P. F. STACKE.

SLIDING DOOR.

APPLICATION FILED JULY 30, 1917.

1,343,416. **Patented June 15, 1920**

Fig. 1.

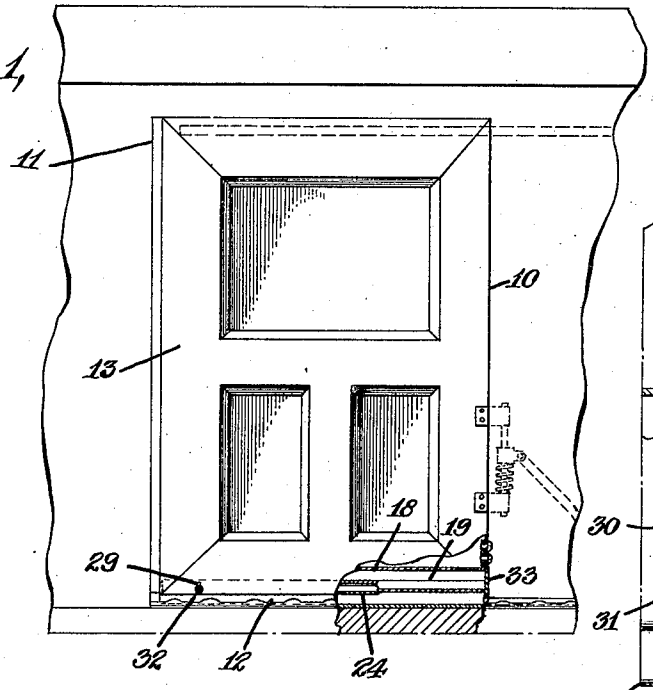


Fig. 5.

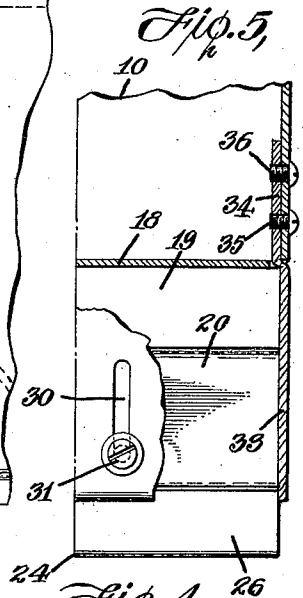


Fig. 2.

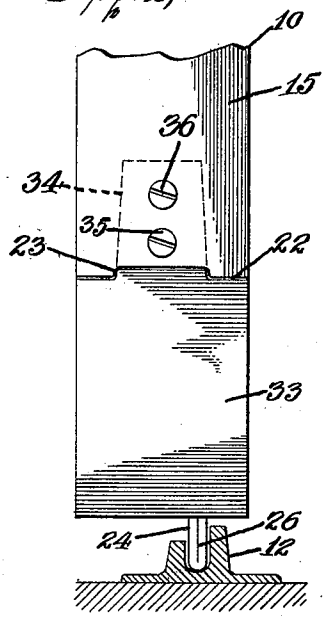


Fig. 3.

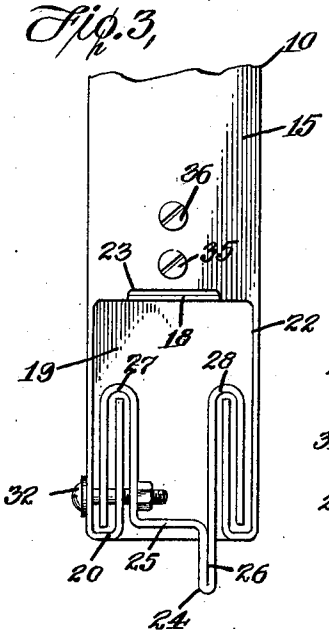
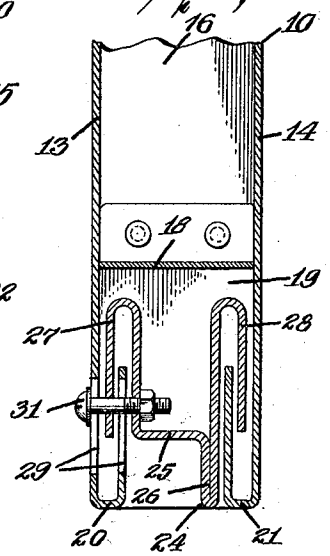


Fig. 4.



