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(54) **VERTICAL AWNING COMPRISING AN AUTOMATIC DEVICE FOR THE TAUT FIXING THEREOF
IN THE PARTIALLY OR TOTALLY EXTENDED POSITION**

(57) This consists of a piece of canvas (1) with a first end secured to a horizontal rolling bar installed on a structure (4) or wall and operated in a rotating fashion, and with a second end secured to a load bar (5), which is parallel to the tube and guided at its ends by means of cam followers (12) in vertical guides (6) that include automatic locking-freeing devices (7). Each device (7)

comprises a converging-diverging double funnel (8) with a retainer (9) below the same, capable of retaining the cam follower (12) maintaining the piece of canvas (1) under tension, an interlock cam guide (10) to lead the cam follower (12) from the double funnel (8) to the retainer (9), together with an escape cam guide (11) to lead the cam follower (12) from the retainer (9) to the double funnel (8).

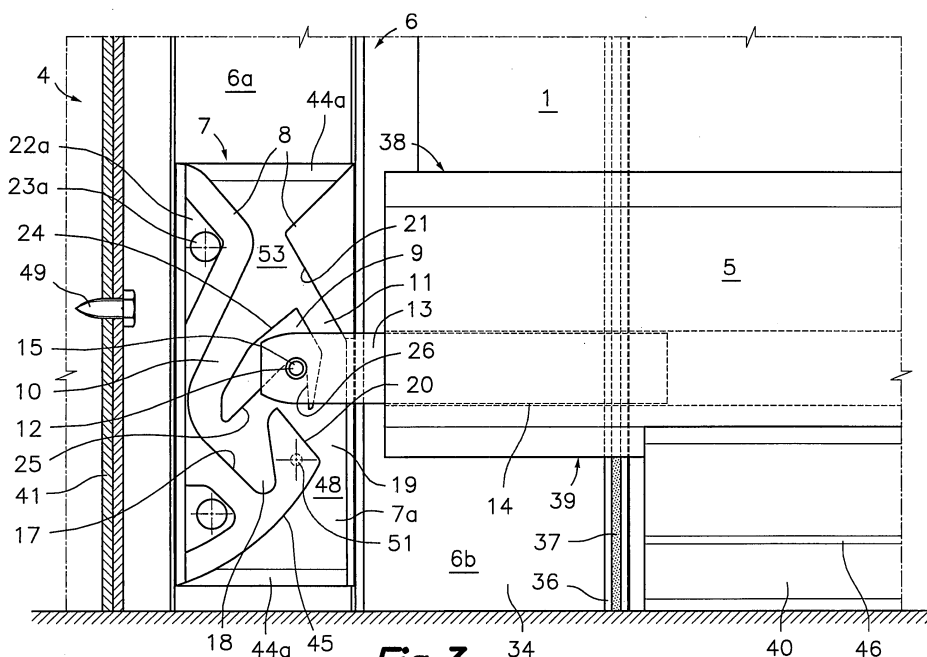


Fig.3

Description

Scope of the invention

[0001] This invention concerns a vertical awning, and more specifically, an awning equipped with an automatic device that allows the awning canvas to be set to a partially or fully extended tightened position and to free it from the said position by carrying out simple descent and elevation operations.

Background to the invention

[0002] Frequent use is made of vertical awnings of the type that consist of a piece of canvas, with a first end secured to a substantially horizontal rolling tube mounted in a rotating fashion on supports fixed to a structure or wall, and a second end secured to a load bar that is substantially parallel to the said rolling tube and which can be moved guided by its ends by means of substantially vertical guides fixed to the said structure or wall. The load bar is suspended from the piece of canvas and is maintained at a certain tension due to the force of gravity. Habitually, they are fitted with some means of drive, either manually or by a motor, which rotates the rolling tube in one or the other directions, so that the piece of canvas is either rolled or unrolled with the load bar either being raised or lowered.

[0003] One problem associated with this type of vertical awning, is that when the piece of canvas is in a partially or fully extended position, it is maintained under tension solely by the weight effect of the load bar, which is able to freely move via the guides. In such a position, the awning is very sensitive to any wind striking the canvas, which is wrinkled and moved in such a way that the load bar undergoes the continual effects of pulling and relaxing forces that produce unwanted movement of the same, in addition to molesting rattling and noise.

[0004] The utility model ES-A-1048950 makes known a retaining device for exterior curtains in a partially or fully extended position or closed, with the said curtains being of the type consisting of the same basic elements described above referring to the vertical awnings. The retaining device includes a pair of support parts, each of which is fitted with the means to be fixed inside the guides. A flexible part is installed in each of these support parts, with one end raised and interposed in the path of a skid secured to the end of the load bar and operating as a cam follower, and a clip type spring, with a general "U" configuration, the middle part of which is fixed to the support part and with wings are configured with side folds, including end sections that are supported on the said flexible part so that they can descend and approach each other at the level of the bottom of the support part. These guides form grooves and are arranged on either side of the awning with their grooves facing each other and have frontal coplanar wings that partially close off the openings in the said grooves. The

skids at the ends of the load bar have a configuration such that, when the load bar moves in a downward direction, the skids touch and move apart the flexible parts of the device, they are then braked by the mentioned close-together sections of the springs and are trapped by the flexible parts, which have recovered their original positions. The cited retention thus allows, to a certain point, the action of the rolling tube to tension the fabric or canvas. Then, when from this position, the load bar is moved downwards, taking the skids beyond the device, the springs and flexible parts recover their initial positions, and the skids, when the load bar is then moved upwards, they compress the springs which, in turn, push the elastic parts and move them out of the path of the skids, which allows the awning to be freed from the retaining device and rolled up.

[0005] This device, however, has the inconvenience that the close-together ends of the springs brake the skids in the retention position and then, in order to move the skids below the devices, they have to be assisted by manually pushing the load bar downwards, as well as operating the rolling tube to free them. Moreover, the devices include a number of parts, some of which are moveable, which makes them costly to produce and assemble, especially when in the case of a relatively large awning.

