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Fontaine et al.

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(54) **DOOR FRAME AND THRESHOLD ASSEMBLY**

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CPC ***E06B 7/14*** (2013.01); ***E06B 1/70*** (2013.01); ***E06B 7/22*** (2013.01)

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USPC 49/471
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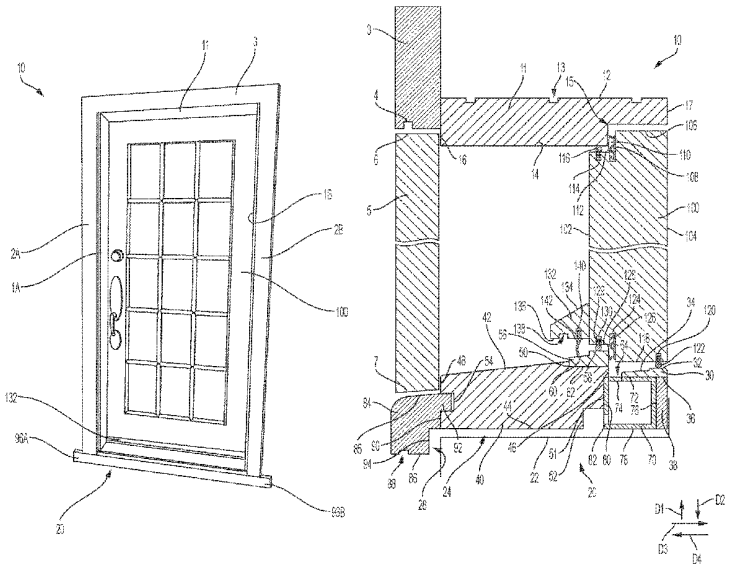
(57) **ABSTRACT**

A door frame and threshold assembly, comprising a reservoir tube, including a first top surface comprising at least one inlet weep hole, a first rear surface, a first bottom surface, and a first front surface comprising at least one outlet weep hole, an interior sill portion, including a second top surface, a third top angled elevationally downward in a first direction, an exterior sill portion, including a fourth top surface angled elevationally downward in the first direction, a second rear surface engaged with the reservoir tube and spaced apart from the interior sill portion, and a third bottom surface, and a sill pan operatively arranged under and spaced apart from at least one of the first bottom surface and the third bottom surface, wherein the sill pan forms a conduit in fluid communication with the outlet weep hole.

19 Claims, 5 Drawing Sheets



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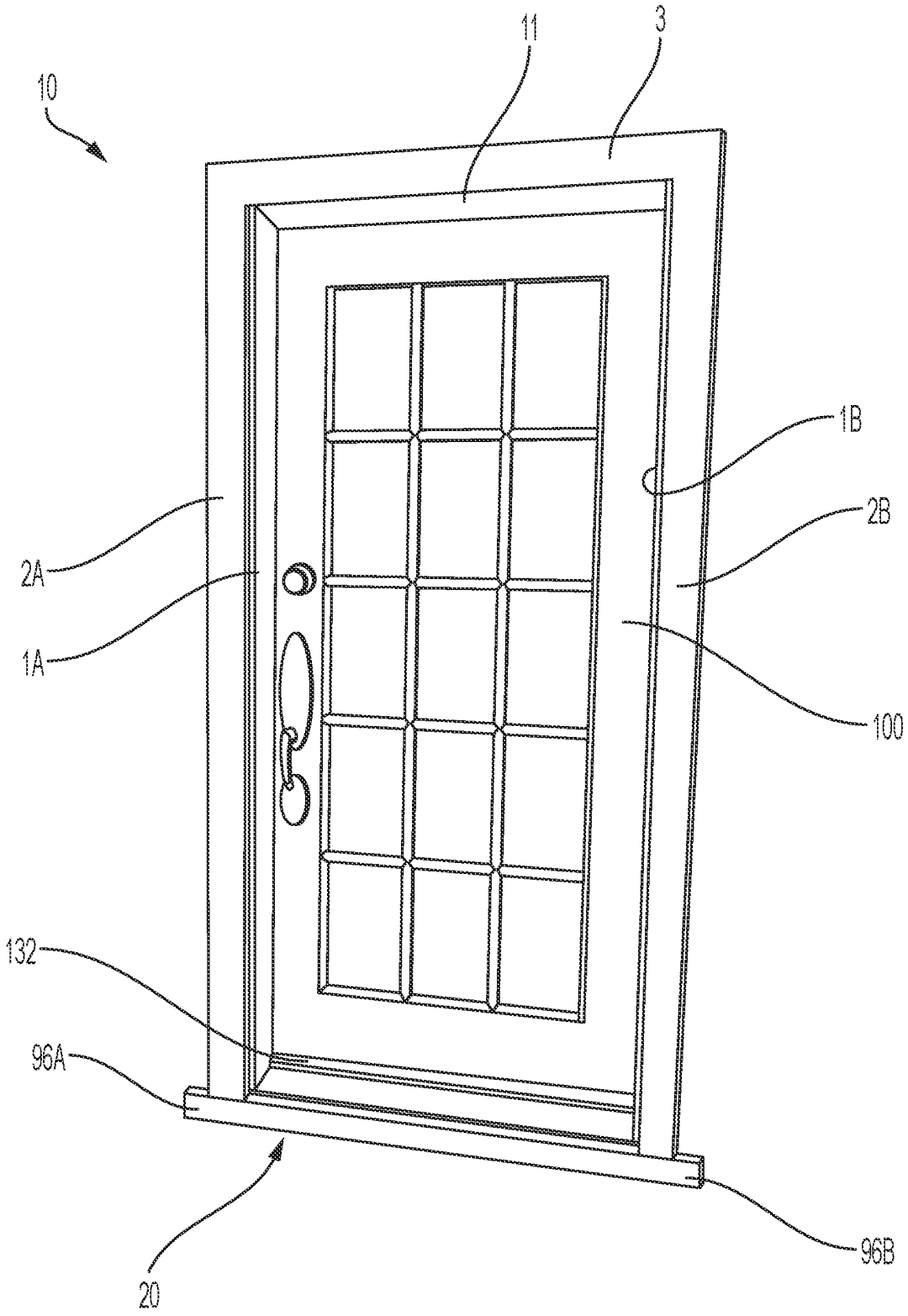

