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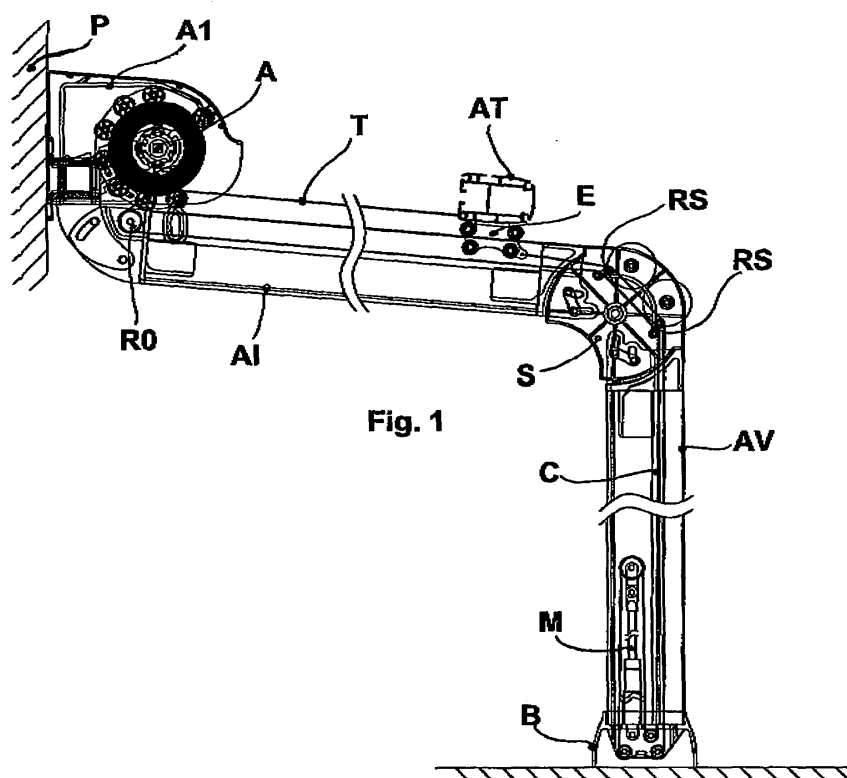
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(54) **Fully-opening awning with column, pitched roofing member and blind-guiding sliding carriage**

(57) The invention is a new guided awning for outdoor use with bearing structure comprising at least one vertical column (AV) connected to at least one pitched or horizontal roofing member (AI), at least one roller (A) for winding the blind (T), at least one transverse batten (AT) to which the terminal edge (T1) of said blind (T) is fixed and which is integral with one or more sliding car-

riages (E), at least one belt (C) operated by said winding roller (A) and with the end (C1) integral with said sliding carriage (E), at least one base (B) equipped with one or more pulleys or transmission rollers (R1), (R3) for said belt (C), to which base said column (AV) is fixed, and at least one elastic means (M) for tightening said belt (C), and equipped with one pulley or transmission roller (R2) for said belt (C) at the height of its upper end.



Description

[0001] The present invention concerns roller blinds for outdoor use and in particular it concerns a fully-opening awning with columns, pitched roofing members and blind-guiding sliding carriage.

[0002] Roller blinds for outdoor use are known, which are mainly adopted in public establishments and are suited to create, outside the building, a sheltered area protected from sunrays and even from rain, wind, smog, etc, that is, an area where users are protected from weather agents and disturbing factors.

[0003] These roller blinds for outdoor use comprise a roller for winding the blind, whose edge is anchored to a transverse batten.

[0004] The travel of the transverse batten causes the unwinding and therefore the opening of the blind, allowed by the rotation of the winding roller.

[0005] Said known roller blinds, when completely open, form a substantially inclined whole upper covering and a partial vertical covering.

[0006] The area covered by the awning is thus effectively protected against sun rays and also against rain, wind, noise, smog and dust coming from the surrounding areas, in particular near roads or areas where traffic is heavy.

[0007] The roller blinds of this type comprise a bearing structure constituted by several vertical columns, anchored to the ground and connected to the relative pitched roofing members, in turn fixed to a support like, for example, the wall of the building.

