Aug. 19, 1947. C. C. WILLIS 2,426,133

AWNING STRUCTURE

Filed Oct. 9, 1945 2 Sheets-Sheet 1

Fig. 1.

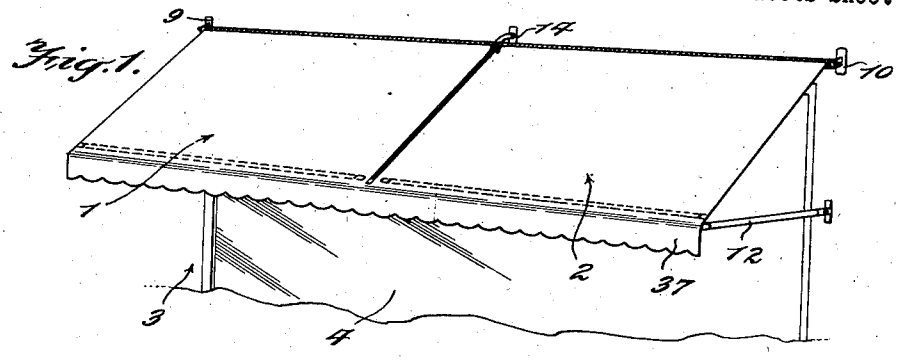
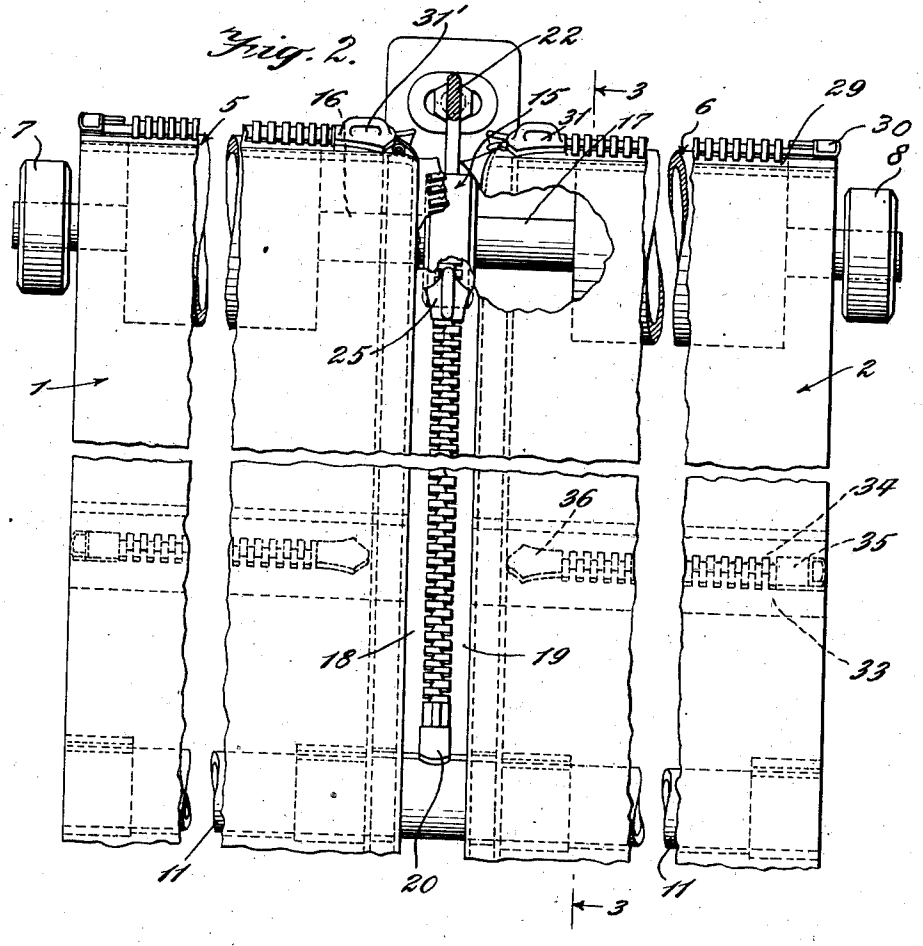


Fig. 2.



