United States Patent

Beckerer

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[54] ATTACHABLE PREFABRICATED HATCH

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[51] **Int. Cl.**.....**E02d 29/12,** E04b 7/18, E04f 19/08

[58] **Field of Search**.....52/200, 202, 204, 19, 97, 66, 52/72, 20, 1, 173; 114/201; 292/256.75, 256.5, 262, 276, 338; 49/386, 394

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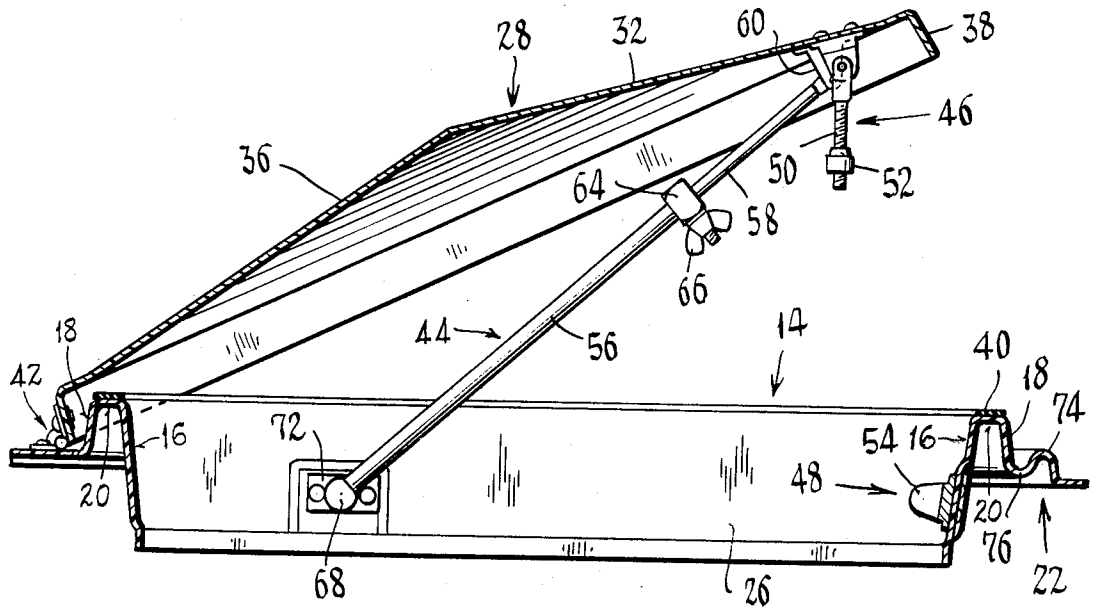
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[57] **ABSTRACT**

A prefabricated hatch construction for attachment over an opening in a wall or the like, comprising a rectangular reinforced plastic frame and a reinforced plastic cover hinged thereto. The frame is of channel-like cross section, including a depending inner skirt to extend through the wall opening and an outwardly extending peripheral flange to overlie and be secured to those portions of the wall which border the opening thereof. The flange has a reversely curved section providing for wind and rain deflection, and also constituting a springy-bearing for a sealing gasket which is engageable with the wall. The cover is crowned and has a depending peripheral flange which wedgingly engages the channel section of the frame to effect a tight seal. Adjustable telescopic struts provide for holding the cover in various open positions on the frame, and cooperable fastener devices lock the cover in its closed position.