[0008] Each vertical column is connected to the corresponding pitched roofing member by means of at least one articulated joint. Said vertical column, said pitched roofing member and said articulated joint comprise, along their front surface, a seat or opening created in such a way as to provide a continuous guide on which a carriage slides, wherein said transverse batten is integral with said carriage, and wherein the edge of the blind is in turn fixed to said batten.

[0009] The blind, completely wound on the winding roller, is then open due to the sliding movement of said carriages on the corresponding guides and to the travel of said transverse batten.

[0010] For the opening and closing procedure the known roller blinds generally comprise two belts, one for each vertical column, each of which connects the relative carriage to said winding roller, thus causing the blind to be unwound and rewound through a manual action on a crank or, more often, through an electromechanical device.

[0011] In particular, each belt is wound at one end on a winding roller, preferably the blind winding roller itself, while the opposite end is fixed to the carriage integral with the transverse batten.

[0012] Said belt is wound on the winding roller so that the rotation of said roller causes at the same time the blind to be unwound and the belt to be wound, or, on the

contrary, the blind to be wound and the belt to be unwound.

[0013] The winding of said belt causes the sliding movement of the carriage on the corresponding guides and, consequently, the travel of said transverse batten, which carries with it the edge of the blind, thus unwinding it.

[0014] On the contrary, to rewind the blind the winding roller is rotated in the opposite direction, in such a way as to rewind the blind on the roller itself. In this way the transverse batten travels, moving near the winding roller as it follows the blind, thus causing the sliding movement of said carriages on the corresponding guides and thus the unwinding of each single belt.

[0015] To ensure the correct operation of said blind opening/closing system, each belt must be kept tightened.

[0016] For this purpose, the known bearing structure comprises a pulley or roller around which the belt slides and at least one tightening element fixed to a stable support anchored to the ground.

[0017] The known tightening elements are substantially springs acting between the ground and said pulley or upper roller on the opposite side to tighten the belt or reverse its sliding direction.

[0018] Said tightening elements are anchored to the ground and arranged vertically, with the pulley positioned on the top.

[0019] The length of the known tightening elements is thus adjusted in such a way as to keep the corresponding belt constantly tightened, thus enabling the blind to be opened and closed.

[0020] In particular, the known tightening pulleys are placed at a height of approximately 1 metre from the ground.

[0021] The direction inversion point thus corresponds to the point where the carriage sliding on the guides stops, that is, corresponds to the position where the blind is completely unwound.

[0022] The known roller blinds, therefore, cannot be unwound until touching the ground, in fact the vertical wall ends at approximately 1 metre from the ground, thus leaving a rather large lower area not protected by the blind.

[0023] This wide opening can let in wind gusts, exhaust emissions of the vehicles in transit, rain, etc.

[0024] Besides being a nuisance for the people under the awning, this is also an inconvenience, since dirt and water get in the sheltered area.

[0025] For this reason, both in the case of private homes and in the case of public establishments, frequent cleaning operations are needed to remove the dirt and dry the water.

[0026] Furthermore, the presence of such openings goes to the detriment of the comfort that should be offered to the persons under the awning.

[0027] To overcome all the drawbacks mentioned above, a new type of fully-opening awning with columns,

pitched roofing members and blind-guiding sliding carriage has been designed and implemented, wherein the blind reaches the floor.

[0028] The main aim of the invention is to offer effective and complete protection against weather agents such as sun, rain, wind, or other disturbing factors like noise, smog and dust coming from the surrounding areas, in particular near roads or areas where traffic is heavy.

[0029] Another aim of the present invention is to allow the blind to be unwound completely, until reaching the ground.

[0030] A further aim of the present invention is to limit and prevent the introduction of dirt and/or water in the sheltered area.

[0031] Another aim of the present invention is to increase comfort and ensure more privacy.

[0032] These and other direct and complementary purposes have been achieved through the design of the new fully-opening awning with columns, pitched roofing members and blind-guiding sliding carriage.

