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(54) **VENTILATING MOISTURE BARRIER FOR ROOF VENT**

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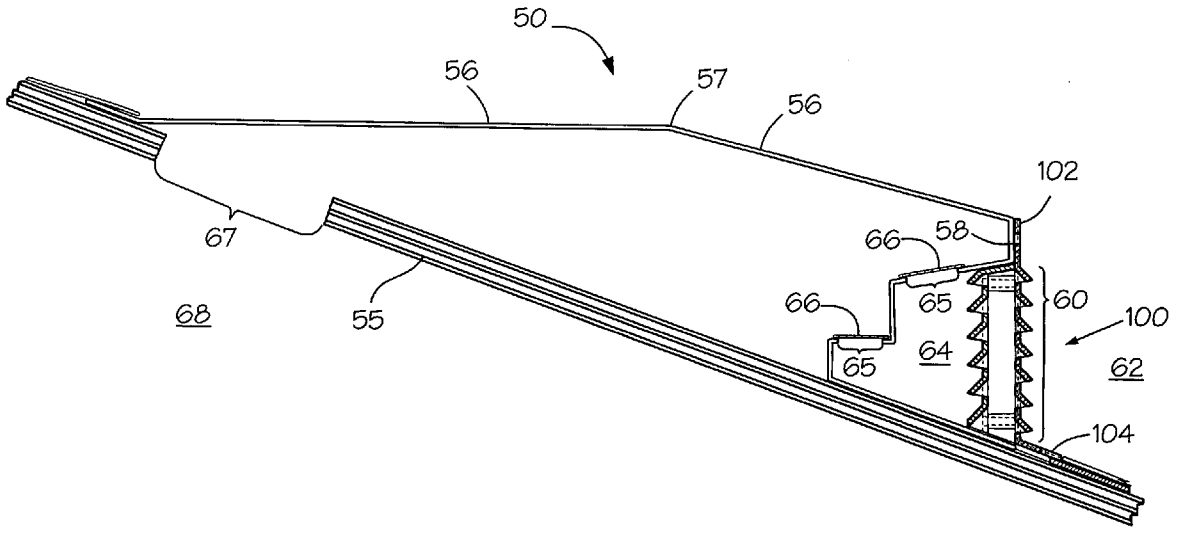
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(57) **ABSTRACT**

The present invention relates to a protective barrier adapted to fit over a roof vent, particularly an off-ridge roof vent, which provides for ventilation and also restricts pass-through of wind-driven rainwater. The barrier comprises two parallel orifice plates, such as louvered panels with passages, that are spaced apart a desired distance by a stagnation zone, so that the device is effective to reduce or eliminate of passage of wind-driven rainwater to the interior of the vent. In various embodiments, the number of louvers in the more outward-disposed orifice plate is greater than the number of louvers in the more inward-disposed orifice plate.



