

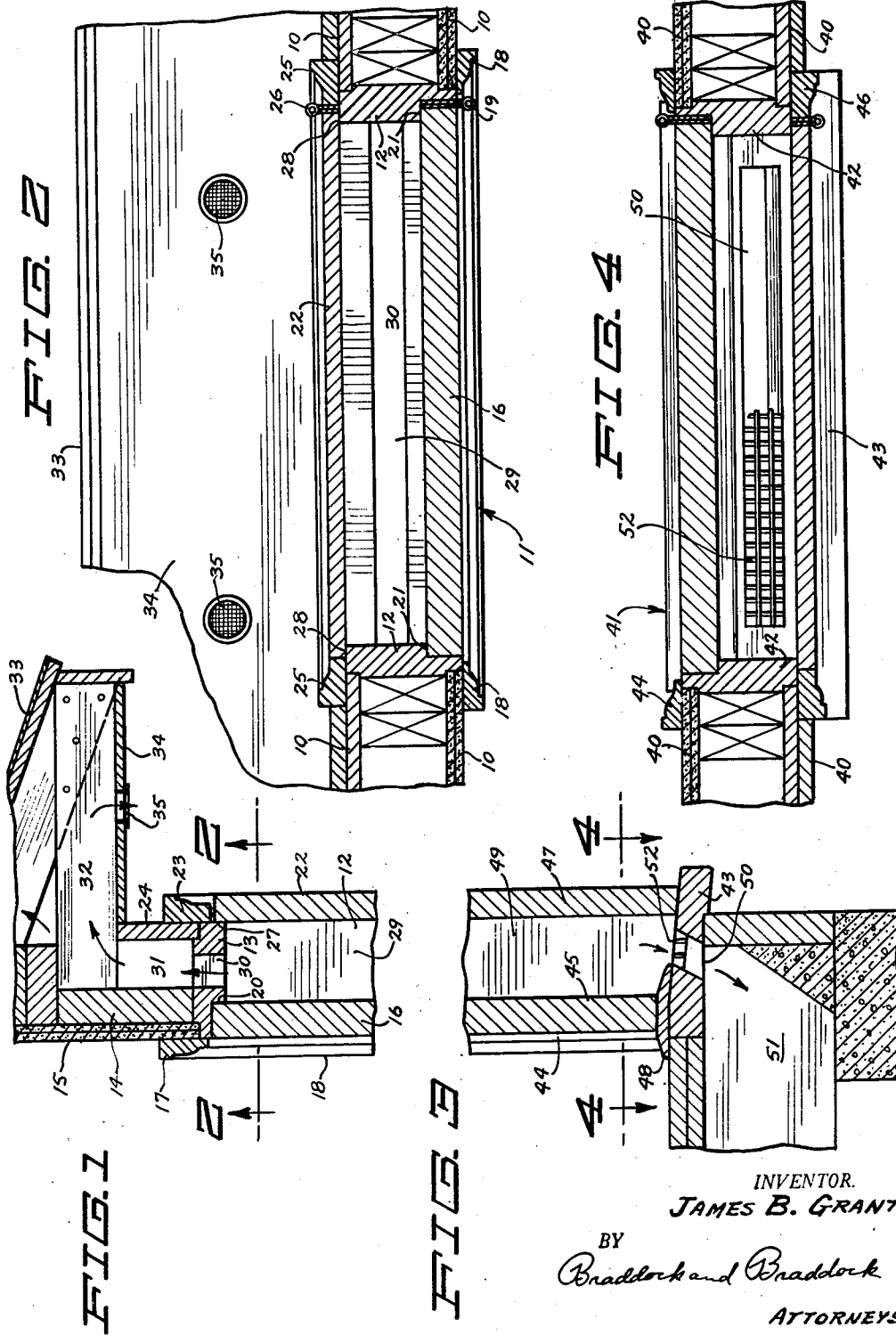
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DOORWAY CONSTRUCTION

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DOORWAY CONSTRUCTION

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The invention herein has relation to doorway construction including a pair of doors, one an inwardly opening and outwardly closing house door and the other an outwardly opening and inwardly closing storm door, hingedly mounted in spaced, aligned relation at inner and outer sides, respectively, of a doorway through a wall supporting said house and storm doors.

