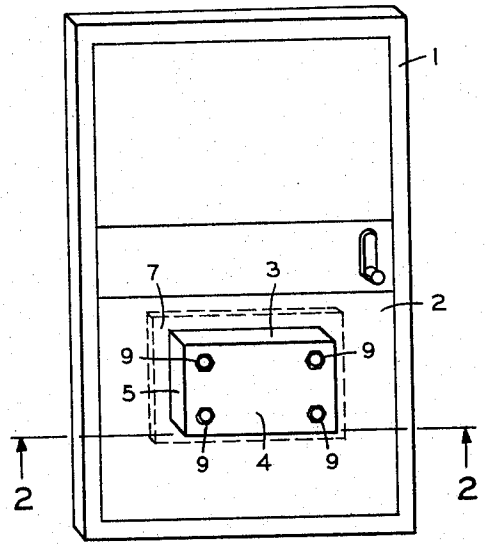
Nov. 22, 1966 J. C. MEHAFFY 3,286,729

STORM DOOR RELIEF VALVE

Filed April 29, 1963

FIG. 1



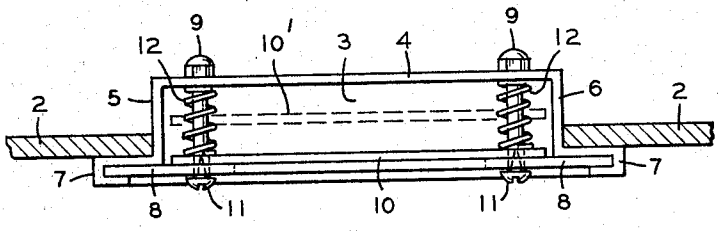


FIG. 2

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STORM DOOR RELIEF VALVE

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2 Claims. (Cl. 137—543.15)

This invention relates to a solution to the following problem: When a storm door is provided in addition to the ordinary door for a house, a chamber is created. This chamber is the doorspace or room, between the two doors, the ordinary door and the storm door. If the storm door is shut first, the shutting or closing of the ordinary door associated with the storm door, compresses the air between the two doors. This makes the ordinary door difficult to close rapidly, or if done rapidly, the storm door will be forced outward, rotating on its hinges and opening outward.

Conversely, if the ordinary door is opened and closed first, then the storm door will be very difficult to close. What is required is an air relief valve in one of the doors. I prefer to place this air relief valve in the storm door.

The principal object of my invention is to provide a storm door relief valve which is of extremely simple construction, so that it may be fabricated easily and cheaply.

A secondary object of my invention is directed to the provision of a storm door relief valve which can be inserted simply and easily in all the current makes and varieties of storm doors available on the present market. To this end I have designed my storm door relief valve in such a manner that it may be made part of an insert panel which may be placed at the bottom, in place of the present bottom panel used in most storm door construction.

A further object of my invention is to provide a storm door relief valve which may be made out of inexpensive stampings and assembled with no difficulty.

A still further object of my invention is to provide a storm door relief valve which is supplied with a relatively large opening for the valve plate, so that a large area will receive the actuating pressures of the compression waves.

The above and other objects of my invention will be apparent to those skilled in the art to which it pertains from a study of the specification and the drawings in which:

FIG.1 is an elevational view of a typical storm door with my relief valve attached; and

FIG. 2 is a cross-sectional view of the relief valve along the line 2—2 of FIG. 1.

In the figures, numeral **1** is given to the storm door. The storm door bottom panel is numbered **2**. The relief valve is seen in FIG. 1 to consist of a top wall **3**, and a front wall **4**. In FIG. 2 are shown the two side walls **5** and **6**, as well as the back wall flange **7**, which is shown by the dotted lines in FIG. 1. The back wall flange is a U-shaped flange which supports and securely holds the back wall **8**.

The back wall **8** and the front are held together in the following manner: Piercing the front wall **4**, and resting against the back wall **8** are the four mounting bolts **9, 9**. Each mounting bolt **9** is tapped at its end adjacent the back wall **8** and a metal screw, piercing through the back wall **8**, holds said back wall **8** securely against the mounting bolt **9** associated therewith.

The back wall **8** is provided with a square or rectangular opening in its central portion. Closed against this central opening in FIG. 2 is shown the valve plate **10**.

The valve plate **10** is provided with four holes, so that it may ride freely back and forth on the four mounting bolts **9, 9**. Each mounting bolt is held in place by the

metal screw **11** associated therewith. Similarly upon each mounting bolt is coiled a valve plate return spring **12**. Each valve plate return spring **12** rests at one end against the inside of the valve plate and the other end of the return spring **12** rests against the inside of the front wall **4**.

It will be noted from FIG. 2 that there is no bottom wall in the relief valve construction between the side walls **5** and **6**, thus the view of FIG. 2 shows the interior works of the valve open as it should be.

The action of the valve is as follows: The underside of FIG. 2 represents the space between the ordinary door and the storm door **2**. Closing either door when the other one is closed increases the pressure being exerted in the space between the two doors. When this happens the opening in the back wall allows the increased pressure to bear upon the valve plate **10**.

Since there is more pressure on the underside of the back plate **10** in FIG. 2, than on the right side, the back plate **10** moves to the position **10'** of FIG. 2, the dotted line position.

Movement of the back plate to the **10'** position allows the increased pressure to vent itself to the atmosphere through the opening in the bottom of the relief valve. As soon as the pressures have equalized on both sides of the valve plate by the venting of the left side of the valve, the return springs **12, 12** restore the valve plate to its original position shown in FIG. 2.

It will be noted that the two openings in the relief valve are not exposed to the rain so that no rain can pass through the relief valve into the space between the two doors.

Although the invention has been described by making detailed references to a single preferred embodiment, it is to be understood that such detail of the preferred embodiment is intended only to be instructive, rather than in any sense restrictive. Thus many variations, modifications and changes are possible without departing from the spirit of the invention and the scope of the claims hereunto appended.

What I claim is:

1. In a storm door relief valve for the type described, a top wall, a front wall and two side walls integral with said top wall, a back wall flange integral with said top wall, said front wall and said side walls, a back wall provided with a central opening, said back wall held parallel to said front wall against said flange by at least three mounting bolts which extend through said back wall and said front wall, a valve plate covering said central opening, said valve plate being reciprocally guided on said mounting bolts between said front wall and said back wall, said back wall, valve plate and mounting bolts all being removably mounted relative to the front wall and to each other, and spring means to hold said valve plate reciprocably against said back wall.

2. In a storm door relief valve for the bottom panel of a storm door, a top wall, a front wall and two side walls integral with said top wall, a back wall flange integral with said top wall, said front wall and said side walls, a back wall provided with a central opening, said back wall held parallel to said front wall against said flange by at least three mounting bolts which extend through said back wall and said front wall, a valve plate covering said central opening, said valve plate being reciprocally guided on said mounting bolts between said front wall and said back wall, said back wall, valve plate and mounting bolts all being removably mounted relative to the front wall and to each other, and a return spring mounted around each mounting bolt between said front

wall and said valve plate to reciprocably move said valve plate in response to pressure changes on said valve plate.

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