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AWNING

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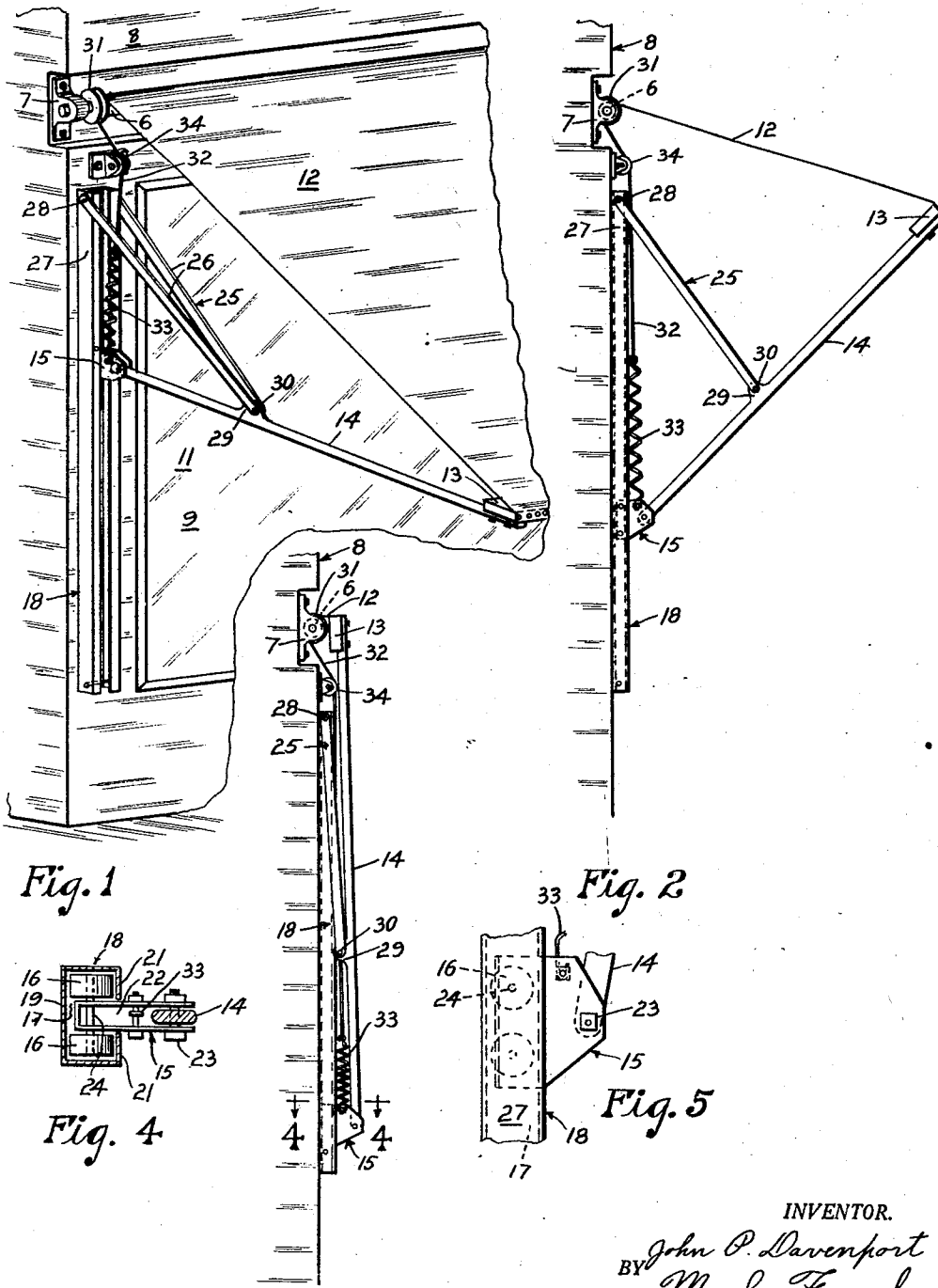


Fig. 1

Fig. 2

Fig. 4

Fig. 5

Fig. 3

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AWNING

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My invention relates to an awning of the roll-up type having a folding frame.

An object of the invention is to provide an awning of the class described with a simple and effective means for maintaining the unrolled portion of the fabric thereof in a tensionally stretched condition, and which at the same time is operative to resiliently urge the frame thereof to assume and maintain either of its fully extended or folded positions in a manner to eliminate the necessity for special fastening means.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the accompanying drawings, in which,

Figure 1 is a fragmentary perspective view of an awning structure incorporating my invention mounted about a window and fully extended.

