July 24, 1934. H. B. EHLE 1,967,748

WALL BOARD JOINTER

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Fig. 9

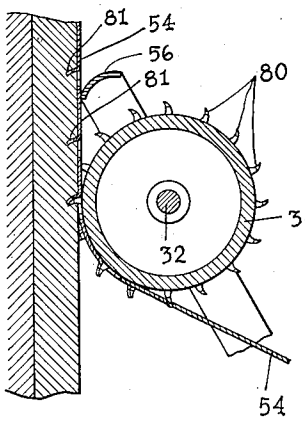


Fig. 1

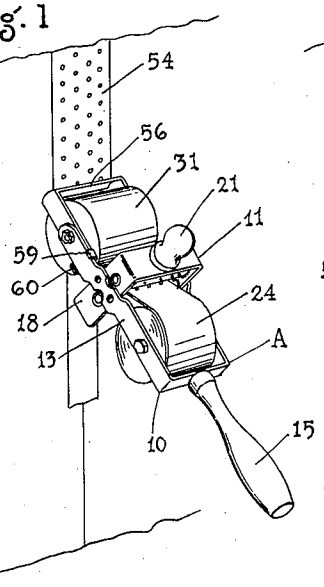


Fig. 8

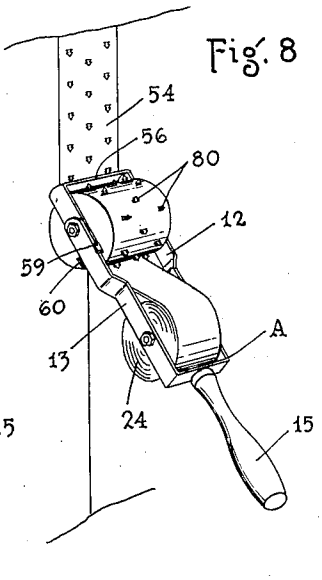


Fig. 2

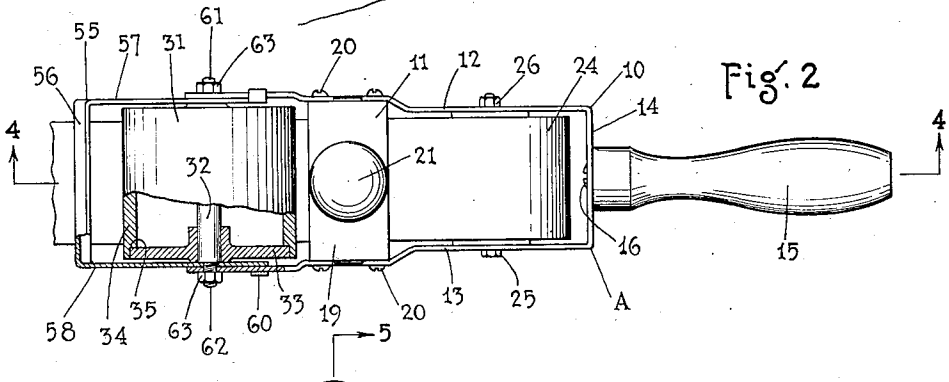
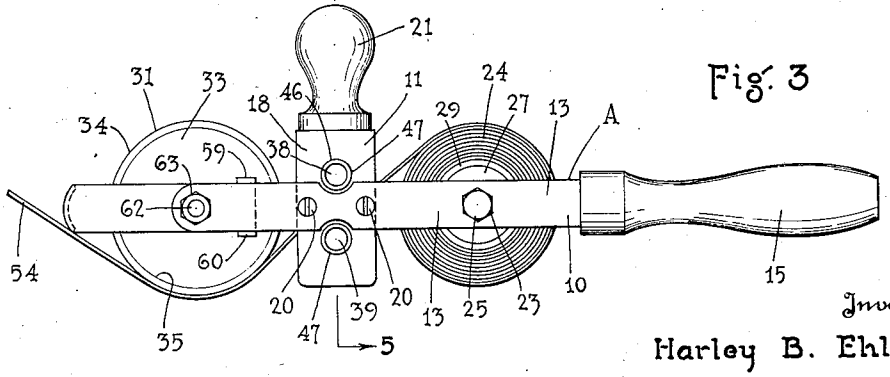