FIG. 1

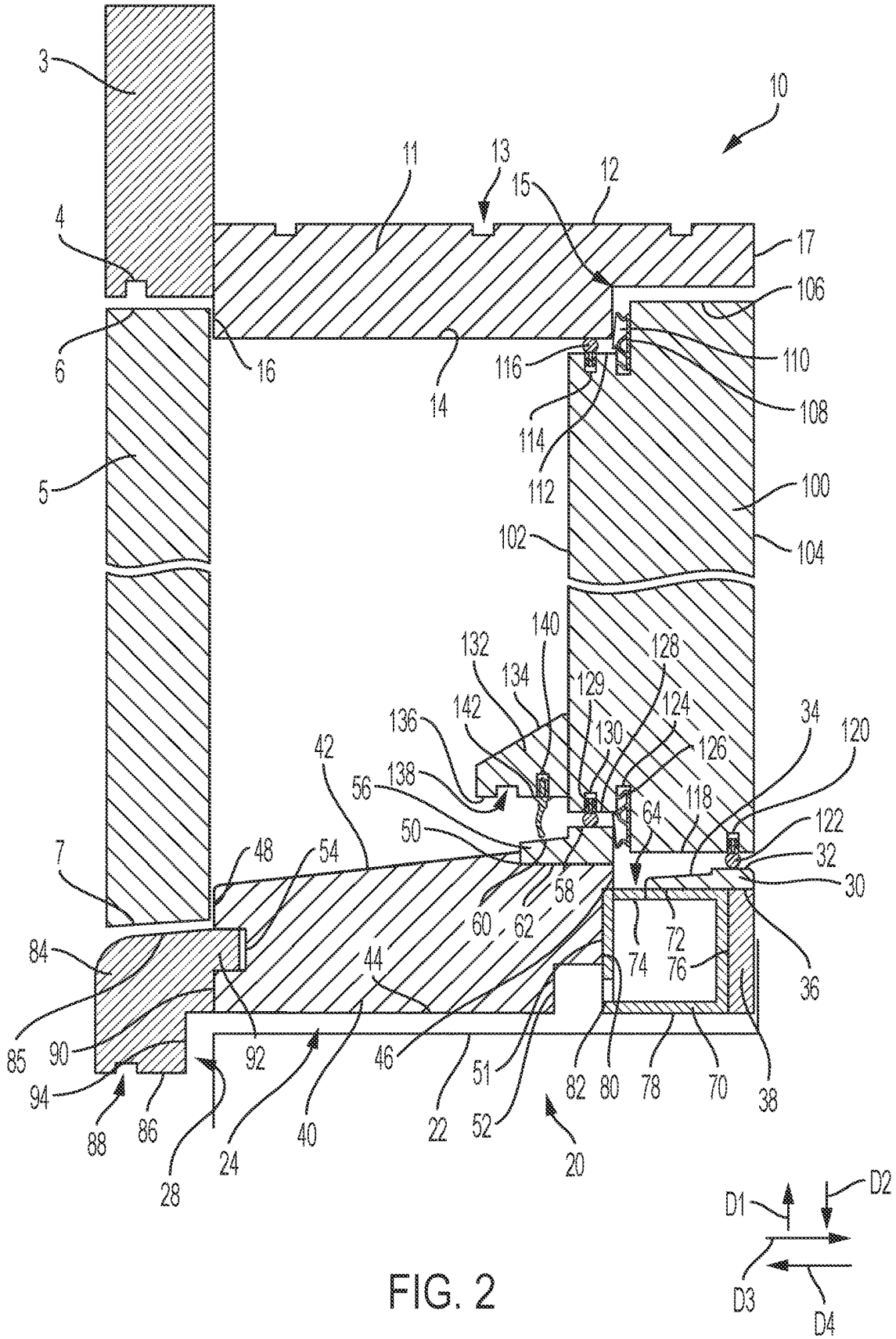
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FIG. 2

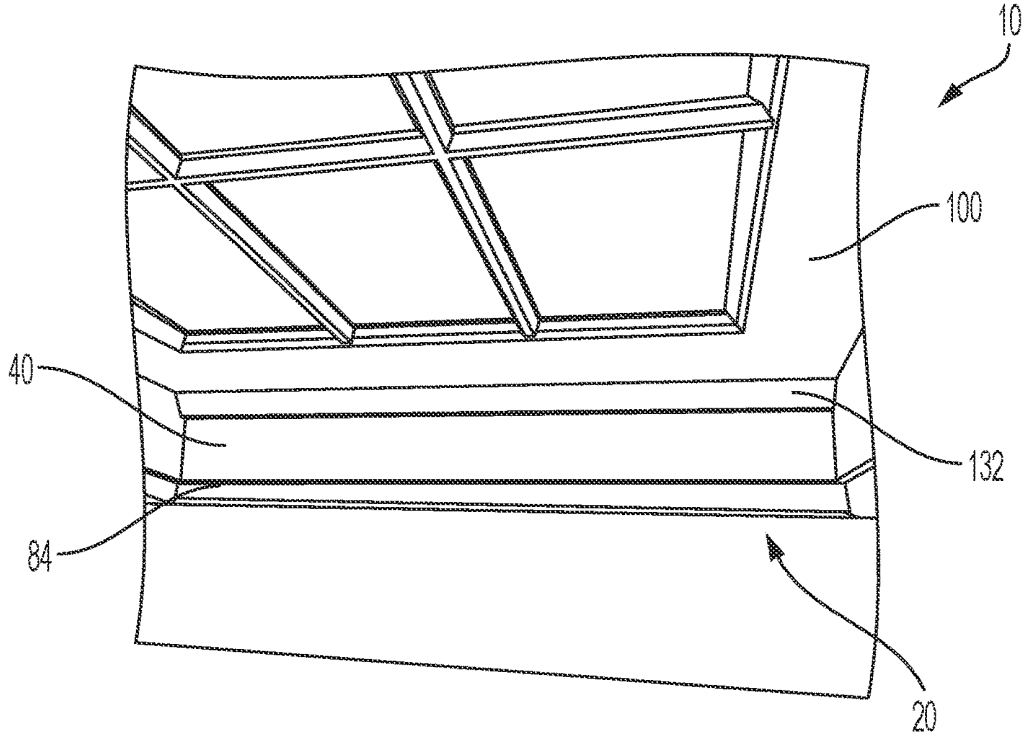


FIG. 3

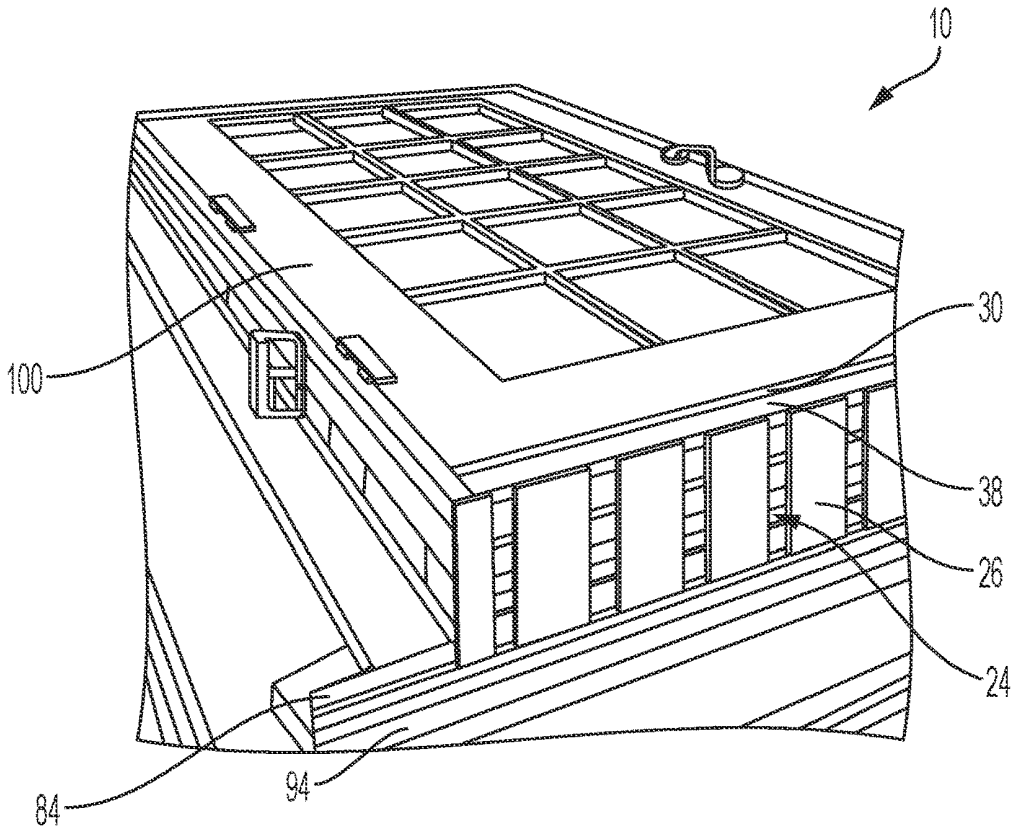
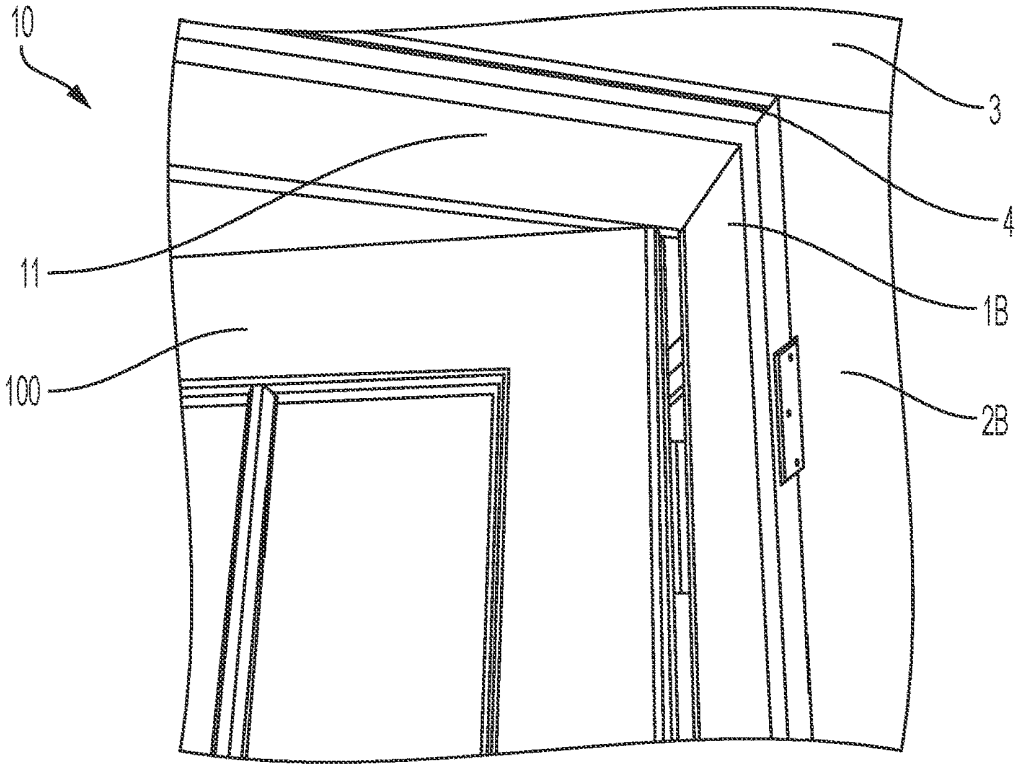


