

July 17, 1962

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3,044,540

CANOPY-DOOR UNIT

Filed April 25, 1960

3 Sheets-Sheet 1

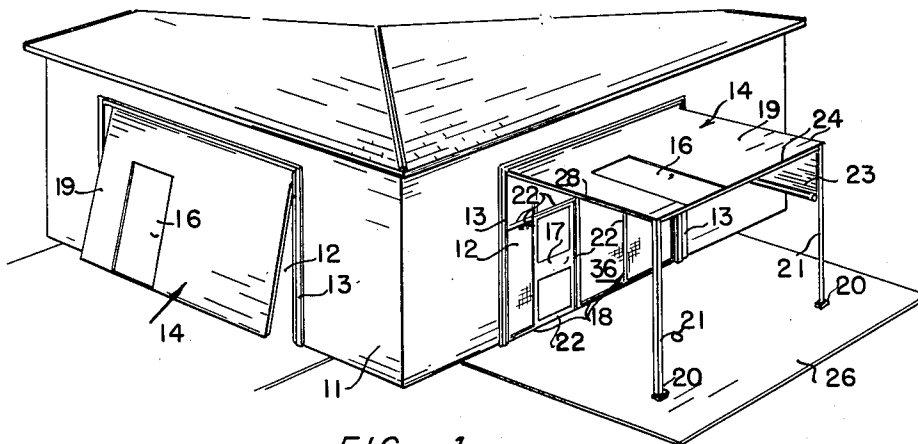


FIG. 1

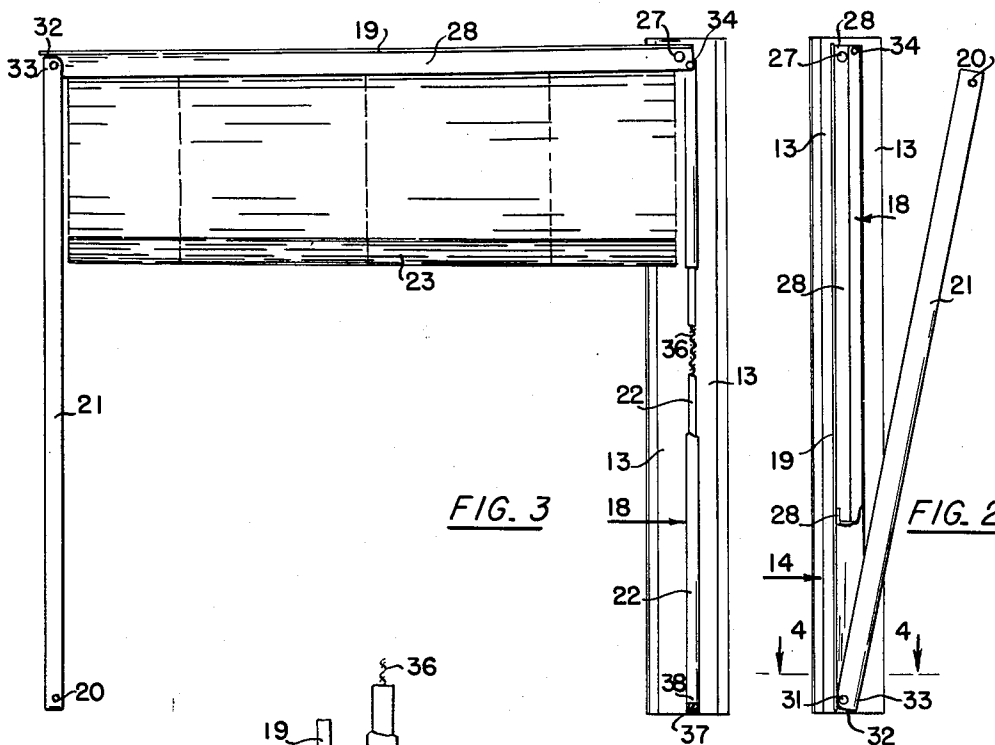


FIG. 3

FIG. 2

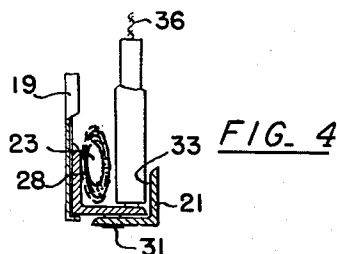


