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(71) Applicant: **Rollease, Inc.**
Stamford, CT 06902 (US)

(72) Inventor: **Williams, Williams Edward III**
Garland, Texas 75042 (US)

(74) Representative: **Franzolin, Luigi et al**
STUDIO TORTA
Via Viotti 9
10121 Torino (IT)

(54) **Roman shade lift system**

(57) A roman shade includes a panel, a plurality of clips attached to the panel, the clips forming elongated, narrow guides on the back side of the panel and a plurality of tapes. The panel is mounted on a headrail that also includes a rotating tube. Each tape is attached to the bottom of the panel at one end and to the tube at the other end and passes through the narrow guides to cause the panel to form successive folds or pleats as the bottom of the panel is raised by the tapes by the rotation of the tube.

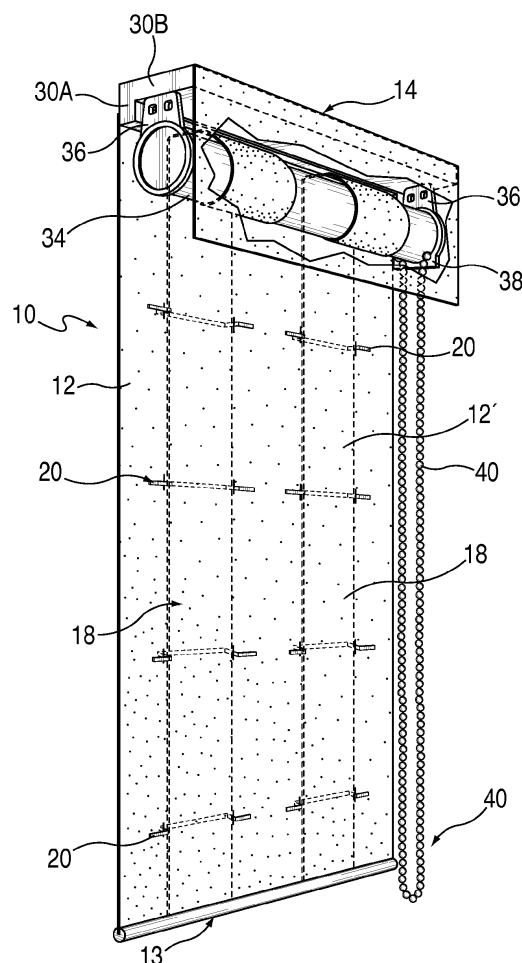


FIG. 5

Description

[0001] RELATED APPLICATIONS: This application claims priority to U.S. Provisional Patent Application S.N. 61/302,898 filed February 9, 2010 entitled Shade Lift System and incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION**A. Field of Invention**

[0002] This invention pertains to a window covering generally referred to as a roman shade in which instead of relatively thin cords, tapes are used for lifting portions of a panel.

B. Description of the prior art

[0003] Typically, roman shades include a panel, a header from which the panel is supported and control cords. The cords have one end tied to a rod disposed at the bottom of the panel (generally known as the hembar), and pass through loops attached at regularly spaced intervals on the back side of the panels. The panels and cords cooperate so that as the cords are pulled, they lift the hembar and cause portions of the panel to overlap creating a series of folds or pleats oriented toward the front of the panel.

[0004] A problem with existing panels is that even though the cords are normally hidden behind the panel, it may be possible for an infant to get to them and get injured. The present invention overcomes this problem.

SUMMARY OF THE INVENTION

[0005] An improved roman shade is provided in which, instead of cords, tapes are provided as a means of lifting and pleating a panel. The tapes pass through special clips attached behind the panel. The clips are arranged in sets, each set extending horizontally on the panel to define crease or fold lined, with each tape passing through a respective clip of each set. Each clip forms a narrow horizontal guide for the respective tape.

[0006] Preferably the tapes are about 4-6" wide. The tapes have two opposed ends, one end being attached to the bottom of the panel.

[0007] A headrail is provided to support the panel and to facilitate rolling up or releasing the tape. The headrail includes a tube rotating about its longitudinal axis and arranged horizontally. The second ends of the tapes are attached to the tube and arranged so that the tapes can be raised and lowered at will to cause the panel to raise and lower as well.

[0008] A separate cord may be used to rotate the tube in one direction or another.

BRIEF DESCRIPTION OF THE DRAWINGS**[0009]**

Fig. 1 shows a somewhat diagrammatic view of a conventional roman shade;

Figs. 2 and 3 show an orthogonal front view of the roman shade with and without a valence;

Fig. 4 shows an orthogonal back view of the shade of Fig. 2;

Fig. 5 shows a somewhat diagrammatic front view of the roman shade of Figs. 2-4;

Fig. 6 shows a plan view of a clip attached to the panel of the roman shade of Figs. 2-5;

Fig. 7A shows an orthogonal view of the frame used in the headrail of the roman shade of figs. 2-6;

Fig. 7B shows a back view of the frame of Fig. 7A; and Fig. 7C shows a front view of the frame of Fig. 7A.

