Jan. 10, 1961 P. M. G. HECKERMAN 2,967,567

FLEXIBLE SHUTTER TELESCOPING TYPE DOOR AND WINDOW AWNING

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Fig. 1

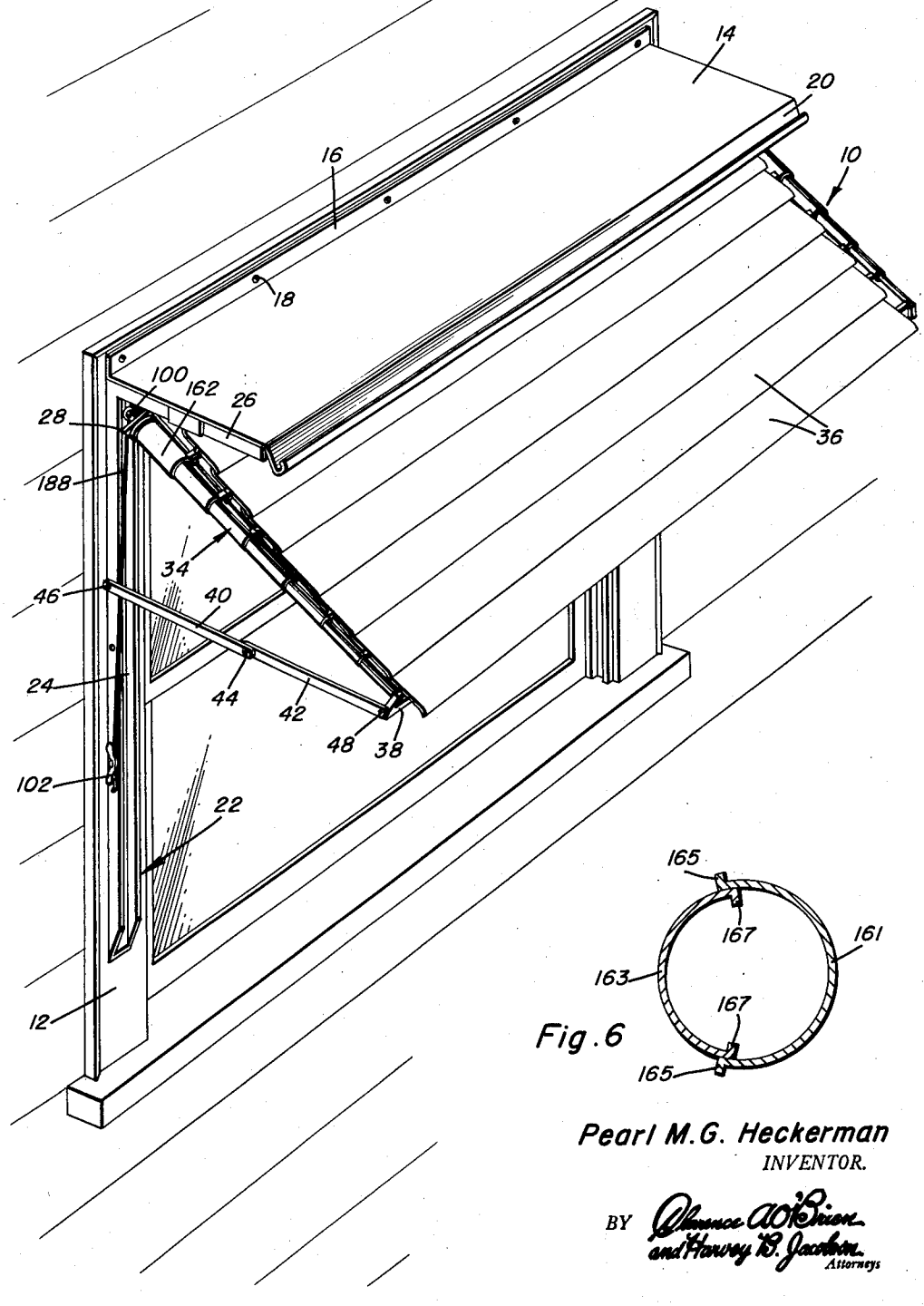


Fig. 6

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FLEXIBLE SHUTTER TELESCOPING TYPE DOOR AND WINDOW AWNING

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Fig. 2