FIG. 4

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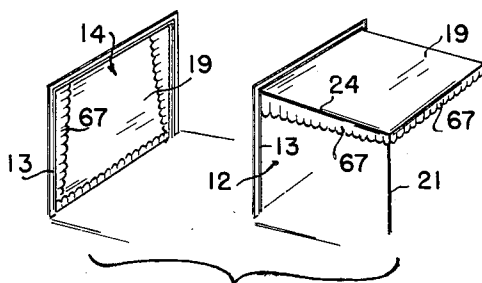
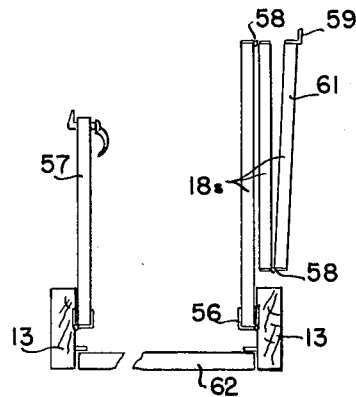
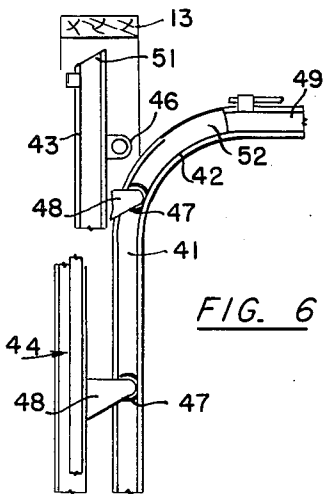
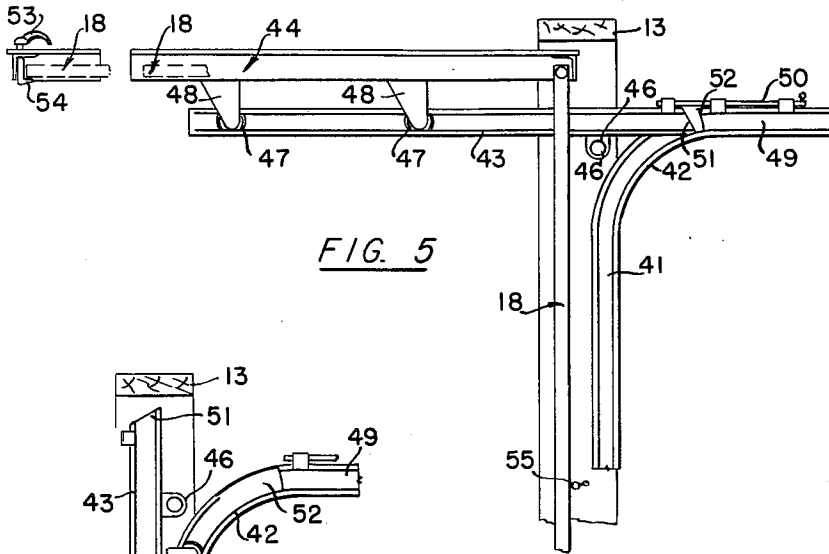
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

