

July 14, 1964

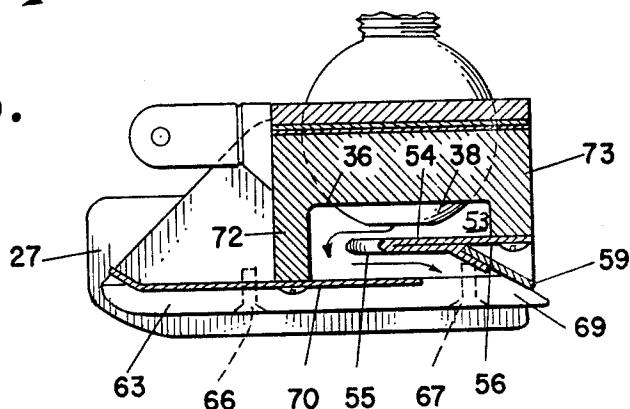
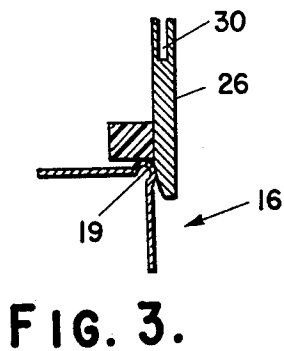
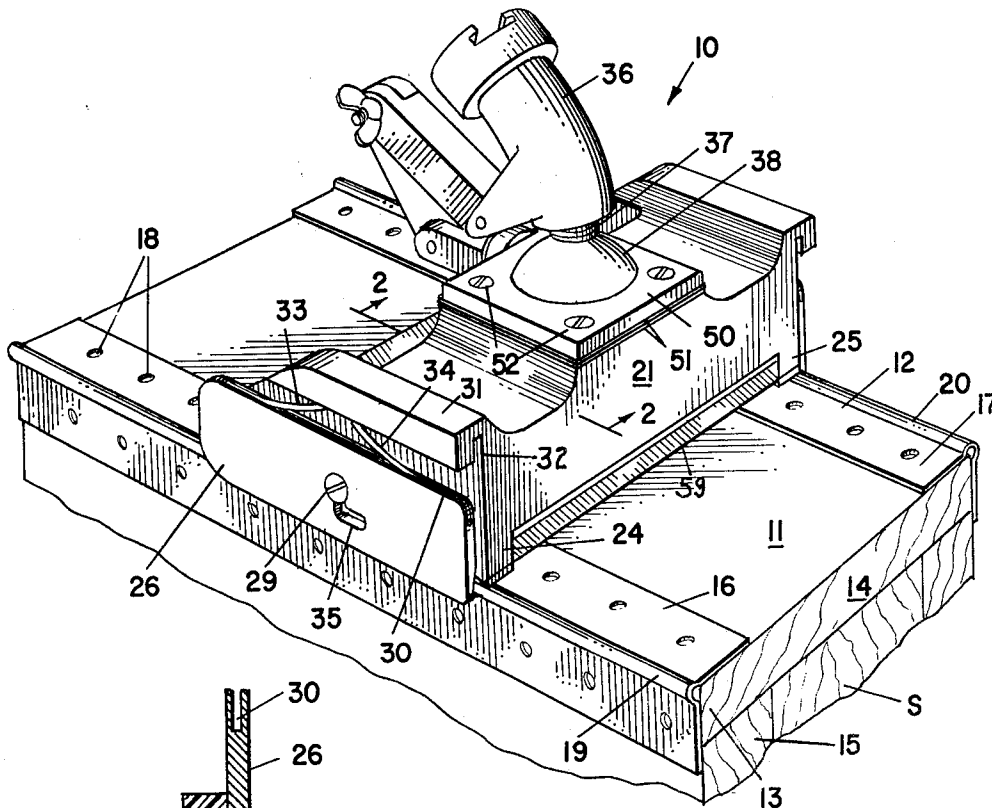
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3,140,504