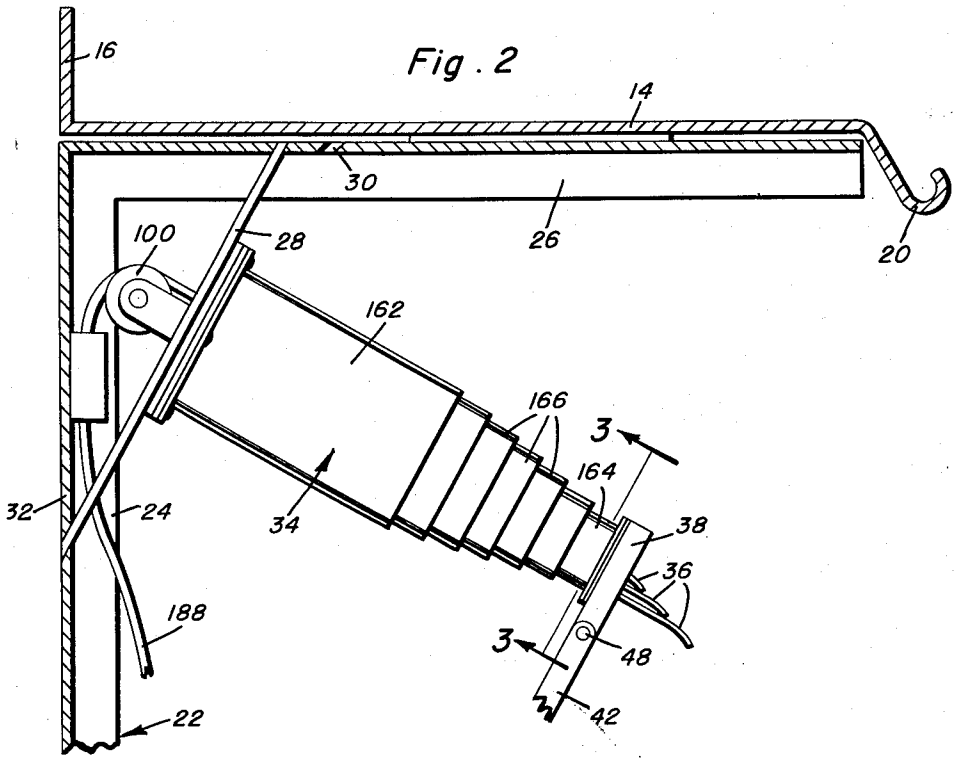


Fig. 3

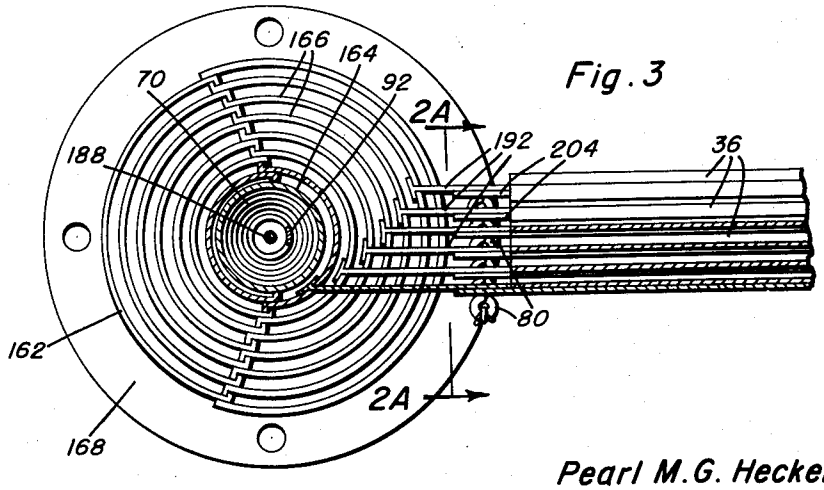
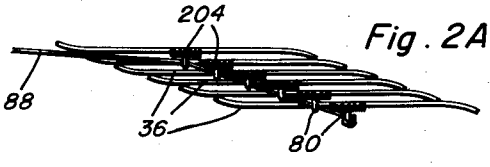


Fig. 2A



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FLEXIBLE SHUTTER TELESCOPING TYPE DOOR AND WINDOW AWNING

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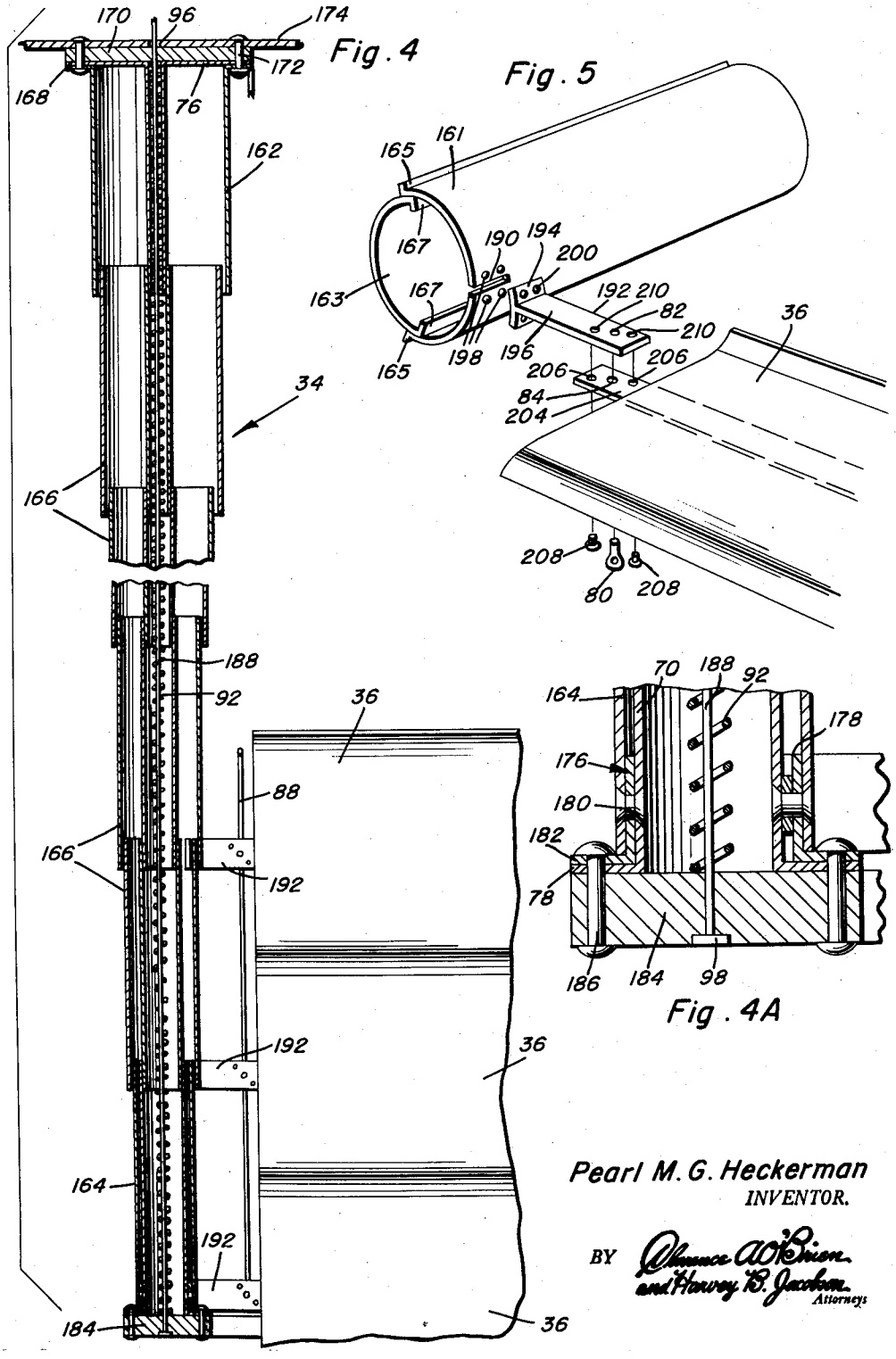