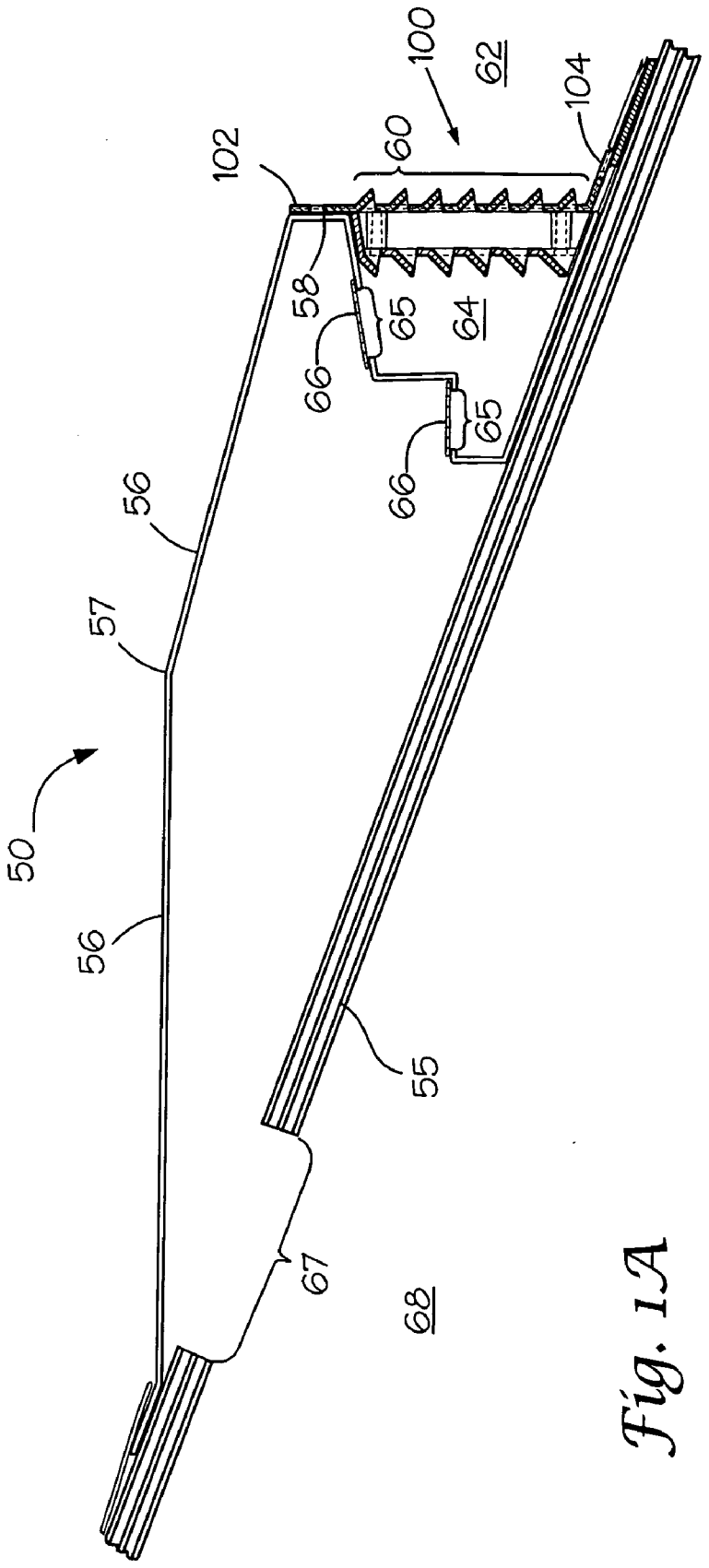


Fig. 1A

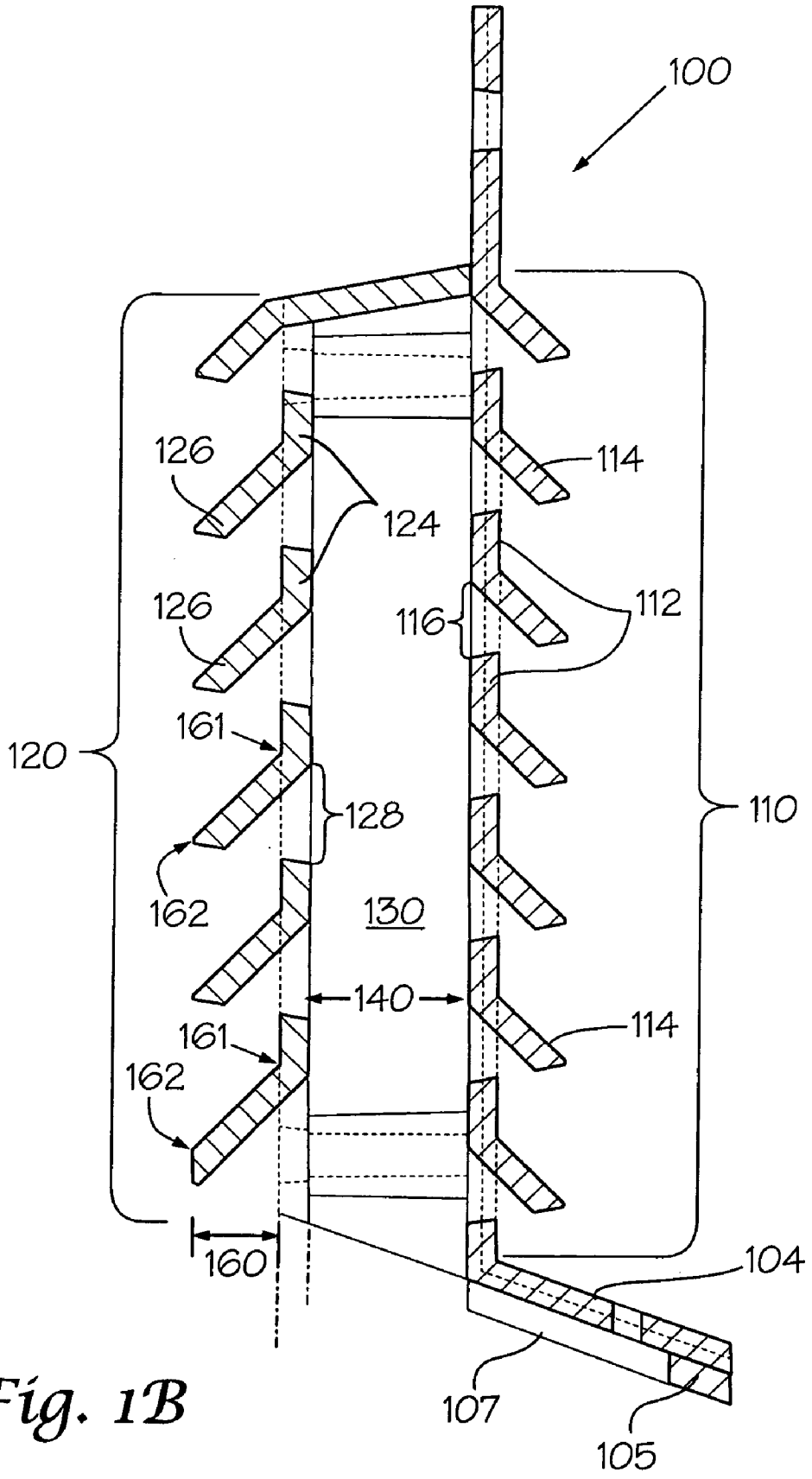

100
126
114
124
126
116
112
161
120
128
110
162
130
140
161
114
162
160
104
107
105

Fig. 1B

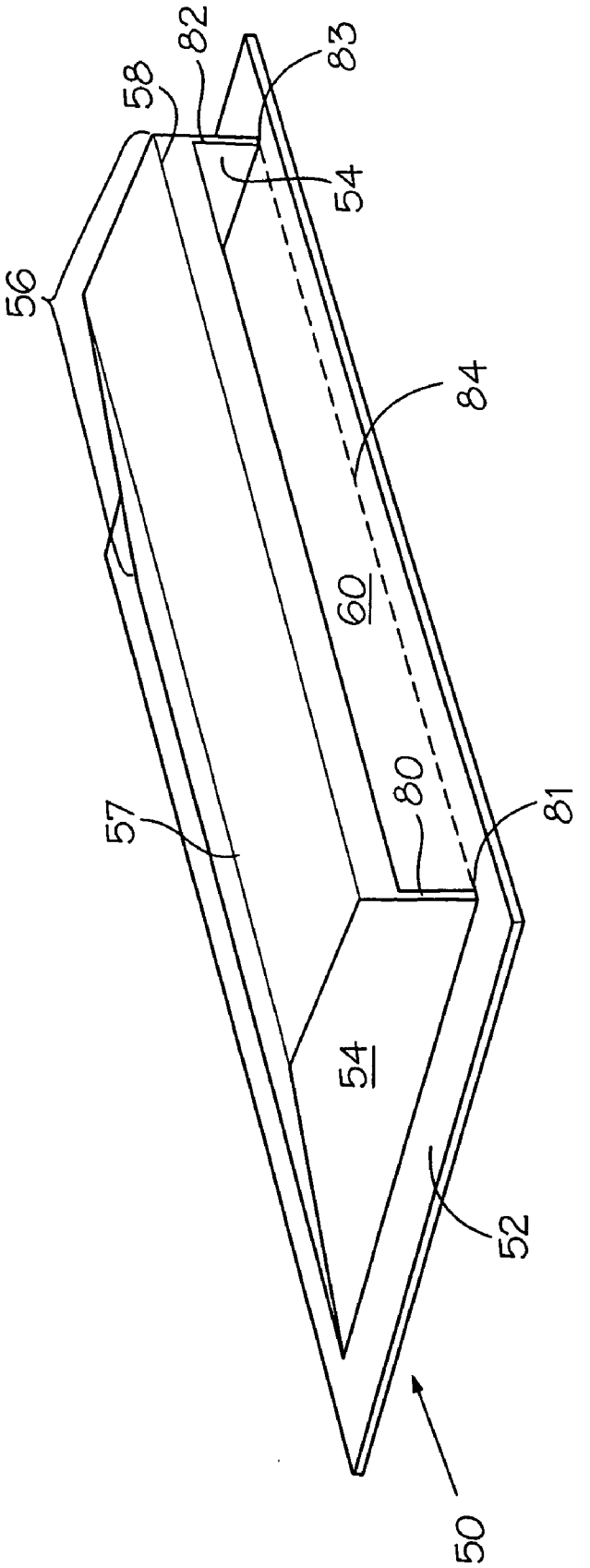


Fig. 1C
(Prior Art)

