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Swearingen

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[54] PROTECTIVE STORM DOOR

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[52] **U.S. Cl.** **49/171**

[51] **Int. Cl.**[2] **E06B 7/28**

[58] **Field of Search** 49/169–171, 49/DIG. 2; 160/180; 292/147

[56] **References Cited**

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[57] **ABSTRACT**

A storm door for use in a door opening of a home and being of a rectangular shape of a size to fit in the door opening and having interconnected top and bottom and side frame members, the door being divided into a top section and a bottom section each hinged along aligned side edges to the side of the door opening for swinging movement either individually or simultaneously in and out of the door opening, the top section including a frame mounting interchangably a screen and storm window unit with the opening also having a hinged transparent panel lockable in the closed position and openable to permit packages and the like to pass therethrough, a shelf disposed beneath the opening and mounted on the bottom door section for resting the packages and the like thereon, an opening in the bottom half section which is covered by interchangable window and screen units, a foot operated lock at the bottom outermost edge of the bottom section to engage the bottom of the door opening to releasably secure the door in the closed position, and a latching mechanism for latching the top and bottom sections together for simultaneous movement.

7 Claims, 4 Drawing Figures

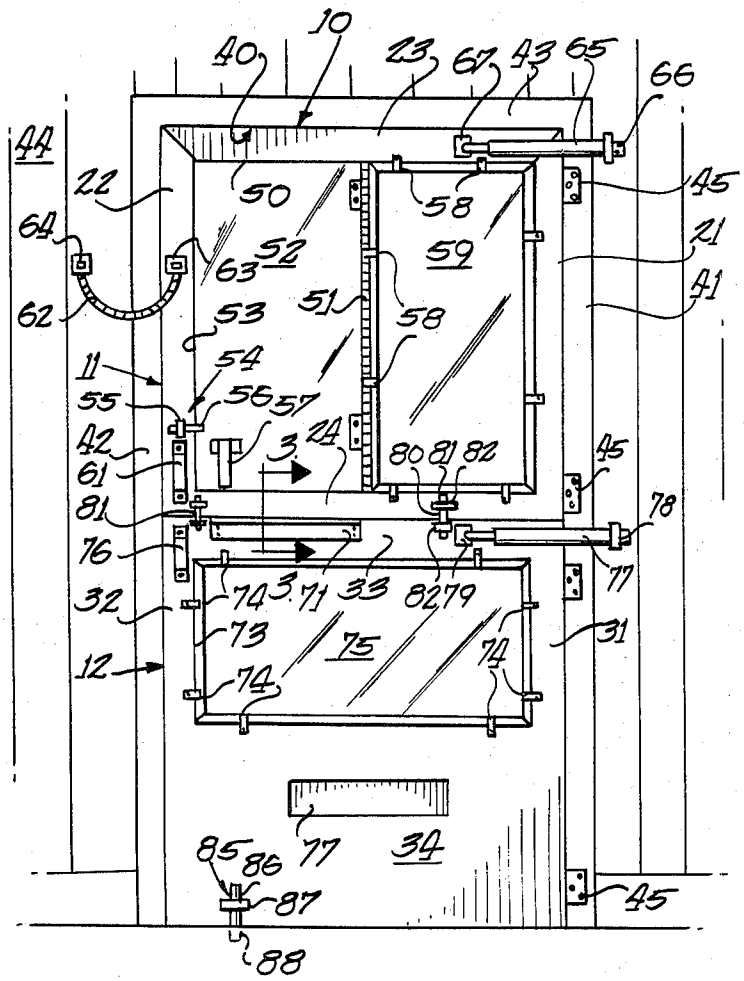


Fig. 1.

