

Aug. 18, 1970

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3,524,491

WEB SECURING DEVICE

Filed July 5, 1968

2 Sheets-Sheet 1

Fig. 1.

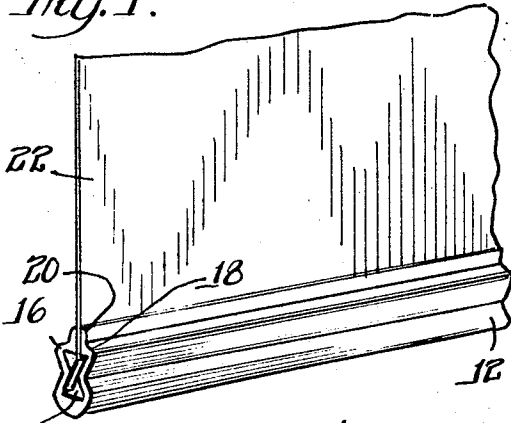


Fig. 2.

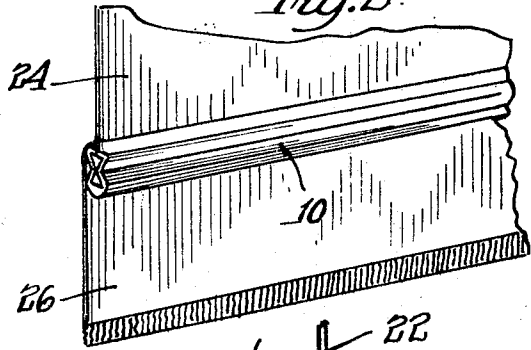


Fig. 3.

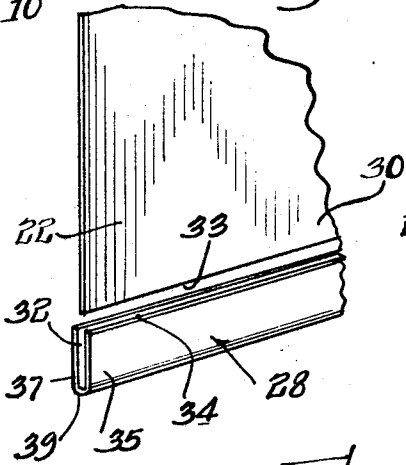


Fig. 4.

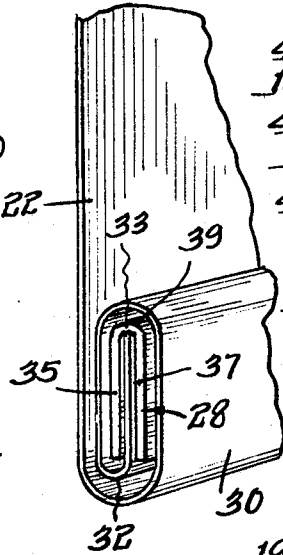


Fig. 5.

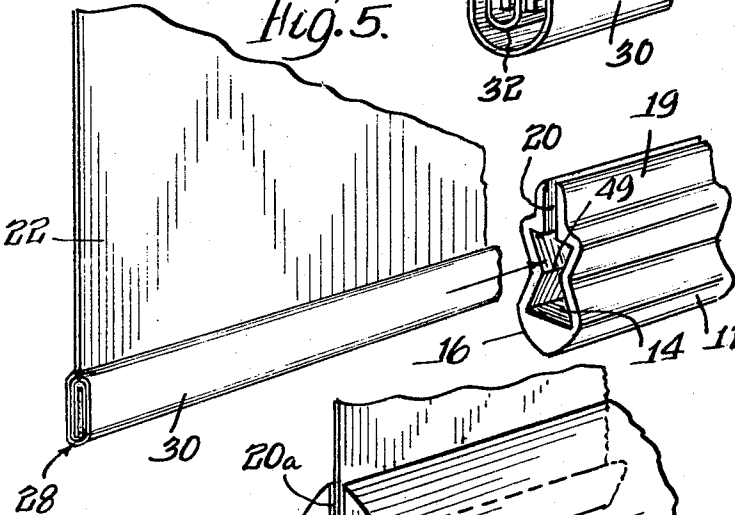


Fig. 6.