DRY WALL JOINT FINISHING STRUCTURE

Filed Oct. 22, 1962

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

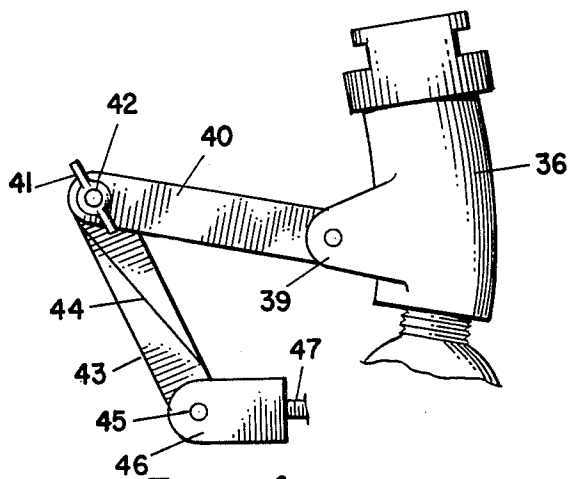


FIG. 4.

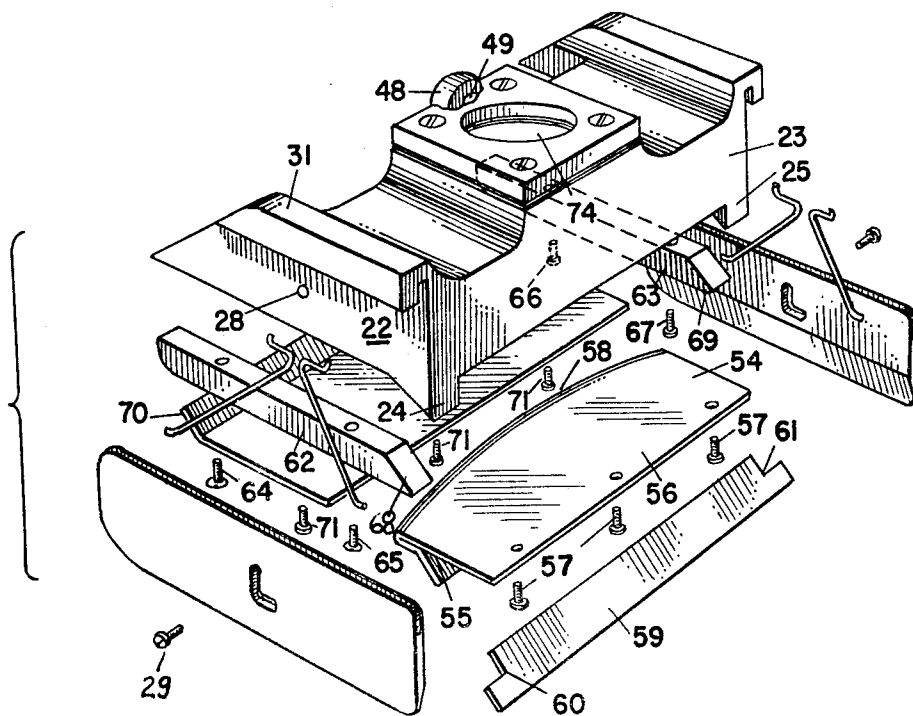


FIG. 5.

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DRY WALL JOINT FINISHING STRUCTURE

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12 Claims. (Cl. 15—560)

This invention generally relates to a joint finishing tool for applying mastic to dry wall or plastic wall joints such as now are conventionally used in many residential and commercial buildings. Such dry walls or plaster boards are nailed up in flat sheets and merely painted over eliminating the necessity of the manual application of plaster material and the building of the underlying structure designed to receive same.

One of the problems associated with present day joint finishing devices for dry walls is the adaptation of same to the particular conditions characterizing archways, outside corners, and the like, in connection with which metal finishing beads are conventionally used in order to protect the otherwise exposed corners of the plaster board. In the past, hand tools have usually been employed in applying mastic to areas juxtaposed the finishing beads and to archways in between same.

One object of the present invention, therefore, is to provide a joint finishing tool which will enable the application of mastic to archways, outside corners, and the like in dry wall construction, whereby the mastic is applied semiautomatically without the necessity of the use of conventional hand tools.

Another object of the present invention is to provide a dry wall joint finishing tool, which is so constructed that it is adaptable to finishing archways characterized by beads on each outside corner as well as finishing the marginal borders on walls juxtaposed the archway wherein the bead only characterizes one edge of the surface to which the mastic is applied.

Still a further object is to provide a dry wall joint finishing tool which is constructed of a minimum number of parts in a rugged assembly so that it will operate satisfactorily over a long period of time without the necessity of any substantial maintenance.