[0006] One objective of this invention is to provide a vertical awning with a device for securing and freeing it in partially and fully extended positions, in which the said securing and freeing operations are automatically carried out by means of simple lowering and raising operations produced by the rolling tube, and which includes retention assemblies that are sufficiently strong to permit efficient tensioning of the awning in both partially and fully extended positions.

Description of the invention

[0007] The previous objective is achieved in accordance with this invention, providing a vertical awning with an automatic securing device tensioned in a partially or fully extended position, with the said awning being of the type comprising a piece of canvas with a first end secured to a substantially horizontal rolling tube, installed in a rotating fashion on supports fixed to a structure or wall, and a second end secured to a load bar substantially parallel to the said rolling tube, and which can be moved guided by its ends via substantially vertical guides secured to the said structure or wall, with the said load bar suspended from the piece of canvas by gravity maintaining a certain tension in the same, being fitted with drive means to rotate the rolling tube in one or the other directions to roll/unroll the piece of canvas and in this way raise or lower the load bar and the means of fixing/freeing the load bar in a partially or fully extended position. The awning in this invention is characterised in that it consists of cam follower members at the ends of the load bar moving by means of the said guides, to-

gether with symmetrical fixing/freeing devices at the lower end of the guides to fix/free the said cam follower members. Each of the said fixing/freeing devices consists of: a double convergent-divergent funnel assembly connected to the guide and forming an entry-exit passage for the said cam follower; a retention assembly located underneath the said double-funnel assembly and capable of retaining the cam follower with the piece of canvas under tension in a partially or fully extended position; an interlock cam guide set in such a way to guide the cam follower from the double-funnel assembly to the said retention assembly, following a descending-ascending path by a first side of the retention assembly; and an escape cam guide that leads the cam follower from the retention assembly to the double-funnel assembly following a descending-ascending path by a second, opposite side of the retention assembly.

[0008] The cited retention assembly is strongly constructed and consists of a housing for reception of the cam follower member, with a mouth facing downwards, defined by a first ascending inclined deflector on the said first side of the retention assembly, together with a stop on the opposite second side. When the cam followers are in the respective housings for the retention assemblies, the rolling tube can be driven to roll up the piece of canvas in order to tension it to a predetermined level that is sufficient to provide a stable arrangement of the awning in a partially or fully extended position depending on the height at which the locking-freeing devices are secured in the guides.

[0009] When in the folded or half-folded position, the rolling tube is operated to unroll the piece of canvas, the load bar pulls the piece of canvas downwards due to gravity, with the cited cam follower members moving along the guides until they are forced to enter the locking-freeing devices via the entry-exit passages of the respective double-funnel assemblies. A first descending inclined deflector, which is located below the said double-funnel assembly passage, receives the cam follower and diverts it towards the said interlock cam guide, which comprises a first descending path defined by surfaces that include a second descending inclined deflector that leads the cam follower to a pre-interlock point that is located one level below the retention assembly housing and below the said first ascending inclined deflector on the retention assembly housing mouth. When it reaches this point, the rolling tube must be driven to roll the piece of canvas, pulling the load bar upwards and raising the cam followers by a second ascending interlock cam guide path defined by surfaces that include the cited first ascending inclined deflector, which forms part of the housing mouth. This first ascending inclined deflector diverts the cam follower and takes it towards the said housing, where it is retained and this is the moment in time that the rolling tube movement must be halted after having provided the mentioned sufficient pre-determined tension to the piece of canvas.

[0010] When the awning is in the said partially or fully

extended position, the rolling tube is operated to unroll the piece of canvas, the load bar pulls the piece of canvas downwards due to gravity, with the cited cam follower members moving downwards from the cited housings commencing a downward path of the escape cam, which is defined by surfaces that include a third descending inclined deflector located below the said housing that diverts the cam follower and leads it to a pre-escape point that is positioned away from the retention assembly and to one level lower than the housing of the same. On reaching this point, the rolling tube must be operated to roll up the piece of canvas, pulling the load bar upwards and raising the cam followers by a second ascending path of the escape cam guides defined by surfaces that include a second ascending inclined deflector located above the said pre-escape point and which takes the cam followers to the double-funnel assembly passage, from where they access the guides and enable the awning to be set to the said folded or half-folded position. Moreover, the cited pre-escape point preferably communicates with a lower aperture in the device in connection with a lower section of the guide, so that the cam follower may optionally move below this point. This permits the fixing and tensioning of the piece of canvas in various partially and fully extended positions by means of two or more pairs of locking-freeing devices at various heights within the guides.

[0011] In this way, by means of simple lowering and raising operations of the piece of canvas via the rolling tube, the awning can be unrolled and fixed in a stable extended position, or freed from the same and rolled up to a partially or fully rolled up position, executing the fixing and freeing operations automatically, without any user intervention on the load bars or the locking-freeing devices.

[0012] The awning of this invention can be manually operated, although the mentioned means of operation preferably consist of an electric motor mechanically connected to the rolling tube in order to rotate it in one or the other directions. In accordance with one variant, sensor means, such as position sensors, are arranged so that they detect when the cam followers are at the pre-interlock point, in the retention assembly housing, at the pre-escape point or at the maximum rolled up position. The motor is turned on by means of a switch operated by, for example, the user, a timer or light detector etc, together with some electronic control means which are used to invert the direction of rotation, or to halt it, in response to signals produced by the said sensor means. In accordance with another variant, the length of the piece of canvas is such that when the cam followers are in the pre-interlock or in the pre-escape positions, the piece of canvas changes from unrolling to rolling up, without changing the direction of rotation of the said motor. Again, the motor is turned on by means of a switch, and sensor means, such as an ammeter, are designed to detect the motor current consumption. Electronic control means are employed to halt the motor in

response to signals produced by the said sensor means when the load bar is retained, whether by the locking-freeing device retention assemblies or at the upper roll-up limit stops. Combinations of both variants are possible, such as the alternative use of microswitches or other conventional components to perform the functions of the mentioned sensor means.

