Nov. 19, 1968 D. E. MOCK 3,411,561

THREE-PIECE DRAPERY STRUCTURE

Filed Dec. 29, 1966

FIG. 1.

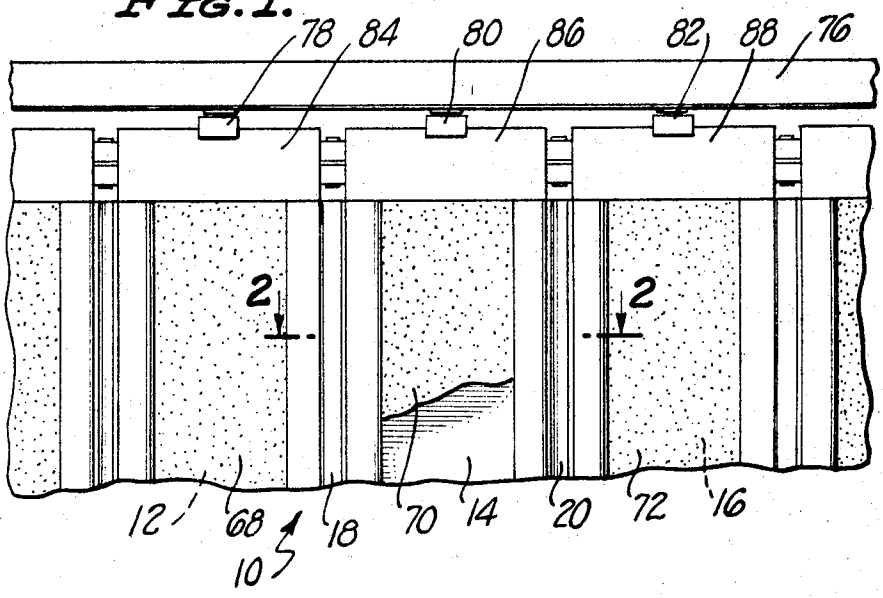


FIG. 2.

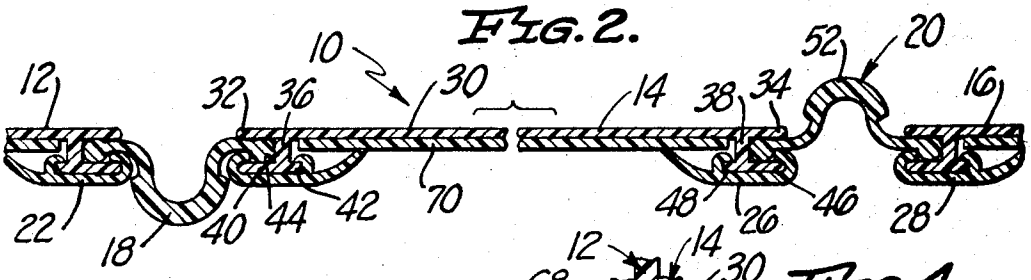


FIG. 3.

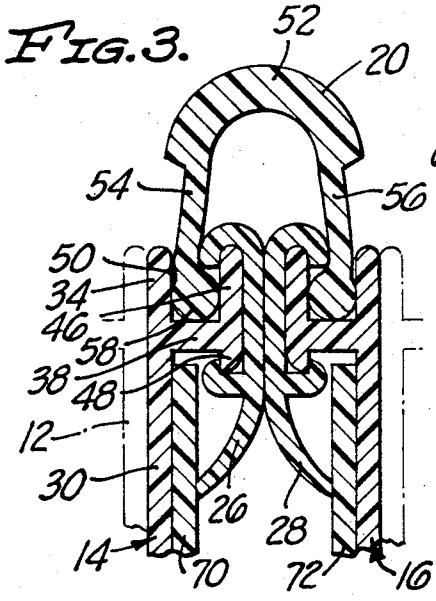
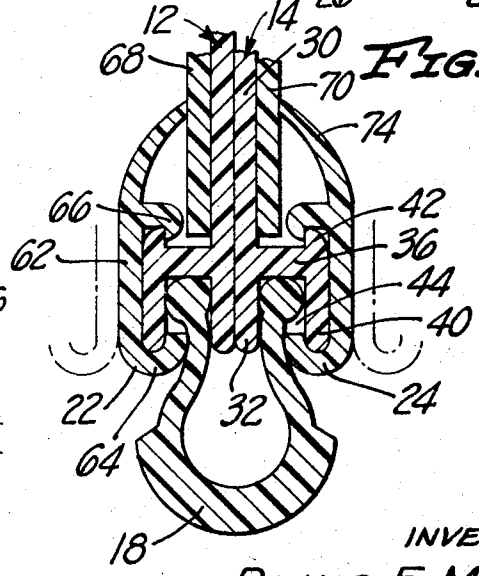


FIG. 4.