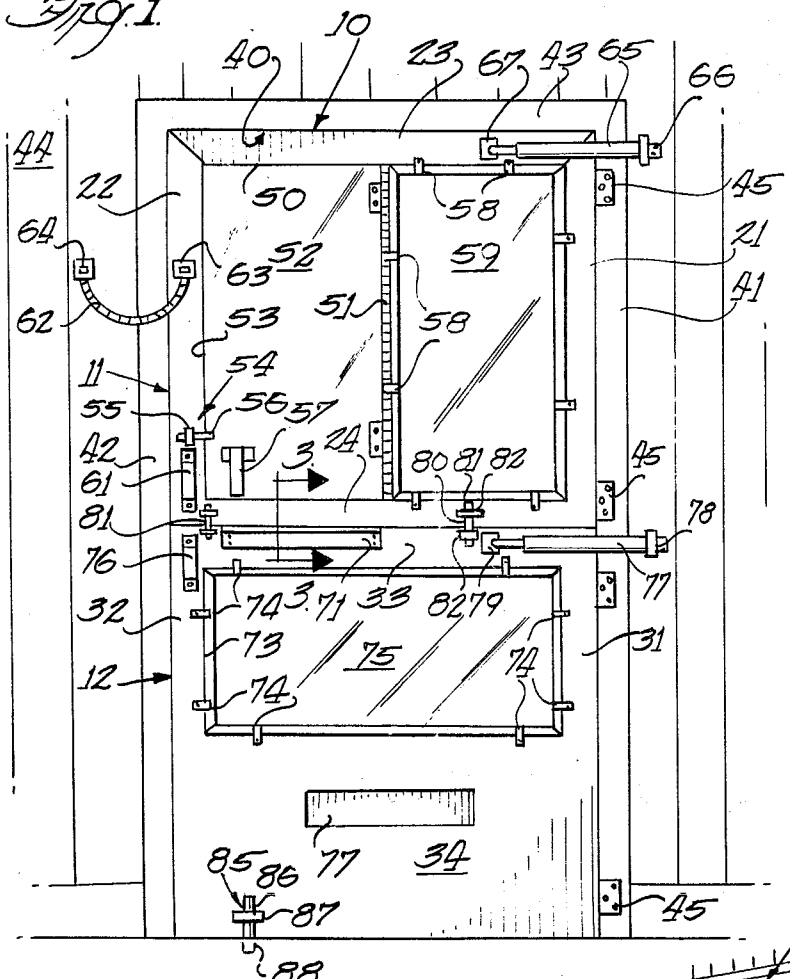


Fig. 2.

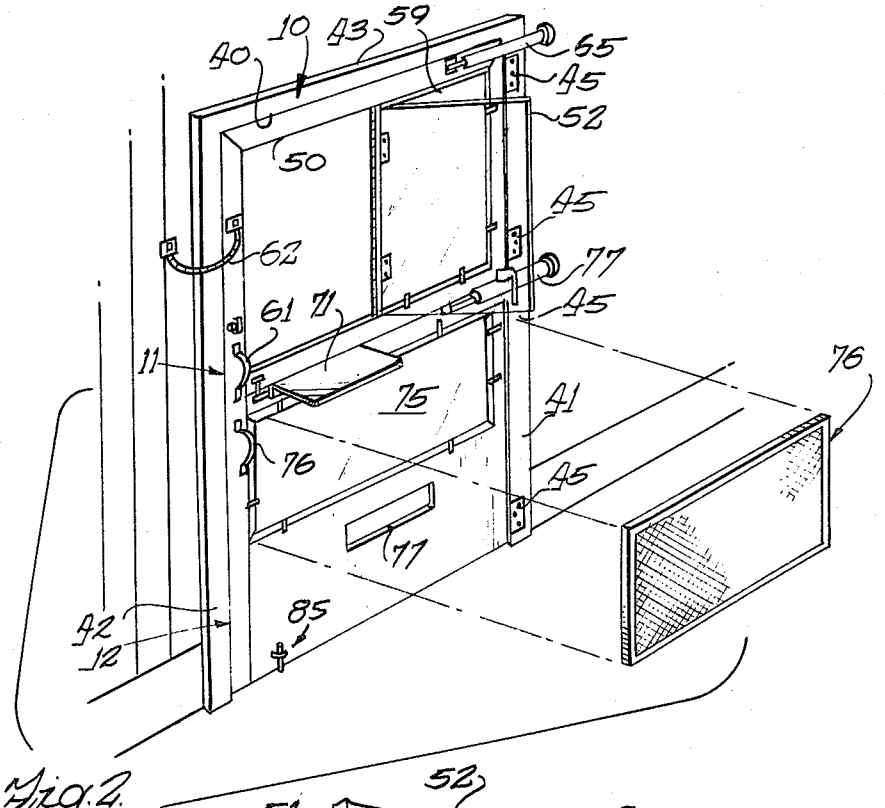


Fig. 3.