Fig. 3



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WALL BOARD JOINTER

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Fig. 4

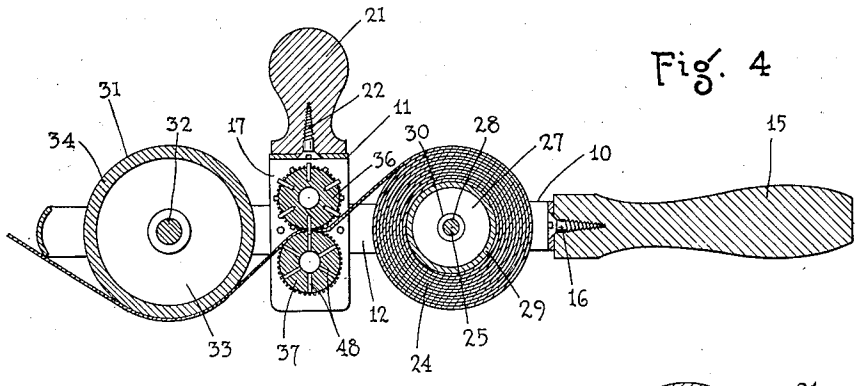


Fig. 5

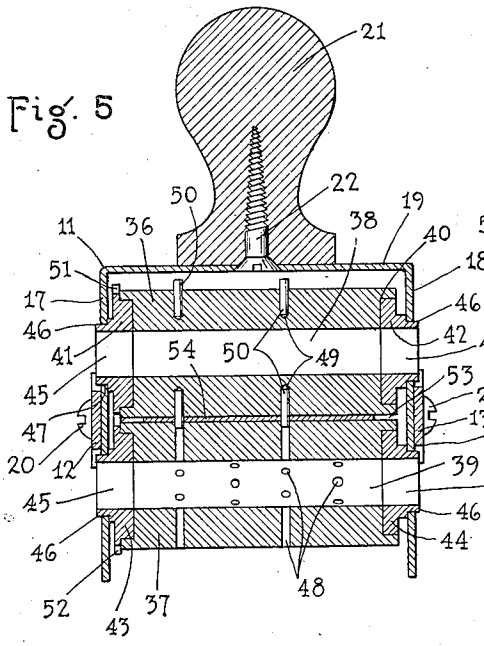


Fig. 6

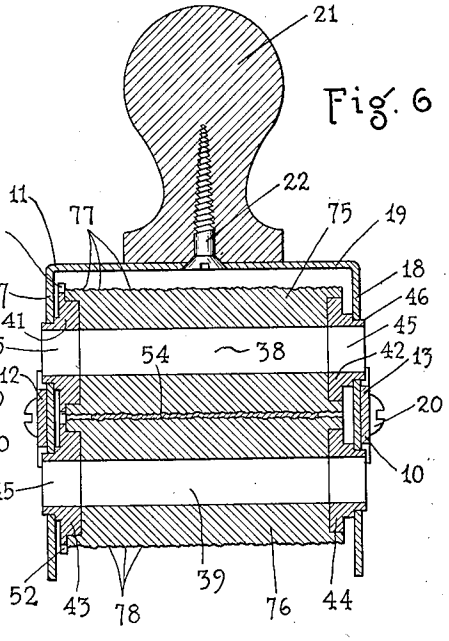
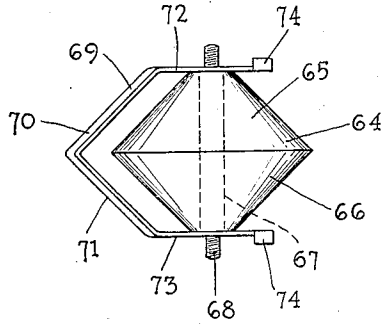