DETAILED DESCRIPTION OF THE INVENTION

[0010] The term "roman shade" as used herein refers to a window treatment consisting of a flat panel made of a woven or non-woven fabric, or other material such as woven wood, plastic, etc., which is selectively lifted by a user (either by manual or motorized means) in a manner that causes horizontal sections of the panel to generate successive folds or pleats.

[0011] A typical prior art roman shade 200 is shown somewhat diagrammatically in Fig. 1 and it consists of a panel 212 made of a fabric or other decorative material that is relatively supple, as describe above. At the bottom of the panel 212, there is provided a hembar 213 or other elongated member extending along the width of the panel 212 to maintain the panel 212 in a stretched and relatively planar configuration when opened, and to also assist in the operation of the shade. A headrail (not shown) is provided on the top for supporting the panel 212 after mounting.

[0012] As is conventional with such window coverings, the panel 212 is partitioned into several, preferably equal, horizontal sections 212' by rods 216 sewn, attached to or embedded in panel 212. The hembar 213 and rods 216 each have a plurality of rings 215. Each ring on the hembar 213 or rods 216 is aligned with a respective ring of the other rods.

[0013] Shade 200 further include a plurality of cords 218 having one end secured to the hembar 213 by respective rings 215 (or other means) and are threaded through the rings of the successive rods 216 all the way to the top of panel 212. At the top of the panel, the cords are gathered together and are passed to one side, or attached to some other lifting means. Pulling the cords 218 to be lifted, thereby hoisting the hem bar 213 upwardly. As the cords pass through the respective rings 215, the hembar 213 rises until it hits the bottom most rod 216. The hembar 213 and the bottom most rod 216 then con-

tinue to rise until the next rod 216 and so on; during this process, the respective panel sections 212' are gathered and fold over in sequence or in a cascade of folds or panels thereby creating an attractive decorative look. The size of the folds depends on the spacing between the rods 216. Preferably, the cords 218 are disposed in the back of the panel 212 and are not visible from the front.

[0014] A roman shade 10 constructed in accordance with this invention includes, as illustrated generally in Figs. 2-5, a panel 12 made of preferably of a woven fabric or other decorative material that is relatively supple, as discussed above, and having a structure similar to the structure of the conventional shade shown in Fig. 1, except as noted. At the bottom of the panel 12, there is provided a bar 13 or other weight extending along the width of the panel 12 to maintain the panel in a stretched and relatively planar configuration when opened, and to otherwise assist in the operation of the shade. A headrail 14 is provided on the top for supporting the panel 12 after mounting, and for housing the lifting mechanism.

[0015] As is conventional with such window coverings, the panel is partitioned into several, preferably equal, segments 12' by clips 20 sewn to the back surface or embedded in panel 12 (the clips 20 are described in more detail below).

[0016] Panels 10 further include a plurality of tapes 18. In the prior art, conventionally cords were used instead of these tapes. The cords have one end secured to the bar 13 and are threaded through a shaped retainer in a manner such that when they are pulled up, they are free to pass through the retainers. As the bar travels upward, it comes into contact with the first rod 16. Thereafter, as the cords are continuously pulled up, the bar 13 and rod 16 keep moving up until they hit the next rod 16 and so forth. This movement causes the panel portions 16 to successively fold over themselves and form adjacent loops having a unique artistic look.

[0017] In the present invention, the cords are replaced by wide lifting tapes 18. The lifting tapes 18 operate in the same manner as the cords 15 in Fig. 1 in order to raise and lower the panel sections 212'. Importantly, in the preferred embodiments, the width of these tapes is selected to reduce or eliminate the risk to children that has been associated with the use of cords in conventional roman shades, and other prior shade lift systems.

[0018] Each tape consists of a strip of a relatively supple, non-stretch material at least 4" wide, and more preferably are 5" wide, although one skilled in the art may adjust the width upwardly or downwardly based on design criteria, safety considerations, system application, aesthetics, and the like. Various materials, as described below, may be used for the tapes 18.

[0019] In one preferred embodiment, the tapes 18 are made of a mesh material that allows a consumer, positioned on the front side of the shade 10, to look through the panel 12 (e.g., and out through the window adjacent the shade rear side) and to see out through the shade with minimal visual distraction. For example, where win-

dows are covered with a screen, a mesh material may be relatively camouflaged.

[0020] In another preferred embodiment, the tape may be a fabric having a finish, such as a bronze finish. Moreover, in other preferred embodiments, the fabric is woven to generate a predetermined pattern or is printed with a pattern that is either similar or substantially matches a pattern formed on the panel 12. If the tape has a pattern and color or color combination that matches the pattern and color combination of the panel, then the tape can visually blend in with the surface of the back of the panel 12, as viewed from the back side of the shade (e.g., from outside a window covered by the shade) thereby becoming substantially invisible.

