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Akers et al.

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[54] **MOTORIZED AWNING CONTROL APPARATUS**

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[52] **U.S. Cl.** ..... **135/5 AT,** 160/68, 160/310

[51] **Int. Cl.** **E04f 10/00**

[58] **Field of Search** ..... 135/5 A, 5 AT, 1 A; 160/45–83, 243, 309, 310

[56] **References Cited**

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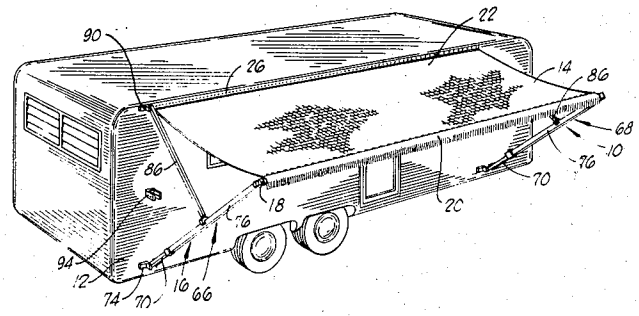
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[57] **ABSTRACT**

An improved awning control apparatus for connection to a support structure wherein the awning is secured to the support structure on one end thereof and to a shaft on the opposite end thereof. The shaft is rollingly supported at one end thereof by a support assembly, having a portion pivotally secured to the support structure and another portion connected to the shaft. The awning control apparatus includes a motor supported within the shaft, having a drive shaft extending from the shaft and secured to a portion of the support assembly, the motor being positioned and connected to rotate the shaft in a releasing direction to releasingly unroll the awning from the shaft and to rotate the shaft in a storing direction to storingly roll the awning about the shaft.