Fig. 7



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WALL BOARD JOINTER

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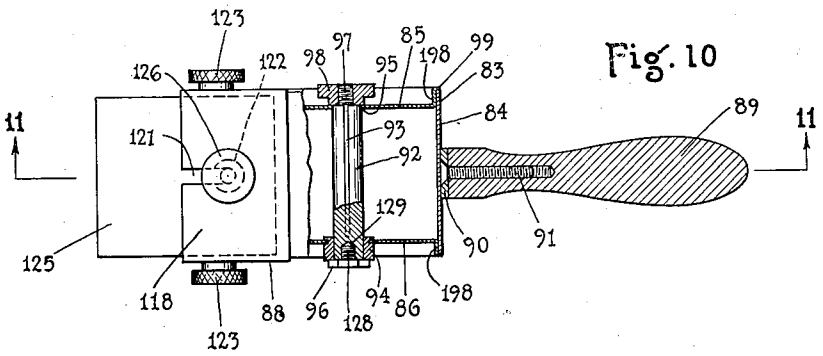


Fig. 10

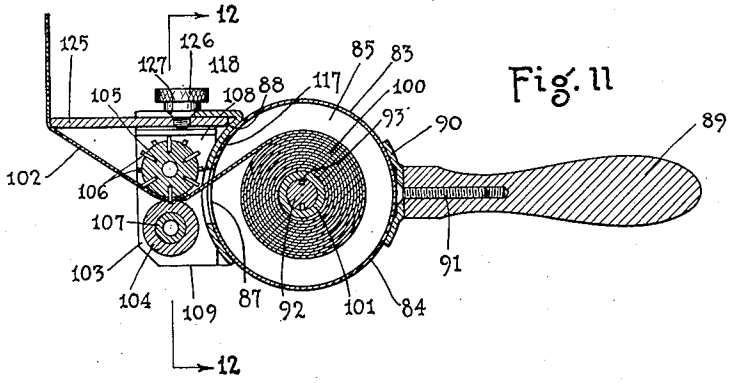


Fig. 11

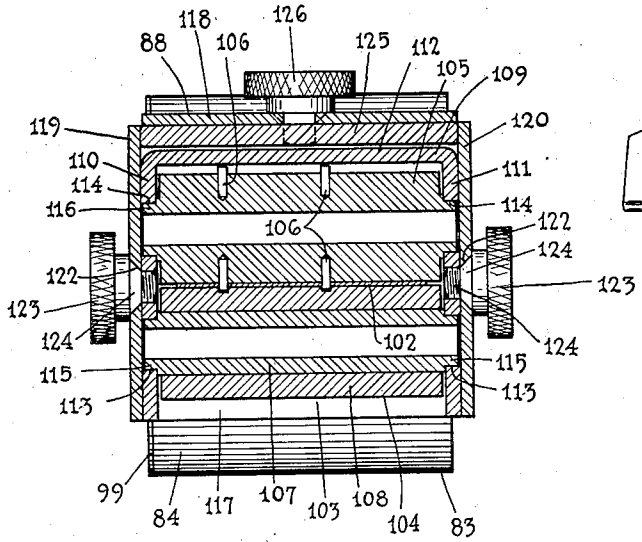


Fig. 12

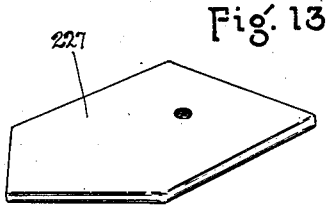


Fig. 13

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UNITED STATES PATENT OFFICE

1,967,748

WALL BOARD JOINTER

Harley B. Ehle, Wayzata, Minn.

Application June 4, 1932, Serial No. 615,457

8 Claims. (Cl. 216—21)

My invention relates to wall board jointers and has for an object to provide a device by means of which a sealing strip may be formed and applied to the joint of a wall constructed from wall board.

An object of the invention resides in providing a device in which irregularities are formed in the sealing strip as the same is applied to the surface of the wall.

Another object of the invention resides in constructing the jointer with a U-shaped frame consisting of two arms and a connecting portion and having a handle secured to the connecting portion.

An object of the invention resides in providing a support attached to said arms adjacent the handle for supporting a roll of metal foil.

Another object of the invention resides in providing means at the other end of the frame for applying foil unrolled from said roll upon the surface to which it is to be attached.

A still further object of the invention resides in utilizing a roller journaled between the arms of said frame for rolling the foil upon the surface to which it is applied.

A feature of the invention resides in employing a blade extending across the ends of the arms of said frame for further engagement with the sealing strip as the same is being applied.