Figures 2 and 3 are end views of the installation shown in Figure 1 but with the awning disposed in partly extended and folded-up positions respectively.

Figure 4 is an enlarged fragmentary view of a portion of the frame structure taken on the line 4—4 in Figure 3; and

Figure 5 is a side view of the structure shown in Figure 4.

As herewith particularly disclosed, the device of my invention is incorporated with an awning structure including a roller 6 journalled in brackets 7 secured to a wall 8 for disposing the roller above an opening 9. As here shown, the opening 9 is a window opening and is provided with a transparent pane of glass 11. Mounted on the roller 6 is a sheet of fabric 12 having one end thereof secured along the roller and having its outer edge fixed to a stiffening rod or board 13 extending the full width of the awning. Fixed to the board 13 to extend laterally thereof are arms 14, such arms being each provided at their inner ends with a suitable shoe 15 pivotally secured thereto and arranged for a guided movement vertically along the wall 8 at a side of the opening 9.

In the present embodiment of the inven-

tion, the shoe 15 is provided at its wall-engaging portion with a pair of rollers 16 having their axes horizontal, and is disposed in a guideway 17 provided in a member 18 mounted on the wall; the guideway being so shaped that the shoe is confined to a movement longitudinally of the member 18. The member 18 comprises a single strip of sheet metal formed to define a pair of opposed channels for receiving the different shoe rollers, the inner channel webs being common and providing the back 19 of the member, while the outer channel webs 21 define a slot 22 between them to permit the extension of the shoe from the guideway. The body of the shoe 15 it will be noted, is formed of a strip of metal, preferably bent U-shaped, with its free ends extending from the guideway and spanning the arm 14 to which it is secured by a pivot bolt 23, while the inner end of the member thus formed carries a roller shaft 24 for the rollers 16.

Pivoted to the wall at a point thereof adjacent the roller 6 is a link member 25, such member being pivotally secured to the arm 14 at an intermediate point thereof. As here shown, the member 25 comprises a pair of bars 26, such bars being pivotally secured to opposite sides 27 of the member 18 adjacent the top thereof by means of pivot pins 28, while their arm-engaging extremities are disposed on opposite sides of an ear 29 extending from the arm, and are secured to said ear by means of a common pivot pin 30. In this manner, when the awning is fully extended with the arm 14 disposed substantially horizontally, as shown in Figure 1, and the shoe be moved downwardly, the arm 14 will be displaced pivotally about the pin 30 to move the board 13 generally toward the roller 6 to permit the rolling-up of the awning fabric, the limiting position being reached when the arm assumes a substantially vertical position against the wall, as shown in Figure 3. It will, of course, be obvious that when the awning frame is folded against the wall, a pivotal movement of the arm 14 to raise the shoe 15 will effect an outward movement of the board 13 to unroll the awning fabric.

Means are provided for maintaining the extended portion of the awning fabric tensionally stretched between the roller 6 and frame-board 13, and such means comprise the provision of drums 31 mounted on the rollers 6 substantially in line with the guideways of the members 18. Fixed to each drum is a cord 32, which cord is so related to the drum that it becomes rolled thereon as the awning fabric is unfurled and is unrolled from the drum as the awning is furled. In this manner, when the awning is extended, it may be furled by pulling on the various cords as the board 13 is moved toward the roller whereby, if a pull be constantly exerted on the cords, the fabric will maintain a stretched relation between the roller and board, it being clear that if the pull on the cords be great enough, the awning may be folded up by such means. Preferably, however, the raising and lowering of the awning are arranged to be effected by other means and the cords are maintained only at such a tension as will insure a proper tautness of the fabric.

It will now be noted that the desired pull on each cord is preferably arranged to be automatically maintained and that the unrolled portion of the cord becomes longer as the awning is folded up and the shoes 15 move downwardly. Accordingly, the free end of the cord is secured to its corresponding shoe, whereby, as the shoe moves downwardly to effect an inward shifting of the board 13, the cord will tend to operate the roller to roll up the slack provided in the fabric by such shifting of the board. But the simultaneous board and shoe movements do not maintain a fixed ratio, and it is accordingly necessary that the cord be resiliently attached to the shoe, such attachment being here shown effected through a helical tension spring 33. Preferably, the diameter of the drum 31 is such that the spring 33 is under a slight but measurable tension when the shoe is at its lowest point along the guideway, and is at a somewhat greater tension when the awning is extended and the shoe is at its highest position in the guideway.