3 Claims, 6 Drawing Figures



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2 Sheets-Sheet 1

Fig. 1

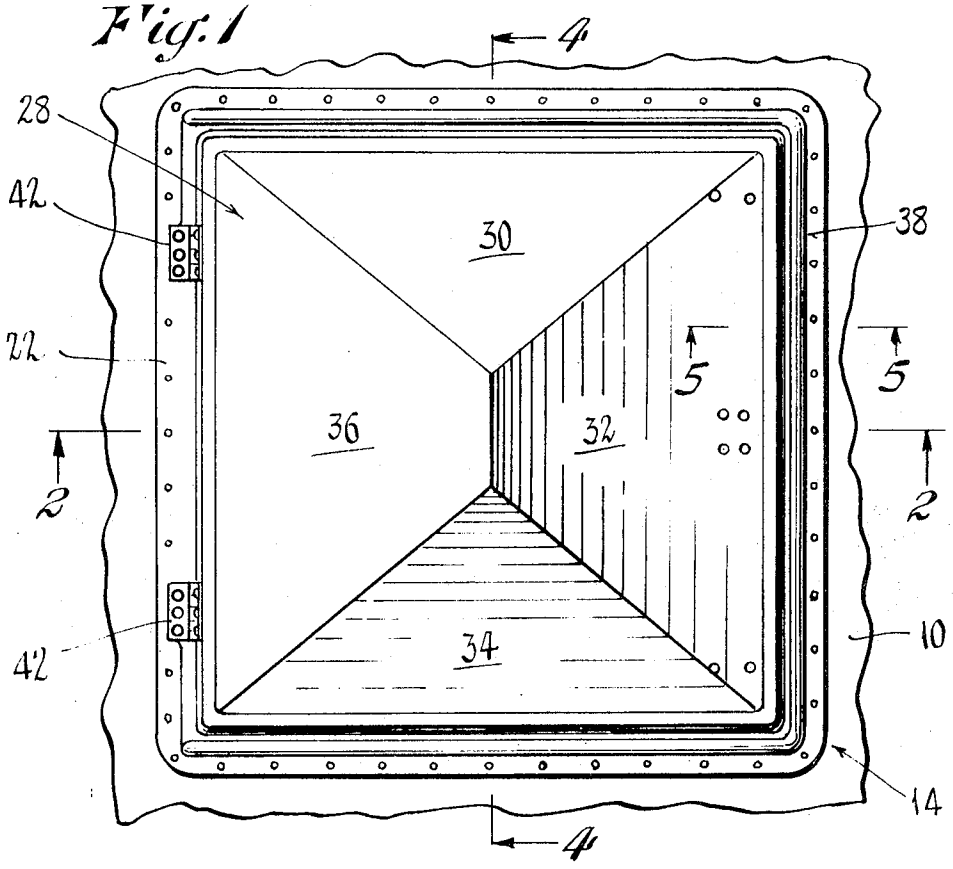
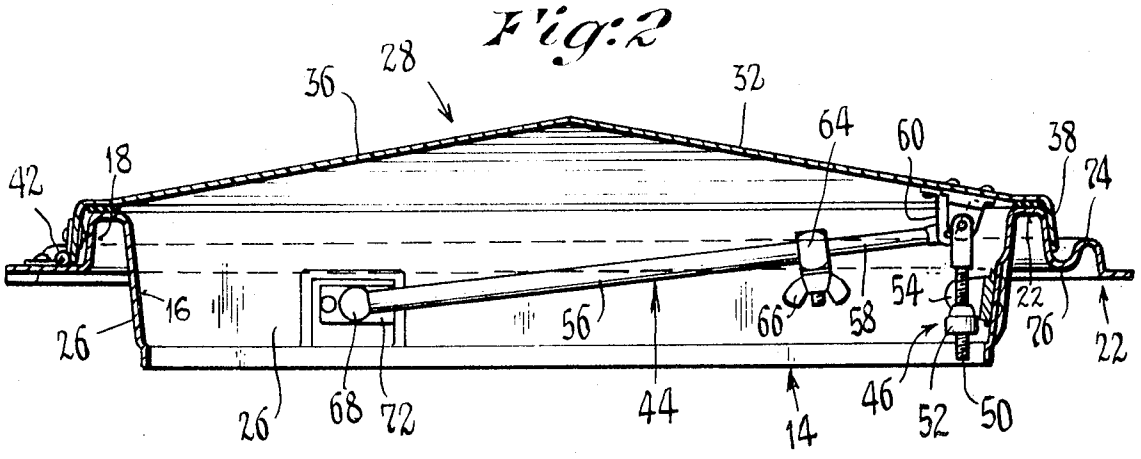