Brief description of the drawings

[0013] These and other advantages will be better understood from the following detailed description of an embodiment example and referring to the attached drawings, in which:

Figure 1 is an upper plan view of the vertical awning of this invention where, for greater clarity of the drawing, the rolling tube, its supports and the piece of canvas are shown in dotted lines;

Figure 2 is an enlarged partial transverse section view of one of the guides of Figure 1, with its corresponding locking-freeing device;

Figure 3 is an enlarged, partially sectioned, partial view of the guide and locking-freeing device of Figure 2;

Figure 4 is an exploded perspective view that shows two parts that make up the locking-freeing devices; and

Figure 5 is a partial perspective view that shows one end of the load bar with its corresponding cam follower.

Detailed description of an embodiment example

[0014] First, with reference to Figure 1, the vertical awning with an automatic locking tensioning device in a partially or fully extended position of this invention comprises a piece of canvas 1, with a first end secured to a substantially horizontal rolling tube 2 and a second end secured to a load bar 5, which is substantially parallel to the said rolling tube 2, which is installed in a rotating fashion to supports 3, secured to a structure 4 or wall which, in the shown embodiment example, consists of columns 41 that are made up of a hollow, "L" transverse section profile, with the said supports 3 of the rolling tube 2 being secured to an interior face of one of the sections of the said "L". The cited load bar 5 (also see Figure 5) has, at least at its ends, housings 14 in which arms 13 are installed so that they can freely slide in the longitudinal direction of the load bar 5. The arms 13 extend beyond the ends of the load bar 5 and have cylinder-shaped cam followers 12 attached close to their distal ends, with their central axes perpendicular to the longitudinal direction of the load bar 5. The cam followers 12 equally extend beyond either side of arms 13 and are able to move guided by substantially vertical guides 6 that are secured to the said structure 4. The load bar 5 is suspended from the piece of canvas 1 by gravity,

maintaining a certain tension in the same and the means of power are included, such as a motor 60, to rotate the rolling tube 2 in one of the other directions, causing the piece of canvas 1 is rolled or unrolled and thus producing the raising or lowering of the load bar 5. Symmetrical locking-freeing devices 7 are fitted to the lower ends of the guides 6, which secure the said cam follower members 12 in a partially or fully extended position or free them from the same.

[0015] Now referring to Figure 2, each guide 6 consists of at least one part that defines a hollow profile with an internal portion 6a that communicates via a longitudinal passage 31 with an external portion 6b fitted with a longitudinal mouth 32 open to the exterior. Advantageously, the said hollow profile comprises a lateral base profile 33 and a lateral cover profile 34 which, between the two, define the cited internal and external portions 6a, 6b of the guides 6. In the example shown in Figure 3, the cited locking-freeing devices 7 are fixed to the lower ends of the internal portions 6a and the lateral base profiles 33 are longitudinally butt welded to the ends of the same sections of the hollow transverse, "L" section profiles, which form the columns 41 to which the said rolling tube 2 supports 3 are fixed so that the said longitudinal mouths 32 of the external portions 6b of both guides 6 are facing each other, as shown in Figure 1. With this layout, the cam followers 12 pass along the said internal portions 6a, the arms 13 pass along the said longitudinal passages 31, and the ends of the load bars 5, together with some end strips of the piece of canvas 1, pass along the external portions 6b via the said longitudinal mouths 32 (also see Figure 3), along which respective housings 35, 36 are set out for the installation of blocking brushes 37 with elastic bristles that prevent the entry of dirt into the guides at the same time permitting the movement of the ends of the load bar 5 and the piece of canvas 1 via the longitudinal mouths 32. This arrangement provides a high degree of isolation between the interior and exterior of the enclosure that is closed off by the awning and prevents wind and sunlight from passing through the interstitials between the canvas 1 and the guides 6. By selecting a highly opaque fabric for canvas 1 an elevated degree of shade is obtained inside the said enclosure. In addition, the fact that the guides 6 consist of a lateral base profile 33 and a lateral cover profile 34 enable the said lateral cover profile 34 to be removed in order to facilitate access to the screws 49 that secure the lateral base profiles 33 to the structure 4 or wall, and the positioning and securing of the locking-freeing devices 7 in the internal portion 6a of the lateral base profiles 33 by means of a first securing screw 50. The locking-freeing devices 7 are then fastened to the lateral cover profiles 34 by means of a second securing screw 51 once the said lateral cover profiles 34 have been installed and fastened to their respective lateral base profiles 33 with screws 52.

[0016] Just as shown in Figure 4, each locking-freeing device 7 is made up of two facing parts 7a, 7b, which

include their respective internal flat faces 16a, 16b that have projections 22a, 22b with holes 23a, 23b that face each other, through which pass the means of securing 27, 28 the said two parts 7a, 7b together. Advantageously, the said means of securing include a screw 27 and a nut 28, with one of the said two parts 7b having a conical oval-shaped hole 42 to house the head of the said screw 27 and the part 2a has a hexagonal housing 43 that contains the said nut 28 to prevent it from rotating. Because of the said projections 22a, 22b an aperture 29 (Figure 2) is formed for arm 13 that is delimited by the said internal flat faces 16a, 16b, which include symmetrical, facing rabbets 30a, 30b, which define the double-funnel and retention assemblies 8, 9, together with interlock and escape cams 10, 11 that define ascending and descending paths for the two projecting ends of the cam follower 12, which are described below in relation to Figure 3. These double-funnel and retention assemblies 8, 9 and interlock and escape cams 10, 11 are defined by flat and/or curved surfaces of a generatrix parallel to the said central axis of the cam follower 12, along which the said descending-ascending paths of the locking-freeing device 7 forces the cam follower 12 to move in the longitudinal direction of the load bar 5 facilitated by the sliding of the said arm 13 within the cited housing 14. The internal flat faces 16a, 16b of the parts 7a, 7b have rounded edges 44a, 44b at their ends.

