United States Patent [19]

Storch

[11] **3,783,570**

[45] **Jan. 8, 1974**

[54] **ROOFING SYSTEM**

[76] Inventor: **Harold A. Storch,** 31819 Mayfair Ln., Birmingham, Mich. 48009

[22] Filed: **Sept. 21, 1971**

[21] Appl. No.: **182,361**

[52] **U.S. Cl.** **52/520,** 52/536, 52/553

[51] **Int. Cl.** **E04d 1/08,** E04d 1/34

[58] **Field of Search** 52/518, 520, 521, 52/519, 536, 542, 560, 538, 542, 553

[56] **References Cited**

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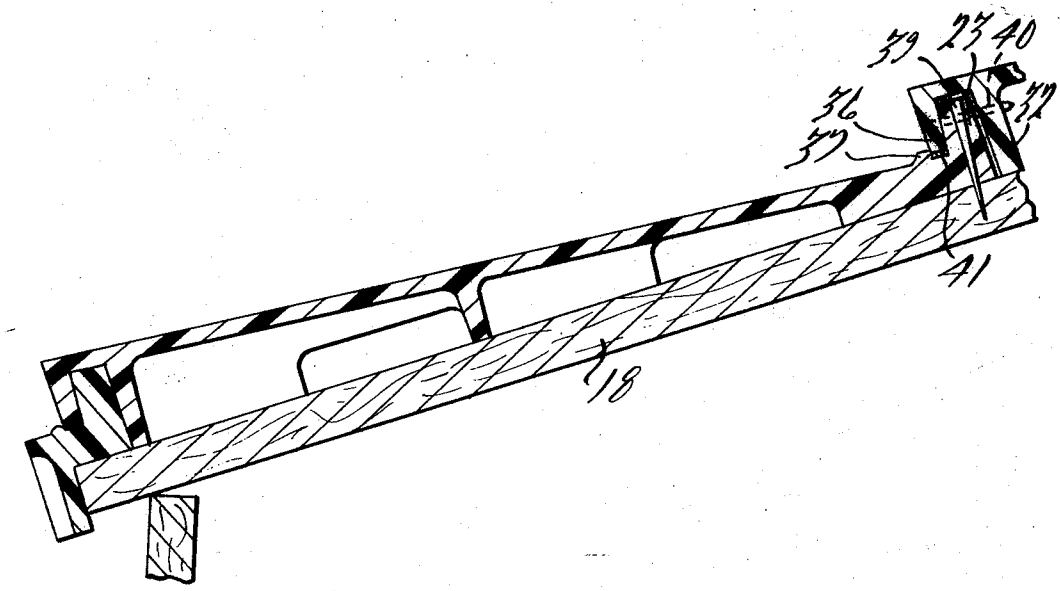
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Primary Examiner—Price C. Faw, Jr.
Attorney—Harness, Dickey & Pierce

[57] **ABSTRACT**

A roofing system particularly adapted for roofs having eaves, gables, valleys, peaks and/or ridges. The system comprises identical roofing tiles with novel means for sealing and fastening both the longitudinal and lateral edges of adjacent tiles. The system further comprises special gable end sections and valley, ridge and hip peak sections which interfit with the aforementioned tiles to assure proper sealing at hip peaks, valleys and ridges. The roofing system includes filler pieces fabricated from the tiles which permit the length of a roof portion to be independent of the tile size. Also included are various eave edge strips which interfit with the tiles and may incorporate drip caps, facia boards and gutters. Further shown is a vent stack formed integrally with the tile to eliminate leakage potential and having a flexible connection to a conduit from a gaseous fluid source.

15 Claims, 29 Drawing Figures



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SHEET 1 OF 7

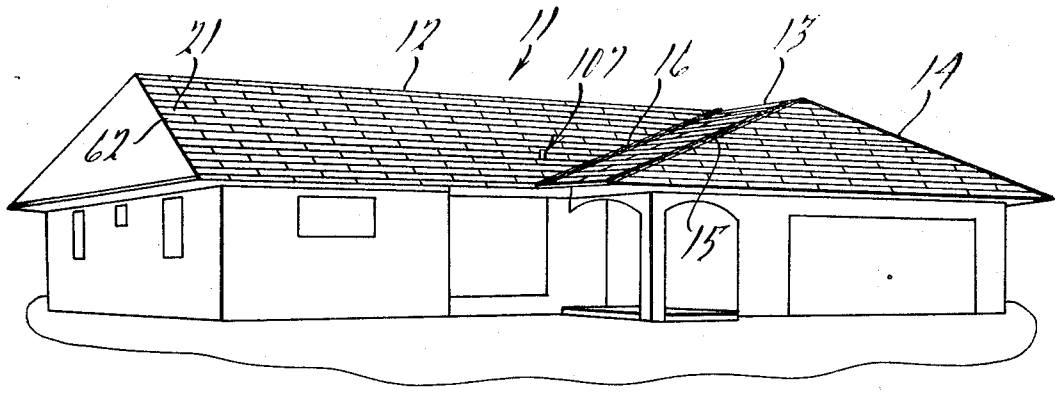


Fig. 1.

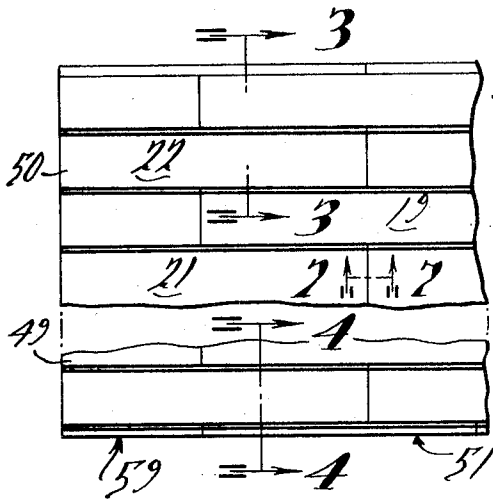


Fig. 2.

Fig. 3.

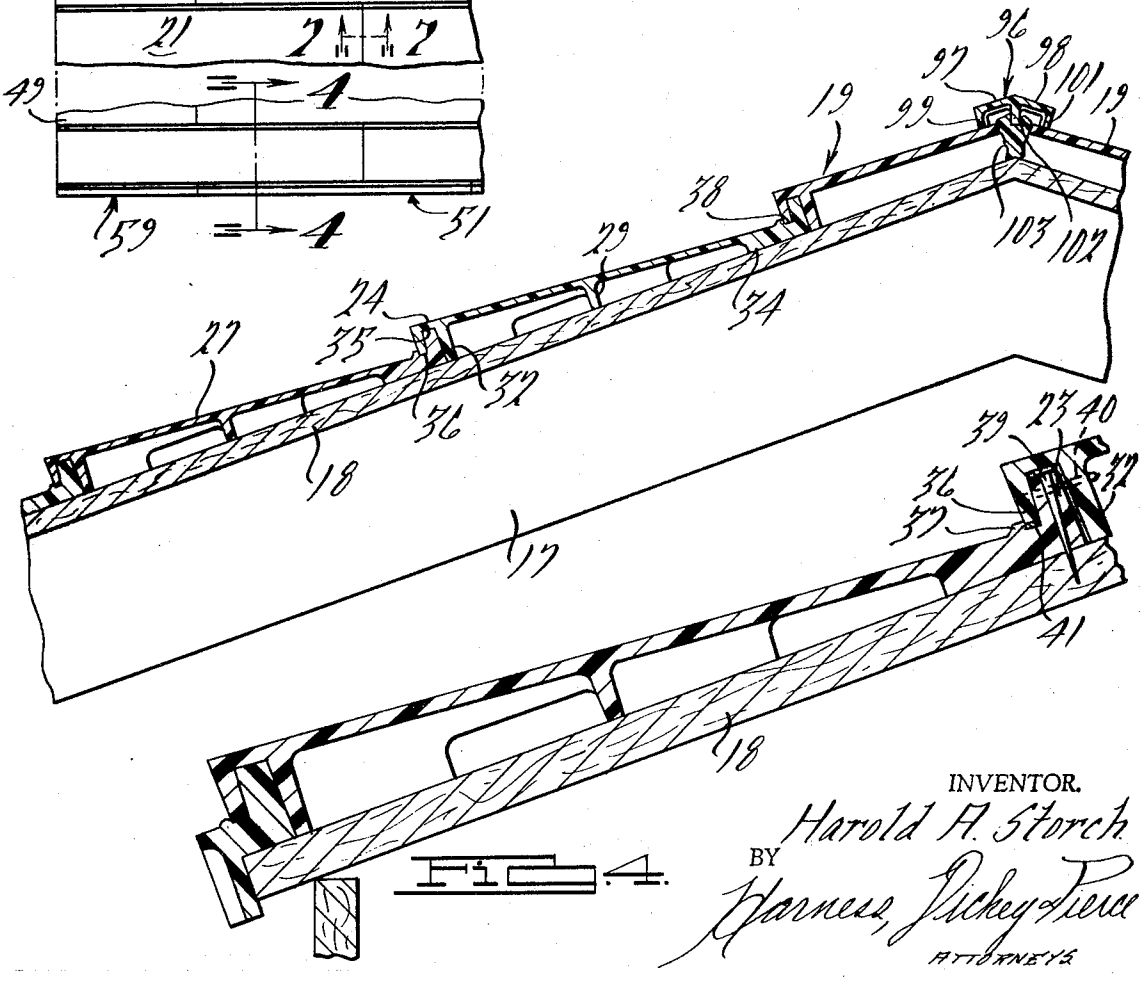


Fig. 4.