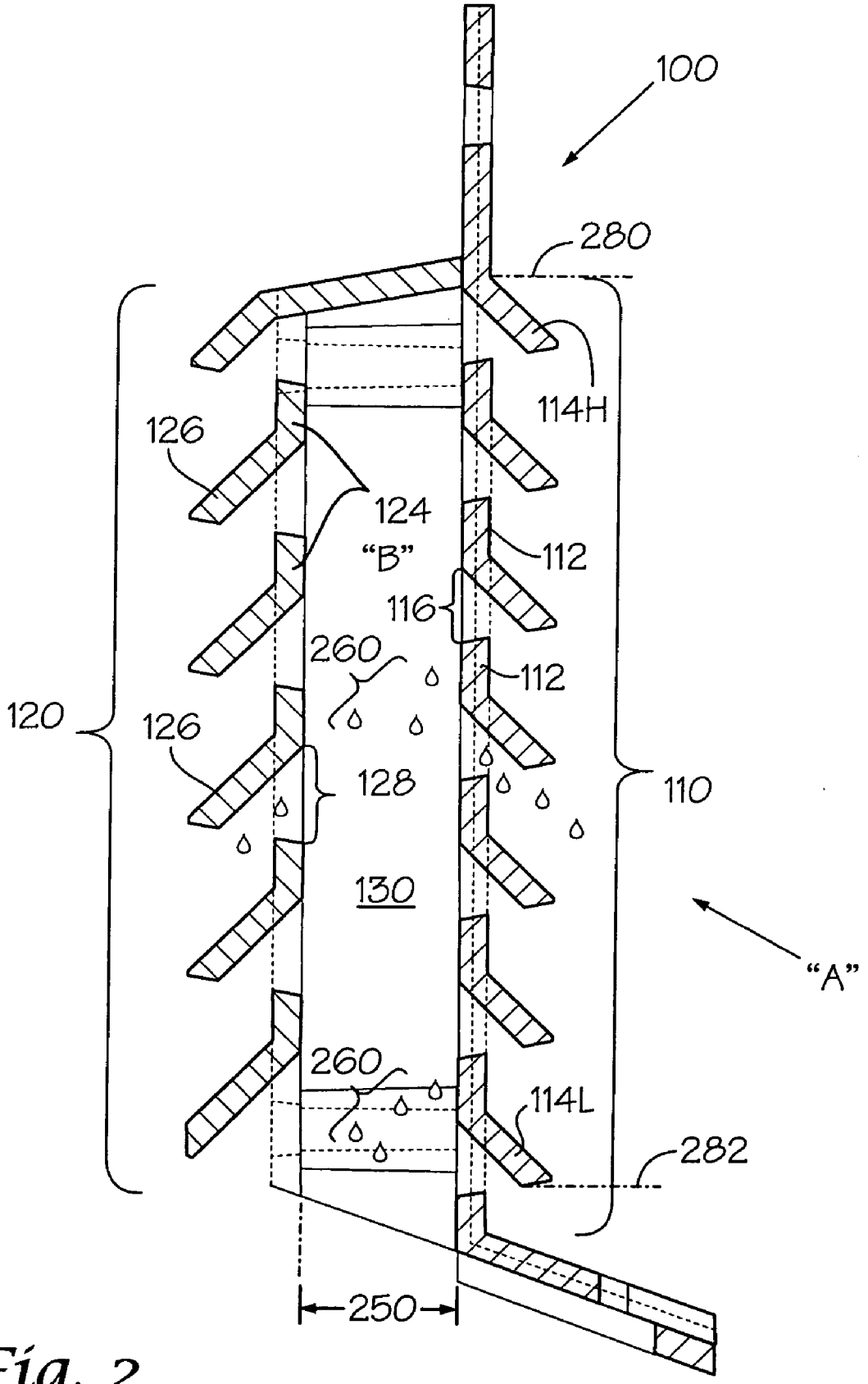

100
280
114H
126
124
"B"
112
116
260
112
120
126
128
110
130
"A"
260
114L
282
250

Fig. 2

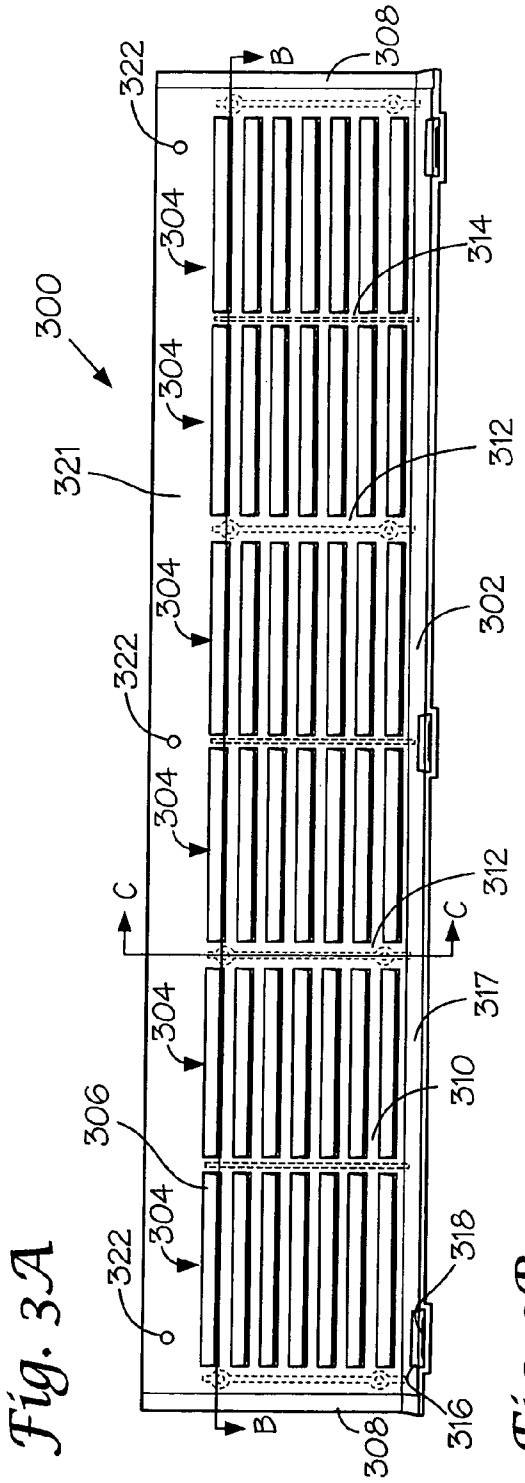


Fig. 3A

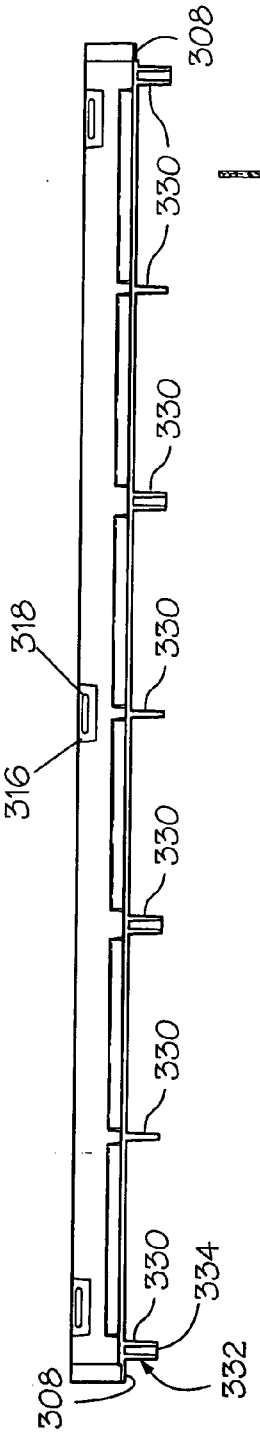


Fig. 3B

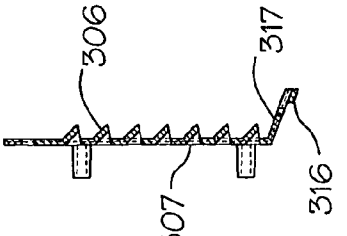


Fig. 3C

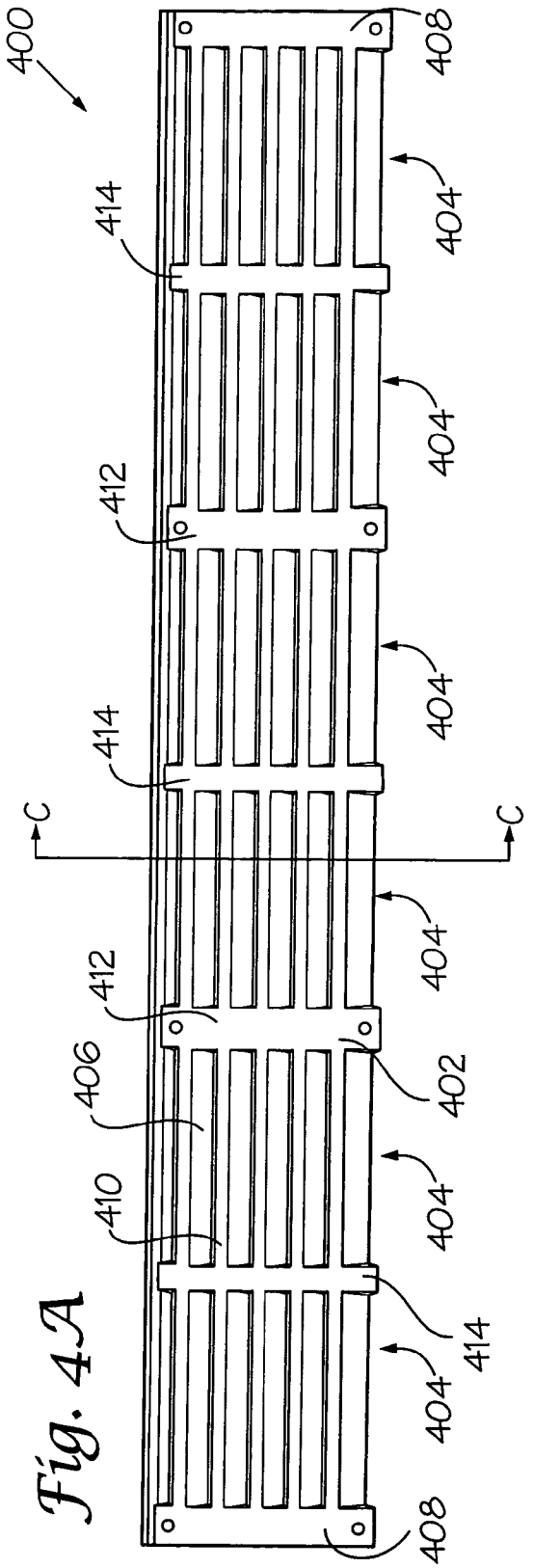


Fig. 4A

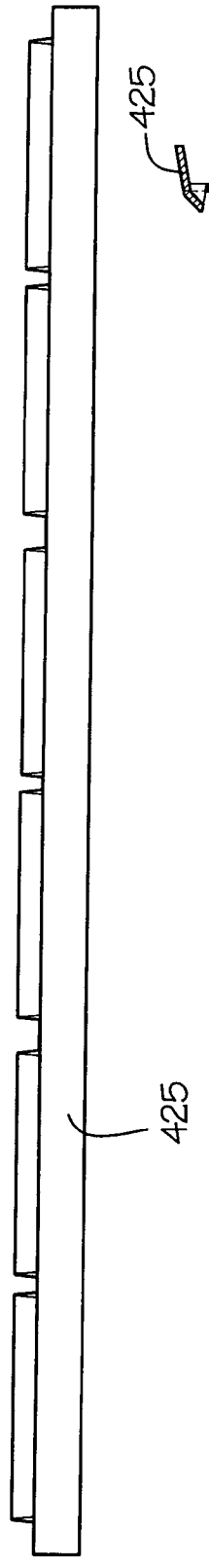


Fig. 4B

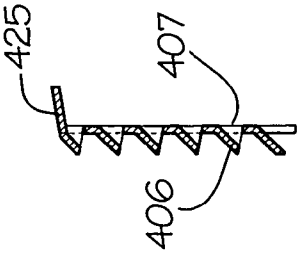


Fig. 4C

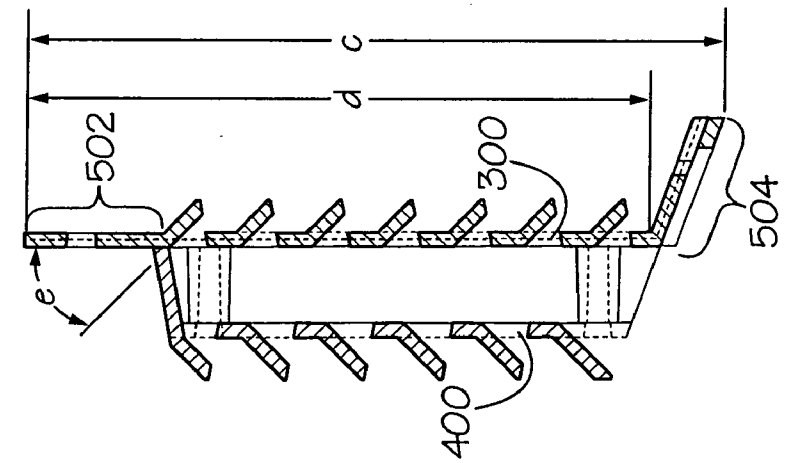


Fig. 5A

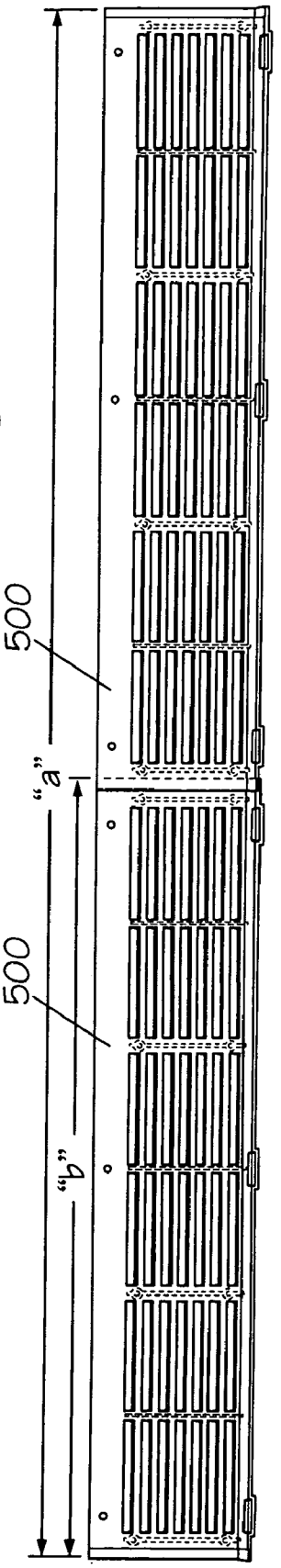


Fig. 5B

VENTILATING MOISTURE BARRIER FOR ROOF VENT

FIELD OF THE INVENTION

[0001] The present invention relates to a protective barrier for a roof vent, particularly for an off-ridge roof vent. The barrier may be affixed to existing vents, pre-assembled onto, or integral with vents. The barrier comprises two parallel orifice plates, such as louvered panels, that are spaced apart a desired distance, so as to provide for ventilation and also to restrict pass-through of wind-driven rainwater.