Modern housing doorway construction including spaced, aligned house and storm doors tightly entraps a volume of air in the space between the doors when in closed position. As a consequence, higher than atmospheric pressure is momentarily created in said space to offer resistance to closing of either door while the other door is closed, and, conversely, lower than atmospheric pressure is momentarily created in the space between the doors to offer resistance to opening of either door while the other door is closed. And, too, because of pressure of air trapped in the space between house and storm doors of doorway construction of modern housing, it frequently happens that spring means customarily employed with the purpose in view of causing storm doors when opened and then released to be closed and latched fails so to operate.

The object of the invention is to provide a new and improved doorway construction which will include spaced, aligned first or house and second or storm doors, the former opening inwardly and closing outwardly and the latter opening outwardly and closing inwardly, and will be equipped to preclude the existence of pressure other than atmospheric pressure within the space between said doors. Stated differently, the invention herein illustrated and described presents a doorway construction having means for maintaining atmospheric pressure within the space between house and storm doors of the doorway construction when either door is closed or open while the other door is closed, thus to insure that there will be no resistance to closing and opening of the doors due to the creation of pressure within said space greater or less than atmospheric pressure.

In the accompanying drawing forming a part of this specification,

Fig. 1 is a fragmentary vertical sectional view of doorway construction made according to the invention;

Fig. 2 is a horizontal sectional view, taken as on line 2—2 in Fig. 1;

Fig. 3 is a fragmentary vertical sectional view of doorway construction of modified type incorporating features and characteristics of the invention; and

Fig. 4 is a horizontal sectional view, taken as on line 4—4 in Fig. 3.

With respect to Figs. 1 and 2 of the drawing and the numerals of reference thereon, 10 denotes a wall of a house or building having a doorway 11 therethrough, 12, 12 indicate spaced jambs or vertical members fixed in said doorway and 13 represents an upper sill or horizontal member in the doorway extending between the upper ends of the jambs 12, 12. A lower sill (not shown) will be

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situated in the doorway 11 to extend between the lower ends of the jambs 12, 12 in the same general manner as the upper sill 13 extends between the upper ends of said jambs. A header plate 14, extending upwardly from the upper sill 13, supports panel members 15 on its inner surface.

A frame for supporting a house door 16 includes an upper horizontal strip 17 secured against a surface of a panel 15 and spaced, vertical side strips 18, 18 secured against the interior surface of the wall 10. The house door 16 is hingedly supported, as at 19, upon one of the jamb members 12 for swinging movement inwardly to open position and outwardly to closed position. When said house door is in closed position, an upper horizontal marginal end portion 20 of the forward surface thereof will be engaged against a rearward horizontal surface of the upper sill 13, vertical marginal side edge portions 21 of said forward surface will be engaged against rearward surfaces of the jambs 12, 12, respectively, and the lower end of the house door 16 will be above and in contiguous relation to the lower sill (not shown).

A frame for supporting a storm door 22 includes an upper horizontal strip 23 secured against a surface of a panel member 24 upon the exterior surface of the header plate 13 and spaced, vertical side strips 25, 25 secured against the exterior surface of the wall 10. The storm door 22 is hingedly supported, as at 26, upon one of the vertical side strips 25 for swinging movement outwardly to open position and inwardly to closed position. When said storm door is in closed position, an upper horizontal marginal end portion 27 of the rearward surface thereof will be engaged against a forward horizontal surface of the upper sill 13, vertical marginal side edge portions 28, 28 of said rearward surface will be engaged against forward surfaces of the jambs 12, 12, respectively, and the lower end of the storm door 22 will be above and in contiguous relation to said lower sill.

In the event there were no passageway for air through either of the jambs or sills, as is so in the instance of doorway construction of modern housing, a space between the house and storm doors would tightly entrap a volume of air when said doors were closed, higher pressure than atmospheric pressure would be momentarily created in said space to offer resistance to closing of either door while the other door was closed, and lower than atmospheric pressure would be momentarily created between the doors to offer resistance to opening of either door while the other door was closed.

The doorway construction of the invention incorporates or is equipped with means for maintaining atmospheric pressure in a space 29 between the house door 16 and the storm door 22 when either door is closed or opened while the other door is closed, thus to preclude the offering of resistance to closing and opening of the doors by reason of creation of pressure of air greater or less than atmospheric pressure within said space, as is the case with modern housing doorway construction.

The upper sill 13 has a passageway 30 for air therethrough which is contiguous at its lower end with the space 29 and at its upper end with an air passageway 31 through the header plate 14. As disclosed, the upper end of the passageway 31 opens into a compartment 32 under a roof 33 of the house or building having the wall 10. A ceiling 34, as over a porch, beneath the roof 33 in spaced relation thereto, has ports 35 therein for travel of air into and out of the compartment 32. Evidently, the ports 35 could be dispensed with and there could be provision for passage of air into and out of said compartment 32 by way of the roof or a vent in an attic of the house or building. Or, the compartment 32 could be contiguous with enlarged space provided in or adjacent to any part

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of the housing or building, as when there was more than a single story.