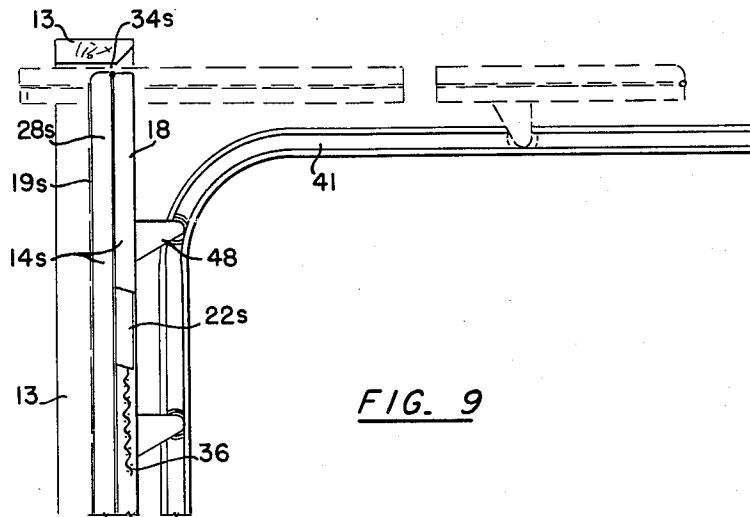


FIG. 9

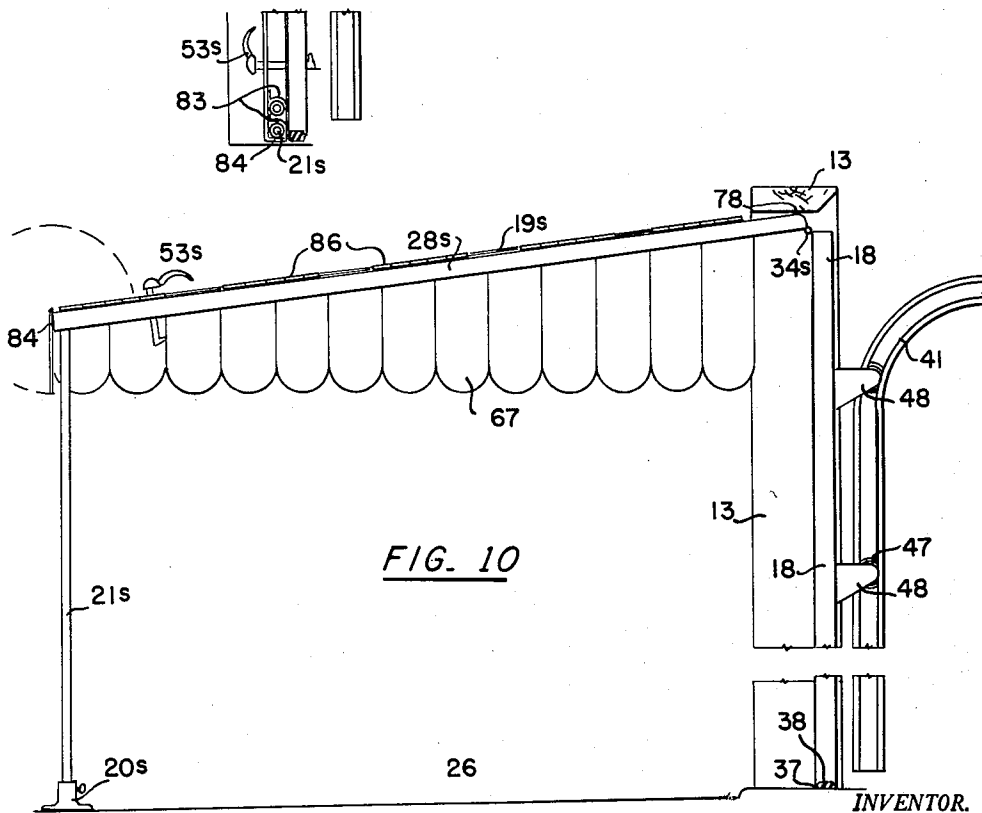


FIG. 10

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3,044,540

CANOPY-DOOR UNIT

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8 Claims. (Cl. 160—20)

The present invention relates to a multiple use type of door or closure unit for large, garage door type openings and, more particularly, to a door or closure structure which is adaptable for alternate use to provide weather-tight or ventilated closure.

Previously, various types of door apparatus have been invented and manufactured for use to close major size openings, such as garage doors, and to keep out adverse weather conditions. In recent years it has been recognized that garage structures, whether attached or detached from the house, can be used for patio type living activities. This use of such structures would be facilitated by a screen type ventilated closure for the door opening.

Accordingly, it is an object of this invention to provide a door structure which will add to the comfort and utility of garages and other open spaces so that such structures may be readily converted to living purposes.

In accomplishment of this purpose, it is the major object of this invention to provide a door structure which combines a solid closure element and a screen element in the same unit for alternate usage.

A further and related object is to provide a door structure which may be used as a sun, rain and wind protective canopy while the screen element of such structure is used to provide a ventilated closure positioned at the door jamb to prevent the unwarranted intrusion of bugs and insects or uninvited persons.

A further object of this invention is to provide a solid weather excluding type of door structure which during normal use encloses and protects a screen closure element that may be brought into use in place of said solid structure when it is desired to have free ventilation.

Another object of this invention is to provide a multiple type of door structure which incorporates various useful elements into a compact unit and in which such elements include an alternate space closing screen element, structural supports for holding a solid door in canopy type arrangement, and further means for providing additional screen and shade protection.

A still further object of this invention is to obtain the desired worthwhile and beneficial results in various ways and through use of different means in order to make the advantages of this invention available to new and home-remodeling types of construction.