[0017] Figure 5 is an enlarged view of one end of the load bar 12, which consists of a flat profile that includes, in addition to the cited housings 14, one or more open cavities 47 at the ends of the flat profile containing one or more pieces of high density material, such as lead, to assist the descent of the piece of canvas 1 by gravity and to maintain a certain tension while the load bar 5 is not fixed in place. An upper section of the flat profile also defines a grooved longitudinal housing 38 for a securing rod for the cited second end of the piece of canvas 1 and, in a lower section, a grooved longitudinal housing 39 for a stop profile 40 made of an elastomer material that dampens any possible impacts of the load bar 12 against the ground and assists in closing off the space that is protected by the awning itself when it is in the fully extended position. Advantageously, this stop profile 40 has a bellows configuration 46 that is able to undergo substantial elastic deformation against the ground under the weight of the load bar 5. This allows a pair of locking-freeing devices 7 to be located inside the guides 6, in a position that is very close to the ground, in which the profile 40 is in contact with the ground when the load bar 5 is fixed in the fully extended position. Thus, the mentioned deformation capacity of the profile 40, because of the said bellows configuration 46, makes possible the descending-ascending movements of the load bar 5 in the locking and freeing movements. Alternatively, the said grooved longitudinal housing 39 is able to accept the anchor of a trim skirt (not shown) as a lower finishing touch to the load bar 5.

[0018] Returning to Figure 3, each locking-freeing de-

vice 7 consists of a converging-diverging, double-funnel assembly 8 in connection with the guide 6 defining a passage 53 for the said cam follower 12; a retention assembly 9 located below the said double-funnel assembly 8 and able to retain the cam follower 12 with the piece of canvas 1 under tension in a partially or fully extended position; an interlock cam guide 10 arranged to lead the cam follower 12 from the double-funnel assembly 8 to the said retention assembly 9 following a descending-ascending path by a first side of the retention assembly 9; together with an escape cam guide 11 set out to lead the cam follower 12 from the retention assembly 9 to the double-funnel assembly 8 following a descending-ascending path by a second, opposite side of the retention assembly 9.

[0019] In order to accomplish this, the upper section of the retention assembly 9 comprises a first descending inclined deflector 24, located below the said passage 53 of the double-funnel assembly 8 in order to divert the cam follower 12 that descends from the said passage 53 of the double-funnel 8 towards the said interlock cam guide 10 and, in its lower section, a housing 15 to receive the cam follower 12. The said housing 15 consists of a downward-facing mouth defined by a first ascending inclined deflector 25 on the said first side and a stop 26 on the second side. For the securing operation, the interlock cam guide 10 consists of a descending path defined by surfaces that include, in addition to a first descending inclined deflector 24, a second descending inclined deflector 17, pointing in the opposite direction, to lead the cam follower 12, which descends to a pre-interlock point 18, located below the said first ascending deflector 25 of the cited housing mouth 15. From the said pre-interlock point 18, the interlock cam guide 10 comprises an ascending path, defined by surfaces that include the first ascending inclined deflector 25, to lead the cam follower 12 to the said housing 15, where it is retained until the direction of tube rolling 2 is reversed in order to allow the piece of canvas 1 to descend and with it, the load bar 5. For the freeing operation, the escape cam guide 11 consists of a descending path defined by surfaces that include a third descending inclined deflector 20, located below the said housing 15, to lead the cam follower 12, which descends to a pre-interlock position 19 that is separate from the retention assembly 9 and to a lower level with respect to the housing 15, and an ascending path defined by surfaces that include a second ascending inclined deflector 21, pointing in the opposite direction and located above the said pre-escape point 19, to lead the cam follower 12 that ascends from the pre-escape point 19 to the passage 53 of the double-funnel assembly 8, by which it accesses the guide 6. It can be seen that the escape cam guide 11 includes a passage 48 that communicates the pre-escape point 19 with a lower aperture of the device 7 connected with a lower portion of guide 6. In this fashion, the cam follower 12 is able to move downwards without stopping instead of upwards from the pre-escape point

19 in order to access the lower portion of the guide 6, so that the devices 7 can be located at an intermediate height of the guides, and could even have several pairs of devices 7 at various heights in the guide 6 for securing the load bar 5 at various positions with the canvas 1 either partially or fully extended. A third ascending inclined deflector 45 is arranged to divert the cam follower member 12 when this accesses the device 7 in an ascending direction from its lower aperture and lead it to a pre-escape point 19, from where it follows its path along the escape cam guide 11 without stopping.

[0020] Although the awning of this invention may be manually operated, the cited means of power 60 is preferably provided by an electric motor 60 (Figure 1) mechanically connected to rolling tube 2, and some means of sensing have been included, working in conjunction with some means of electronic control to automate the descending-ascending direction changes that are required to carry out the locking and freeing operations as described above. For example, the cited means of sensing could consist of several position sensors (not shown) that detect when the cam followers 12 are at the pre-interlock point 18, in the housing 15, at the pre-escape point 19 or in the maximum folded position and the said means of electronic control could invert the direction of rotation of the said motor 60, or detain it in response to signals from the said means of sensing. In accordance with another variant, the length of the piece of canvas 1 is such that when the cam followers 12 are at the pre-interlock point 18 or at the pre-escape point 19, the piece of canvas changes from rolling up to unrolling without changing the direction of rotation of the motor 60. In this case, the cited means of sensing, such as an ammeter (not shown) are arranged to detect the current consumed by the motor 60 and the said means of electronic control are able to stop the motor 60 in response to signals generated by the said means of sensing.

[0021] The previous detailed description of an embodiment example has a merely illustrative character and does not limit the scope of this invention, which is defined by the attached claims.

