLIND**

(57) The subject of the invention is a lamellar roller blind. Such solutions are used in the industrial sector as a filling and as protection of openings in buildings, wherein the roller blind is usually installed on the outside of a window.

A lamellar roller blind (1) with profile-shaped rotary lamellae (2), wherein the lamellae are connected with a rotation transmission mechanism at a point comprising an axis (3) of rotation of the lamellae, where the lamella socket (26) is located, whilst the rotation transmission mechanism elements are hidden behind a panel-type frame (6) comprising a guide housing (7), wherein a transmission batten (9) is one of the elements of the transmission mechanism, and wherein folded roller blind lamellae are fully hidden inside a box (10) located above the cover area and sides of the box comprise an extension of the panel-type frame with a guide (8), and an independent rolling drive is installed inside the box and connected to two rollers (13) for main side strings (14) connected to the bottom lamella (15) installed in the panel-type frame, wherein each of the main side strings is formed into a loop placed on its own bottom spool (16) and attached at a point, respectively, to the left bottom protrusion (17') and the right bottom protrusion (18') of the bottom lamella without being connected to the other lamellae, and each of the other lamellae is provided, respectively, with a left side handle (17) and a right side handle (18), tiltably connected to a semi-roller (19) comprising the rotation axis of the lamella, permanently fixed

to the lamella, wherein the side handles are provided with a top socket (20') and with a bottom socket (20''), where bosses (21) of the distancing side strings (22) connecting neighbouring lamellae are installed, while the semi-roller passing through openings (23) of the side handle of its own lamella is also passing through the flat wedge pad (24), either inside the aperture (25) of the socket (26) rotating within the panel-type frame, or without using the socket (26), directly inside the guide, depending on whether the lamella is in its rotation or sliding position, wherein the aperture (25) of the socket running along the panel-type frame along its entire length comprises a part of the guide, whilst the rotary socket (26) is centrally fixed to a sprocket (27) assigned to the lamella on the inside of the panel-type frame, where the wedge is precisely matching the length and the width of the aperture, and sprockets of the lamella together with the transmission batten provided with edge teeth (4) comprise a single rack and pinion type gear intended to simultaneously rotate multiple sockets (26), and the distance L between openings (23) of neighbouring side handles of the neighbouring lamella with tensioned distancing side strings (22) is equal to the distance between neighbouring sockets located within the panel-type frame, wherein the distancing side strings (22) attached to top sockets (20') of the top lamella (2) are only anchored within the box (10).

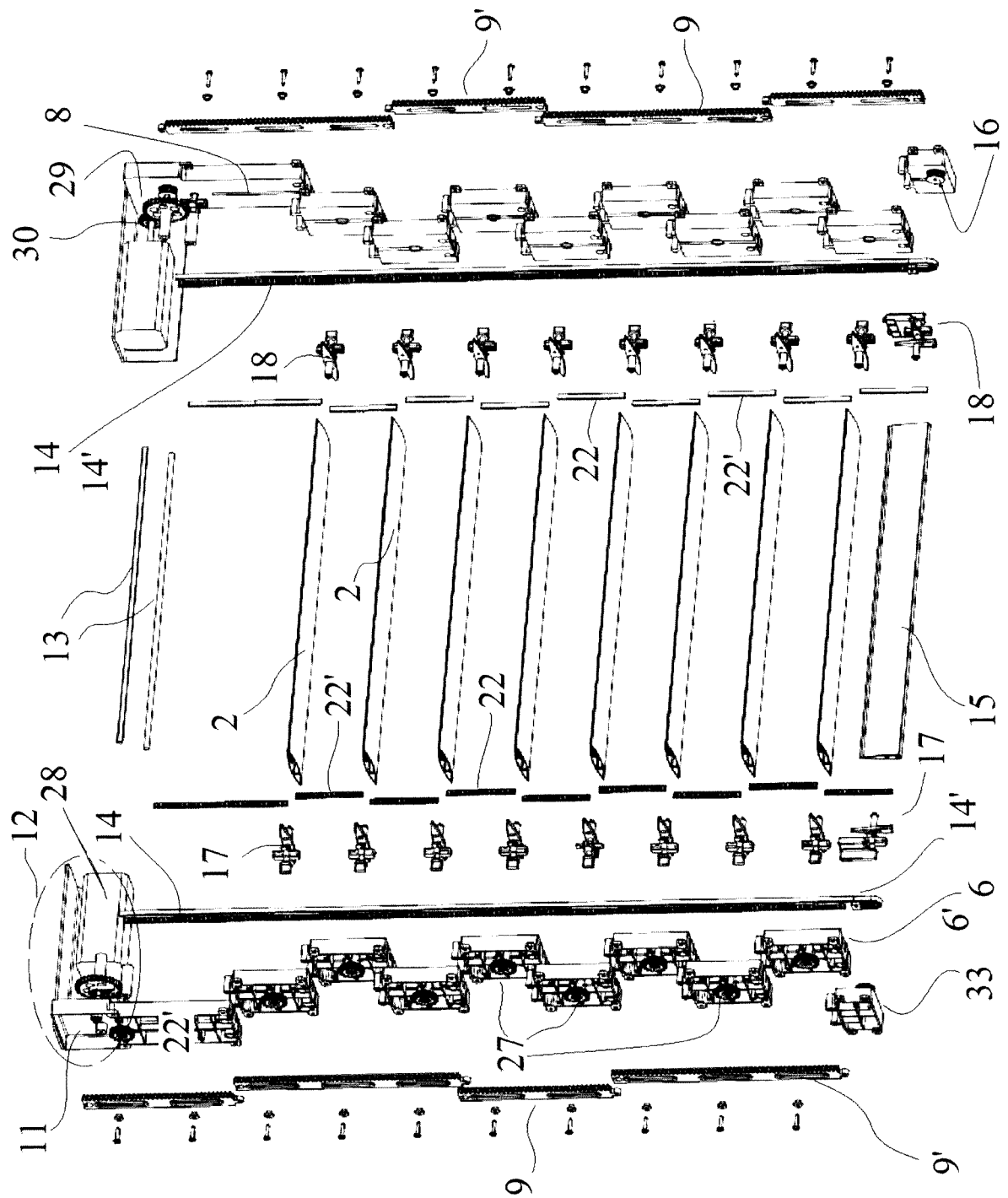


Fig. 1

Description

[0001] The subject of the invention is a lamellar roller blind. Such solutions are used in the industrial sector as a filling and as protection of openings in buildings, wherein the roller blind is usually installed on the outside of a window.