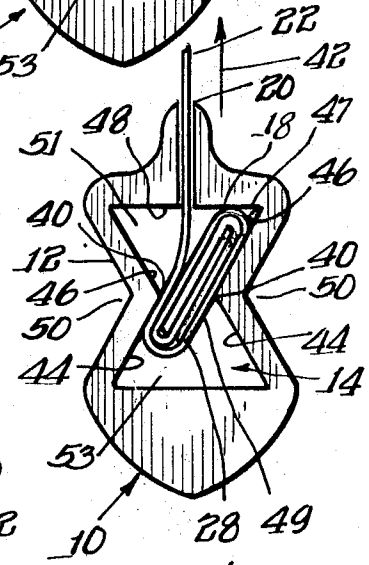
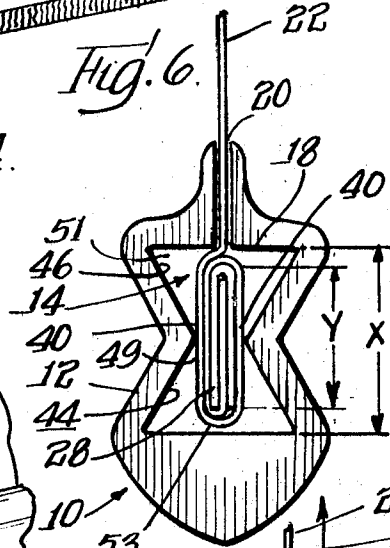
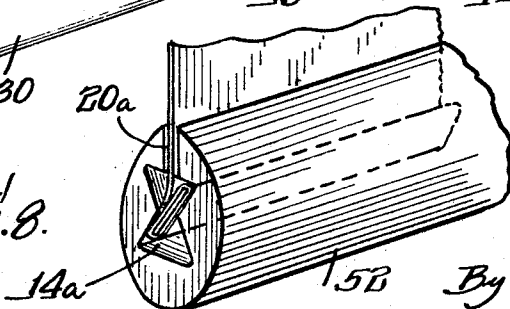


Fig. 7.

Fig. 8.