Claims

1. A vertical awning with an automatic locking tensioning device in a partially or fully extended position of the type comprising a piece of canvas (1), with a first end secured to a substantially horizontal rolling tube (2), which is installed in a rotating fashion to supports (3), secured to a structure (4) or wall, and a second end secured to a load bar (5), which is substantially parallel to the said rolling tube (2) and able to move at its ends by means of substantially vertical guides (6) that are secured to the said structure (4) or wall, with the said load bar (5) suspended from the piece of canvas (1) by gravity and maintaining a certain tension in it, with the means of power

er (60) planned to rotate the rolling tube (2) in one direction or the other to rollup or unroll the piece of canvas (1) and with this, allowing the load bar (5) to ascend or descend, together with the means to lock-free (7) the load bar (5) in a partially or fully extended position, **characterised in that** it consists of cam follower members (12) arranged at the ends of the load bar (5) moving along the said guides (6), together with symmetrical locking-freeing devices (7), which are installed inside the guides (6) for locking-freeing the said cam follower members (12), with each locking-freeing device (7) comprising:

- a converging-diverging double-funnel assembly (8) in connection with the guide (6) defining a passage (53) for the said cam follower (12);
- a retention assembly (9) located below the said double-funnel assembly (8) and able to retain the cam follower (12) with the piece of canvas (1) under tension in a partially or fully extended position;
- an interlock cam guide (10) arranged to lead the cam follower (12) from the double-funnel assembly (8) to the said retention assembly (9) following a descending-ascending path by a first side of the retention assembly (9); and
- an escape cam guide (11) set out to lead the cam follower (12) from the retention cam (9) to the double-funnel assembly (8) following a descending-ascending path by a second, opposite side of the retention assembly (9).

2. An awning, in accordance with claim 1, **characterised in that** the retention assembly (9) consists of a housing (15) to receive the cam follower (12), with a mouth facing downwards defined by a first ascending inclined deflector (25) on the said first side and a stop (26) on the said second side.

3. An awning, in accordance with claim 2, **characterised in that** the interlock cam guide (10) comprises a downwards path defined by surfaces that include a first descending inclined deflector (24) located below the said passage (53) of the double-funnel assembly (8) to divert the cam follower (12) from the said passage (53) of the double-funnel assembly (8) towards the said first side and a second descending inclined deflector (17) in the opposite direction in order to lead the cam follower (12) to a pre-interlock point (18) located below the said first ascending inclined deflector (25) of the cited housing mouth (15), and an ascending path defined by surfaces that include the first ascending inclined deflector (25) in order to lead the cam follower (12) from the said pre-interlock point (18) to the said housing (15).

4. An awning, in accordance with claim 3, **character-**

ised in that the escape cam guide (11) consists of a descending path defined by surfaces that include a third descending deflector (20) located below the said housing (15) to lead the cam follower (12) to a pre-escape point (19) located away from the retention assembly (9), and an ascending path defined by surfaces that include a second ascending inclined deflector (21) located above the said pre-escape point (19) to lead the cam follower (12) from the pre-escape point (19) to the passage (53) of the double-funnel assembly (8).

5. An awning, in accordance with claim 4, **characterised in that** the escape cam guide (11) consists of a passage (48) that communicates the said pre-escape point (19) with a lower aperture in the device (7) in connection with a lower portion of the guide (6), and a third ascending inclined deflector (45) is arranged on the said lower aperture to lead the cam follower member (12) from the lower aperture to the pre-escape point (19).

6. An awning, in accordance with claim 5, **characterised in that** it comprises two or more pairs of locking-freeing devices (7) at various heights in the guides (6) for securing and tensioning the piece of canvas (1) in various partially or fully extended positions.

7. An awning, in accordance with claim 1, **characterised in that** the said cam follower (12) has a cylindrical shape with a central axis perpendicular to the longitudinal direction of the load bar (5), with the said cam follower (12) joined to an arm (13) that projects beyond the end of the load bar (5) and which is installed so that it is able to freely slide inside a housing (14) on the load bar (5) in its cited longitudinal direction.

8. An awning, in accordance with claim 7, **characterised in that** the double-funnel assembly (8), the retention assembly (9) and the said interlock and escape cam guides (10, 11) are defined by flat and/or curved surfaces of a generatrix parallel to the said central axis of the cam follower (12), along which the said descending-ascending paths of the locking-freeing device (7) forces the cam follower (12) to move in the longitudinal direction of the load bar (5) facilitated by the sliding of the said arm (13) within the cited housing (14).

9. An awning, in accordance with claim 8, **characterised in that** the cam follower (12) projects beyond both sides of the arm (13), and each locking-freeing device (7) consists of two facing parts (7a, 7b) which include their respective internal flat faces (16a, 16b) that have projections (22a, 22b) with holes (23a, 23b) that face each other, through which pass the

means of securing (27, 28) the said two parts (7a, 7b) together, with these projections (22a, 22b) forming an aperture (29) through which the arm (13) passes, delimited by the said internal flat faces (16a, 16b), which include symmetrical, facing rabbets (30a, 30b) which define the double-funnel (8) and retention assemblies (9), together with the interlock and escape cam guides (10, 11) along which the two projecting ends of the cam follower (12) move.

10. An awning, in accordance with claim 9, **characterised in that** the internal flat faces (16a, 16b) of the parts (7a, 7b) have rounded edges (44a, 44b) at their ends in connection with the guide (6).

11. An awning, in accordance with claim 7, **characterised in that** the guide (6) consists of at least one part that defines a hollow profile with an internal portion (6a) that communicates via the longitudinal passage (31) with an external portion (6b) fitted with a longitudinal mouth (32), with the cam follower (12) moving along the said internal portion (6a), the arm (13) along the said longitudinal passage (31) and the ends of the load bar (5) and the piece of canvas (1) along the said external portion (6b) by means of the said longitudinal mouth (32).

12. An awning, in accordance with claim 11, **characterised in that** the said hollow profile comprises a lateral base profile (33) and a lateral cover profile (34), which include their respective housings (35, 36) along the length of the longitudinal mouth (32) for the installation of blocking brushes (37).