[0021] In another preferred embodiment, the tape 18 may be constructed of either a translucent or transparent material, including a clear plastic material. Such a tape will allow unobstructed visibility even through the panel 12 as viewed from the inside. This is especially important when the preferred embodiment shade material is a sheer material. Such an embodiment also may be desirable to withstand heat and ultraviolet rays from the sun, and potentially also to avoid any visual interference between the tape and a screen used on the window that is protected by the shade. The tapes 18 are preferably thin so that they are not very visible. Typically, each tape may be 1/8 inch thick or less.

[0022] In the figures the panel 12 is shown with two tapes 18, but more or less tapes may be used as well. The size and number of tapes 18 is dependent on the weight of the panel 12, the width and height of the panel, etc. The bottom of each tape 18 is attached to the hembar 13 by sewing by an adhesive, screws or any other well known means.

[0023] As previously mentioned, the tapes 18 pass or slide through clips 18. Preferably, the clips are sewn or otherwise attached to the shade material. Each clip 18 is made of three sections: two end sections 22A and a central section 22B. Section 22B is formed of a center bar 22C and two arms 22D connecting the center bar 22C to the end sections 22A. Each clip 22 is preferably approximately 8-9" long. The ends 22A have a length of about 1-2" and the center section 22C is about 6-7". The length of arms 22D are selected so that they offset the center bar 22C by a sufficient amount to allow the tapes 18 to slide freely through the clip 20 without causing undue friction with the clip or the panel 12. Ultimately, when the tapes 18 are raised enough, these clips support a proportionate part of the total weight of the panel 12. For example, the sections 22D may be about 1/2" long and form a horizontal narrow guide for the tapes.

[0024] Preferably, the clips 20 are formed from a desirable gauge wire, and one skilled in the art may select an appropriate gauge based on various considerations of the system. Clips 20 may be made of metal, hard impact plastic or other similar material that will hold the tapes 18 in place as the panel sections are moved upwardly and downwardly. The ends 22C are sized and

shaped so that they are easily attached to the panel 12. As discussed above, a row of these clips defines the boundary between one of the panel sections 12' and the next panel section. Preferably, the clips 20 are sized and shaped so that they can be positioned laterally close to each, in an almost abutting position so the demarcation line between adjacent panel sections 12' is clearly defined.

[0025] Once each clip 20 is mounted, it forms a somewhat rectangular horizontal guide for the respective tape 18 that allows the tape to move up and down through the clip 20 without moving the clip. The clip 20 is only moved up and down as it is supported by the clip immediately below and, eventually, by the hembar 13.

[0026] The panel 12 is supported on the headrail 14 in a conventional manner. In the present invention, the headrail 14 is further used to support a mechanism for selectively lifting and lowering the tapes 18. Details of the headrail 14 are shown in Figs. 5 and 7A-7C. It includes a frame 30 that is generally L-shaped and it includes two legs 30A, 30B. The overall cross-sectional dimension of the frame may be 2-1/2 h x 1-1/2 w inches, each leg being 3/4 inch thick. Leg 30B extends vertically and is formed with an elongated cutout 32 having a width of about 3/8 inches. The frame 30 can be made of wood or other suitable material.

[0027] Brackets (not shown) mounted on the frame 30 attach the shade 10 to a window or other desired architectural opening.

[0028] As seen in Fig. 5, a tube 34 is attached to leg 30B by end brackets 36. At one end, the tube 34 is also provided either with a tube end member such as a pulley or a clutch mechanism, such as one available from Rollease of Stamford, Ct. Trained around a clutch or pulley 38 is a beaded cord 40. A clutch is preferred if a mechanical advantage is desired. For example, if the panel 12 is very wide and/or long, it may be difficult to raise and lower using a simple pulley.

[0029] Typically the headrail 14 is mounted so that, as viewed from a room, the leg 30A is in the back and the tube 34 is in front of the tube 34. In order to hide this tube, a valance 42 may be attached to the leg 30B as shown in Fig. 4. The panel 12 is attached to leg 30A.

[0030] The shade 10 is used as follows. The shade is mounted so that only the panel 12, valance 42 and beaded cord 40 are seen. The beaded cord 40 is conveniently disposed on one side or the other so that it can be operated easily, but is relatively unobtrusive. The tapes 18 are disposed behind the panel 12 so that they are not visible, unless the panel 12 is made of transparent or translucent material, as discussed above. The top ends of the tapes 18 pass and slide through the slot 32 in leg 30A and are affixed to tube 34. When a user wants to raise the panel 12, he pulls down on one side of the beaded chain 40. The chain causes the pulley or clutch 38 to rotate tube 34 in a direction (most likely clockwise, as viewed in Fig. 2) causing the tape 18 to wind around the tube 36 and thereby causing the hembar 13 to rise. As a result, the panel 12 goes up and forms folds or pleats

as described hereinbefore.

[0031] Moving the bead cord 40 in the opposite direction causes the panel 12 to be lowered.