[0002] There are generally known window roller blind installed within the outline of the window opening or even inside the window, made of thin lamellae, usually paper lamellae, suspended in parallel on strings enabling the lamellae to be rotated and their horizontal position to be changed to vertical. In general, in any rotational position of the lamellae, the lamellae may also be lifted starting from the lowest to the topmost one, as the lowest lamella is pulled by at least one string and pulls the other lamellae during lifting. Unfortunately, the strings become tense and unbalanced over time, placing the lamellae out of the parallel, both in the open, horizontal position and in the closed, vertical position. This roller blind does not protect against burglary and does not protect against sunlight, let alone against gusts of wind, even if the lamellae are made of thin metal sheets instead of paper.

[0003] An example of other structures, better in meeting certain tasks listed above, is provided as a solution disclosed in a Polish patent application P. 285236. This document discloses anti-burglary roller blinds with side hinges, installed between the glazing. The known roller blinds are provided with blind metal sheets connected with hinges, enabling maintaining mutually parallel position of the blinds and facilitating rotation around their axis and folding. The roller blind is provided with a torsion string, enabling rotation of all metal sheets of the roller blinds and a lifting string intended to fold the roller blinds.

[0004] Polish patent application P. 290476 discloses a guiding system for external roller blinds, solving the problem of side guide design for such roller blinds. This system uses equally guiding lever systems to guide the panel segments. The installed side guides have an enclosed space, within which the equally guiding lever systems move, installed on panel segment bosses in a manner enabling rotation and horizontal motion of the panel systems is limited by the shielding part of side guides.

[0005] An international PCT application PCT/US2002/022577 describes a cover intended architectural openings, similar to window shutters. The top rail of the cover is formed similar to many other battens suspended on it using a string ladder and is connected with the side of the window shutter using assembly supports in a manner enabling rotation, and is also hollow. Tilting numerous battens suspended on the top rail is possible using vertical motion of an actuating bar connected with the main rail in a manner enabling rotation. The roller blind tilting system made of batten moves inside, towards the glass, whilst the battens are lifted using a lifting handle slidably attached to the actuating bar and including a locking mechanism holding the battens in the desired position.

[0006] Finally, Polish patent application P. 413600 discloses a roller blind with rotary, profile-shaped lamellae and mechanical drive, wherein at least one of the lamellae is provided with an internal drive. The drive is provided as an electric motor and a regular polygon-shaped compartment is present in the central section of the lamella. The lamellae are connected with a transmission system at a point comprising the rotation axis of the lamella. The transmission mechanism includes a panel with lamella slots and semi-circular guides. A swing arm is located on one side of the panel, and this swing arm is connected to the lamella on the other side of the transmission batten, enabling lamella rotation against the swing arm. Guide bearings provide additional connection of the swing arm with two transmission battens. The transmission mechanism is located within a rectangular profile. This profile is provided with two guides on the inside of the top and of the bottom wall and with two seal grooves on the outside of the bottom wall. A profile with a lamella slot is located on the opposite side of the transmission mechanism. The roller blind is provided with profiles parallel to the lamella, connected with profiles perpendicular to the lamella, thus providing a rectangular, surrounding frame.

[0007] Another known variant of large roller blinds is presented in the Polish patent application P.415026. Two drive pipes located one above the other are provided over roller blind lamellae and above the cover area, with rotating motors installed inside, wherein at least one bushing with a drive wheel or with another wheel actuating the lamellae using a string or a chain is applied onto one pipe, and at least one spool of string, preferably a string steel, threaded onto the last lamella of the roller blind is attached onto the second pipe responsible for lifting and lowering the lamella. Both systems can strictly cooperate, directly or indirectly, with the rotating and rolling mechanism installed inside the housing guide, wherein these mechanisms include numerous plates connected using drawbars. The rolled lamellae of the roller blind resting on one another are fully entering a box located above the cover area, the sides of which provide an extension of the guides.

[0008] Unfortunately, the solutions described above, although potentially more resilient than based on paper lamellae, show relatively low resistance to external forces acting on the roller blind. The presented structures may be lifted or rotated from the outside at any time, e.g. during an attempt at breaking in. Such designs are also susceptible to irregularities of mutual lamellae placement as one of the possible motion types may be disrupted, namely: the top/bottom motion during rolling/unrolling, because of specific lamellae in rotated positions or rotation, as specific lamellae may be out of the parallel position, thus disrupting effective and uniform cover of the opening.

[0009] The objective of the solution according to the invention is to obtain such a roller blind mobility inherent in its design that it prevents breaking in in closed and

covered position by rotating the lamellae to a vertical plane, or in covered and open position thanks to spaces between lamellae and their parallel position despite the fact that the roller blind may be fully hidden above the opening, namely, shall be mobile, or foldable.

[0010] A preferable embodiment of the roller blinds according to the invention intends to maintain the aforementioned features and to provide the roller blind as a design foldable at its installation site at least thanks to its length, making the assembly step independent from the pre-fabrication step. As the width of openings at construction sites is generally constant or selected from a range of the most frequently used sizes, e.g. 60cm, 90cm, 120cm, 150cm, 180cm, and whilst the length can be standardised, but is more often varied, installation of a modular roller blind shall be possible once the sill is provided and before thermal insulation is applied, thus making the period between the order and the assembly significantly shorter.

[0011] The presented, functional assumptions have been implemented thanks to the design according to the invention.

[0012] A lamellar roller blind with rotary, profile-shaped lamellae according to the invention, has lamellae connected with the rotation transmission mechanism at the point comprising the rotation axis of the lamella, where the lamella slot is located. Elements of the rotation transmission mechanism are additionally hidden behind a panel-type frame comprising a guide housing, wherein the transmission batten is one of the elements of the mechanism and wherein the lamellae of the folded roller blind are fully hidden inside a box located above the cover area. The box sides provide an extension of the panel-type frame with a guide and an independent rolling drive is located inside the box and connected with two rollers for two main side strings, connected with the bottom lamella placed inside the panel-type frame. The invention is characterised in that each of the main side strings is provided as a loop placed on its own bottom spool and attached at a point, respectively, to the bottom left protrusion and to the bottom right protrusion of the bottom lamella without being connected to the other lamellae. Every other lamella is provided, respectively, with a left side handle and a right side handle, attached as tiltable elements to a semi-roller comprising the rotation axis of the lamella and fixed permanently to the lamella, wherein the side handles are provided with a top socket and a bottom socket, where distancing bosses of side strings connected neighbouring lamellae are located. The semi-roller passing through side holes of the handles of its own lamella is also placed inside a slot rotating inside the panel-type frame using a flat wedge pad, or directly inside the guide without using a slot, depending on whether the lamella is in its rotating position or in its sliding position. The slot is fully located along the panel-type frame and comprises a part of the guide, and the wedge is matching the length and width of the slot. The rotating slot is centrally and permanently connected to a sprocket assigned

to the lamella on the inside of the panel-type frame, and lamella sprockets with the transmission batten provided with teeth on its edge comprise a single rack and pinion intended to rotate multiple slots simultaneously. The distance L between holes of neighbouring side handles of the neighbouring lamella with tensioned distancing side strings is equal to the distance between neighbouring slots of the panel-type frame, wherein distancing side strings attached to the top sockets of the topmost lamella are only anchored inside the box.