An object of the invention resides in providing a transverse frame member secured to said first named frame member formed with a connecting portion having a second handle secured thereto.

Another object of the invention resides in providing complemental die rollers carried by said transverse frame member and adapted to form irregularities in the foil as the same is unrolled from the roll and applied to the wall.

A feature of the invention resides in constructing one of said die rollers with depressions and the other with projections adapted to fit therein to form the irregularities in the foil.

An object of the invention resides in providing means for causing the rolls to operate in synchronism.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is a perspective view of a wall jointer illustrating an embodiment of my invention and showing the method of using the same.

Fig. 2 is a plan view of the device shown in Fig. 1 with portions thereof cut away to illustrate the internal construction of the same.

Fig. 3 is a side elevational view of the device shown in Fig. 2.

Fig. 4 is an elevational sectional view taken on line 4—4 of Fig. 2.

Fig. 5 is a cross sectional view taken on line 5—5 of Fig. 3 and drawn to a larger scale.

Fig. 6 is a view similar to Fig. 5 showing a different type of die roll.

Fig. 7 is a plan view of another form of roller and blade capable of use with the invention.

Fig. 8 is a perspective view of a modification of the invention.

Fig. 9 is an elevational sectional view of the structure shown in Fig. 8.

Fig. 10 is a plan sectional view of a modification of the invention.

Fig. 11 is a longitudinal sectional view taken on line 11—11 of Fig. 10.

Fig. 12 is a transverse sectional view taken on line 12—12 of Fig. 11 and drawn to a larger scale.

Fig. 13 is a perspective view of another form of scraper.

In the use of wall board for covering the walls and ceilings of buildings, the customary practice has been to fill in the joints with a plastic material and in applying thereto a sealing strip of screen, fabric, or metal of suitable width to cover the joint and prevent the formation of cracks after the plastic substance has set. The present invention provides a device whereby such sealing strips may be simultaneously applied to the wall and perforated or otherwise constructed to provide a bond between the plastic substance and the strip.

My invention as shown in the drawings comprises a frame structure which I have indicated in its entirety at A and which consists of a longitudinal frame member 10 and a transverse frame member 11. The longitudinal frame member 10 is U-shaped in form, being provided with two arms 12 and 13 connected together through a connecting portion 14. A handle 15 is secured to the connecting portion 14 through a screw 16 and assists the user in manipulating the device. The frame member 11 is constructed similar to the frame member 10, being U-shaped in form, and consists of two arms 17 and 18 and a connecting portion 19. The arms 17 and 18 are disposed within the arms 12 and 13 of frame member 10 and are secured thereto through screws 20 threaded therein. A second handle 21 attached to the connecting portion 19 of the transverse frame 11

through a screw 22 further serves to assist the operator in manipulating the device.

Between the frame 11 and the handle 15 is provided a support 23 for a roll 24 of metal foil of the proper width and thickness. This support consists of a bolt 25 which is removably mounted in the two arms 12 and 13 of the frame member 10. This bolt extends freely through the roll proper and is provided with a nut 26 at the free end thereof by means of which the same may be held in place or detached from the device when a new roll is to be applied. The support 23 further includes a core 27 which is formed with a bore 28 through which the bolt 25 extends and on which the roll proper is mounted. The roll 24 is wound on a sleeve 29 which fits snugly over the core 27. In applying the roll to the support, the bolt 25 is first removed and the core 27 inserted into the sleeve 29 of the roll to be applied. The entire roll is then reinserted and the bolt 25 replaced and nut 26 applied thereto. To assist in guiding the bolt into the bore 28 of core 27, the said bore is beveled as designated at 30.

At the free end of the arms 12 and 13 of frame member 10 is provided a roller 31 by means of which the foil unrolled from the roll 24 is applied to the surface on which the foil is to be used. This roller is rotatably mounted on a shaft 32 and consists of two end plates 33 journaled thereon and carrying a cylinder 34 which is recessed at 35 to receive the end plates 33. The parts of this roller may be pressed together or they may be soldered or otherwise secured to one another to form a light construction having a smooth periphery for direct engagement with the foil unrolled from the roll 24. The shaft 32 is formed at its ends with trunnions 61 and 62 which extend through drilled holes in the free ends of the arms 12 and 13. Nuts 63 threaded upon these trunnions serve to hold the shaft rigidly secured to the frame member 11.