[0032] In an alternate embodiment, the panel 12 could be mounted so that it is disposed in front of the tube 34. However in this case, the cord 40 must be disposed behind the panel 12 and it would therefore be more difficult to operate.

[0033] Numerous modifications may be made to the invention without departing from its scope as defined in the appended claims.

Claims

1. A roman shade comprising;
 - a headrail extending horizontally and including a support frame and a tube attached to the frame and arranged and configured to rotate about its longitudinal axis;
 - a panel having a top edge attached to the head rail and a bottom end;
 - a plurality of clips attached to said panel and spatially aligned along a vertical axis and respective narrow horizontal guides arranged behind the panel; and
 - at least one tape having a width that is much larger than its thickness and two opposed ends including a first end attached to said bottom end of said panel and a second attached to said tube, said tape passing through said narrow guides, said tube being arranged and constructed to selectively raise or lower said tape by winding or unwinding said tape as said tube is rotated in one direction or another to thereby raise and lower said bottom end.
2. The shade of claim 1, further comprising a plurality of tapes arranged vertically and having a lower end attached to said bottom end and an upper end attached to said tube, each of said tapes being raised or lowered dependent on whether the tube rotates in one direction or another.
3. The shade of claim 1, further comprising a tube end member disposed at one axial end of the tube and an elongated cord trained around said tube end member, said tube end member and said cord cooperating to rotate said tube about its longitudinal axis when said cord is selectively pulled.
4. The shade of claim 1, wherein said frame includes an elongated horizontal opening and said tapes pass through said opening before being picked up by said tube.
5. The shade of claim 1, further comprising a hembar attached to said bottom end, with said tapes are attached to said hembar.

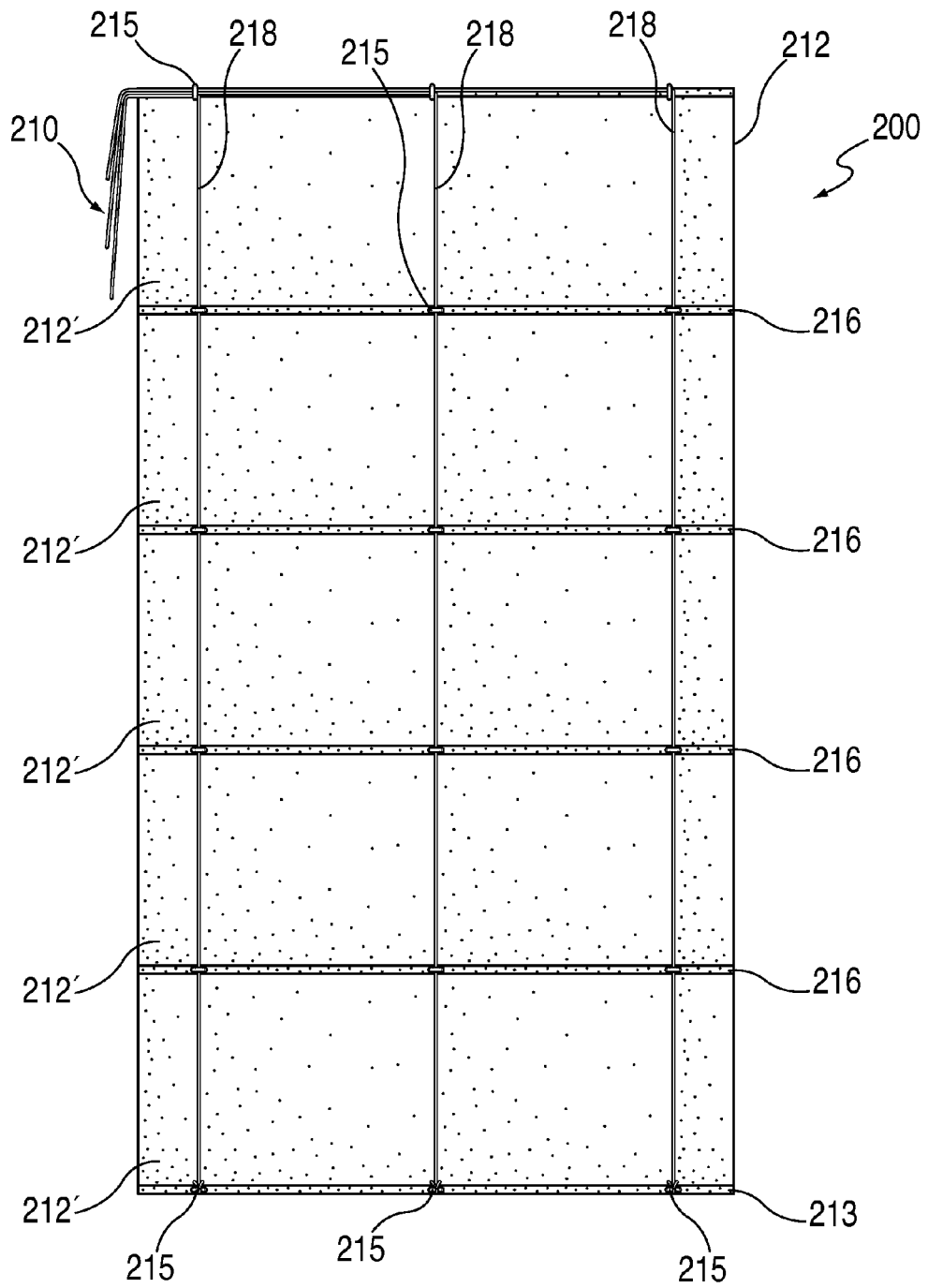


FIG. 1
(PRIOR ART)