[0013] The rotation transmission mechanism, in particular provided as a drive batten, is preferably connected with a motor. The motor may be a low power motor, as it is only required to move the toothed batten by a few centimetres, also possibly using its own sprocket or a follower.

[0014] The rotation transmission mechanism, in particular provided as a transmission batten, is preferably connected with a manual slider or a manual gear. This provides a solution independent from the need to provide power supply to the roller blind installation point, as the hole may not be adapted to the use of two independent electric drives because of the aforementioned reason, wherein the electric drive responsible for lifting seems to be more important, making the rotating drive redundant. Thus, manual control is fully permitted.

[0015] The rolling drive is preferably coupled with the rotation transmission mechanism using a contactor detecting the current position status of the lamellae. This additionally protects the roller blind mechanisms against overload caused by attempted, simultaneous lamellae rotation and lifting within the roller blind, particularly if operated by an untrained individual unaware of the fact that lamellae are locked when rotated in the socket as a result of the design and remain locked until set to the rolling position, which means that they are fully open. The contactor set by the assembly technicians in the correct position shall enable operation of one of the mechanisms only if and when the other mechanism and the roller blind are set according to the required mobility.

[0016] The transmission batten and the panel-type frame are preferably divided into smaller parts of constant length, provided as detachable transmission battens and detachable panel-type frames, wherein the transmission battens are at least 2L long, and panel-type frames have the length of L.

[0017] The transmission battens are preferably connected using a lockable tongue and groove connection, at least one per every connected edge.

[0018] The panel-type frames are preferably connected using a lockable tongue and groove connection, at least one per every connected edge.

[0019] One of the transmission battens is preferably attached longitudinally to two panel-type frames.

[0020] The aforementioned, optional characteristics enable the final structure to be assembled within the height of the functional field of lamellae at the assembly site, namely where the specific structural opening is cov-

ered. The frame may be extended by attaching elements to it and the mechanism shall remain functional and continuous.

[0021] The panel-type frame and the rotation transmission mechanism are preferably covered with at least one front panel and a rear panel, wherein the front panels also cover the slots with the exception of slot apertures. This prevents interventions into the structure, as well as protects the lamella against sliding out of the slot aperture. It additionally improves functional comfort and visual aesthetics. It also enables adaptation to actual opening sizes, often imprecise in practice, as the frame can still be installed thanks to the initial panel assembly. The panels, especially the rear panels, may even become slightly deformed, as a result of the selected, most effective assembly technique, whilst retaining functional precision and lifetime of the roller blind.

[0022] The bottom lamella is preferably positioned upright, regardless of whether this and the other lamellae are set in the rotational or sliding position, wherein the bottom lamella is of the same length as the other lamellae, but its width does not exceed half of the width of the other lamellae. This allows the covered space to be precisely closed with rotary lamellae and the bottom lamella to be precisely supported e.g. on the sill of the opening, thus forming a fully protected space of the structural opening.

[0023] The lamellae and the panel frame or frames are preferably made of plastic, preferably coated with wood or metal imitations. This simplifies work of the contractor, results in lighter elements and guarantees extremely positive perception of the customer.

[0024] Preferably, the lamella with its accessories, as well as its detachable sprocket with the transmission batten and the detachable panel-type frames and distancing side strings comprise a module, wherein the modules are detachably connected. This ensures the best structural properties of the products, meeting all project and technological requirements of the selected design purpose. The resulting advantages have already been indicated, however, the most important advantage of the solution definitely results from the design and connection type of the lamellae instead of additional, mechanical locks, from the system of possible roller blind motions resulting in loss of vertical mobility of lamellae at the time when lamellae start rotating and vice versa - when vertical motion begins, rotation becomes impossible. This is extremely important as such a feature can be implemented despite the modular structure of the system.

[0025] The main side strings and, simultaneously or alternatively, distancing side strings are provided as a toothed tape or a toothed belt, preferably a V-belt, preferably made of plastic. Execution of strings provided as transmission elements by default, as well as of drawbars for elements moved up or down by the drawbars in this particular form, ensures not only improved sliding precision, but more importantly, makes the mechanism much more independent of variable ambient temperatures. It

is known that the scope of applicability of the design should operate precisely within the range of ambient temperatures between at least -20°C and at least +30°C, ensuring a minimum range of 50°C. This may result in loss of calibration of the drawbar system for obvious reasons, if the drawbars are made of a material susceptible to thermal expansion, e.g. of metal. Use of plastic eliminates this disadvantage of the system by the default and the use of locking teeth prevents sliding potentially occurring in the case of overload, namely when the lamellae start moving upwards. The sliding also seems to be undesirable, as it may result in loss of calibration of the mechanical system within the entire structure, regardless of thermal expansion. Thus, the indicated feature ensures the most preferable execution of optional structures.

[0026] This solution is presented as an example embodiment in the drawing, in which Fig.1 presents a roller blind, expanded in order to present its elements, Fig.2 presents a roller blind assembled with lamellae unfolded and fully open, Fig.3 presents a lamella section together with adjacent elements, Fig.4 presents a section of two neighbouring elements with expanded elements viewed from the rear, and a section of the same, two neighbouring modules partially connected and partially expanded elements viewed frontally, whilst Fig.5 presents the bottom section of the roller blind in the left bottom view, with key elements assembled.