With opening or closing of either door, 16 or 22, while the other door is closed, atmospheric pressure will be maintained in the space 29 by reason of travel of air from said space into the compartment 32 in response to closing of either door while the other door is closed and from said compartment into the space 29 in response to opening of either door while the other door is closed. Evidently, the maintenance of atmospheric pressure in said space 29 will dispense with resistance to closing and opening of the house and storm doors by reason of creation of pressure of air greater or less than atmospheric pressure between said house and storm doors.

Referring to Figs. 3 and 4, 40 indicates a wall of a building having a doorway 41 therethrough, 42, 42 are jambs fixed in said doorway, and 43 denotes a lower sill in the doorway 41 extending between the lower ends of the jambs 42, 42. An upper sill (not shown) will be situated in the doorway 41 to extend between the upper ends of the jambs 42, 42.

A frame 42 hingedly supports a house door 45 and a frame 46 hingedly supports a storm door 47 in the same general manner as the house and storm doors 16 and 22 are hingedly supported. When the house door 45 is in closed position, an upper horizontal marginal end portion of the forward surface thereof will be engaged against a rearward portion of an upper sill, equivalent to the upper sill 13, vertical marginal side edge portions of said forward surface will be engaged against rearward surfaces of the jambs 42, 42, respectively, and the lower end of said house door will be above and in contiguous relation to a threshold 48 upon the lower sill 43. When the storm door 47 is in closed position, an upper horizontal marginal end portion of the rearward surface thereof will be engaged against a forward surface of the upper sill (not shown), equivalent to the upper sill 13, vertical marginal side edge portions of said rearward surface will be engaged against forward surfaces of the jambs 42, 42, respectively, and the lower end of the storm door 47 will be above and in contiguous relation to the lower sill 43.

Assuming no opening through either of the jambs or sills of the disclosure of Figs. 3 and 4, pressure of air greater than atmospheric pressure would be built up in a space 49 between the doors 45 and 47 in response to closing either door while the other door was closed, and pressure of air less than atmospheric pressure would become existent in said space in response to opening either door while the other door was closed.

Means for maintaining atmospheric pressure in the space 49 when either door is closed or opened while the other door is closed includes an elongated passageway 50 through the lower sill 43. The upper end of said elongated passageway is contiguous with the space 49 and the lower end of the elongated passageway is contiguous with a basement compartment 51. A grill 52 is in covering relation to the upper end of the elongated passageway 50. In instances when the storm door 47 was replaced by a screen door, as in warm weather, the grill 52 could

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be replaced by an elongated plate (not shown) for shutting off communication between the basement and the space 49. Obviously, the lower end of the elongated passageway 50 could communicate with some space other than that in a basement.

Atmospheric pressure will be maintained in the space 49 when either of the doors 45 or 47 is moved to closed position while the other door is closed by reason of travel of air from said space into the compartment 51 and when either door is moved to open position while the other door is closed by reason of travel of air from said compartment into the space 49.

It will be apparent that atmospheric pressure could be maintained in spaces, such as 29 and 49, between house and storm doors in manners other than as herein illustrated and described. For instance, a passageway for maintaining atmospheric pressure in a space between house and storm doors could extend through a door jamb, such as 12 or 42, to an atmosphere containing compartment.

What is claimed is:

1. Doorway construction comprising an upstanding wall having a doorway therethrough between first and second spaces at opposite sides, respectively, of said doorway, upper and lower horizontal sills and spaced, vertical jambs in and bounding said doorway, first and second doors in spaced, aligned relation at inner and outer sides, respectively, of said doorway, there being a third space between said first and second doors, a first device supporting said first door for inward swinging movement to open position and outward swinging movement to closed position, a second device supporting said second door for outward swinging movement to open position and inward swinging movement to closed position, and means for maintaining atmospheric pressure in said third space when either of said doors is moved to closed or open position while the other door is closed constituted as a passageway for air between the third space and a compartment for air under atmospheric pressure, said sills, jambs and first and second doors bounding said third space and precluding the direct travel of air between the third space and said first and second spaces through any of said sills, jambs or first and second doors.

2. The combination as specified in claim 1 wherein said passageway for air extends through said upper sill.

3. The combination as specified in claim 1 wherein said passageway for air extends through said lower sill.

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