Between the roller 31 and the roll support 23 are provided two complemental die rollers 36 and 37 which are adapted to perforate or otherwise form irregularities in the foil prior to the application of the same to the wall. These rollers are formed with bores 38 and 39 extending completely through the same and are constructed at their ends with sockets 40 adapted to receive end members 41, 42, 43 and 44. These end members are constructed with bores 45 which register with the bores 38 and 39. All these end members are constructed with reduced portions 46 which form trunnions journaled in drilled holes 47 formed in the arms 17 and 18 of the frame member 11 which serve as bearings for the said rollers. The end members 41, 42, 43 and 44 may be pressed into the sockets 40 to form a unitary construction or the same may be screwed or otherwise secured to the rollers proper.

The roller 37 is constructed with a plurality of radial holes 48 which are drilled from the surface of said roller and extend into the bore 39. The roller 36 is formed with similar holes 49 which terminate short of the bore 38 and in which pins 50 are set, which pins are seated against the body of the roller 36 at the end of said holes. The pins 50 project uniformly outwardly beyond the surface a distance slightly greater than the thickness of the foil and are adapted to enter corresponding holes 48 in the roller 37. When the two rollers 36 and 37 are rotated, a series of holes are cut in the foil which passes between said rollers as best shown in Fig. 4, perforating the foil to form irregularities therein to provide a bond between the sealing strip and the plastic substance applied to the wall board on which the strip is used.

For the purpose of causing the pins 40 to register with the corresponding holes, 48, the two end members 41 and 43 are constructed with intermeshing gears 51 and 52. The two rollers 56 and 57 are slightly spaced, as indicated at 53 to receive the metal foil which is designated by the reference numeral 54. The two gears 51 and 52 are of equal size so that the two rollers are caused to travel in synchronism, and the pins 50 of the roll 36 adapted to successively register with the corresponding holes 48 of the roller 37.

In operation the metal foil is merely drawn through the device passing between the two rollers 36 and 37. This causes the same to be perforated, the pins 50 passing through the foil causing the rotation of the rollers and the positive perforation thereof.

At the end of the frame member 10 is provided a scraper 55 which consists of a blade 56 having two arms 57 and 58 attached thereto. The arms 57 and 58 are drilled to correspond with the openings in the arms 12 and 13 through which shaft 32 extends and lie between said arms and the roller 31 when nuts 63 are tightened said arms are rigidly held in position. The arms 57 and 58 are further constructed with ears 59 and 60 which straddle the arms 12 and 13 and hold the said scraper from rotation, the scraper being there held in place without the use of additional fastening means. The blade 56 is so disposed that it extends outwardly beyond the roller 31 and is preferably arcuate in form as shown.

In the use of the device the foil is first started through the rollers 36 and 37 and a short length thereof perforated as previously disclosed. The plastic putty or other material used to fill up the joint is then plastered over the joint with a putty knife and caused to project outwardly to either side a short distance beyond the joint proper of a width slightly less than the width of the foil 54. The free end of the foil is then nailed or otherwise secured to the wall board at the upper end of the same and the device grasped through the two handles 15 and 21, one being held in each hand and positioned as shown in Fig. 1. The device is then drawn downwardly while pressure is applied in the direction of the wall which causes the roller 31 to press the strip against the plastic substance and causes the same to adhere thereto. Upon applying pressure to the strip the plastic substance flows outwardly to the extreme edges of the strip and also through the perforations formed in the strip. The scraper 55 then follows along and blade 56 removes the surplus putty from the strip which might have passed through the various openings or perforations formed in the same. At the same time this scraper serves to further press the strip in place and to form a smooth surface between the strip and the adjoining portion of the wall board.

