April 15, 1952 W. A. CLOSE 2,592,861

DOOR SEALING STRUCTURE

Filed Feb. 7, 1946

2 SHEETS—SHEET 1

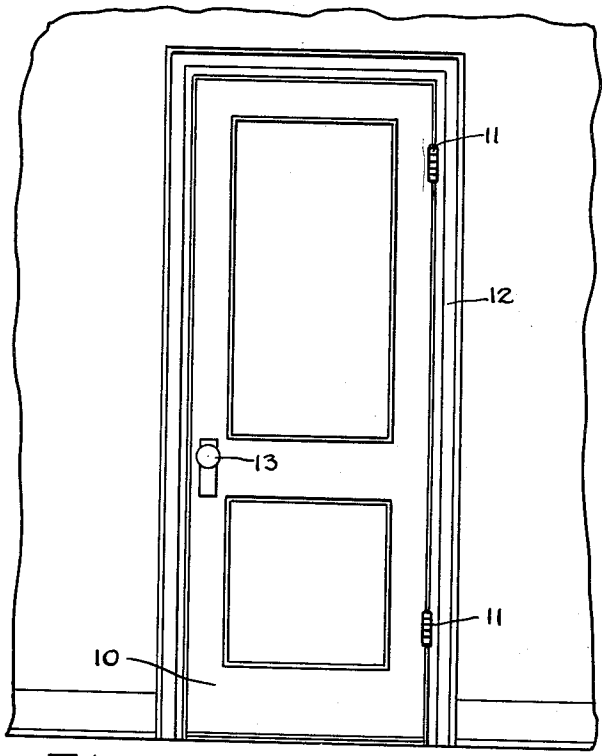
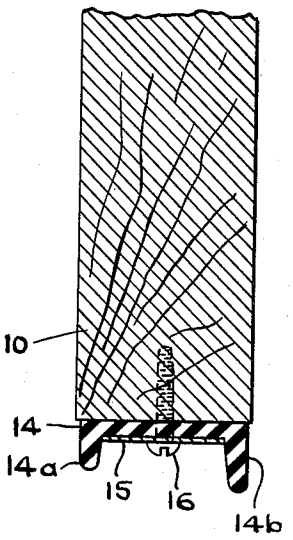