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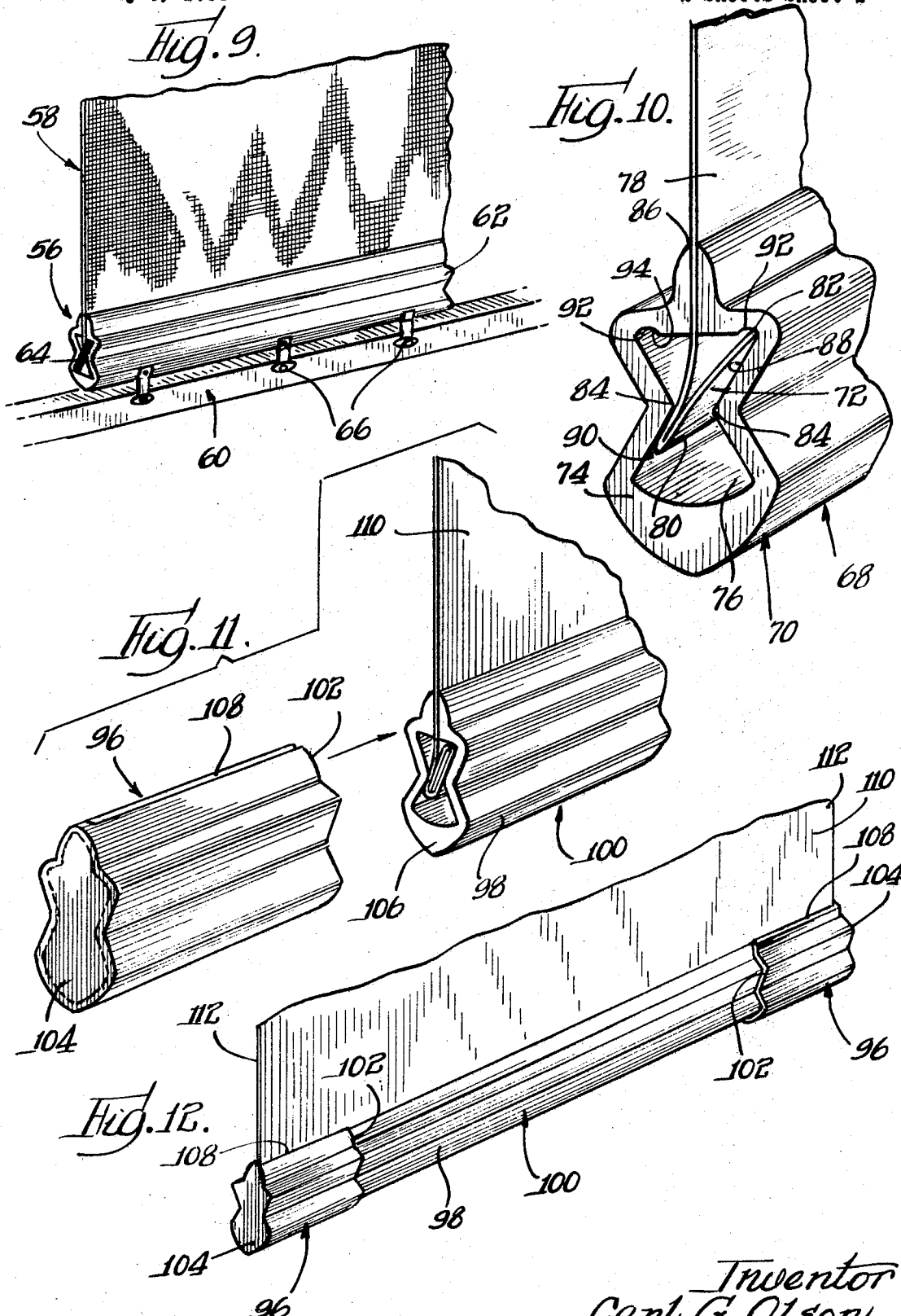
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WEB SECURING DEVICE

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2 Sheets-Sheet 2



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11 Claims

ABSTRACT OF THE DISCLOSURE

A device for attachment to a free margin of a piece of flexible webbing material, including an elongated mounting strip to which an end of the webbing material is attached, and an elongated open-ended holder element, having a longitudinally extending aperture therethrough, which has the shape of an hour-glass in cross-section and a longitudinally extending slot opening laterally of the holder element and communicating with the aperture. The mounting strip is inserted into one end of the aperture in the holder element with the webbing material extending outwardly therefrom through the slot, thereby to secure the end of the material in the holder element. Tension applied to the material away from the holder element causes the mounting strip to be rotated within the aperture about the constricted section thereof and to be interlocked against opposite walls and in a corner thereof.

BACKGROUND OF THE INVENTION

This invention relates to apparatus for securing flexible webbing and more particularly to an edge securing device for flexible webbing, such as, for example, window shades, maps, or the like.

Presently, window shades, most maps, charts, etc., and other forms of flexible webbing, include, along the free edge thereof, a section of the webbing which has been folded back upon itself and secured thereat either by sewing or other suitable means to form a looped "pocket" or the like. An elongated strip of wood is usually inserted into and held in the "pocket" and serves as a "pull" for the window shade or map.

While this is generally satisfactory, an added cost is required to form this looped section or pocket at the free edge of the shade, etc., and a significant additional quantity of material also is required to make such a pocket. Moreover, in the event the pocket becomes ripped or torn, the shade or map must, in most cases, be taken to a professional for repairs. This, too, requires added expense.

In other cases, where opposite edges of a webbing material are to be held for the purpose of stretching, etc., the last mentioned edges are usually reinforced and a plurality of eyelets are fastened thereto. Hooks, or the like, are then inserted into the eyelets in both edges, and the webbing material is stretched therebetween. The plurality of eyelets merely provides a quantity of points along the edge of the webbing material whereat the forces of the stretched webbing are concentrated. Thus, in effect, there is formed a group of "weak points" where tearing or the like most often occurs.