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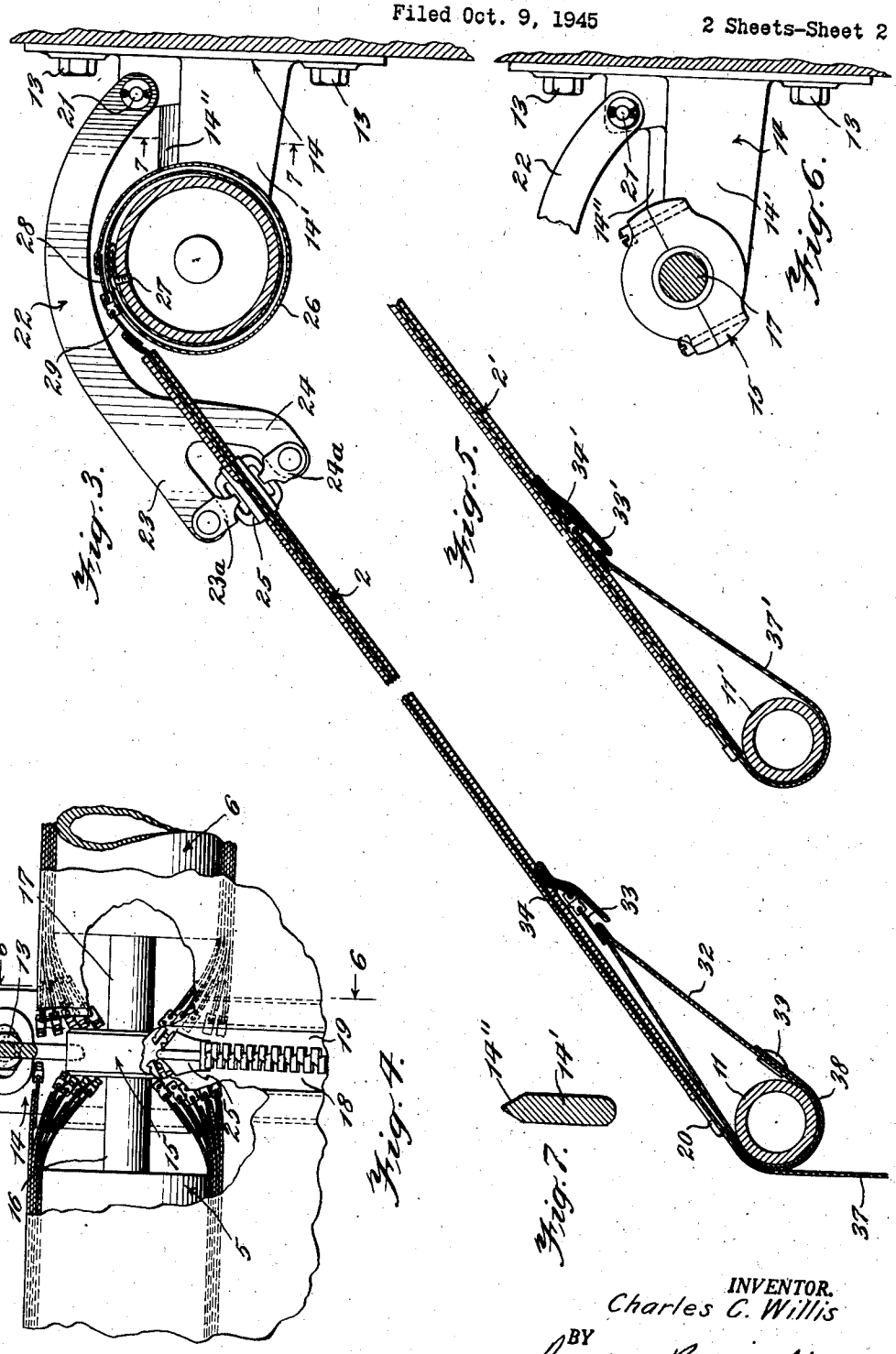


Fig. 3.