Further objects and advantages of the invention will be apparent from the appended description and drawings, in which—

FIG. 1 is a perspective view illustrating the alternate usages of embodiments of this invention,

FIG. 2 is an elevation in partial cross-section showing the combined unit in its compact near-assembled relation as used for conventional weather excluding purposes,

FIG. 3 is an elevation in partial cross-section showing the embodiment of FIG. 2 in its alternate use relationship as a shade protective canopy and screen closure,

FIG. 4 is an elevation in partial cross-section taken along the line 4—4 of FIG. 2,

FIG. 5 is an elevation in partial cross-section of a separate embodiment of this invention with some of the parts being illustrated in alternate positions,

FIG. 6 is an elevation showing further features of the embodiment shown in FIG. 5,

FIG. 7 is a plan view in partial section of a separate embodiment of the invention,

FIG. 8 illustrates alternate positions for a modified embodiment of the invention,

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FIG. 9 is an elevation in partial section of a preferred embodiment of this invention, and

FIG. 10 is an elevation in partial section showing an alternate position for the structure of FIG. 9.

Briefly stated, the present invention provides a door unit for use on garages and other structures that is of such design and configuration that a permanent closure element of near-conventional type and its frame structure carries and encloses a screen or otherwise vented type of closure element. The door unit is further constructed so that the solid permanent closure element may be raised to an extended position to be held there by structural elements to provide a canopy type of shelter above and extending outwardly from the door opening for the structure. At the same time the ventilated or screen closure element is at the upright position to close off the passageway into the structure and to prevent the entrance of insects while permitting the free passage of cooling air and of guests. Other features provide additional shade screening or special access functions, as desired. Separate means for mounting and operating the unit in its alternate usages are included in the invention.

Referring now to the drawings, the function of the unit may be best understood in connection with the perspective view provided by FIG. 1. Here it will be noted that a building structure 11 is provided with conventional types of door-openings 12 which are framed by the door jambs 13 in conventional manner. For the purposes of illustration, two separate door openings 12 have been shown. At the left the door unit 14 is shown in compact arrangement and in near-closed position. This illustrates the conventional usage of the door unit when it is being used to provide a permanent and solid type of closure for the garage door opening 12. When completely closed, automobiles and materials within the structure are protected from weather and unwarranted entrance. When personnel entry is desired without opening the entire door unit 14, a separate entrance door 16 may be provided. This separate entrance doorway 16, as will be shown later, is positioned in registration with a screen door 17 in the screen closure element 18.

The features of the alternate usage of the unit are illustrated at the right in this same FIG. 1. Here the door unit 14, which comprises the exterior facing 19, its frame 20, the screen closure 18 and the support braces 21, is opened or expanded so that the solid facing 19 is raised to a canopy position and supported in such position by the braces 21. Preferably the braces 21 are engaged and held to the patio apron 26 by sockets 20 to prevent unwanted movement or wind damage. When in such position, the facing 19 provides weather and shade protection over and in front of the door opening 12. At the same time the screen closure 18 remains in position in the door opening 12 to close off the passageway therethrough to insects or other undesired intrusion while allowing the free passage of air. As previously mentioned, a screen door 17 is mounted directly in the framework 22 of the screen closure 18 for personnel access into the interior of the building structure 11.

One further feature of this embodiment of the invention is shown in FIG. 1, where it will be seen that a shade screen 23 of roll-up type is provided along one or more of the edges 24 of the door unit frame 28. This shade screen 23 and similar shade screens may be raised and lowered, as desired, to further protect the driveway apron, or patio 26 from the sun or, if desired, to fully enclose the portion of such patio beneath the facing 19.

The structural features of the elements which have been described may be better understood after reference to FIGS. 2, 3 and 4. In FIG. 2 the door unit 14 is shown in its near-compact arrangement with only the support braces 21 being moved to an initially extended position

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for the convenience of illustration. Here the door unit 14 is shown as being mounted to the door jamb 13 by a pivot support 27 which passes through the frame 28 of the door unit 14 and engages the door jamb 13. As illustrated in these figures, the frame 28 is made up of angle sections which are bolted, riveted or otherwise attached to the facing 19, which preferably is a skin structure of a patterned type of aluminum, fibre glass or similar material. The support brace 21 is pivotally secured adjacent the bottom extremity of an upright frame angle piece 28 by the pivot pin 31 in such manner that when the brace 21 is brought to a right angle position with respect to the upright angle 28, the bottom edge 32 of the brace 21 will come into contact with the bottom edge of the facing 19, and back inner face 33 of the brace 21 will come into near-locking contact with other frame members 28.