9 Claims, 3 Drawing Figures



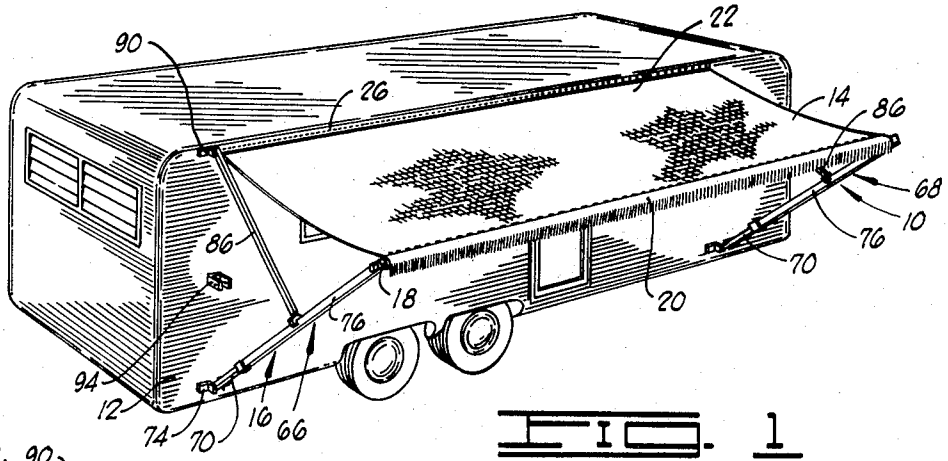


FIG. 1

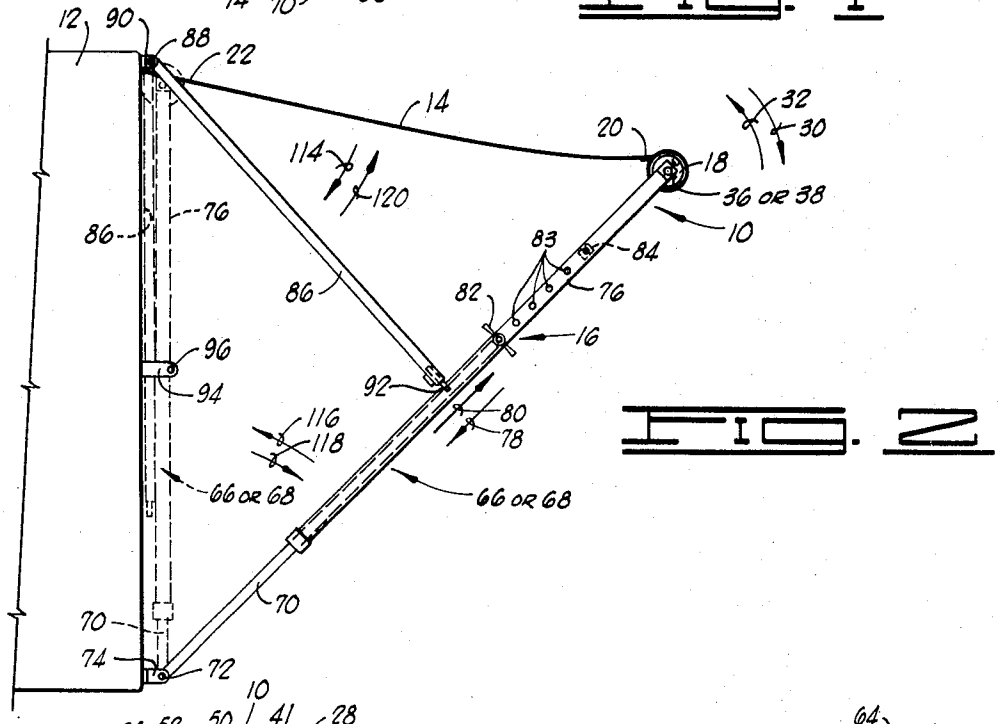


FIG. 2

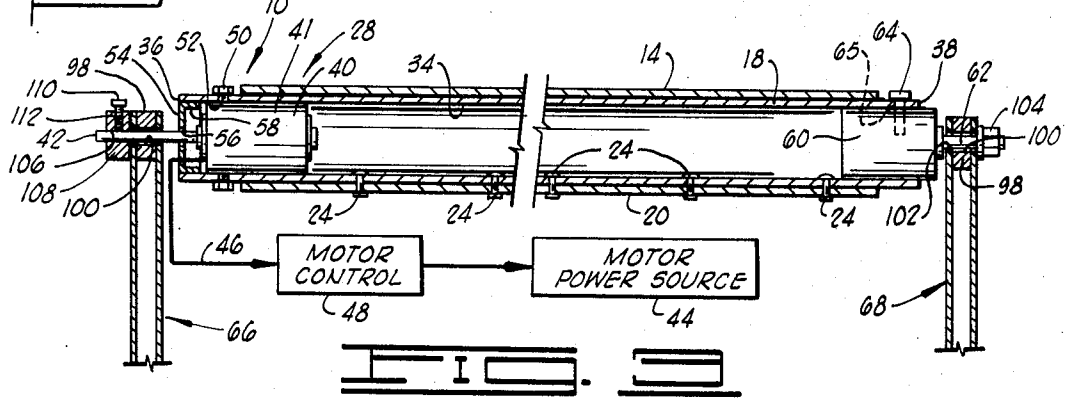


FIG. 3

MOTORIZED AWNING CONTROL APPARATUS

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of the applicants' copending application Ser. No. 108,880,filed Jan. 22, 1971, entitled "Awning Control Apparatus" now U.S. Pat. No. 3,779,302.

BACKGROUND OF THE INVENTION

This invention relates generally to improvements in awning control apparatus, and, more particularly, but not by way of limitation, to awning control apparatus for connection to a support structure having a motor supported in a portion of the awning shaft connected to roll and unroll the awning about a shaft.

DESCRIPTION OF THE PRIOR ART

In the past, various support devices have been developed for supporting an awning in a fully extended position, in a horizontal plane generally above the ground. Some of these support devices have been adapted to be utilized in cooperation with various support structures.

In the past, these supports have generally comprised a plurality of support legs, which were secured to one end of the awning and supported in the ground. The end of the awning opposite the end thereof secured to the support legs was generally attached to the support structure. In this type of support apparatus, it was generally necessary to disconnect the awning from the support legs, remove the support legs to a remote storing location, and roll the awning in some manner to be storingly supported on the support structure. In some instances, the awning was completely disconnected from the support structure, rolled and then stored.

SUMMARY OF THE INVENTION

An object of the invention is to provide an awning control apparatus for supporting an awning in an extended position relative to a support structure which is economical in construction and operation.

Another object of the invention is to provide an awning control apparatus wherein the drive means not only provides the driving impetus to roll and unroll the awning, but also provides the driving impetus to move the support connection to a stored and an operating position, respectively.

A further object of the invention is to provide an awning control apparatus wherein the awning is rolled and unrolled about a shaft in a more uniform and efficient manner.

A an further object of the invention is to provide an awning control apparatus which can be economically and efficiently supported on a camper-type trailer or mobile home support structure.