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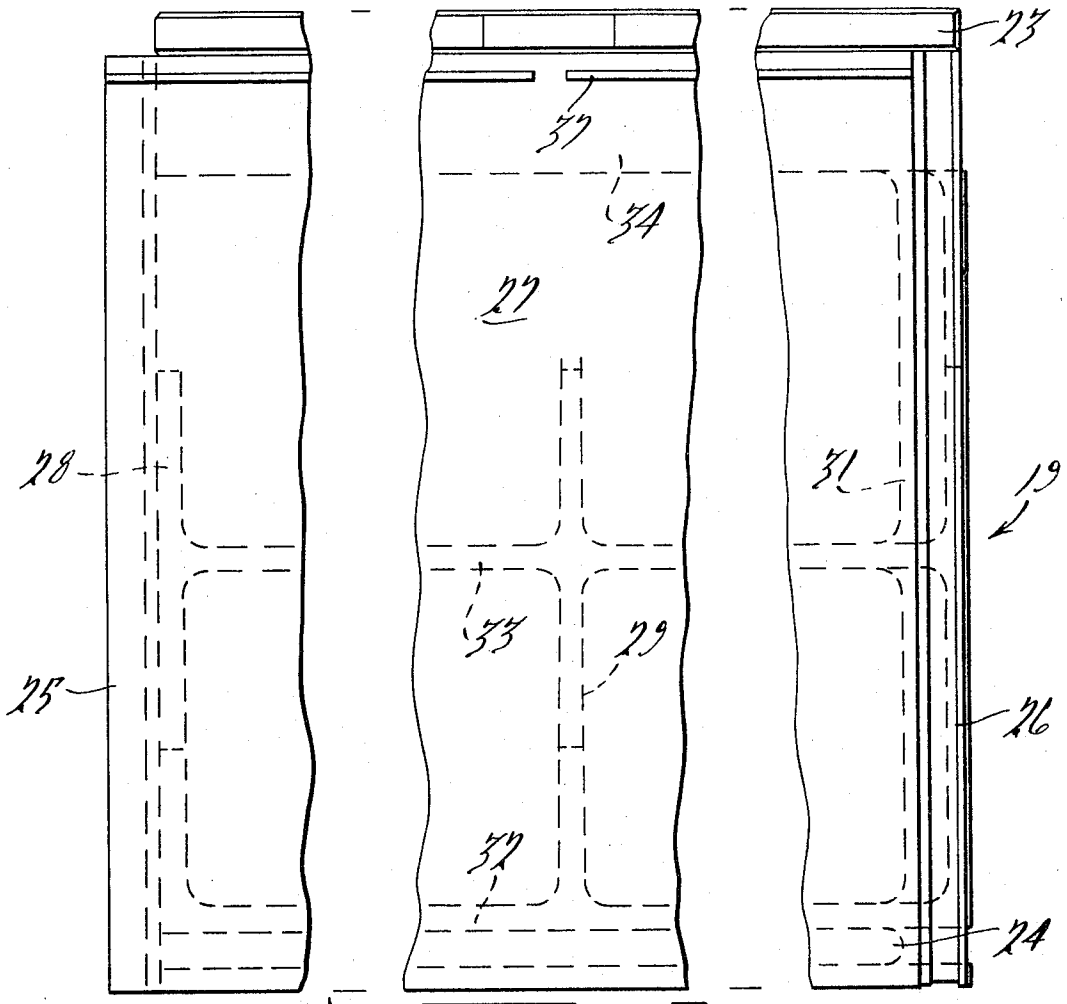


Fig. 5.

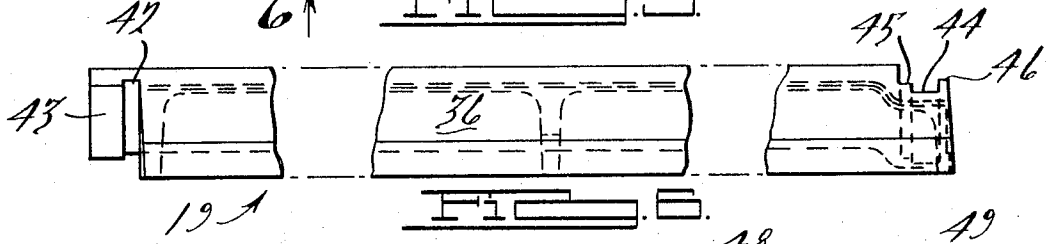


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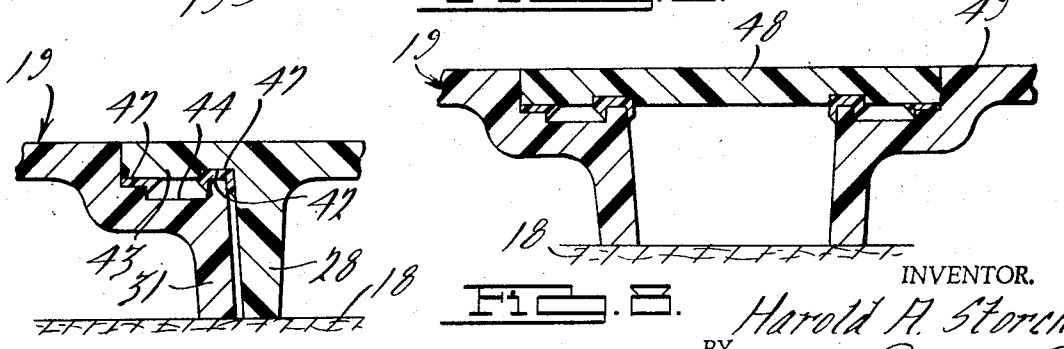


Fig. 8.

Fig. 7.

