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[56]

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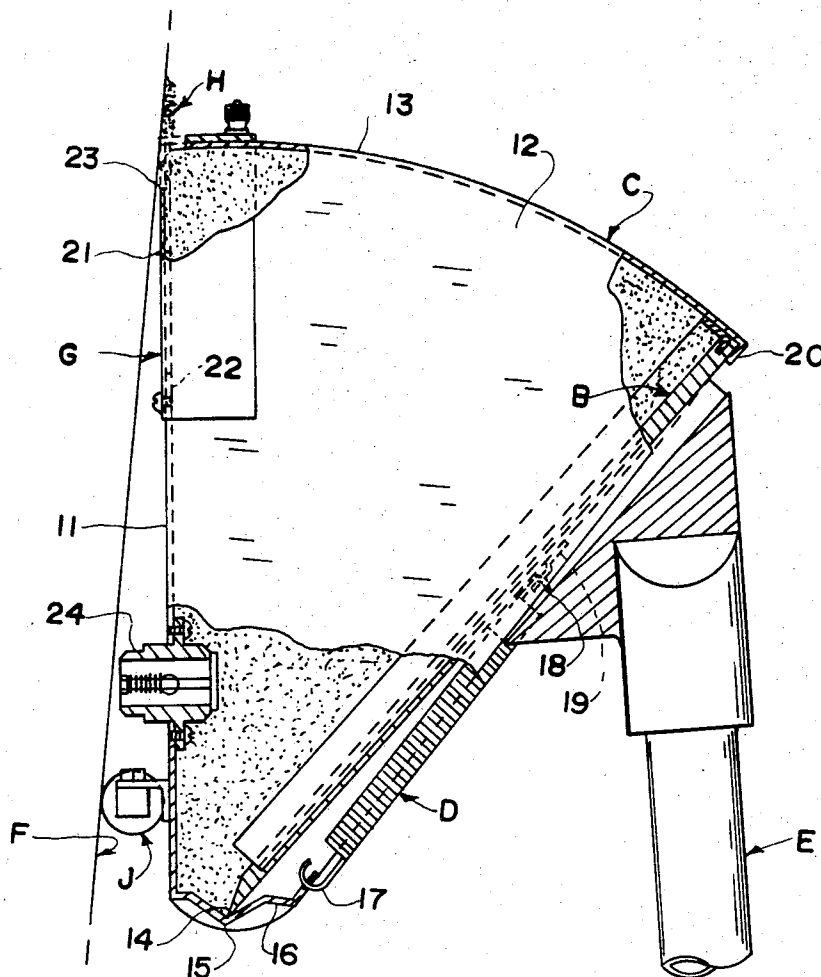
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[54] **FLEXIBLE SEALING STRIP EXTENDIBLE
AROUND AN ENCLOSED MOVABLE MEMBER OF
PREDETERMINED CONTOUR**
1 Claim, 7 Drawing Figs.

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49/479
[51] Int. Cl. B67d 5/42
[50] Field of Search 222/541,
386, 326; 92/89, 125; 29/156.6, 222, 476;
401/176, 177; 277/178, 212; 49/479, 496, 483,
489, 490

ABSTRACT: A flexible sealing strip having an inner edge receivable in a groove bordering the perimeter of a movable member, this edge having spaced apart recesses, each one registering with a corner on said perimeter. The portion of the sealing strip projecting beyond the groove is bent so as to have its outer edge yieldingly and slidably contacting with the adjacent wall surface of the enclosure in which the member moves. The recesses in the sealing strip permit the outer strip edge to be continuous in length without any recesses therein and yet permit the strip to be bent sharply in order to conform to the shape of the perimeter of the movable member.