One other object of the invention is to provide a drive means for an awning control assembly which is substantially protected from the elements during the operation thereof.

Other objects and advantages of the invention will be evident from the following detailed description when read in conjunction with the accompanying drawings which illustrate one preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of an awning control apparatus connected to a camper-type trailer support structure wherein the awning is extended to an operating position with respect to the support structure.

FIG. **2** is an enlarged, side elevational view of the awning control apparatus of FIG. **1**, showing a typical support connector portion of the support assembly and showing the awning in an extended or unrolled position and in a stored position, the support assembly being shown in a stored position in dashed-lines in FIG. **2**.

FIG. **3** is an enlarged partial front elevational, partial sectional view of a portion of the awning control apparatus of FIG. **1**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in general, and to FIG. **1** in particular, shown therein and designated by the general reference numeral **10** is an awning control apparatus which is connected to a support structure **12**, or, more particularly, connected to a camper-trailer **12**. The awning control apparatus **10** is constructed to move an awning **14** to a stored position and to an extended, assembled position, and to support the awning in these positions. The awning control apparatus **10** includes a support assembly **16**, which is connected to the awning **14** via a shaft **18**, and to the support structure **12** such that the awning control apparatus **10**, including the support assembly **16**, is pivoted to a stored position and an operating position as the awning **14** is rolled and unrolled, respectively, about the shaft **18**, in a manner to be described in detail below.

The awning **14** is constructed of a relatively flexible material and has a roll end **20** and a support end **22**. The roll end **20** is securedly connected to the shaft **18** via a plurality of rivets **24**, as shown more clearly in FIG. **3**.

The support end **22** of the awning **14** is connected to the support structure **12** via a bar **26**. In one form, the support end **22** of the awning **14** is removably secured to the support structure **12** and, in this form, the bar **26** includes a hollow portion extending axially therethrough and an axially extending elongated slot which intersects the hollow portion of the bar **26** and extends between the opposite ends of the bar. In this embodiment of the invention, a portion of the awning **14**, generally near the support end **22** thereof, is rolled over a stranded, rope-like member and secured thereabout to form a ridge extending generally along the support end **22** of the awning **14**. The ridged portion of the awning **14**, formed by the rope-like member, is sized to be removably and slidably disposed within the hollow portion of the bar **26**, in a manner described in detail in the applicants' copending application, Ser. No. 108,880, filed Jan. 22, 1971.

The awning control apparatus **10** also includes a drive assembly **28**, which is secured to a portion of the shaft **18**, to rotate the shaft **18** in a storing direction **30**, as shown more clearly in FIG. **2**, to storingly roll the awning **14** about the shaft **18**. The drive assembly **28** is also constructed to rotate the shaft **18** in a releasing direction **32** to releasingly unroll the awning **14** from the shaft **18**. It will be apparent from the foregoing and from the detailed description below, that since the roll end **20** of the awning **14** is secured to the shaft **18** via

the rivets 24, the storing direction 30 and the releasing direction 32 are, more particularly, relative directions. The shaft 18 can thus be rotated clockwise or counterclockwise to storingly roll the awning 14 thereabout, the releasing direction of rotation in either event being generally opposite the storing direction of rotation.

The shaft 18 is generally cylindrically shaped and has an opening 34 extending axially therethrough intersecting the opposite ends 36 and 38 of the shaft 18, as shown more clearly in FIG. 3. The opening 34 is sized to receive a portion of the drive assembly 28, in a manner and for reasons to be made more apparent below.

The drive assembly 28 includes a motor 40, having a motor housing 41 enclosing the various operating components thereof and a drive shaft 42 journally extending through the housing 41 a predetermined distance from one end of the motor 40. The motor 40 is connected to a motor power source 44 via a cable 46. A motor control 48 is interposed between the motor power source 44 and the motor 40, the motor control 48 being positionable in a forward position, a reverse position and an off position in one preferred operational embodiment. The motor control 48 is constructed to establish continuity between the motor 40 and the motor power source 44 in the forward and the reverse positions thereof, and to interrupt continuity therebetween in the off position thereof. The motor 40 is constructed to drivingly rotate the drive shaft 42 in one direction substantially corresponding to the storing direction 30 when the motor control 48 is positioned in the forward position, and to drivingly rotate the drive shaft 42 in an opposite direction substantially corresponding to the releasing direction 32 when the motor control 48 is positioned in the reverse position.