Fig. 2



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Fig. 3

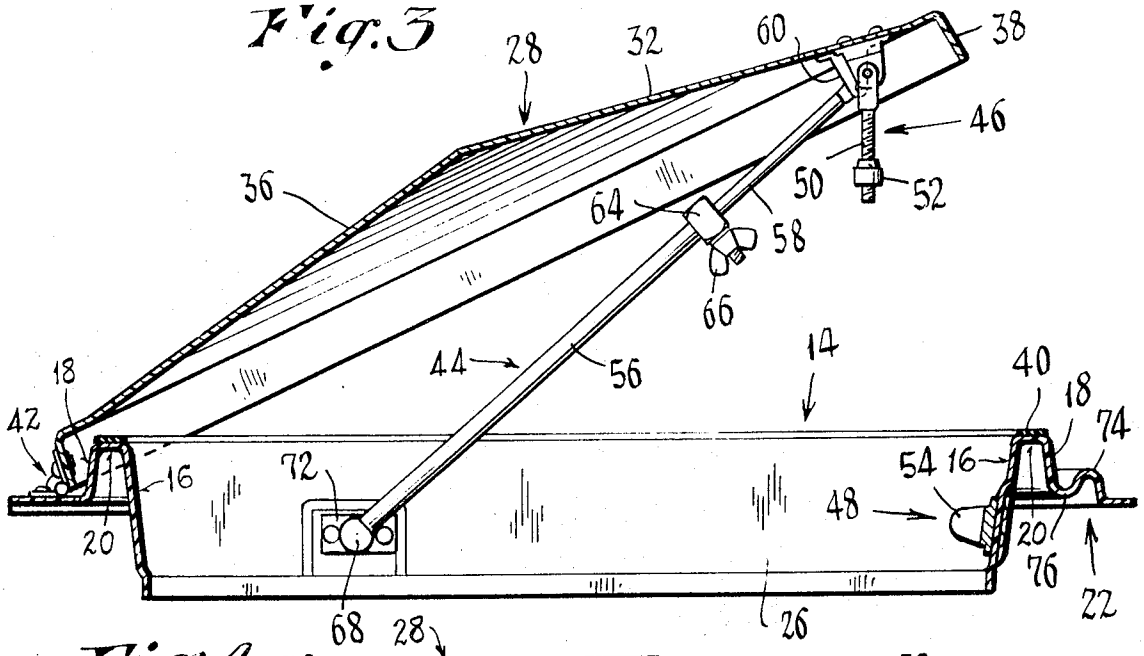


Fig. 4

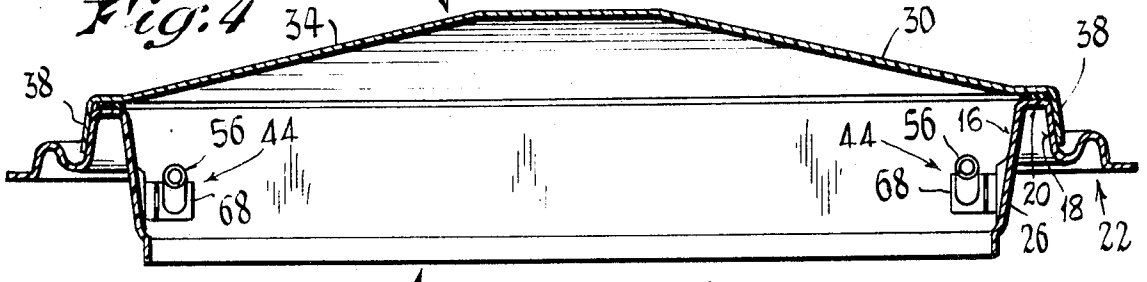


Fig. 6

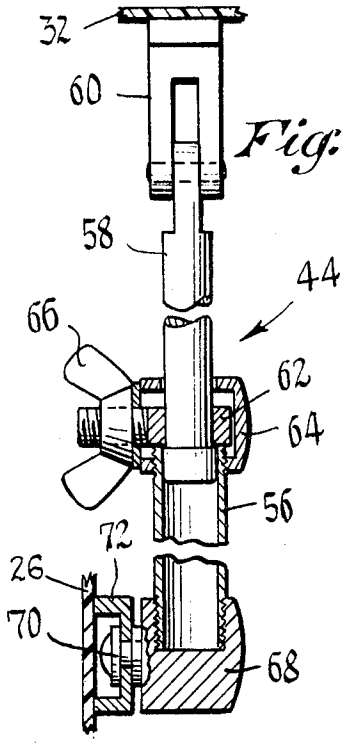
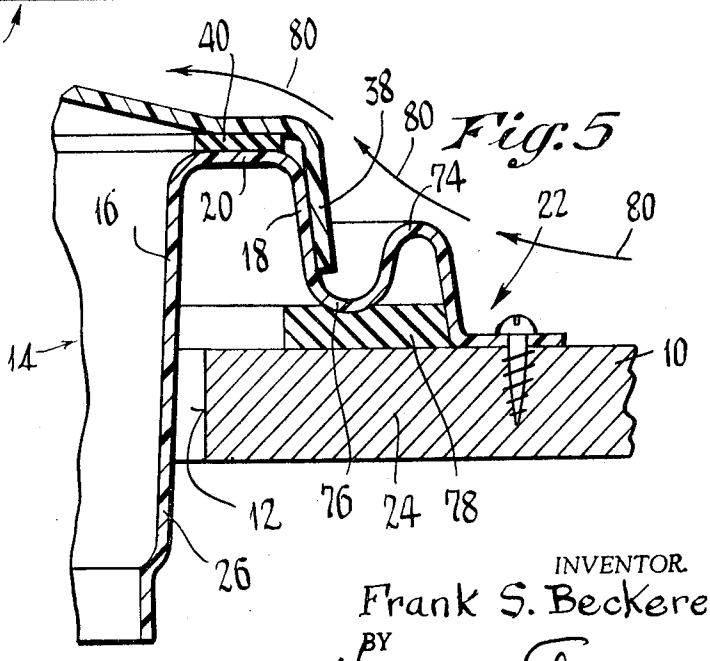