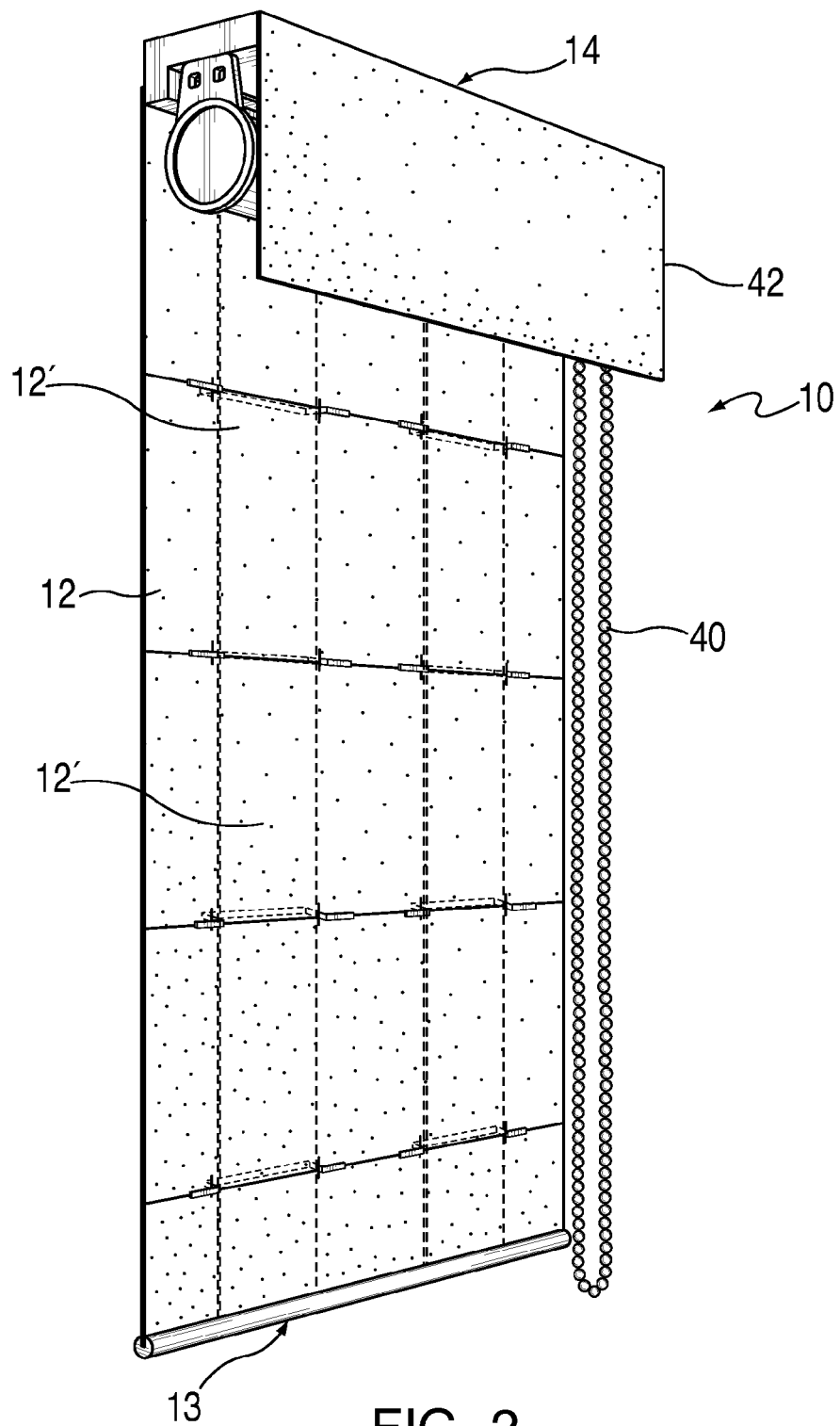


FIG. 2

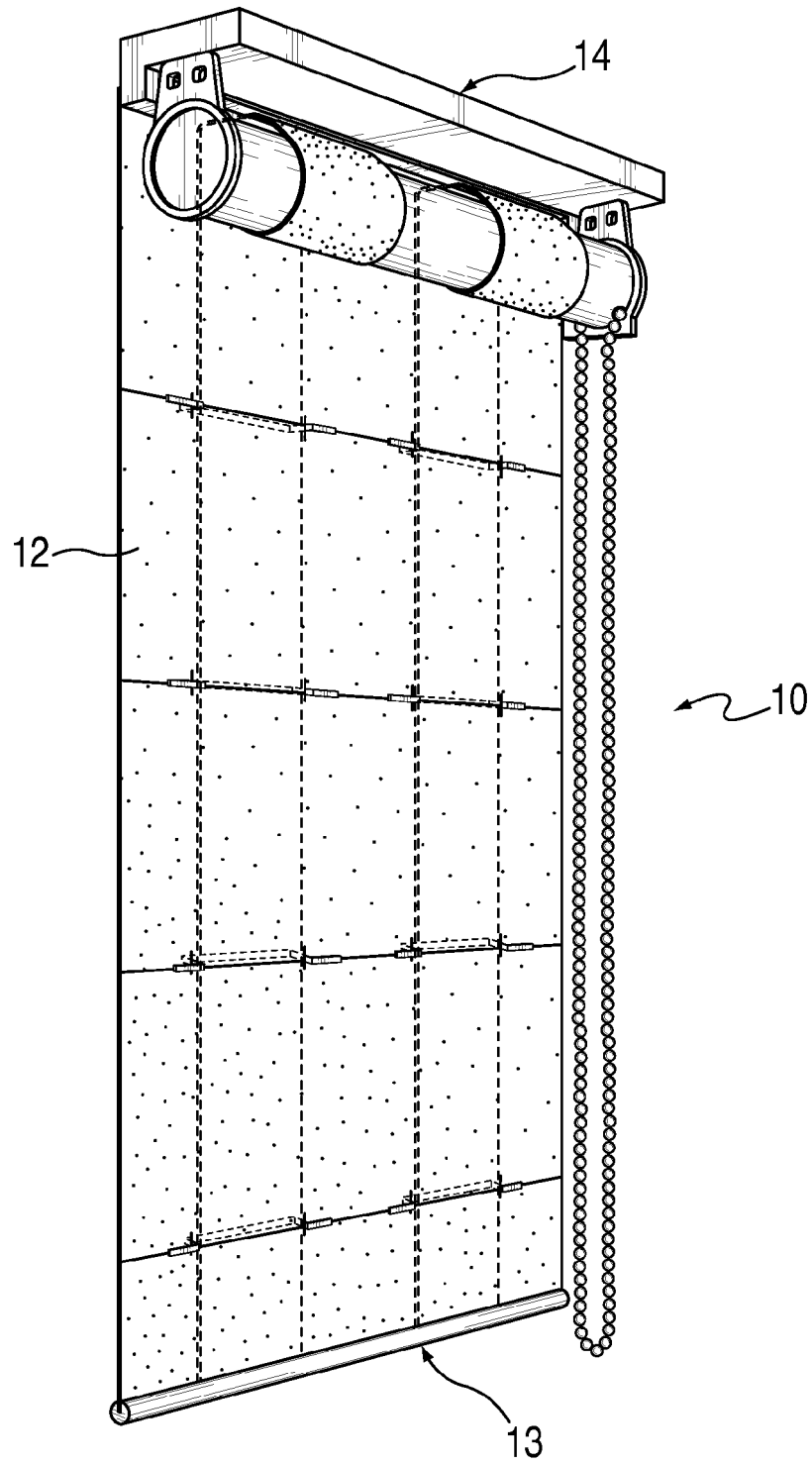


FIG. 3

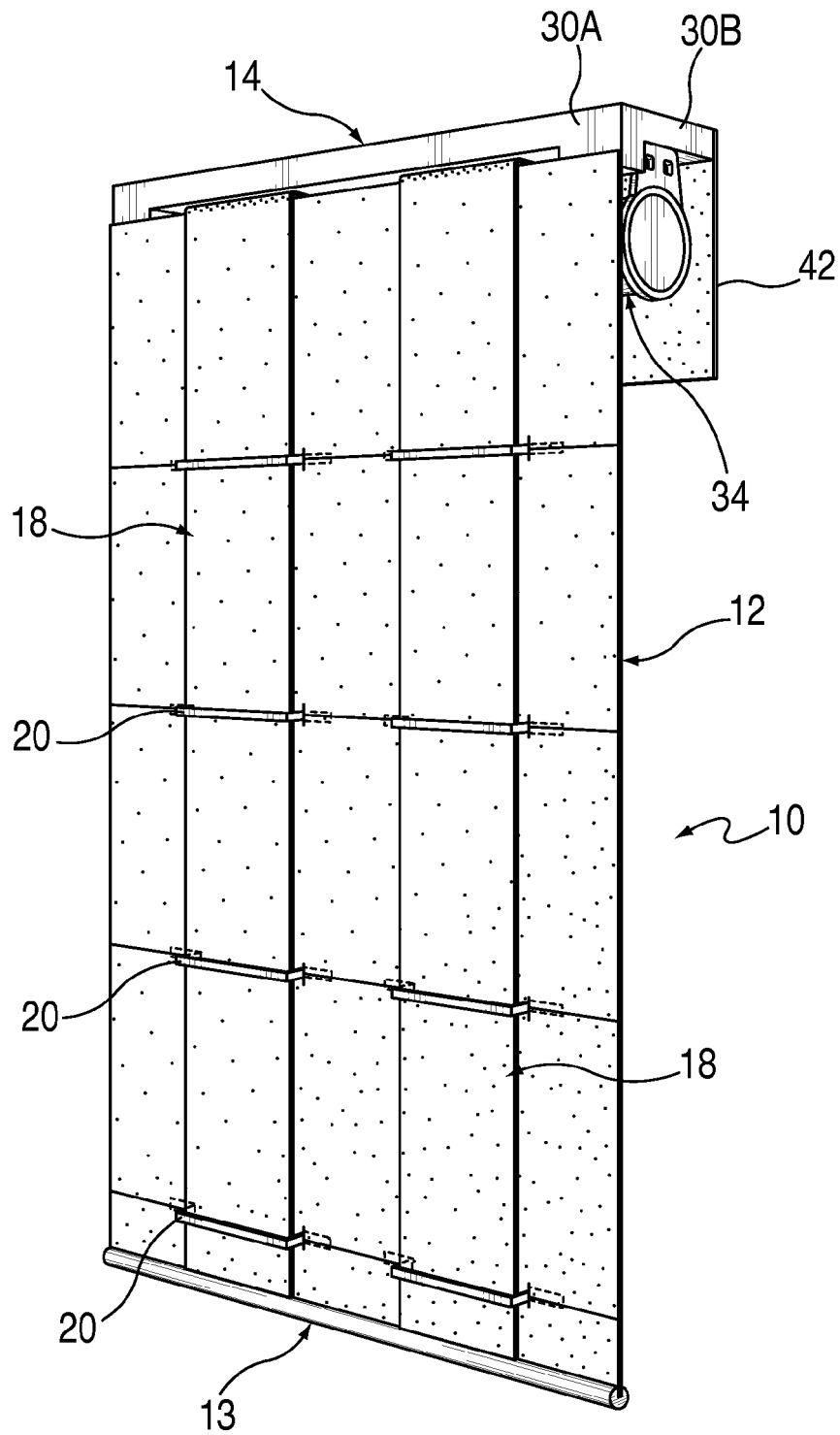


