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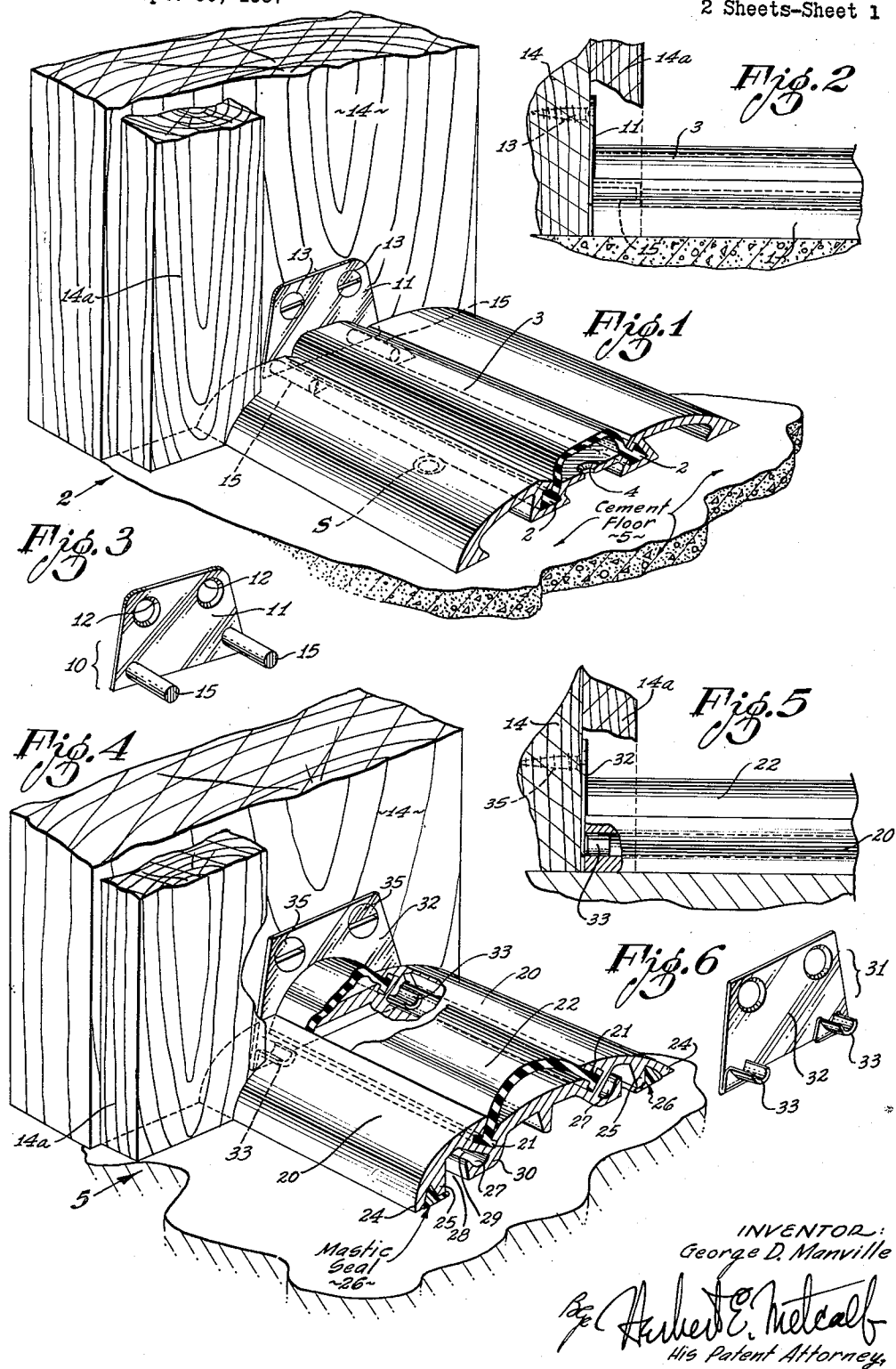
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THRESHOLD AND ATTACHMENT