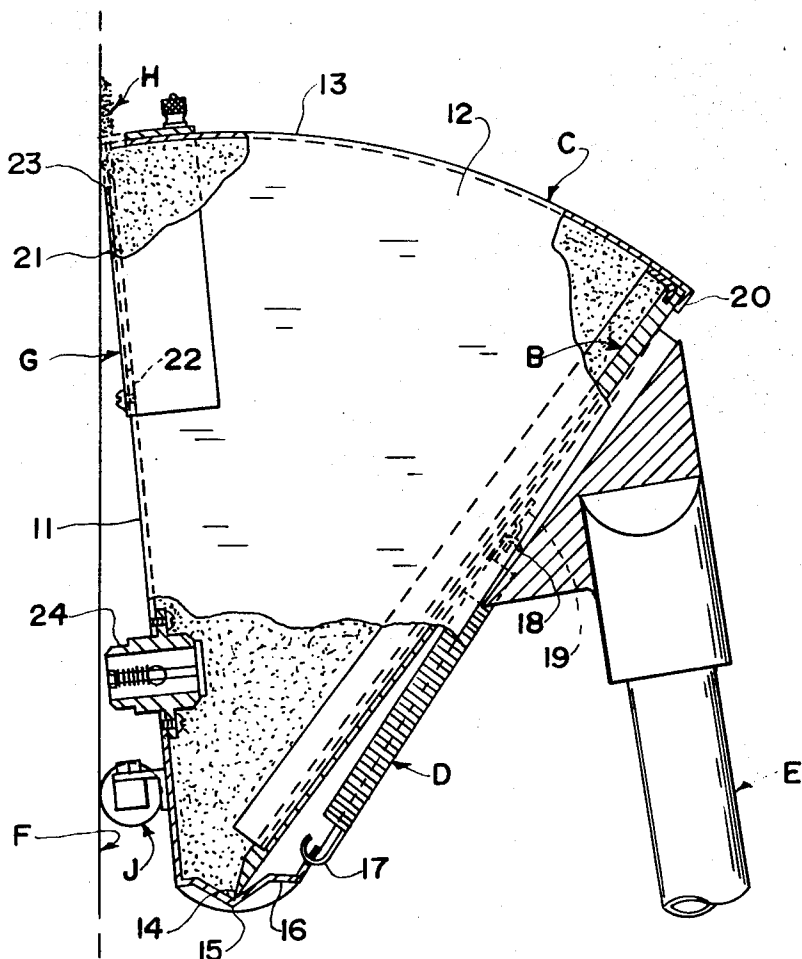


Fig-1

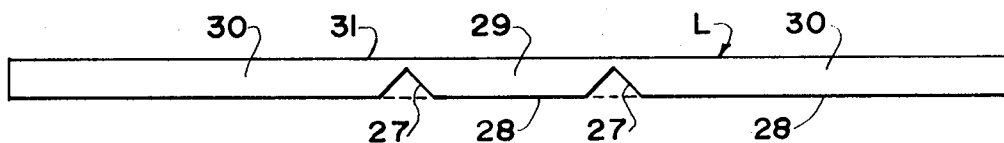


Fig-2

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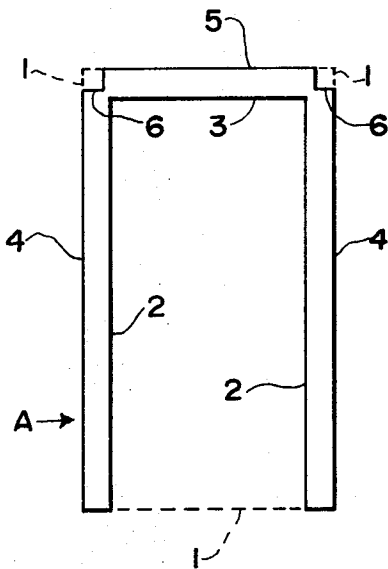