In one preferred form, the motor 40 is, more particularly, an electric motor and is connected to a source of electrical energy represented via the motor power source 44 by electrical conductors comprising the cable 46. In this embodiment, the motor control 48 is a "forward-off-reverse" bi-polarity type of three-position switch, for example, capable of establishing electrical continuity between the motor 40 and the motor power source 44 in the forward position of the motor control 48 with reverse polarity as compared to the polarity of the motor power source 44 when connected to the motor 40 in the reverse position of the motor control 48. Electric motors having drive shafts and constructed to be operated via a "forward-off-reverse" switch type of motor control interposed between the motor and an electrical power source are well-known in the art and a detailed description of the construction and the operation of the motor, the drive shaft and the switch-type of motor control is not required herein.

The motor 40 is disposed within the opening 34 of the shaft 18 generally near the end 36 of the shaft 18 and, more particularly, the motor 40 is securedly connected to the shaft 18 via securing bolts 50 threadably inserted through threaded apertures 52 formed through the shaft 18, one end of each of the securing bolts 50 engaging the motor housing 41 and cooperating to secure the motor 40 in an assembled position connected to the shaft 18. The motor 40 is positioned near the end 36 of the shaft 18 such that, in an assembled position, the drive shaft 42 extends axially a predetermined distance beyond the end 36 of the shaft 18.

A circular cap 54, having a cap opening 56 formed through a central portion thereof, is removably connected to the end 36 of the shaft 18, more particularly, the cap 54 has a flange 58 formed on the outer periphery thereof extending a predetermined distance generally perpendicularly therefrom and circumferentially thereabout. The outer diameter of the cap 54 formed via the outer peripheral surface of the flange 58 is slightly less than the inner diameter of the axial opening 34 of the shaft 18. In an assembled position, the flange 58 of the cap 54 is inserted a distance into the opening 34 of the end 36 of the shaft 18 to a position wherein the cap 54 is removably secured to the shaft 18 and the drive shaft 42 extends through the cap opening 56.

In one preferred embodiment, the flange 58 is sized to sealingly engage the wall formed in the shaft 18 via the axial opening 34. In this last-mentioned embodiment, the outer diameter of the cap 54 formed via the outer peripheral surface of the flange 58 is sized to provide a "press fit" or the like, sealingly engaging the inner peripheral surface formed via the axial opening 34 in the shaft 18, for example.

A cylindrically shaped plug 60 is disposed within the axial opening 34 generally near the end 38 of the shaft 18. A shaft extension 62 is connected to one end of the plug 60 and extends a predetermined distance axially from the central portion of the plug 60. In an assembled condition, the plug 60 is disposed within the opening 34 and positioned therein such that the shaft extension 62 extends a predetermined distance axially beyond the end 38 of the shaft 18. The plug 60 is secured within the shaft 18 via a securing bolt 64 threadably inserted through a threaded aperture 65 formed through a portion of the shaft 18 and intersecting the opening 34 generally near the end 38 of the shaft 18. The securing bolt 64 engages the shaft 18 and the plug 60 securing the plug 60 in an assembled position connected to the shaft 18.

The support assembly 16 includes a pair of support connectors 66 and 68 (the support connectors 66 and 68 sometimes being referred to below as the first support connector 66 and the second support connector 68). The drive shaft 42 of the motor 40 is secured to the support connector 66 and the shaft extension 62 is journally connected to the support connector 68. Thus, in a driven position of the motor 40 when the motor control 48 is positioned in the forward or the reverse position, torque is applied at the drive shaft 42 via the motor 40 causing the motor 40 to rotate relative to the support connector 66 since the drive shaft 42 is secured to the support connector 66. The rotation of the motor 40 is imparted to the shaft 18 due to the connection between the shaft 18 and the motor 40 provided via the securing bolts 50, the end 38 of the shaft 18 being journally connected to the support connector 68 via the shaft extension 62 journally connected to the support connector 68. The direction of rotation of the shaft 18 is controlled via the position of the motor control 48 in a manner described before.

The support connectors 66 and 68 are each constructed similarly and each support connector 66 and 68 includes a rod member 70, having one end thereof pivotally connected to a portion of the support structure 12 via a rod member pin 72 journally connected to and supported by a flange member 74 and a hollow base member 76, each base member 76 having a portion telescoped about a portion of one of the rod mem-

bers 70. Each base member 76 is, more particularly, telescoped about the end of one of the rod members 70, opposite the end of the rod member 70 pivotally connected to the support structure 12, the rod members 70 each being telescoped in a portion of the hollow portion of one of the base members 76. The rod member 70 and the base member 76 of each support connector 66 and 68 are each constructed such that the base members 76 can be telescoped about one of the rod members 70 in a generally downwardly direction 78 and in a generally upwardly direction 80, for reasons which will be made more apparent below.