[0033] The new awning is constituted - as to its main components - by a bearing structure comprising at least one vertical column and at least one pitched or horizontal roofing member, connected to one another at the ends by means of an articulated joint, and wherein said pitched roofing member has the opposite end integral with the wall, while said vertical column can be fixed to a base anchored to the ground.

[0034] The new awning with guide comprises a winding roller, around which the blind is wound and which is preferably housed in a box permanently and integrally fixed to the wall and/or to said pitched roofing members.

[0035] The blind is fixed to said winding roller at one edge, while its external terminal edge is fixed to a transverse batten equipped with one or more carriages sliding on the columns and on the pitched roofing members.

[0036] Said columns and pitched roofing members are hollow profiled elements including a vertical opening linear in shape, obtained along their whole side or front surface. Said opening, hereinafter called "guide", serves to guide the sliding movement of the corresponding carriage integral with said transverse batten.

[0037] To enable said sliding carriage to slide, said guide is made also on the front surface of the articulated joint, in such a way as to create a single and continuous guide for the sliding carriage.

[0038] Said sliding carriage comprises two or more rotary parts that allow it to travel and slide along said guide.

[0039] The opening and closing of the blind is made possible by the presence of one or more belts, preferably one for each sliding carriage, wherein one of the ends of said belts is hooked to said winding roller, while the opposite end is hooked to the corresponding sliding carriage.

[0040] Each belt is kept tightened and in the correct position in said bearing structure, that is, within the corresponding column and pitched roofing member, by means of one or more tightening elements and one or

more pulleys or transmission rollers.

[0041] In particular, the awning may comprise a first pulley positioned near said winding roller, suited to enable the correct winding and unwinding of the belt on the winding roller itself.

[0042] One or more pulleys may also be positioned in line with the articulated joint, in order to ensure the correct position of the belt at the point where the direction is reversed.

[0043] An elastic means to be used as belt tightener is arranged in substantially vertical position integral with the base, or at the lower end of the vertical column, and comprises at the top a further pulley or roller that reverses the sliding direction of the belt while keeping it properly tightened.

[0044] Said elastic means is carried out, for example, with an air spring.

[0045] One of the innovative features of the invention is represented by the tightening system of each belt, comprising, therefore, at least, one elastic tightening means integral with the base and/or with the bottom of said vertical column, and one or more pulleys or transmission rollers to enable the belt to slide.

[0046] According to an alternative solution, an intermediate plate is used, on which said elastic tightening means and said pulleys or transmission rollers are integrally positioned and which is successively fixed between said base anchored to the ground and said vertical column.

[0047] Said innovative system, described in greater detail here below, allows said sliding carriages to slide along the whole length of the bearing structure, that is, from the position near the winding roller, where the blind is completely closed, to the position near the base, that is, near the ground, where the blind is completely open.

[0048] In this way said transverse batten can travel from the closing position near said winding roller to the complete opening position near the ground.

[0049] Owing to the present invention, it is therefore possible to open the blind completely and let it reach the ground, thus offering total protection against sun rays, rain, wind, annoying gas emissions, dirt, sprays, etc, as well as ensuring privacy.

[0050] Furthermore, said belts slide inside the elements that make up said bearing structure, that is, inside the columns, the pitched roofing members and the articulated joints, with consequent practical and aesthetical advantages, and improved safety.

[0051] Guided awning for outdoor use with bearing structure comprising: at least one substantially vertical column, suited to be connected to at least one pitched or horizontal roofing member, at least one blind winding roller, at least one transverse batten to which the terminal edge of said blind is fixed and which is integral with one or more sliding carriages, at least one belt hooked at one end to said winding roller and at the other end to said sliding carriage, at least one base, equipped with one or more pulleys or transmission rollers for said belt, on which

base said column is fixed, and at least one elastic means for tightening said belt, integral with said base and equipped with a pulley or roller at the height of its upper end.

[0052] The characteristics of the invention will be highlighted in greater detail in the following description, with reference to the drawings attached as nonlimiting examples.

[0053] Figure 1 shows a vertical cross section of the invention, while figure 1a shows the invention in completely open position.

