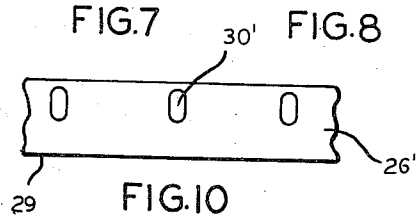
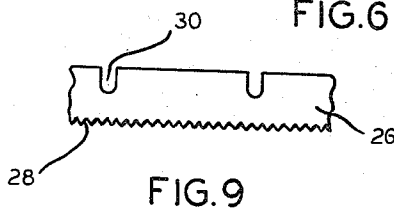
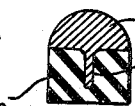
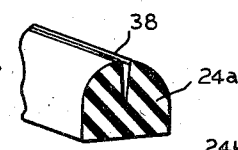
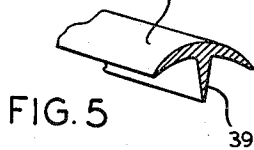
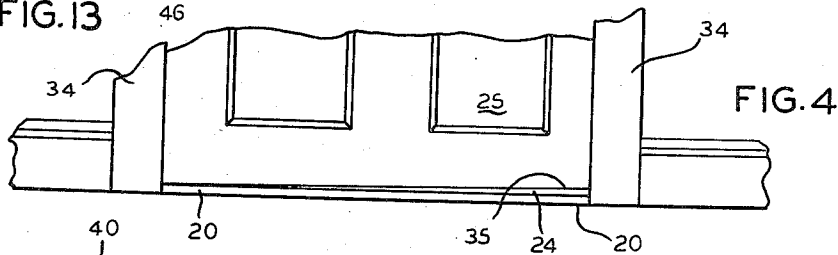
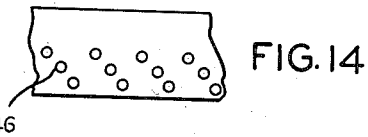
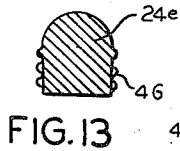
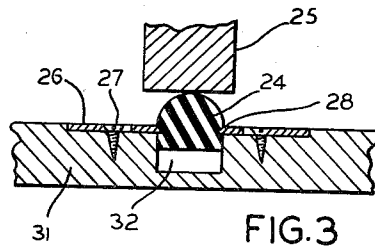
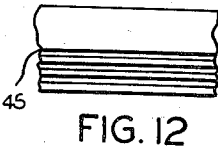
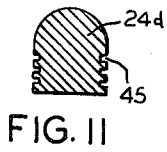
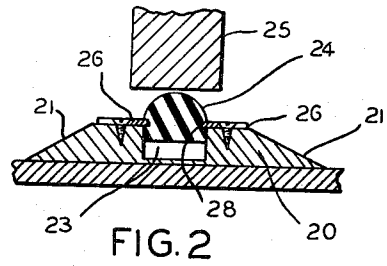
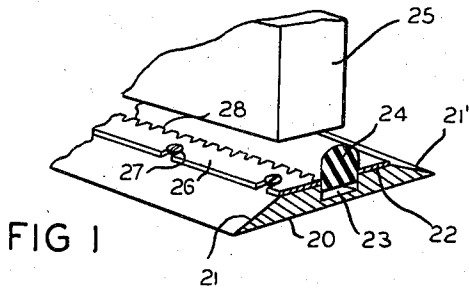


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M. E. PLACE  
THRESHOLD STRUCTURE  
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2,926,401

## THRESHOLD STRUCTURE

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2 Claims. (Cl. 20-64)

This invention relates to door sills, and more particularly to a threshold structure adapted to define a hermetic barrier with a door disposed thereabove.

It is well known that the spacing between the lower edge of a door and the door sill or threshold disposed therebelow, varies considerably from doorway to doorway and may change from time to time in any given doorway if the length of the door must be altered to accommodate a change in carpeting, etc. Furthermore, as a result of constructional variations in a door sill or doorway, the spacing between the lower edge of a door and the threshold disposed therebelow may change incrementally from end to end of the threshold, whereby the door substantially touches the threshold at one end thereof but is spaced a substantial distance from the threshold at its opposite end.

As a consequence, doorways in no sense provide a hermetic barrier in conjunction with the threshold therebelow unless the door is very carefully fitted—which is a very unlikely occurrence today, especially in view of the high labor cost, for proper fitting requires the efforts of skilled carpenters. With this in mind, an object of the present invention is to provide a door sill or threshold construction which will define, with a door disposed thereabove, a sealing relation therewith that approaches a true hermetic barrier but which does not require the services and careful attention of a skilled carpenter to install the same, and is therefore an economically feasible product.

Another object of the invention is in the provision of a threshold structure having a seal element that is readily adjustable to satisfy the spacing requirements in any doorway.

Still another object is that of providing a threshold structure having a seal element that can be adjusted and disposed quickly and conveniently so as to satisfy any variance in spacing between a door and threshold along the length thereof.

A further object is to provide a device of the character described, in which the seal element is selectively adjustable incrementally therealong to accommodate unusual irregularities along the lower edge of a door if this should be required.