The support assembly 16 also includes a pair of screw members 82, each screw member 82 having a portion threadedly insertable through one of a plurality of threaded openings 83 formed in the base members 76. The openings 83 are spaced along each base member 76 and the screw members 82 are sized such that each screw member 82 is removably insertable through one of the openings 83 in the base members 76 to a position wherein a portion of each screw member 82 intersects the hollow portion of one of the base members 76. The screw members 82 are, more particularly, positioned with the hollow portions of the base members 76 such that a portion of each screw member 76 engages an adjacent portion of one of the rod members 70 limiting the movement of the rod members 70 in a direction 80 and securing each rod member 70 in a predetermined telescoped position within one of the base members 76, the predetermined telescoped position being selectively adjustable by inserting the screw members 82 in selected openings 83, for reasons which will be made more apparent below.

A stop 84 is disposed within the hollow portion of each of the base members 76, each stop 84 being sized and positioned within one of the base members 76 such that a lower portion thereof engages the end of one of the rod members 70 telescoped in the base members 76 limiting the movement of each rod member 70 in a direction 80 and positioning each rod member 70 in a storing position within one of the base members 76, for reasons to be made more apparent below.

The support assembly 16 also includes a pair of brace members 86. One end of each brace member 86 is pivotally connected to a portion of the support structure 12 via a pin 88 and a flange 90, each flange 90 being secured to the support structure 12. The end of each brace member 86, opposite the end thereof which is pivotally secured to the support structure 12, is removably connected to one of the support connectors 66 and 68 and, more particularly, to one of the base members 76. Each brace member 86 is pivotable to a bracing position, as shown in FIGS. 1 and 2, with respect to the support connectors 66 and 68 to prevent the rotation of the support connectors 66 and 68 in a direction generally toward the support structure 12, for reasons to be made more apparent below.

A member 92 is removably secured to the end of each brace member 86, opposite the end thereof which is pivotally secured to the support structure 12. In one form, each member 92 is constructed of an elastomeric material to reduce sliding friction between each member 92 and the base member 76 in engagement therewith.

The support assembly 16 also includes a pair of C-shaped flanges 94, each flange 94 being secured to a portion of the support structure 12 and positioned thereon to receive one of the brace members 86 and one of the support connectors 66 and 68, in one position of each brace member 86 and each support connector 66 and 68. The support assembly 16 is constructed and positioned on the support structure 12 such that each brace member 86 and each of the support connectors 66 and 68 can be pivoted in a direction generally toward the support structure 12 to a stored position (shown in dashed-lines in FIG. 2), wherein each brace member 86 and each of the support connectors 66 and 68 is disposed generally adjacent the support structure 12 and removably disposed in one of the C-shaped flanges 94. Each brace member 86 and each of the support connectors 66 and 68 is secured in a stored position within one of the C-shaped flanges 94 by a pin 96.

As shown more clearly in FIG. 3, a block 98 is disposed and secured within the hollow portion of each base member 76 and disposed generally near the ends thereof, opposite the end telescopingly receiving one of the rod members 70. An opening 100 is formed through each block 98 and, in an assembled position, each opening 100 is aligned with an opening 102 formed through each of the base members 76.

The shaft extension 62, more particularly, journally extends through the opening 102 in the base member 76 of the support connector 68 and through the opening 100 formed through the block 98 secured within the base member 76 of the support connector 68. The end of the shaft extension 62, opposite the end connected to the plug 60, extends a distance beyond the base member 76 and a nut 104 is secured thereon, the nut 104 engaging the base member 76 and retaining the shaft extension 62 in an assembled position journally extending through the openings 100 and 102.

The drive shaft 42, more particularly, journally extends through the opening 102 in the base member 76 of the support connector 66 and through the opening 100 formed through the block 98 secured within the base member 76 of the support connector 66. The end of the drive shaft 42, opposite the end extending from the motor housing 41, also extends through a portion of an opening 106 formed through a shaft support block 108. The shaft support block 108 is securedly connected to the base member 76 of the support connector 66 and the openings 106, 100, 102 and the cap opening 56.

