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(54) Awning with arms movable in vertical planes

(57) An awning (1) including a generally horizontally arranged head box having an elongate casing (3) and an end cap (13) on each opposite longitudinal end thereof, a pair of generally vertically arranged hinged drop arms (5), one at each opposite side of the head box, a wall attachment member (11) associated with each of the drop arms carrying a fixed pivot (9) for a lower end of the associated drop arm (5) and an elongate front bar (7) extending parallel to the head box and connected at each of its opposite longitudinal ends to a confronting free end of a relevant one of the drop arms, wherein each wall attachment member extends upwardly sufficiently to receive a protruding connector (23) at a confronting longitudinal end of the head box.

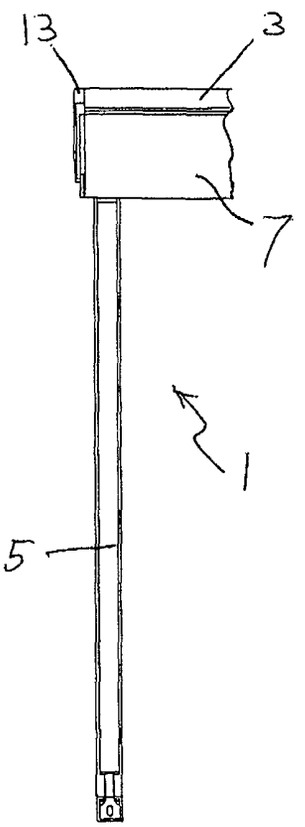

FIG. 1

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Description

[0001] The present invention relates to an awning including: a generally horizontally arranged head box having an elongate casing and an end cap on each opposite longitudinal end thereof; a pair of generally vertically arranged hinged drop arms, one at each opposite side of the head box; a wall attachment member associated with each of the drop arms carrying a fixed pivot for a lower end of the associated drop arm; and an elongate front bar extending parallel to the head box and connected at each of its opposite longitudinal ends to a confronting free end of a relevant one of the drop arms. Such an awning is described in applicant's German patent specification DE 2509071 and has been used with reasonable satisfaction. One problem associated with such awnings is that the head box is individully mounted from the wall attachment members for the drop arms. This has sometimes been objectionable if irregularities in the building surface have required additional adjustments to properly align the drop arm mountings in respect of the head box. This has given rise to additional manual labour and costs.

[0002] Accordingly it is an object of the present invention to overcome or ameliorate at least one of the disadvantages of the prior art. It is also an object of the present invention to provide alternative structures which are less cumbersome in assembly and operation and which moreover can be made relatively inexpensively.

[0003] To this end the present invention provides an awning as described above, but wherein each wall attachment member extends upwardly sufficiently to receive a potruding connector at a confonting longitudinal end of the head box.

[0004] The invention will now be described in reference to one particular embodiment illustrated in the accompanying drawings, in which:

Figure 1 is a partial front elevation of a drop arm awning according to the invention;
Figure 2 is a ghost view from aside of the drop arm awning of Figure 1;
Figure 3 is a ghost view on an enlarged scale of the portion labeled "A" in Figure 2;
Figures 4A through C are various views of a roller casing supporting insert; and
Figures 5A through C are various views of a drop arm end connector for supporting a front bar of an awning according to the invention.

[0005] First referring to Figures 1 there is shown in front elevation the left hand portion of a drop arm awning 1. This is seen as comprising a casing 3 for housing a roller (not shown, but conventional) and a drop arm 5 for supporting a front bar 7. As is conventional the casing 3 and front bar 7 will extend over a width sufficient to protect a window opening and will include a right hand portion with a further drop arm similar to drop arm 5. Such an awning type is generally described in applicant's German patent specification DE 2509071, which is hereby incorporated by reference to represent the skilled persons knowledge not requiring further description.

[0006] Figure 2 is a view from aside the structure shown in Figure 1 and is in the form of a ghost view so as to allow the inner components to be seen. Figure 2 shows the drop arm 5 to be hinged at its lower end by arm pivot 9, which is pivoted to a lower end of a wall attachment rail 11. The wall attachment rail 11 at its upper end carries the roller casing 3, from which the front bar 7 can remove itself when the drop arm 5 is hinged outwardly and downwardly to extend the awning fabric from its roller (not shown, but conventional). The roller is journalled in and end cap 13 mounted to an end of casing 3 and the bearing journal is indicated at 15. The opposite end of the roller would be journalled in a similar manner by an end cap, which is a mirror image of the end cap shown here.