Fig. 6.

Fig. 5.

Fig. 4.

Fig. 7.

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AWNING STRUCTURE

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19 Claims. (Cl. 160—54)

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This invention relates to awning structures of the kind commonly employed in front of stores and elsewhere to shield windows from the sun and in which the awnings proper are adapted to be secured to rollers at their upper ends, upon which rollers the awnings are wound when required to be raised. More particularly the invention relates to awning structures of this character which are of such dimensions as to require the use of at least two awning sections.

In the construction of such awnings, as illustrated, for example, in Patent No. 2,060,582, dated November 10, 1936, it has been proposed to unite the separate awning sections by means of slide fastener stringers secured to the proximate edges of the sections, the effort being to produce a closer approximation to the neatness of appearance and general effectiveness which would theoretically result from the use of a single, large, awning section. To this end, separate awning sections have been proposed to be equipped with fastener stringers controlled by a slider so located as to couple and uncouple the stringers as the sections were respectively lowered and raised, thereby to permit each section to be wound up on its own roller.

However, various practical difficulties have been encountered in the construction and operation of such awnings, and it is the primary object of the present invention to meet such difficulties and provide a multiple-section, stringer-equipped awning which can readily be raised and lowered at will, and in which the raised awning sections are properly accommodated on their respective rollers.

With the foregoing and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

In the drawings:

Fig. 1 is a perspective view of an awning assembly according to the invention, shown in lowered position;

Fig. 2 is a much enlarged front elevational view, partially broken out;

Fig. 3 is a sectional view, substantially on the line 3—3 of Fig. 2;

Fig. 4 is a broken out and sectioned view illustrating the awning sections partially wound up on their rollers;

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Fig. 5 is a sectional view, corresponding to the lower end of Fig. 3 but showing a modified construction; and

Fig. 6 illustrates the center bearing construction viewed as on the line 6—6 of Fig. 4.

Fig. 7 is a section (omitting background) on the line 7—7 of Fig. 3.

For purposes of illustration, the invention is shown applied to a two-section awning consisting of left and right hand sections 1 and 2 applied to the front wall 3 of a store so as to overhang the window 4. At their upper ends the sections are suitably secured, as below described, to roller sections generally designated 5 and 6, which roller sections are supported at their outer ends in journals 7, 8 carried by brackets 9, 10 secured to the store front. At their lower ends the awning sections are suitably secured, as below described, to a lower edge bar or pipe 11 which is held away from the store front, in the lowered position of the awning, in any of the well known ways, such as by pivoted arms of which one, marked 12, is indicated in Fig. 1. Such details as the last mentioned, and also the mechanical means employed for rotating the rollers, form no part of the present invention and are therefore not necessary to be described.

Secured to the store front, as by bolts 13 (Fig. 3) is a wall bracket 14 which rigidly supports a bearing, generally designated 15, axially aligned with the rollers 5, 6, the proximate ends of the latter being supported in the bearing by reduced diameter shaft portions 16, 17. Specifically, the bearing is supported on the outer end of an arm 14' which is shown as being beveled along its upper edge 14''. The diameter of the bearing, it will be noted, is less than that of the rollers. Axially of the shaft portions the bearing is held to a minimum width or thickness and each of the rollers 5, 6 terminates a substantial distance short of the sides of the bearing, a distance at least equal to the full width of the slide fastener stringers 18, 19 which are secured to the proximate edges of the awning sections. By reason of the described arrangement of bearing, shaft portions and rollers, it will be apparent that around each shaft portion, on each side of the bearing, there is provided a space of substantial width, that is, in a direction axially of the rollers.