A bolt 110 is threadedly disposed through a threaded opening 112 formed through a portion of the shaft support block 108, extending generally transversely to the opening 106 and intersecting a portion of the opening 106. The bolt 110 engages a portion of the drive shaft 42 removably securing the drive shaft 42 in a stationary position relative to the shaft support block 108, thereby securedly affixing the drive shaft 42 in a stationary position relative to the support connector 66.

OPERATION OF THE PREFERRED EMBODIMENT

The awning control apparatus 10, described in detail above, is constructed to controllingly and uniformly unroll the awning 14 from about the shaft 18, to an extended or operating position, as shown in FIGS. 1 and 2, and to securedly support the awning 14 in that position. The awning control apparatus 10 also controllingly and uniformly rolls the awning 14 about the shaft 18, to a position wherein the awning control apparatus

10 is securedly supported in a stored position (as shown in dashed-lines in FIG. 2).

To storingly roll the awning 14 about the shaft 18 and to move the awning control apparatus 10 to a stored position, the operator will initially disengage each brace member 86 from the support connectors 66 and 68, and pivot each brace member 86 in a general direction 114 toward the support structure 12, to a position wherein each brace member 86 is disposed generally adjacent the support structure 12 and within the flange members of the C-shaped flanges 94. The operator will then disengage each screw member 82 from the respective rod member 70 in engagement therewith, and telescope each base member 76 in a generally downwardly direction 78 to a position wherein each of the stops 84 limitingly engage the end of one of the rod members 70, thereby positioning each of the support connectors 66 and 68 in a position to be storingly disposed with respect to the support structure 12.

The motor control 48 is then positioned in the forward position establishing continuity between the motor 40 and the motor power source 44 and positioning the motor 40 in a first driven position. In the first driven position of the motor 40, torque is applied at the drive shaft 42 in a direction causing the motor 40 and the shaft 18 connected thereto to be rotated in a storing direction 30 via the interconnections between the motor 40 and the shaft 18 and between the drive shaft 42 and the support connector 66.

As the shaft 18 is rotated in a storing direction 30, the awning 14 will be storingly rolled about the shaft 18 thereby pivotally moving the shaft 18 and each of the support connectors 66 and 68 in a general direction 116 toward the support structure 12. In the extended position of the awning 14, each of the support connectors 66 and 68 and the shaft 18 are disposed such that the natural gravitational forces tend to pivot the shaft 18 and each of the support connectors 66 and 68 in a general direction 118, the weight of the motor 40 supported within the shaft 18 augmenting the pivotal movement in the direction 118. The pivotal movement of each support connector 66 and 68 and the shaft 18 in a general direction 118 is limited by the awning 14 which is secured to the support structure 12 and the shaft 18.

The pivotal tendency of each support connector 66 and 68 in the general direction 118 causes the weight of each support connector 66 and 68 and weight of the shaft 18 to pull the awning 14 in a direction generally away from the support structure 12, thereby maintaining the awning 14 taut as the awning 14 is storingly rolled about the shaft 18. In this manner, the awning 14 is rolled about the shaft 18 in a more efficient and uniform manner. The motor control 48, in one embodiment, may be of a variable speed type so that the operator may regulate the speed with which the awning 14 is rolled and unrolled from about the shaft 18, however, in the preferred embodiment, the motor 40 rotates the shaft 18 at a relatively constant speed, the utilization of the motor 40 resulting not only in an increase in efficiency of operation, but also substantially increasing the uniformity with which the awning 14 is storingly rolled or releasingly unrolled about the shaft 18.

It should also be noted that the motor 40 can be easily stopped to position the awning 14 at various intermediate positions between the extended position and the stored position thereof utilizing the motor control 48, if desired, in some applications. In one embodiment, the motor control 48 is remotely disposed with respect to the motor 40 and the shaft 18 for operating the awning control apparatus 10 from a remote position such as by locating the motor control 48 inside the support structure 12 or on the exterior side wall of the support structure 12 near the awning control apparatus 10, for example.

When the awning 14 has been storingly rolled about the shaft 18, each of the support connectors 66 and 68 and the shaft 18 will have been pivoted in a general direction 116 to a stored position, generally adjacent the support structure 12, as shown in dashed-lines in FIG. 2. In the storing position, each brace member 86 is interposed between one of the support connectors 66 and 68 and the support structure 12, and each brace member 86 and support connectors 66 and 68 are so disposed in one of the C-shaped flanges 94, as shown in dashed-lines in FIG. 2. The pins 96 are then each inserted through each flange 94 to secure the brace members 86 and the support connectors 66 and 68 in a stored position.