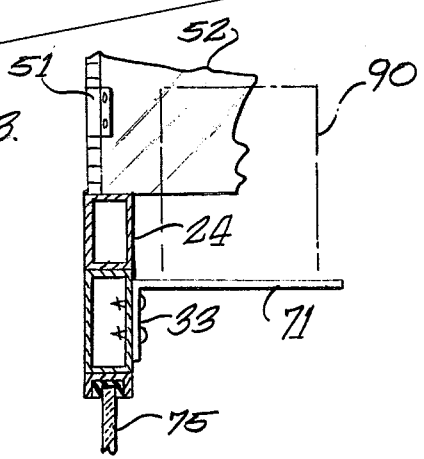
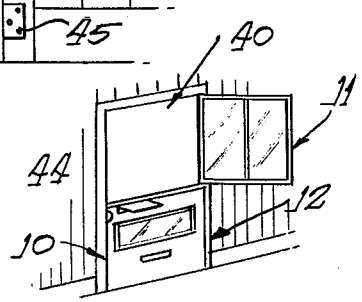


Fig. 4.



PROTECTIVE STORM DOOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to storm doors and more particularly to a novel storm door construction which, while having interchangable removable window units and screen units, includes protective features permitting an individual to open only a portion of the door for receiving packages and the like, this leaving the individual less vulnerable to attack from an individual outside the door.

2. Description of the Prior Art

It has been known in the prior art to provide storm doors made of wood, aluminum framing, and the like and having interchangable window units and screen units in a manner to protect the door of a home and the like from the elements of the weather, with such door keeping insects and the like out of the home in warmer weather while yet providing ventilation therethrough upon the opening of the normal home door.

Such conventional type storm doors, however, provide no protection to the homeowner who, for the receipt of packages being delivered to the home, must fully open the storm door thus exposing the homeowner to a possible attack by the individual making the delivery, or any other individual to which the homeowner is talking with the storm door in the open position.

In this day and age of constantly rising crime statistics and the vulnerability of homeowners to attack, especially housewives who are normally left alone during the day while the husband is at work, necessitates better protective devices for the homeowner to prevent an attack and to assist in the keeping of undesired individuals out of the home while still permitting a means for communicating with such individual in an unobtrusive manner.

SUMMARY OF THE INVENTION

The present invention recognizes the plight of the homeowner and the vulnerability to attack once the home door and storm door are opened, and provides a novel solution thereto in the form of a protective storm door having protective features associated therewith to prevent entry into the home of unauthorized individuals while still permitting the homeowner to receive packages and converse with individuals outside of the storm door while being fully protected behind the storm door.

It is a feature of the present invention to provide a protective storm door which may be conveniently used in various climatic conditions to serve either as a storm door or as a screen door or as any combination thereof, and while doing so provides a protection to the homeowner against unauthorized individuals gaining access to the home through the door under the guise of making a delivery, selling merchandise, and the like.

A further feature of the present invention provides a protective storm door for making a homeowner less vulnerable to attack from outside the home.

Still a further feature of the present invention provides a protective storm door which provides a pleasing appearance exteriorly of the home while yet providing protection to the homeowner.

The provision of a protective storm door, such as briefly outlined above, and possessing the stated advantages, constitutes the principal features of the present invention. The provision of a protective storm door which, due its simplicity of construction and utilization of readily available components, may be manufactured at a cost competitive with the cost of conventional storm doors not having the protective features and advantages of the storm door of the present invention; one which is relatively devoid of moving parts and which therefore is unlikely to get out of order or require any high amount of maintenance or repair; one which is rugged and durable and which therefore may be guaranteed by the manufacturer to withstand a long lifetime of usage; one which is aesthetically pleasing and refined in appearance; one which is readily adapted to be used in home door openings of different sizes; and one which, otherwise, is well adapted to perform the services required of it, are further desirable features which have been borne in mind in the production and development of the present invention.

Other features and advantages of this invention will be apparent during the course of the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings forming a part of this specification, and in which like reference characters are employed to designate like parts throughout the same:

FIG. 1 is an interior view of a door opening having a storm door constructed in accordance with the present invention mounted therein;

FIG. 2 is an interior perspective view of the storm door in the door opening;

FIG. 3 is an enlarged cross-sectional view taken along Line 3—3 of FIG. 1; and

FIG. 4 is a perspective view of the storm door with the top section in the fully open position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in detail there is illustrated a preferred form of a protective storm door constructed in accordance with the principles of the present invention and designated in its entirety by the reference numeral **10**, the storm door being generally comprised of an upper top half section **11** and an adjacent lower bottom half section **12**.