The fastener elements with which the stringers are equipped may be of any well known or desired construction, the awning sections preferably being rendered completely separable as by the use of one of the familiar forms of so-called pin-and-box end stop, such as indicated generally at

20. Also supported by the wall bracket 14, by a suitable pivot 21, is a bifurcated arm 22 which overhangs the bearing 15 and has its upper limb 23 extending above and its lower limb 24 extending below the plane of the awning sections; and suspended between the ends of the limbs 23, 24, as by means of clip members 23a, 24a, is a slider 25 which serves to couple and uncouple the fastener stringers as the latter are drawn through the slider in lowering or raising the awning. So located and supported, the slider is found to operate very smoothly over the fastener elements.

When the rollers are rotated to raise the awning sections, the slider uncouples the stringers and tends to direct them somewhat laterally, or away from each other; and as the uncoupled stringers pass around behind the rollers they are compelled to separate when they encounter the upper beveled edge 14'' of arm 14'. As the awning sections are wrapped around the rollers, the proximate edges of the sections carrying the relatively thick fastener stringers are flexed into the described spaces by the building up of the successive awning layers, substantially as illustrated in Fig. 4 of the drawings in which the awning is partially rolled up. Due to the fact that the bearing diameter is less than that of the rollers, there is no undue build up of thickness even of the outer layers prior to their being tucked into the described spaces around the shaft sections; and, in the result it is possible to roll up the awning sections smoothly and without difficulty or strain on the awnings or stringers and without the thickness of any part of the rolled up stringer edges building up to the point of interfering with the raising operation.

In the illustrated preferred form of the invention the two awning sections are adapted for separate removal, as for individual replacement and to this end are detachably secured, both to their rollers and to the lower edge bar, by means of upper and lower slide fastener stringers.

To each of the rollers there is permanently secured a short length of awning or like material, one such length, marked 26, being illustrated in Fig. 3 where it is shown secured to the roller by screw 27. Since the mounting of the two awning sections is identical, the description of one will serve for both. The free edge of the material 26 carries a slide fastener stringer 28, the fastener elements of which are adapted to interlock with the elements of a companion stringer 29 secured to the upper edge of one of the awning sections, section 2 in this instance. These stringers are united at their outer ends by a pin-and-box or other suitable detachable end stop 30, providing for complete separation of the awning section from the mounting material 26, and are adapted to be coupled and uncoupled by a slider 31 which also overlies the space between the bearing and the adjacent roller. Thus, when the awning is raised, the slider 31 can also be accommodated in such space. As illustrated, the other awning section, 1, is similarly secured to its roller, the separation of its fastener stringers being controlled by a similar slider 31'.

To the lower edge bar 11 there is secured a strip of fabric in the form of a loop 32 which at its free or upper end carries a slide fastener stringer 33 adapted for coupling engagement with a stringer 34 secured to the underside of awning section 2 toward but spaced from its lower edge. As before, these stringers are adapted for complete separation by the use of a pin-and-box or similar separable end stop 35 and are coupled and uncoupled by a slider 36. The other awning section, 1, is similarly detachably secured to bar 11. As shown in Fig. 3, the extreme lower margin 37 of the awning section may hang free over the bar 11 to form a decorative edge, as is common, so much of the awning section as is below the stringer 34 being held in place by a flap of material 38 stitched to the awning section adjacent the bar and itself secured to material 32 as by snap-fasteners 39.

It will thus be apparent that by the uncoupling of the appropriate stringers, either awning section can be bodily removed, as for replacement, without disturbing the other; and, by the same token, both sections are readily removable, as for storage or whenever desired.

Fig. 5 serves merely to illustrate an alternative method of securing the lower edge of an awning section 2' to the lower edge bar 11'. In this form the lower marginal portion 37' of the awning section itself is wrapped around the bar and at its free edge carries a fastener stringer 33' adapted for coupling engagement with a stringer 34' secured (like the stringer 34) to the underside of the awning section. The uncoupling of the lower edge of the awning section is effected, as before, by a suitable slider (not shown).