Fig-3

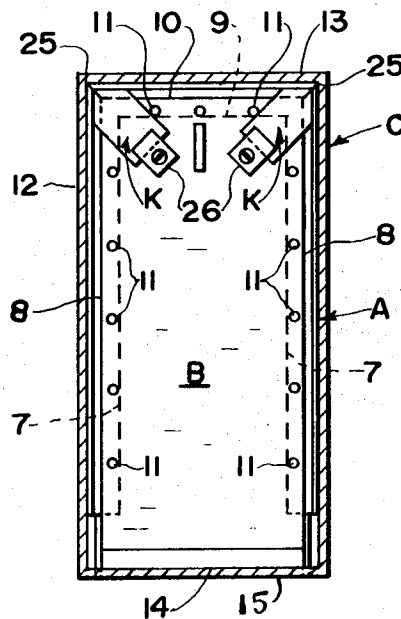


Fig-4

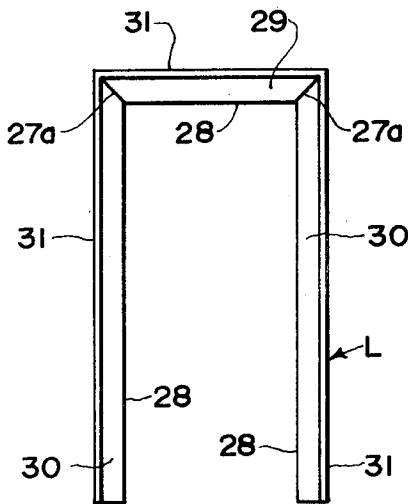


Fig-5

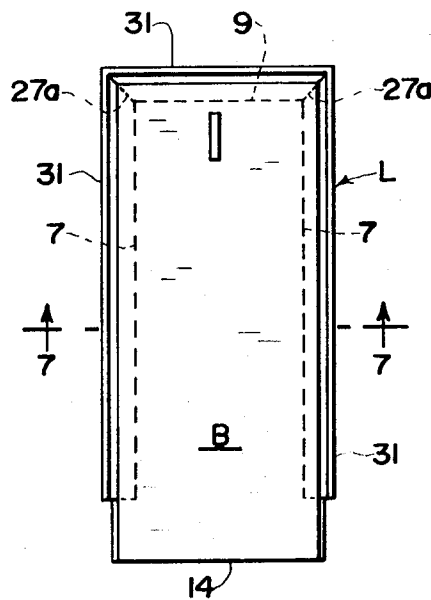


Fig-6

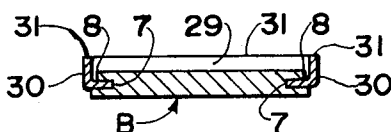


Fig-7

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FLEXIBLE SEALING STRIP EXTENDIBLE AROUND AN ENCLOSED MOVABLE MEMBER OF PREDETERMINED CONTOUR

BACKGROUND OF THE INVENTION

1. Field of the Invention

In the applying of a layer of mastic over a wallboard joint I have designed several mastic applicators that included a casing for receiving the mastic and a rectangular pressure plate swingably mounted on one of its edges in the casing and having a handle connected thereto by means of which the plate could be swung inwardly into the casing to force mastic therefrom through a nozzle that would form the mastic into a shaped layer at the time it was applied to the wallboard in order to cover the joint lying between the two sections of wallboard. A washer was cut from a piece of flexible material to form a U-shaped member of a size to conform to the three sides of the pressure plate. The inner edges of the U-shaped member or washer were inserted in the grooves bordering the three sides of the pressure plate and the portions of the plate lying adjacent to the grooves were peened so as to grip these edges. The portions of the washer extending beyond the three sides of the plate were bent at right angles to the plane of the plate and yieldingly engaged with the adjacent inner surfaces of the casing in which the plate was fulcrummed. At each point where the U-shaped washer made a right angle turn, the outer edge of the washer had a recess cut therein so as to avoid the bunching of excess material at these points and permit the washer to make a tight seal with the casing wall while still allowing swinging movement of plate within the casing.

