July 18, 1967 E. S. GROVES ET AL 3,331,425

PASS-THROUGH CURTAIN

Filed June 25, 1965

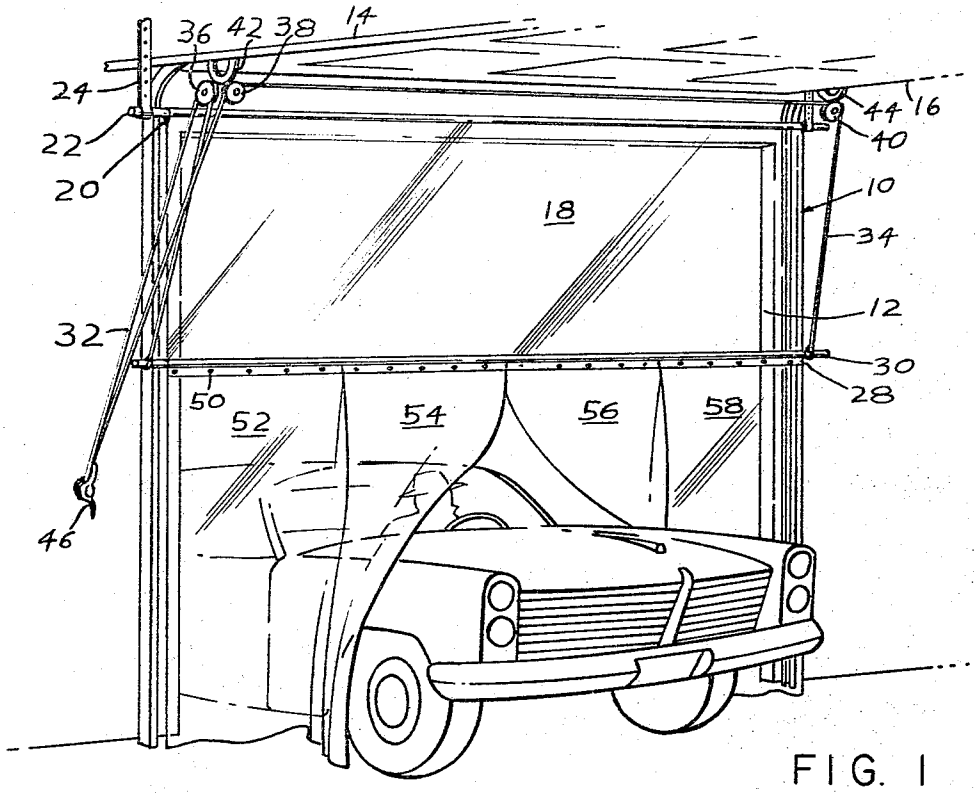


FIG. 1

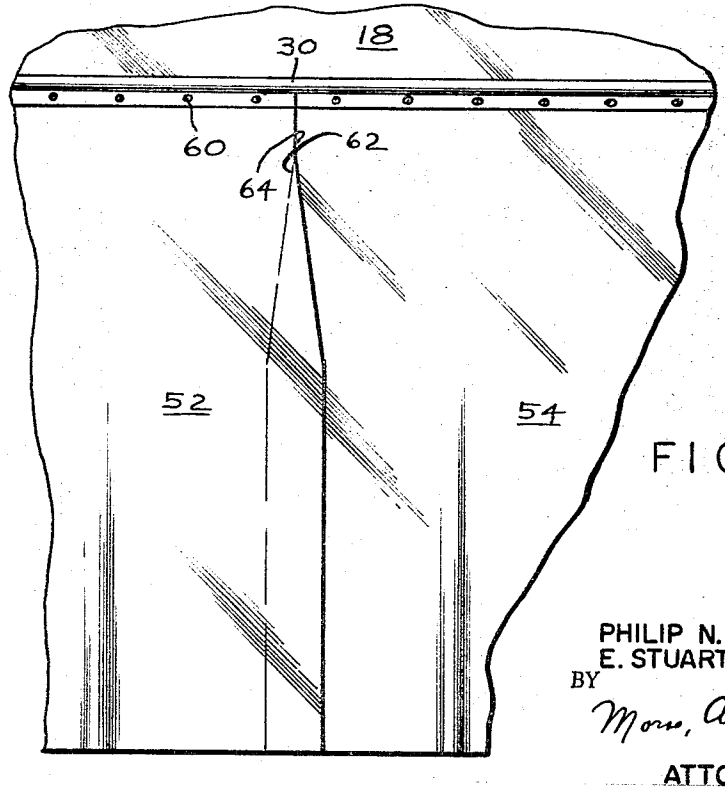


FIG. 2

INVENTORS
PHILIP N. DUNHAM
E. STUART GROVES

BY Morse, Altman & Oates

ATTORNEYS

United States Patent Office 3,331,425 Patented July 18, 1967

3,331,425

PASS-THROUGH CURTAIN

L. Stuart Groves, Lowell Road, Hudson, N.H. 03051, and Philip N. Dunham, Smith St., Biddeford, Maine 04005

Filed June 25, 1965, Ser. No. 466,892
4 Claims. (Cl. 160—126)

This invention relates generally to curtain structures and more particularly is directed to a pass-through curtain for use across passageways such as doorways, garage entrances and the like.

In many types of buildings such as service stations, automobile garages, warehouses and the like, it is necessary that doorways be open for extended periods for ingress and egress of men and material. In automobile repair shops and gas stations for example, in which the doorways are usually quite large to accommodate automobiles and trucks, overhead doors are employed and these must usually be kept in a raised position during working hours to permit movement of men and vehicles therethrough. Because of the large area of the doorway in such buildings, it is extremely difficult during cold weather to maintain a comfortable temperature level within the building. Even though the door may be opened and closed quickly, there is, nevertheless, a large loss of heat each time the door is operated. Also, it is a nuisance to keep opening and closing the doors while vehicles are moved in and out.

Accordingly, it is the object of the present invention to provide a new and improved pass-through curtain for use across doorways and the like.

Another object of this invention is to provide transparent draft-free barrier which permits the free movement of solid objects therethrough.

A further object of this invention is to provide a pass-through curtain having detachable and replaceable component parts.

A still further object of this invention is to provide a simple, low-cost, transparent pass-through curtain for doorways and the like, which curtain may be quickly and easily installed and may be readily drawn for storage and passage of oversized vehicles and the like.