Fig. 4

Fig. 5

Fig. 4A

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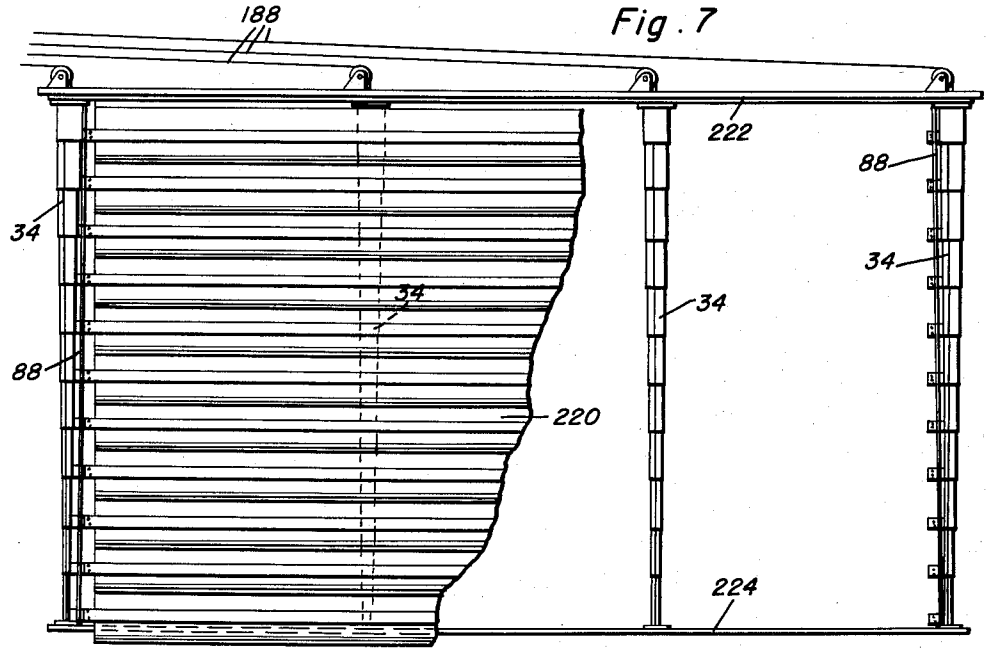
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FLEXIBLE SHUTTER TELESCOPING TYPE DOOR AND WINDOW AWNING