Filed Sept. 30, 1957

2 Sheets-Sheet 1



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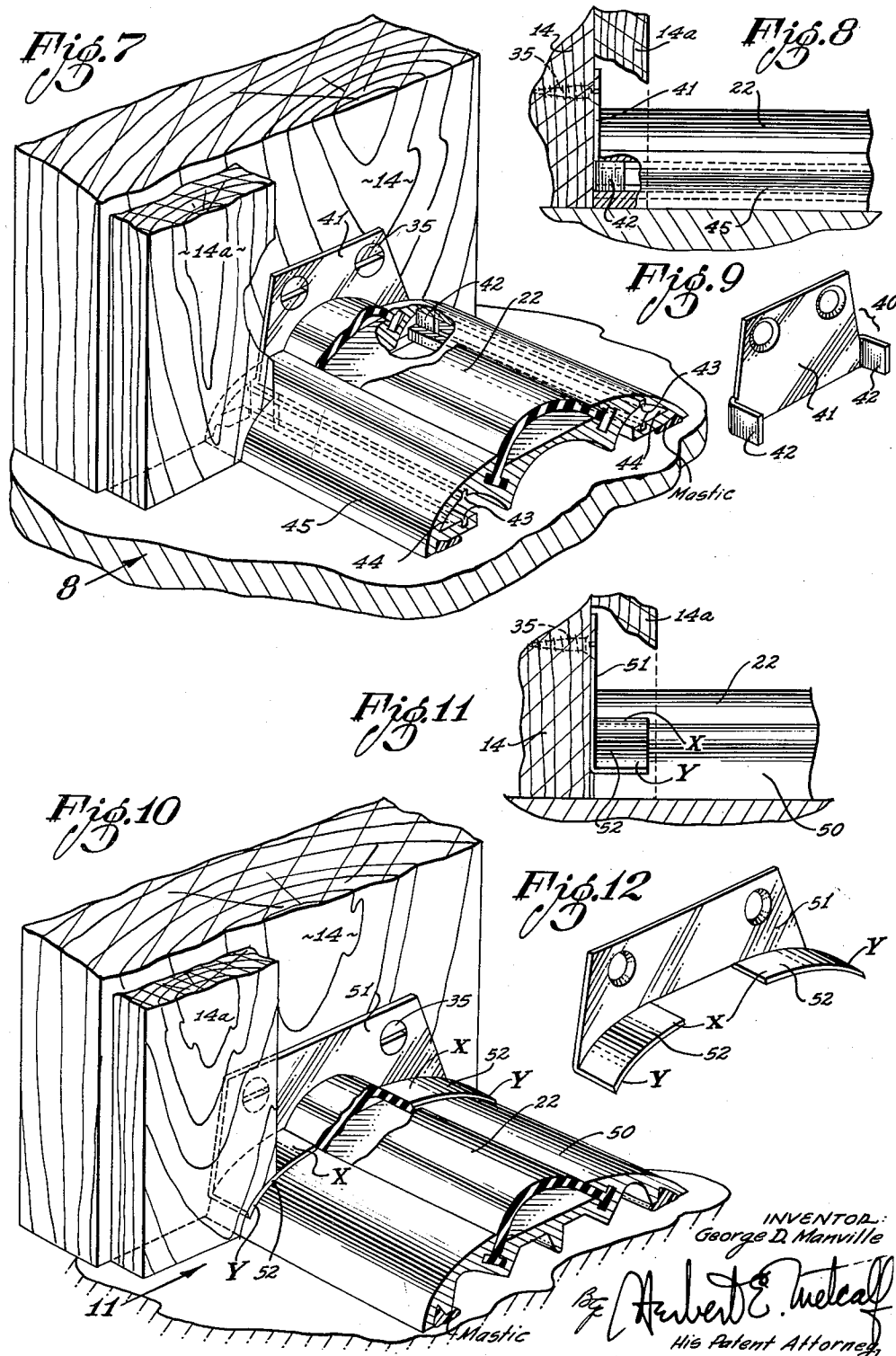
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2 Sheets-Sheet 2



1

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THRESHOLD AND ATTACHMENT
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My invention relates to thresholds for door openings and the like, and more particularly to a threshold having end attachment fixtures.