FIG. 4

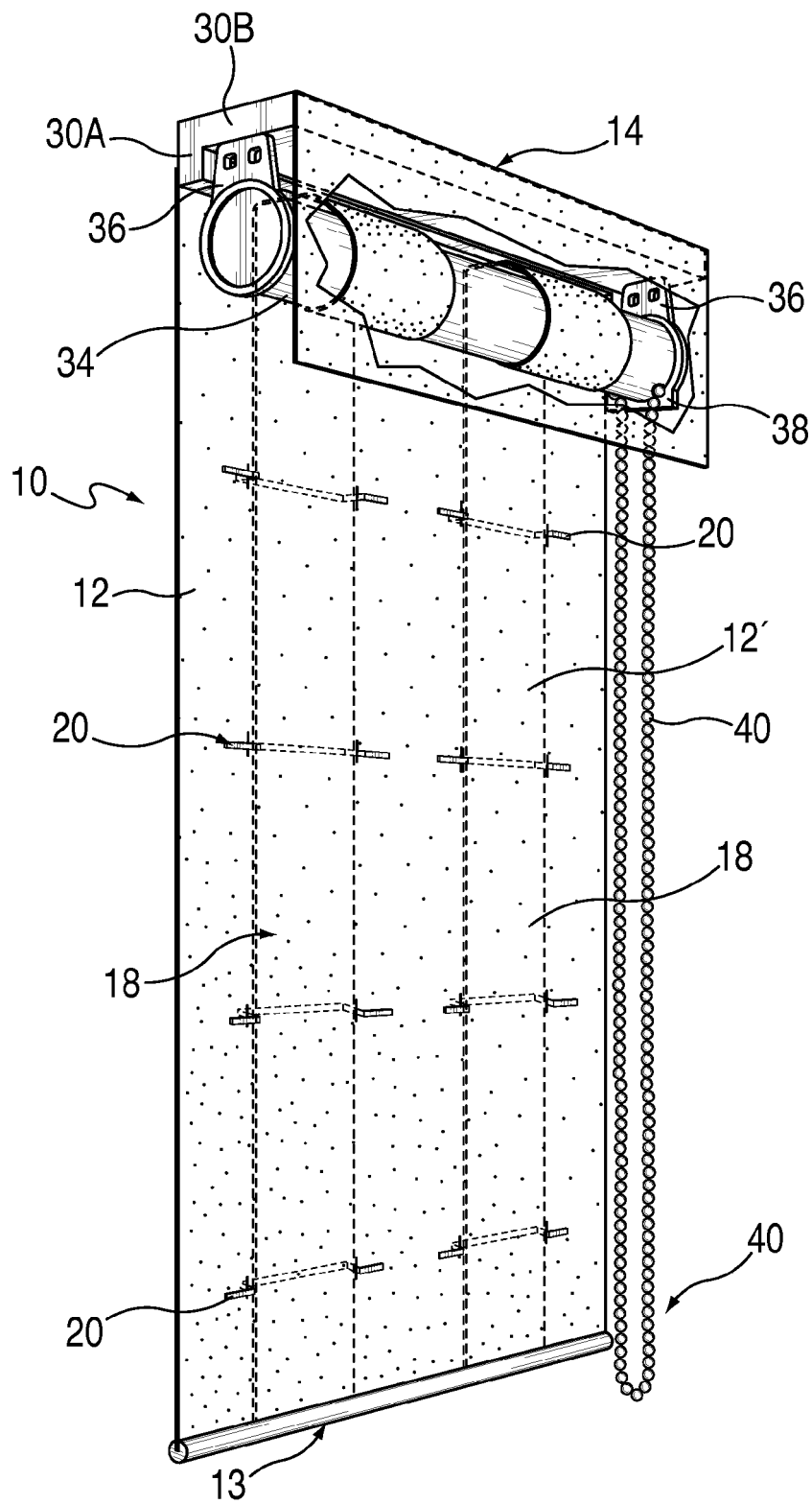


FIG. 5

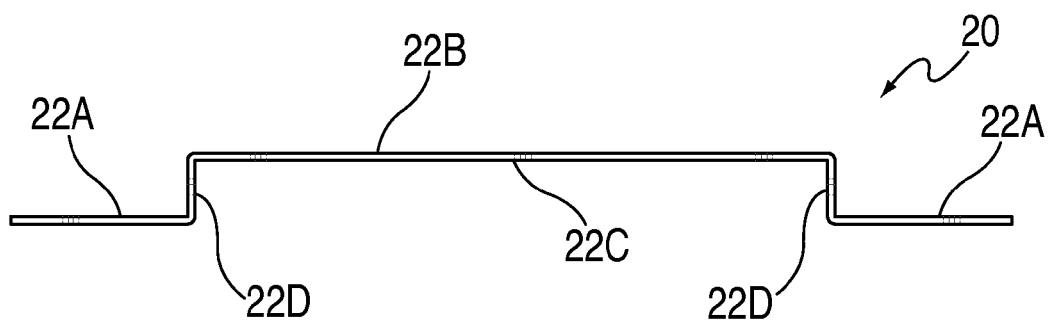


FIG. 6