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FIG. 9

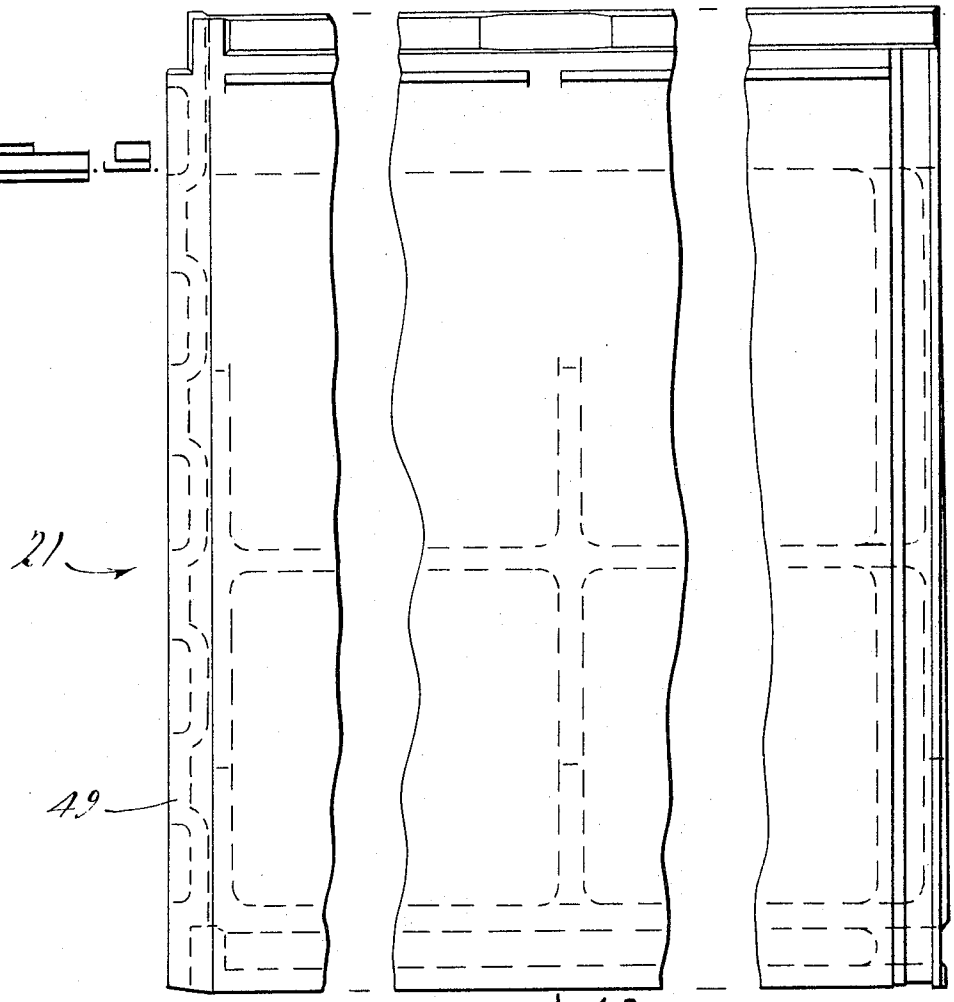


FIG. 10

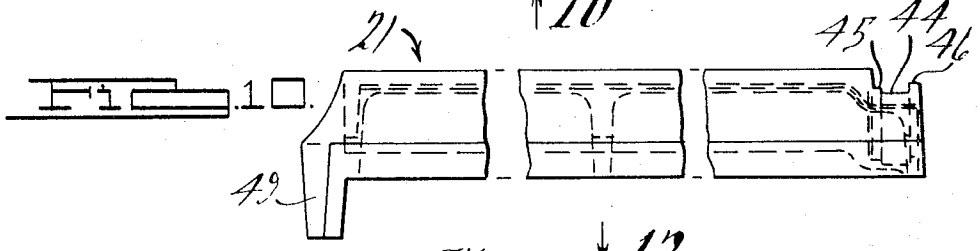


FIG. 11

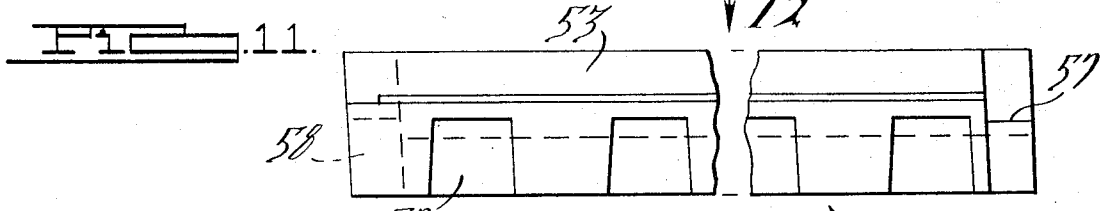
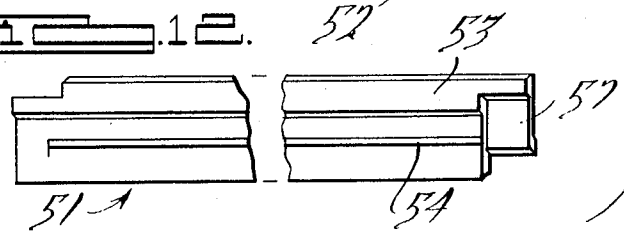


FIG. 12



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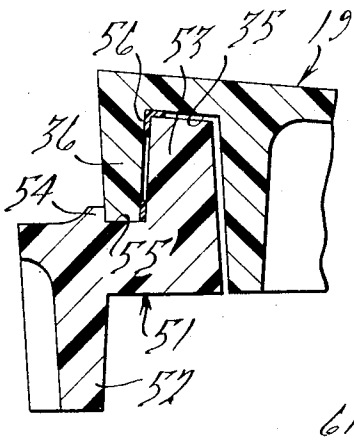


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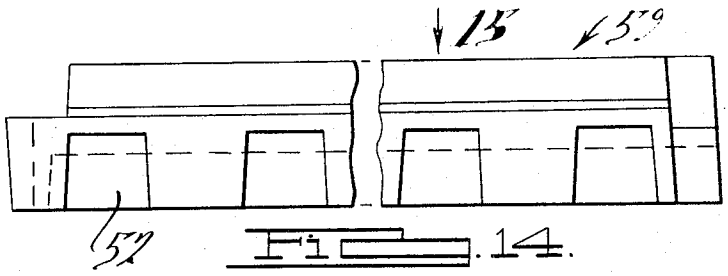


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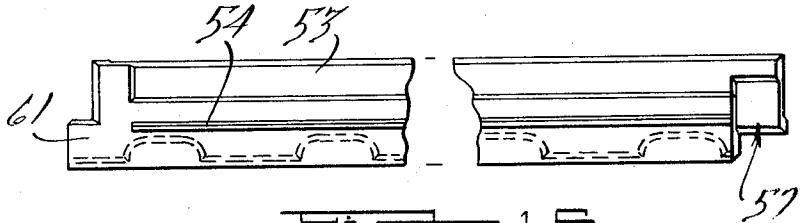


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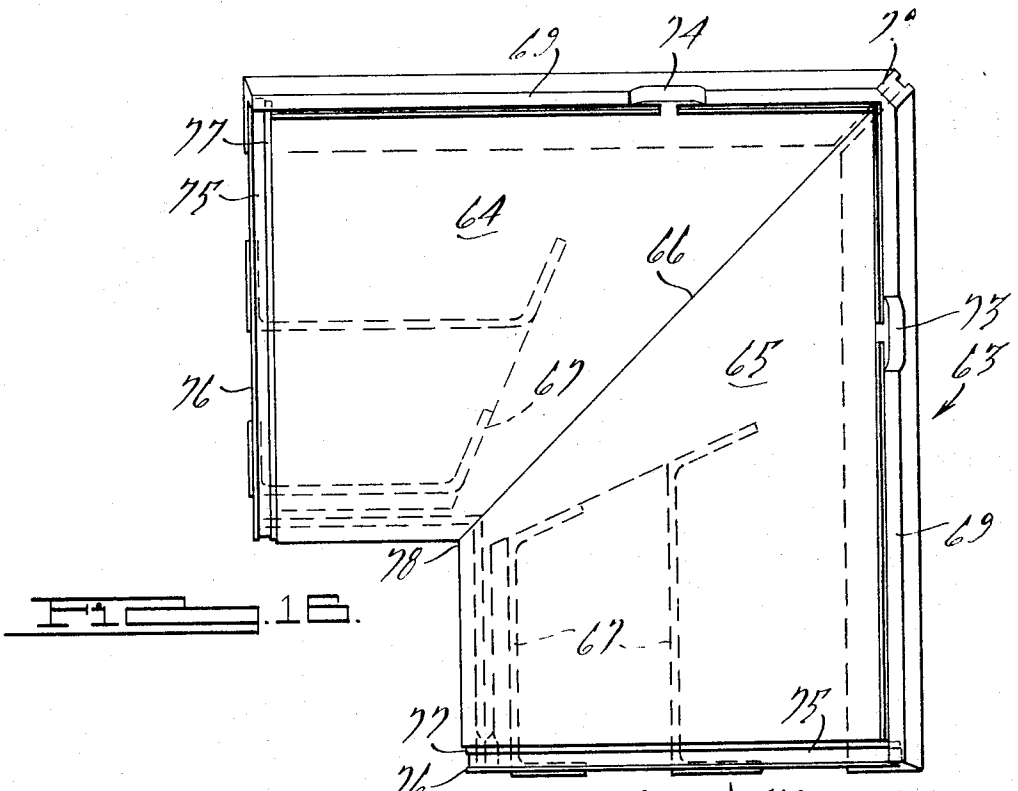


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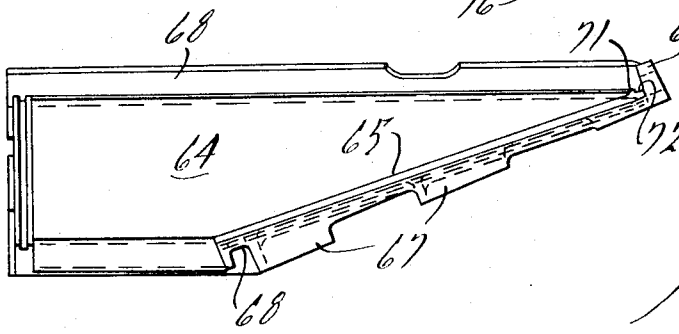


FIG. 17.