[0027] An example lamella roller blind 1 with profile-shaped rotary lamellae 2 is provided with lamellae 2 connected with a rotation transmission mechanism at a point comprising rotation axis 3 of a lamella 2, where a socket 26 for the lamella 2 is located. Elements 5 of the rotation transmission mechanism are also hidden behind a panel-type frame 6 comprising housing 7 of the guide 8, with one of the elements 5 of the mechanism provided as a transmission batten 9, wherein lamellae 2 of the roller blind in the folded position are fully hidden inside the box 10 located above the cover area. Sides 11 of the box 10 comprise an extension of the panel-type frame 6 with a guide 8, and an independent rolling drive 12 is installed inside the box 10 and connected with two rollers 13 of two main side strings 14 connected with the bottom lamella 15 installed within the panel-type frame 6. Each of the main side strings 14 is formed into a loop placed on its own bottom spool 16 and attached at a point, respectively, to the bottom left protrusion 17' and the bottom right protrusion 18' of the bottom lamella 15 without a connection to the other lamellae 2. Each of the remaining lamellae 2 is provided, respectively, with a left side handle 17 and a right side handle 18, tiltably fixed to a semi-roller 19 comprising the rotation axis 3 of lamella 2, fixed to the lamella 2, wherein the side handles 17, 18 are provided with a top socket 20' and a bottom socket 20'', where bosses 21 of distancing side strings 22 connecting neighbouring lamellae 2 are located. The semi-roller 19 is placed through and inside the openings 23 of side handles 17, 18 of its own lamella 2 and also using a flat

wedge pad 24, either in the aperture 25 of the slot 26 rotating within the panel-type frame 6, or without the slot 26, directly in the guide 8, depending on whether lamella 2 is in its rotation or sliding position. The slot 25 of the socket 26 running along the panel-type frame 6 along its entire length comprises a part of the guide 8, and the pad 24 precisely matches the length and width of the aperture 25. The rotary socket 26 is centrally and permanently connected with a sprocket 27 assigned to the lamella 2 on the inside of the panel-type frame 6, and sprockets 27 of the lamella 2 together with the batten 9 provided with teeth 4 on its edge in order to transmit the drive, comprise a single rack and pinion type gear intended to simultaneously rotate multiple sockets 25. The distance L of 0.12m between openings 23 of neighbouring side handles 17, 18, respectively, left side handles 17 and right side handles 18, assigned to the neighbouring lamella 2 is equal to the distance between neighbouring sockets 26 provided within the panel-type frame 6 with tensioned distancing side strings 22, wherein the distanced side strings 22 attached to the top sockets 20' of the top lamella 2 are only anchored within the box 10.

[0028] The rotation transmission mechanism, in particular formed as the elements 5 of the type of the transmission batten 9, is connected with a motor 28. The motor 28 is a low power motor, as it moves the toothed batten 9 along a distance of just a few centimetres using its own sprocket 29. The rolling drive 12 is coupled with the rotation transmission mechanism via a contactor 30 detecting the current position of lamellae 2. The transmission batten 9 and the panel-type frame 6 are divided into smaller sections of identical length, respectively, detachable transmission battens 9' and detachable panel-type frames 6', wherein the transmission battens 9' have the length of 2L and 3L, and panel type frames 6' have the length of L. The transmission battens 9' are connected using a locking tongue and groove joint 31', one for each connecting edge. The panel-type frames 6' are connected using a locking tongue and groove joints 31", two for each connecting edge. One transmission batten 9' is connected longitudinally to exactly two panel-type frames 6' and, respectively, to three panel-type frames 6'. With the exception of the guide 8, the panel-type frame 6 with elements 5 of the rotation transmission mechanism are covered using two front panels 32' and one rear panels 32" per each side of the panel-type frame 6, yielding a total of four front panels 32' and two rear panels 32", wherein the front panels 32' also cover the sockets 26 with the exception of their apertures 25. The bottom lamella 15 is positioned upright regardless of whether this lamella and other lamellae 2 are in the rotation or in the sliding position, wherein the bottom lamella 15 has the same length as other lamella 2 and the maximum of half their width. The lamellae 2, the panel-type frame 6 provided as panel-type frames 6' as well as front panels 31' and rear panels 31" are made of plastic coated with a wood texture imitation. A lamella 2 with its accessories and with the detachable sprocket 27 with a transmission

batten 9' and its detachable panel-type frames 6' and the distancing side strings comprise a module, wherein the modules are detachably connected. The main side strings 14 and the distancing side strings 22 are made, respectively, as a toothed V-belt 14' and as a toothed tape 22', with all said elements made of plastic.

[0029] The roller blind has eight lamellae 2 and one bottom lamella 15, and also eight modules and a bottom cap 33, with slightly overlapping lamellae 2 covering an area of 1.3m height and of 0.9m width.

Example II

[0030] As in the first example, with the following differences.

[0031] The rotation transmission mechanism, provided in particular as the element 5 of the type of transmission batten 9, is connected with a manual slider. Lamellae 2 and the panel-type frame 6 provided as panel-type frames 6', are made of plastic coated with a metal texture imitation.

[0032] The roller blind 1 has eighteen lamellae 2 and one bottom lamella 15, namely eighteen modules and a bottom cap 33, with slightly overlapping lamellae 2 covering an area of 2.25m height and of 2.5m width.

List of reference numbers

[0033]

1	Lamellar roller blind
2	Rotary lamellae
3	Axis of rotation
4	Teeth
5	Rotation transmission mechanism elements
6	Panel-type frame
6'	Panel-type frame
7	Housing
8	Guide
9	Transmission batten
9'	Batten
10	Box
11	Box sides
12	Rolling drive
13	Rollers
14	Main side strings
14'	Toothed belt
15	Bottom lamella
16	Bottom spool
17	Bottom left handle
17'	Left protrusion
18	Bottom right handle
18'	Right protrusion
19	Semi-roller
20'	Top socket
20"	Bottom socket
21	Bosses
22	Distancing side strings

22'	Toothed tape
23	Openings
24	Pad
25	Aperture
26	Rotary socket
27	Sprocket
28	Motor
29	Sprocket
30	Contacto
31'	V-connection
31"	Locking connection
32'	Guiding panels
32"	Rear panel
33	Bottom cap