[0054] Figure 2 is a detailed view of the base with elastic tightening means and sliding carriage.

[0055] Figure 2a-a shows a horizontal section of the column.

[0056] The invention is constituted by a bearing structure comprising at least one vertical column (AV) and at least one pitched or horizontal roofing member (AI), connected to each other at the ends by means of an articulated joint (S) and wherein said column (AV) can be fixed to a base (B) anchored to the ground (O).

[0057] The invention also comprises a winding roller (A), around which the blind (T) is wound and which is preferably housed in a box (A1) permanently and integrally fixed to the wall (P) and/or to said pitched roofing members (AI).

[0058] The blind (T) is fixed to said winding roller (A) with one edge, while the external terminal edge (T1) is fixed to a transverse batten (AT) that in turn is integral with one or more sliding carriages (E) preferably positioned at its ends, that is, in line with the columns (AV) and the pitched roofing members (AI).

[0059] Said columns (AV) and pitched roofing members (AI) (Figure 2a-a) are hollow elements including a vertical opening linear in shape, obtained along their whole side or front surface. Said opening serves as a guide (G) for the sliding movement of the rotary elements (ER) with which the corresponding sliding carriage (E) is equipped, integral with said transverse batten (AT).

[0060] To enable said sliding carriage (E) to slide, said guide (G) is made continuously along the whole column (AV), along the front surface of the articulated joint (S) and along the whole pitched roofing member (AI), in such a way as to create a single and continuous guide (G).

[0061] Said sliding carriages (E) comprise two or more rotary elements (ER). In particular, as shown in Figures 2 and 2a-a, the sliding carriage (E) preferably comprises four pairs of rotary elements (ER), two of which slide inside the guide (G), while the remaining pairs slide outside said guide (G).

[0062] In this way the sliding carriage (E) slides adhering to the bearing structure within said guide (G) and said transverse batten (AT) is kept in horizontal position and parallel to said winding roller (A), so that the blind (T) is correctly wound and unwound.

[0063] The opening and closing of the blind (T) is made possible by the presence of one or more belts (C), preferably in the same number as the sliding carriages (E),

wherein one of the ends of each belt (C) is hooked to said winding roller (A), while the opposite end (C1) is hooked to the corresponding sliding carriage (E).

[0064] Each belt (C) slides, at least partially, inside the bearing structure described above, that is, inside the column (AV) and the pitched roofing member (AI), on one or more pulleys or transmission rollers, that is, special elements suited to enable said belt to slide and to keep it properly tightened and in correct position.

[0065] In particular, the present invention comprises a first pulley or roller (R0) integral with said bearing structure and positioned near said winding roller (A), suited to enable the correct winding and unwinding of the belt (C) around the winding roller (A) itself.

[0066] One or more pulleys or rollers (RS) are positioned at the height of the articulated joint (S), in order to ensure the correct position of the belt (C) at the point where the sliding direction changes.

[0067] Further pulleys or transmission rollers (R1), (R3) and (R4) are positioned inside said base (B).

[0068] An elastic means (M) arranged in vertical position is integral with said base (B) and comprises at the top a further pulley or roller (R2) that enables the sliding direction of the belt (C) to be reversed.

[0069] Said elastic tightening means (M) serves to tighten said belt (C), pushing it upwards.

[0070] The belt (C) is kept tightened by the action of said elastic tightening means (M) and by said fixed pulleys and transmission rollers.

[0071] In particular, said belt (C) rests on said first pulley or roller (R0), slides inside the whole of said pitched roofing member (AI), changes direction within the articulated joint (S), resting on said pulleys or rollers (RS), and goes down the entire vertical column (AV) until reaching the base (B) anchored to the ground.

[0072] Inside said base (B), said belt (C) reverses its direction around at least one pulley or transmission roller (R1), integral with said base (B), and moves upwards, until reaching said top of said elastic tightening means (M), passing around said pulley or roller (R2), integral with the elastic tightening means (M), at the height of which it changes direction again moving downwards towards said base (B), where one or more pulleys or transmission rollers (R3) and (R4) direct it upwards and towards said sliding carriage (E).