The top half section **11** includes a pair of opposed inner and outer side frame members **21** and **22** interconnected at their end portions by a pair of opposed horizontally extending top and bottom frame members **23** and **24**. The lower half section **12** includes a pair of vertical opposed inner and outer side frame members **31** and **32** and a horizontal top frame member **33** and a horizontal bottom frame member **34** which defines a kick plate surface as will be discussed later in greater detail. The storm door is intended for use in a door opening **40** having opposed vertical sills **41** and **42** interconnected at their top ends by horizontal sill **43**, the door opening positioned in a wall **44**. The upper and lower sections **11** and **12** are co-planar when in the closed position in the door opening **40** with inner side frame members **21** and **31** each connected by a series of hinges **45** to the sill **41** such that each section may be swung into and out of the door opening **40**.

The top section 11 is provided with a rectangular opening 50 which is divided in half by vertical member 51 having hingedly connected thereto a transparent non-breakable panel 52 adapted to be swung about the hinges to a position opening and closing half of the opening 50, the panel having associated with an outer side edge 53 a locking mechanism 54 in the form of a member 55 mounted in side frame 22 and adapted to slidably receive therein a slidable bolt 56 adapted to engage transparent panel 52 when in the closed position to securely lock the same in such closed position, the bolt 56 being slidable in a manner to free the panel 52 for swinging movement about vertical member 51, there being a handle 57 secured on the panel 52 for ease of operation thereof. The remaining half of the opening 50 is provided with clips 58 spaced about the perimeter thereof and adapted to retain in the opening a transparent non-breakable panel member 59, it being understood that the panel member 59 is removable from the opening and interchangable with a screen unit of the same size so as to adapt the storm door for different climatic conditions. A handle 61 is mounted on side frame member 22 adjacent bottom frame member 24 and adapted for opening and closing the top section 11 relative to the door opening 40, the handle automatically locking the top section in the closed position. In addition, there is provided a flexible chain 62 having one end detachably attached to side frame 22 by a holder 63 with the opposite end fixedly attached to a holder 64 adapted to be permanently mounted on the wall 44, the chain 62 being of a length to permit the slight opening of the door 10 relative to the door opening 40 while preventing an intruder from gaining access interiorly of the home through the door. Further, for returning the top section 11 to the normally closed position in door opening 10 there is provided a door closing cylinder type mechanism 65 having one end 66 mounted to the wall 44 with the mechanism extending in a generally horizontal position with the opposite end 67 connected to top frame 23, the closing mechanism being of a conventional piston and cylinder arrangement as known in the art.

The lower bottom section 12 includes a shelf 71 having one edge mounted to the top frame 33 with the shelf projecting normal to the plane of the door 10 inwardly of the door and directly beneath the transparent panel 52 so as to rest packages and the like thereon which are passed through the portion of the door opening 50 controlled by panel 52 upon the opening of the panel 52. A rectangular opening 73 is provided in bottom section 12 and includes a plurality of clips 74 extending at spaced intervals about the perimeter thereof, the opening adapted to removably receive therein a transparent non-breakable panel member 75 which is interchangable with a screen unit of the same general size and configuration, such as designated by reference numeral 76. The bottom frame member 34 is provided with an elongated mail slot opening 77 for the receipt of mail and magazines therethrough without the necessity of having to open any portion of the door 10 to receive the same.

Further, the bottom section 12 is provided with a handle 76 mounted on side frame 32 adjacent top frame 33 and adapted for the opening and closing of the bottom section, the handle automatically locking the bottom section when closing the door opening 40. To retain the bottom section in the closed position, there is provided a door closing mechanism 77 which may be identical to the aforedescribed door closing mechanism 65 and which has one end 78 mounted to the wall 44 with the opposite end 79 connected to the top frame 33.

When it is desired that the top and bottom sections 11 and 12 operate simultaneously together in the swinging opening and closing of the door opening 40, there is provided a pair of latching mechanisms 80 interposed between the two door sections between adjacent bottom frame member 24 and top frame member 33, each latching mechanism including a sliding bolt 81 slidable between members 82 disposed on the respective frame members and adapted for either attaching together or separating the respective door sections.

To further retain the door 10 in the locked closed position, there is provided a foot operated lock 85 of the type having a slidable bolt 86 vertically disposed and slidable in a collar member 87 secured to the bottom frame 34, the bolt 86 adapted to detachably engage a recess 88 in the floor surface beneath the door opening 40 in a manner to lock the door in the closed position.