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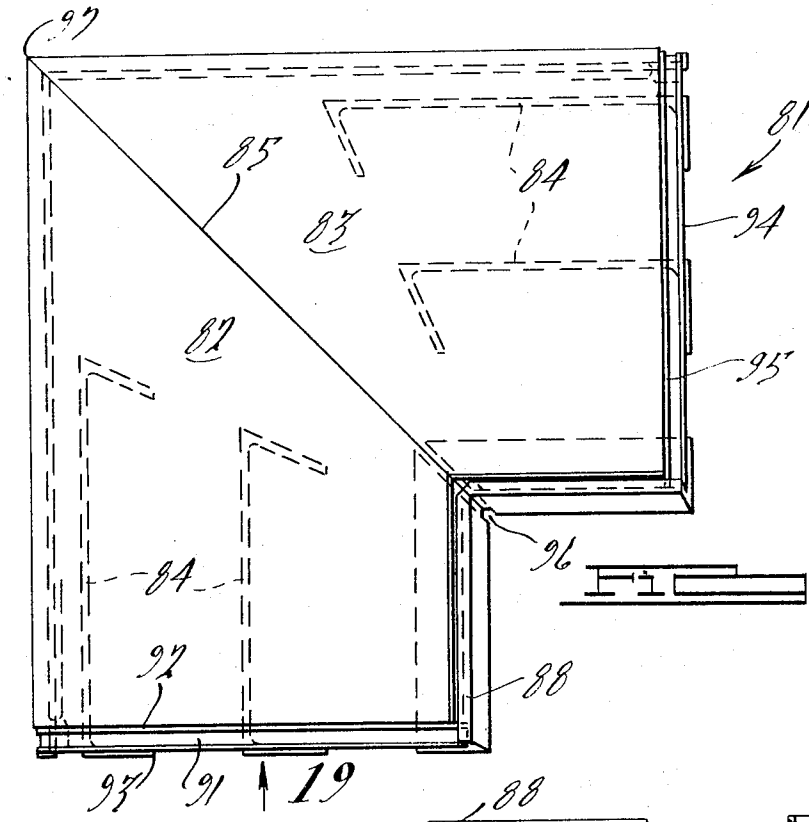


FIG. 18.

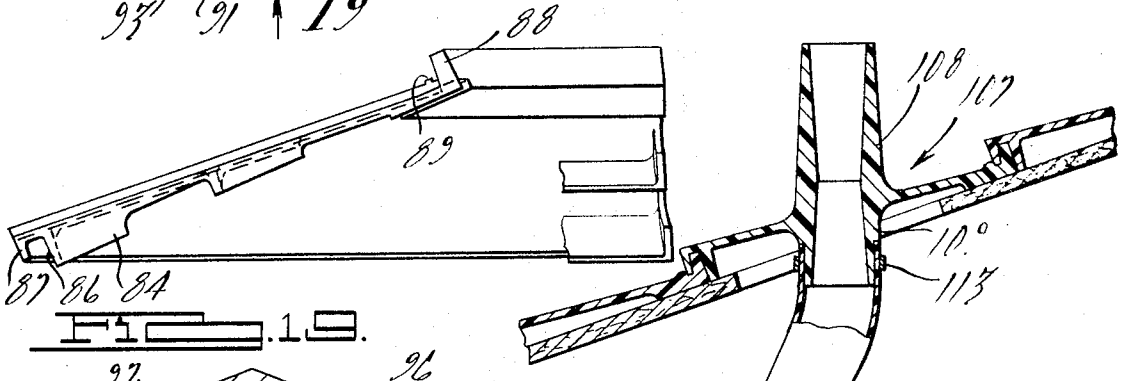


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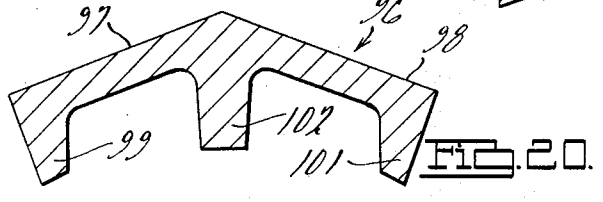


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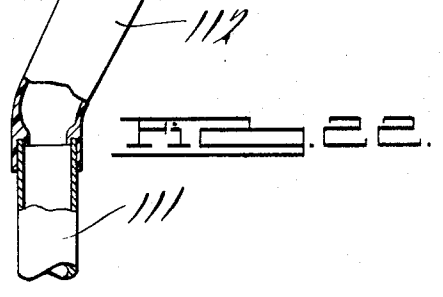


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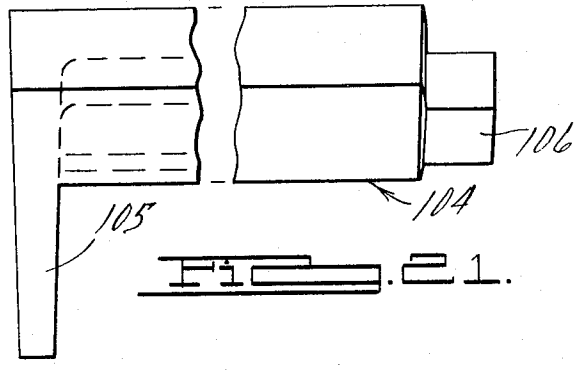


FIG. 21.

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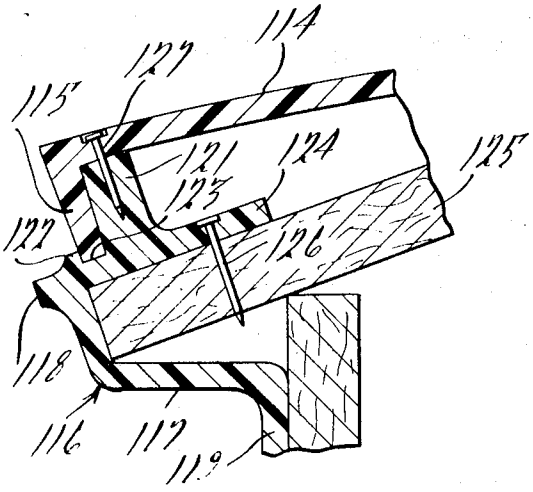


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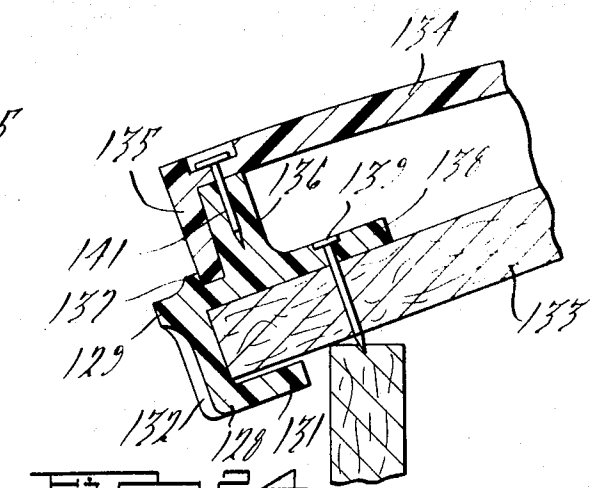