[0007] Now referring in more detail to Figure 3 there is shown a top portion of the wall attachment rail 11 and a co-extensive top portion of drop arm 5 in a retracted position of the awning. The wall mount rail 11 can have a rear web 17, which may have one or more openings 19 along its vertical length for the passage of attachment screws (not shown, but conventional). Casing 3, which conveniently can be in the form of a metal extrusion with a continuous transverse cross-section, is provided at its bottom side with an undercut groove formation 21. A casing supporting insert 23 is slidably engaged in groove formation 21, so as to be adjustably positionable in a direction parallel to the roller axis, lengthwise of casing 3. As seen in Figure 3 the casing supporting insert 23 has a bifurcated lower end, formed by first and second legs 25 and 27, which embrace a fixed cross-pin 29 affixed in the upper end of substantially hollow wall mount rail 11. A bolt 31 engaging the first leg 25 can be inserted from a front side of the wall mount rail 11 and screwed in far enough to deform the second leg 27 so as to tightly engage the cross-pin 29. This arrangement has the advantage, that it is only necessary to mount the wall attachment rails 11 on a vertical building surface. The roller casing 3 can thereafter be positioned atop the wall attachment rails 11 by inserting the case supporting inserts 23 into the open top ends of the wall attachment rails 11. The horizontal spacing of the inserts 23 at the right and left hand ends of the roller casing thereby is not critical as these can be slid in the longitudinally extending undercut groove 21 as required. Thereby also the entire roller casing may be accurately adjusted. The position of the roller journal axis 15 may also be adjusted transversely of the end caps between different positions by using an intermediate journal block 33. The journal block 33 being selectively positionable in a specially shaped recess 35 in the end cap 13. As shown in Figure 3, this provides for two different positions, allowing awning rollers of larger and smaller di-

ameters to share a common set of end caps 13.

[0008] The attachment of the front bar 7 to the drop arms 5 uses an arrangement somewhat similar to that existing between the wall attachment rails 11 and the roller casing 3. The front bar 7 is conveniently also provided in the form of a metal extrusion 37 with a backwardly inclined groove 39 in which engages a hooklike protrusion 41 of end connector 43. Once engaged in the groove 39 the end connector 43 can be secured to the front bar extrusion 37 by means of plate member 45 and screw 47. End connector 43 has a lower end of generally bifurcated configuration, defined by a first leg 49 and a second leg 51. Here the drop arm 5 has a longitudinal inner channel 53 in which a nut 55 may be retained. A fixation bolt 57 is passed through a hole in the first leg 49 so as to firmly attach this to the drop arm 15 by means of the nut 55. It is not critical whether the end connector 43 is first attached to the front bar 7 or to the drop arm 5. If connected first to the drop arm 5, then it may be necessary to extend the awning material to some extent to allow the attachment of the plate member 45 and the screw 47. The same would also apply if the connection to the drop arm 5 would be made last, as then the fixation bolt 57 has its head reachable through an opening 59 at the rear of the drop arm 5. However this is not obligatory as the skilled person will recognize that the mounting bolt 57 may alternatively be arranged to be reachable from the front, if a front opening would not be objectionable from an aesthetic point of view.

[0009] Figure 4A is a perspective view of the casing supporting insert 23, showing a U-shaped recess 61 in the first leg 27 and a screw threaded bore 63 in the second leg 29. Also shown in Figure 4A is a dove tail shape head portion 65 for engagement in the undercut groove 21 of the casing body 3.

[0010] Figure 4B is a side elevation of the supporting insert 27 and Figure 4C is a front elevation thereof.

[0011] Figure 5A is a perspective view of the end connector 43 for connecting the front bar 7 to the drop arm 5. The end connector has a first leg 49 with an opening 67 for the passage of mounting bolt 57. The opening 67 is unthreaded .

The second leg 51 of end connector 43 is seen to be provided with the somewhat larger opening 59 which allows the head portion of mounting bolt 57 to pass therethrough. The opening 59 also allows the subsequent insertion of a tool, such as an allen wrench to turn the fixation bolt 57. A top portion 69 which extends from the drop arm 5 after mounting therein is provided with a top surface 71 which is complementary to portion of the outer surface of the front bar 7 when the protrusion 41 is engaged in the rearwardly inclined groove 39. The top portion also has a recess 73 for the accommodation of plate member 45 and a threaded bore 75 in which screw 47 can engage. The latter is shown in Figure 5B, which is a side elevation of the end connector 43. Figure 5C is a front elevation of the end connector 43.