A further pivot pin 34 pivotally secures the frame structure 22 of the screen closure 18 within the confines of the frame 28. With this arrangement, when the support braces 21 are brought to their extended position, the screen closure 18 and its supporting frame 22 will be free to move pivotally about the pin 34 and away from its compact enclosed position within the frame 28 of the door unit 14. If the frame 28 is brought to its raised canopy position, a roll screen element 23 normally carried between the screen closure 18 and the facing 19 may be released to be lowered into the position shown in FIGS. 1 and 4, or may be fully lowered together with other screens to completely enclose the portion of the patio 26 beneath the raised door unit 14.

The screen closure 18 includes the frame elements 22, the screen door 17 and the enclosing wire screen 36 itself. When this unit is left in the upright position within the door opening 12, the interior of the building structure 11 is still substantially closed off to unwarranted intrusion. Actually an insect-tight closure is possible with the structural features shown and described, since the raising of the door frame 28 causes an effective lowering of the pivot pin 34 and, accordingly, of the screen closure 18 mounted therewith. By proper placement and arrangement of the pivots 27 and 34 this downward motion can be used to compress a resilient molding 37 attached to the bottom edge 38 of the screen closure 18. This compression of the resilient molding 37 effects a tight seal against the patio apron 26 and holds the screen closure 18 in non-swinging relation and in its desired position.

Other advantageous features of this invention should be mentioned in connection with this first sheet of drawings. While the two openings 12 are shown in the building structure 11 primarily for the purposes of illustration, it should be realized that multiple openings can be provided simply for the increased comfort and utility provided. Whether the structure on which the door units are used is a garage or a different type of structure, door units coming within the scope of this description and invention will provide improved leisure and living conditions throughout the year. It is suggested that both new and old structures may be provided with one or more of the described units. Multiple units will, of course, provide increased shade protection for the building and through-ventilation.

Because of the simplicity of construction of the door unit 14, it is conceived that this unit is adaptable to use on beach or resort structures which may be of permanent or even movable type construction. Some further and additional features of the invention are shown and may be described in connection with the remaining figures of the drawings.

In FIGS. 5 and 6 the invention is shown as adapted to a track supported type of overhead door. For this embodiment of the invention, a solid type of door 44 is supported by a conventional type of track 41 which has been modified, as by cutting away the flange 42, so that a switching track 43 may be pivoted about its support 46 to the alternate positions shown in FIGS. 5 and 6.

When in the position shown in FIG. 6, the track rollers

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47 will follow their normal curved path, and the door support brackets 48 will move the door 44 into its closed and raised positions. When it is desired to use the canopy-screen enclosure features of the unit 44, the door is first raised so that both rollers 47 will be returned to the horizontal segment 49 of the track 41. Thereafter the switching track 43 is pivoted to its raised position, as shown in FIG. 5, until the end 51 of the switching track 43 is received in the notch 52 provided in the curved track 41. When locked in this position by the lock 50, the door 44 may be moved reciprocally along the horizontal track 49 and thereafter along the switching track 43 to an extended position as shown in FIG. 5.

When in its full extended position, the screen closure 18 may be lowered to close off the door opening in manner similar to that illustrated in FIG. 1. Since the switching track extension 43 may be made of sufficient strength to hold and support the door unit 44 in its raised position, the support braces 21 previously used are not absolutely necessary. Where these braces are not used, a latch mechanism 53 having a tongue extension 54 may be used to hold the screen closure 18 within the frame of the door unit 44 until the screen closure 18 is to be lowered to its useful position. A bolt lock 55 may be used in this embodiment to secure the screen closure 18 in the door jamb 13.

FIG. 7 illustrates a still further modification of the invention which makes it easily possible to provide the benefits described for use with some garage doors that are already installed. In this embodiment the screen closure 18s is made up of a plurality of segments 61 that are joined together by hinges 53 and that are attached to the door jamb 13 by separate hinges 56. In this arrangement most segments 61 of the screen closure 18s are joined to one door jamb 13 while a single full height segment 57 is joined to the opposite door jamb 13. When in the position of use across the doorway, the segment 57 may be used as a swinging screen door to be opened independently for personnel access or to be closed and brought into engagement with the receiving door stop 59 on the mating screen segment 61. As illustrated, this unit can be installed for use together with any conventional type of overhead door 62 if proper attention is paid to the placement and design of the hinges 56 which are used to mount the screen closure 18s on the door jamb 13.