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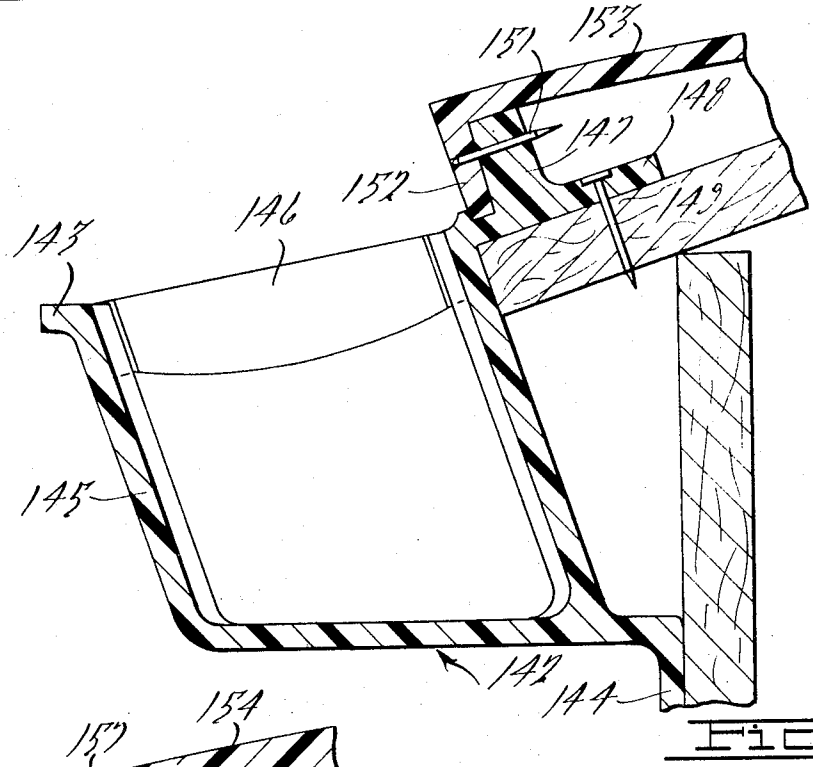


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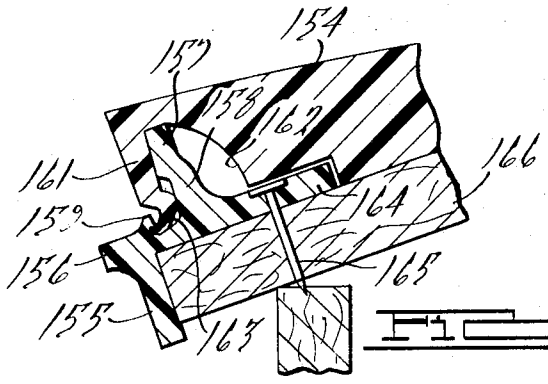


Fig. 26.

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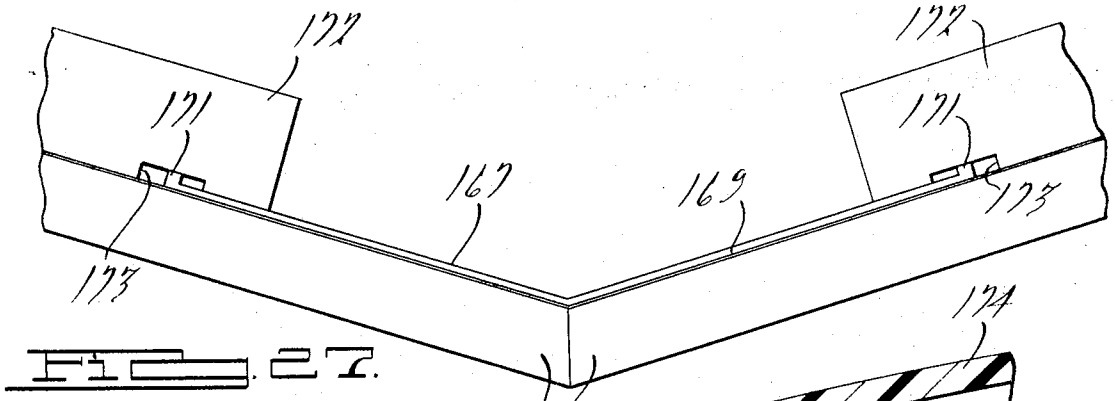


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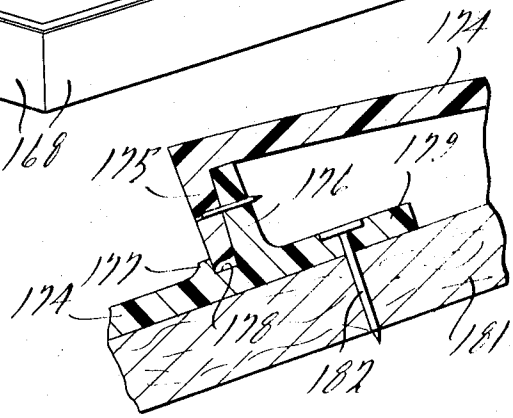


Fig. 28.

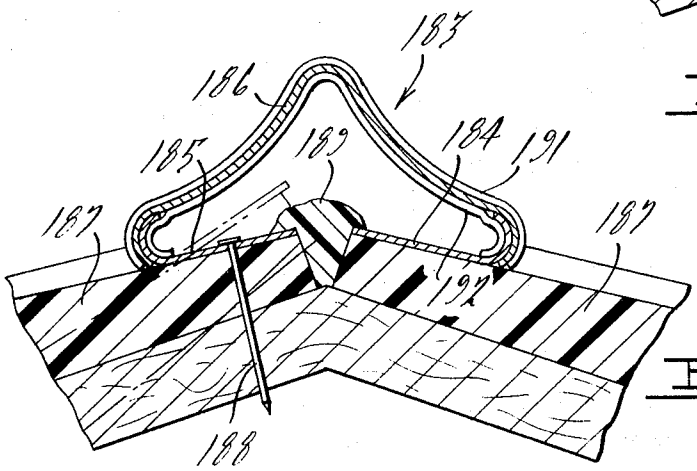


Fig. 29.

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ROOFING SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to roofing structures, and more particularly to roofs having gables, hip peaks, valleys and ridges and fabricated of interlocking slabs of molded resinous plastic material such as skinned urethane foam. 2. Description of the Prior Art

The prior art is exemplified by the following United States patents:

179,955 T. Reynolds	1,993,086 S. W. Chaffee
403,837 J. E. Gusten et al.	2,160,642 O. V. Bumpas et al.
530,119 H. Niederlaender	2,685,852 K. Godel
618,197 W. Borgolte	2,811,118 F. M. Ball
1,454,070 F. Openshaw	3,114,218 E.V.A.E. Macquere
1,473,275 N. J. Burgett	

Although these previous patents have concerned themselves with various cross-sectional shapes of tiles or slabs to shed water, they have contributed little to leakage and other problems which arise from the presence of eaves, gables, hip peaks, valleys and ridges, as well as vent stacks penetrating a roof. These prior patents also fail in many cases to show adequate means for securing the tiles, and for installing roofs where the length of a gable or other roof portion is not an exact multiple of the tile length.

BRIEF SUMMARY OF THE INVENTION

It is an object of the invention to provide an overall roofing system using interfitting sections of molded resinous plastic material which overcomes the deficiencies of previous constructions and in particular prevents leakage along both the longitudinal and lateral tile edges as well as in the vicinity of valleys, hip peaks, ridges, gables, eaves and vent stacks. To this end, the invention comprises a basic molded tapered roof tile of novel configuration together with means for interlocking and sealing the adjacent tiles at their longitudinal and lateral edges. This means includes an upwardly extending lip at the rearward end of each tile so that fasteners may secure the forward end of the adjacent tile thereto, the material of the tile gripping the fasteners in a watertight manner. Filler pieces may be used to interfit with adjacent tiles so that the length of a gable or other roof portion need not be an exact multiple of the tile length. These filler pieces are fabricated from the basic tile simply by cutting the side edges to fit. Left hand and right hand end tiles are provided for the roof edges. Interfitting eave sections are also provided, including left hand, right hand, and intermediate configurations.

Also included in the roofing system are novel valley and hip peak sections which interfit with the basic tiles. The seal configuration is such that any leakage in the vicinity of valleys and hip peaks will be prevented. A vent stack tile is also provided, incorporating an integrally molded tube projecting below the roof line and connected by a flexible conduit to a gaseous fluid source. This will prevent leakage due to roof distortions when subjected to varying wind and temperature conditions. Various modifications of eave edge strips incorporating drip caps, facia boards and/or gutters are provided. Also illustrated are alternate constructions for valleys and ridges.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a house showing the roofing system of this invention applied to a gabled roof construction;

FIG. 2 is a fragmentary plan view of a portion of the roof showing the arrangement of tiles;

FIG. 3 is an enlarged cross-sectional view in elevation taken along the line 3—3 of FIG. 2 and showing the manner in which the upper and lower edges of adjacent tiles interlock, as well as the ridge construction;

FIG. 4 is an enlarged fragmentary cross-sectional view in elevation taken along the line 4—4 of FIG. 2 and showing the manner in which adjacent tiles are united to each other and secured to the roof sheathing as well as the eave sections;

FIG. 5 is a fragmentary plan view of an intermediate roof tile;

FIG. 6 is a front elevational view thereof taken in the direction of the arrow 6 of FIG. 5;