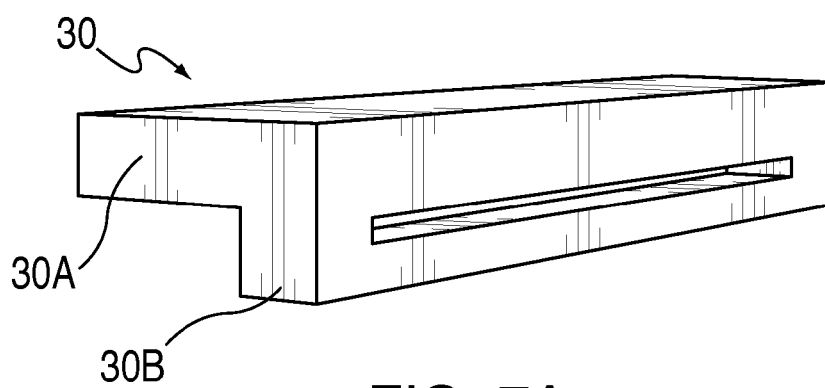


FIG. 7A

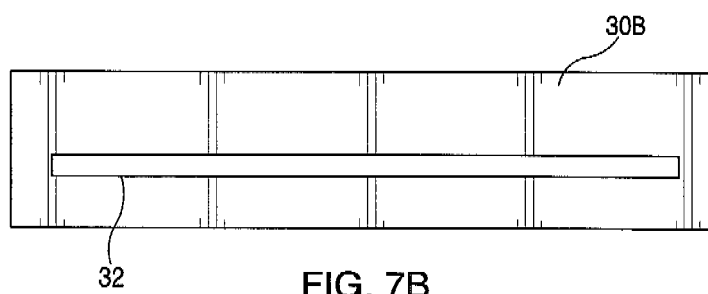


FIG. 7B

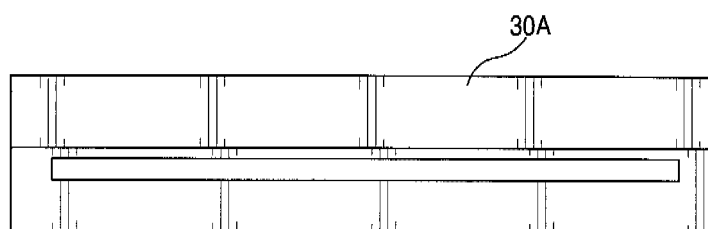


FIG. 7C

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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