It will be understood that the identification of the shaft sections 16, 17 as separate elements is for convenience of description only. As actually constructed, it is preferable to use a single, central shaft extending clear through the bearing and projecting from each side of it (as illustrated) and to support the rollers on the ends of this shaft, as by plugs inserted in the ends of the rollers. Thus, the rollers and their shaft actually function as a single unit.

The principles of the invention will be apparent from the foregoing and in the light of the description of the embodiments shown in the drawings to exemplify such principles, the following is claimed:

1. In an awning structure, the combination with a wall bracket, a bearing supported thereby, a rotatable roller on each side of the bearing axially aligned therewith, shaft portions of a diameter substantially less than that of the rollers supporting the proximate ends of the rollers in said bearing, awning sections secured to the rollers, and slide fastener stringers secured to the proximate edges of the awning sections, of a bifurcated arm pivotally supported on the wall bracket and overhanging the bearing with one portion of the arm extending above and the other portion of the arm extending below the plane of the awning sections, each of the proximate ends of the rollers terminating short of the bearing by an amount at least equal to the width of the said stringers, thereby forming a space of substantial width around the shaft portions and intermediate the sides of the bearing and each of the adjacent roller ends, and a slider for coupling and uncoupling the stringers when the awning sections are lowered and raised, respectively, the said slider being mounted between the upper and lower portions of the bifurcated arm.

2. In an awning structure, the combination with a wall bracket, a bearing supported thereby, a rotatable roller on each side of the bearing axially aligned therewith, shaft portions of a diameter substantially less than that of the rollers supporting the proximate ends of the rollers in said bearing, awning sections secured to the rollers, and slide fastener stringers secured to the proximate edges of the awning sections, of a bi-

furcated arm supported on the wall bracket and overhanging the bearing with one portion of the arm extending above and the other portion of the arm extending below the plane of the awning sections, each of the proximate ends of the rollers terminating short of the bearing by an amount at least equal to the width of the said stringers, thereby forming a space of substantial width around the shaft portions and intermediate the sides of the bearing and each of the adjacent roller ends, and a slider for coupling and uncoupling the stringers when the awning sections are lowered and raised, respectively, the said slider being mounted between the upper and lower portions of the bifurcated arm.

3. In an awning structure, the combination with a wall bracket, a bearing supported thereby, a rotatable roller on each side of the bearing axially aligned therewith, shaft portions of a diameter substantially less than that of the rollers supporting the proximate ends of the rollers in said bearing, awning sections secured to the rollers, and slide fastener stringers secured to the proximate edges of the awning sections, of a bifurcated arm supported on the wall bracket with one portion of the arm adapted to extend above and the other portion of the arm below the plane of the awning sections, each of the proximate ends of the rollers terminating short of the bearing by an amount at least equal to the width of the said stringers, thereby forming a space of substantial width around the shaft portions and intermediate the sides of the bearing and each of the adjacent roller ends, and a slider for coupling and uncoupling the stringers when the awning sections are lowered and raised, respectively, the said slider being mounted between the upper and lower portions of the bifurcated arm.

4. In an awning structure, the combination with a wall bracket, a bearing supported thereby, a rotatable roller on each side of the bearing axially aligned therewith, shaft portions of a diameter substantially less than that of the rollers supporting the proximate ends of the rollers in said bearing, awning sections secured to the rollers, and slide fastener stringers secured to the proximate edges of the awning sections, of a bifurcated arm supported with freedom for movement relatively to the wall bracket with one portion of the arm adapted to extend above and the other portion of the arm below the plane of the awning sections, each of the proximate ends of the rollers terminating short of the bearing by an amount at least equal to the width of the said stringers, thereby forming a space of substantial width around the shaft portions and intermediate the sides of the bearing and each of the adjacent roller ends, and a slider for coupling and uncoupling the stringers when the awning sections are lowered and raised, respectively, the said slider being mounted between the upper and lower portions of the bifurcated arm.