Still another object of the present invention is to provide a dry wall joint finishing tool which is susceptible of economical production and which may be readily assembled or disassembled if the need requires.

Still a further object of the present invention is to provide a dry wall joint finishing tool which is designed whereby the use thereof simulates the use of a conventional hand tool, and whereby the tool of the present invention effects results which are equal to or better than results obtained with similar hand tools.

Still a further object of the present invention is to provide a joint finishing tool for dry walls in which various adjustments are embodied in the tool for assuring uniform extrusion of mastic onto the surface to be finished as well as varying the capacity or total amount of mastic applied.

Still another object of the present invention is to provide a dry wall joint finishing tool in which the final sweep of the tool in a downward stroke may simulate the natural hand movement as the material is feathered to the end of the surface of the joint being finished.

These and other objects and advantages of the present invention are generally attained by providing a dry wall joint finishing tool which includes or embodies an inlet connector having one end designed for coupling to a source of mastic, for example, a portable pump unit or the like. Desirably, the connector has its other end defining a swivel.

The tool further includes an inner mastic receiving recess, and the body defines an opening communicating with the recess, which opening receives the swivel.

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Linkage means are provided to interconnect the connector to the body and to aid in stabilizing the connector with respect to the body. The linkage means is so constructed that swiveling movement of the connector is still provided to a substantial degree.

A baffle member protrudes into the recess and is coupled to the bottom of the body, and the bottom of the body further has connected thereto a base member which defines with the baffle member or plate an outlet opening for extrusion of mastic therethrough. A blade is, in turn, retained by and aligned with the baffle plate to form an extension thereof.

A better understanding of the present invention may be had by reference to the drawings, showing merely one illustrative embodiment, and in which:

FIGURE 1 is a perspective view of the dry wall joint finishing tool of the present invention showing its use on a section of an archway wherein the opposing exterior corners are each covered with a metal finishing bead;

FIGURE 2 is a sectional view through the joint finishing tool of FIGURE 1 taken in the direction of the arrows 2—2;

FIGURE 3 is an edge view of one of the guide members in its relationship to the metal finishing bead;

FIGURE 4 is a side elevation of the linkage structure associated with the connector and the body of the tool; and,

FIGURE 5 is an exploded view of the main body of the tool.

Referring to the drawings, there is shown in FIGURE 1 a section of an archway covered with dry wall. A wooden stud, for example, may be indicated by the letter "S" while the dry wall joint finishing tool of the present invention is generally indicated by the numeral 10. The archway surfaces as such is generally designated by the numeral 11 and the opposing exterior corners are designated by the numerals 12 and 13. The dry wall joints or members covering the stud S are designated by numerals 14 and 15.

The corner joint 13 is covered by an exterior right angular metal bead 16, while the opposite corner 12 is covered by a similar bead 17. The beads 16 and 17 include conventional openings 18 to enmesh and capulate the mastic applied thereto, in a manner as will be described hereafter. The actual bead formation of the metal beads is shown somewhat enlarged in the opposing bead members 16 and 17 and is identified by the numerals 19 and 20, respectively.

Referring to the joint finishing tool 10 as such, it will be seen that the tool embodies a main body 21 preferably of cast construction which includes opposing side portions 22 and 23. Side portions 22 and 23 include angled forward feet 24 and 25, respectively.

Attached to the side portion 22 is a floating guide member 26. Similarly, a floating guide member 27 is attached to the opposing side portion 23. The guide members 26 and 27 form an important feature of the present invention in conjunction with operation of the joint finishing tool as will be more clearly understood as the application proceeds.

Since the guide members 26 and 27 are of identical construction, although in mirror-like position to each other, the description of one will suffice for both.

The guide member 26 is connected to the side portion 22 through a tapped opening 28 receiving a screw 29. A slot 30 is provided in the upper portion of the guide member 26.

The sidewall 24 includes a protruding rim 31 which is provided with a groove 32. Hair springs 33 and 34 are designed to be interposed between the groove 32 of the rim portion 31 and the slot 30 in the upper portion

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of the guide member 26. Towards this end, two holes (not shown) are provided in the bottom of the groove 32 to receive the corresponding ends of springs 33 and 34.