More particularly, this invention features a pass-through curtain for doorways and the like comprising a relatively large upper main body panel of a size to span the upper portion of a doorway, for example, when suspended thereacross and a plurality of relatively small lower panels detachably connected along the lower edge of the main body panel and of an aggregate size to span the lower portion of the doorway. As another feature of this invention the lower detachable panels marginally overlap one another and their upper opposing edges diverge from one another to prevent the lower edges of adjacent panels from jamming against one another after being parted. This invention also features a novel suspension system for the curtain comprising transverse rigid rods or the like engaging the upper and lower edges of the main body of the panel whereby the curtain will hang flat against the doorway frame and may be raised or lowered by pulley systems connected to the lower rod.

However, these and other features of the invention, along with further objects and advantages thereof, will become more fully apparent from the following detailed description of a preferred embodiment of the invention, with reference being made to the accompanying drawings, in which;

FIG. 1 is a view in perspective of a pass-through curtain and associated suspension apparatus made according to the invention, and

FIG. 2 is a fragmentary front elevation on an enlarged scale showing details in the construction of the lower panels.

Referring now to the drawings, the reference character **10** generally indicates a pass-through curtain assembly suspended across a relatively large doorway **12** from a frame **14** for an overhead door **16**. The curtain is generally organized about a relatively large, rectangular, upper main body panel **18** fabricated from a flexible sheet. The main body panel **18** is of sufficient width and height to span the upper portion of the doorway opening with several inches overlap around the margins thereof when suspended in position. The panel **18** in the preferred form of this invention is fabricated from a flexible, clear, transparent sheet. For this purpose, transparent vinyl plastic of about 12 gauge thickness, for example, has been found to be particularly satisfactory for reasons of cost, durability transparency and draping characteristics. Quite obviously many other suitable materials may be used to advantage in place of vinyl.