FIG. 4



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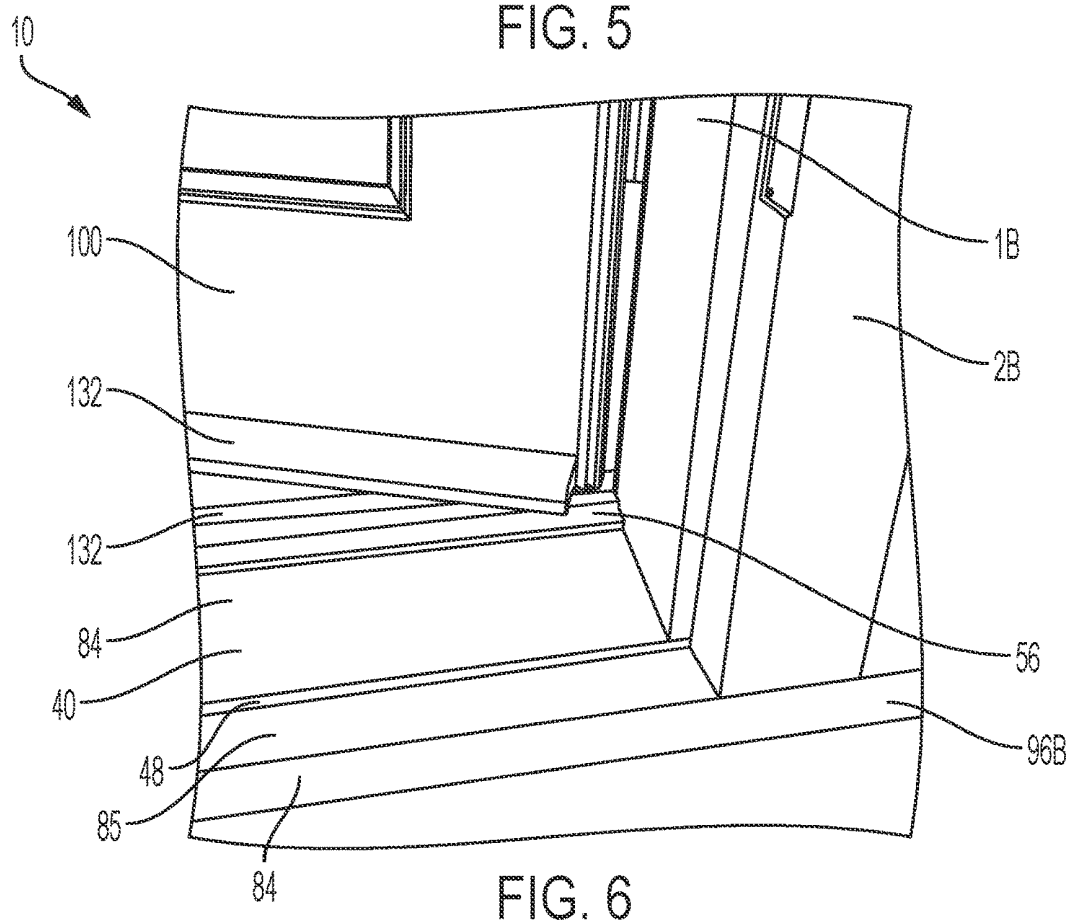

FIG. 6

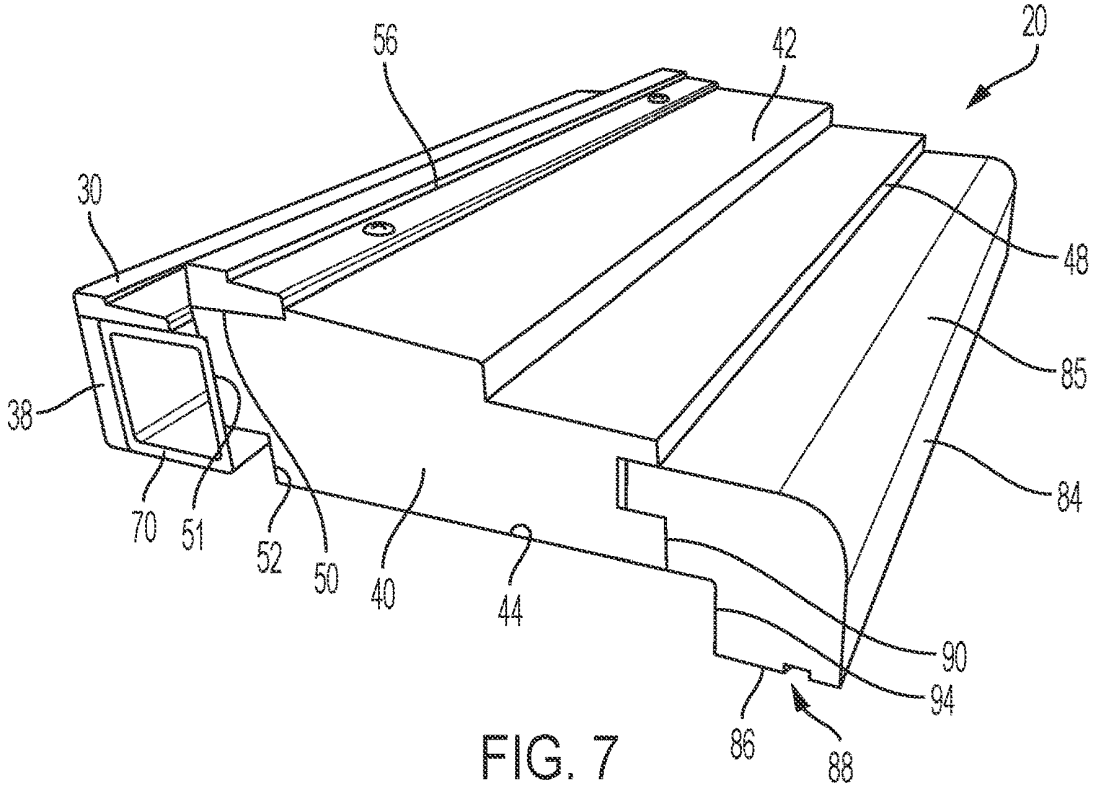
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FIG. 7