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THREE-PIECE DRAPERY STRUCTURE

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5 Claims. (Cl. 160—231)

ABSTRACT OF THE DISCLOSURE

This invention is directed to a three-piece drapery structure, and particularly to a three-piece drapery structure in which three different parts are attached together in such a way as to provide drapery panels which fold on vertical lines. The drapery structure of this invention comprises a drapery panel with appropriate members thereon for the attachment of a soft polymer composition material hinge and a retainer. The retainer is arranged to retain the hinge with respect to the drapery panel and preferably includes a retaining finger which is adapted to retain a decorative panel with respect to the drapery panel. Each of the three parts is preferably of uniform cross section so that they can be inexpensively manufactured by extrusion. Each of the parts is interrelated in such a manner that when attached together, all parts are retained in appropriate relationship. The drapery panel has a channel therein and a bulbous edge of the soft hinge is positioned in the channel. The retainer snaps over the edge of the channel to partially close the open side thereof and retains the bulbous rib on the hinge. The retainer includes a snap edge which snaps onto the drapery panel to be retained thereon and thus retain the hinge in position. The hinge is necessarily relatively flexible. The retainer is necessarily resilient while the drapery panel is preferably more rigid. These parts may be made of the same, suitable material, with wall thickness determining resiliency, or may be made of different materials of different resiliency.

Background

Vertically oriented drapery panels and other blind panels are known. Some of them are in the form of structures like venetian blinds where each of the panels is separated from the other. Other drapery panels include complex and expensive structures which are attached to each other by various hand applied individual hinge means. These latter types usually have rather wide panels, on account of the cost and labor involved in the hinge means. Several decorative advantages are obtained from this three-piece drapery structure. These decorative advantages include continuous hinges, smooth rounded surfaces and coherent compatible appearance. This is obtained by proper interrelationship of the parts, and is absent from the prior art structures which do not rely upon continuous extrusions as parts. Thus, in addition to the functional advantages of the structure of this invention as compared to the prior art, it also has appearance advantages. Furthermore, the three-piece drapery structure incorporates the provision of insertion of separate decorative panels. This incorporating structure also provides versatility which is absent from known prior structures. Another decorative panel installation structure is shown in Tsuhako Patent No. 3,277,952, granted Oct. 11, 1966.

Brief summary

Accordingly, it is an object of this invention to provide a three-piece drapery structure which is easily manufactured, readily installed and is of versatile use so as to provide drapery structure having wide use and economical life. It is a further object of this invention to provide a three-piece drapery structure which comprises a drapery

panel, a flexible hinge and a retainer related to the drapery panel, a flexible hinge and a retainer related to the drapery panel and the flexible hinge. It is still another object of this invention to provide a three-piece drapery structure which is of such nature that it can be readily assembled from inexpensive components and yet provide a highly ornamental, useful and decorative drapery structure. It is another object of this invention to provide a three-piece drapery structure which is fully opaque, without any light interstices when pulled to the extended position, yet folds into a relatively small space to leave a large opening, when so desired. It is a further object to provide a drapery panel which can be translucent or opaque or translucent with punched out patterns backed up by a decorative panel. It is another object of this invention to provide a drapery structure which folds upon uniform vertical lines and which is stressed to readily fold in the correct accordian pleated direction so that the drapery is readily closed and yet is easily extended. Other objects and advantages of this invention will become apparent from a study of the following portion of this specification, the claims and the attached drawing.

Description of the figures of the drawing

FIG. 1 is a front elevational view of a drapery structure made up of a plurality of three-piece drapery structures of this invention.

FIG. 2 is an enlarged section taken generally along the line **2—2** of FIG. 1 showing the drapery in the extended position.

FIG. 3 is an enlarged transverse sectional view of the hinge joint structure shown to the right side of FIG. 2, shown in the folded position.

FIG. 4 is an enlarged transverse sectional view of the hinge joint structure at the leftside of FIG. 2, shown in the folded position.

Detailed description

Referring to the drawings, the three-piece drapery structure of this invention is generally indicated at **10**. The drapery structure comprises drapery panels **12**, **14**, and **16** respectively joined by hinges **18** and **20**. The hinges are retained in panels **12**, **14**, and **16** by means of retainers **22**, **24**, **26**, and **28**.