One of the main problems arising in the use of metal extrusion type threshold is the installation of these thresholds on cement floors such as, for example, used when homes are built on a cement floor slab.

Prior art metal thresholds are commonly provided with floor attachment screw holes, but as screws cannot be inserted directly in cement, special large holes have to be drilled in the cement, plugs inserted, usually of the expansion type, with the threshold attachment screws inserted into the plugs. The drilling of the holes in the cement is a time consuming procedure and greatly increases the cost of installation. My present invention requires no direct floor attachment of the threshold and consequently eliminates the requirement for holes in a cement or other floor when installed thereover.

Among the objects of my invention are

To provide a means and method of installing thresholds without direct floor attachment;

To provide an improved metal threshold installable without floor screws;

To provide a simple metal threshold attachment;

To provide a novel means and method of installing a metal threshold;

And to provide a simple combination of a metal threshold and installation brackets.

My invention, briefly and broadly stated, includes a threshold having a metal extrusion type of body generally concave toward the floor and convex on the opposite side, and a pair of parallel undercut upper slots for the reception of an inverted U-shaped flexible sealing member. Plate means are provided at each end of the threshold extending vertically for attachment to the door casing, together with horizontally extending portions extended from said plate, these latter portions being shaped to contact an upwardly facing surface of the threshold end, to hold it down against the floor, and with portions contacting oppositely facing lateral surfaces of the end to prevent any lateral movement of the ends. Thus the sole attachment of the threshold is to the door casing, no floor holes being needed. The unique bracket formed by the plate and horizontally extending portions is also suitable for the end attachment of prior art thresholds.

My invention will be discussed in detail below in conjunction with a description of the appended drawings in which:

FIGURE 1 is a perspective view of one end of a widely used prior art threshold showing installation by means of the end attachment bracket of my invention.

FIGURE 2 is a side view taken as indicated by the arrow 2 in FIGURE 1.

FIGURE 3 is a perspective view of the attachment bracket used in the device of FIGURE 1.

FIGURE 4 is a perspective view of one end of one preferred form of threshold especially adapted for use in conjunction with an end attachment bracket to form a combination claimed herein.

FIGURE 5 is a side view taken as indicated by the arrow 5 in FIGURE 4.

FIGURE 6 is a perspective view of the attachment bracket used in the device of FIGURE 4, formed from sheet metal.

2

FIGURE 7 is a perspective view of a threshold held in place by a relatively simple unitary bracket.

FIGURE 8 is a side view taken as indicated by the arrow 8 in FIGURE 7.

FIGURE 9 is a perspective view of the unitary bracket used in the device of FIGURE 7.

FIGURE 10 is a perspective view of a threshold held by a bracket having top and side contacting portions.

FIGURE 11 is a side view taken as indicated by the arrow 11 in FIGURE 10.

FIGURE 12 is a perspective view of the bracket used in the device of FIGURE 10.

Referring first to FIGURE 1, the bracket of my invention is shown used in conjunction with a prior art type of extruded metal threshold in which the extrusion body 1, convex on top, is provided with a pair of parallel longitudinally extending undercut grooves or slots 2 these grooves being for the reception of generally T headed edge heads of a rubber, inverted U-shaped sealing member 3. In this type of threshold, screw holes 4 are sometimes provided in the body 1 between the grooves 2, such screw holes being for use in holding the threshold to the floor. When, however, a cement floor 5 is beneath the threshold, use of screws in holes 4 requires that large plug receiving holes be drilled beneath each screw hole 4 so that the screws can be inserted into the plugs. In some cases several hours may be consumed in drilling the required holes. In some cases it is not practical to insert seal 3 after the screws are inserted so screw holes are sometimes placed in one side of the body, as indicated by the dotted line S. Under these circumstances the seal 3 can be slid into grooves 2 from one end before installation.

In accordance with my invention, I provide an end attachment bracket 10, best shown in FIGURE 3, comprising a casing plate 11 having casing attachment holes 12 therein facilitating vertical attachment as by screws 13 to a door casing 14, and having projecting at right angles horizontally therefrom a pair of prongs 15, in this case round. This bracket 10 may be entirely die cast or may have prongs 15 riveted to the casing plate 11.