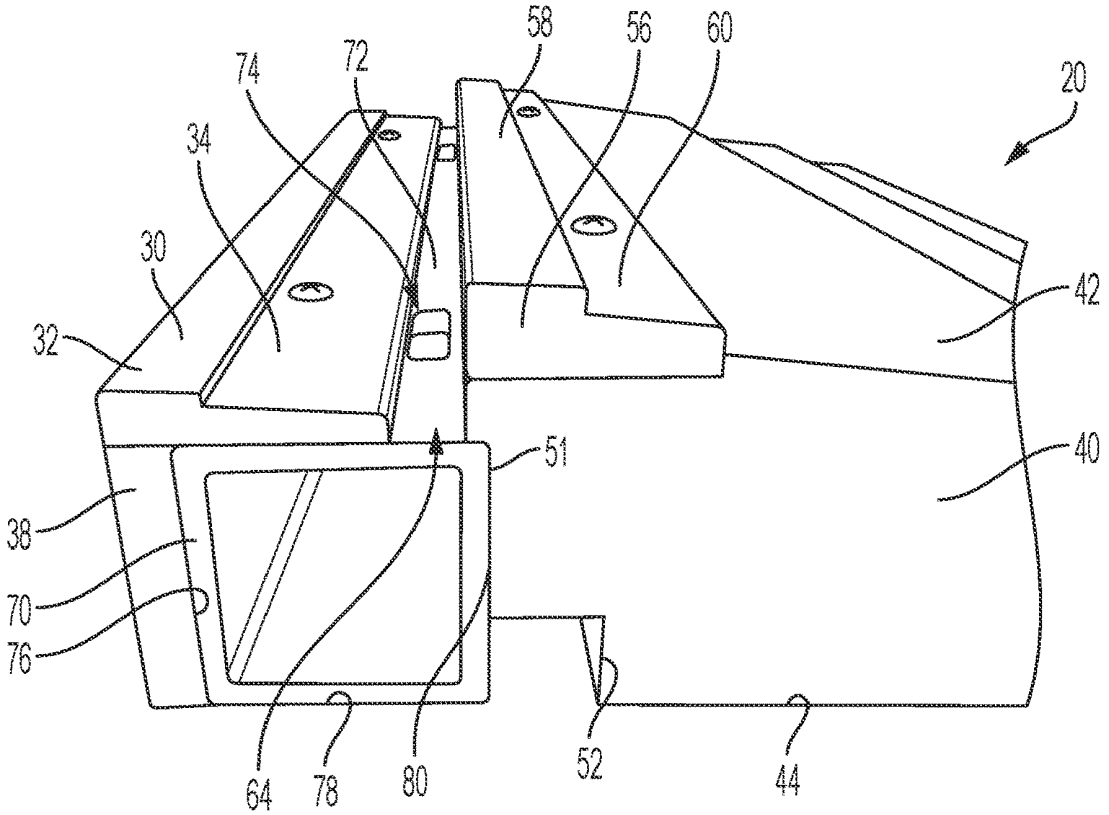
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FIG. 8

DOOR FRAME AND THRESHOLD ASSEMBLY

FIELD

The present disclosure relates to door and door frames, and more particularly, to a door frame and threshold assembly that prevents the ingress of weather elements and drains water away from an enclosure.

BACKGROUND

A door is a hinged or otherwise movable barrier that allows ingress into and egress from an enclosure (i.e., house, vehicle, etc.). The created opening in the wall is a doorway or portal. A door's essential and primary purpose is to provide security by controlling access to the doorway. Conventionally, a door is a panel that fits into the portal of a building, room, or vehicle. Doors are generally made of a material suited to the door's task. Doors are commonly attached by hinges, but can move by other means, such as slides or counterbalancing. The door may be moved in various ways (at angles away from the portal, by sliding on a plane parallel to the frame, by folding in angles on a parallel plane, or by spinning along an axis at the center of the frame) to allow or prevent ingress or egress. In most cases, a door's interior matches its exterior side. But in other cases (e.g., a vehicle door) the two sides are radically different.

Since, unlike a fixed wall, a door opens and closes, it is susceptible to penetration by the various elements of weather, such as wind, rain, snow, etc., as well as insects, leaves, dust, etc. As such, it is important that a door provide a sufficient barrier for weather. A door interacts with a door frame and threshold to combat penetration of various elements. However, current door frame and threshold assembly designs lack the ability to resist water penetration, thus allowing water into the enclosure. Also, current door frame and threshold assembly designs also lack the ability to efficiently collect and drain water, which aids in defending against weather element penetration.

Thus, there is a long felt need for a door frame and threshold assembly that prevents the ingress of weather elements and efficiently collects and drains water away from the enclosure.

SUMMARY

According to aspects illustrated herein, there is provided a door frame and threshold assembly, comprising a reservoir tube, including a first top surface comprising at least one inlet weep hole, a first rear surface, a first bottom surface, and a first front surface comprising at least one outlet weep hole, an interior sill portion, including a second top surface, a third top surface arranged adjacent and elevationally below the second top surface, the third top surface angled elevationally downward in a first direction, and a second bottom surface arranged on the first top surface, an exterior sill portion, including a fourth top surface angled elevationally downward in the first direction, a second rear surface engaged with the reservoir tube and spaced apart from the interior sill portion, a third bottom surface, and a second front surface, and a sill pan operatively arranged under and spaced apart from at least one of the first bottom surface and the third bottom surface, wherein the sill pan forms a conduit in fluid communication with the outlet weep hole.

In some embodiments, the door frame and threshold assembly further comprises an L-shaped nose, including a fifth top surface, a third rear surface connected to the second front surface, and a fourth bottom surface including a drip kerf, wherein the fourth bottom surface is arranged elevationally below the conduit. In some embodiments, the fifth top surface is curvilinear. In some embodiments, the third rear surface comprises a notch extending therefrom in the first direction, wherein the notch and the sill pan form an outlet to the conduit, the outlet directed in a second direction, the second direction being perpendicular to the first direction. In some embodiments, the fifth top surface is arranged elevationally below the fourth top surface. In some embodiments, the second rear surface comprises a notch extending therefrom in the first direction, the notch abutting against both the first top surface and the first front surface. In some embodiments, the third bottom surface comprises a notch extending therefrom in a second direction, the second direction being perpendicular to the first direction, and the notch is in fluid communication with the at least one outlet weep hole. In some embodiments, the door frame and threshold assembly further comprises a door stop connected to the fourth top surface, the door stop including a fifth top surface, and a sixth top surface arranged adjacent and elevationally below the fifth top surface, the sixth top surface angled elevationally downward in the first direction.