Claims

1. A lamellar roller blind with profile-shaped rotary lamellae, wherein the lamellae are connected with a rotation transmission mechanism at a point comprising an axis of rotation of the lamellae, where the lamella socket is located, whilst the rotation transmission mechanism elements are hidden behind a panel-type frame comprising a guide housing, wherein a transmission batten is one of the elements of the transmission mechanism, and wherein folded roller blind lamellae are fully hidden inside a box located above the cover area and sides of the box comprise an extension of the panel-type frame with a guide, and an independent rolling drive is installed inside the box and connected to two rollers for main side strings connected to the bottom lamella installed in the panel-type frame, **characterised in that** each of the main side strings (14) is formed into a loop placed on its own bottom spool (16) and attached at a point, respectively, to the left bottom protrusion (17') and the right bottom protrusion (18') of the bottom lamella (15) without being connected to the other lamellae (2), and each of the other lamellae (2) is provided, respectively, with a left side handle (17) and a right side handle (18), tiltably connected to a semi-roller (19) comprising the rotation axis of the lamella (2), permanently fixed to the lamella (2), wherein the side handles (17, 18) are provided with a top socket (20') and with a bottom socket (20"), where bosses (21) of the distancing side strings (22) connecting neighbouring lamellae (2) are installed, while the semi-roller (19) passing through openings (23) of the side handle (17, 18) of its own lamella (2) is also passing through the flat wedge pad (24), either inside the aperture (25) of the socket (26) rotating within the panel-type frame (6), or without using the socket (26), directly inside the guide (8), depending on whether the lamella (2) is in its rotation or sliding position, wherein the aperture (25) of the socket (26) running along the panel-type frame (6) along its entire length comprises a part of the guide (8), whilst

the rotary socket (26) is centrally fixed to a sprocket (27) assigned to the lamella (2) on the inside of the panel-type frame (6), where the wedge is precisely matching the length and the width of the aperture (25), and sprockets (27) of the lamella (2) together with the transmission batten (9) provided with edge teeth (4) comprise a single rack and pinion type gear intended to simultaneously rotate multiple sockets (26), and the distance L between openings (23) of neighbouring side handles (17, 18) of the neighbouring lamella (2) with tensioned distancing side strings (22) is equal to the distance between neighbouring sockets (26) located within the panel-type frame (6), wherein the distancing side strings (22) attached to top sockets (20') of the top lamella (2) are only anchored within the box (10).

2. A lamellar roller blind according to Claim 1, **characterised in that** the rotation transferring mechanism, in particular provided as an element (5) of the transmission batten (9) type, is connected with the motor (28).
3. A lamellar roller blind according to Claim 1, **characterised in that** the rotation transferring mechanism, in particular provided as an element (5) of the transmission batten (9) type, is connected with a manual slider or a manual gear.
4. A lamellar roller blind according to Claim 1, **characterised in that** the rolling drive (12) is coupled with the rotation transmission mechanism using a contactor (30) detecting the current position of lamella (2).
5. A lamellar roller blind according to Claim 1, **characterised in that** the transmission batten (9) and the panel-type frame (6) are divided into smaller sections along its entire length, as detachable transmission battens (9') and as detachable panel-type frames (6'), wherein the transmission battens (9') have the minimum length of 2L, and panel-type frames (6') have the length of L.
6. A lamellar roller blind according to Claim 5, **characterised in that** transmission battens (9') are connected using a locking tongue and groove connection (31'), at least one per every connecting edge.
7. A lamellar roller blind according to Claim 5, **characterised in that** the panel-type frames (6') are connected using a locking tongue and groove connection (31") at least one per every connecting edge.
8. A lamellar roller blind according to Claim 5, **characterised in that** one transmission batten (9') is longitudinally attached to exactly two panel-type frames (6').

9. A lamellar roller blind according to Claim 1 or Claim 5, **characterised in that** the panel-type frame (6) including the rotation transmission mechanism are covered, with the exception of the guide (8), with at least one front panel (32'), and a rear panel (32''), wherein the front panels (32') also cover the sockets (26) with the exception of the socket apertures (25). 5
10. A lamellar roller blind according to Claim 1 or Claim 5, **characterised in that** the bottom lamella (15) is positioned upright, regardless of whether this and the other lamellae (2) are in their rotation or sliding position, wherein the bottom lamella (15) has its length identical to that of the other lamellae (2) and a maximum of half their width. 10 15
11. A lamellar roller blind according to Claim 1 or Claim 5 or Claim 9, **characterised in that** lamellae (2) and the panel-type frame (6) or panel-type frames (6') are made of plastic, preferably coated with wood or metal texture imitation. 20
12. A lamellar roller blind according to Claim 5, **characterised in that** a lamella (2) together with its accessories, as well as with its detachable sprocket (27) with a transmission batten (9') and detachable panel-type frames (6') and distancing side strings (22), comprise a module, wherein the modules are detachably connected. 25 30
13. A lamellar roller blind according to Claim 1 or Claim 4 or Claim 12, **characterised in that** main side strings (14) and/or distancing side strings (22) are provided as a toothed tape (22') or a toothed belt (14'), preferably a V-belt, preferably made of plastic. 35