5. In an awning structure, the combination with a wall bracket, a bearing supported thereby, a rotatable roller on each side of the bearing axially aligned therewith, shaft portions of a diameter substantially less than that of the rollers supporting the proximate ends of the rollers in said beading, awning sections secured to the rollers, and slide fastener stringers secured to the proximate edges of the awning sections, of an arm pivotally supported on the wall bracket, each of the proximate ends of the rollers terminating short of the bearing by an amount at least equal to the width of the said stringers, thereby

forming a space of substantial width around the shaft portions and intermediate the sides of the bearing and each of the adjacent roller ends, and a slider for coupling and uncoupling the stringers when the awning sections are lowered and raised, respectively, the said slider being mounted on the said pivoted arm.

6. In an awning structure, the combination with a wall bracket, a bearing supported thereby, a rotatable roller on each side of the bearing axially aligned therewith, shaft portions of a diameter substantially less than that of the rollers supporting the proximate ends of the rollers in said bearing, awning sections secured to the rollers, and slide fastener stringers secured to the proximate edges of the awning sections, of an arm supported on the wall bracket, each of the proximate ends of the rollers terminating short of the bearing by an amount at least equal to the width of the said stringers, thereby forming a space of substantial width around the shaft portions and intermediate the sides of the bearing and each of the adjacent roller ends, said arm overhanging said space and a slider for coupling and uncoupling the stringers when the awning sections are lowered and raised, respectively, the said slider being mounted on the said arm and adapted to guide the fastener stringers toward the said spaces as the awning sections are wound on the rollers.

7. In an awning structure of the kind including coaxially arranged rollers having awning sections secured thereto and slide fastener stringers secured to the proximate edges of the sections, and a bearing located between the adjacent ends of the rollers: a shaft portion of a diameter substantially less than that of the rollers and of a length at least equal to the width of a stringer, supporting each of the adjacent roller ends in said bearing and thereby forming a storage pocket for each stringer when the stringers are separated and the awning sections wound on their respective rollers.

8. In an awning structure of the character described, the combination of a wall bracket, a bearing supported thereby, a bifurcated arm pivotally supported on the bracket and extending outwardly therefrom beyond the bearing, and upper and lower slider supporting means carried by the respective portions of the bifurcated arm.

9. In an awning structure of the character described, the combination of a wall bracket, a bearing supported thereby, a bifurcated arm supported on said bracket with freedom for movement relatively to the bracket and extending outwardly therefrom adjacent the bearing, and upper and lower slider supporting means carried by the respective portions of the bifurcated arm.

10. In an awning structure of the character described, the combination of a wall bracket, a bearing supported thereby, a bifurcated arm supported on the bracket adjacent the bearing, and upper and lower slider supporting means carried by the respective portions of the bifurcated arm.

11. In an awning structure of the kind including coaxially arranged rollers having awning sections secured thereto and slide fastener stringers secured to the proximate edges of the sections, and a bearing located between the adjacent ends of the rollers: a slider for said stringers located adjacent the bearing and means for supporting the slider both from beneath and from above the plane of the awning sections.

12. In an awning structure of the character described, the combination of a pair of coaxially

arranged rollers, upper awning mounting sections attached thereto, slide fastener stringers secured to the free edges of the upper awning mounting sections, awning sections having slide fastener stringers secured to the upper edges thereof for coupling engagement with the stringers of the upper awning mounting sections, additional stringers secured to the proximate edges of the awning sections for coupling engagement with each other, a lower edge awning bar, lower slide fastener stringers secured to the under sides of the awning sections adjacent and substantially parallel to the said bar but spaced therefrom toward the rollers and means for securing each of the awning sections to the said bar for independent removal therefrom including slide fastener stringers adapted for coupling engagement with the said lower slide fastener stringers.