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Fig. 7



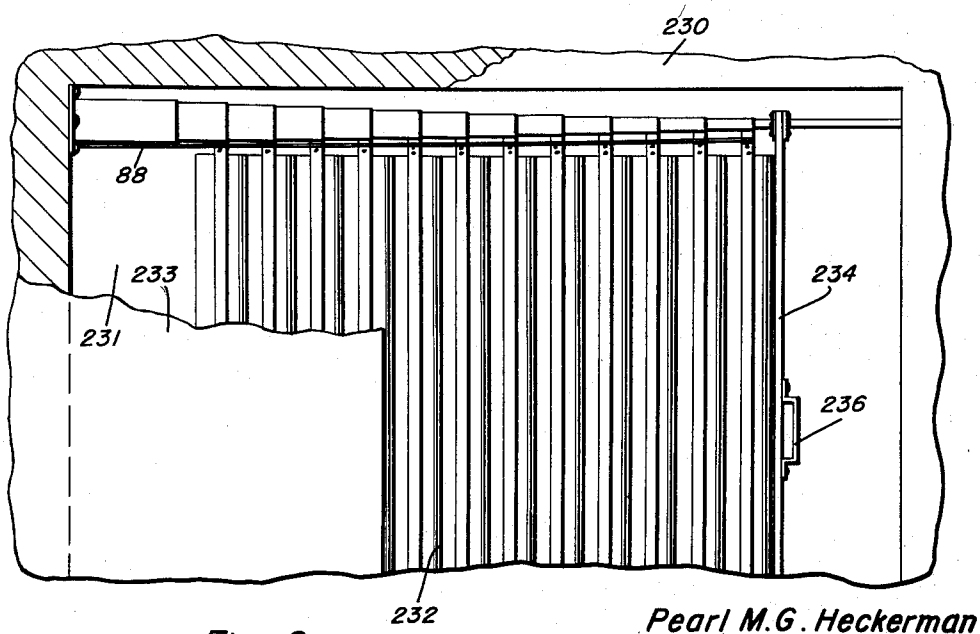


Fig. 8

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FLEXIBLE SHUTTER TELESCOPING TYPE DOOR AND WINDOW AWNING

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Fig. 9

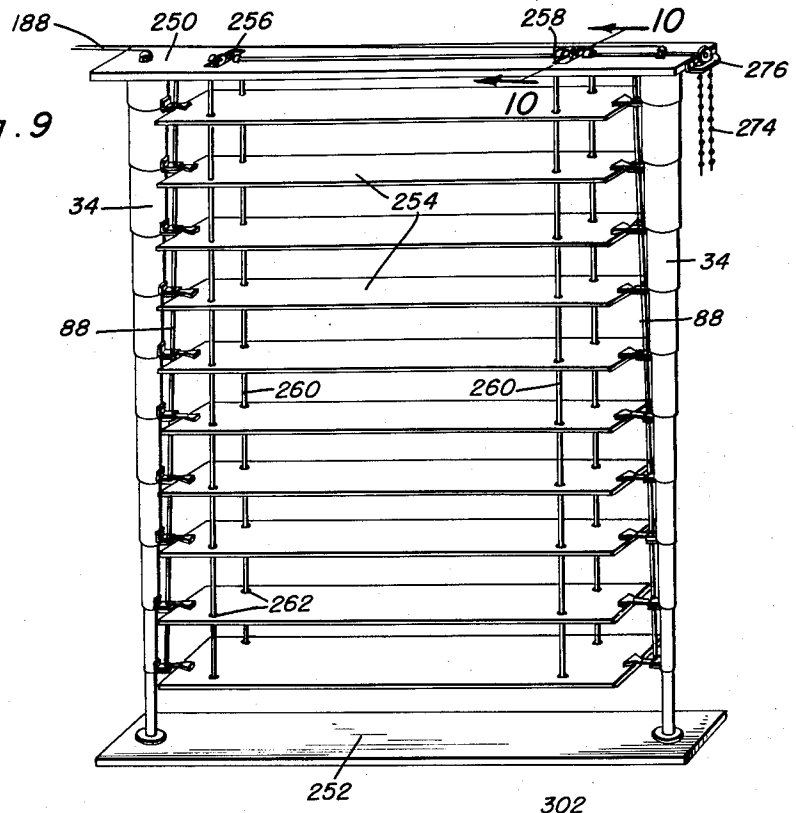


Fig. 10

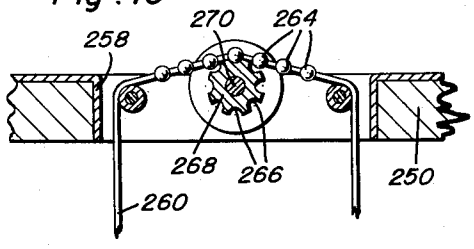


Fig. 11

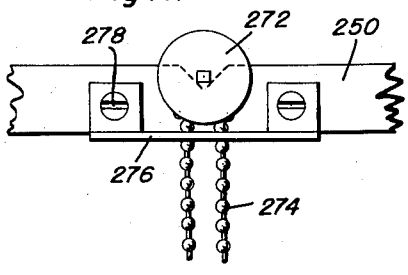
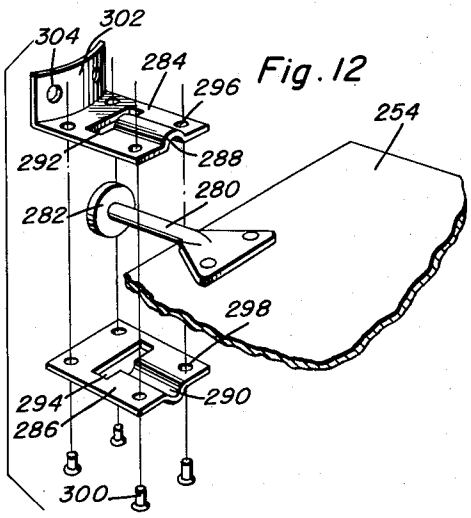


Fig. 12



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United States Patent Office 2,967,567 Patented Jan. 10, 1961

2,967,567

FLEXIBLE SHUTTER TELESCOPING TYPE DOOR AND WINDOW AWNING

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Filed Apr. 1, 1957, Ser. No. 650,009

9 Claims. (Cl. 160—62)

The present application is a continuation-in-part of my prior copending application Serial No. 390,171, filed November 4, 1953 for Flexible Shutter Type Door and Window Awning, now Patent No. 2,794,498, issued June 4, 1957.

This invention comprises novel and useful improvements in a flexible shutter type door and window awning, and more specifically pertains to a novel and advantageous awning of the plural slat type having improved telescoping supporting and bracing means for the same.

The primary object of this invention is to provide an improved collapsible flexible shutter type door and window awning.

A further object of the invention is to provide an improved awning of the collapsible type which can be readily collapsed and stored under a conventional storm cap or hood over a window opening.

A still further object of the invention is to provide an improved collapsible awning having improved means for securing a plurality of awning slats to collapsible support members.

Yet another object of the invention is to provide an awning of the character above set forth and wherein improved means are provided for pivotally securing the slats to the supporting means.