Considering the drapery panels in detail, each of the panels is identical and therefore for convenience, only panel **14** will be described in detail. As is seen in FIGS. 1 and 2, the panel comprises a relatively wide flat central panel **30** which is of such width as to define the overall width of the drapery panel **14**. The upper side of central panel **30**, as is seen in FIG. 2 which is the rear side in FIG. 1, can be a plain and undecorated surface of the extruded polymer composition material of drapery panel **14**. For further decorative effect, it can be embossed, slotted, punched, or otherwise patterned. The central panel can be opaque, striated or translucent. When punched, it is preferably backed up by a decorative panel. The widthwise dimension of the central panel **30** is established as desired for the overall width of individual drapery panels. Each edge of the central panel has securing means thereon. These securing means comprise an H shaped structure in which the central panel forms one of the legs, or the flanges on one side of the H. Thus, central panel **30** extends into flanges **32** and **34**, the edges of which define the termination of the central panel and the drapery panel **14**. Webs **36** and **38** extend at right angles to central panel **30** and flanges **32** and **34**. Flanges **40** and **42** are integrally formed with web **36** and extend parallel to central panel **30** and flange **32**. Flange **40** extends substantially the same distance away from web **36** as does flange **32** to define channel **44**. Channel **44** is open edgewise of drapery panel **14**. Flange **42** extends a

short distance inward beyond web **36** to create a securing edge.

Similarly, web **38** extends away from central panel **30** a short distance and has flanges **46** and **48** thereon. Again, flange **46** extends the same widthwise amount of the panel as flange **34** to define an outwardly opening channel **50**. Flange **48** extends slightly inward from web **38** to define an inwardly directed securing or holding edge.

Hinges **18** and **20** are also identical. They are simply arranged in opposite orientations with respect to drapery panel **14** in order to cause accordian folding of the panels when folding of the panels is desired. Referring to FIG. 3, the hinges are all illustrated by hinge **20** which has body **52**, flanges **54** and **56** which are integrally formed with the body and flanges **54** and **56** which are integrally formed with the body and are thinner than the thickness of the body. Flanges **54** and **56** respectively terminate in ribs **58** and **60**. The ribs **58** and **60** are of such thickness as to fit within channels **48** and **50**, and rib **58** is shown as being positioned within channel **50**. The channels are of sufficient depth that the ribs are fully inserted within the channels and a short length of the hinge flanges is within the channels. This reduced thickness of the flanges provides space for engagement by the respective retainers for retaining the ribs within their channels. The hinges are preferably extruded so that they have a naturally curved configuration. Thus, even while in the extended position, shown in FIG. 2, the bodies of the hinges are curved. The flanges are normally substantially parallel in an unstressed position, part way between the showings in FIGS. 3 and 4.

Retainers **22** through **28** are also each of identical construction. For convenience, retainer **22** will be described, as is shown in FIG. 4. Retainer **22** has a body **62** which terminates in retainer hook **64**. Retainer hook **64** engages over the edge of the flange and extends into the channel in which a rib of one of the hinges is located. The retainer hook is of sufficient thickness that it, together with the thickness of the hinge flange, substantially fills the open side of the channel. Thus, the retainer retains the hinge rib within the channel. Furthermore, body **62** has a latch hook **66** thereon. The body and the latch hook are of sufficient resiliency to permit the retainer hook **64** to be hooked into place in retaining position and permit the latch hook **66** to be snapped over flange **42** to retain the body in position. The flange **42** is rounded on the outside corners to aid in the snapping into place.

The described drapery structure is of uniform cross sections so that each of the three parts thereof can be manufactured by extrusion of synthetic polymer composition material. However, each of the three parts have somewhat different requirements so that the materials are preferably of slightly physical characteristics. The drapery panels **12**, **14** and **16** are preferably extruded from unplasticized polyvinyl chloride, unplasticized polyvinyl acetate or copolymers thereof. Such a structure is quite rigid and thus furnishes a relatively rigid form for each of the drapery panels. Hinges **18** and **20**, however, must be highly flexible. Highly plasticized polyvinyl chloride, highly plasticized polyvinyl acetate and highly plasticized copolymers of these materials are suitable for this service. Furthermore, some of the polyolefins are also highly suitable. Within the polyolefin group, polyethylene and polypropylene are suitable. The hinges should have approximately the same flexibility as soft leather. Therefore, they are preferably quite limp.

With respect to retainers **22**, **24**, **26** and **28**, they must both be sufficiently flexible and resilient to snap into position and sufficiently strong so that they are not limp. Furthermore, the clamp finger on the retainers must have the necessary flexibility, and yet have a resilient retaining force for the decorative panels. Therefore, the same materials as are suitable for the hinge are suitable for this service, except that the vinyl compositions are not so highly plasticized to provide more strength to the materials. Other conventional material may be suitable for use in these various applications.