13. In an awning structure of the character described the combination of a pair of coaxially arranged rollers, upper awning mounting sections attached thereto, slide fastener stringers secured to the free edges of the upper awning mounting sections, awning sections having slide fastener stringers secured to the upper edges thereof for coupling engagement with the stringers of the upper awning mounting sections, additional stringers secured to the proximate edges of the awning sections for coupling engagement with each other, lower slide fastener stringers secured to the awning sections adjacent the lower edges thereof, a lower edge awning bar and means for securing each of the awning sections to such bar for independent removal therefrom including slide fastener stringers adapted for coupling engagement with said lower slide fastener stringers.

14. In an awning structure of the character described, the combination of a pair of coaxially arranged rollers, upper awning mounting sections attached thereto, slide fastener stringers secured to the free edges of the upper awning mounting sections, awning sections having slide fastener stringers secured to the upper edges thereof for coupling engagement with the stringers of the upper awning mounting sections, additional stringers secured to the proximate edges of the awning sections for coupling engagement with each other, lower slide fastener stringers secured to the awning sections adjacent the lower edges thereof, a lower awning bar, lower awning mounting sections attached to the bar, and slide fastener stringers secured to the last-mentioned sections for coupling engagement with the said lower slide fastener stringers of the awning sections.

15. In an awning structure of the character described, the combination of a pair of coaxially arranged rollers, upper awning mounting sections attached thereto, slide fastener stringers secured to the free edges of the upper awning mounting sections, awning sections having slide fastener stringers secured to the upper edges thereof for coupling engagement with the stringers of the upper awning mounting sections, additional stringers secured to the proximate edges of the awning sections for coupling engagement with each other, a lower edge awning bar, lower slide fastener stringers secured to the under sides of the awning sections adjacent and substantially parallel to the said bar but spaced therefrom toward the rollers, said awning sections being

wrapped around the said bar, and means for securing the lower edges of the awning sections relatively to the bar including slide fastener stringers adapted for coupling engagement with the said lower slide fastener stringers.

16. In an awning structure of the character described, the combination of a pair of coaxially arranged rollers, upper awning mounting sections attached thereto, slide fastener stringers secured to the free edges of the upper awning mounting sections, awning sections having slide fastener stringers secured to the upper edges thereof for coupling engagement with the stringers of the upper awning mounting sections, additional stringers secured to the proximate edges of the awning sections for coupling engagement with each other, a lower edge awning bar, lower slide fastener stringers secured to the under sides of the awning sections adjacent and substantially parallel to the said bar but spaced therefrom toward the rollers, said awning sections being wrapped around the said bar, and slide fastener stringers secured to the lower edges of the awning sections for coupling engagement with the said lower slide fastener stringers.

17. The combination of claim 7 in which the said bearing is of a diameter less than that of the said rollers.

18. In an awning structure including a roller and a lower edge bar: the combination of an upper awning mounting section attached to the roller, a slide fastener stringer secured to the free edge of the mounting section, an awning section, a second fastener stringer secured to the upper edge of the awning section for coupling engagement with the mounting section stringer, a third fastener stringer secured to the underside of the awning section, parallel to its upper edge, adjacent but spaced from the lower edge of the awning section, a closed loop of material encircling the lower edge bar and having a portion extending upwardly beneath the awning section, and a fourth stringer secured to said upwardly extending portion and adapted for coupling engagement with said third stringer.

19. In an awning structure including a roller and a lower edge bar: the combination of an upper awning mounting section attached to the roller, a slide fastener stringer secured to the free edge of the mounting section, an awning section, a second fastener stringer secured to the upper edge of the awning section for coupling engagement with the mounting section stringer, a third fastener stringer secured to the underside of the awning section, parallel to its upper edge, adjacent but spaced from the lower edge of the awning section, a fourth stringer adapted for coupling engagement with said third stringer, and means for securing the awning section to the said lower edge bar by said third and fourth stringers.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,928,366	Buckingham	Sept. 26, 1933
1,959,136	Miller	May 15, 1934
1,813,980	Williams	July 14, 1931