40

45

50

55

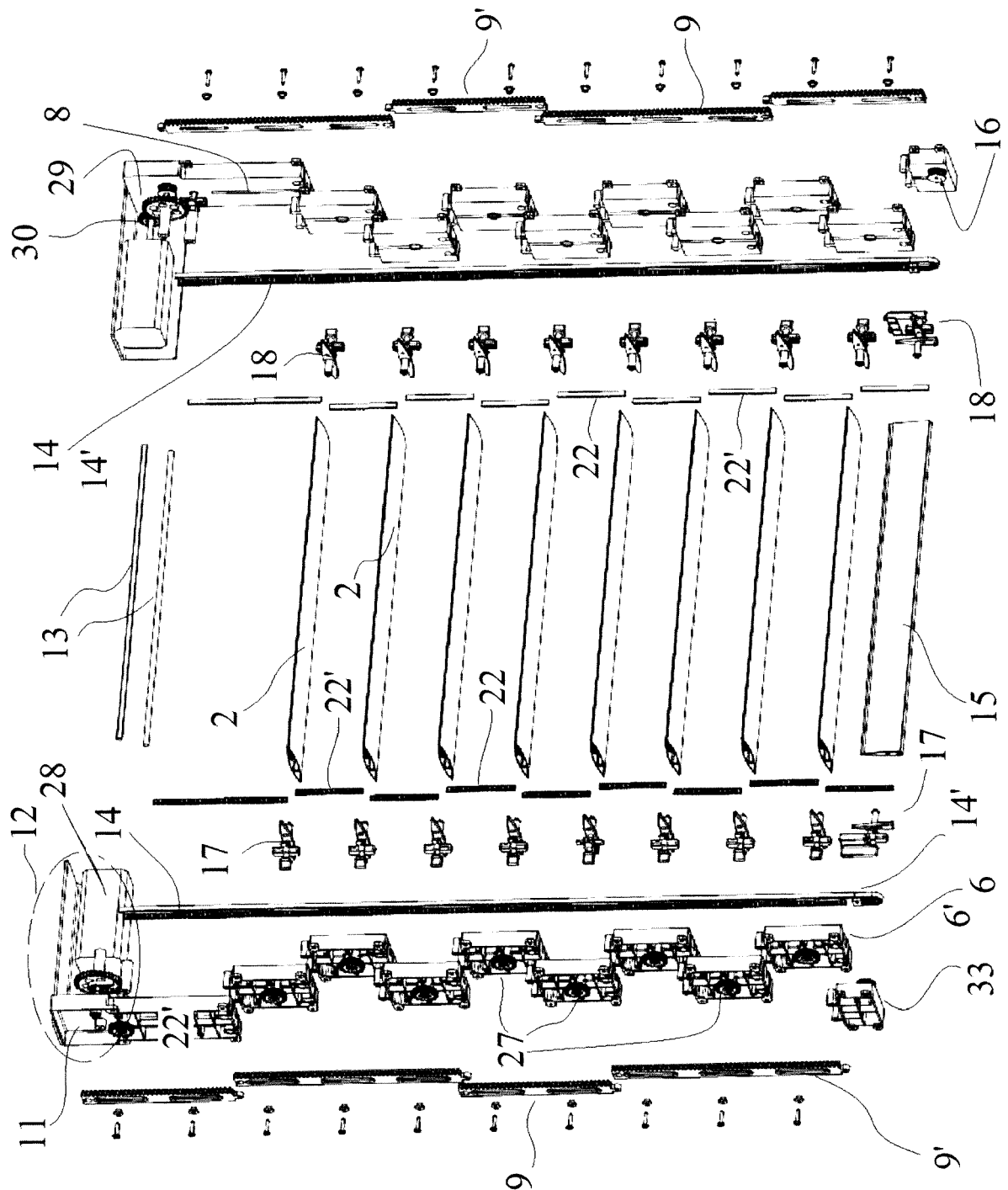


Fig. 1

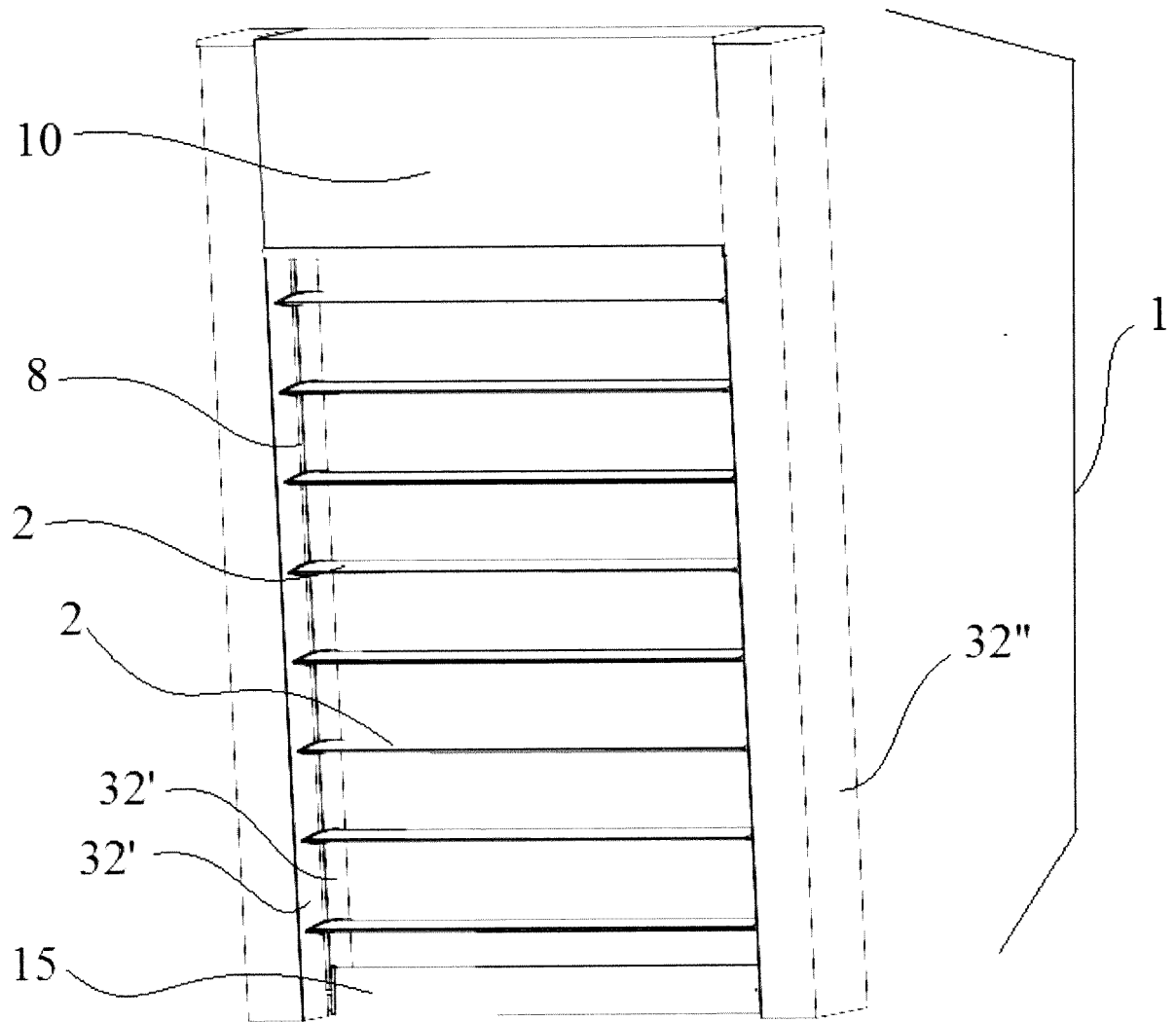


Fig. 2

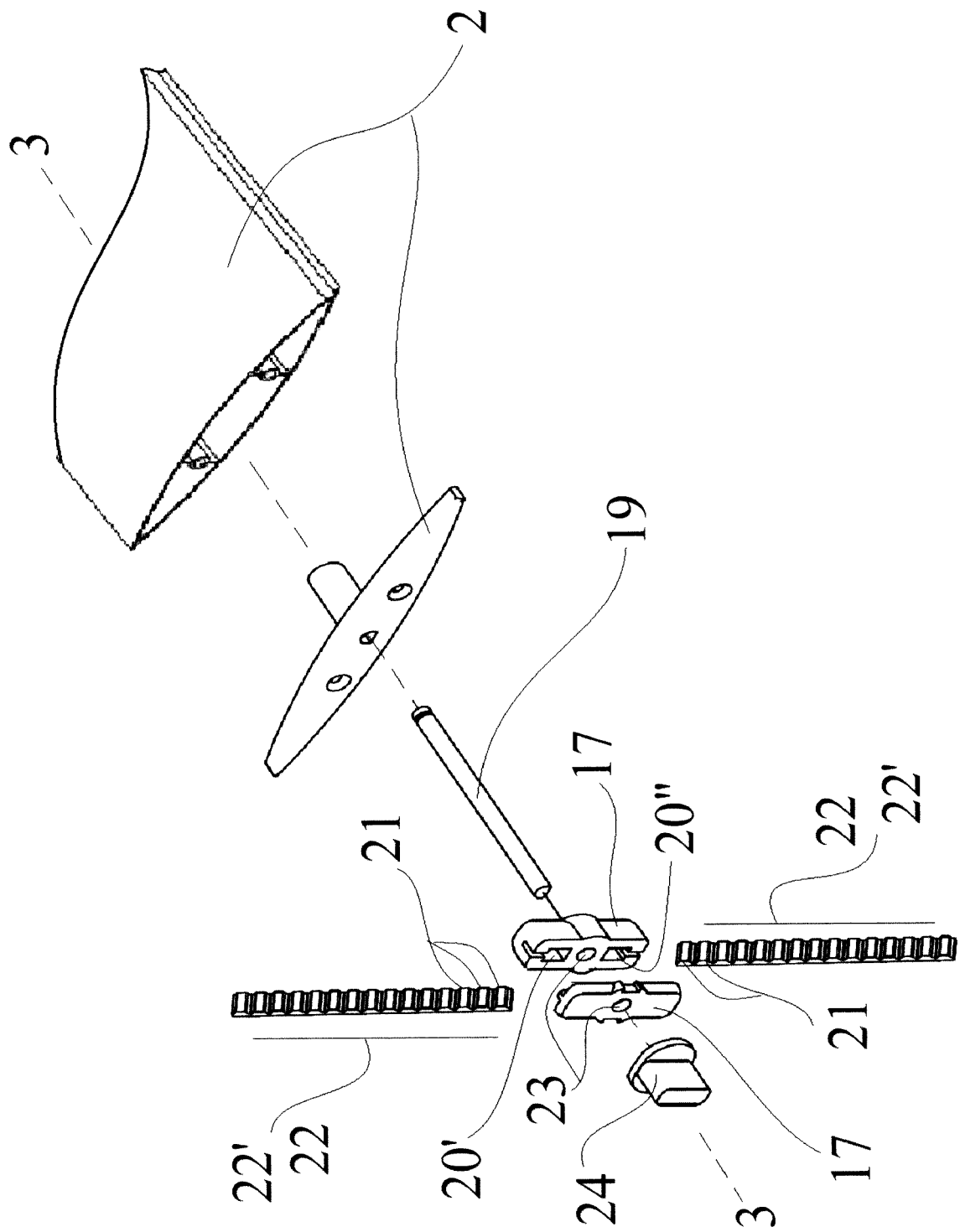


Fig. 3

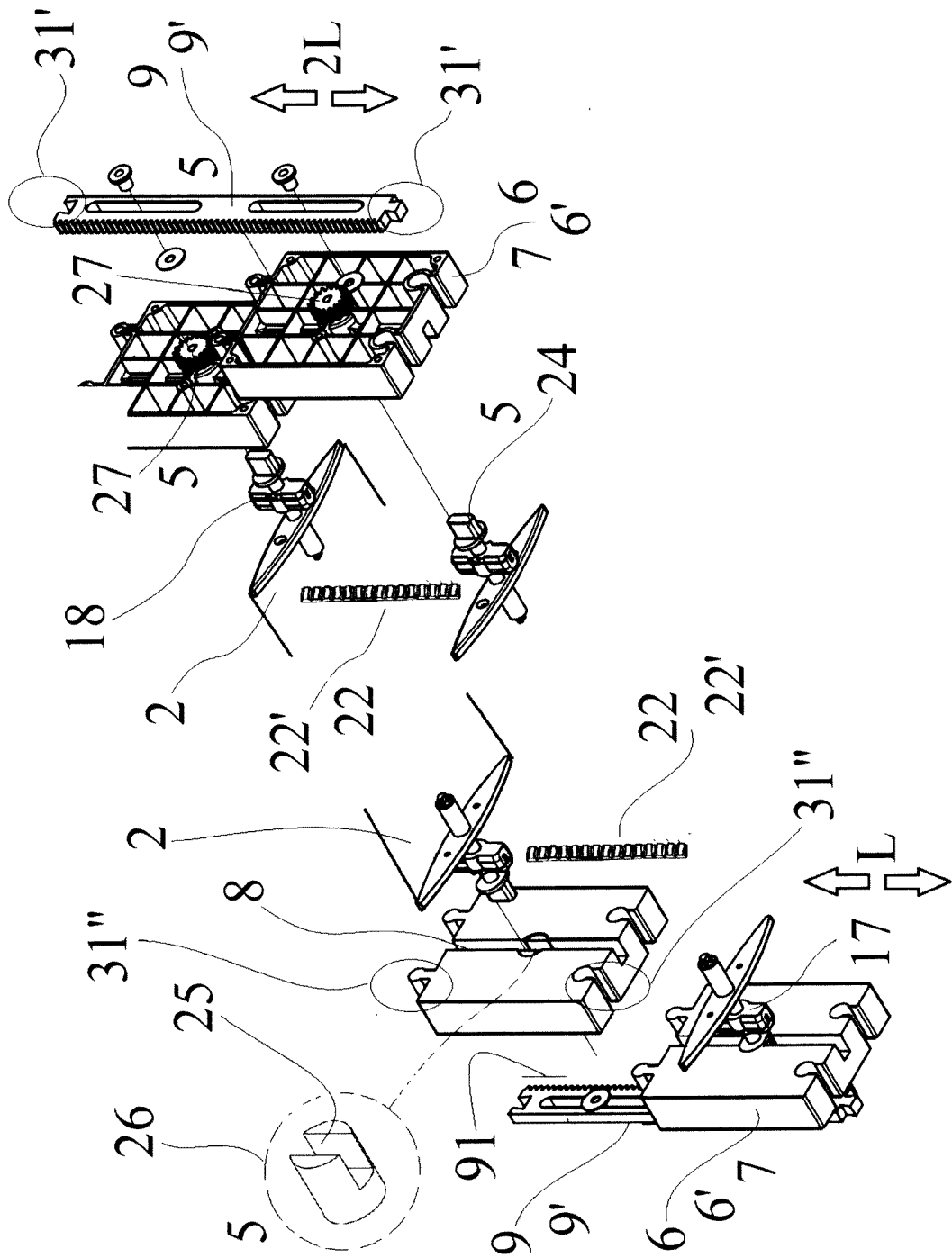


Fig. 4

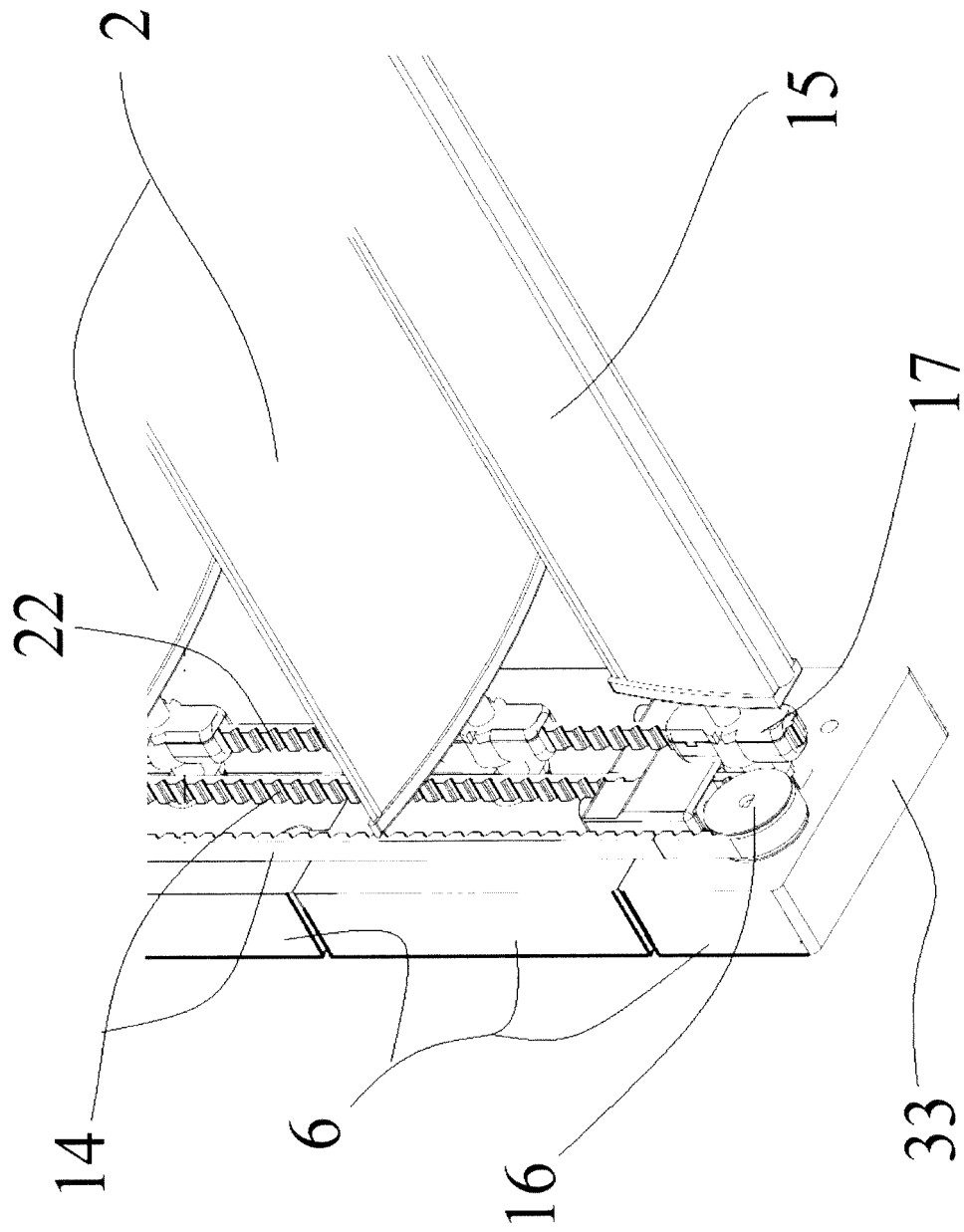


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 19 46 0001

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 35 11 246 A1 (PFEFFER THEOPHIL DIPL ING) 2 October 1986 (1986-10-02) * the whole document *	1-13	INV. E06B7/086 E06B9/06 E06B9/302 E06B9/34
A	DE 20 2013 100148 U1 (SCHUECO INT KG [DE]) 22 February 2013 (2013-02-22) * the whole document *	1-13	