Fig.-1

Fig.-3



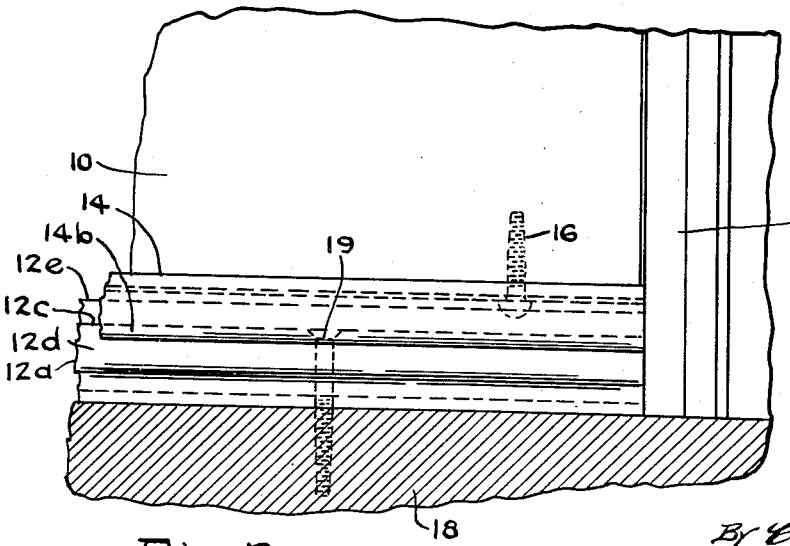


Fig.-2

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DOOR SEALING STRUCTURE

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Fig.-4

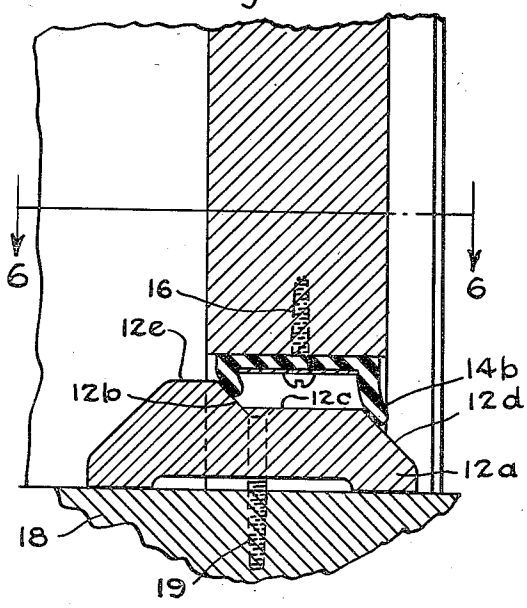


Fig.-5

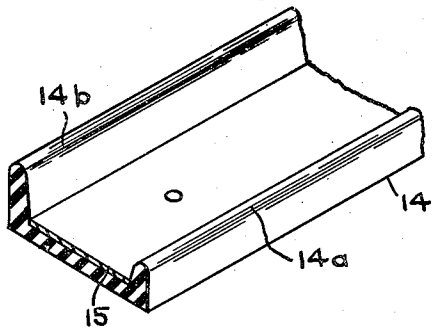


Fig.-7

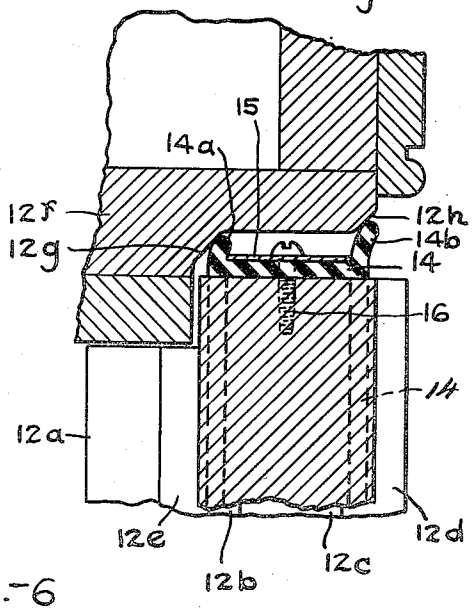
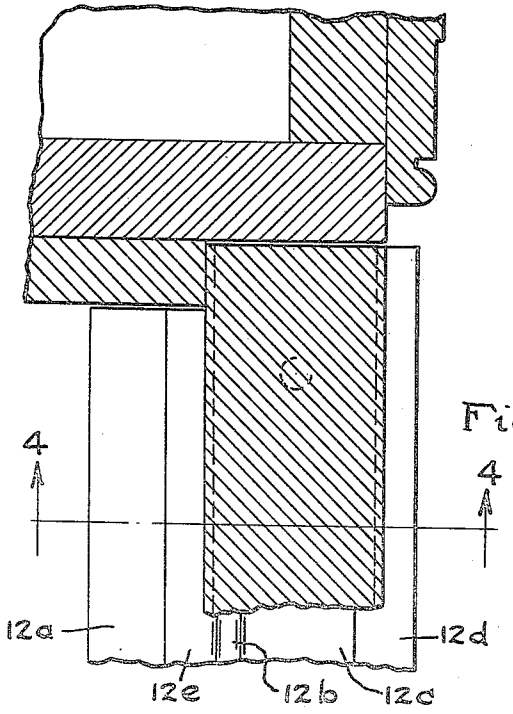


Fig.-6



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DOOR SEALING STRUCTURE

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3 Claims. (Cl. 20—64)

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This invention relates to a door sealing structure. There is usually an opening between the edge of a door and the door frame, particularly at the top and bottom thereof. When the door opens to the outside, such as a door in a residence, considerable heat is lost through said opening. It is desirable therefore to have means for sealing the opening between the door and the frame.

It is an object of this invention to provide a simple, inexpensive and very efficient device for sealing the opening between the door and frame or sill.

It is further an object of the invention to provide a door sealing structure comprising a member adapted to be secured to an edge of said door, such as the bottom thereof, and to extend longitudinally of said edge, said member having spaced flexible portions projecting therefrom toward the door frame and adapted to engage said door frame, whereby the opening between the door and frame is sealed and an air space is provided between said member and said frame.

It is also an object of the invention to provide a door sealing structure comprising a member adapted to be secured to an edge of said door and extend longitudinally thereof, said member having spaced flexible portions projecting therefrom, and said frame having a shoulder adapted to be engaged by one of said portions.

It is more specifically an object of the invention to provide a door sealing structure comprising a member adapted to be secured to an edge of said door and having spaced flexible portions projecting outwardly, and a door frame having surfaces engaged respectively by said portions, one or more of which surfaces may incline outwardly toward the outer side of said door frame.

It is another object of the invention to provide such a structure as set forth in the preceding paragraph in which said member is engaged between said portions by a plate, and means passing through said plate and into said door to secure said member to said door.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a view in front elevation of a door having the invention applied thereto;

Fig. 2 is a partial view in front elevation of a door and frame having the invention applied thereto;

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Fig. 3 is a vertical section through the bottom portion of a door having the device of the invention thereon;

Fig. 4 is a vertical section on line 4—4 of Fig. 6 through the bottom portion of a door and sill showing the door in closed position;

Fig. 5 is a partial perspective view of the device used;

Fig. 6 is a horizontal section on line 6—6 of Fig. 4 through the free edge of the door showing the invention; and

Fig. 7 is a fragmentary sectional view similar to Fig. 6 showing the device applied to the free edge and bottom of the door.