It is seen that the door 10 may be operated in many different manners, such as by locking the top and bottom sections 11 and 12 together so that the door operates in a conventional manner to open and close door opening 40; locking the bottom section 12 in the door opening and then opening and closing only the top section 11 in the manner of a Dutch type door, such as illustrated in FIG. 4; locking both the top and bottom sections 11 and 12 in the closed position and utilizing panel 52 to open and close the associated portion of opening 50 for passing of articles therethrough, such as like a package 90 as shown in FIG. 3. In this manner the homeowner is provided with a multipurpose storm door which, when in the fully locked position permits receipt of small articles or permits discussion through the portion of the door opening protected by panel 52, while for the receipt of larger packages permits the complete top section 11 to be opened while still retaining the bottom section 12 firmly locked in a door closed position to provide a barrier against any individual gaining unwanted access to the interior of the home.

It is to be understood that the transparent panel members 52, 59 and 75 may be manufactured out of any suitable satisfactory material which is of a strong non-breakable durable nature, such as Plexiglas or other acrylic materials or the like.

It is to be understood that the form of this invention herewith shown and described is to be taken as a preferred example of the same, and that this invention is not to be limited to the exact arrangement of parts shown in the accompanying drawings or described in this specification as various changes in the details of construction as to shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention, the scope of the novel concepts thereof, or the scope of the sub-joined claims.

I claim:

1. A security storm door for use in a door opening of a home and the like in a door casing provided therein defining a rectangularly shaped opening having a top horizontal casing member and opposed vertical side casing members, the storm door being of a size to fit in the door opening, the storm door comprising a door divided horizontally into a top door section and a bottom door section, the top door section including a pair of

spaced apart vertically extending inner and outer side frame members which are interconnected at their opposite ends by a pair of horizontally extending top and bottom frame members, the bottom door section including a pair of spaced apart vertically extending inner and outer frame members which are interconnected by a pair of spaced apart top and bottom frame members, hinge means associated with each of the inner frame members of each of the top and bottom door sections and connected at one end to the associated frame members with the opposite ends of said hinge means each connected to the respective casing side frame of the door opening for supporting the top and bottom door sections for swinging movement in and out of the door opening about a vertical axis, means for releasably locking the top door section in the door opening closed position, means for releasably locking the bottom door section in the door opening closed position, the frame members of the top door section defining an opening, a vertically extending member extending between the top and bottom frame members of the top door section to divide the opening in the top door section into first and second opening portions, the first opening portion being of a size and configuration adapted to receive small packages and the like therethrough, a closure member hingedly connected along one edge to the vertically extending member for swinging movement thereabout into and out of a position closing the first opening portion, means for releasably locking the closure member in its closing position to the top door section, a removable transparent member adapted to be disposed within the second opening portion to close the second opening portion, means to removably secure the transparent member to the top door section so that the transparent member is removable without any movement of said closure member, the top door section, or the bottom door section, the transparent member being interchangeable with a screen unit of the general same size and configuration in a manner to adapt the second opening portion to climatic conditions, a shelf mounted to the top frame member of the bottom door section immediately below the first opening portion of the top door section and adapted for the resting of packages and articles thereon, and means for detachably attaching the top and bottom door sections together for simultaneous swinging movement into and out of the door opening.

2. The storm door as set forth in claim **1** wherein the means for detachably attaching the top and bottom door sections together is comprised of a first collar member secured on the top section bottom frame member and having a bore extending vertically therethrough, a second collar member secured on the bottom section top frame member and having a bore extending vertically therethrough in axial alignment with the bore of said first collar member, and an elongated bolt member slidable between said first and second collar members for detachably attaching the top and bottom door sections together for simultaneous movement thereof.

3. The storm door as set forth in claim **1** further comprising an opening in the bottom door section, a transparent panel member adapted to fit into said opening, and means disposed at spaced intervals about the perimeter of said opening to removably retain the panel member in said opening so that the panel member is removable without any movement of the bottom door section, the panel member being interchangeable with a screen unit of the same general size and configuration in a manner to adapt the opening to climatic conditions.

4. The storm door as set forth in claim **3** wherein the transparent panel members are manufactured of a nonbreakable material.

5. The storm door as set forth in claim **4** wherein the transparent panel members are manufactured of Plexiglas.

6. The storm door set forth in claim **1** wherein the removable securing means comprises a plurality of clips disposed at spaced intervals about the perimeter of the second opening portion on each side thereof.

7. The storm door set forth in claim **3** in which said disposed means comprises a plurality of clips on each side of the opening in the bottom door section.

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