Yet another object of the invention is to provide an awning of the collapsible type having improved means for limiting the expansion or extension of the awning.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of a first embodiment of collapsible telescoping awning in accordance with this invention, the same being shown in its extended position and having telescoping support and brace means for the awning;

Figure 2 is an end elevational view, parts being shown in vertical transverse section, showing the awning of Figure 1 in its collapsed position and compactly disposed beneath the storm cap of the awning;

Figure 2A is a detail view taken substantially upon the plane indicated by the section line 2*a*—2*a* of Figure 3;

Figure 3 is a vertical transverse sectional detail view taken on an enlarged scale substantially upon the plane indicated by the section line 3—3 of Figure 2, parts being broken away, and showing more specifically the manner in which the awning slats are secured to the collapsible telescoping support;

Figure 4 is an enlarged view taken in vertical central section through a portion of the awning and showing in particular the construction of the collapsible telescoping support member and an expansion and collapsing actuating means for the same, certain of the awning slats and their attachment to the telescoping sections of the support being omitted and others being broken away;

Figure 4A is an enlarged view of the lower portion of Figure 4;

Figure 5 is an assembly perspective view, parts being broken away, showing a section of the telescoping support member, a mounting bracket and a slat adapted to be secured to the section by the bracket;

Figure 6 is a transverse sectional detail view through one of the telescoping sections of the collapsible support and showing the cross-sectional shape of the same;

Figure 7 is an elevational view, parts being broken away, of an enlarged awning in accordance with Figure 1 and incorporating therein a plurality of telescoping braces or supports in addition to the telescoping support members;

Figure 8 is an elevational view, parts being broken away and shown in section, of a closure member applied as a horizontally sliding closure for a doorway or the like, the closure being shown in its nearly extended position;

Figure 9 is an elevational view of a venetian blind type of awning or shutter in which the slats are mounted for pivotal or tilting movement;

Figure 10 is a vertical transverse sectional detail view showing the means employed in the construction of Figure 9 for tilting the slats, being taken on the section line 10—10 of Figure 9;

Figure 11 is an end detail view of a portion of Figure 9 showing the manner in which the head or tilting rail of the awning or shutter is manipulated; and

Figure 12 is an exploded perspective view showing the manner in which the slats are pivotally and tiltably mounted by brackets upon the telescoping support means of the awning or shutter.

In general, the principles and improvements of the present invention relate to partitions comprising a plurality of slats which are so associated with each other that they may be selectively extended to form a partition or collapsed into a compact space for convenience in storing; and more specifically pertain to telescoping supports and braces for such partitions to enable the latter to serve as awnings, window shutters, window shades, slidable doors and the like.

The accompanying drawings illustrate the adaptation of the fundamental principles of this invention in a variety of manners, showing different usages for the novel telescoping partition, and various modified forms of telescoping supports for the same and for means whereby the slats are attached to the supports and braces.

Ventilated awning construction of Figures 1–6

Reference is now made first to Figures 1–6 for an illustration of one suitable manner in which the basic principles of this invention are utilized. In this embodiment, it will be seen that the novel collapsible partition indicated generally by the numeral **10** is mounted to serve as a collapsible ventilated awning for a window structure or other opening in a building wall, indicated by the numeral **12**. In this embodiment, it will be further seen that there is provided a substantially horizontal panel **14** constituting a storm cap or a storm shield for the awning and which may conveniently comprise a single strip of sheet material having a vertical flange **16** which is apertured to receive a plurality of fastening screws **18** whereby the storm cap may be mounted above the window structure **12**. At its outer end, it will be seen that the storm cap is provided with a depressed trough-like gutter portion **20** whereby precipitation striking the storm cap will be discharged from the opposite sides of the same.

A pair of L-shaped end members, each indicated generally by the numeral **22**, is provided having vertical legs **24** which are adapted to be secured to the vertical face of the window structure **12** and at their upper ends having integral horizontal legs **26** which are adapted to underlie and support the storm cap **14**. The end members **22** are preferably constructed in the form of a channel member, as will be readily apparent from Figures **1** and **2**.

Adjacent the junction of the vertical and horizontal legs 24 and 26 of the end members 22, there are positioned in each a plurality of slots 30 in the horizontal member 26 and 32 in the vertical member 24, as will be apparent from Figure 2. The plate 28 serves as a base selectively seated in the slots 30 and 32, upon which are fixedly secured and supported telescoping supports or braces indicated generally by the numeral 34 and by means of which the partition member 10 constituting the ventilated metal awning is supported.

The structure of the telescoping supports 34 of this embodiment of the invention is illustrated more particularly in Figures 3–5 and will be referred to hereinafter. These supports carry a plurality of slats 36 which are selectively extended and collapsed as shown in Figures 1 and 2, respectively, to provide the awning structure. At their outer ends, the supports 34 are fixedly attached to a bottom rail 38 and a folding hinged brace consisting of a pair of links 40 and 42, hinged to each other, as at 44, are provided, the links 40 and 42 being respectively pivoted as at 46 to the vertical member 24 and at 48 to the end of the member 38. By means of this construction, when the telescoping support 34 is in its extended position, the hinged brace will likewise be extended, as shown in Figure 1, and the awning will be in its expanded position. However, when the brace is folded and the telescoping member is collapsed, the slats of the awning will be telescoped upon each other, the support rods 34 will be longitudinally collapsed, and the entire awning assembly will be disposed below and in a manner covered and protected by the storm cap or shield 14, as shown in Figure 2.

Referring now more specifically to Figure 4 it will be seen that the telescoping support 34 consists of a plurality of telescoping sleeves, there being provided an inward or base sleeve 162, and end sleeve 164 disposed at the opposite extremity of the telescoping support and a plurality of intermediate sleeves 166 of progressively varying diameter.