Installation following my invention is simple. In the case of the prior art threshold of FIGURE 1, the attachment bracket 10 has the prongs thereof spaced and sized to enter the grooves 2 of the threshold, the head portions of the sealing member 3 being cut away to permit such insertion. A bracket 10 is thus inserted in each end of the threshold.

The entire threshold is then slightly bent, concave to the floor. The ends are then held under pressure in contact with the floor against the bending stress, and screws 13 are inserted through each hole 12 into the door casing 14 to form the sole attachment for the threshold. The reverse bending of the threshold offsets any tendency for the threshold to lose contact with the floor in between the attachment brackets. Thus no holes are required in the cement floor. Jamb 14a can be installed after the brackets have been screwed.

I may prefer, however, to use a novel threshold, as shown in FIGURE 4, this threshold being particularly adapted for extrusion, and which can be used exactly as extruded, because no floor attachment screw holes need be drilled therein. The extruded threshold of FIGURE 4 has a generally convex upper surface 20 provided with a pair of undercut slots 21. The slots are T-shaped to receive the T-shaped heads of a rubber seal member 22 as shown in FIGURE 4. As no screw holes are needed between grooves 21, the seal can be always slid into grooves 21 from one side of the threshold before installation. The only floor contacting portions of the threshold are the two side lips 24 these lips being in-

wardly flanked by a mastic retaining lip 25 which does not contact the floor to provide a mastic space 26 on each side of the threshold.

A second pair of undercut slots 27 is provided, opening underneath the threshold, these slots 27 having a substantially vertical entrance 28, and an inwardly extending space 29 thereby forming a pair of hold down lips 30 in this case having hemispherical upper surfaces.

While the brackets used in conjunction with the device of FIGURE 1 can, with proper spacing and prong diameter, be used to attach this threshold, with the prongs in slots 27, I may prefer to use a unitary stamped bracket 31 as shown in FIGURE 6 where the vertical casing plate portion 32 has portions thereof bent to form half round prongs 33 which will extend horizontally to directly fit the opposed lateral and top surfaces of the lips 30 in the slots 27. Casing plate portion 32 has casing attachment holes therein for screws 35.

The threshold of FIGURE 4 is installed in the same manner as described for the installation of the device of FIGURE 1. Mastic is placed in spaces 26, the threshold is slightly bent, the prongs 33 inserted in slots 27 and the end brackets 31 attached to the door casing 14.

By having the special prong receiving slots 27 in the threshold of FIGURE 4, spaced substantially the same distance apart as the head receiving grooves 2 of the prior art threshold 1 shown in FIGURE 1, the brackets of FIGURES 3 and 6 can be used in either or both structures as desired. Thus, the head grooves 21 of the device of FIGURE 4 are preferably directly above the prong receiving groove 27 so that substantially the same arch of the sealing members 3 and 22 can be present in both thresholds.

It is not always necessary to make the projecting portions used to enter the slots in the threshold of a rounded character. In FIGURES 7, 8, and 9, I have shown a very simple and economical unitary bracket 40 formed from sheet metal having a vertical casing plate portion 41 bent to provide two projecting tabs 42. These tabs 42 fit into upper and lower sub-slots 43 formed in main slots 44 of an extrusion 45 during extrusion, and provide a close fit to prevent any upward and lateral movements. I may prefer to taper tabs 42 slightly to provide a drive fit with sub-slots 43. Installation of the threshold 45 is as previously described.

In case no slots are available in a threshold 50 extrusion to provide proper insertion of any slot stabilizing projections from a casing bracket, I may prefer to utilize a bracket as shown in FIGURES 10, 11, and 12. In this bracket the base plate 51 is provided with curved projecting portions 52, one on each side of the rubber seal 22. Projections 52 are curved to have one portion thereof bearing on one laterally facing surface of the threshold 50 and another portion Y bearing on a vertically facing surface of the threshold, the portions Y being on oppositely facing lateral surfaces. Thus when the bracket 50 is attached by screws 35 to the door casing 14 with the end of the threshold held against the floor, the end of the threshold is solidly prevented from moving either upwardly or laterally, and is thus stabilized properly and similarly to the examples previously described. Installation in this case is slightly different than previously described in that the threshold is cut to extend from one door casing to the opposite casing, as the casing plate portion 50 in this case does not come between the end of the threshold and the casing. However, prior to installation the threshold is preferably slightly bowed as previously described.