In some embodiments, the door frame and threshold assembly further comprises a door, the door including a seventh top surface, a third rear surface, a fourth bottom surface including a first channel including a first weather stripping, the first weather stripping operatively arranged to sealingly engage the door stop, and a third front surface. In some embodiments, the fourth bottom surface further comprises a second channel including a second weather stripping, the second weather stripping operatively arranged to sealingly engage the second top surface. In some embodiments, the door frame and threshold assembly further comprises a drip cap connected to the third front surface, the drip cap including a fourth top surface extending elevationally downward in the first direction, and a fourth bottom surface including a drip kerf and a second channel including a weather sweep, the weather sweep operatively arranged to sealingly engage the door stop. In some embodiments, the door frame and threshold assembly further comprises a head jamb, wherein the seventh top surface comprises a second channel including a second weather stripping and a third channel including a third weather stripping, and the second weather stripping and the third weather stripping are operatively arranged to sealingly engage the head jamb. In some embodiments, the door frame and threshold assembly further comprises a head casing connected to the head jamb and including a drip kerf.

According to aspects illustrated herein, there is provided a door frame and threshold assembly, comprising a reservoir tube, including a first top surface comprising at least one inlet weep hole, a first rear surface, a first bottom surface, and a first front surface comprising at least one outlet weep hole, an interior sill portion, including a second top surface, a third top surface arranged adjacent and elevationally below the second top surface, the third top surface angled elevationally downward in a first direction, and a second bottom surface arranged on the first top surface, an exterior sill portion, including a fourth top surface angled elevationally downward in the first direction, a second rear surface engaged with the reservoir tube and spaced apart from the interior sill portion, a third bottom surface, and a second front surface, a sill pan operatively arranged under and

spaced apart from at least one of the first bottom surface and the third bottom surface, wherein the sill pan forms a conduit in fluid communication with the outlet weep hole, a door stop connected to the fourth top surface, the door stop including a fifth top surface, and a sixth top surface arranged adjacent and elevationally below the fifth top surface, the sixth top surface angled elevationally downward in the first direction, and a door, the door including a seventh top surface, a third rear surface, a fourth bottom surface including a first weather stripping, the first weather stripping operatively arranged to sealingly engage the door stop, and a third front surface.

In some embodiments, the fourth bottom surface further comprises a second weather stripping operatively arranged to sealingly engage the second top surface, and a third weather stripping operatively arranged to engage the fifth top surface, wherein the first weather stripping is arranged between the second weather stripping and the third weather stripping. In some embodiments, the door frame and threshold assembly further comprises an L-shaped nose, including an eighth top surface, the eight top surface being curvilinear and arranged elevationally below the fourth top surface, a fourth rear surface connected to the second front surface, and a fifth bottom surface including a drip kerf, wherein the fourth bottom surface is arranged elevationally below the conduit. In some embodiments, the third rear surface comprises a notch extending therefrom in the first direction, wherein the notch and the sill pan form an outlet to the conduit, the outlet directed in a second direction, the second direction being perpendicular to the first direction. In some embodiments, the door frame and threshold assembly further comprises a drip cap connected to the third front surface, the drip cap including an eighth top surface extending elevationally downward in the first direction, a fifth bottom surface including a drip kerf and a weather sweep, the weather sweep operatively arranged to sealingly engage the sixth top surface. In some embodiments, the door frame and threshold assembly further comprises a head jamb, wherein the seventh top surface comprises a second weather stripping and a third weather stripping, the second weather stripping and the third weather stripping are operatively arranged to sealingly engage the head jamb, and the head jamb comprises a drip kerf. In some embodiments, the door frame and threshold assembly further comprises a screen or storm door spaced apart operatively arranged to engage the head jamb and the second front surface, the screen or storm door including an eighth top surface angled elevationally downward in the first direction, and operatively arranged to be vertically aligned with the drip kerf.

According to aspects illustrated herein, there is provided a door threshold assembly comprising an interior sill portion, an exterior sill portion, the interior sill portion and the exterior sill portion separated by a first distance, and a reservoir channel arranged between the interior sill portion and the exterior sill portion, the reservoir channel comprising at least one entrance aperture in fluid communication with the interior sill portion and at least one exit aperture.

In some embodiments, the door threshold assembly further comprises a sill pan, wherein the exterior sill portion is shimmed a second distance from the sill pan forming a duct. In some embodiments, the at least one exit aperture is in fluid communication with the duct. In some embodiments, the door threshold assembly further comprises a nose engaged with the exterior sill portion, the nose extending elevationally below the sill pan.

According to aspects illustrated herein, there is provided a wood door sill/threshold including a fiberglass channel with drainage holes and a 3/16" shim that allows liquid to escape from under the nose of the sill.

These and other objects, features, and advantages of the present disclosure will become readily apparent upon a review of the following detailed description of the disclosure, in view of the drawings and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Various embodiments are disclosed, by way of example only, with reference to the accompanying schematic drawings in which corresponding reference symbols indicate corresponding parts, in which:

FIG. **1** is a perspective view of a door frame and threshold assembly;

FIG. **2** is a partial cross-sectional schematic view of the door frame and threshold assembly shown in FIG. **1**;

FIG. **3** is a top partial perspective view of the door frame and threshold assembly shown in FIG. **1**;

FIG. **4** is a bottom partial perspective view of the door frame and threshold assembly shown in FIG. **1**;

FIG. **5** is a partial perspective view of the door frame and threshold assembly shown in FIG. **1**;

FIG. **6** is a partial perspective view of the door frame and threshold assembly shown in FIG. **1**;

FIG. **7** is a perspective view of the door threshold assembly as shown in FIG. **1**; and,

FIG. **8** is a partial perspective view of the door threshold assembly shown in FIG. **7**.

DETAILED DESCRIPTION

At the outset, it should be appreciated that like drawing numbers on different drawing views identify identical, or functionally similar, structural elements. It is to be understood that the claims are not limited to the disclosed aspects.

Furthermore, it is understood that this disclosure is not limited to the particular methodology, materials and modifications described and as such may, of course, vary. It is also understood that the terminology used herein is for the purpose of describing particular aspects only, and is not intended to limit the scope of the claims.

Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood to one of ordinary skill in the art to which this disclosure pertains. It should be understood that any methods, devices or materials similar or equivalent to those described herein can be used in the practice or testing of the example embodiments. The assembly of the present disclosure could be driven by hydraulics, electronics, pneumatics, and/or springs.

It should be appreciated that the term "substantially" is synonymous with terms such as "nearly," "very nearly," "about," "approximately," "around," "bordering on," "close to," "essentially," "in the neighborhood of," "in the vicinity of," etc., and such terms may be used interchangeably as appearing in the specification and claims. It should be appreciated that the term "proximate" is synonymous with terms such as "nearby," "close," "adjacent," "neighboring," "immediate," "adjoining," etc., and such terms may be used interchangeably as appearing in the specification and claims. The term "approximately" is intended to mean values within ten percent of the specified value.

It should be understood that use of "or" in the present application is with respect to a "non-exclusive" arrangement, unless stated otherwise. For example, when saying that "item x is A or B," it is understood that this can mean

one of the following: (1) item x is only one or the other of A and B; (2) item x is both A and B. Alternately stated, the word "or" is not used to define an "exclusive or" arrangement. For example, an "exclusive or" arrangement for the statement "item x is A or B" would require that x can be only one of A and B. Furthermore, as used herein, "and/or" is intended to mean a grammatical conjunction used to indicate that one or more of the elements or conditions recited may be included or occur. For example, a device comprising a first element, a second element and/or a third element, is intended to be construed as any one of the following structural arrangements: a device comprising a first element; a device comprising a second element; a device comprising a third element; a device comprising a first element and a second element; a device comprising a first element and a third element; a device comprising a first element, a second element and a third element; or, a device comprising a second element and a third element.