As shown in FIG. 1, the upper edge of the panel **18** is formed into horizontal hem or sleeve **20** to accommodate a length of rigid pipe **22** or the like inserted therein. It will be noted that the ends of the pipe **22** extend beyond the side margins of the panel **18** and are supported by hangers in the form of metal straps **24** secured to the frame **14** which supports the overhead door **16**.

Adjacent the lower marginal edge of the panel **18** is a second horizontal sleeve **28** which accommodates a length of pipe **30** inserted therein. As with the top pipe **22**, the ends of the lower pipe **30** also extend beyond the side margins of the panel **18** for connection with the ends of ropes **32** and **34** in a pulley system comprising pulleys **36**, **38** and **40** attached to the overhead frame **14** by pulley hangers **42** and **44**. The free ends of the ropes **32** and **34** are normally secured to a cleat **46** mounted adjacent the doorway. It will be understood that the pulley system permits the pipe **30** to be raised in a horizontal condition whereby the curtain will also be raised either for storage purposes or to permit the passage of large trucks or the like. The cross pipes **22** and **30**, by reason of their weight and rigidity, also provide a frame for the panel **18** and combine to hold the curtain suspended in a flat condition against the doorway frame thereby minimizing drafts and movement of the curtain.

Spaced along the lower margin of the panel **18**, below the sleeve **28**, a number of connectors such as snaps **50** or other suitable devices, are attached. These snaps provide a detachable connection for a plurality of smaller flexible panels **52**, **54**, **56** and **58** which form the lower part of the curtain **10**. The individual panels **52** through **58** are each provided with cooperating snaps **60** or the like spaced along their upper margins for engagement with the snaps **50** on the panel **18**.

Typically, the lower panels **52** through **58** are on the order of 6 to 7 feet in length and perhaps 3 feet or so in width. The several lower panels are separate from one another and may be removed or replaced individually. The lower panels are suspended from the main panel so that opposing margins of adjacent panels overlap by about two inches to provide an effective seal against drafts. In practice, and when using the curtain over a garage doorway, the two center panels which are **54** and **56** in the FIG. 1 embodiment, preferably should each be 36 inches in width insofar as the standard car is about 6 feet in width. In this fashion, an automobile may drive through the curtain as suggested in FIG. 1 so that the panels **54** and **56** will part easily. Also, this arrangement permits an automobile antenna, which may be located to either side of the car, to pass between the pairs of panels **52** and **54** or **56** and **58**. If the antenna were to push against the center part of one of the panels, the antenna may be damaged.

In order to insure that the lower panels return to overlapping positions after being parted the upper opposing edges of an adjacent pair, such as pair **52** and **54** shown in FIG. 2, are cut on the bias as at **62** and **64**. The cutaway portion extends about two feet down from the top edge of each lower panel. The upper opposing edges of the panels butt one another at the top of the bias cuts and then proceed to overlap. The converging cut edges **62** and **64** overlap about 1 foot down from the top and at the two foot point the margins become parallel and overlap by about two inches continuously down to their lower edges. With this arrangement, the opposing edges of an adjacent pair of panels will not butt or jam against one another after they have been parted, but rather will return to a flat overlying condition.

The lower panels **52** through **58** typically are fabricated from a clear, transparent material similar to that used in the main body panel **18** but of a heavier stock and preferably of about twice the thickness of the panel **18**. Insofar as the panels **52** through **58** will be subject to wear and abrasion by reason of men, vehicles and materials passing therethrough, it has been found that a lamination of vinyl and Mylar is particularly satisfactory for use in the lower panels. Both materials are clear, transparent and flexible and the Mylar provides high resistance to puncturing and wearing. Mylar is the trademark for a highly durable transparent water repellent film of polyethylene terephthalate resin produced by Du Pont. The Mylar may be laminated to either or both sides of vinyl as desired.