BACKGROUND OF THE INVENTION

[0002] Roof ventilation devices of various designs have been incorporated into roofs and adjacent building structures, such as soffits, to provide for circulation to eliminate undesired heat build-up, such as in an attic. For example, during hot days air may flow through screened openings in soffits, into an attic space, and out of one or more roof ventilation devices. Roof ventilation devices may be powered, such as attic fans, or passive, such as roof vents. Two common classes of roof vents are ridge vents and off-ridge vents. Off-ridge roof vents, which are offset from the ridge of a roof, afford certain advantages as far as ease of installation, low cost and relatively low maintenance.

[0003] However, unprotected openings of roof vents may allow undesired entry of water into the house, such as into the attic, during extreme weather conditions. This has been appreciated and addressed in various manners. For example, U.S. Pat. No. 5,921,863, issued Jul. 13, 1999 to Gary L. Sells, discloses an arrangement of an inner and an outer plate to protect a ridge vent. The inner plate has parallel upwardly facing louvers, while the outer plate has an equal number of downwardly facing louvers. During normal wind conditions there are open passages through adjacently positioned louvers of the inner and outer plates, conducive to ventilation. Also, the outer plate is slidably arranged so as to be urged upward a distance due to high wind conditions. In such upward position, there is a closing of the passages between the inner and outer sets of louvers (see FIGS. **14-16** and accompanying disclosure). Although this approach involves a moving part, the disclosure does not indicate what maintenance is required to maintain the movable outer plate in a condition to appropriately respond by movement to a particular potentially deleterious wind speed. Other approaches to protect openings in ridge roof vents also are disclosed in this Sells patent.

[0004] Also, U.S. Pat. No. 5,797,222 to Paul Martin discloses a roof ridge and gable extension ventilation device that comprises a pair of spaced parallel upstanding sidewalls each comprising a plurality of vent openings, with interior return vent walls extending from the sidewalls, and comprising vent openings. The disclosure discloses that the latter vent openings, formed at louvered portions, are positioned above the corresponding louvers of the respective sidewalls. This is stated to be so oriented for assuring that the interior opening through the roof at the roof ridge, termed the roof vent, will stay dry.

[0005] Other references disclose various approaches to provide a form of protection for roof vents. These include U.S. Pat. No. 4,280,399, U.S. Pat. No. 4,588,637, U.S. Pat. No. 5,050,489, U.S. Pat. No. 5,535,558, and U.S. Pat. No. 6,554,700. U.S. Pat. No. 6,202,372 discloses a specific approach to an off-ridge roof vent having increased resistance to bending.

[0006] In tropical and semi-tropical regions, roof ventilation devices such as off-ridge roof vents are commonly provided to houses and other buildings to deal with high heat during the summers. Generally off-ridge roof vents have an elongated opening of low profile. However, many off-ridge roof vents were designed without full consideration of risks of water entry due to high-force wind, such as during a hurricane. Thus, despite the existence of various approaches to protect the entrances of roof vents, there continues to be a need for a protective barrier for off-ridge roof vents that is effective to reduce or eliminate water ingress during high speed wind and rain events such as hurricanes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. **1**A provides a cross-sectional view of one embodiment of a ventilating moisture barrier of the present invention as it is positioned in an exterior aperture of a roof vent. FIG. **1** B provides an enlargement of the moisture barrier of FIG. **1**A to more clearly identify certain features. FIG. **1**C provides a front view of the roof vent of FIG. **1**A showing the opening into which the ventilating moisture barrier in FIG. **1**A is positioned, however without depicting that barrier.

[0008] FIG. **2** provides a larger depiction of the cross-section view of the ventilating moisture barrier depicted in FIG. **1**A, however not in association with the roof vent.

[0009] FIGS. **3**A-C provide, respectively, front, transverse section, and cross-sectional side views of one embodiment of a first orifice plate component of the present invention.

[0010] FIGS. **4**A-C provide, respectively, front, top, and cross-sectional side views of one embodiment of a second orifice plate component of the present invention.

[0011] FIGS. **5**A provides a cross-sectional view of the assembled first orifice plate and second orifice plate components depicted in FIGS. **3**A-**4**C. FIG. **5**B provides a front view of two panels of the present invention disposed side-by-side to provide a span suitable to a common size of off-ridge roof vent aperture.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0012] The present invention comprises a ventilating moisture barrier for covering an exterior aperture of a roof vent, particularly of a standard-sized off-ridge roof vent. Embodiments include the barrier itself, and a roof vent comprising the barrier (whether as a kit for assembly or integral or pre-assembled as part of the roof vent). The present invention is designed to reduce or eliminate the passage of water, such as water in aerosol droplet form, through a roof vent and into a roof attic space during high-wind events such as hurricanes. This is achieved while retaining the basic capacity of the respective vent to operate to vent hot gases from an attic space during non high-wind conditions.

[0013] Embodiments of the ventilating moisture barrier of the present invention comprise three functional components

in spaced relationship to one another. These are described below and illustrated by example through reference to the figures appended hereto.

[0014] In order to provide for an understanding of aspects of the present invention, FIG. 1A provides a cross-sectional view of one embodiment of a ventilating moisture barrier **100** of the present invention as it is positioned in an exterior aperture **60** of a prior art roof vent **50**. The roof vent **50** as shown is installed in an inclined roof **55** (only partial section shown) depicted with an inclination angle of approximately 30 degrees, which is not meant to be limiting. The roof vent **50** comprises a top **56** (having an inflection **57** as shown), a front lip **58**, two openings **65** covered by screen mesh **66**, and an interior entrance **67** into an attic space **68**. Also depicted are an exterior side **62** and an interior side **64** with respect to the exterior aperture **60**.

[0015] The ventilating moisture barrier **100** of FIG. 1A covers the exterior aperture **60**, and attaches to the front lip **58** by means of attachment through a top flange **102**. The ventilating moisture barrier **100** attaches to a part of the roof and/or vent structure (i.e., a bottom plate typical of standard off-ridge roof vents) that is below a bottom flange **104**, and may also attach to sides of the exterior aperture (e.g., see FIG. 1C).

[0016] FIG. 1B provides an enlarged cross-section depiction of the moisture barrier **100** of FIG. 1A to more clearly identify certain features. A first functional component of the ventilating moisture barrier **100** is a first orifice plate **110** that is disposed to face the exterior side **62** of the roof vent exterior aperture **60** (see FIG. 1A). The first orifice plate **110** is comprised of a flattened structural body **112** from which extend a first number of exterior louvers **114** that, as depicted in FIGS. 1A and 1 B, are disposed to angle downwardly to the exterior as one considers the declination from the top to the bottom of each exterior louver **114**. Exterior passages **116** formed through the first orifice plate **110** interiorly to the respective exterior louvers **114** provide for passage of air.

[0017] A second functional component of the ventilating moisture barrier **100** is a second orifice plate **120**. The second orifice plate **120** is comprised of a flattened structural body **124** from which extend a second number of interior louvers **126** that, as depicted in FIGS. 1A and 1B, are disposed to angle downwardly and inwardly (with respect to the roof vent) as one considers the declination from the top to the bottom of each interior louver **126**. In operational position, the second orifice plate **120** is interior to the first orifice plate **110**, and is disposed to the interior side **64** of the roof vent exterior aperture **60** (see FIG. 1A). Interior passages **128** formed through the second orifice plate **120** interiorly to (with regard to the moisture barrier **100**) the respective interior louvers **126** provide for passage of air.