From actual use of the plastic applicators, it was found that the mastic did leak past the washer or seal at the points where the V-cuts were made in its outer edge when pressure was applied against the plate for swinging it inwardly to force mastic from the casing nozzle. Moreover the tendency of the washer was to work itself loose from the groove in the sides of the pressure plate. This would require the removal of the pressure plate from the casing and the reinsertion of the washer inner edges into the plate groove and the additional peening of the plate portions adjacent to the washer for securing the latter in place.

SUMMARY OF THE INVENTION

An object of my invention is to provide a flexible seal or washer in strip form that has cuts or recesses made in the inner edge that is inserted into the pressure plate groove, these cuts being spaced for registering with the corners of the pressure plate and permitting the strip to be bent at right angles at the plate corners and have no overlapping of the inner edge of the strip at the corners. No peening is required on the plate portions adjacent to the washer receiving groove for securing the inner edge of the strip washer to the plate because the outer edge of the strip extends at right angles to the plane of the plate and slidably bears against the adjacent casing wall and the tendency of the strip to straighten out will create an inward force on the strip for urging the inner strip edge into the groove at all times. No cut is made in the outer strip edge and this will obviate any exposed recess at each corner of the plate through which the mastic could leak. Instead the continuous outer edge of the strip will form a V-shaped sealing portion at each corner of the plate that will bear against the adjacent casing wall and will effectively provide a leakproof seal at the adjacent casing corner to prevent the seepage of any mastic thereby.

While I have shown one specific example of the use of the sealing strip, I do not wish to be confined to it because the strip can be used to act as a seal between a movable member and the adjacent wall of the device in which the member moves.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation of a mastic applicator, portions being shown in section, and illustrates my flexible sealing strip applied to the pressure plate mounted in the device. The mastic applicator is given as an example of one use for my flexible sealing strip.

FIG. 2 is a plan view of my flexible sealing strip, the two recesses along its inner edge being spaced-apart a distance that is equal to the distance between two adjacent corners of the pressure plate in the mastic applicator with the recesses registering with the corners of the plate so that the strip can be bent at right angles at these corners and have an outer edge at these corners that is not recessed.

FIG. 3 is a plan view of the old type of flexible seal or washer that my present invention supercedes.

FIG. 4 illustrates how the old type of flexible seal or washer is secured to the pressure plate of the mastic applicator and further shows the means used for pressing the corners of the seal against the adjacent corners of the mastic-holding compartment.

FIG. 5 is a plan view of my flexible sealing strip showing the strip bent at the points which register with the recesses on the inner edge of the strip.

FIG. 6 is a plan view of the mastic applicator pressure plate and shows my sealing strip applied thereto.

FIG. 7 is a transverse section through the pressure plate and sealing strip and is taken along the line 7—7 of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In carrying out my invention I will first describe the old type of flexible seal or washer and its disadvantages and then will set forth my new flexible sealing strip and its advantages over the old type. The old type of flexible seal or washer is shown at A, in FIGS. 3 and 4. It was cut from a rectangular piece of flexible material shown by the dash lines 1, in FIG. 3. The seal or washer is in the shape of an inverted U, and its inner edge has two parallel sides 2 and an interconnecting side 3. The rectangular portion cut from the rectangular piece of flexible material was bounded by the parallel side-cuts 2—2, and the interconnecting cut 3 plus the edge indicated by the dash lines 1 and extending between the outer ends of the parallel sides 2. This rectangular cutout portion is thrown away and constitutes a loss in material.

In order to permit the outer parallel edges 4—4 and the interconnecting outer edge 5 to be bent at right angles to the plane formed by the inner edges 2 and 3, the corners of the inverted U-shaped flexible seal or washer A had recesses 6—6 cut therein, see FIG. 3. The corner portions thus cut permitted the outer edges 4—4 and 5 to form right angle corners when the U-shaped seal A was connected to the pressure plate B. FIG. 4 shows a plan view of the pressure plate and FIG. 7 shows a transverse section through the plate. The plate has grooves 7—7 extending along its two parallel sides 8—8, see FIGS. 4 and 7, and a third groove 9, extends along the edge 10 interconnects with the other two grooves 7—7.