To position the awning in the extended position as shown in FIGS. 1 and 2, the operator will initially remove each pin 96 from each C-shaped flange 94 and position the motor control 48 in the reverse position establishing continuity between the motor 40 and the motor power source 44 positioning the motor 40 in a second driven position. In the second driven position of the motor 40, torque is applied at the drive shaft 42 in a direction causing the motor 40 and the shaft 18 connected thereto to be rotated in a releasing direction 32 via the interconnections between the motor 40 and the shaft 18 and between the drive shaft 42 and the support connector 66.

As the awning 14 is releasingly unrolled from the shaft 18, each support connector 66 and 68 and the shaft 18 connected thereto will be pivoted in a general direction 118, to a position wherein the awning 14 is completely unrolled from the shaft 18 in the fully extended position. As previously noted, the motor controls 48 may interrupt continuity between the motor 40 and the power source 44 at any desired position of the awning 14 between the stored position and the extended position, the natural gravitational forces tending to pull the support connectors 66 and 68 and the shaft 18 in a general direction 118 maintaining the awning 14 taut.

When the awning 14 has been unrolled to a predetermined, selected position, the operator will then telescopingly extend each base member 76 in a general direction 80, to a position wherein the awning 14 is extended in a generally horizontal plane above the ground, as shown in FIGS. 1 and 2. Each of the screw members 82 are then threaded through one of the openings 83 in the base members 76 and positioned to securingly engage one of the rod members 70 securing each of the rod members 70 in an assembled position with respect to one of the base members 76.

Each of the brace members 86 is then pivoted in a general direction 120 to a position wherein each member 92 engages a portion of one of the base members 76, thereby preventing the pivotal movement of the support connectors 66 and 68 and the shaft 18 in a general direction 116 and securing the support assembly 16 in an assembled position.

It will be apparent from the foregoing to those skilled in the art, that the awning control apparatus **10**, described above, is constructed to uniformly roll and unroll the awning **14** in a more efficient manner. The various components and assemblies of the awning control apparatus **10** are constructed to cooperate in such a manner that, as the awning **14** is moved to a rolled and an unrolled position, each component and assembly is constructed and positioned to be quickly, conveniently and efficiently secured in a stored or extended position relative to the support structure **12**. It should also be noted that, since the motor **40** is enclosed via the shaft **18** and the cap **54**, the motor **40** is substantially protected from the elements during the operation of the awning control apparatus **10**.

Changes may be made in the construction and arrangement of the parts or elements of the embodiment as disclosed herein without departing from the spirit and the scope of the invention as defined in the following claims.

What is claimed is:

1. Awning control apparatus for connection to a support structure, comprising:

a shaft, having opposite ends and an opening extending a distance axially therethrough intersecting one of the ends thereof;

an awning, having a roll end and a support end, the roll end of the awning connected to the shaft and the support end of the awning connectable to the support structure;

a motor, having a drive shaft extending therefrom, disposed within a portion of the opening in the shaft and the drive shaft extending a distance beyond the end of the shaft intersected via the shaft opening, the motor having a first driven position applying torque to the drive shaft in a direction tending to rotate the shaft in one direction and a second driven position applying torque to the drive shaft in a direction tending to rotate the drive shaft in an opposite direction with respect to the first driven position;

means connected to the shaft and the motor securing the motor to the shaft;

a first support connector having one end portion pivotally connectable to the support structure, generally below the connection between the support structure and the awning;

means connected to the end portion of the first support connector, opposite the end portion of the first support connector connectable to the support structure, and having a portion securedly connecting the drive shaft of the motor to the first support connector, thereby securing the drive shaft in a stationary position relative to the first support connector;

a second support connector having one end portion pivotally connectable to the support structure, generally below the connection between the support structure and the awning;

means having one portion secured to the shaft generally near the end thereof, opposite the end portion of the shaft connected to the motor, and one other portion journally connected to the end of the second support connector, opposite the end portion connectable to the support structure; and

means connected to the motor and having a portion positionable in a forward position positioning the motor in a first driven position rotating the shaft in a storing direction storingly rolling the awning about the shaft and positionable in a reverse position positioning the motor in a second driven position rotating the shaft in a releasing direction releasingly unrolling the awning from the shaft.