Additional objects and advantages of the invention will become apparent as the specification develops.

Embodiments of the invention are illustrated in the accompanying drawings, in which:

Figure 1 is a broken perspective view of a threshold and door combination embodying the invention;

Figure 2 is a broken vertical sectional view taken through the structural composition shown in Figure 1;

Figure 3 is a broken vertical sectional view similar to that of Figure 2, but showing a modified door sill construction;

Figure 4 is a broken side view in elevation of a door and doorway embodying the threshold invention;

Figure 5 is a broken perspective view of a guard ele-

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ment used in conjunction with the modified threshold seal element shown in Figure 6;

Figure 6 is a broken perspective view of a modified threshold seal element;

5 Figure 7 is a vertical sectional view of still another threshold seal element;

Figure 8 is a vertical sectional view of yet another modified threshold seal element;

10 Figure 9 is a broken top plan view of the mounting plate shown in Figures 1 through 3;

Figure 10 is a broken top plan view illustrating a modified mounting plate;

Figure 11 is a vertical sectional view of yet another modified threshold seal;

15 Figure 12 is a broken side view in elevation of the threshold seal shown in Figure 11;

Figure 13 is a vertical sectional view of an additional modified threshold seal; and

20 Figure 14 is a broken side view in elevation of the threshold seal shown in Figure 13.

A conventional outside doorway ordinarily comprises a door sill defined by the floor, and a threshold secured thereto which extends across the doorway; the threshold is a separate wooden element having an upper surface that is elevated above the level of the floor to substantially meet with the lower edge of a door when the door is in closed position. The purpose of the threshold is to permit the door to be shortened so that it will swing freely above whatever floor covering may be provided, without a substantial gap or opening being left beneath the door when the door is closed. With respect to the present invention, it is not essential that the doorway be equipped with a threshold, and therefore the term "door sill" is employed herein generically to define doorways that may or may not have separate threshold elements.

Referring now to Figures 1 and 2, a doorway is shown having a threshold 20 extending across the doorway and secured by nails or other suitable means to an underlying floor. The threshold 20 has inclined edges 21 and 21' that merge into a flat upper surface 22. Extending longitudinally of the threshold is a channel or recess 23 formed in the upper surface 22. Positioned in the channel 23 is a threshold seal member 24 adapted to sealingly engage the lower edge of a swinging door 25 when the door is in closed position. It will be apparent then that the channel 23 and seal 24 are in substantial parallel alignment with the closed door. The seal is maintained at a predetermined elevation with respect to the channel 23 and upper surface 22 of the threshold by mounting plates 26 that extend along opposite sides of the seal, and are secured to the threshold by screws 27.

The mounting plates 26, as is shown most clearly in Figures 1 and 9, may have a serrated or notched inner edge 28 adapted to frictionally engage the seal element 24. However, a modified type of mounting plate (such as shown in Figure 10) may be employed, and it will be noted that the longitudinal edge 29 thereof is not serrated. This modified plate is denoted with the numeral 26'. Preferably, the mounting plates 26 are provided with elongated openings or recesses 30 therein that pass the screws 27 therethrough. It will be noted that the openings 30 terminate along an edge of the mounting plate, and therefore are open slots. However, in the case of the modified mounting plate 26', the elongated slots 30' do not open along an edge of the plate, and are therefore closed slots.

Figure 2 makes it clear that the inner edges of the mounting plates bite into the seal member 24, and thus anchor the same at a fixed location relative to the depth of the channel 23. In the construction of Figures 1 and 2, the mounting plates extend along the upper surface 22 of the threshold. However, it may, in some instances,

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be desirable to recess the mounting plates. Such a construction is suggested in Figure 3, wherein the mounting plates 26 are recessed within the doorway 31. In this instance, the doorway is not equipped with a threshold, but rather the flooring per se is provided with a channel 32 extending across the doorway in alignment with the closed door 25, and the seal element 24 is positioned in this channel and is confined in a preselected position by the mounting plates 26 which are secured by screws 27 to the flooring. Thus, except for the absence of the threshold, the structural composition is the same as that shown in Figures 1 and 2.

It will be apparent that the seal element 24 may be adjusted to accommodate any spacing between the lower edge of the door 25 and upper surface of the threshold 20 or flooring 31, simply by changing the location at which the mounting plates 26 frictionally engage the seal. Further, if the spacing between the door and threshold or flooring, as the case may be, varies along the length of the threshold as shown in Figure 4, the seal 24 may be angularly oriented from end to end thereof to accommodate such variance in the spacing. Additionally, should any irregularity be present at any point along the width of the door, the seal element could be bowed upwardly or downwardly as required at such point to accommodate the irregularity in the door. Thus, in all events, an excellent sealing relation between the door and element 24, is provided. In Figure 4, the angularly disposed lower edge of the door 25 is designated with the numeral 35, and the casement in which the door is hung is designated with the numeral 34.