SUMMARY OF THE INVENTION

Accordingly, it is a primary object of the present invention to provide a device for securing the edge of flexible webbing material which overcomes the disadvantages mentioned heretofore.

It is another object of this invention to provide a device for securing the edges of flexible webbing material which is inexpensive and easy to produce, is of simple construction, and has a pleasing appearance.

It is yet another object of this invention to provide a flexible, web-securing device of the above-described type

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which is especially well suited for use with window shades, maps, charts or the like articles.

It is still another object of this invention to provide a flexible, web-securing device of the above-described type which provides a simple, inexpensive, easy way of re-hemming a window shade, map, or the like.

DESCRIPTION OF THE DRAWINGS

Many other objects and features of the present invention will become apparent from the description below, taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of a web-securing device being used as a "pull" member for a window shade, according to the invention;

FIG. 2 is a perspective view of a web-securing device like that of FIG. 1 and in addition to being used as a "pull," is securing a decorative end piece to a window shade;

FIG. 3 is a perspective view of a separate U-shaped mounting strip of a web-securing device according to the invention, shown about to receive a piece of flexible webbing material therein;

FIG. 4 is an enlarged perspective view of the separate strip of FIG. 3 shown after the sheet of material has been inserted and wound about the strip and is attached thereto in preparation for insertion thereof into a holder of a web-securing device according to the invention;

FIG. 5 is an exploded perspective view of a separate material wound mounting strip being inserted into a holder of a web-securing device according to the invention;

FIG. 6 is an end sectional view of a web-securing device according to the invention immediately after the material wound mounting strip has been inserted into the holder element thereof;

FIG. 7 is an end sectional view of the device of FIG. 6 after the material has been pulled away from the device, illustrating the locking of the strip and web material in the holder element;

FIG. 8 is a perspective view of a second embodiment of a web securing device according to the invention;

FIG. 9 is a perspective view of a web securing device attached to a free margin of a metallic screen with the device itself being secured to a support surface according to the invention;

FIG. 10 is an enlarged fragmentary perspective view of another alternative embodiment of a web securing device fastened to a sheet of webbing material according to the invention;

FIG. 11 is an enlarged exploded perspective view of a plastic end cap and web securing device according to the invention; and

FIG. 12 is a perspective view of a web securing device including a pair of end caps mounted on opposite ends thereof according to the invention.

DETAILED DESCRIPTION

Referring now to the drawings in greater detail, there is shown in FIG. 1 thereof a web-securing device 10 according to the invention. The device comprises an outer, elongated housing or holder element 12, formed of plastic, wood, metal, or other suitable material. When formed of plastic or a light metal, the holder is constructed preferably by an extruding process to insure a uniform length thereof. When heavier metals are used, in cases where heavy duty webbing is required, the holder element may be stamped, molded, rolled or cast.

The holder element 12 includes a longitudinally extending aperture 14 which runs the length of the holder and is open at at least one end 16 thereof. In most cases, both ends of the holder are open, since the holder element

is cut usually from a long section of holder material to provide the proper length for the webbing in a particular situation. A cross-section of the holder element reveals an "hour glass" or "bow tie" shape of the aperture 14. This shape, it will be explained hereinafter, is provided specially for locking the webbing material therein. The aperture 14 communicates at one side 18 thereof (FIGS. 6 and 7) with a longitudinally extending slot 20 opening laterally of the holder element, into which a piece of webbing material, such as a window shade 22 (FIG. 1) is inserted.

The web-securing device 10 can be used also to accommodate a plurality of pieces of webbing material. In FIG. 2 a window shade 24 extends upwardly from a device 10 while a second piece of material 26, also held by device 10, extends downwardly therefrom to provide a decorative trim on the window shade. This multiple securing of webbing materials is useful also when preparing charts or maps, since many charts or maps held by a single device 10 are convenient and easy to handle.

The web-securing device 10 further includes a separate mounting strip 28 (FIG. 3) to which an end portion 30 of the piece of webbing material 22 is attached by wrapping the material thereabout. A free margin of the mounting strip is as shown in FIG. 5, inserted from one end, 16 of the holder element 12 into aperture 14 thereof, with the piece of webbing material 22 extending outwardly therefrom through slot 20.