FIG. 4 shows the old type seal A mounted on the pressure plate B. The inner parallel edges 2—2 of the seal are inserted into the parallel grooves 7—7 of the plate and the inner edge 3 of the seal is inserted into the plate groove 9. In order to make the sides of the grooves 7—7 and 9 grip the adjacent edges 2—2 and 3 of the old type seal A, the three edge portions of the plate B that bordered the enclosed parts of the seal, were peened as indicated by the small circles 11' to cause the sidewalls of the grooves to grip the adjacent portions of the seal. This required an extra operation.

In FIG. 1, I have shown the pressure plate B pivotally mounted in a compartment or housing C of a mastic applicator. The particular type of device illustrated in this Figure is disclosed in my U.S. Pat. No. 2,889,699, issued June 9, 1959, and entitled "Mastic Applicator With Removable Heads." The housing C has a baseplate 11, sidewalls 12 that parallel each other, and an arcuate end wall 13. The pressure plate B

closes the open top of the housing and it has an edge 14 that is fulcrummed in a depressed portion 15 of the housing, this depressed portion being disposed at the opposite end 16 of the housing from the arcuate wall 13. A pair of springs D have one of their ends 17 connected to the end 16 of the housing and have their other ends 18 connected to clips 19 which in turn are secured to the pressure plate B. These springs yieldingly urge the pressure plate B to swing in a clockwise direction about its fulcrummed edge 14 in FIG. 1. A stop member 20 is mounted at the right-hand edge of the arcuate end wall 13 and limits the swinging of the pressure plate B. The pressure plate B acts as a movable closure for the housing C at all times.

A handle E is secured to the pressure plate B and the operator can press on this handle for forcing the pressure plate inwardly for ejecting mastic from the housing C and applying it to a wallboard surface F, see FIG. 1. A nozzle G is removably secured to the housing C and has a base member 21 partially closing a mastic outlet opening 22 in the baseplate 11 of the housing. The base member 21 of the nozzle has mastic outlet slots 23 that register with the outlet opening 22 for the mastic in the housing. When the pressure plate B is forced inwardly into the housing by the operator pressing on the handle E, it will swing in a counterclockwise direction and a layer of mastic will be applied to the wallboard surface F. The housing C is held against the wallboard surface by the operator pressing on the handle and the housing is moved downwardly in FIG. 1. Rollers J are carried by the housing and ride over the wallboard surface for spacing the baseplate 11 of the housing from the surface. Additional mastic can be fed into the housing C as needed and is forced through the valve-controlled inlet 24.

During the use of the tool, mastic would bleed by the pressure plate B, especially at the corners of the plate during the inward swinging movement of the plate into the housing. The recesses 6 in the old type seal A, see FIG. 3, would not close tight enough at the adjacent corners 25—25 of the housing C to prevent the leakage of mastic thereby as the pressure plate moved. Pieces K of resilient material were applied to the corners of the old type seal A, see FIG. 4, and were held in place by brackets 26 that in turn were secured to the pressure plate B, by screws. Even this precaution did not stop the leakage of mastic past the old type seal.