Since the door unit 14 provides a canopy type structure over and in front of the door opening 12, it has been found desirable in some instances to provide a valance 67 around the edges of the frame structure and facing 19. As illustrated in FIG. 8, this valance 67 may be used to provide additional decorative features for the door unit 14 when the door unit is in its normal or closed position. If the valances are mounted by hinges 86 along the edges 24 of the facing 19, they may be swung forwardly as the door unit 14 is lowered to a position flat against the facing 19 but in front thereof when the door is closed.

A separate and preferred embodiment of the invention is shown in FIGS. 9 and 10. In this embodiment of the invention as illustrated, it will be seen that the practice of the invention is directly adaptable to conventional types of overhead door hardware. Whether the presently existing hardware is of the track type or made up of a system of levers and counter-balances, the advantages of the present invention will be made possible through the substitution of the structure as shown for the previously used solid door panel. This beneficial result is obtained by substituting a combined door unit 14s for the previous solid door panel.

As in the previous embodiments of the invention, the door unit 14s that is to be substituted for the original solid panel door is made up of two major components. The exterior permanent closure element, formed of a solid panel facing 19s and the frame structure 28s, is cooperatively assembled with the screen closure element 18 which

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includes its own separate frame 22s to hold and support a door 17 (not shown), screen 36 and the like.

One major difference between this and the prior embodiments resides in the fact that the screen closure element 18 is the unit directly fastened to and supported by the door hardware. Accordingly, when the hardware is moved to its alternate open and closed positions, the screen closure element 18 will move with such hardware to horizontal and vertical positions respectively. At all times that the door unit 14s is in the horizontal position, the screen element 18 and the frame and facing structure will be in a compact relation as shown by the dotted line representation in FIG. 9. When it is desired to close the passageway, the entire door unit 14s will be moved to its vertical position at the doorway as defined by the door jambs 13. After the door unit 14s has been moved to this vertical and normally closed position, movement of the latch mechanism 53s may release the frame and facing element from the screen closure element 18. Thereafter the frame and facing may be moved pivotally about the pivot pin 34s to an extended and near horizontal position, as shown in FIG. 10. When the frame and facing element is in this extended position, it may be held in such position by extension of the braces 21s which are selectively folded down out of the enclosure provided by the frame 28s. Preferably in this embodiment the braces 21s are folded along the lower outward free edge 84 of the frame 28s and are normally held in such folded position by spring clips 83. As in the previous instance, a socket 20s is provided on the driveway or patio apron 26 to receive and hold the braces 21.

The drawing presented by FIG. 10 further illustrates the fact that the pivoting movement of the separate door elements about the pivot pin 34s can be used to compress the resilient molding 37 disposed along the bottom edge 38 of the screen closure element 18. This result is obtained when fulcrum point 78 on the frame and facing element engages the top door jamb 13. Thereafter subsequent pivoting movement of the frame and facing element will cause a resultant downward movement of the screen closure element 18 to compress the resilient molding 37 against the patio apron 26. In addition to providing an air and insect tight seal, this forced engagement is beneficial, since it eliminates any tendency of the door hardware counter-balancing equipment to retract the effectively lighter screen closure element 18 when the frame and facing element have been raised to the extended position. If desired, a position lock such as the bolt lock 55 previously described may be used.

FIG. 10 further illustrates the provision of the pivotally mounted valance 67. For the purpose of clarity of illustration, this drawing depicts an arrangement in which the valance closest to the observer is still in the raised position while the valance 67 at the opposite edge of the door has been lowered. In this mode of illustration it is possible to show the interrupted piano type hinges 86 which may be used along the edge of the frame 28s to hold and support the valance 67 in both its folded and extended positions.

While this embodiment of the invention has been shown in connection with its use on solid types of doors that might be made of metal, wood or other materials, it should be obvious that the invention is adaptable to overhead door installations of the folding or segmental type. On such installations both the screen closure element and the door facing would necessarily be made up of a plurality of sections that are hinged together for easier movement about the curved track 41. Through use of the proper types of hinges, the frame and facing element portion of even this type of folding door could be moved to the near-horizontal extended position without danger of collapse.