[0012] It is thus believed that the operation and construction of the present invention will be apparent from the foregoing description. The term comprising when used in this description or any appended claim should not be construed in an exclusive or exhaustive sense. Features not specifically or explicitly described may be additionally included in the structure according to the invention without deviating from its scope. Within the purview of the skilled person modifications to any of the embodiments herein described are possible and should be considered within the scope of any appended claim.

[0013] Reference to directions being axial, radial or tangential in the above should generally be considered in relation to rotatable or cylindrical bodies of the elements described. Similarly references to longitudinal, transverse or lateral are in respect of the length direction of elements which have an oblong appearance in any of the accompanying drawings. This interpretation is only for ease of reference and should not be construed as a limitation of the shape of such elements. Expressions, such as right, left, horizontal, vertical, upper, lower, top, bottom or the like in reference to this construction are relative to the position as illustrated in the relevant drawing figure and should not be construed to exclude other possible positions.

Claims

1. Awning including:

a generally horizontally arranged head box having an elongate casing and an end cap on each opposite longitudinal end thereof;
a pair of generally vertically arranged hinged drop arms, one at each opposite side of the head box;
a wall attachment member associated with each of the drop arms carrying a fixed pivot for a lower end of the associated drop arm; and
an elongate front bar extending parallel to the head box and connected at each of its opposite longitudinal ends to a confronting free end of a relevant one of the drop arms, wherein each wall attachment member extends upwardly sufficiently to receive a potruding connector at a confonting longitudinal end of the head box.

2. Awning according to claim 1, wherein the protruding connector is connected to the elongate casing.

3. Awning according to claim 2, wherein the protruding connector is a separate element, slidably received in a longitudinal channel along a bottom portion of the casing.

4. Awning according to any one of claims 1-3, wherein the connector has a bifurcated protruding portion for engagement with a top portion of the relevant wall

attachment member.