[0018] As shown in FIGS. 1A and 1B, the second number, of interior louvers **126** is six, which is one less than the first number, of exterior louvers **114**, seven. More generally, the second number of louvers (i.e., the number of louvers of the more interior, second orifice plate) is any number that is less than the first number of louvers of the more exterior, first orifice plate. Even more generally, when designs other than louvers (with a corresponding passage below a respective louver) are employed to provide ventilation through the first and/or the second orifice plates, the number of passages in the more exterior, first orifice plate is at least one greater than the number of passages in the more interior, second orifice plate. Also, as shown in the appended figures, the respective passages of the interior and exterior orifice plates are designed to provide for a relatively high percentage of open area, and in such embodiments the total open area of the passages of the second orifice plate, although there are fewer passages, is greater than the total open area of the first orifice plate's passages. Consequently in such embodiments the second, interior orifice plate's passages are proportionally larger on an individual, per passage basis. However, this is not meant to be limiting of the scope of the claims appended hereto.

[0019] A third functional component of the ventilating moisture barrier **100** is a stagnation zone **130** disposed between the first orifice plate **110** and the second orifice plate **120**. The stagnation zone **130** has a defined depth, identified in FIG. 1B by **140**. In some embodiments the defined depth **140** is at least the depth **160** of the louvers **126** of the second orifice plate (this depth shown as **160** in FIG. 1B, measured horizontally from a first end **161** to a second end **162**). In some embodiments, the defined depth **140** of the stagnation zone **130** between the first orifice plate and the second orifice plate is at least **1.25** times the depth **160** of the louvers **126** of the second orifice plate **120**, or, alternatively, is at least 1.50 times the depth **160** of the louvers **126** of the second orifice plate **120**. More generally, the distance **140** may be a defined depth sufficient to be effective to reduce passage of wind-driven rainwater through the passages **128** of the second orifice plate **120**. More particularly, the depth **140** may be established to be effective to reduce, or to eliminate, passage of wind-driven rainwater beyond the second ends **162** of louvers **126**, when positioned in a roof vent as disclosed herein.

[0020] FIG. 1C provides a front perspective view of the prior art roof vent **50** of FIG. 1A installed onto roof **50**, however, without the ventilating moisture barrier affixed, in order to clearly show certain features. A bottom plate **52** supports side panels **54** and the top **56**, which comprises inflection **57**. The front end of top **56** meets a front lip **58**, which is positioned above the exterior aperture **60**. FIG. 1C illustrates that the exterior aperture **60** is defined peripherally by the front lip **58**, a left side **80** and a right side **82**, and a bottom delineation **84** that extends transversely to form a line between a bottom point **81** of the left side **80** and a bottom point **83** of the right side **82**. In various applications, embodiments of the present invention are affixed to such elements; also, the bottom flange (see FIG. 1A, component **104**) may attach to a part of the roof and/or vent structure (i.e., a bottom plate typical of standard off-ridge roof vents) that is adjacent and down the roof from the bottom delineation **84**.

[0021] While not meant to be limiting, the ventilating moisture barrier **100** in FIG. 1B shows a bottom flange **104** in which the attachment surface **105** is extended downward from the remainder of the bottom flange **104**, resulting in a gap **107** between most of the bottom flange **104** and the roof (not shown). This provides for drainage of rainwater. It is appreciated that various arrangements for attachment to a particular roof vent may be utilized in various embodiments (such as without the use of top and bottom flanges). Also, it is appreciated that for differing styles of roof vent openings, an additional section of extruded aluminum, or other linear

material, may be utilized to fill a space between a part of that opening and a protective moisture barrier embodiment. Such additional sections may be provided in a kit to ensure that a particular embodiment of a protective moisture barrier may be readily adapted to fit onto a variety of roof vent openings.

[0022] FIG. **2** provides the same cross-section view of the embodiment **100** depicted in FIG. **1**A, however not in association with the roof vent **50** and additionally showing certain expected aspects of wind velocity and moisture during high-wind conditions. Without being bound to a particular theory, the embodiment **100** is believed to provide reduction or elimination of entry of wind-driven rainwater by the following sequence of events within the three stated components, due to their design and juxtaposition. For example, consider a wind force of 100 miles per hour ("m.p.h.") during a hurricane, carrying rainwater toward the first orifice plate along the vector "A". Apart from a certain resistance due to the total of frictional losses and other resistance in the path to an exit (i.e., screened apertures in a soffit of the roof, convection forces of warm air rising through the attic, etc.), due to the barrier effect of the first orifice plate **110** (i.e., the decrease in open area compared to no obstruction, due largely to the surface area of the flattened structural body **112**), the velocity of the wind is expected to fall to substantially lower than 100 m.p.h. as it crosses the stagnation zone **130**. That is, the wind velocity at point B is substantially lower than the wind velocity at the location of vector point "A". This is believed to result in a substantial tendency of wind-borne water aerosol droplets to drop from the predominantly horizontal travel direction. Some such droplets **260** may, as a result of the drop in wind velocity, fall toward or to a roof portion **250** below the stagnation zone **130**, and thereafter flow by gravity downward and out of the vent exterior aperture (not shown in FIG. **2**).

[0023] Water still entrained in the now-decreased-velocity wind may alternatively encounter the louvers **126** of the second orifice plate **120**, and thereon collect, coalesce, and drop sequentially along such louvers **126** until reaching the roof (not shown). The wind passing through the second orifice plate **120** is expected to experience a further decrease in velocity due to the restricted open area based on the surface area of the flattened structural body **124**, followed by a larger volume farther inward. However, while the design is effective to reduce the inflow of wind-driven rainwater, particularly during high wind conditions such as during a tropical storm or hurricane, the respective open areas of openings (represented by exterior passages **116** and interior passages **128** in FIGS. **1**A, **1**B and **2**) are sufficient to provide for inflow and outflow of air during normal wind conditions, and thereby to provide for effective ventilation of the attic space through the roof vent.

[0024] Other aspects of the juxtaposition of the louvers and the passages of the first and the second orifice plates are relevant to various embodiments of the invention. First, for various embodiments at least one of the interior louvers is aligned laterally with one of the exterior louvers. By "aligned laterally" is meant that at least one interior louver is positioned vertically within the range of elevations defined between the highest and the lowest of the exterior louvers. In various embodiments, at least half of the interior louvers are aligned laterally with exterior louvers. This provides for efficient airflow under low velocity conditions, such as during normal (non-storm wind speed) ventilation conditions. Further, it is appreciated that for the embodiment depicted in FIGS. **1**A, **1**B and **2**, all of the interior louvers **126** are entirely disposed between the highest exterior louver **114**H and the lowest exterior louver **114**L, as indicated by dashed lines **280** and **282**). It is noted that the designed angle of installation is established by the structures used for attachment to a roof vent, and may be secondarily affected by a particular inclination of a roof upon which a roof vent is installed. In most cases, the designed angle of installation is between about 0 degrees (i.e., vertical) and about 30 degrees from the vertical.

[0025] Similarly, it is appreciated that for various embodiments at least one of the interior passages is aligned laterally with one of the exterior passages. By this is meant that, when a barrier of the present invention is at the installed angle, extending a horizontal line from the lowest point of the lowest exterior passage and from the highest point of the highest exterior passage inward to the interior passages, at least one interior passage is between such lines. Also, it is appreciated that the term "passages" in this paragraph may refer to any opening suitable for passage of air through the respective orifice plate, whether or not a louver is associated with it.