2. The apparatus of claim **1** wherein the first and the second support connectors are each defined further to include:

a rod member having one end pivotally connectable to the support structure, generally below the connection between the support structure and the awning; and

a base member having one end portion telescopingly connected to the end of the rod member, opposite the end of the rod member connectable to the support structure, the end of the base member, opposite the end thereof telescopingly connected to the rod member, being connectable to one end portion of the shaft; and

wherein the motor is connected to the shaft and to one of the base members such that the weight of the motor, the shaft and the first and the second support connectors cooperate with the pivotal connection between the first and the second support connectors and the shaft and the end of the first and the second support connectors are pivotally connectable to the support structure to pivotally bias the shaft in a pivotal direction generally away from the support structure maintaining the awning taut.

3. The apparatus of claim **2** wherein each base member includes a hollow opening extending a distance therethrough intersecting the end thereof telescopingly connected to one of the rod members, and wherein the apparatus is defined further to include:

a pair of stops, one stop disposed in the hollow opening of each base member and securedly connected in a predetermined position thereto, each stop engaging the end of the rod member telescoped in the base member limiting the movement of each rod member in one direction with respect to the base member telescopingly connected thereto, the stops cooperatingly positioning the rod members and the base members of the first and the second support connectors in a storing position.

4. The apparatus of claim **2** wherein each base member includes a hollow opening extending a distance therethrough intersecting the end thereof telescopingly connected to one of the rod members, and a plurality of spaced openings formed through each base member intersecting the hollow opening extending through a portion of each base member; and wherein the apparatus is defined further to include:

a pair of screw members, one screw member threadedly insertable through predetermined, selected openings formed through each base member to a position wherein a portion of each screw member is disposed within a portion of the hollow opening of one of the base members and engageable with the end of the rod member telescoped in the base member limiting the movement of each of the rod members in the base members in one direction, the screw members cooperatingly positioning the rod members and the base members in predetermined telescoped positions.

5. The apparatus of claim 1 wherein the means positioning the motor in the first and the second driven positions is defined further to include:

a motor power source connected to the motor;

a motor control interposed between the motor and the motor power source, having a forward position, a reverse position and an off position, the motor control connecting the motor power source to the motor positioning the motor in the first driven position in the forward position of the motor control, connecting the motor power source to the motor positioning the motor in the second driven position in the reverse position of the motor control and interrupting the continuity and disconnecting the motor and the motor power source in the off position of the motor control.

6. The apparatus of claim 1 wherein the means connecting the drive shaft of the motor to the first support connector is defined further to include:

a shaft support block secured to the first support connector, having one opening extending therethrough and another opening extending through a portion thereof intersecting the first-mentioned opening, one end of the drive shaft extending through a portion of the first-mentioned opening and a portion of the drive shaft disposed near the intersection of the first-mentioned and the last-mentioned openings; and

means disposed through the last-mentioned opening in the shaft support block engaging the drive shaft and the shaft support block securing the drive shaft to the shaft support block, thereby securing the drive shaft to the first support connector.

7. The apparatus of claim 1 defined further to include:

a pair of brace members, each brace member having one end pivotally connected to the support structure and the opposite end thereof removably connectable to one of the first and the second support connectors, the braces cooperating to brace the first and the second support connectors in an unrolled position of the awning and in one position of each brace member thereby preventing the rotation of the first and the second support connectors in a direction generally toward the support structure.

8. The apparatus of claim 1 wherein the opening in the shaft is defined further as extending axially therethrough intersecting the opposite end of the shaft, and wherein the means connecting the shaft and the second support connector is defined further to include: a plug disposed in the opening of the shaft generally near one end of the shaft, opposite the end portion connected to the motor; means connected to the shaft and to the plug securedly connecting the shaft and the plug; a shaft extension having one end secured to the plug and the opposite end portion extending a distance beyond the end of the shaft opposite the end of the shaft connected to the motor, a portion of the shaft extension journally connected to a portion of the second support connector; and means connected to the shaft extension and engageable with a portion of the second support connector retaining the shaft extension in an assembled position journally connected to the second support connector.

9. The apparatus of claim 1 defined further to include:

a cap, having a cap opening formed through a portion thereof, a portion of the cap insertable within a portion of the opening in the shaft generally near the end portion of the shaft connected to the motor, the drive shaft extending through the cap opening and the cap substantially encompassing a portion of the opening in the shaft.

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