Referring to the drawings, a door 10 is shown supported by the usual hinges 11 and surrounded by a frame 12 which includes the sill 12a at the bottom of the door. The door is shown as having the usual knob 13. In accordance with the present invention and as clearly shown in Fig. 5, a formed member 14 is provided which is adapted to be secured to an edge of a door, such as the bottom thereof. Member 14 is preferably made of a flexible or resilient material such as rubber or a rubber composition. As shown, member 14 has a width slightly less than the thickness of the door and has a flat or plain surface engaging the edge of the door. Member 14 has a central portion shown as of substantially uniform thickness, and this portion is engaged at its outer side by a plate 15 which extends throughout the length of member 14. Spaced screws 16 extend through plate 15 and into the door 10, thus securing member 14 to said door. Member 14 has spaced portions 14a and 14b projecting therefrom at or adjacent each side thereof, and these portions will have some flexibility or resiliency. Portion 14a at the inner side of the door is preferably of less length than portion 14b at the outer side of the door. Portions 14a and 14b thus form ribs or flanges extending longitudinally of the door, and as shown, their lower edges are rounded. The bottom portion or sill 12a of said door is provided with a surface 12b which slopes downwardly and outwardly and extends to a horizontal surface 12c. Another surface 12d extends from the outer edge of surface 12c downwardly and outwardly. Member 12a is illustrated as secured to the floor 18 by spaced screws 19. The sill 12a has a horizontal top surface 12e as usual and said sill is beveled at its inner edge in the customary manner.

When the door 10 with member 14 thereon moves to closed position, portion 14a engages the surface or shoulder 12b, as shown in Fig. 4. Por-

tion 14a is flexed or bent outwardly as it engages said surface 12b and may slide along the same for a short distance before reaching the closed position shown in Fig. 4. The outer surface 12d is constructed and arranged to be engaged by the portion 14b and said portion will be flexed outwardly somewhat by engagement with said surface. When the door is in such closed position a tight seal is provided between the door and frame or sill 12a by engagement of portions 14a and 14b with the surfaces 12b and 12d. It will also be seen that an air space is provided between member 14 and the frame or sill 12a which will act as an insulating medium. A very tight and efficient seal is thus produced and one which will permit no entrance of air from the outside and one which will permit little or no heat to escape past the door.

The member 14 can be attached to the top or the side edge of the door, and in Fig. 7 member 14 is shown attached to the free side edge of the door and engaging the side frame 12f. Side frame 12f is provided with an inner inclined surface 12g and an outer inclined surface 12h, which surfaces incline outwardly toward the outer side of the door frame. Inner surface 12g is engaged by the forward portion 14a and the outer surface 12h is engaged by the outer portion 14b. A tight seal is thus provided between the door and the side frame and a dead air space is also produced between member 14 and the door frame. As above stated this dead air space acts as an insulating medium.

From the above description it will be seen that I have provided a simple and very efficient structure for sealing the opening about a door. The opening is very effectively sealed so that no air can pass between the door and the surrounding frame. The seal is a double one and as above stated, an insulating body of air is formed by the device. The device can be produced at comparatively small expense and requires little change from the standard structure. The device has been amply demonstrated in actual practice, found to be very successful and efficient and is being commercially made.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A door sealing structure for a door having the usual flat bottom surface having in combination, a sill having a pair of surfaces spaced transversely thereof and inclining upwardly in a direction transversely of said sill in which direction said door substantially swings as it reaches closed position, a member secured against said flat bottom surface of said door for substantially the entire width of said door, said member having downwardly extending resilient projections spaced transversely of said door constructed and arranged respectively to engage said surfaces and be flexed by engagement therewith so as to exert pressure against said surfaces and form a tight seal and to form an insulating air chamber therebetween.

2. The structure set forth in claim 1, said surface nearer the said door as it swings to closed position being disposed at a lower elevation than said other surface.

3. A door sealing structure for a door having the usual flat bottom surface comprising a sill having a pair of surfaces spaced transversely thereof each inclining upwardly in the direction in which said door swings as it reaches closed position, said surfaces being disposed at different elevations, a formed member of flexible resilient material secured against said flat bottom surface of said door for substantially the entire width of said door, said member having downwardly extending flexible projections spaced transversely of said door and of different lengths, constructed and arranged respectively to engage said surfaces, the shorter of said projections engaging the one of said surfaces at the higher elevation, said projections being flexed by said engagement so as to exert pressure on said surfaces whereby a tight seal is formed and an insulating air chamber is formed between said portions.

WINSTON A. CLOSE.

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