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SLIDING DOOR.

1,343,416. Specification of Letters Patent. Patented June 15, 1920.

Application filed July 30, 1917. Serial No. 183,484.

To all whom it may concern:

Be it known that I, PAUL F. STACKE, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Sliding Doors, of which the following is a full, clear, and exact specification.

This invention relates to a class of doors adapted to be operated slidably for opening and closing the doorways of structures especially cars.

The ordinary forms of such doors are provided with one or more fixed flanges protruding below the lower edge of the body of each door so as to movably fit in the groove of a rail, or overhang a rail arranged across the base, or floor of the doorway of a car or other structure for closing the space between the door and the base of the doorway. During inclement weather these doors frequently become difficult to operate owing to ice and dirt clogging the rail, and furthermore in event of sagging of the base or floor of the doorway the doors require considerable alterations.

My invention has for its object primarily to overcome these objections by providing a sliding door designed to be employed for opening and closing the doorway particularly of a car whereby rain, snow and drafts of air will be prevented from passing under the door when closed, and which is of a form tending to compensate for any relative variation of the space between the door and the floor of the doorway. This is accomplished mainly by providing a substantially rectangular body with a recessed lower edge, and this body is adapted to be movably arranged on a doorway having crosswise of its base a fixed rail on which the body is slidable for opening and closing the doorway. Extensibly movable inwardly and outwardly of the recess of the body is a guide formed so as to adjustably overhang the rail, in order to close the space between the body of the door and the base of the doorway.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawing forming a part of this specification in which similar characters of reference indicate corresponding parts in all the views, and will then be pointed out in the claims at the end of the description.

In the drawing, Figure 1 is a fragmentary view, partly in section, showing a doorway of a car with one form of door embodying my invention applied thereto.

Fig. 2 is an enlarged fragmentary view, partly in section, showing an elevation of the lower part of the rear end wall of the door together with one form of rail on which the door is slidably arranged.

Fig. 3 is an enlarged fragmentary view of the lower part of the rear end wall of the door looking into one end of the recess in the lower part of the body thereof, and which shows the guide in an extended position below the body of the door.

Fig. 4 is an enlarged fragmentary sectional view taken crosswise through part of the lower end of the door showing the guide when moved interiorly of the recess of the door, and

Fig. 5 is an enlarged fragmentary view, partly broken away and partly in section, showing a portion of the lower corner of the door at its rear end wall.

The door has a body 10 which may be substantially rectangular in shape of any suitable size for being slidably mounted on the frame of the doorway, as 11, of a car or other structure provided with the usual rail, as 12, laid across the base, or floor of the doorway so that the door when moved to open and closed positions will travel back and forth thereon, the rail being grooved, or of any other desired form so as to extend somewhat above the floor. The body 10 is preferably made of sheet metal bent to provide an inner wall 13, an outer wall 14 which is spaced from the inner wall, and the side edges as well as the top edges of these walls are bridged by a rear end wall 15, a front end wall 16, and a top wall, not shown. The body 10 thus formed is hollow, and transversely of the lower part of the interior of the body is a partition, as 18. The portion of the interior of the body 10 below the transverse partition 18 thereby provides a recess 19 in the lower end of the body of the door. The lower edge of the inner wall 13 of the body is turned upwardly interiorly of the recess 19 to provide a hook-shaped, or substantially U-shaped member 20, in cross-section, which is disposed across the door, while the lower edge of the outer wall 14 of the body is likewise turned upwardly interiorly of the recess to provide a similar hook-shaped, or approximately U-shaped member 21 also disposed crosswise of the door in

spaced relation to the U-shaped member 20. The end wall 15 of the body 10 at the recess 19 may be cut-out, as at 22, to form a passage leading into the recess, and in this end wall communicating with the cut-out is a smaller cut-out, or opening 23 which is above the partition 18.