With such a construction, the guide member 25 is biased towards its downward position as shown in FIGURE 1. If desired, however, the guide member may be urged upwardly to overcome the biasing force of the spring in view of the right angular slot defined therein. Also, by a slight longitudinal movement, the guide member may be locked in its uppermost position.

The body 21 also has coupled thereto a connector 35 provided with a nipple 37 and a communicating swivel 38. The connector, in turn, has connected thereto a pair of bifurcated ears 39 designed to receive one end of a linkage mechanism.

The linkage mechanism comprises a link member 40 which is pivotably held by a wing nut 41 and bolt 42 to a second linkage member 43. The linkage member 43, as clearly shown in the view of FIGURE 4, includes an angled down portion which is designed to cooperate with a similar angled down portion on the linkage member 40 (not shown) whereby these two linkage members may be brought together in closer relationship and whereby they may be aligned one above the other instead of relative side-by-side relationship.

The second linkage member 43 is coupled through a pivot connection 45 to another bifurcated pair of ears 46 which are swivelably connected to a screw 47 to the body 21. Towards this end, the body 21 may be provided with a lug 48 having a threaded opening 49 for receiving the screw 47.

Now considering the more detailed structure of the body 21, it will be seen that the swivel 38 is held by a retainer plate 50 disposed over a plurality of shims 51. Thus, by removing certain of the shims, the degree of tightness of the swivel member within the retaining plate 50 may be varied. The plate 50 and shims 51 are securely connected to the body 21 by screws 52.

The body 21 of the joint finishing tool 10 defines an inner box-like channel or recess into which mastic is designed to be received from the connector 36 and more specifically from the swivel end 38 thereof. Thus, the recess 53 communicates through the swivel 38, the nipple 37, and the connector body 36 to a pump unit or other source of mastic. The free end of the connector 36 may be shaped to snap on or thread to an appropriate fluid line.

The recess 53 has partially disposed therein a baffle plate 54 which is turned back on itself at 55. The baffle plate includes a front portion 56 which may be attached as by the screws 57 to the bottom front portion of the body 21.

As clearly shown in the view of FIGURE 5, the baffle plate along its rear edge is formed of an arcuate shape 58 such that mastic being passed into the recess 53 will tend to encounter a greater restriction in the center of the unit than at the edges whereby a more uniform flow is attained.

The baffle plate is designed to receive in its turned back portion 55 a mastic applying blade 59 which is positioned to form a continuation of the lower side of the baffle plate.

The blade 59 is clearly shown in the view of FIGURE 5 and includes wing portions 60 and 61 which are designed, respectively, to be positioned between runners 62 and 63 and the downwardly depending feet 24 and 25 heretofore described.

The runners 62 and 63 are preferably formed of Teflon or an equivalent hard but relatively slippery plastic material such that they may be readily slid along the metal beads 16 and 17 in the manner as illustrated in FIGURE 1. The runners 62 and 63 are attached to the bottoms of the sidewalls 22 and 23 as by screws 64, 65, and 66, 67, respectively; the screws 65 and 67 perform a dual function in that as well as helping to secure the foot members 62 and 63, they additionally serve the function of

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forcing the front end of the runner into engagement with the wing portion of the blade against the respective feet 24 and 25 of the sidewalls 22 and 23. Thus, in this manner, the blade 59 is firmly retained in its position within the turned back portion 55 of the baffle plate 54. Also, it will be evident that by merely loosening the screws 65 and 67, the blade 59 may be shifted forwardly or rearwardly as desired.

The actual canted surfaces of the runners engaging the respective wing portions 60 and 61 have been designated by the numerals 68 and 69.

As more clearly seen in the view of FIGURE 2, the recess 53 is closed off in its rear portion by a base plate 70 which may be retained by screws 71 (see view of FIGURE 5) connected to the bottom of a back wall 72. Of course, the front wall 73, as heretofore described, may be used for coupling thereto the baffle plate 54 by screws 57.

In the operation of the device, the pumping unit or fluid line connecting with the source of mastic is first connected to the connector 36 either by a snap-on connection as shown or by threading or the like. Thereafter, mastic may be pumped to flow through the connector 36, the nipple 37 and the swivel 38. In this regard, the swivel 38 is retained within an opening 74 in the retaining plate 50. If the swivel is too loose, certain of the shims 51 may be removed to tighten it in the opening 74. The mastic then flows downwardly and outwardly through the bottom of the swivel in the direction of the arrows as shown in FIGURE 2 to pass around the back edge of the baffle plate and further out towards the sides and then pass between the baffle plate and the base plate into the opening below the blade 59. The mastic is thus wiped upon the surface being coated as the blade 59 is pulled in a direction towards the left, as viewed in FIGURE 1, for example.