Where the strip is applied in corners forming reentrant angles, a roller such as shown in Fig. 7 is employed which is indicated in its entirety by the reference numeral 64. This roller is formed with two truncated conical portions 65 and 66 arranged with their bases together, which conical portions form a ninety degree angle with one another. In conjunction with this roller a shaft 67 is employed similar to the shaft 32 which is formed with threaded ends 68 identical with the threaded ends 61 and 62 of shaft 32. The scraper in this form of invention is indicated at

69 and consists of two angularly disposed blades 70 and 71 which are attached to arms 72 and 73 constructed in identically the same manner as the arms 57 and 58 of scraper 55. These arms are drilled to receive the threaded ends 68 of the shaft 67 and are further formed with ears 74 similar to the ears 59 and 60 which ears engage the edges of the arms 12 and 13 of frame member 10 and hold the blade from movement. When the device shown in Fig. 7 is substituted for the cylindrical roller 31 and scraper 55, the foil as it leaves the rollers 36 and 37 is bent at an angle and can be applied to the wall board at the corners of the same.

In Fig. 6, I have shown another form of the invention in which rolls 75 and 76 are employed, which instead of being constructed with pins and drilled holes, are formed with undulations 77 and 78 which register and cooperate with one another in identically the same manner as the pins 50 and holes 48 to form a roughening in the surface of the foil which may have any design desired. The other construction of the device is identically the same as previously described and the description itself will not be repeated. The design of the undulations 77 and 78 may be such as to give the strip a design to imitate the roughened surface of the wall board with which it is used or the same may be made of any desired configuration for procuring a roughening whereby a bond between the sealing strip and the plastic substance is procured.

If desired the strip of foil may be formed with prongs imbedded into the wall board. Such construction is formed through the roller which applies the strip to the wall. In Figs. 8 and 9 I have shown a device for such use. This device is the same as that shown in Fig. 1 except the transverse frame and die rollers carried thereby are omitted and the roller used for applying the device constructed somewhat differently. In these figures the same reference characters have been used to refer to similar parts of the two forms of the invention. The roller 31 instead of being smooth is formed with sharp projections 80, which tear prongs 81 out of the strip of foil and force the same into the material of the board as the roller is rolled along the wall. These projections are sufficiently sharp at their outer edges so that the prongs are separated from the strip and simultaneously forced into the board. The projections 80 may be shaped to form barbs on the prongs or to give the prongs any desired form. When the projections leave the cavities formed thereby the prongs are left in the cavities and remain attached to the wall board proper.

In Figs. 10 to 13 I have shown still another form of the invention. In this form of the invention a cylindrical case 83 is employed which consists of a shell 84 provided with two heads 85 and 86 closing the ends thereof. The shell 84 is formed with an opening 87 extending along one element thereof and has secured to it a mounting 88, the use of which will be presently described. The two heads 85 and 86 are formed with outwardly extending flanges 198 which lie along the inner surface of the shell 84 and which hold these heads in proper position. The head 86 is permanently secured to the shell 84 through the flange 193 thereof which may be welded, brazed or otherwise secured to said shell, while the head 85 is removable so that access may be had to the interior of the case. On the side of the case opposite the opening 87 is provided a handle 89 which has attached to it a saddle 90 secured thereto through a screw 91. This saddle is welded, riveted or otherwise secured to the shell 84 of case 83 and holds the handle 89 securely attached thereto.

Within the interior of the case 83 is disposed a revoluble spindle 92 which is formed with a longitudinal slit 93 extending along the same. This spindle is journaled at one end in a bearing 94 attached to the head 86 and at its other end in a hole 95 formed in the head 85. The spindle 92 is provided at the end adjacent bearing 94 with a machine screw 128 formed with an enlarged head 96 adapted to extend beyond the surface thereof and to engage the bearing 94. This machine screw is screwed into a threaded bore 129 in the end of the spindle 92. The head 96 prevents the spindle from sliding out through said bearing. At the other end of the spindle the same is provided with a threaded shank 97 upon which a nut 98 may be screwed. The nut 98 serves to hold the head 85 in place and deprives the spindle of longitudinal movement. At the end of the flange 98 of head 85 is formed an outwardly turned lip 99 which engages the end of the shell 84 and limits the inward movement of said head. This lip also provides means whereby the head may be manually removed when the nut 98 has been disengaged from the shank 97 of spindle 92.