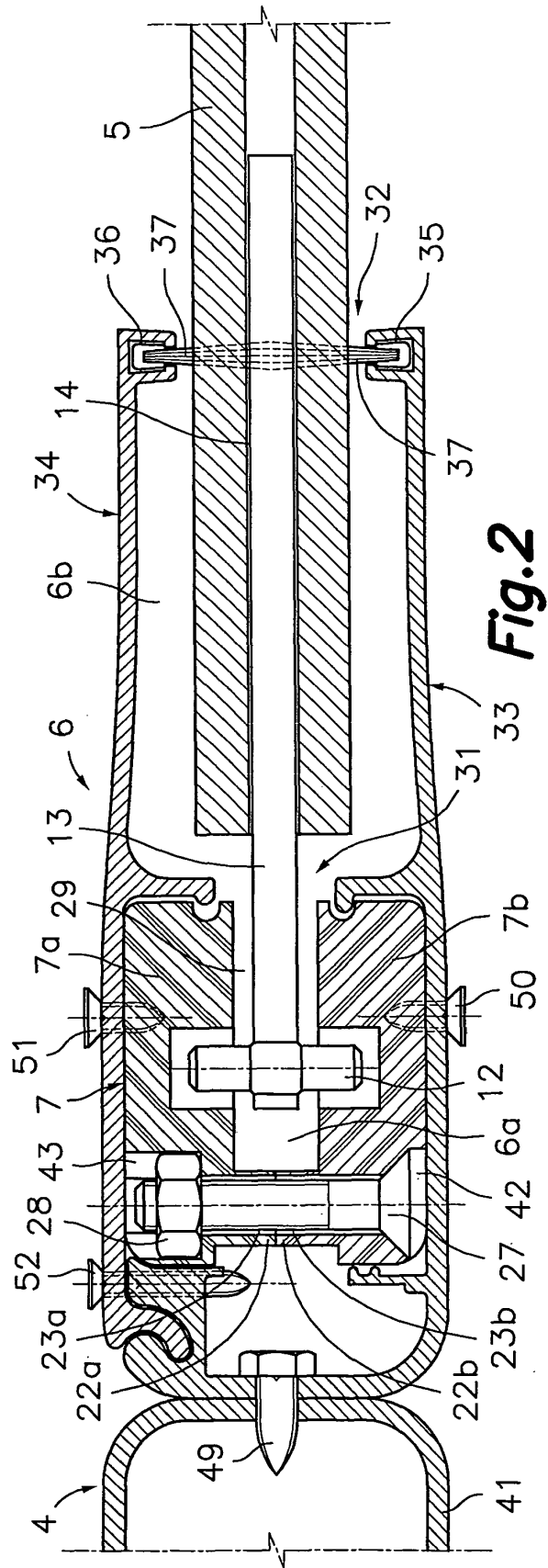
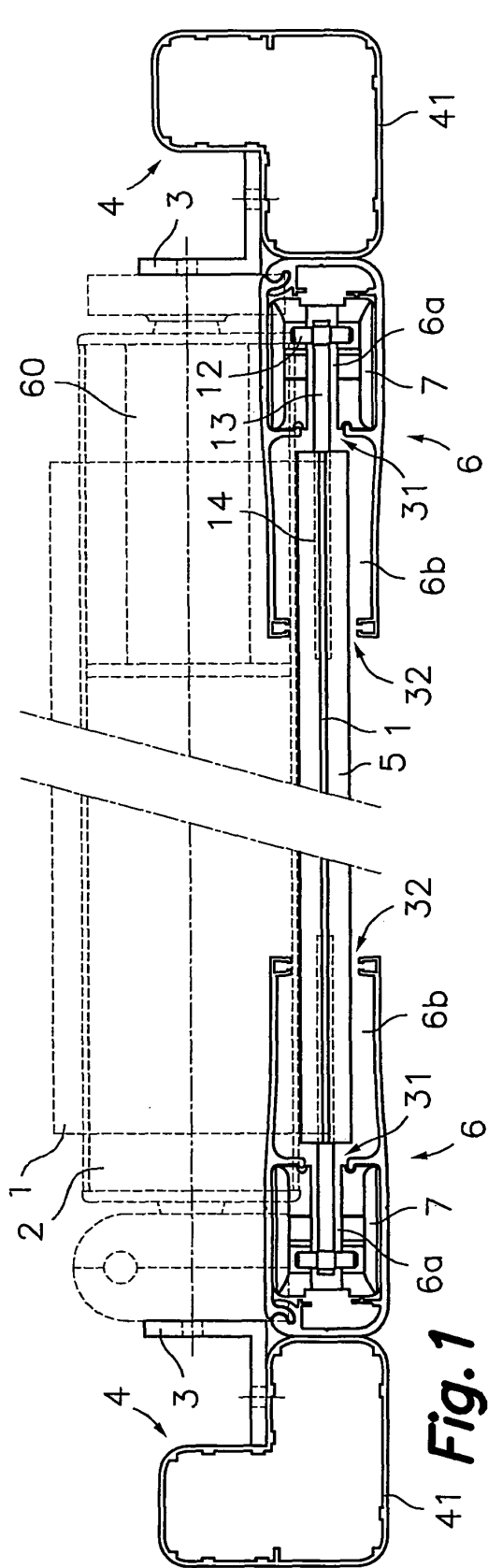
13. An awning, in accordance with claim 12, **characterised in that** the said load bar (12) comprises a flat profile, the upper section of which defines a grooved longitudinal housing (38) for a securing rod for the cited second end of the piece of canvas (1) and, in a lower section, a grooved longitudinal housing (39) for the fitting of a stop profile (40) made of an elastomer material or the anchor of a trim skirt and where an intermediate section includes, in addition to the said housings (14) for the arms (13), one or more open cavities (47) at the ends of the said flat profile for housing one or more pieces of a high density material, such as lead.