[0026] It also is appreciated that for various embodiments the first and the second orifice plates, although spaced apart by the stagnation zone, are substantially parallel to one another rather than disposed angularly. By substantially parallel is meant that there is no more than about a 15 degree angle of inclination of one such plate toward or away from the other.

[0027] Embodiments of the present invention may be formed from materials such as plastics, such as by injection molding, and metals, such as by various methods of fabrication as known in the art, including but not limited to form rolling and stamping. With regard to plastics types, ABS, polypropylene, and polypropylene with talc as a filler, may be utilized, as well as any other type of thermoplastic known to those skilled in the art. Generally and as desired based on design criteria, weepage openings may be included on downwardly facing bottom portions or edges to permit any collected liquids to drain therethrough. Also, struts, ribs, and other supports, and tabs through which fastening means (nails, screws, rivets, etc.) may be used for affixing the barrier to the vent or roof, may be incorporated in various embodiments although not depicted explicitly in the figures.

EXAMPLE 1

[0028] One approach to fabrication and assembly is exemplified in FIGS. **3**A-C, **4**A-C, and **5**A. These are not meant to be limiting.

[0029] FIGS. **3**A-C provide, respectively, front, transverse section, and cross-sectional side views of one embodiment of a first orifice plate panel **300** of the present invention, for assembly with a second orifice plate panel **400** as depicted in FIGS. **4**A-C. Viewable in FIG. **3**A are a structural body **302** and six sections **304** of louvers **306** that extend transversely (i.e., from left to right) and extend above like-disposed passages **307** (see FIG. **3**C). The structural body **302** further is comprised of end sections **308**, transverse ribs **310** between adjacent louvers **306** of a respective section **304**, and vertically arranged structural major members **312** and lesser members **314** separating adjacent sections **304**. It

is noted that the end sections **308** at opposite left and right ends are molded offset to one another so as to provide a lap-type joining when a left side of one panel **300** is overlapped with a right side of a second panel **300**. Lower attachment members **316** disposed along bottom flange **317** provide openings **318** for insertion of screws, nails, or other attachment means (not shown) to secure the first orifice plate panel **300** to the roof and/or a plate of the roof vent (not shown). Along top flange **321** are provided openings **322** for insertion of screws, nails, or other attachment means (not shown) to secure the first orifice plate panel **300** to a front surface of the roof vent (not shown, see FIGS. **1**A and **1**C). The presence of such openings is not meant to be limiting, as the surfaces of the top flange **321** and the bottom flange **317** may be utilized for attachment, such as by driving a screw through such surfaces.

[**0030**] FIG. **3**B provides a transverse sectional downward view of the taken along the B-B plane of FIG. **3**A. This view illustrates seven spaced apart vertical ribs **330** (depicted as dashed lines in FIG. **3**A), four of which comprise enlarged areas **332**, comprising holes **334**. The holes **334** are sized to receive screws for assembly of the first orifice plate **300** with the second orifice plate **400**. More generally, this is not meant to be limiting as any of a variety of approaches to joining, or to juxtaposing, the first and second orifice plates may be utilized, so as to obtain a desired stagnation zone therebetween.

[**0031**] FIG. **3**C provides a cross-sectional view taken along the B-B line of FIG. **3**A. This view is essentially identical to that view of the corresponding component depicted in FIG. **2**.

[**0032**] FIGS. **4**A-C provide, respectively, front, top, and cross-sectional side views of one embodiment of a second orifice plate panel **400** of the present invention, for assembly with the first orifice plate panel **300** as depicted in FIGS. **3**A-C. The structural and functional components of the second orifice plate panel **400** have similarities to those of the first orifice plate panel **300** of FIGS. **3**A-**3**C. Viewable in FIG. **4**A are a structural body **402** and six sections **404** of louvers **406** that extend transversely (i.e., from left to right) and extend above like-disposed passages **407** (see FIG. **4**C). The structural body **402** further is comprised of end sections **408**, transverse ribs **410** between adjacent louvers **406** of a respective section **404**, and vertically arranged structural major members **412** and lesser members **414** separating adjacent sections **404**.

[**0033**] FIG. **4**B provides a top view of the second orifice plate panel **400** of FIG. **4**A. Viewable is an upper bridging member **425**, that extends across the top of the stagnation zone (not shown, see above) once assembled. Generally, the presence of an upper bridging member is not meant to be limiting as to all embodiments, as elements other than those disclosed in this example may be utilized to span the stagnation zone and separate the first and second orifice plates.

[**0034**] FIG. **4**C provides a cross-sectional view taken along the C-C line of FIG. **4**A. The upper bridging member **425** is sized to abut the first orifice plate (not shown in FIG. **4**A) at a point above the joining of the topmost louver of the first orifice plate with its flattened structural body (not shown in FIG. **4**A, see FIGS. **1**A and **2**). This view is essentially identical to that view of the corresponding component depicted in FIG. **2**.

[**0035**] The first orifice plate panel **300** and the second orifice plate panel **400** of Example **1** fit together to form a unit **500** of a ventilating moisture barrier of the present invention. A cross-section of one such unit **500** is shown in FIG. **5**A. Also apparent in FIG. **5**A are the upper flange **502** and the lower flange **504**, respectively above and below the areas of louvers and passages.

[**0036**] Two such units **500** are shown side-by-side in FIG. **5**B. It is noted that an aperture of a standard off-ridge roof vent has a width of about 46.5 inches, so that such two panels **500** may each have a width of about 23.3 inches and thereby be appropriately sized to cover one such standard off-ridge vent exterior aperture (not shown in FIG. **5**B). When placing or joining two such units is such side-by-side arrangement, the two units may be joined together, such as by a lap-type junction provided by the offset nature of the end sections **308** of first orifice plate panels **300** (see FIG. **3**A). Alternatively, embodiments of the present invention may be joined together by a butt junction, or by other joining designs known to those skilled in the art.

[**0037**] Table 1 summarizes dimensions of the combined, side-by-side use of two units **500** to cover an aperture of a standard off-ridge roof vent having a width of about 46.5 inches. These dimensions are meant to be illustrative but not limiting.

TABLE 1

Distance a	46.3 inches
Distance b	23.3 inches
Distance c	4.925 inches
Distance d	4.419 inches
Angle e	45 degrees

[**0038**] Although the aperture of most off-ridge roof vents has a width of about 46.5 inches, such width is not meant to be limiting. Accordingly, it is appreciated that a unit of a ventilating moisture barrier of the present invention may be made to have a particular width that is a fraction of a desired aperture width. Then a desired number of such units may be used to cover any of a number of roof vents having widths that are multiples of such particular width.

[**0039**] Also, it is appreciated that various other forms of construction, including fabricating an integral structure comprising the first exterior and the second interior orifice plates, may be done and would be within the scope of the present invention.

[**0040**] It is appreciated that the angling of the louvers need not be as shown in FIG. **1**A and other figures above. For example, not to be limiting, the angling could be reversed, so that louvers of the first orifice plate angle inward from the exterior to the interior. However, although such orientation may promote downward movement and loss of water from the air current, this orientation also could lead to greater accumulation of debris, such as tree leaves and the like, within the ventilating moisture barrier. (It is noted that such may be prevented, at least to some extent, by providing a screen cover, which may, however, require greater maintenance that the embodiment depicted in FIG. **1**A.)