FIG. 7 is an enlarged fragmentary cross-sectional view in elevation taken along the line 7—7 of FIG. 2 and showing the juncture of the side edges of two adjacent tiles;

FIG. 8 is a cross-sectional view showing a filler piece joining an intermediate tile with a row terminating tile such as an end, valley or hip peak tile;

FIG. 9 is a fragmentary plan view of a tile used for the left hand end of a roof;

FIG. 10 is a front elevational view thereof taken in the direction of the arrow 10 of FIG. 9;

FIG. 11 is a fragmentary elevational view of an intermediate eave section;

FIG. 12 is a top plan veiw of the eave section taken in the direction of arrow 12 of FIG. 11;

FIG. 13 is an enlarged fragmentary cross-sectional view showing the manner in which a tile interfits with an eave section;

FIG. 14 is a front elevational view of an eave section used for the left hand end of the roof;

FIG. 15 is a top plan veiw thereof taken in the direction of the arrow 15 of FIG. 14;

FIG. 16 is a top plan view of a valley tile;

FIG. 17 is a side elevational view thereof taken in the direction of the arrow 17 of FIG. 16;

FIG. 18 is a top plan veiw of a hip peak tile;

FIG. 19 is a side elevational view thereof taken in the direction of the arrow 19 in FIG. 18;

FIG. 20 is an enlarged cross-sectional view of a ridge cap construction;

FIG. 21 is a side elevational view of an end ridge cap;

FIG. 22 is a cross-sectional view in elevation of a roof tile having an integrally formed stack for connection to a source of gaseous fluid;

FIG. 23 is a fragmentary cross-sectional veiw of a modified eave section incorporating a drip cap and facia board;

FIG. 24 is a cross-sectional view of another modification of an eave section in which the edge strip incorporates a drip cap and a turnunder;

FIG. 25 is a cross-sectional view of another modified eave edge strip incorporating a drip cap, facia board and gutter;

FIG. 26 is still another modification of the eave edge section in which retention and sealing of the adjacent tile is accomplished by tipping the tile into place;

FIG. 27 is an elevational view of an alternate construction of a trough or valley in which strip material is applied with an adhesive;

FIG. 28 is a fragmentary cross-sectional veiw of a modified form of a tile interlock in which a rear nailing flange is incorporated along the upper tile edge; and

FIG. 29 is a fragmentary cross-sectional view in elevation of an alternate ridge cap construction for the roofing system.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The roofing system of this invention is adapted for use on sloping roofs, and particularly on gabled roofs such as that generally indicated at **11** in FIG. **1**, having ridges **12** and **13**, hip peaks **14** and **15**, and valleys **16**. The roof has beams such as that indicated at **17** in FIG. **3** and sheathing **18**.

The roofing system contemplates the use of several different basic sections some of which are illustrated generally in FIG. **2**. These sections are fabricated of a molded resinous plastic material such as skinned urethane foam which is strong, lightweight, attractive in appearance, and tends to cling to and surround the ends of driven fasteners such as nails. Among the sections comprising the invention are three types of roof tiles, and intermediate tile **19**, a left hand end tile **21**, and a right hand end tile **22**.

The construction of an intermediate tile **19** is seen in FIGS. **5** and **6**. The tile is of elongated rectangular shape, having a rear edge **23**, a front edge **24**, and two side edges **25** and **26**. The upper or exposed surface **27** of tile **19** is substantially flat, and a series of feet **28, 29** and **31** extend downwardly from the central and side portions of the tile, being integrally connected by a foot **32** and a rib **33** at the front and central portions respectively (FIG. **5**). The bottoms of the feet are tapered so as to be shorter at the rear than at the front, the forward end of surface **27** of the tile thereby being pitched outwardly with respect to sheathing **18** as shown in FIG. **3**. The rearward portion of tile **19** has a transversely extending foot **34**.

Forward portion **24** of tile **19** has a downwardly open groove **35** formed by foot **32** and by a shorter lip **36**. Rearward portion **23** of the tile comprises an upwardly extending lip which will interfit with groove **35** of the adjacent tile. Preferably, the groove and lip are tapered so as to provide a wedge fit. A second and shorter lip **37** is spaced forwardly from lip **23** so that the groove **38** between these two lips will receive the end of lip **36** (FIG. **4**). The interfitting tiles may be fastened to each other and to the sheathing by nails **39** which extend through lip **23** and penetrate sheathing **18**, and headless nails **40** at right angles to nails **39** which extend through lips **36** and **23** and foot **32**. It should be noted that these fasteners do not penetrate any water bearing surfaces. Moreover, the resinous plastic material of the tiles will cling to and tend to surround the ends of nails **39** and **40** in a leak-resistant manner. If desired, a mastic or other sealing compound **41** may be applied to the joint. A double seal will thus be provided which at all times controls the overlap between adjacent tiles.

Side edges **25** and **26** of tile **19** are also provided with grooves for interfitting with the adjacent tiles. More particularly, side edge **25** has a downwardly facing groove **42** (FIG. **7**) formed by foot **28** and a spaced shorter lip **43**. Similarly, edge **26** has an upwardly facing groove **44** formed by two lips **45** and **46**. Feet **28** and **31** may have complementary tapers (FIG. **7**) to create a better fit. Lip **46** will be received by groove **42** of the adjacent tile while lip **43** overlies groove **44** and rests on lip **45**. A mastic or other sealing compound **47** may be provided at this joint.

Adjacent rows of roof tiles will be laid so that their joints are staggered, as shown in FIGS. **1** and **2**. Each row will be started at one end of a gable or other roof portion and worked toward the other end or to a valley or hip peak, where a special tile (hereinafter referred to as a "row terminating tile") will be placed. In cases where the gable length is not an exact multiple of an intermediate tile length, filler pieces such as that indicated at **48** in FIG. **8** may be provided. These pieces will be fabricated by cutting off the opposite side edges of an intermediate tile on the side to a length necessary to permit the filler piece to overlap the side edges of the adjacent intermediate tile **19** and a row terminating tile indicated at **49** in FIG. **8**. The front and rear sealing edges of filler piece **48** will interlock with adjacent tiles **19** in the usual manner.

Two examples of a row terminating tile are left and right hand end roof tiles **21** and **22**. These differ from intermediate tile **19** in that one side edge will have a decorative facia ridge instead of being grooved, the other edge having an upwardly open groove **44** with lips **45** and **46**.

A left hand end tile **21** is illustrated in FIGS. **9** and **10**. The left hand edge **49** of this tile is shown as having a decoratively scalloped facia edge, the other parts of the tile being the same as and having reference numerals corresponding to those of intermediate tiles **19**. Right hand end tile **22**, not illustrated in detail, will have its finished edge **50** (FIG. **2**) on the opposite side.

The two other illustrated types of row terminating tiles are valley tiles **63** and hip peak tiles **81**, described below.

FIGS. **10** and **11** illustrate a center section eave edge strip generally indicated at **51**. The strip has a downwardly extending scalloped decorative portion **52** and an upwardly extending line **53** which enters the groove **35** of the next adjacent intermediate tile **19** or end tile (FIG. **13**). a shorter lip **54** is spaced from lip **53** forming a groove **55** within which lip **36** is inserted to form a double seal. A sealant **56** could be placed in the seal for additional effectiveness.

One end of strip **51** is provided with an upwardly facing recess **57** and the other with a downwardly facing recess **58**. The intermediate eave edge sections will thus interfit to form a continuous eave edge.

Left hand and right hand eave edge sections are also provided in the roofing system, to be used at the roof ends. A left hand eave edge strip generally indicated at **59** is shown in FIGS. **14** and **15**. This strip is similar to the strip **51**, but the left hand end **61** is finished instead of having a notch for connection with an adjacent strip.

In order to permit staggering of the tile joints as shown in FIG. **1**, the left hand and right hand end tiles are made of two lengths, for example, a full length left hand tile indicated at **21** in FIG. **1** and a half length indicated at **62**. Similarly, the left hand and right hand end eave edge strips could be made of full and half lengths or in other sizes to suit requirements.

FIGS. **16** and **17** illustrate a valley tile generally indicated at **63**, to be used in valleys such as **16** of FIG. **1**. Section **63** comprises two flat sloping surfaces **64** and

65 which intersect at 66. Strengthening ribs 67 are provided below surfaces 64 and 65, the ribs being tapered as shown in FIG. 17 so that the slopes of surfaces 64 and 65 will match those of surfaces 27.