The curtain may be made up in various sizes for covering doorways or passages of any size. Obviously the size and number of the lower panels may be varied as desired. The curtain has particular utility in large workshops and the like and preferably is suspended behind the door which may be operated with the curtain in place. During winter months, for example, the curtain may be left in place and the door may be operated without interferring with the curtain in any way. The curtain thus provides a transparent barrier to the elements while permitting free passage of men and vehicles therethrough. The upper main body panel **18** normally may be left in position permanently except when a particularly large vehicle or other object must be moved through the doorway. By reason of the fact that the upper panel is one-piece affair and is not subject to traffic, very little heat will be lost through the upper portion of the doorway and any heat lost through the lower portion of the doorway will be minimized by the fact that the smaller lower panels naturally overlap one another and are parted only when a person or vehicle passes through. During summer months the curtain may serve to prevent loss of air conditioned air within a room or building subject to a lot of traffic or if the curtain is to be stored the bottom panels may be detached and the upper panel drawn up by means of the pulley system. Insofar as the lower panels are individually detachable, some or all may be removed or, should one or more become worn or otherwise damaged, it may be individually replaced. The heavy weight of the lower panels insures that they will hang straight and thus provide stability against wind.

While the invention has been described with particular reference to the illustrated embodiment, it will be understood that numerous modifications thereto will appear to those skilled in the art. For example, the main body panel **18** may be used as a support or as background for advertising material. The panel itself may be imprinted with advertising or an array of snaps may be connected to the panel for detachably engaging other panels across the face of the main body panel, which other panels may contain

advertising material. Also, many different materials may be employed in the curtain and various types of connectors may be used to detachably connect the lower panels to the main body panel. While the curtain has been described with particular reference to garage doorways and the like, it may also be used to advantage at loading doors for warehouses or the like, across entrances to mines or in any similar type of installation where a transparent pass-through barrier would be useful. In addition, the curtain may be employed within a building as a barrier between one area and an adjacent area against dust or the like.

Accordingly, the above description and accompanying drawings should be taken as illustrative of the invention and not in a limiting sense.

Having thus described the invention, what we claim and desire to obtain by Letters Patent of the United States is:

1. A pass-through curtain for doorways and the like, comprising

(a) a relatively large main body panel of flexible material adapted to be suspended across the upper portion of said doorway,

(b) a plurality of relatively small lower panels of flexible material detachably connected along the lower edge of said main body panel for spanning the lower portion of said doorway,

(c) elongated rigid members connected to and extending across the upper and lower margins of said main body panel, and

(d) supporting means for mounting the upper member across the top of said doorway.

2. A pass-through curtain according to claim **1** including lifting means connected to the lower member for raising said curtain.

3. A pass-through curtain for doorways and the like, comprising

(a) a main body panel of flexible imperforate material,

(b) mounting means suspending said body panel across the upper portion of said doorway, and

(c) a plurality of lower panels of flexible imperforate transparent material detachably connected and freely hanging along the lower edge of said main body panel for spanning the lower portion of said doorway,

(d) the upper portions of opposing side edges of adjacent said lower panels are formed to diverge from one another and the lower portion of said adjacent panels marginally overlap.

4. A pass-through curtain according to claim **3** wherein at least said lower panels are fabricated from a laminated flexible sheet including a relatively thick stratum of a clear, flexible transparent and relatively soft material and at least one relatively thin stratum of a clear, flexible, transparent and relatively hard material.

References Cited

UNITED STATES PATENTS

333,158	12/1885	Reynolds	160—237 X
1,726,887	9/1929	Clamp	160—237
1,778,499	10/1930	King	160—330
2,122,532	7/1938	Mims et al.	160—330
2,500,074	3/1950	Hill	160—330 X
3,035,275	5/1962	Strebeigh	160—237 X
3,136,356	6/1964	Mears	160—87

DAVID J. WILLIAMOWSKY, *Primary Examiner.*

REINALDO P. MACHADO, *Examiner.*

P. M. CAUN, *Assistant Examiner.*