It will thus be noted that in all modifications shown the main desideratum is that the threshold ends be solidly held from both upward and lateral movement, and that this object is attained in all cases by projections from the casing plate portion bearing on opposite laterally facing surfaces to prevent lateral movement, and on an upwardly facing surface to prevent upward movement.

My invention is also seen to encompass several aspects; an end attachment bracket suitable for use with any metal threshold having longitudinal slots; a special threshold combination of bracket and threshold; and a method of installing such a combination.

While in order to comply with the statute, the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise a preferred form of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

I claim:

1. In combination, a door threshold extending across the floor from one side of a door casing to the other, said threshold having a pair of parallel slots extending longitudinally through said threshold, said slots having an internal dimension greater than the entrance dimension thereof, and a pair of casing attachment brackets, each having a thin platelike portion fitting between an end surface of said threshold and the adjacent facing surface of said door casing, and a pair of inwardly directed projections fitting into the larger dimension portions of said slots at the ends thereof, said platelike portions having means facilitating attachment of said latter portions to the adjacent door casing.

2. In combination, a door threshold extending across the floor from one side of a door casing to the other, said threshold having a pair of parallel slots extending through said threshold, said slots having an internal dimension greater than the entrance dimension thereof, and a pair of casing attachment brackets, each having a thin platelike portion fitting between an end surface of said threshold and the adjacent facing surface of said door casing, and a pair of inwardly directed projections fitting into the larger dimension portions of said slots at the ends thereof, said platelike portions having casing attachment holes therein.

3. In combination, a door threshold comprising a generally upwardly convex metal extrusion having a pair of parallel upwardly opening T-shaped slots for the insertion of a flexible sealing member bridging said slots, and a pair of downwardly opening longitudinally parallel attachment slots, said attachment slots extending first upwardly and then inwardly to provide outwardly extending hold-down lips and an end attachment bracket for said threshold comprising a plate to be vertically positioned against a door casing at an end of said threshold, and a pair of generally horizontal projections from said plate spaced and dimensioned to fit into said slots at an end of said threshold to bear on said hold-down lips.

4. In combination, a door threshold extending across the floor from one side of a door casing to the other, said threshold having parallel slots extending longitudinally therethrough, said slots having openings at each end of said threshold adjacent said door casings, and brackets at each end of said threshold, each of said brackets having a flat plate fitting between an end of said threshold opposite said threshold slot openings and said door casings, and integral tabular members bent normally from said bracket plate and sized to extend into said slot openings to retain said threshold in stationary position between said door casings.

5. In combination, a door threshold having at least one recess between the upper and lower surfaces of said threshold at each end thereof, and fixed end attachment means at each end of said threshold comprising a thin flat plate fastened to the door casing opposite said recess at each end of said threshold, and a threshold retaining member extending from each of said plates into said threshold end recesses.

6. In combination, a door threshold having at least

5

one elongated recess extending into each end surface of said threshold between the upper and lower surfaces thereof, and a fixed threshold attachment bracket at each end of said threshold comprising a thin flat plate positioned and fastened between the end surface of said threshold and adjacent door casing, and a threshold retaining stud extending from said plate into said elongated recesses, said plate being adapted to be fastened to said door casing after said threshold and attachment brackets are assembled.

5

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6

References Cited in the file of this patent

UNITED STATES PATENTS

1,402,453	Smith	Jan. 3, 1922
1,403,333	McGhee	Jan. 10, 1922
2,572,154	Howard	Oct. 23, 1951
2,718,677	Cornell	Sept. 27, 1955
2,829,405	Huff	Apr. 8, 1958

FOREIGN PATENTS

599,940	Great Britain	Mar. 24, 1948
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