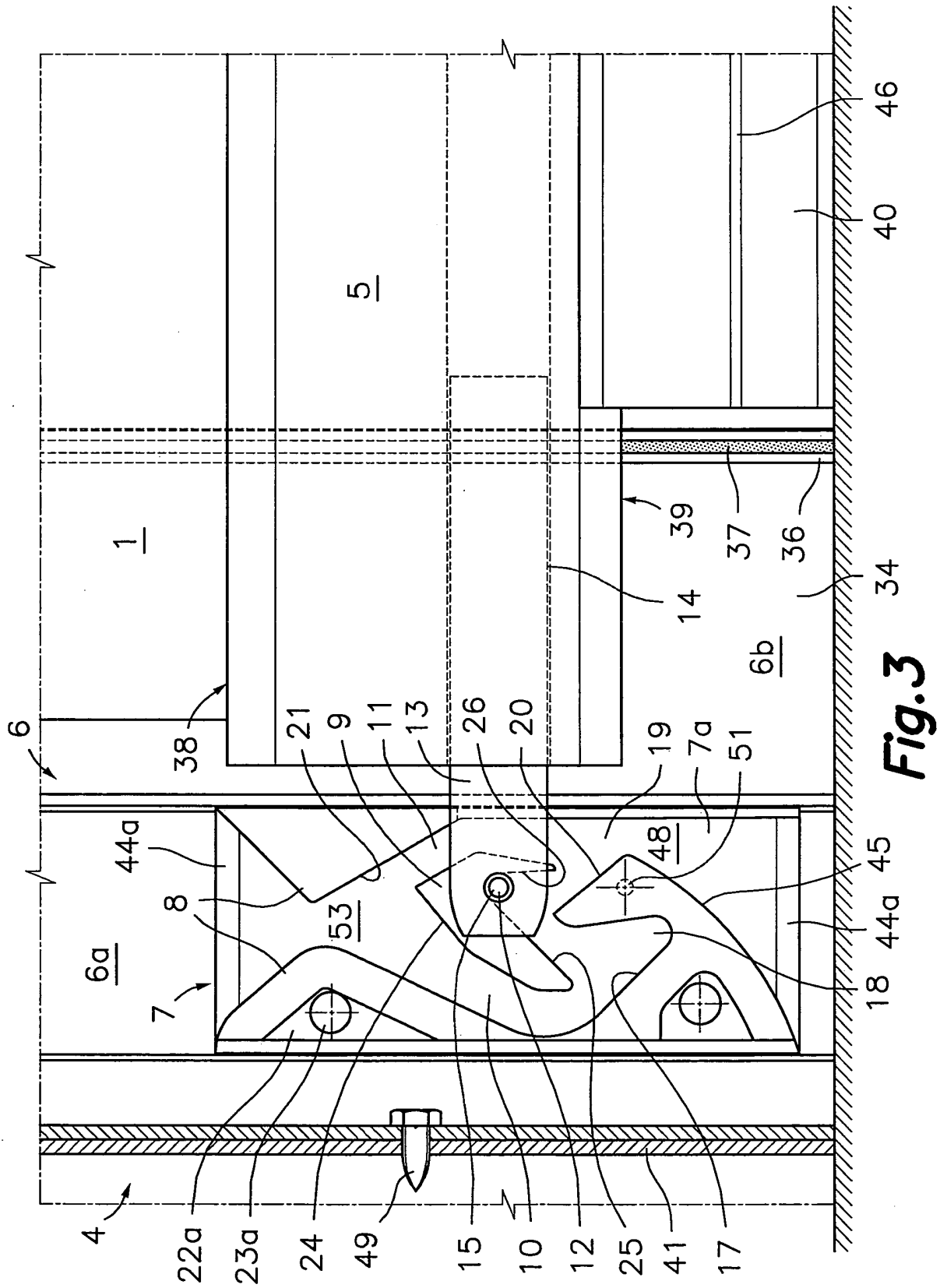
14. An awning, in accordance with claim 13, **characterised in that** the said stop profile (40) has a bellows configuration (46) that is able to undergo substantial elastic deformation against the ground under the weight of the load bar (5).

15. An awning, in accordance with claim 12, **characterised in that** the cited structure (4) consists of columns (41) formed by a hollow profile with a "L"

shaped transversal section, with the said rolling tube (2) supports (3) secured to the interior face of one of the sections of the said "L" and the said lateral base profiles (33) longitudinally butt welded to the ends of the said sections, so that the said longitudinal mouths (32) of the internal portions (6b) of the guides (6) are facing each other.

16. An awning, in accordance with claim 4, **characterised in that** the said means of power (60) comprises an electric motor (60) mechanically connected to the rolling tube (2), with some means of sensing to detect when the cam followers (12) are at the pre-interlock point (18), in the housing (15), at the pre-escape point (19) or in a position of maximum folding, together with some means of electronic control to invert the direction of rotation of the said motor (60) or detain it in response to signals coming from the said means of sensing.
17. An awning, in accordance with claim 4, **characterised in that** the said means of power (60) comprise an electric motor (60) mechanically connected to the rolling tube (2), with the length of the piece of canvas (1) being such that when the cam followers (12) are at the pre-interlock point (18) or at the pre-escape point (19) the piece of canvas changes from unrolling to rolling without modifying the direction of rotation of the said motor (60), with some means of sensing included to measure the current consumed by the motor, and some means of electronic control to halt the motor (60) in response to signals coming from the said means of sensing.