The roll of foil which is designated at 100 in Fig. 11 is wound upon a suitable core 101 which may be slipped over the spindle 92 when the head 85 is removed therefrom. The strip 102 of this foil is threaded through the opening 87 in the case 83 and is adapted to be engaged by the perforating or deforming device of the invention which is indicated in its entirety at 103 in the drawings. This device will now be described in detail.

The perforating or deforming device 103 consists of two rollers 104 and 105 which cooperate with one another to produce the desired results. The roller 105 is constructed of metal and has mounted in it a plurality of pins 106 which project outwardly beyond the surface thereof. The roller 104 is constructed with a metal core 107 which is covered upon the exterior with a rubber sleeve 108. The material of which the sleeve 108 is constructed is sufficiently resilient so that the various pins 106 can enter the same to cause the perforation of the strip 102 of foil as the same is fed between the rollers.

The two rollers 104 and 105 are mounted in a frame 109 best shown in Fig. 12. This frame is U-shaped in construction and consists of two legs 110 and 111 connected through a connecting portion 112. This frame may be constructed of a bar of metal bent in the desired shape. In the legs 110 and 111 of this frame are formed holes 113 and 114 which serve as bearings for the two rollers 104 and 105. The core 107 of the roller 104 is turned down to form shouldered trunnions 115 which are journaled in the holes 113. Likewise similar trunnions 116 are formed on the ends of the roller 105 which are journaled in the holes 114. By means of this construction the two rollers are so journaled that the roller 105 is tightly pressed against the roll 104. As a strip of foil is fed between the rollers the various pins 106 on the roller 105 punch perforations in the foil, the sheared metal being ejected from the pockets formed in the sleeve 108 of roller 104 as the pins move away from said roller.

The perforating device 103 is detachably mounted in the mounting 88 as follows. This mounting is constructed with an arcuate portion

117 which fits along the surface of the shell 84 of case 83 and which is secured thereto by welding or otherwise. Mounting 88 is further formed at its upper portion with an outwardly extending flange 118 and at its two sides with similarly constructed flanges 119 and 120. In these various flanges are formed slots 121 which are open at the outer ends of said flanges. At the inner ends of these slots the flanges are counter-sunk as designated at 122. In the legs 110 and 111 of the frame 109 are threaded thumb screws 123 which are formed with conical shoulders 124 adapted to enter the counter-sunk portions 122 of the flanges 119 and 120 of mounting 88. These thumb screws are further formed with threaded shanks 124 which screw into the threaded portions of the frame 109. The frame 109 is received between the flanges 119 and 120 of the mounting 88 and is held attached to said mounting through the thumb screws 123.

For the purpose of smoothening out the surface of the foil as the same is applied to the wall, a scraper 125 is employed. This scraper is attached to the flange 118 of the mounting 88 in the same manner as the frame 109. For this purpose a thumb screw 126 is employed which is threaded into said scraper and which is adapted to be received within the counter-sunk portion 122 of flange 118. Screw 126 is constructed with a conical shoulder 127 which fits in the counter-sunk portion 122 and which holds the scraper blade in position. To make room for the scraper 125 the connecting portion 112 of frame 109 is spaced from the flange 118 of mounting 88 so said scraper may be inserted between said frame and flange.

In the use of the device shown in Figs. 10, 11, and 12 the procedure is identically the same as with that shown in the other drawings. The foil 100 is inserted in the case 83 and mounted upon the spindle 92. As the foil is drawn through the rollers 104 and 105 the foil is perforated or otherwise deformed depending upon the shape of the roller 105 which may be constructed as shown in any of the forms of the invention hereinbefore illustrated and/or described. The scraper 125 operates to press the foil against the wall and serves to smoothen out the surface of the foil as the same is applied to the wall. When it is desired to place a new roll of foil in the device the nut 98 is first removed and the head 95 thereafter removed which permits of the application of another roll to the device. The foil is then threaded between the rollers 104 and 105 after which the device is manipulated, as previously described. Whenever, different forms of rollers are desired the same may be readily substituted by merely loosening the thumb screws 123 and removing the entire rolls and frame on which they are mounted. Other similar units may then be substituted. Likewise different types of scrapers may be substituted for the scraper 125 by removal of the thumb screw 126. One such scraper is shown in Fig. 13 which is indicated at 227 and which may be advantageously used where the device is being employed in the corners of a room.