Moreover, as used herein, the phrases "comprises at least one of" and "comprising at least one of" in combination with a system or element is intended to mean that the system or element includes one or more of the elements listed after the phrase. For example, a device comprising at least one of: a first element; a second element; and, a third element, is intended to be construed as any one of the following structural arrangements: a device comprising a first element; a device comprising a second element; a device comprising a third element; a device comprising a first element and a second element; a device comprising a first element and a third element; a device comprising a first element, a second element and a third element; or, a device comprising a second element and a third element. A similar interpretation is intended when the phrase "used in at least one of:" is used herein. Furthermore, as used herein, "and/or" is intended to mean a grammatical conjunction used to indicate that one or more of the elements or conditions recited may be included or occur. For example, a device comprising a first element, a second element and/or a third element, is intended to be construed as any one of the following structural arrangements: a device comprising a first element; a device comprising a second element; a device comprising a third element; a device comprising a first element and a second element; a device comprising a first element and a third element; a device comprising a first element, a second element and a third element; or, a device comprising a second element and a third element.

By "rear" it is meant that such element faces toward the interior of the enclosure. By "front" it is meant that such element faces toward the exterior of the enclosure. By "top" it is meant that the element faces up toward the sky. By "bottom" it is meant that the element faces down toward the ground.

Adverting now to the figures, FIG. **1** is a perspective view of door frame and threshold assembly **10**. Door frame and threshold assembly **10** generally comprises jamb **1**A, jamb **1**B, head casing **3**, head jamb **11**, door threshold assembly **20**, and door **100**. Door frame and threshold assembly **10** may further comprise casing **2**A associated with jamb **1**A and casing **2**B associated with jamb **1**B. Door **100** is hingedly connected, on one side, to one of side jambs **1**A and **1**B. Door **100** may include any necessary hardware, for example, a handle, deadbolt, locks, etc. Door **100** may or may not include windows. In some embodiments, and as shown, door threshold assembly **20** comprises horns **96**A-B which extend laterally beyond casing **2**A and casing **2**B, respectively.

FIG. **2** is a partial cross-sectional schematic view of door frame and threshold assembly **10**. FIG. **3** is a top partial perspective view of door frame and threshold assembly **10**. FIG. **4** is a bottom partial perspective view of door frame and threshold assembly **10**. FIG. **5** is a partial perspective view of door frame and threshold assembly **10**. FIG. **6** is a partial perspective view of door frame and threshold assembly **10**. FIG. **7** is a perspective view of door threshold assembly **20**. FIG. **8** is a partial perspective view of door threshold assembly **20**. The following description should be read in view of FIGS. **1-8**.

Door threshold assembly **20** generally comprises sill pan **22**, interior sill portion **30**, exterior sill portion **40**, door stop **56**, tube or channel **70**, and nose **84**. Sill pan **22** is arranged under at least exterior sill portion **40**. More specifically, exterior sill portion **40**, tube **70**, and vertical member **38** are arranged on top of sill pan **22**. Sill pan **22** is operatively arranged to catch water from tube **70** and drain it away from door **100**, in direction D**4**. To achieve this object, one or more shims **26** are arranged between sill pan **22** and exterior sill portion **40** (see FIG. **4**). Shims **26** form shim space such that bottom surface **44** and bottom surface **78** are separated from sill pan **22** by shim space or conduit **24**. Shim space **24** provides the conduit for the flow of water. In some embodiments, sill pan **22** comprises a vertical member that, along with notch **94** of nose **84**, forms space or exit **28**. In some embodiments, space **28** is perpendicular to shim space **24**. In some embodiments, sill pan **22** is angled elevationally downward in direction D**4** to promote fluid flow toward space **28**. In some embodiments, sill pan **22** comprises a vertical member that extends along vertical member **38** in direction D**1**. Such vertical member is operatively arranged to catch fluid that falls from surface **32** of interior sill portion **30** in direction D**3**.

Tube **70** is arranged on sill pan **22**, specifically, on shims **26**. In some embodiments, tube **70** comprises a square cross-section including top surface **72**, rear surface **76**, bottom surface **78**, and front surface **80**. In some embodiments, tube **70** comprises fiberglass. Top surface **72** comprises weep hole **74**. Weep hole **74** is arranged off center and proximate front surface **80**. Front surface **80** comprises week hole **82**. Weep hole **82** is arranged off center and proximate bottom surface **78**. In some embodiments, door threshold assembly **20** further comprises vertical member **38** arranged on shims **26** adjacent to rear surface **76**. In some embodiments, vertical member **38** abuts against rear surface **76**. The height of tube **70** is equal to the height of vertical member **38**.

Interior sill portion **30** is arranged on tube **70**. Interior sill portion **30** comprises a stepped top surface, for example, top surface **32** and top surface **34**, and bottom surface **36**. In some embodiments, bottom surface **36** completely covers vertical member **38** and only partially covers top surface **72**. In some embodiments, top surface **32** is parallel to bottom surface **36**. In some embodiments, top surface **34** is arranged elevationally below top surface **32** and is non-parallel to bottom surface **36**. For example, top surface **34** is angled elevationally downward in direction D**4**. The design of interior sill portion **30** facilitates the drainage of fluid collected on top surfaces **32** and **34** down through weep hole **74** in direction D**2**. Fluid that flows through weep hole **74** then flows out of tube **70** in direction D**4** via weep hole **82** and down onto sill pan **22** in direction D**2**. The fluid then drains through shim space **24** in direction D**4** and out of door threshold assembly in direction D**2** via exit **28**.

Exterior sill portion **40** is arranged on sill pan **22**, specifically, on shims **26**. Exterior sill portion **40** comprises top

surface **42**, bottom surface **44**, rear surface **46**, and front surface **48**. Top surface **42** is non-parallel to bottom surface **44**. For example, top surface **42** is angled elevationally downward in direction D**4**. This allows fluid that collects on exterior sill portion **40** to drain away from door **100**. Top surface **42** comprises notch **50** which extends in direction D**2** therefrom. Rear surface **46** comprises notch **51** that extends in direction D**4** therefrom. Notch **51** engages top surface **72** and front surface **80** of tube **70**. Space **64** is formed on surface **72** between rear surface **46** of exterior sill portion **40** and interior sill portion **30**. Weep hole **74** is arranged in space **64**. Bottom surface **44** comprises notch **52** that extends in direction D**1** therefrom. Notch **52** is operatively arranged to allow the flow of fluid from weep hole **82** to sill pan **22**. Front surface **48** comprises groove **54** which extends in direction D**3** therefrom. Groove **54** is operatively arranged to engage protrusion **92** of nose **84**, as will be described in greater detail below. In some embodiments, and as shown in FIGS. **7-8**, top surface **42** may be a stepped surface comprising two or more steps.

Door stop **56** is engaged in notch **50** of exterior sill portion **40**. Door stop **56** is operatively arranged to engage door **100** to prevent it from displacing toward the exterior (i.e., in direction D**4**). Door stop **56** comprises a stepped top surface, for example top surface **58** and top surface **60**, and bottom surface **62**. In some embodiments, top surface **58** is parallel to bottom surface **62**. In some embodiments, top surface **60** is arranged elevationally below top surface **58** and is non-parallel to bottom surface **62**. For example, top surface **60** is angled elevationally downward in direction D**4**. The design of door stop **56** facilitates the drainage of fluid collected on top surfaces **58** and **60** down to top surface **42** of exterior sill portion **40** in direction D**4**. Top surface **60** is arranged elevationally above top surface **42**. In some embodiments, door stop **56** and exterior sill portion **40** are integrally formed.