In the drapery structure **10** it is desirable that at least one side be able to be decorated in any desirable way to suit the decor of the room in which the drapery structure is to be hung. Thus, decorative panels can be placed upon one side of each of the central panels **30**. For example, decorative panels **68**, **70** and **72** are adapted to be placed against the central panel **30** of each of the drapery panels **12**, **14** and **16**, respectively. As is shown with respect to drapery panel **14**, its decorative panel **70** is relatively thin and lies against one side of central panel **30**. The width of decorative panel **70** is substantially equal to the distance between flanges **42** and **48** so that the panel **70** may be easily slipped into place. Referring to FIG. 4, retainer **24** is integrally formed thereon resilient clamp finger **74** which engages panel **70**. A similar clamp finger is provided on each of the retainers to retain the decorative panels in place. Furthermore, the length of the clamp fingers is such, together with the resiliency and undeflected shape, that even in the absence of the decorative panel the clamp fingers are stressed toward the curved position to engage central panel **30**. Thus, even in the absence of a decorative panel there is no gap at the edge of the clamp fingers. In view of the fact that the clamp fingers hold the decorative panels in place, it is clear that any reasonably thin decorative panel may be secured in place, and the decorative panels can be changed should the decor of the establishment be changed to require such a change. Of course, the three-piece drapery structure **10** is hung in such a way that the decorative panel side is on the side on which it is most effective.

The manner in which the three-piece drapery structure **10** is hung is dependent upon the particular installation. As is indicated, track **76** is provided. Guides **78**, **80** and **82** are respectively secured upon hangers **84**, **86** and **88**. These hangers are respectively secured to drapery panels **12**, **14** and **16**. As is illustrated, the hangers may be hinged together or may rely upon the hinges between the drapery panel to maintain them in position. The illustrated hanging structure is the preferred hanging structure and is disclosed in more detail in co-pending patent application Ser. No. 609,422, filed Jan. 16, 1967. The entire disclosure of that application is incorporated herein by this reference. The manner in which the drapery panels fold in accordian pleats is determined by the orientation of the hinges **18** and **20** with respect to their adjacent panels. Alternate orientation of the hinges is shown. This alternate orientation, together with the internal stresses of them in the extended position cause the various drapery panels to fold into correct accordian pleated arrangement when the drapery structure is folded. If desired, as is disclosed in the above identified disclosure, hinges between the attachment members **84**, **86** and **88**, and the other attachment members can limit the accordian folding to the desired direction.

This invention having been described in its preferred embodiment, it is clear that it is susceptible to numerous modifications and embodiments within the scope of the invention and without the exercise of the inventive faculty. Accordingly, the scope of this invention is defined by the scope of the following claims.

I claim:

1. A drapery structure which comprises:

a plurality of rigid panels having side edges, said panels being located in a series so that side edges of adjacent of said panels are adjacent to one another,

a securing means located along the length of each side of each of said panels, each of said securing means including an outwardly opening channel which opens away from the center portion of the panel upon which it is located and a holding means spaced from said channel,

a flexible hinge means located between and connecting

the adjacent side edges between adjacent of said panels, each of said hinge means including terminal ribs fitting within the channels in the securing means in the panels connected by such hinge means and a flexible center portion extending between said terminal ribs,

a retainer means associated with each of said securing means, each of said retainer means being sufficiently resilient so as to be capable of being snapped into place on the securing means with which it is associated so as to hold the terminal rib on the hinge means within the channel on such securing means,

each of said retainer means being shaped so as to extend with respect to the channel on the securing means with which it is associated so as to engage the terminal rib in such channel and so as to hold such terminal rib within said channel, each of said retainer means also being shaped so as to include latch means engaging the holding means on the securing means with which said retainer means is associated so as to hold said retainer means in position.

2. A drapery structure as claimed in claim **1** wherein:

each of said retainer means is shaped so as to include a retainer hook capable of fitting around and into the channel on the securing means with which it is associated and a latch hook engaging the holding means on the securing means with which it is associated.

3. A drapery structure as claimed in claim **2** wherein:

each of said retainer means including a clamp finger, said clamp fingers engaging the panels with which said retainer means are associated.

4. A drapery structure as claimed in claim **1** wherein:

each of said hinge means includes a body, flanges extending from said body which are thinner than the thickness of said body and wherein said terminal ribs are located on the extremities of said flanges remote from said body.

5. A drapery structure as claimed in claim **1** wherein:

each of said hinge means includes a body, flanges extending from said body which are thinner than the thickness of said body and wherein said terminal ribs are located on the extremities of said flanges remote from said body, and

each of said retainer means is shaped so as to include a retainer hook capable of fitting around and into the channel on the securing means with which it is associated and a latch hook engaging the holding means on the securing means with which it is associated.

References Cited

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PETER M. CAUN, *Primary Examiner.*