A flexible sealing strip L was then designed, see FIG. 2, and recesses 27 were cut out from the inner edge 28 of the strip rather than from the outer corners as at 6 in the old form shown in FIG. 3. These recesses 27 were spaced a predetermined distance apart so as to dispose them at two corners of the pressure plate B, and permit the central portion 29 of the strip to have its inner edge 28 slipped into the groove 9 in the plate. The two terminal portions 30—30 of the sealing strip L can be bent at right angles to the central portion 29 and the inner edge of these terminal portions can be slipped into the adjacent grooves 7, see FIG. 7. The flexible sealing strip L is shown in FIG. 5 in its bent position with the edges of each recess 27 abutting each other as at 27a to permit the terminal or leg portions 30 to be bent at right angles to the central portion 29 and to parallel each other. FIG. 6 shows the U-shaped flexible sealing strip L of FIG. 5 placed in the pressure plate B. The abutting edges 27a of each recess 27 in the sealing strip L will be received at the junctures of the side grooves 7 in the plate B with the end groove 9 forming the two corners on the plate. There can therefore be no leakage of mastic past the abutting edges 27a. No peening is necessary along the plate B and adjacent to the walls of the grooves 7 and 9 in order to have the groove walls grip the adjacent portions of the sealing strip.

The outer edge 31 of the sealing strip L will have no

recesses cut therein. The recesses 27 on the inner edge 28 of the strip permit the strip to be bent at right angles at these recesses as shown in FIG. 5. The outer edge 31 will form a right angle at the places bent and these right angle portions will not have any recesses 6 cut therein. This prevents any leakage of mastic past the sealing strip at the right angle bends therein. FIG. 7 illustrates how the outer edge 31 of the sealing strip extends at right angles to the portion of the strip that is received within the grooves 7 and 9 in the pressure plate. This outer edge yieldingly contacts with the adjacent inner surfaces of the housing C and the tendency of the outer edge to straighten out will create sufficient force to urge the inner edge 28 of the strip into the grooves 7 and 9 without the necessity of any peening of the pressure plate to cause the groove walls to grip the sealing strip.

Although I have shown the flexible sealing strip L attached to a pressure plate B of a mastic applying tool, this is done to illustrate one example. The sealing strip is capable of many uses. One vital point to keep in mind is that the length of the inner edge 28 of the sealing strip L, that lies between the notches 27 in FIG. 2, should equal the length of the inner wall of the groove 9 in the pressure plate B. Each notch 27 has its two edges forming a 90° angle and this permits the two edges to be brought into abutting relation so that the sealing strip L can be bent at right angles precisely at the two points that will permit the strip to extend around the two 90° corners in the pressure plate B formed by the meeting of the two grooves 7 with the ends of the groove 9 when the strip is mounted on the pressure plate so that its inner edge 28 is received in the grooves 7 and 9. The exposed outer edge 31 of the sealing strip will be bent at substantially 90° angles at the two adjacent corners in the pressure plate and the abutting edges 27a of each notch 27 are practically entirely received within the interior of the grooves. This prevents any leakage of mastic through the crack formed by the abutting edges 27a. The portion of the sealing strip L that extends free of the grooves 7 and 9 has no notches cut therein and because of this there can be no mastic leakage through the sealing strip itself. The tendency of the outer edge 31 of the sealing strip to expand will keep this edge in contact with the adjacent wall of the housing C so that there will be no leakage of mastic past the strip.

I claim:

1. The combination with a mastic applying tool including:
 - a. a mastic holding housing having parallel sidewalls;
 - b. a bottom wall interconnecting the sidewalls and having an outlet opening therein for the mastic;
 - c. a rectangular pressure plate having one end fulcrummed in the housing and having its other end movable along an arcuate wall of said housing as the pressure plate is swung toward the bottom wall for forcing mastic through the outlet opening, said plate having a groove in three of its edges for receiving a sealing strip; of
 - d. a flexible sealing strip having an inner edge receivable in said pressure plate groove, the inner edge having V-shaped recesses positioned so as to register with the groove corners formed at the junctures of the three grooves of said plate for permitting said strip to be bent at the groove corners, the edges of the recesses being brought into abutting relation;
 - e. the outer edge of said strip being free of any recesses and slidably contacting with the sidewalls and arcuate wall of said housing, said outer edge being formed into angular portions at the plate corners, these angular portions constituting sliding seals between said plate corners and the adjacent corners formed by the sidewalls and arcuate wall of said housing.