The strip 28 is of a height y slightly less than the height x (FIG. 6) of the hour-glass shaped aperture 14 extending through housing 12. This insures proper locking of the strip 28 within the aperture, as will be explained in greater detail hereinafter.

While an elongated, flat mounting strip would suffice for attaching an end of a piece of webbing material thereto, a U-shaped strip 28 as shown in the drawings is preferred. The U-shaped strip enables one to fold evenly the webbing material about the mounting strip since the material is first inserted into opening 32 thereof, as shown in FIG. 3. Margin or edge 33 of the webbing material 22 is inserted into opening 32 between legs 36 and 37 of the U-shaped strip 28 until the edge 33 comes in contact with the bight 39 of the U. The material is creased along the upper edge 34 of the strip and is then wrapped about the strip once or twice as shown in FIG. 4. The strip 28 which has a length substantially equal to the length of the holder element 12, also may be formed of a thin plastic or metal material. If a flat strip is used, it may be made of a thin strip of wood, plastic or metal.

As explained above, a cross-section of aperture 14 shows an hour glass configuration including a pair of upper, inwardly facing walls 46 and a pair of lower, inwardly facing walls 44 (FIGS. 6 and 7) defining a pair of truncated, triangularly cross-sectional shaped openings 51 and 53, respectively joined at the truncated ends thereof to provide a constricted section 49 at the juncture. The inwardly facing edges 40 of constricted section 49 serve as fulcrum surfaces for the wrapped mounting strip when an outwardly extending piece of material 22 is pulled causing the strip to rotate about one of the surfaces and in turn lock the strip against the inner side walls, and one of the upper corners, such as 47, as shown in FIG. 7.

For purposes of affording a more complete understanding of the invention, it is advantageous now to provide a functional description of the mode in which the component parts thus far described cooperate.

When it is desired to provide a web-securing device 10 according to the invention on a free edge of a piece or sheet of webbing material, such as 22, the material is first inspected to be sure that the free edge thereof, upon which the device will be placed, is cut evenly. While this is not absolutely necessary, it should be done to provide a correctly appearing finished product. After an even edge, such as 33 (FIG. 3) of the material 22 is provided, the edge is inserted into the opening 32 in the U-shaped

mounting strip 28, until it comes into contact with the inner surface of bight 39 of the U, as described heretofore. The material 22 is then creased along the upper edge 34 of one of the legs of the U and is wrapped in either direction about the mounting strip 28 (FIG. 4). The insertion of the material into opening 32 until it touches bight 39 insures an even folding of the material about the mounting strip 28 and in turn an even application of the web-securing device 10 thereto.

After a free end 30 of the material 22 has been wrapped as described above, about the mounting strip 28, the strip with the material thereon is inserted into aperture 14 of the holder 12 from one end thereof (FIG. 5). The material, as will be noted, is received in a slot 20 along one side 19 of the holder which communicates with aperture 14. The spacing between the side walls of the slot 20 is such that the material can easily be passed therethrough, but the mounting strip 28 will not be able to pass therethrough. The slot provides an opening through which the material extends outwardly from the holder 12.

As explained above, the height y of the mounting strip 28 (FIG. 6) is slightly less than the height x of aperture 14 so that the strip plus material wound thereabout is easily inserted into the latter. The insertion of the wrapped mounting strip into aperture 14 places it in constricted section 49 between juncture or fulcrum surfaces 40 of the "hourglass" shaped aperture, as shown in FIG. 6. When the material 30 is pulled outwardly from the holder in the direction of the arrow 42 (FIG. 7), however, the wrapped strip 28 is caused to be rotated about one of the fulcrum surfaces 40 away from the pulled end of the material 22 (in this case the fulcrum surface on the right, as viewed in FIG. 7) to interlock the wrapped strip against opposite walls 44 and 46 of the aperture 14 and into corner 47, in this case, the upper right corner of FIG. 7. Locking strip 28 against the side walls 44 and 46 and into corner 47 insures an efficient three-point holding of the material in the holder 12, and in addition prevents the strip from being pulled against the wall 48 directly beneath slot 20, which might cause undue stress thereat and eventual weakening or even the separation at slot 20 of the holder.