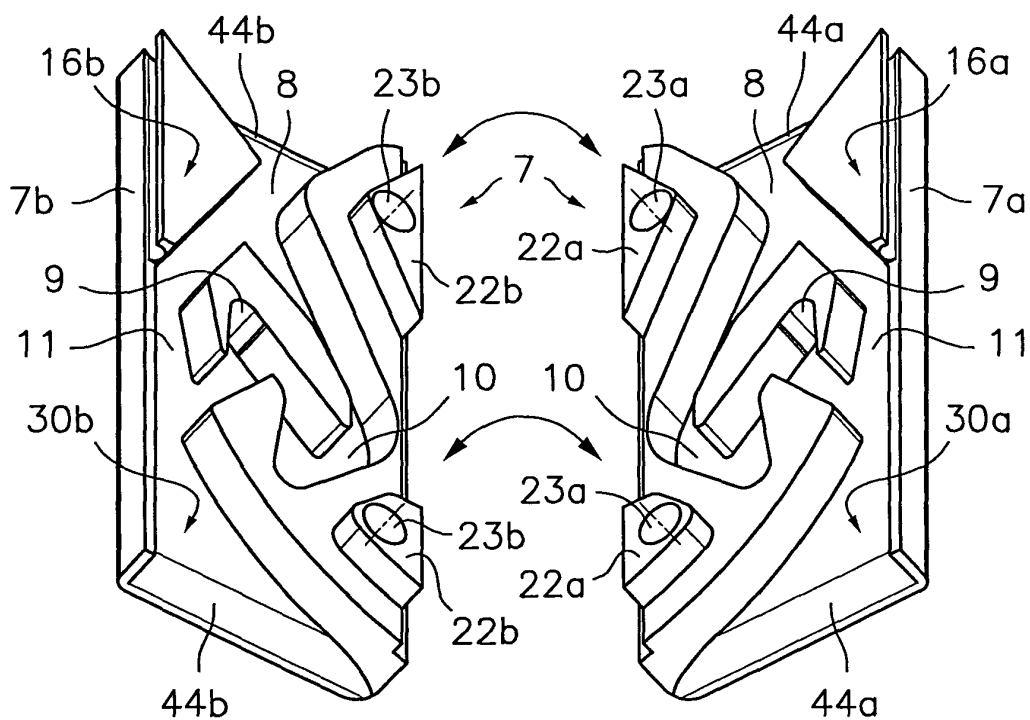


Fig. 4

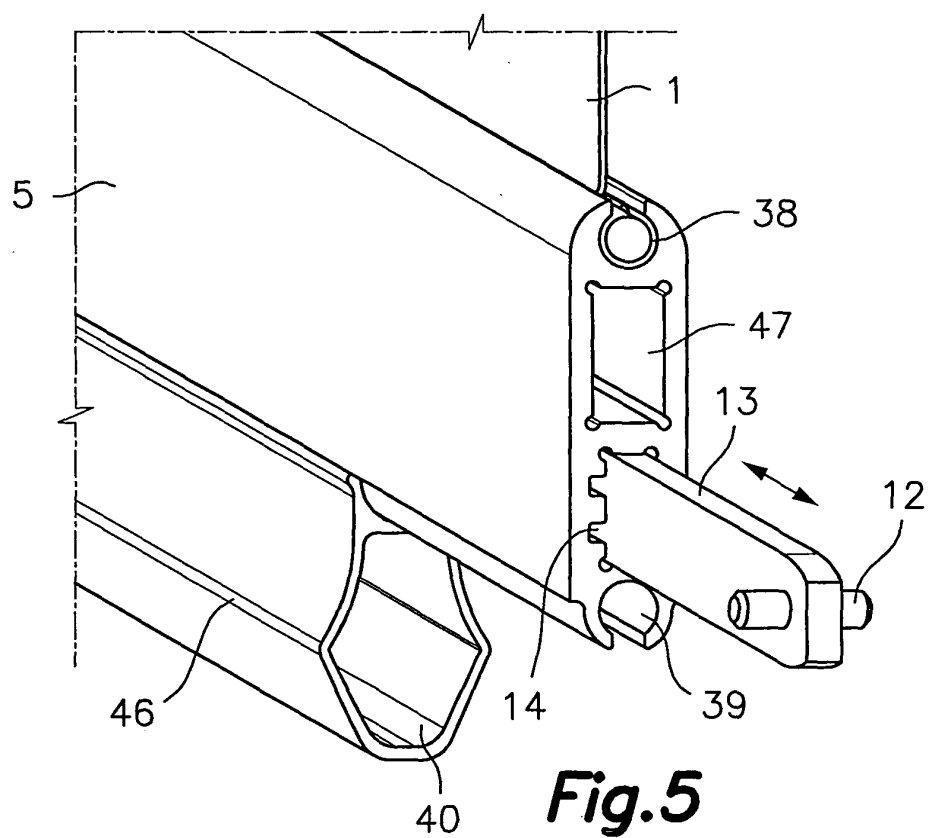


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 2003/000592

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 E04F10/06, E06B9/90		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC 7 e04f10+, e06b9+		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CIBEPAT, EPODOC, PAJ, WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP0315036-A (MARKISSEN)10-05-1989 column 4, line 24, column 19, line 57, figures.	1
A	EP0999319-A(HAROLD INTERNATIONAL N.V)10-05-2000 column 3, line 18 - column 4, line 53, figures.	1
A	EP1223262-A(LASSCHE)17-07-2002 column 2, line 16 - column 3, line 40, figures.	1
A	EP0915214-A(WINDVAST N.V)12-05-1999 column 4, line 26 - column 5, line 53, figures.	1
A	EP1127996-A(RAFFL KURT)29-08-2001 abstract, figures.	1
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
16 March 2004 (16. 03. 2004)		23 March 2004 (23. 03. 2004)
Name and mailing address of the ISA/ S.P.T.O.		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ ES 2003/000592

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0315036 A	10-05-1989	DE 3737707 A	24.05.1989
EP 0999319 A	10.05.2000		
EP 1223262 A	17-07-2002	NL1017112 C	16-07-2002
EP 0915214 A	12.05.1999	NO985031 A NL 1007445 C DE 69818609 D	5-05-1999 06.05.1999 06.11.2003
EP 1127996 A	29.08.2001	ITBZ20000013 A US2002117269 A IT1316124 B	24.08.2001 29.08.2002 28-03-2003

Form PCT/ISA/210 (patent family annex) (July 1992)