As the tool is being pulled upwardly or to the left as viewed in FIGURE 1, it will be appreciated that there is some tendency of the connector 36 to move about in view of the free swiveling action thereof. It has been found that the linkage means 40-43, although enabling swiveling movement of the connector 36, provides a certain degree of friction and support which tends to steady the connector 36 in any given position and thereby maintain the movement of the tool 10 uniform. Of course, this uniform movement is more important when the device is being used in applications in which one of the guide members is moving down the surface of the wall instead of when both guide members are overhanging exterior corners whereby lateral shifting is for most purposes prevented. The linkage means also enables a more natural movement to feather out the mastic by sweeping the arm in an arc away from the wall as the floor is approached.

Thus, as shown in the view of FIGURE 1, the guide members 26 and 27 are biased to their lowermost position to ride along the outer edges of the metal finishing beads 16 and 17. The guide members 26 and 27 thus serve to guide the longitudinal path of movement of the finishing tool 10. On the other hand, in the event the tool were being used with respect to just one exterior corner, only one guide member would overhang a corner portion while the other guide member would be forced upwardly against spring pressure such that it would ride along the surface of the wall. In such instance, the linkage means would serve to stabilize the movement of the tool 10 in its longitudinal path of movement since nothing in the tool or surface would prevent the tool from moving away from the exterior wall, although the guide member adjacent thereto would of course limit movement toward the wall. The guide members 26 and 27 constitute an important part of the present invention, as heretofore stated, since they not only enable guiding movement of the tool along an archway, for example, but also in view of the "knee" action thereof, whereby they

move upwardly out of the way when not needed. Furthermore, they may be locked in their uppermost positions as previously stated.

As also mentioned, in the event the blade 59 comes out of adjustment, it is merely necessary to untighten the front runner screws 65 and 67 and reposition the blade either further forwardly or in straight disposition across the member 21 as required.

It should also be noted from the view of FIGURE 3 that the lower edge of the guide member 26 is beveled outwardly. In consequence, this lower edge will not get caught on the bead 19; also, it will not disturb mastic previously applied to the surface over which it moves.

It will be clear from the exploded view of FIGURE 5 that the unit may be readily assembled and disassembled without any appreciable effort and merely by the use of a screwdriver, and furthermore that there are no parts susceptible of deterioration or breakage and that the unit correspondingly is rugged and may withstand an extensive period of usage without repair or replacement of parts.

It will be appreciated, however, that various modifications and changes may be made to the joint finishing tool of the present invention without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

1. A tool for applying mastic to dry wall joints comprising: a tubular inlet connector having one end designed for coupling to a source of said mastic, the other end of said connector defining a swivel; a body defining an inner mastic receiving recess, said body further defining an opening communicating with said recess, said swivel of said connector being disposed in said opening such that said connector communicates with said recess; linkage means interconnecting said connector to said body and tending to stabilize said connector with respect to said body, said linkage means allowing swiveling movement of said connector; a baffle member protruding into said recess and coupled to the bottom of said body; a base plate coupled to the bottom of said body and defining with said baffle plate an outlet opening for extrusion of said mastic; and, a blade partially retained by and aligned with said baffle plate to form an extension thereof.

2. A tool for applying mastic to dry wall joints comprising: a tubular inlet connector having one end designed for coupling to a source of said mastic, the other end of said connector defining a swivel; a body defining an inner mastic receiving recess, said body further defining an opening communicating with said recess, said swivel of said connector being disposed in said opening such that said connector communicates with said recess; a baffle member protruding into said recess and coupled to the bottom of said body; a base plate coupled to the bottom of said body and defining with said baffle plate an outlet opening for extrusion of said mastic; a blade partially retained by and aligned with said baffle plate to form an extension thereof; a pair of guide plates coupled, respectively, on the opposing sides of said body, said guide plates extending downwardly beyond the bottom of said body to act as a means of guiding said body when either of said guide plates may overhang an external corner surface.