The inner or base sleeve 162 is provided with an outturned flange 168 and is mounted upon a plate or stiffening disk 170 and is secured, as by a rivet or the like 172, to a base member 174 which may comprise the base plate 28 or an equivalent for the same.

The outermost sleeve 164 as shown best in Figure 4A is received upon the exterior surface of a collar 176, being secured to the cylindrical flange 178 of the same as by a rivet or other fastener 180. The collar 176 has a horizontally disposed annular flange 182 by which the collar and consequently the outer extremity of the telescoping support 34 is secured by a fastener 186 to a bottom rail or end plate 184, the latter conveniently comprising the previously described bottom rail 38 or an equivalent for the same.

There is also provided a cable 188 which extends through an aperture 96 in the base plate 170, extends through the telescoping sleeves 162, 166 and 164 and extending through the bottom rail 184 is provided with an enlarged head 98. As seen best in Figure 2, the flexible cable 188 after its emergence through the aperture 96 in the base plate 170, is entrained over a guide pulley 100 and passing downwardly through the vertical channel cleat 102 as shown in Figure 1. By this means, the awning may be selectively collapsed into the position shown in Figure 2, or the cable may be released, thereby permitting the compression coil spring 92, which surrounds the cable within the telescoping support 34, to expand the support and consequently the awning 10 into its operative position as in Figure 1.

The spring 92 and the cable 188 are enclosed by a collapsible and extensible guide comprising a plurality of cylindrical telescoping sections 70. The section of the largest diameter is received within and is slightly smaller than the section 164 of the support 34, being secured to the latter and to the flange 178 by the above mentioned fasteners 180 and having an outturned horizontal flange 78 interposed between the base 184 and flange 182 by the fasteners 186. The section 70 of smallest diameter is received within the section 162 and in turn has a horizontal flange 76 attached to the plate 174 by the fasteners 172.

Secured to each of the sleeves of the telescoping support as by welding, riveting or any other suitable manner, are a plurality of support brackets 192, each having an arcuate base 194 and a vertically and laterally extending rib 196 thereon. The plate 194 is received and secured upon the internal or interior surface of the sleeves 162, 166 or 164, with the rib 196 extending through the longitudinal slot 190. By means of registering apertures 193 in the sleeves on the opposite sides of the slots 190, and corresponding apertures 200 in the base 194 of the brackets 192, suitable fasteners may be inserted to secure the bracket to the sleeve with the rib 196 projecting laterally from the exterior surface of the sleeve.

Each of the slats 36 has a medially positioned axially and outwardly projecting strap 204 fixedly secured thereto, which straps are apertured as at 206 for the reception of rivets or fasteners 208 which are engageable in corresponding apertures 210 of the rib 196, whereby each slat may be fixedly secured and carried by a pair of brackets on the corresponding sleeves of a pair of the parallel telescoping supports 34.

As will be best apparent from Figure 3, the ribs 196 of the series of brackets are of progressively varied length, and angularity relative to their bases 194, and the slots 190 of successive sleeves are progressively circumferentially spaced from each other whereby when the support 34 is collapsed, the bracket stems or ribs 196 may be disposed in side by side relation together with the slats 36 carried thereby disposed in overlapping or nested relation as apparent from Figure 2A, and with each of the bracket stems 196 abutting the edge of the next adjacent sleeve.

In order to prevent any tendency of the sleeves to rotate with respect to each other, the sleeves are provided with a cooperating guiding construction. For that purpose, as will be seen from Figures 5 and 6, each of the sleeves is composed of two semi-cylindrical or arcuate sections 161 and 163, having their longitudinal edges provided with outturned and inturned flanges 165 and 167 respectively, the sections being overlapped and welded or otherwise rigidly united to form the complete sleeve. When telescopingly nested, the flanges 165 and 167 of adjacent concentric sections will guidingly and slidingly engage each other thereby preventing relative rotation. This nested relation will be more clearly apparent from Figure 3.

Eyeletted fasteners 80 are secured in aligned apertures 82 and 84 of the bracket stems 196 and the straps 204 to receive a cable or chain 88 which is passed therethrough and has its ends attached to the base plate 172 and the foot rail 184 and serves to limit expansion of the supports and panel.

The slats 36 in cross section are preferably of a flattened S-shape, having the upper edge portions of their top surfaces concaved and their lower edge portion convexed as will be best apparent from Figure 2. By this construction, moisture dropping from the convex edge of an upper slat will drop down upon the concave surface of the next lower slat, and thus will be shed from the lower end of the awning. By this construction there is provided a small but definitely air space between the convex lower edge of an upper slat and the concave upper edge of the next slat therebeneath, thus providing an air space for ventilation between these members.

It may be noted at this point that the embodiment of Figures 1–6 referred to hereinbefore correspond to the form of the invention disclosed in Figures 9–12 of my above identified copending application.

Modified construction of an elongated panel having intermediate braces, of Figure 7

In Figure 7 there is illustrated a somewhat modified construction in which a relatively large partition is provided necessitating the use of a plurality of additional support rods or braces. This panel may be in the form of a window awning, an awning over a doorway, porch or the like. In this form of the invention, the awning member indicated generally by the reference **220** may correspond to the awning member **10** of Figures 1–6, and preferably utilizes the concentric telescoping support member **34**. Accordingly, it will be seen that at its opposite sides, the awning member **200** is provided with a pair of the telescoping tubular supports **34**, secured to a base plate **222** corresponding to the base plate **28**, and to a foot rail **224** corresponding to the previously described foot rail **38**. However, intermediate their ends, the base plate **222** and the foot rail **224** have connected therebetween a plurality of supports **34**. Thus, the relatively long span of the base plate and the foot rail members and the awning member **220** is supported at a plurality of points by the telescoping support **34**. Each of these supports is of course provided with the control cable structure previously described and indicated by the numeral **188**. The telescoping supports as to construction and mounting are preferably of the identical construction set forth in connection with Figures 1–6, and a further description of the same appears to be unnecessary. The stop cable **88** previously described is also utilized.