A further beneficial modification of the invention would provide telescoping sections to be carried by the

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exterior frame and facing element. The telescoping sections could be extended after the frame and facing element was raised to provide additional shade and weather covering as necessary to provide even a full carport covering.

From the foregoing description and drawings, it is believed to be apparent that the applicant provides a beneficial invention of great utility. Though separate embodiments have been shown and described, it is believed to be apparent that further embodiments of this invention and further modifications of such embodiments are possible. All such modifications and changes as come within the scope of the claims of this patent are considered to be a part of this invention.

I claim:

1. A multiple use door unit adapted for use in doorways as defined by door jambs and a threshold or supporting floor comprising a frame, a facing of solid translucent to opaque material on said frame for closing off the defined passageway through said doorway when said frame and facing structure are in a first closed position, a pivot support at the top of said frame and the upright door jambs for selectively holding said frame and facing structure in alternate positions at said doorway, said alternate positions being inclusive of a vertically disposed closed position and of a substantially horizontally disposed position extending outwardly from said door jamb wherein the frame and facing structure are useful as a weather and sun protecting canopy, a screen closure structure of size adapted to substantially close off said passageway, a pivot pin on said door unit frame for pivotally holding said screen closure to said frame, and lock means on said door unit frame for selectively holding said screen closure in compact position integral with said frame and facing structure for movement therewith and for releasing said screen closure for independent movement, said pivot support and pivot pin being cooperatively positioned each to each whereby said pivot pin and screen closure move downwardly as the frame and facing structure are raised to the canopy position to hold said screen closure in position against said threshold and across said doorway for preventing unwanted intrusions through said doorway when the door unit frame and facing are in such raised canopy position.

2. A multiple use door unit adapted for use in doorways as defined by door jambs and a threshold or supporting floor comprising a frame, a facing of solid translucent to opaque material on said frame for closing off the defined passageway through said doorway when said frame and facing structure are in a first closed position, a pivot support at the top of said frame and the upright door jambs for selectively holding said frame and facing structure in alternate positions at said doorway, said alternate positions being inclusive of a vertically disposed closed position and of a substantially horizontally disposed position extending outwardly from said door jamb wherein the frame and facing structure are useful as a weather and sun protecting canopy, a screen closure structure of size adapted to substantially close off said passageway, a pivot pin on said door unit frame for pivotally holding said screen closure to said frame, lock means on said door unit frame for selectively holding said screen closure in compact position integral with said frame and facing structure for movement therewith and for releasing said screen closure for independent movement, said pivot support and pivot pin being cooperatively positioned each to each whereby said pivot pin and screen closure move downwardly as the frame and facing structure are raised to the canopy position, and a resilient member on the free end of said screen closure for compression against said threshold to hold said screen closure in position across said doorway for preventing unwanted intrusions through said doorway when the door unit frame and facing are in such raised canopy position.

3. A multiple use door unit for use with conventional

retracting types of overhead door operating and suspension mechanisms in doorways defined by door jambs and a threshold to provide a closure for such doorway and a weather and sun protecting canopy extending outwardly from said door jambs and doorway comprising a frame, a facing on said frame to provide a frame and facing structure, a separate support element, pivot means joining said frame and facing structure and said support element together for selective conjoint and divergent movements, means joining said support element to the overhead door operating and suspension mechanism for movement therewith to alternate closed door and inwardly retracted open door positions whereby the said pivot means is moved to alternate positions with a first position being adjacent the door jambs of said doorway and a second position retracted inwardly therefrom, and means for selectively holding said frame and facing structure pivotally away from said support element and toward a canopy position extending outwardly from said door jambs when the pivot means is at its first position.

4. A multiple use door unit for use with conventional retracting types of overhead door operating and suspension mechanisms in doorways defined by door jambs and a threshold to provide a closure for such doorway and a weather and sun protecting canopy extending outwardly from said door jambs and doorway comprising a frame, a facing on said frame to provide a frame and facing structure, a separate screen closure element of size likewise adapted to substantially close off said doorway, pivot means joining said frame and facing structure and said screen closure element together for selective conjoint and divergent movements, means joining said screen closure element to the overhead door operating and suspension mechanism for movement therewith conjointly with said frame and facing structure to alternate closed door and inwardly retracted open door positions whereby the said pivot means is moved to alternate positions with a first position being adjacent the door jambs of said doorway and a second position retracted inwardly therefrom, and means for selectively holding said frame and facing structure pivotally away from said screen closure element and toward a canopy position extending outwardly from said door jambs when the pivot means is at its first position and with the screen closure element remaining in its closed door position.