It should be noted that the holder element 12 as illustrated in FIGS. 1-7 has an external shape generally like that of a "figure 8" or "hourglass" in cross-section, similar to aperture 14 therein. This shape, because of the provision of indentations or depressions 50 at opposite sides thereof, provides an easily gripped window shade or map pull. One can simply and easily place his fingers within the indentations to grip the pull.

Other external shapes for the holder element are possible, however, if desired. An example of such other shape is shown in FIG. 8. Herein, the holder 52 has the cross-sectional shape of a "teardrop" or an oval, yet the internal structure (i.e., aperture 14a and slot 20a) is like aperture 14 and slot 20 of the previously described embodiment of the holder according to the invention. In the embodiment of FIG. 8, the operation and use thereof is the same as that of the embodiment of FIGS. 1-7, and thus no detailed description thereof will be given.

Turning now to FIG. 9 of the drawings, there is shown therein a web securing device 56 for securing a sheet of fine sifting metal screening 58 to a support surface 60. In this case, the web securing device including the holder element 62 and mounting strip 64 is of a metal construction to provide greater strength, thereby to avoid tearing of the screen due to forces applied thereagainst. As explained heretofore, conventional techniques used in securing metal screening of the type illustrated merely call for riveting the screen itself to a support surface at spaced intervals along the margin of the screen. This provides weak spots at the rivets which often tear away portions of the screening thereat.

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Through the use of a metal web securing device 56 (FIG. 9) no weak spots are produced along the margin of the screen, since the entire margin thereof is secured within holder element 62. The holder element itself is secured by means of fasteners 66 to support surface 60. Because the holder element as well as the support surface are solid structures, there exists little, if any, danger of separation thereof.

The web securing device 68 of FIG. 10 is similar to those previously described, in that it includes a holder element 70 of plastic or the like material and a mounting strip 72 attached to a sheet of material 78 and inserted from one end 74 of the holder element into a central longitudinally extending aperture 76 therein having an "hourglass" cross-sectional shape. The difference, however, between the device 68 and those shown above, is that the mounting strip 72 is formed integrally with the sheet of material 78 held in the holder element 70.

The material 78 is sufficiently self-supporting or stiff, such as, for example, semi-rigid plastic which is foldable and will retain its shape and resist returning to its original shape once folded. The sheet of material 78 is folded along the line 80 near a free margin 82 thereof, so as to form, in effect, a V cross section between the sheet and strip 72. Mounting strip 72 formed by the above-described folding of sheet 78, serves, in the same manner as the separate mounting strip 28 shown in FIG. 3, to lock the free margin of sheet 78 in holder element 70.

The mounting strip 72 with the material 78 attached is inserted into end 74 of holder element 70 locating the strip between fulcrum surfaces 84 provided therein. The material 78 extends outwardly from the holder element through a longitudinally extending slot 86 which communicates with aperture 76. When the material 78 is pulled away from the holder (as shown in FIG. 10) or vice versa, the integrally formed mounting strip is, like the separate mounting strip of the above-described embodiments, forced against opposite inner side walls 88 and 90 and into one of the upper corners 92 within holder element 70 in a three-point engagement to lock the free margin of the sheet of material within the holder element. As will be noted, the corners 92 within holder element 70 are provided with indentations or recesses 94 so that an edge 82 of mounting strip 72 may be securely held therein, thereby to insure retention of material 78 in holder element 70.

To further enhance the appearance of a web securing device according to the invention, as well as to prevent the inadvertent removal of the mounting strip and attached free margin of material from within the holder element through an open end of the latter, and to serve as a bumper guard for the protection of projection screens, maps, or the like, and caps, such as those designated by the numeral 96 and shown in FIGS. 11 and 12, are provided.

Each of the end caps 96 is formed of a piece of plastic or the like material with an opening or aperture extending thereinto from one end 102 thereof, the other end 104 being closed. The cross-section of the aperture is shaped like the outside cross-sectional shape of the holder element and is dimensioned so that the end cap may be fitted over an end 106 of the holder element. For continuity, in appearance, the outer surface of the end cap is preferably shaped similarly to that of the outer surface of the holder element itself.