Modification of Figure 8

In the two preceding embodiments of Figures 1–6 and Figure 7, the articulated partition is illustrated as being mounted for vertical movement to function as a window awning or as a window shutter or closeure. However, the articulated partition can also be mounted for horizontal sliding movement whereby the same will function as a partition for a room, or a closure for a door of the same.

In this construction, there is shown a doorway or other opening **230** and the articulated panel **232** constituting a closure or a horizontally swinging partition for the same. This panel includes an end member **234** corresponding to the previously described bottom or foot rail **38** or **184** of Figures 1–6, this end member being provided with a handle **236** to facilitate horizontal sliding movement of the same. The tubular telescoping support **34** of the construction shown in Figure 4 is mounted horizontally in the doorway opening or construction **230** and has its larger or base end secured within a recess **231** provided behind a partition **233** which receives and stores the panel in its collapsed position and the individual slats making up the part **232** are hungs from the sleeves of the telescoping support **34**, as illustrated. The operation of this form of the invention will be readily understood from the preceding discussion and description relative to Figures 1–6.

In this form of the invention, it is possible in some instances to omit the control cable entirely, and permit the compression spring to yieldingly expand the partition member to close the door opening; or both the spring and cable may be omitted whereby the end rail **234** may be grasped to slide the partition towards the right or left to close or open the doorway as desired. It will be understood that the lower ends of the panel or slats may be secured to another one of the support members **34**, if desired, or may be merely mounted in guides, if desired.

It will be observed that the embodiments of the invention disclosed in Figures 7 and 8 of this application correspond to those forms disclosed as Figures 13 and 14 in my above identified copending application. The limit chain or cable **88** previously described may be omitted if desired.

Modification of Figures 9–12 comprising a Venetian blind

Illustrated in Figures 9–12 is a Venetian blind type of construction in accordance with the principles of this invention, there being provided a means for connecting the slats to the telescoping supports for pivoting or tilting movement in accordance wih the actuation of a Venetian blind. Thus, there is provided a top rail **250** and a bottom rail **252** between which and to which are connected the vertically disposed telescoping supports **34** of Figure 4. The slats **254** which make up the Venetian blind are pivotally connected to the supports **34** for vertical movement therewith in the manner to be set forth hereinafter. The head rail **250** is provided with a pair of transversely extending slots **256** and **258**, through which extend tilting cords **260**. As shown in Figure 9, the two cords **260** extend through pairs of apertures **262** in each of the slats **254** and are provided with knots or other projections or other fastening means engaging the slats whereby tilting of the cords will result in tilting of the slats.

As shown in Figure 10, each of the cords at its upper end is provided with a plurality of beads or other projections **264** which engage in notches or recesses **266** in tilting wheels **268** provided upon a horizontally disposed tilting shaft **270** journaled upon the top of the head rail **250**. One end of this shaft extends beyond the end of the head rail, as shown at the right end of Figure 9 and as shown in Figure 11, being provided with a pulley **272** about which is entrained a pull cord **274** whereby the tilting shaft **270** may be oscillated. The pull cord **274** preferably extends through a guide bracket **276** secured to the end of the head rail, as by screws **278**. It will thus be apparent that when the pull cord **274** is oscillated or rotated, a corresponding rotation will take place for the tilting rod **270**, which in turn will actuate the tilting cords **260** to thus tilt the slats **254** of the Venetian blind.

The means whereby the slats are pivoted to and carried by the telescoping supports **34** are shown in Figure 12. At each end, each slat **254** has a pintle **280** having an enlarged annular head **282**. A two-piece bracket construction is provided to journal this pintle and to provide a mounting for the same upon the plurality of cylindrical sections of the telescoping support **34**. This two-piece bracket comprises upper and lower plates **284** and **286**, having complementary semi-cylindrical depressions **288** and **290** to journal the pintle **280** therebetween; and having transverse complementary registering slots **292** and **294** which receive and retain the heads **282** of the pintles. A plurality of registering apertures **296** and **298** in the upper and lower bracket sections receive fasteners such as rivets **300** whereby the bracket sections may be clamped together and retain the pintles therebetween. The upper section is provided with an arcuate flange **302** which is apertured, as at **304**, for the reception of suitable fasteners whereby the brackets and the slats pivoted thereon may be secured to the various sections of the telescoping support **34** in the same manner as that shown in Figure 5 in connection with the brackets **192**.

It will thus be apparent that the slats are mounted upon the telescoping supports whereby they may be raised or lowered by the supports in accordance with the support collapsing means **188** of Figures 1–6, and whereby the slats may be at all times capable of pivoting or tilting movement by means of the pull cord **274**, as above set forth.

It will be understood that in some instances, the plates **270** and **252** may be considered as being permanently mounted in position, and during such use the feature of the collapsibility of the supports **34** will be unnecessary. In other instances, it may be preferred to fixedly or permanently secure one of the plates **250** or **252**, with the other plate being movable under the action of the previously mentioned cable **188** and the compression springs **92** as previously described. The limit cable **88** has been

illustrated, this element being desirable when either of the head or foot rails **250** or **252** are mounted for movement. Where these rails are stationarily mounted, the limit cable may be omitted together with its cooperating compression spring.