A	WO 2015/097705 A1 (PADAN TAL [IL]) 2 July 2015 (2015-07-02) * the whole document *	1-13	
A	WO 2012/065917 A1 (LUXE PERFIL S L [ES]; MENGUAL MENGUAL JOAQUIN [ES]) 24 May 2012 (2012-05-24) * the whole document *	1-13	
A	EP 3 239 429 A1 (GENCHI GIUSEPPE [IT]; PAPPAGALLO TOMMASO [IT]; RAGONE ANTONIO [IT]) 1 November 2017 (2017-11-01) * the whole document *	1-13	
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 April 2019	Examiner Ott, Stéphane
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 46 0001

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-04-2019

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 3511246 A1	02-10-1986	NONE	
DE 202013100148 U1	22-02-2013	DE 202013100148 U1 EP 2754844 A2	22-02-2013 16-07-2014
WO 2015097705 A1	02-07-2015	AU 2014372109 A1 EP 3087240 A1 IL 230195 A WO 2015097705 A1	04-08-2016 02-11-2016 29-03-2018 02-07-2015
WO 2012065917 A1	24-05-2012	ES 2397012 A1 WO 2012065917 A1	04-03-2013 24-05-2012
EP 3239429 A1	01-11-2017	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- PL P285236 [0003]
- PL P290476 [0004]
- US 2002022577 W [0005]
- PL P413600 [0006]
- PL P415026 [0007]