3. A tool for applying mastic to dry wall joints, according to claim 2, and spring means interposed between said body and each of said guide plates, said spring means biasing each of said guide plates towards its downward position, and said guide plates being coupled to said body in a manner such as to allow floating movement of said guide plate by overcoming the biasing force of said spring means.

4. A tool for applying mastic to dry wall joints, according to claim 3, in which said coupling means enables locking of each said guide plate in an upward position such that said guide plate does not project below the bottom of said body.

5. A tool for applying mastic to dry wall joints, comprising: a tubular inlet connector having one end designed

for coupling to a source of said mastic, the other end of said connector defining a swivel; a body defining an inner mastic receiving recess; said body further defining an opening communicating with said recess, said swivel of said connector being disposed in said opening such that said connector communicates with said recess; a baffle member protruding into said recess and coupled to the bottom of said body, said baffle member defining a rearward convex edge to form in said recess a greater restriction to movement of said mastic through the central portion of said recess than through the outer opposite side portions; a base plate coupled to the bottom of said body and defining with said baffle plate an outlet opening for extrusion of said mastic; and, a blade partially retained by and aligned with said baffle plate to form an extension thereof.

6. A tool for applying mastic to dry wall joints, according to claim 5, in which said inner edge of said baffle plate is turned back on itself, and in which said blade is retained within said turned back portion.

7. A tool for applying mastic to dry wall joints comprising: a tubular inlet connector having one end designed for coupling to a source of said mastic, the other end of said connector defining a swivel; a body defining an inner mastic receiving recess, said body further defining an opening communicating with said recess, said swivel of said connector being disposed in said opening such that said connector communicates with said recess; a baffle member protruding into said recess and coupled to the bottom front wall of said body; a base plate coupled to the bottom rear wall of said body and defining with said baffle member an outlet opening for extrusion of said mastic; a pair of plastic shoe members overlying the opposite side portions of said body to form a guiding surface therefor; and, a blade partially retained by and aligned with said baffle plate to form an extension thereof, said blade being secured between said shoe members and said body.

8. A tool for applying mastic to dry wall joints, according to claim 7, and guide plates coupled to each side portion of said body and extending beyond the bottom of each of said shoes.

9. A tool for applying mastic to dry wall joints comprising: a tubular inlet connector having one end designed for coupling to a source of said mastic, the other end of said connector defining a swivel; a body defining an inner mastic receiving recess, said body further defining an opening communicating with said recess, said swivel of said connector being disposed in said opening such that said connector communicates with said recess; linkage means interconnecting said connector to said body and tending to stabilize the connector with respect to said body, said linkage means allowing swiveling movement of said connector; a baffle member protruding into said recess and coupled to the bottom of said body; a base plate coupled to the bottom of said body and defining with said baffle plate an outlet opening for extruding said mastic; a blade partially retained by and aligned with said baffle plate to form an extension thereof; and, a pair of guide plates coupled to either side of said body and extending beyond the bottom of said body to form a means of guiding movement of said body along exterior corners.

10. A tool for applying mastic to dry wall joints comprising: a tubular inlet connector having one end designed for coupling to a source of said mastic, the other end of said connector defining a swivel; a body defining an inner mastic receiving recess, said body further defining an opening communicating with said recess, said swivel of said connector being disposed in said opening such that said connector communicates with said recess, linkage means interconnecting said connector to said body and tending to stabilize said connector with respect to said body, said linkage means allowing swiveling movement of said connector; a baffle member protruding into said recess and coupled to the bottom of said body; a base plate coupled to the bottom of said body and defining with said baffle member an outlet opening for extrusion of said mastic;

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a blade partially retained by and aligned with said baffle plate to form an extension thereof; guide plates disposed on opposite side portions of said body and extending below the bottom surface thereof; spring means interposed between said guide plates and said body to bias said guide plates into said downwardly protruding position; and coupling means joining said guide plates to said body allowing floating movement of said guide plates in response to force on said spring means.

11. A tool for applying mastic to dry wall joints, according to claim 10, in which said coupling means joining said guide plates to said body enables locking of said guide plates in a raised position.

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12. A tool for applying mastic to dry wall joints, according to claim 11, in which said baffle plate defines a convex rearward edge tending to form a restriction between said recess and said base plate to urge mastic laterally outwardly rather than through the central portion of said recess.

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