5. A multiple use door unit for use with conventional retracting types of overhead garage type door operating and suspension mechanisms in vehicular doorways defined by door jambs and a supporting floor to provide a closure for such doorway and a weather and sun protecting canopy extending outwardly from said door jambs and doorway comprising a frame, a facing on said frame to provide a frame and facing structure, a separate screen closure element of size likewise adapted to substantially close off said doorway, pivot means joining said frame and facing structure and said screen closure element together for selective conjoint and divergent movements, means joining said screen closure element to the overhead door operating and suspension mechanism for movement therewith conjointly with said frame and facing structure to alternate closed door and inwardly retracted open door positions whereby the said pivot means is moved to alternate positions with a first position being adjacent the door jambs of said doorway and a second position retracted inwardly therefrom, means for selectively holding said frame and facing structure pivotally away from said screen closure element and toward a canopy position extending outwardly from said door jambs when the pivot means is at its first position and with the screen closure element remaining in its closed door position, said screen closure element providing a personnel sized opening for the passage of individuals when the said screen closure element alone is in the closed door position, and a separately operable personnel door for the control of traffic through.

6. A multiple use door unit for use with conventional retracting types of overhead door operating and suspension mechanisms in doorways defined by door jambs and a threshold to provide a closure for such doorway and a weather and sun protecting canopy extending outwardly from said door jambs and doorway comprising a frame, a facing on said frame to provide a frame and facing structure, a separate support element, pivot means joining said frame and facing structure and said support element together for selective conjoint and divergent movements, means joining said support element to the overhead door operating and suspension mechanism from movement therewith to alternate closed door and inwardly retracted open door positions whereby the said pivot means is moved to alternate positions with a first position being adjacent the door jambs of said doorway and a second position retracted inwardly therefrom, and means for selectively holding said frame and facing structure and support element in compact relation for conjoint movement or for releasing said elements for independent movement, said holding means being further adapted to hold said frame and facing structure pivotally away from said support element and toward a canopy position extending outwardly from said door jambs when the pivot means is at its first position.

7. A multiple use door unit for use with conventional retracting types of overhead door operating and suspension mechanisms in doorways defined by door jambs and a threshold to provide a closure for such doorway and a weather and sun protecting canopy extending outwardly from said door jambs and doorway comprising a frame, a facing on said frame to provide a frame and facing structure, a separate screen closure element of size likewise adapted to substantially close off said doorway, pivot means joining said frame and facing structure and said screen closure element together for selective conjoint and divergent movements, means joining said screen closure element to the overhead door operating and suspension mechanism for movement therewith conjointly with said frame and facing structure to alternate closed door and inwardly retracted open door positions whereby the said pivot means is moved to alternate positions with a first position being adjacent the door jambs of said doorway and a second position retracted inwardly therefrom, and lever means cooperative with said pivot means for moving said screen closure element into engagement with at least one of the named doorway defining elements to hold said screen closure element in position across said doorway for preventing unwanted intrusions through said doorway when the frame and facing structure are in raised canopy position.

8. A multiple use door unit for use with conventional retracting types of overhead door operating and suspension mechanisms in doorways defined by door jambs and a threshold to provide a closure for such doorway and a weather and sun protecting canopy extending outwardly from said door jambs and doorway comprising a frame, a facing on said frame to provide a frame and facing structure, a separate screen closure element of size likewise adapted to substantially close off said doorway, pivot means joining said frame and facing structure and said screen closure element together for selective conjoint and divergent movements, means joining said screen closure element to the overhead door operating and suspension mechanism for movement therewith conjointly with said frame and facing structure to alternate closed door and inwardly retracted open door positions whereby the said pivot means is moved to alternate positions with a first position being adjacent the door jambs of said doorway and a second position retracted inwardly therefrom, a compression member disposed along an edge of said screen closure structure, and lever means cooperative with said pivot means for moving the compression member on said screen closure structure into engagement with at least one of the named doorway defining elements to

hold said screen closure structure in position across said doorway for preventing unwanted intrusions through said doorway when the frame and facing structure are in raised canopy position.

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