The forward edges of surfaces 64 and 65 are provided with downwardly facing grooves 68 similar to grooves 35 of tiles 19. The rearward edges have upwardly extending lips 69 similar to lips 23, and shorter lips 71 spaced from lips 69 to provide grooves 72 similar to grooves 38. Notches 73 and 74 are provided in lips 69 to provide clearance with respect to the adjacent valley tile. The side edges of surfaces 64 and 65 have upwardly facing grooves 75 formed by two lips 76 and 77 similar to groove 44 and lips 45 and 46 of tile 19. The two grooves 75 are at right angles to each other so that the outer edges of tile 63 will interfit with the tiles on adjacent gables. The complete valley will be formed by a plurality of sections 63 forming a continuous row with the inside corner 78 of one section being adjacent the outside corner 79 of the next section. The sealing functions of the forward, rearward and side edges of each valley tile with its adjacent tiles, as well as the methods of fastening these tiles to the adjacent tiles and the roof sheathing will be the same as described above with respect to the other row terminating tiles. Since surfaces 64 and 65 are integrally formed as a single section, no leakage will be permitted. Furthermore, surfaces 64 and 65 of tile 63 will blend in completely with the adjacent tiles and filler pieces 48 to give the effect of continuous lines of tiles which overlap.

FIGS. 18 and 19 illustrate a hip peak tile generally indicated at 81 to be used in a location such as hip peak 15 of FIG. 1. Tile 81 comprises two sloping surfaces 82 and 83 having strengthening ribs 84 molded on the underside thereof. Surfaces 82 and 83 intersect at 85, and the ribs are tapered as shown in FIG. 19 to support the sloping surfaces. The forward edges of surfaces 82 and 83 have downwardly extending feet 86 and lips 87 corresponding to foot 32 and lip 36 of tile 19. Rearward edges 88 of surfaces 82 and 83 extend upwardly and are shaped similarly to lip 23 of tile 19. A shorter lip 89 similar to lip 37 is also provided so that the space between these two lips will receive the end of the adjacent lip 87. The side edge of surface 82 has an upwardly facing groove 91 formed by two lips 92 and 93, similar to groove 44 and lips 45 and 46 of tile 19. The outer edge of surface 83 has similar lips 94 and 95. The inside corner 96 of each hip peak tile will receive the outside corner 97 of the next adjacent tile. It will therefore be seen that the sealing effects described above with respect to tiles 63 will be present for the forward, rearward and side edges of the hip peak tiles. It should also be noted that the forwardmost valley or hip peak tiles may interfit with the eave edge strips described above and are fastenable to each other and to the roof sheathing by the methods discussed with respect to tiles 19.

It should be observed that in the case of both valley tiles 63 and hip peak tiles 81, the longer edges (forward or rear) will interfit partially with the shorter edges of the next adjacent valley or hip peak tile respectively, and partially with tiles 19 and/or filler pieces 48. The uniform character of the sealing edges of the various tiles will make possible this staggered relationship.

FIG. 20 shows a ridge cap for a roof constructed according to the present invention. The ridge cap is generally indicated at 96 and has a pair of upwardly sloping surfaces 97 and 98, two outer legs 99 and 101, and a central leg 102, all extending downwardly from surfaces 97 and 98. Legs 99 and 101 are adapted to engage the upper surfaces 27 of adjacent tiles 19 on both slopes of the gable (FIG. 3). The rearward ends of these tiles may be cut off as necessary to create the proper fit. Central leg 102 will rest in caulking or sealant material 103 which is applied between the two tiles 19 and above the roof sheathing. For the ends of a ridge, left hand and right hand sections similar to section 96 could be provided with appropriately finished ends. Such a ridge cap is shown in FIG. 21 and is generally indicated at 104. The left hand end 105 of this cap extends downwardly to overlap the end of the gable. Adjacent cap sections may be interfitted by a reduced end 106 at one end of each cap section which will be received by the adjacent end of the next cap section. To complete a ridge, a filler section (not shown) is formed by appropriately removing material from a full-sized ridge cap.

FIG. 22 illustrates a vent stack panel generally indicated at 107. This panel is constructed similarly to the panel 19 except that it has a tubular vent portion 108 integrally formed therewith and creating a vertical passage with a lower extension 109 extending below the roof line. This extension may be connected to a gaseous fluid source 111 such as the flue of a gas water heater, dryer or furnace, or to a plumbing vent stack, by a flexible connection 112. This connection, which may be fabricated for example of a resilient and properly heat-resistant material, is slipped over a reduced portion of extension 98 and held in place by a band clamp 113. It will be observed that section 107 will have the same sealing functions as described above with respect to adjacent tiles and will also eliminate the problem of leakage between the stack and roof, since stack 108 is integrally formed with the tile itself and can move with the roof because of flexible connection 112. Roof movement, as is well known, could be caused by varying temperature and wind conditions.

FIG. 23 shows a modified form of the invention in which the tile 114 has a single downwardly extending forward lip 115, and an eave edge strip generally indicated at 116 is provided incorporating a horizontal portion 117, a drip cap 118 and a facia board partially shown at 119. Strip 116 has an upwardly extending lip 121 and a shorter lip 122 spaced therefrom to form a groove 123. Downwardly extending lip 115 of tile 114 extends into groove 123, with lip 121 extending upwardly behind lip 115 and engaging the underside of the tile surface. A rearward extension 124 is also provided on strip 116, this extension resting on sheating 125 of the roof. This will enable the strip to be secured to the roof by fasteners such as nails 126 passing through extension 124 and into the sheathing. Tile 114 is secured to strip 116 by nails 127 which pass through tile 114 and enter lip 121.

FIG. 24 shows an eave edge strip 128 incorporating a drip cap 129 and a turnunder 131. The face 132 of strip 128 may have decorative ribbing or another design molded into its surface. As in the embodiment of FIG. 23, drip cap 129 extends forwardly a short distance, with turnunder 131 extending rearwardly and upwardly beneath wood sheathing 133. Strip 134 in this embodiment is constructed similarly to tile 114, having a downwardly extending lip 135. Section 128 has an upwardly extending lip 136 and a spaced shorter lip

137, lip 135 extending into the space therebetween. As in the previous embodiment, strip 128 is provided with a rearwardly extending portion 138 into which fasteners 139 may be driven to secure the strip to sheathing 133. Nails 141 may be used to secure tile 134 to lip 136 of strip 128.

FIG. 25 illustrates an eave edge strip generally indicated at 142 incorporating a drip cap 143, a facia board 144 and a gutter 145 into a single component. The strip in this case is of channel-shaped construction to form the gutter, tie bars 146 of upwardly tapered cross-sectional shape being formed at intervals to reinforce the gutter walls. As in the last two embodiments, the strip has an upwardly extending lip 147 and a rearward extension 148 for fasteners 149. Headless nails 151 may be driven through lip 152 of tile 153 and into lip 147.

FIG. 26 shows another method of retaining and sealing the lower end of a tile. The tile in this instance is indicated at 154 and is connected at its forward end to a strip 155 having a drip cap 156. Strip 155 also has an upwardly extending lip 157 having a thinner lower section 158 which gives it a certain amount of flexibility. A shorter lip 159 is spaced outwardly from lip 158.

Tile 154 has a downwardly extending lip 161 behind which is an arcuate recess 162. Lip 161 has a hooked bend 163. To install tile 154, it will initially be held vertically and hook 163 inserted between lips 157 and 159. The tile will then be tilted backwards (clockwise in FIG. 26) so that hook 163 will become engaged with the undercut portion of lip 159 and lip 157 will be engaged by lip 161. With tile 154 fastened down in the position shown in FIG. 26, a tight double seal will be effected. It will be observed that strip 155 has a rearward extension 164 for fasteners 165 securing it to roof sheathing 166.

FIG. 27 illustrates an alternate valley construction using an appropriate valley strip material 167 supplied in rolls and secured to the roof 168 with an adhesive 169 which may be spray applied. Strip 167 has upturned outer edges 171, and the lower edges of tiles 172 which engage strip 167 have undercut grooves 173 within which edges 171 are disposed. Grooves 173 are machined at the same time that the ends of tiles 172 are angle cut to fit the valley.

FIG. 28 shows a modified form of interlock between the upper and lower edges of adjacent tiles, these tiles being indicated at 174. The forward edge of each tile has a downwardly extending lip 175 and the rearward edge an upwardly extending lip 176 and a shorter lip 177 to form a groove 178 within which the lower edge of lip 175 is disposed. The rearward edge of each tile also has an extension 179 which will be flush with wood sheathing 181 so that fasteners such as nails 182 may be used to secure the rearward edge of each tile to the roof.