Nose **84** is a curved, L-shaped component connected to exterior sill portion **40**. Nose **84** comprises top surface **85**, bottom surface **86**, and rear surface **90**. Top surface **85** is angled elevationally downward in direction D**4**. In some embodiments, top surface **85** is also curvilinear and has a front portion that extends downward in direction D**2**. Bottom surface is arranged elevationally below both exterior sill portion **40** and shim space **24**. Bottom surface **86** comprises drip kerf **88**. Drip kerf **88** is a notch in bottom surface **86** extending in direction D**1**. Drip kerf **88** catches water trying to flow down around nose **84** and onto bottom surface **86** in direction D**3**. The tendance of water, due to its surface tension or "dinginess," is to flow down along top surface **85**, onto surface **86**, and fall off of surface **86** generally in direction D**3**. Drip kerf **88** breaks this surface tension and stops the flow of water in D**3**, otherwise directing water downward in direction D**2**. Rear surface **90** comprises protrusion **92** extending therefrom in direction D**3** and operatively arranged to engage groove **54** to connect nose **84** to exterior sill portion **40**. In some embodiments, protrusion **92** engages groove **54** via interference fit, although it should be appreciated that other means for connection may be used, for example, adhesives, bolts, screws, nails, etc. Rear surface **90** further comprises notch **94** extending therefrom in direction D**4**. Notch **94** allows fluid flowing through shim space **24** to exit door threshold assembly, specifically but forming space **28**. As previously described, space **28** is directed downward in direction D**2**. As shown in FIG. **1**, in some embodiments nose **84** comprises horns **96**A-B.

Head jamb **11** is connected to side jambs **1**A-B (see FIGS. **1** and **5**). Side jambs **1**A-B are arranged on at least one of top surface **42**, top surface **58**, top surface **60**, top surface **72**, top surface **34**, and top surface **32** (see FIGS. **3** and **6**). Head jamb **11** comprises top surface **12**, bottom surface **14**, front surface **16**, and rear surface **17**. Top surface **12** comprises one or more notches. Bottom surface **14** comprises notch **15** extending in direction D**1** therefrom. Similar to door stop **56**, notch **15** is operatively arranged to engage door **100** to prevent it from displacing toward the exterior (i.e., in direction D**4**). Head casing **3** is connected to front surface **16**. Head casing **3** comprises drip kerf **4** on its bottom surface. Drip kerf **4** prevents water from flowing from the front surface to the bottom surface of head casing **3** (i.e., in direction D**3** toward door **100**). Instead, as water flows down head casing **3** and interacts with drip kerf **4**, it is directed down in direction D**2** and only top surface **6**. Since top surface **6** is beveled, the water then flows in direction D**4** off of top surface **6** and away from door **100**. In some embodiments, head jamb **11** and head casing **3** are integrally formed. In some embodiments, drip kerf **4** is formed on a bottom surface of head jamb **11**, for example in a notch extending from front surface **16** in direction D**3**; however, drip kerf **4** should be arranged above top surface **6**.

Screen or storm door **5** is hingedly connected, on one side, to one of side jambs **1**A and **1**B. Door **5** may include any necessary hardware, for example, a handle, deadbolt, locks, etc. Door **5** may or may not include windows. When in a closed position, door **5** is arranged proximate to and/or engages and/or abuts against front surface **16** and front surface **48**. Thus, front surfaces **16** and **48** are operatively arranged to engage door **5** to prevent it from displacing toward the interior (i.e., in direction D**3**). Door **5** comprises top surface **6** and bottom surface **7**. Top surface **5** is angled elevationally downward in direction D**4**. Bottom surface **7** is angled elevationally downward in direction D**4**. The downward angle of surfaces **6** and **7** ensure that any fluid collected thereon flows toward the exterior, in direction D**4**.

Door **100** comprises front surface **102**, rear surface **104**, top surface **106**, and bottom surface **118**. Top surface **106** comprises groove **108** extending therefrom in direction D**2**. Weather stripping **110** is arranged in groove **108** and is operatively arranged to provide a seal between door **100** and head jamb **11**. Top surface **106** further comprises a notch extending therefrom in direction D**2** and forming top surface **112**. Top surface **112** comprises groove **114** extending therefrom in direction D**2**. Weather stripping **114** is arranged in groove **114** and is operatively arranged to engage bottom surface **14** to provide a seal between door **100** and head jamb **11**. Bottom surface **118** comprises groove **124** extending therefrom in direction D**1**. Weather stripping **126** is arranged in groove **124** and is operatively arranged to provide a seal between door **100** and door stop **56**. Bottom surface **118** further comprises a notch extending therefrom in direction D**1** and forming bottom surface **128**. Bottom surface **128** comprises groove **129** extending therefrom in direction D**1**. Weather stripping **130** is arranged in groove **129** and operatively arranged to engage top surface **58** to provide a seal between door **100** and door stop **56**. Bottom surface **118** further comprises groove **120** extending therefrom in direction D**1**. Weather stripping **122** is arranged in groove **120** and operatively arranged to engage top surface **32** to provide a seal between door **100** and interior sill portion **30**.

It should be appreciated that grooves **108** and **124** are essentially a single groove that spans the entire lateral surface of door **100**. Thus, a single groove is cut into door **100** on each of its four lateral sides, and weather stripping, for example weather stripping **110** and **126**, is arranged therein (weather stripping in lateral grooves would provide

a seal between door **100** and side jambs **1**A-B). Similarly, grooves **114** and **129** are essentially a single groove that spans the entire lateral surface of door **100**. Thus, a single groove is cut into door **100** on each of its four lateral sides, and weather stripping, for example weather stripping **116** and **130**, is arranged therein (weather stripping in lateral grooves would provide a seal between door **100** and side jambs **1**A-B). As such, door **100** comprises two separate strips of weather stripping around the entirety of the lateral surfaces (i.e., the perimeter) thereof.

Drip cap **132** is connected to front surface **102** proximate bottom surface **118**. Drip cap **132** comprises top surface **134** and bottom surface **136**. Top surface **134** is non-parallel to bottom surface **136**. Specifically, top surface **134** is angled elevationally downward in direction D**4**. This allows fluid that collects on drip cap **132** to drain away from door **100**. Drip cap **132** is operatively arranged to keep water from getting under door **100**, thus further preventing penetration to the interior of the enclosure. Bottom surface **136** comprises drip kerf **138**. Drip kerf **138** prevents water from flowing from the front surface of drip cap **132** to bottom surface **136** (i.e., in direction D**3** toward door **100**). Bottom surface **136** comprises groove **140** extending therefrom in direction D**1**. Sweep or weather stripping **142** is arranged in groove **140** and is operatively arranged to engage top surface **60** to provide a seal between drip cap **132** and door stop **56**. In some embodiments, drip cap **132** is connected to front surface **102** using marine epoxy.

It will be appreciated that various aspects of the disclosure above and other features and functions, or alternatives thereof, may be desirably combined into many other different systems or applications. Various presently unforeseen or unanticipated alternatives, modifications, variations, or improvements therein may be subsequently made by those skilled in the art which are also intended to be encompassed by the following claims.