[**0041**] While the above embodiments and disclosure are directed to a protective moisture barrier for an off-ridge roof vent, it is appreciated that the present invention also may be

utilized for other types of roof vents. For example, not to be limiting, the present invention may be employed to cover the outer apertures of ridge roof vents.

[0042] In summary, through disclosure of the aspects of embodiments of the present invention, it is apparent that the present invention provides for high levels of ventilating airflow during normal conditions of operation of a roof vent, so as to not impair ventilation efficiency. Additionally, the present invention provides for reduction of passage of wind-driven rainwater during high wind conditions such as are associated with tropical storms and hurricanes. Consequently, the present invention advances the art of ventilating moisture barrier protective covering devices for roof vents, particularly for off-ridge roof vents.

[0043] Embodiments of the present invention may be in any of the following forms: a ventilating moisture barrier, as a single unit or two or more units that together cover an exterior aperture of an existing roof vent; and a roof vent in combination with a ventilating moisture barrier, whether these are integrally formed, pre-assembled, or assembled during the installation process of the vent. Kits may also be provided comprising the components of an embodiment of a ventilating moisture barrier of the present invention, and also including screws or the like for assembly and installation, and instructions for assembly and installation. Additional components may be supplied to provide for installation on a variety of roof vent openings. More generally, assembly of an embodiment of a ventilating moisture barrier, or installation of the same to cover a roof vent exterior aperture, may be done using any means for attachment known to those skilled in the art, which may include: thermoplastic welding; sonic welding; welding; gluing or other adhesion by an adhesive, such as but not limited to caulk; screws; nails; rivets; staples; magnets; hooks; clamps; lugs; pins; or other mechanical linking or couplings, any type of fastener, any type of connector, or any other suitable conventional attachment mechanism, system or device. Surfaces of the embodiments of the present invention may provide for, or may comprise, holes or slots, that provide for attachment by such means for attachment.

[0044] All patents, patent applications, patent publications, and other publications referenced herein are hereby incorporated by reference in this application in order to more fully describe the state of the art to which the present invention pertains, to provide such teachings as are generally known to those skilled in the art, and, with regard to standard features and/or components common to embodiments of those references and the present disclosure, to provide teachings specific to embodiments of the present invention that utilize combinations of features that include one or more such features and/or such components described in the referenced patent applications.

[0045] While certain embodiments of the present invention have been shown and described herein in the present context, such embodiments are provided by way of example only, and not of limitation. Numerous variations, changes and substitutions will occur to those skilled in the art without departing from the invention herein. For example, the present invention need not be limited to best mode disclosed herein, since other applications can equally benefit from the teachings of the present invention. Accordingly, it is intended that the invention be limited only by the spirit and scope of the appended claims.

What is claimed is:

1. A ventilating moisture barrier for covering a roof vent exterior aperture, the roof vent exterior aperture having a height and a width defined respectively by distances between a front lip and a bottom delineation, and a left side transversely spaced from a right side, the ventilating moisture barrier comprising:

a. a first, exterior orifice plate comprising a first number of exterior louvers extending transversely, and a plurality of exterior passages formed through the first orifice plate;

b. a second, interior orifice plate comprising a second number of interior louvers extending transversely, and a plurality of interior passages formed through the second orifice plate; and

c. a stagnation zone disposed and establishing a distance between the first orifice plate and the second orifice plate, the distance effective to reduce passage of wind-driven water droplets through the interior passages;

wherein the first number is greater than the second number, and wherein at least one of the exterior louvers is aligned laterally with one of the interior louvers.

2. The ventilating moisture barrier of claim 1, additionally comprising a top flange and a bottom flange providing respective surface or holes for means for attachment, respectively, to the top lip and a portion of roof below the bottom delineation.

3. The ventilating moisture barrier of claim 1, wherein at least half of the exterior louvers is aligned laterally with the interior louvers.

4. The ventilating moisture barrier of claim 2, the interior louvers having a lateral depth measured between a first end and a second end, wherein the stagnation zone distance is at least the lateral width.

5. The ventilating moisture barrier of claim 4, wherein the stagnation zone distance is at least 1.50 times the lateral width.

6. The ventilating moisture barrier of claim 1, the interior passages providing a first total open area greater than a second total open area of the exterior passages.

7. The ventilating moisture barrier of claim 2, wherein the first number is seven and the second number is six.

8. A ventilating moisture barrier comprising

a. a first orifice plate comprising a first number of interior louvers extending transversely, and a plurality of passages formed through the first orifice plate;

b. a second orifice plate comprising a second number of exterior louvers extending transversely, the exterior louvers having a depth from a first end to a second end, and a plurality of passages formed through the second orifice plate; and

c. a stagnation zone between the first orifice plate and the second orifice plate, establishing a distance effective to reduce passage of wind-driven water droplets through the second orifice passages;

wherein the first number is greater than the second number, and wherein the first orifice plate and the second orifice plate are positioned substantially parallel.

9. The ventilating moisture barrier of claim 8, additionally comprising a top flange and a bottom flange providing respective surface or holes for means for attachment.

10. The ventilating moisture barrier of claim 8, wherein at least half of the exterior louvers is aligned laterally with the interior louvers.

11. The ventilating moisture barrier of claim 8, the interior louvers having a lateral depth measured between a first end and a second end, wherein the stagnation zone distance is at least the lateral width.

12. The ventilating moisture barrier of claim 11, wherein the stagnation zone distance is at least 1.50 times the lateral width.

13. The ventilating moisture barrier of claim 11, the plurality of passages formed through the second orifice plate providing a first total open area greater than a second total open area of the plurality of passages formed through the first orifice plate.

14. The ventilating moisture barrier of claim 11, wherein the first number is seven and the second number is six.

15. A roof vent comprising a bottom plate, a top surface, and side panels, and an exterior aperture having a height and a width defined respectively by distances between a front lip and a bottom delineation, and a left side transversely spaced from a right side, and a ventilating moisture barrier covering the exterior aperture, the ventilating moisture barrier comprising:

a. a first orifice plate comprising a first number of exterior louvers extending transversely, and a plurality of passages formed through the first orifice plate;

b. a second orifice plate comprising a second number of interior louvers extending transversely, the interior louvers having a depth from a first end to a second end, and a plurality of passages formed through the second orifice plate; and

c. a stagnation zone between the first orifice plate and the second orifice plate, establishing a distance effective to reduce passage of wind-driven water droplets through the second orifice passages; and

wherein the first number is greater than the second number, and wherein the first orifice plate and the second orifice plate are positioned substantially parallel.

16. The roof vent of claim 15, wherein at least half of the exterior louvers is aligned laterally with the interior louvers.

17. The roof vent of claim 15, the ventilating moisture barrier additionally comprising a top flange and a bottom flange providing respective surface or holes for means for attachment to, respectively, the front lip and a portion of bottom plate along the bottom delineation.

18. The roof vent of claim 15, the interior louvers having a lateral depth measured between a first end and a second end, wherein the stagnation zone distance is at least the lateral width.

19. The roof vent of claim 15, the plurality of passages formed through the second orifice plate providing a first total open area greater than a second total open area of the plurality of passages formed through the first orifice plate.

20. The roof vent of claim 15, wherein the first number is seven and the second number is six.

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