FIG. 29 illustrates an alternate ridge cap construction which is capable of accommodating various roof pitches. The cap is generally indicated at 183 and comprises three interfitting strips 184, 185 and 186. Strips 184 and 185 engage the surfaces of the adjacent tiles 187 so that fasteners 188 may secure them to the tiles. They curve upwardly and interfit with the similarly curved ends of part 186, the three strips thus forming the cap. A mastic 189 or other caulking material may be used between the adjacent tiles 187 and parts 184 and 185. An outer reinforcement 191 and an inner reinforcement 192 are provided to cover and seal the joints of adjacent cap sections 183. These reinforcements may be snapped into place as shown to cover the joints.

As shown by the dot-dashed lines, the flexibility of strips 184 and 185 will permit cap 183 to accommodate itself to roofs with a wide variety of pitches.

I claim:

1. In a roofing system for sloping roofs, a plurality of rows of tiles formed of a molded resinous plastic material, said tiles having flat outer surfaces and tapered roof-engaging portions so that the forward end of each outer surface is pitched outwardly from the roof, first and second downwardly extending lips at the forward end of each tile, the second lip being spaced rearwardly from the first lip, first and second upwardly extending lips at the rearward end of each tile, the second upwardly extending lip being spaced forwardly from and shorter than the first rearward lip, the first forward lip of each tile interfitting between said two rearward lips, the first upwardly extending lip of each tile interfitting between the two forward lips to form a seal, a fastener passing through said first forward and first rearward lips of interfitting tiles in a direction substantially parallel to said flat outer surfaces to secure the tiles together, said resinous plastic material clinging to said fastener to form a watertight seal, and a second fastener substantially at right angles to said first fastener and passing through said first-mentioned rearward lip and into the roof to secure the rearward end of each tile to the roof.

2. In a roofing system for sloping roofs, a plurality of tiles formed of a molded resinous plastic material, said tiles having flat outer surfaces and tapered roof-engaging portions so that the forward end of each outer surface is pitched outwardly from the roof, first and second downwardly extending lips at the forward end of each tile, the second lip being spaced rearwardly from the first lip, first and second upwardly extending lips at the rearward end of each tile, the second upwardly extending lip being spaced forwardly from and shorter than said first rearward lip, the first forward lip of each tile interfitting between said two rearward lips of an adjacent tile, the first rearward lip of each tile interfitting between the two forward lips of an adjacent tile to form a seal, a fastener passing into the forward end of the first forward lip and the first rearward lip of interfitting tiles to secure the tiles together, said resinous plastic material clinging to said fastener to form a watertight seal, some of said tiles being located intermediate a row and other tiles terminating a row, one side edge of each of said intermediate tiles having a downwardly facing groove and the other side edge an upwardly facing groove, the side edges of intermediate tiles overlapping to form a seal, both side edges of each row terminating tile having upwardly facing grooves, and a filler piece between each row terminating tile and the adjacent intermediate tile in the same row, each filler piece being fabricated by cutting off both side edges of an intermediate tile so that flat portions of the filler piece overlap the upwardly facing grooves of the row terminating tile and the adjacent intermediate tile.

3. In a roofing system for sloping roofs, a plurality of rows of tiles formed of a molded resinous plastic material, said tiles having flat outer surfaces and tapered roof-engaging portions so that the forward end of each outer surface is pitched outwardly from the roof, a

downwardly extending lip at said forward end of each tile, an upwardly extending lip at the rearward end of each tile fitting behind the forward lip of an adjacent tile to form a seal, a fastener passing into the forward end of said adjacent tile and said rearward lip to secure the tiles together, said resinous plastic material clinging to said fastener to form a watertight seal, some of said tiles being located intermediate a row and other tiles terminating a row, one side edge of each of said intermediate tiles having a downwardly facing groove and the other side edge an upwardly facing groove, the side edges of intermediate tiles overlapping to form a seal, both side edges of each row terminating tile having upwardly facing grooves, and a filler piece between each row terminating tile and the adjacent intermediate tile in the same row, each filler piece being fabricated by cutting off both side edges of an intermediate tile so that flat portions of the filler piece overlap the upwardly facing grooves of the row terminating tile and the adjacent intermediate tile.

4. A roofing system according to claim **3**, the forward end of each tile having a second downwardly extending lip spaced rearwardly from and longer than said forward lip to act as a foot for said tile, the rearward end of each tile having a second upwardly extending lip spaced forwardly from and shorter than said first rearward lip, the first forward lip interfitting between the two rearward lips of each adjacent tile and the first rearward lip interfitting between the two forward lips of each adjacent tile to form a double seal.

5. In a roofing system for sloping roofs, a plurality of rows of tiles formed of a molded resinous plastic material, said tiles having flat outer surfaces and tapered roof-engaging portions so that the forward end of each outer surface is pitched outwardly from the roof, a downwardly extending lip at said forward end of each tile, an upwardly extending lip at the rearward end of each tile fitting behind the forward lip of an adjacent tile to form a seal, a fastener passing into the forward end of said adjacent tile and said rearward lip to secure the tiles together, said resinous plastic material clinging to said fastener to form a watertight seal, a rearward edge of each tile further having an extension overlying the roof and securable thereto by fasteners passing therethrough, and a second upwardly extending lip on said rearward edge spaced forwardly from and shorter than the first upwardly extending lip, the downwardly extending lip at the forward end of the adjacent tile interfitting between said two upwardly extending lips to form a seal.

6. In a roofing system, a plurality of rectangular intermediate tiles of identical size and shape, the main portion of each tile being substantially flat, each intermediate tile having front and rear edges of complementary cross-sectional shape so that the front and rear edges of adjacent tiles interfit to form a seal, one side edge of each tile having a downwardly open groove and the other side a complementary upwardly open groove, whereby adjacent side-by-side tiles interfit to form a seal, identical row terminating tiles having a special shape to conform to an end of one portion of the roof, each row terminating tile having front and rear edges with cross-sectional shapes similar to said intermediate tiles, at least one side edge of each row terminating tile having an upwardly open recess, and a filler piece extending between said last-mentioned side edge of each row terminating tile and the next adjacent complete intermediate tile, said filler piece being formed by cutting off both side edges of an intermediate tile so that the sides of the remaining flat portion overlap the upwardly open grooves of said row terminating tile and the adjacent intermediate tile.

7. In a sealing construction for overlapping relatively rigid tiles of a roofing system formed of rows of tiles which are formed of a molded resinous plastic material, a downwardly extending lip at the forward end of one tile, a first upwardly extending lip on another tile, a shorter upwardly extending lip on said other tile spaced forwardly from said first lip, the inner portion of said first upwardly extending lip being reduced in cross section to give it flexibility, a recess in the forward portion of said first tile for receiving said first upwardly extending lip, and a hooked outer end on said downwardly extending lip engageable under said second upwardly extending lip whereby the tiles may be connected and sealed together by swinging the first tile downwardly into place.

8. A roofing system according to claim **7**, the rear edge of said second tile having a rearward extension overlying the roof and securable thereto by a fastener extending therethrough.

9. In a roofing system for sheathed sloping roofs, a plurality of rows of tiles formed of a molded resinous plastic material, said tiles having flat outer surfaces and laterally spaced downwardly extneding tapered roof-engaging portions engageable along their bottom edges with the roof sheathing so that the forward end of each outer surface is pitched outwardly from the roof, downwardly extending means at said forward end of each tile, upwardly extending means at the rearward end of each tile, one of said means comprising a pair of spaced parallel lips defining a groove therebetween and the other of said means comprising a lip fitted in the grooves of adjacent tiles, means holding said last named lips in their said grooves and fastener means extending through the rear ends of said tiles into the sheathing in locations rearwardly of the forwardmost one of said lips.

10. A roofing system according to claim **9** in which said one means is disposed at the rearward end of each tile and said other means is disposed at the forward end of each tile.

11. A roofing system according to claim **10** in which the forwardmost lip of said pair of lips is shorter than the rearward most lip of said pair of lips.

12. A roofing system according to claim **9** in which said holding means comprises a nail driven into at least one of said lips.

13. A roofing system according to claim **9** in which said holding means comprises a nail driven through at least two of said lips.

14. A roofing system according to claim **9** in which the tiles of each row are staggered with respect to the tiles of the adjacent rows.

15. A roofing system according to claim **9** including a sealant disposed in the grooves of said tiles between the bottom of the grooves and the lips received therein.

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