The body 10 is mounted on the frame of a doorway so that when moved to open and closed positions its lower edge will travel back and forth on top of the rail 12 across the doorway, the door being operated by any suitable means, for instance, by the well-known mechanism at present employed to operate car doors. In order to prevent rain, snow and drafts of air from passing under the door when closed. in the recess 19 of the body is a guide, as 24, which is arranged so as to be slidably seated in the groove of the rail 12, or to overhang the rail when the groove is dispensed with as well as being extensibly movable inwardly and outwardly of the recess of the body. The guide 24 has a plate, or strip 25 disposed in the recess 19 of the body 10 between the U-shaped members 20 and 21, and this plate is substantially rectangular in shape of a length and width so as to be freely movable in the recess. Depending downwardly from one of the lengthwise edges of the plate 25 is a flange, as 26, which may be formed by bending the plate downwardly and then upwardly also in substantially a U-shape, and this flange may be movably disposed in the groove of the rail, or arranged so as to movably overhang the rail for closing the space between the lower edge of the door and the base, or floor of the doorway.

The flange 26 provides the guide proper for the door, and serving to hold the flange together with the plate 25 in the recess 19 of the body so that the flange will extensibly move below the body of the door, I provide retainers, as 27 and 28, which coact with the U-shaped members 20 and 21. The retainer 27 is preferably of the shape of an inverted U, in cross-section, and this retainer is formed by bending upwardly the lengthwise edge of the plate 25 opposite to the flange 26 to provide one arm of the U-shaped retainer, after which the plate is reversely flexed to provide the second arm of the retainer in spaced relation to its first arm. The retainer 28 is also preferably of the shape of an inverted U, in cross-section, and this retainer is likewise formed by continuing upwardly the second arm when formed of the U-shaped flange 26 a distance corresponding to the height of the U-shaped retainer 27 to provide one arm of this retainer, and the plate is then reversely bent to provide a second arm for the retainer in spaced relation to its first arm. These inverted U-shaped retainers are coöperatively interfitted in the U-shaped members 20 and 21 by the second arms of the retainers being movably disposed between the arms of the U-shaped members, and both the retainers and members may be so proportioned that the flange 26 will protrude out of the recess of the body almost entirely when the guide is lowered its maximum distance in the recess 19 of the body. By providing the guide 24 so as to operate in this manner any space under the body of the door will not alone be closed when the door is shut against the passage of rain, snow and drafts of air, but the guide will also adjust itself to compensate for sagging of the base, or floor of the doorway, and, furthermore, in event of the rail becoming clogged with ice, or dirt this movable guide will also tend to clear the rail of the accumulated substances.

The guide 24 is applied to the door by being passed through the cut-out 22 so as to be arranged to coact with the U-shaped members 20 and 21, as above explained, and serving to operatively hold the guide in the recess of the body, at spaced intervals in the arms of the U-shaped member 20 of the body are two or more pairs of registered slots 29 and 30, and on the retainer 27 of the guide 24 are two bolts, or screws 31 and 32 which are movably disposed through the slots. When the guide 24 is applied to the body of the door, the cut-out 22 of the body may be closed by a plate, as 33, having an extending lug 34 which is inserted through the opening 23 communicating with the cut-out 22, this lug being slightly bent so as to lay under the rear end wall 15 of the body, and by means of screws 35 and 36 passed through registered pairs of spaced threaded holes in this rear end wall as well as in the lug 34 the plate will be removably held on the rear end wall of the body of the door for closing the cut-out 22. Thus I provide a very simple, efficient and durable door for cars and other structures.

In the foregoing description, I have embodied the preferred form of my invention, but I do not wish to be understood as limiting myself thereto, as I am aware that modifications may be made therein without departing from the principle, or sacrificing any of the advantages of this invention, therefore I reserve to myself the right to make such changes as fairly fall within the scope thereof.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a sliding door having a body with a recessed lower edge, a guide with a transverse plate having a depending flange movably held in the recess of the body and adapted to close the space under the door when mounted as well as to compensate for variations of the space.

2. In a sliding door having a body with

a recessed lower edge, a guide with a flange having retainers movably held to the body so that the flange will move inwardly and outwardly of the recess of the body for closing the space under the door when mounted as well as compensating for variation of the space.

3. In a sliding door having a body with a recessed lower edge including spaced substantially U-shaped members on the walls of the body interiorly of the recess, a guide composed of a transverse plate having a depending flange and having substantially U-shaped members movably attached to the U-shaped members of the body so that the guide will automatically move inwardly and outwardly of the recess of the body when the door is mounted to close the space under the door as well as compensating for variation of the space.

This specification signed and witnessed this 28th day of July, A. D. 1917.

PAUL F. STACKE.

Witnesses:

GEORGE F. BENTLEY,

V. M. RUMPH.