If desired, the device shown in Figs. 10 and 11 may be used for perforating blank foil and rolling the same in a roll. For this purpose the machine screw 128 is removed and a suitable crank screwed into the bore 129 in place of said screw. The end of the foil is run through the rollers 104 and 105 and inserted into the slot 93. The head 85 is replaced and the nut 98 also screwed upon the shank 97 of said spindle. The spindle 92 is then rotated through the crank applied thereto which causes the foil to wind up on said spindle and to be drawn through the rollers thereby being perforated or otherwise roughened or deformed as previously brought out. The slot 93 extends throughout the length of the spindle 92 and is of a depth such that the said slot does not enter the shank 97. When the roll is completed the nut 98 may be removed and the spindle 92 drawn outwardly along bearing 94 through the agency of the crank applied thereto. This causes the end of the foil received within the slot 93 to slide along said slot and permits of removal of the spindle therefrom. Rolls of foil prepared with the device in this manner may be applied to the walls manually instead of with the device.

With my invention the sealing strips can be extremely quickly applied. The device automatically perforates or forms irregularities in the sealing strip, while the strip is being laid, so that the separate handling of the strip prior to use is eliminated. The foil can be purchased smooth in rolls of any suitable width and the particular design formed on the same as the foil is used so that the user does not have to stock up on numerous different types of sealing strip. The device is extremely simple in construction and is easily manipulated and handled. The rolls of sealing strip can be quickly and easily applied to the machine as required. The device may be used either with the roller or scraper or, if desired, both may be employed. In case the roller alone is used, a scraper must be run over the surface of the strip to remove the surplus putty therefrom.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination, a frame, a support in said frame for a roll of foil, a device on said frame for applying the foil unrolled from said roll upon a surface having a plastic substance thereon, and means on said frame situated between said roll and said device and driven by the foil for forming irregularities in said foil to form a bond between the plastic substance and the foil.

2. In combination, a frame, a support in said frame for a roll of foil, a blade extending across the foil and carried by said frame said blade having a transverse edge for pressing the foil against a plastic substance, and means on said frame situated between said roll and blade for forming irregularities in said foil to form a bond between said foil and plastic substance.

3. In combination, a frame comprising two U-shaped frame members, one of said frame members being connected to the other and extending crosswise thereof, handles secured to both of said frame members, a support in said frame for a roll of foil and means carried by the frame for applying the foil unrolled from said roll upon a surface having a plastic substance thereon.

4. In combination, a frame comprising an elongated frame member, a transverse frame member connected to said elongated frame member intermediate the ends thereof, a handle at one end of said elongated frame member, a handle on said transverse frame member, a support for a roll of foil attached to said elongated frame member at a position between said handle and said transverse frame member, and means at the other end of the elongated frame member for

applying the foil unrolled from said roll upon a surface having a plastic substance thereon.

5. In combination, a frame comprising an elongated frame member, a transverse frame member connected to said elongated frame member intermediate the ends thereof, a handle at one end of said elongated frame member, a handle on said transverse frame member, a support for a roll of foil attached to said elongated frame member at a position between said handle and said transverse frame member, and means carried by said transverse frame for forming irregularities in said foil.

6. In combination, a frame comprising an elongated frame member, a transverse frame member connected to said elongated frame member intermediate the ends thereof, a handle at one end of said elongated frame member, a handle on said transverse frame member, a support for a roll of foil attached to said elongated frame member at a position between said handle and said transverse frame member, means at the other end of the elongated frame member for applying the foil unrolled from said roll upon a surface having a plastic substance thereon, and complemental die rollers on said transverse frame member for forming irregularities in said foil.

7. In combination, a frame, a handle secured to said frame, means on said frame for rotatably supporting a roll of foil, and a member on said frame for engaging the unrolled foil, said member having a convex surface for folding the foil as the same is drawn over the member.

8. In combination, a frame, a handle secured to said frame, means on said frame for rotatably supporting a roll of foil, and a member on said frame for engaging the unrolled foil, said member having two surfaces approaching each other for folding the foil as the same is drawn over the member.

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