The embodiment disclosed in Figures 9–12 herein is identical with that described in Figures 15–18 of my above identified copending application.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A collapsible panel comprising a base, a pair of telescoping supports each having one end secured to said base, each support comprising a plurality of telescoping, longitudinally slidable sleeves, brackets each secured to one end of each sleeve and projecting laterally therefrom towards a sleeve of the other support, said sleeves at the end thereof having one of said brackets being each provided with a longitudinal slot of limited length and width with said sleeves being otherwise continuous, whereby to effect maximum bearing engagement with adjacent sleeves, said slots being of sufficient length and width to receive said brackets therein and to be closed thereby, said brackets being mounted each within a sleeve and having a rib projecting outwardly through the slot thereof, a plurality of parallel slats each having its ends disposed between said supports and secured to the brackets on a pair of supports whereby said slats may be collapsed in nested relation beneath each other and with each bracket abutting the end of the adjacent sleeve, said brackets thereby constituting stops limiting collapsing of said sleeves when said supports are collapsed and whereby said slats may be expanded into overlapping and spaced relation when said supports are expanded.

2. The combination of claim 1 including apertures in said brackets, a chain extending loosely through said apertures and secured to said base and to the end of said support which is remote from the base plate to limit expansion of said support.

3. The combination of claim 1 wherein the slots of adjacent sleeves are circumferentially spaced from each other.

4. The combination of claim 1 wherein adjacent concentric sleeves have rotation preventing guide surfaces.

5. The combination of claim 1 wherein each sleeve includes a pair of semi-cylindrical sections of different radii of curvature, said section having radially extending marginal flanges engaging each other and providing rotation preventing guide surfaces for adjacent sleeves.

6. A collapsible panel comprising a base, a pair of telescoping supports disposed in side by side relation and each having one end secured to said base, each support comprising a plurality of telescoping, longitudinally slidable sleeves, a bracket secured to each sleeve adjacent the outer end thereof and projecting laterally therefrom toward the other support, the brackets of all of the sleeves of one support being disposed in parallel relation and being connected to said sleeves in successive circumferentially spaced positions, a plurality of parallel slats disposed with their ends lying between and in spaced relation to said supports and with the ends of each slat secured to a pair of brackets of different supports, means for collapsing said supports whereby said slats may be collapsed in nested relation beneath each other and means for expanding said supports whereby said slats may be expanded into an overlapping and spaced relation, said expanding means comprising a spring received in one of said telescoping supports and secured operatively to the innermost and the outermost sleeves thereof.

7. A collapsible panel comprising a base, a pair of telescoping supports disposed in side by side relation and each having one end secured to said base, each support comprising a plurality of telescoping, longitudinally slidable sleeves, a bracket secured to each sleeve adjacent the outer end thereof and projecting laterally therefrom toward the other support, the brackets of all of the sleeves of one support being disposed in parallel relation and being connected to said sleeves in successive circumferentially spaced positions, a plurality of parallel slats disposed with their ends lying between and in spaced relation to said supports and with the ends of each slat secured to a pair of brackets of different supports, means for collapsing said supports whereby said slats may be collapsed in nested relation beneath each other and means for expanding said supports whereby said slats may be expanded into an overlapping and spaced relation, said collapsing means comprising a cable received in one of said telescoping supports and secured operatively to the outermost sleeve thereof, and wherein said expanding means comprises a spring received in one of said telescoping supports and secured operatively to the innermost and the outermost sleeves thereof.

8. A collapsible panel comprising a base, a pair of telescoping supports disposed in side by side relation and each having one end secured to said base, each support comprising a plurality of telescoping, longitudinally slidable sleeves, a bracket secured to each sleeve adjacent the outer end thereof and projecting laterally therefrom toward the other support, the brackets of all of the sleeves of one support being disposed in parallel relation and being connected to said sleeves in successive circumferentially spaced positions, a plurality of parallel slats disposed with their ends lying between and in spaced relation to said supports and with the ends of each slat secured to a pair of brackets of different supports, means for collapsing said supports whereby said slats may be collapsed in nested relation beneath each other and means for expanding said supports whereby said slats may be expanded into an overlapping and spaced relation, said expanding means comprising a spring received in one of said telescoping supports and secured operatively to the innermost and the outermost sleeves thereof, a telescoping housing in said support enclosing said spring therein.

9. A collapsible panel comprising a base, a pair of telescoping supports disposed in side by side relation and each having one end secured to said base, each support comprising a plurality of telescoping, longitudinally slidable sleeves, a bracket secured to each sleeve adjacent the outer end thereof and projecting laterally therefrom toward the other support, the brackets of all of the sleeves of one support being disposed in parallel relation and being connected to said sleeves in successive circumferentially spaced positions, a plurality of parallel slats disposed with their ends lying between and in spaced relation to said supports and with the ends of each slat secured to a pair of brackets of different supports, means for collapsing said supports whereby said slats may be collapsed in nested relation beneath each other and means for expanding said supports whereby said slats may be expanded into an overlapping and spaced relation, said expanding means comprising a spring received in one of said telescoping supports and secured operatively to the innermost and the outermost sleeves thereof, a telescoping housing in said support enclosing said spring therein, said housing including telescoping sections with the two opposite end sections being operatively fixedly secured to the innermost and outermost sleeves.

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