REFERENCE NUMERALS

1A Jamb
1B Jamb
2A Casing
2B Casing
3 Head casing
4 Drip kerf
5 Screen or storm door
6 Top surface
7 Top surface
10 Door frame and threshold assembly
11 Head jamb
12 Top surface
13 Notch or notches
14 Bottom surface
15 Notch
16 Front surface
17 Rear surface
20 Door threshold assembly
22 Sill pan
24 Shim space
26 Shim or shims
28 Space
30 Interior sill portion
32 Top surface
34 Top surface
36 Bottom surface
38 Vertical member
40 Exterior sill portion
42 Top surface
44 Bottom surface
46 Rear surface
48 Front surface
50 Notch
51 Notch
52 Notch
54 Groove
56 Door stop
58 Top surface
60 Top surface
62 Bottom surface
64 Space
70 Tube or channel
72 Top surface
74 Weep hole or holes
76 Rear surface
78 Bottom surface
80 Front surface
82 Weep hole or holes
84 Nose
86 Top surface
88 Bottom surface
90 Drip kerf
90 Rear surface
92 Protrusion
94 Notch
96A Horn
96B Horn
100 Door
102 Front surface
104 Rear surface
106 Top surface
108 Groove
110 Weather stripping
112 Top surface
114 Groove
116 Weather stripping
118 Bottom surface
120 Groove
122 Weather stripping
124 Groove
126 Weather stripping
128 Bottom surface
129 Groove
130 Weather stripping
132 Drip cap
134 Top surface
136 Bottom surface
138 Drip kerf
140 Groove
142 Weather stripping
D**1** Direction
D**2** Direction
D**3** Direction
D**4** Direction

What is claimed is:

1. A door frame and threshold assembly, comprising:

a substantially closed reservoir tube, including:

a first top surface comprising at least one inlet weep hole;

a first rear surface;

a first bottom surface; and,

a first front surface comprising at least one outlet weep hole;

an interior sill portion, including:

a second top surface;

a third top surface arranged adjacent and elevationally below the second top surface, the third top surface sloped downwardly toward said at least one inlet weep hole in a first direction; and,

a second bottom surface arranged on the first top surface;

an exterior sill portion, including:

a fourth top surface sloped downwardly away from said at least one inlet weep hole in the first direction;

a second rear surface engaged with the reservoir tube and spaced apart from the interior sill portion;

a third bottom surface; and,

a second front surface;

an L-shaped nose, including:

a fifth top surface;

a third rear surface connected to the second front surface; and,

a fourth bottom surface including a drip kerf, wherein the fourth bottom surface is arranged elevationally below the conduit; and,

a sill pan operatively arranged under and spaced apart from at least one of the first bottom surface and the third bottom surface, wherein the sill pan forms a conduit in fluid communication with the outlet weep hole.

2. The door frame and threshold assembly as recited in claim **1**, wherein the fifth top surface is curvilinear.

3. The door frame and threshold assembly as recited in claim **1**, wherein the third rear surface comprises a notch extending therefrom in the first direction, wherein the notch and the sill pan form an outlet to the conduit, the outlet directed in a second direction, the second direction being perpendicular to the first direction.

4. The door frame and threshold assembly as recited in claim **1**, wherein the fifth top surface is arranged elevationally below the fourth top surface.

5. The door frame and threshold assembly as recited in claim **1**, wherein the second rear surface comprises a notch extending therefrom in the first direction, the notch abutting against both the first top surface and the first front surface.

6. The door frame and threshold assembly as recited in claim **1**, wherein:

the third bottom surface comprises a notch extending therefrom in a second direction, the second direction being perpendicular to the first direction; and,

the notch is in fluid communication with the at least one outlet weep hole.

7. The door frame and threshold assembly as recited in claim **1**, further comprising a door stop connected to the fourth top surface, the door stop including:

a fifth top surface; and,

a sixth top surface arranged adjacent and elevationally below the fifth top surface, the sixth top surface angled elevationally downward in the first direction.

8. The door frame and threshold assembly as recited in claim **7**, further comprising a door, the door including:

a seventh top surface;

a third rear surface;

a fourth bottom surface including a first channel including a first weather stripping, the first weather stripping operatively arranged to sealingly engage the door stop; and,

a third front surface.

9. The door frame and threshold assembly as recited in claim **8**, wherein the fourth bottom surface further comprises a second channel including a second weather stripping, the second weather stripping operatively arranged to sealingly engage the second top surface.

10. The door frame and threshold assembly as recited in claim **8**, further comprising a drip cap connected to the third front surface, the drip cap including:

a fourth top surface extending elevationally downward in the first direction; and,

a fourth bottom surface including a drip kerf and a second channel including a weather sweep, the weather sweep operatively arranged to sealingly engage the door stop.

11. The door frame and threshold assembly as recited in claim **8**, further comprising a head jamb, wherein:

the seventh top surface comprises a second channel including a second weather stripping and a third channel including a third weather stripping; and,

the second weather stripping and the third weather stripping are operatively arranged to sealingly engage the head jamb.

12. The door frame and threshold assembly as recited in claim **11**, further comprising a head casing connected to the head jamb and including a drip kerf.

13. A door frame and threshold assembly, comprising:

a reservoir tube, including:

a first top surface comprising at least one inlet weep hole;

a first rear surface;

a first bottom surface; and,

a first front surface comprising at least one outlet weep hole;

an interior sill portion, including:

a second top surface;

a third top surface arranged adjacent and elevationally below the second top surface, the third top surface angled elevationally downward in a first direction; and,

a second bottom surface arranged on the first top surface;

an exterior sill portion, including:

a fourth top surface angled elevationally downward in the first direction;

a second rear surface engaged with the reservoir tube and spaced apart from the interior sill portion;

a third bottom surface; and,

a second front surface;

a sill pan operatively arranged under and spaced apart from at least one of the first bottom surface and the third bottom surface, wherein the sill pan forms a conduit in fluid communication with the outlet weep hole;

a door stop connected to the fourth top surface, the door stop including:

a fifth top surface; and,

a sixth top surface arranged adjacent and elevationally below the fifth top surface, the sixth top surface angled elevationally downward in the first direction; and,

a door, the door including:

a seventh top surface;

a third rear surface;

a fourth bottom surface including a first weather stripping, the first weather stripping operatively arranged to sealingly engage the door stop; and,

a third front surface.

14. The door frame and threshold assembly as recited in claim **13**, wherein the fourth bottom surface further comprises:

a second weather stripping operatively arranged to sealingly engage the second top surface; and,

a third weather stripping operatively arranged to engage the fifth top surface, wherein the first weather stripping is arranged between the second weather stripping and the third weather stripping.

15. The door frame and threshold assembly as recited in claim **13**, further comprising an L-shaped nose, including:

an eighth top surface, the eight top surface being curvilinear and arranged elevationally below the fourth top surface;

a fourth rear surface connected to the second front surface; and,

a fifth bottom surface including a drip kerf, wherein the fourth bottom surface is arranged elevationally below the conduit.

16. The door frame and threshold assembly as recited in claim **15**, wherein the third rear surface comprises a notch extending therefrom in the first direction, wherein the notch and the sill pan form an outlet to the conduit, the outlet directed in a second direction, the second direction being perpendicular to the first direction.

17. The door frame and threshold assembly as recited in claim **13**, further comprising a drip cap connected to the third front surface, the drip cap including:

an eighth top surface extending elevationally downward in the first direction;

a fifth bottom surface including a drip kerf and a weather sweep, the weather sweep operatively arranged to sealingly engage the sixth top surface.

18. The door frame and threshold assembly as recited in claim **13**, further comprising a head jamb, wherein:

the seventh top surface comprises a second weather stripping and a third weather stripping;

the second weather stripping and the third weather stripping are operatively arranged to sealingly engage the head jamb; and,

the head jamb comprises a drip kerf.

19. The door frame and threshold assembly as recited in claim **18**, further comprising a screen or storm door spaced apart operatively arranged to engage the head jamb and the second front surface, the screen or storm door including an eighth top surface:

angled elevationally downward in the first direction; and,

operatively arranged to be vertically aligned with the drip kerf.

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