5. Arrangement of components as herein disclosed and for the purpose as set forth.

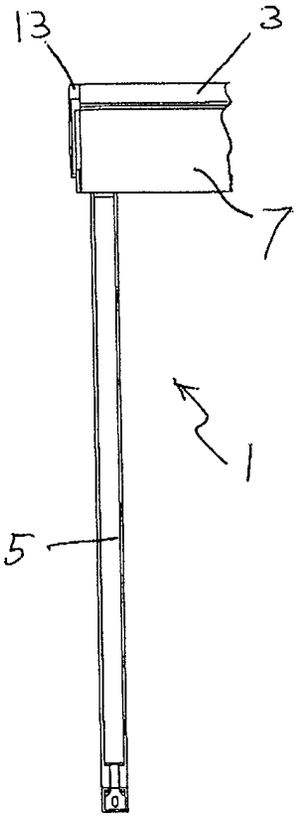

FIG. 1

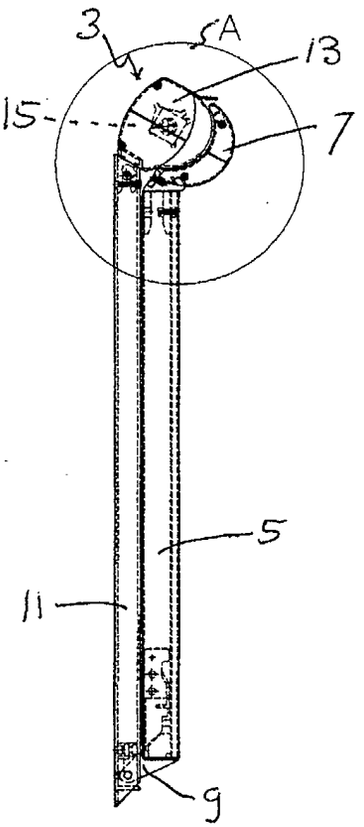

FIG. 2

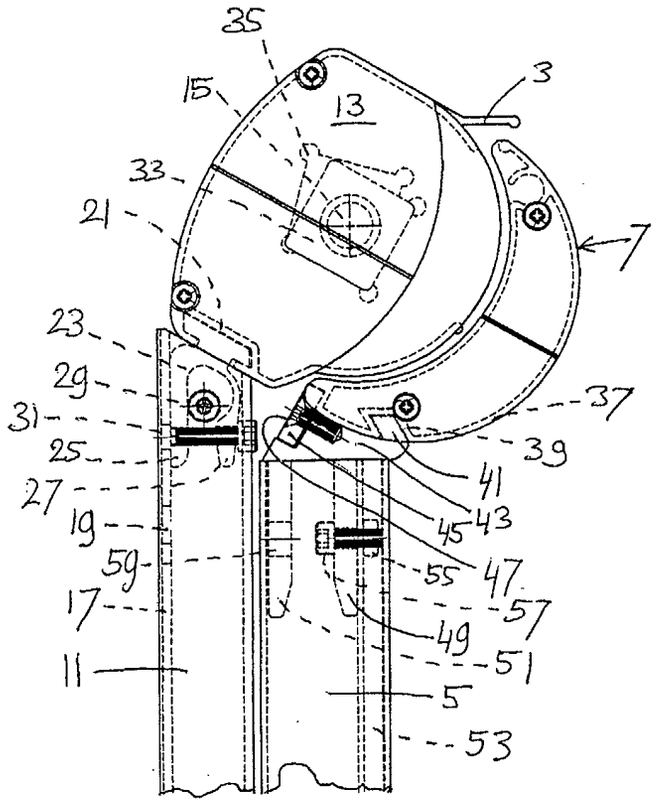
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FIG. 3

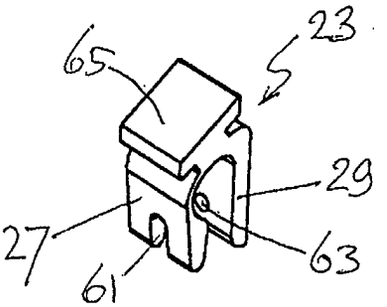

FIG. 4A

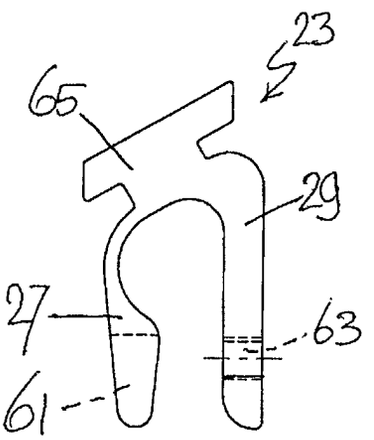

FIG. 4B

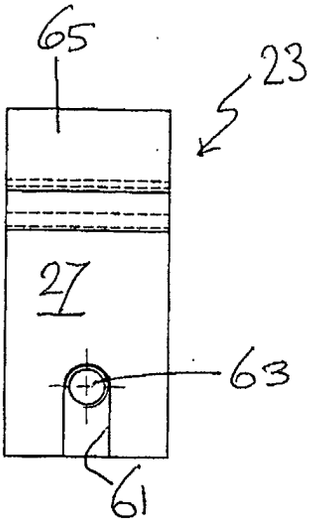

FIG. 4C

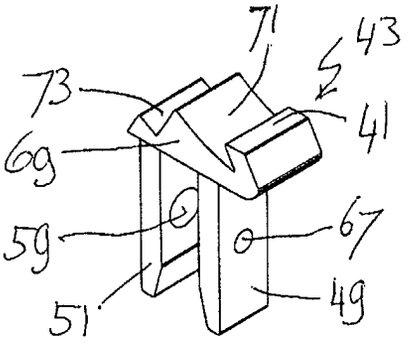

FIG. 5A

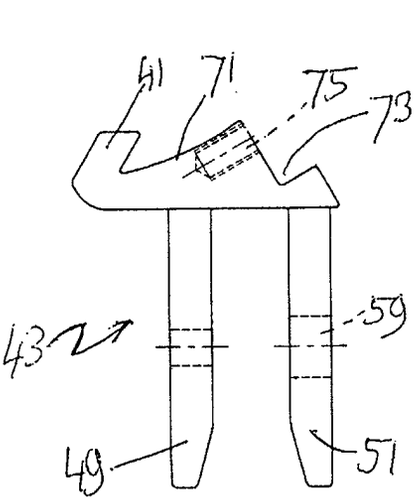

FIG. 5B

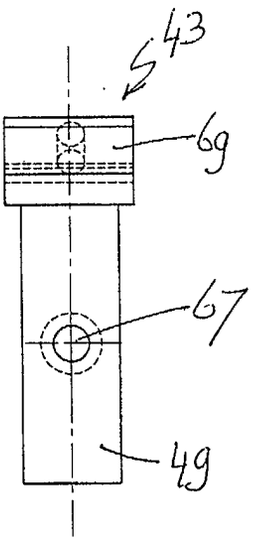

FIG. 5C

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EUROPEAN SEARCH REPORT

Application Number
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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7) E04F B60P

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	21 May 2002	Bouyssy, V

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