It will now be noted that the cord 32 is arranged to act through the drum to at all times resiliently urge a furling-up motion of the roller 6, whereby such roller is made to function as a spring-roller. But the novel means by which such a result is accomplished provides features of advantage not found in using spring rollers of the ordinary types, as, for instance, the tensional pull maintained on the shoe whereby it is kept from rattling. Furthermore, it is noted that when the awning is in an intermediate position, the spring 33 is stretched a maximum amount, and that as the awning approaches either its fully-folded or fully-extended position, the spring tension becomes less, so that after such

intermediate position is passed, the spring actually assists in the setting of the parts in their final positions and tends to maintain them in such positions against the action of wind, or the like.

Preferably, and as here shown, a pulley 34 is mounted on the wall adjacent the roller 6, whereby the cord end carrying the spring may be disposed clear of the wall and guide member and will exert its pull generally parallel to the guideway whereby the frictional engagement of the shoe therein may be minimized. While it will be obvious that the device will operate equally well with the usual awning frame structure in which a shoe is provided encircling a guide rod, the hereinbefore described shoe and guideway structure provides no exposed lubricated parts.

The raising and lowering of the awning of my invention may be effected through a direct manipulation of the side arms 14 or by means of a pole providing a hook for engagement with the board 13. Or, if desired, the roller 6 may be directly operated by means of a usual gear-shaft connection without effecting the stabilizing effect of the cord and spring connection between the roller and shoe, it now being obvious that the latter feature is advantageously applicable to a number of awning structures now in use.

From the foregoing description taken in connection with the accompanying drawings the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while I have described the principle of operation, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made, when desired, as fall within the scope of the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent of the United States, the following:

1. In an awning of the class described, a roller, a pulley on said roller, a top fabric furlable on said roller, a folding frame structure including a sliding shoe arranged to be moved in a fixed path with respect to said roller, and a flexible and longitudinally resilient tension member operatively connected directly to said pulley and movable shoe, respectively, for constantly urging a rotation of the roller to furl said fabric thereon.

2. In an awning of the class described, a roller, a top fabric furlable on said roller, a folding frame structure including a sliding shoe arranged to be moved in a fixed path with respect to said roller, and a longitudinally resilient tension member operatively connected directly to said roller and movable shoe, respectively, in tensed condition for constantly urging a furling of the top fabric on

the roller in such manner that the tension therein is a maximum at an intermediate position of said frame.

3. In a roller awning construction, a guide, a slide, an awning arm pivoted to said slide, a roller, a pulley mounted at an end of said roller, a cord secured to said pulley, and a spring secured to said cord at one end and having its opposite end secured to said slide whereby said awning may be furled or unfurled.

4. In a roller awning construction, a roller, means providing a guideway extending toward and from said roller, a slide engaged in said guideway, an awning arm extending from said slide, means including a cord cooperative with and between said roller and slide to urge a furling of said awning on said roller by and upon a movement of the slide away from the roller, an end of said cord being fixed to said roller, and means connected to the other cord end and said slide, respectively, to maintain said cord in tensed relation to the roller and slide while permitting said movement of the slide.

5. In a roller awning construction, a fixed guide, a slide, an awning arm pivoted to said slide, a roller, a top fabric furlable on said roller, a pulley mounted on said roller, a cord having an end thereof arranged to be wound on or unwound from the pulley as the fabric is respectively unfurled from or furled on the roller, and a tension spring connected to the other cord end and said slide, respectively.

6. In a roller awning construction, a fixed guide, a slide engaging said guide, an awning arm pivoted to said slide at an end thereof, a roller, a top fabric furlable on said roller and fixed to said arm at the other end thereof, a link of fixed length having one end pivoted to said arm at an intermediate point thereof and having the other end thereof pivoted at a fixed point with respect to said roller, a cord having an end thereof arranged to be wound on or unwound from the pulley as the fabric is respectively unfurled from or furled on the roller, and means resiliently connecting the other end of said cord with said slide whereby to maintain the said cord tensed between the roller and slide.

7. In an awning of the class described, a roller, a pulley on said roller, a top fabric furlable on said roller, a folding frame structure including a sliding shoe arranged to be moved generally to and from said roller in a fixed path, and a longitudinally resilient tension member connected directly to said pulley and movable shoe, respectively, for simultaneously urging a furling of the fabric on the roller and a movement of the shoe toward the roller.

In testimony whereof, I affix my signature.
JOHN P. DAVENPORT.