[0073] Said belt is hooked to said sliding carriage (E), which therefore can move along said opening (G) from the position that is nearest to the base (B), that is, the ground, to the position that is nearest to said winding roller (A).

[0074] To unwind said blind (T), action on said winding roller (A) rewinds said belt (C) which, through the system of pulleys and rollers described above, drives said carriage (E) downwards, that is, causes the movement of said transverse batten (AT) integral with it and thus opens the blind (T).

[0075] On the contrary, to rewind the blind (T), the winding roller (A) is rotated in the opposite direction, in

such a way as to rewind the blind (T) that carries with itself said transverse batten (AT) and said sliding carriage (E).

[0076] The belt (C), hooked to said sliding carriage (E) and tightened, slides on said pulleys or rollers, thus enabling said carriage (E) to slide and said transverse batten (AT) to travel.

[0077] The installation of the present invention requires the fastening of said winding roller (A) with the corresponding box (A1) to the wall (P) and the fastening of said base (B) to the ground.

[0078] After positioning said elastic tightening means (M) and arranging said belt (C) correctly between said pulleys or transmission rollers (R1), (R2), (R3) and (R4) integral with the base (B), said column (AV) is positioned on said base (B) and the positioning of said belt (C) is completed, said belt being introduced inside the columns (AV) and the pitched roofing members (AI) through the opening of said guide (G).

[0079] The free end (C1) of said belt (C) is then hooked to said sliding carriage (E), which is inserted in the guide (G).

[0080] Said transverse batten (AT), to which the terminal edge (T1) of the blind (T) is hooked, is finally fixed to said carriage (E).

[0081] In this way said elastic tightening means (M) and said pulleys or transmission rollers (R1), (R2), (R3), (R4) are completely covered, to the benefit of the users' safety and at the same time also improving the appearance of the assembly.

[0082] Therefore, with reference to the above description and the attached drawings, the following claims are expressed.

Claims

1. Guided awning for outdoor use with bearing structure comprising:

- at least one substantially vertical column (AV), suited to be connected to at least one pitched or horizontal roofing member (AI);
- at least one roller (A) for winding the blind (T);
- at least one transverse batten (AT), to which the terminal edge (T1) of said blind (T) is hooked, integral with one or more sliding carriages (E);
- at least one belt (C) operated by said winding roller (A) and with the end (C1) integral with said sliding carriage (E);

characterized in that it comprises at least one base (B), equipped with one or more pulleys or transmission rollers (R1), (R3) for said belt (C), on which base said column (AV) is fixed, and at least one elastic means (M) for tightening said belt (C) and equipped with one pulley or transmission roller (R2) for said belt (C) at the height of its top.

2. Guided awning for outdoor use according to claim 1, **characterized in that** said base (B) is anchored to the ground (O) and/or to the bottom of said vertical column (AV).

3. Guided awning for outdoor use according to claims 1, 2, **characterized in that** it comprises at least a first pulley or transmission roller (R4) integral with said base (B), and wherein on said base (B) there is, fixed in substantially vertical position, said elastic tightening means (M) equipped, near its top, with a pulley or roller (R2) in intermediate position between two further transmission rollers (R1) and (R3), on which said belt (C) rests and slides.

4. Roller blind for outdoor use according to claims 1, 2, 3, **characterized in that** said column (AV), said pitched roofing member (AI) and said articulated joint (S) are each provided with a linear opening along their side or front surface, and wherein said openings are arranged in sequence one after the other, in such a way as to create a substantially continuous guide (G), within which said belt (C) and part of said sliding carriage (E) slide.

5. Roller blind for outdoor use according to the previous claims, **characterized in that** said sliding carriage (E) comprises two pairs of rotary elements (ER) that slide inside said opening or guide (G) and two pairs of rotary elements (ER) that slide outside said guide (G).

6. Roller blind for outdoor use according to the previous claims, **characterized in that** said elastic tightening means (M) and said pulleys or transmission rollers (R1), (R2), (R3), (R4) are completely inserted in the hollow part of said column (AV).