The end cap is provided with a longitudinal slot 108 extending along the upper side thereof to receive the webbing material 110 therein as the cap is fitted over the holder element as shown in FIG. 12. The web securing device 100 of FIG. 12 is shown with a pair of end caps, each designated 96, fitted over the ends thereof. The end caps 96, in most cases, advantageously extend out beyond the sides 112 of the material thus protecting the material against damage from contact with foreign objects, etc. Furthermore, as mentioned heretofore, the end caps in-

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sure that the free margin of material and attached mounting strip will remain within the holder element.

While particular embodiments of the invention have been shown, it should be understood, of course, that the invention is not limited thereto since many modifications may be made; and it is, therefore, contemplated to cover by the appended claims any such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A device for attachment to a free margin of flexible webbing material, as for example a window shade, said device including an elongated laterally tiltable mounting strip upon which the free margin of flexible webbing material may be wrapped, and an elongated holder element providing a housing having a strip accommodating aperture extending longitudinally thereof, with at least one open end, and also having a longitudinal slot opening laterally of said housing and communicating with said aperture, said slot having a width approximating the thickness of the webbing material to be accommodated thereby, said aperture being shaped to accommodate said wrapped mounting strip lengthwise through said open end, and said aperture when viewed in transverse cross-section presenting upper and lower enlarged areas connected by an intermediate area of restricted width defined by inner wall surface portions of the holder spaced from each other a distance approximating the thickness of a wrapped mounting strip and presenting fulcrum means to facilitate tilting and consequent impingement of a wrapped mounting strip with the inner wall surface of the housing as an incident to the lateral shifting of the housing.

2. A device as claimed in claim 1 wherein the restricted area connecting the upper and lower areas of said aperture in said housing is defined by a pair of opposing fulcrum portions.

3. A device as claimed in claim 1 wherein said enlarged and restricted areas of said aperture in said housing has the cross-sectional shape of an hour glass.

4. A device as claimed in claim 3 wherein said housing includes a pair of opposing outwardly facing longitudinal depressions for easily gripping said housing.

5. A device as claimed in claim 1 wherein the cross section of said mounting strip is U-shaped and the bight portion thereof is positioned in the upper enlarged area of said aperture.

6. A device as claimed in claim 1 and further including a pair of end caps adapted to be fitted over respective ends of said holder element to prevent longitudinal movement of said mounting strip relative to said holder element.

7. A device as claimed in claim 6 wherein each of said end caps includes an opening extending thereinto, from one end thereof, having a cross-sectional shape similar to that of the outside cross-sectional dimension of said holder element, and a slot extending longitudinally thereof and communicating with said opening for receiving therein said webbing material upon fitting said end cap over a respective end of said holder element.

8. A device as set forth in claim 1, wherein the housing comprises a one-piece molded plastic structure.

9. In a combination with the free margin of a piece of flexible webbing material, as for example window shade material, an elongated holder element providing a housing having a strip accommodating aperture extending longitudinally thereof, with at least one open end, an elongated laterally tiltable mounting strip extending within said housing, the free margin of said flexible webbing material completely encircling said strip, said longitudinal aperture, when viewed in transverse cross-section, presenting upper and lower enlarged areas connected by an intermediate area of restricted width defined by inner wall surface portions of the holder spaced from each other a distance approximating the thickness of the

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combined strip and encircling sheet material, the upper enlarged area communicating with a longitudinal slot having a width approximating the thickness of the webbing material which extends therethrough.

10. The combination as set forth in claim 9, wherein the strip comprises a U-shaped member with the bight thereof positioned in the upper enlarged aperture area and the open extremity positioned within the lower enlarged area, with the free margin of the webbing completely encircling said U-shaped strip.

11. The combination as set forth in claim 9, wherein the restricted portion of the aperture is defined by a pair of oppositely disposed fulcrum portions whereby to facilitate lateral tilting of the strip and consequent impingement of the encircling sheet material with the inner wall surface of the housing as an incident to the lateral shifting of the housing.

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