It will be noted that the threshold seal element 24 is a resilient member that may be formed of rubber, plastic or other suitable material. Since the seal element is spaced from the bottom wall of the channel, it is deformable downwardly thereinto between the mounting plates 26 so that a relatively tight engagement is afforded between the upper surface of the seal and the lower edge of the door. In other words, the resilient seal may be placed at such an elevation that the door frictionally engages the seal, and thereby presses the same downwardly into the space within the channel afforded for the accommodation thereof. In certain instances, it may be desirable to equip the seal element with a wear plate or guard along the upper surface thereof to prevent destruction of the seal as a result of ordinary or unusual wear. Seal elements affording a mounting for such guard or wear plates are shown in Figures 6, 7 and 8, and are denoted respectively with the numerals 24a, 24b and 24c.

In Figure 6, the seal element 24a is equipped with a longitudinally extending slot 38 along the upper surface thereof adapted to receive therein a depending rib 39 formed integrally with a wear plate 40. The guard or wear plate 40 has an arcuate upper surface that conforms to the configuration of the upper end portion of the seal element 24a. Thus, the guard has a generally T-shaped configuration. In Figure 7, the seal element 24b is seen to be shortened in its vertical dimension, and is also provided with a longitudinally extending slot therealong that seats therein a depending rib 42 provided by a guard or wear plate 41. The guard 41 has a semi-circular upper surface that defines a continuation of the side walls of the seal element 24b. In Figure 8, the seal element 24c has an upwardly extending, semi-cylindrical portion inset from the longitudinal edges thereof which seats within a correspondingly configured upper surface or platform of a guard 43 having a depending rib 44 that seats within a longitudinally extending slot formed in the seal 24c.

In the modified constructions shown in Figures 5 through 8, the seal elements are all resilient members and may be secured within the door sill channels by mounting plates in the manner hereinbefore described in connection with the construction shown in Figures

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1 through 4. Thus, the elevation of the seal elements may be adjusted as required to satisfy the dimensional characteristics of any doorway, and they may be angularly disposed as is the seal member 24 shown in Figure 4. However, the metallic guards protect the upper surfaces of the seal elements and prevent damage thereto. However, it will be apparent that though an excellent seal is afforded between the guards and lower edge of the door, it will not be as perfect as in the case of the seal element 24.

There may be occasions wherein the threshold seal element may be formed of metal in its entirety, and such constructions are shown in Figures 11 and 12 and Figures 13 and 14. In the first instance, the seal is denoted with the numeral 24d, and in Figures 13 and 14 with the numeral 24e. Each of these seals has a cross sectional configuration substantially similar to the seal 24 shown in Figures 1 through 3, but is equipped along the longitudinal side walls thereof with serrations or roughening of such character that a good frictional grip is afforded with the mounting plates 26 or 26'. Thus, the seal member 24d is equipped with a plurality of vertically spaced, longitudinally extending, parallel recesses or slots 45 formed therein; and the seal member 24e is equipped with a plurality of outwardly extending protuberances 46 along the longitudinal side walls thereof. The protuberances may be arranged in vertically spaced rows, as is evident from Figure 14, and preferably the protuberances are offset from each other in adjacent rows to define obliquely oriented columns thereof.

With either of these constructions, the seal member may be vertically adjusted within the channel therefor much in the manner of the resilient seals shown in Figures 1 through 8. However, an incremental adjustment is not afforded for ordinarily the inner edges of the mounting plates should be disposed within the slots 45 (in the case of the seal member 24d), and between the rows or protuberances 46 in the case of the seal element 24e. In any event, a good sealing relation is established between the upper surface of the seal elements 24d and 24e and the lower edge of the door 25, but such seal will not approach the effectiveness of the hermetic barrier afforded by a resilient seal. On the other hand, since the members 24d and 24e are formed of metal, the wear characteristics thereof are superior to those of an unprotected resilient seal.

While in the foregoing specification embodiments of the invention have been set forth in detail for purposes of making a full disclosure thereof, it will be apparent to those skilled in the art that changes may be made in those details without departing from the spirit or scope of the invention.

I claim:

1. In combination with a door sill having a channel formed therein in substantial alignment with a door thereabove when such door is closed, a resilient solid bodied threshold seal positioned within said channel and extending from end to end thereof and being incrementally flexible therealong, and a pair of mounting plates secured to said door sill along opposite sides of said seal and having longitudinal edges frictionally engaging the same intermediate the top and bottom surfaces thereof to maintain the seal at a fixed elevation relative to said channel to provide said seal with an upper edge portion engageable with such door at each point therealong to define a hermetic barrier therewith.

2. In combination with a door sill having a channel formed therein in substantial alignment with a door disposed thereabove when such door is closed, a resilient solid bodied threshold seal positioned within said channel and extending from end to end thereof and being incrementally flexible therealong, and a pair of mounting plates secured to said door sill along opposite sides of said seal and having longitudinal edges frictionally engaging the same to maintain the seal at a fixed predetermined

elevation relative to said channel at any given point there-  
 along and in spaced relation with the bottom wall there-  
 of, said seal being oriented for engagement along the  
 upper edge portion thereof with such door to define a  
 hermetic barrier therewith and being deformable into  
 said channel when engaged by such door. 5

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