Fig. 5



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ATTACHABLE PREFABRICATED HATCH

BACKGROUND

This invention relates to hatch structures, particularly marine hatches, which are attachable to walls, panels and the like to constitute weathertight openable closures for openings in said walls.

Heretofore, weatherproof hatch structures for the above purpose were constituted of multi-part frames and cooperable multi-part hinged covers, representing an appreciable cost of parts and assemblies. Where efforts were made to simplify the hatch structures and reduce the costs, as by resorting to cheaper materials, there resulted a loss of performance in that strength was sacrificed, or ease of operation or weatherproof or sealing qualities, to the end that the hatch failed in the important objective of a reliably weathertight closure that successfully withstood corrosive environments and various physical stresses such as bearing the weight of a heavy person standing on it.

SUMMARY

The above drawbacks and disadvantages of prior hatch structures are obviated by the present invention, which has for one object the provision of an improved hatch of exceptionally low cost, which can be easily and quickly installed while at the same time being physically sturdy, resistant to weathering and corrosion, and characterized by tight sealing or excellent weatherproof qualities whereby there is essentially no leakage when properly installed. This is accomplished by the provision of a prefabricated assemblage of reinforced plastic, channel-section frame and hinged reinforced plastic cover of crowned and flanged configuration. A peripheral depending flange and adjoining marginal portions of the cover wedgingly fit over portions of the channel section of the frame to provide both a good sealing fit and structural reinforcement. The frame has a beaded exterior flange adapted for attachment to the panelling or deck, the bead formation providing a special sealing edge for engagement with an interposed gasket. Together with a gasket between the frame and marginal portions of the cover, the above structures cooperate to effect a sturdy and leakproof hatch of especially low cost, which may be easily and quickly installed.

Other features and objects of the invention reside in the simplicity of the reinforced plastic components and associated fittings, the provision for deflecting driving rain and wind past the mating edges, the ease of operation, and the simple yet positive adjustment and lock devices.

Still other features and advantages will hereinafter appear.

In the accompanying drawings illustrating one embodiment of the invention:

FIG. 1 is a top plan view of the improved prefabricated, reinforced plastic hatch construction as provided by the invention.

FIG. 2 is a transverse section taken on the line 2—2 of FIG. 1 and showing the hatch with the cover closed.

FIG. 3 is a view like that of FIG. 2 but showing the cover raised or open.

FIG. 4 is a transverse section, taken on the line 4—4 of FIG. 1.

FIG. 5 is a fragmentary section taken on the line 5—5 of FIG. 1, illustrating in enlarged detail the configurations of the frame and cover members where they effect the seals.

FIG. 6 is a detail partly in section and partly in elevation, illustrating one of the adjustable telescopic struts as provided in the hatch.

Considering first FIGS. 1–5, the improved hatch is shown as mounted on a deck, wall or other panel-like structure **10** which has a large opening **12** to admit light and air, or sometimes personnel. The deck or panelling **10** may be of the usual wooden or fiberglass construction, adapted to accommodate either wood screws, sheet metal screws or fastening bolts.

The hatch construction as shown comprises a continuous reinforced plastic frame **14** here illustrated as being rectangular, said frame having a channel-like section comprising spaced-apart inner and outer walls **16, 18** which are joined by a top web or connector portion **20**. The frame includes an outwardly extended flange designated generally by the numeral **22**, said flange being adapted to overlie portions **24** of the deck or panel-like structure **10** where such portions border the opening **12**. The frame **14** also includes a continuous depending skirt **26** disposed along its inner sides and adapted to extend into the opening **12** of the deck, said skirt being shown as integral with the inner wall **16** of the channel section.

Hingedly mounted on the frame **14** is a crowned cover **28** of reinforced plastic, said cover being adapted to span the area of the frame and at its peripheral portions to overlie the channel section comprising the portions **16, 18** and **20**. The frame **14** and cover **28** of reinforced plastic may have any suitable formulation well known in the industry, including fiberglass or other reinforcement.

The cover member **28** has a raised central portion formed by triangular or roughly triangular panel areas **30, 32, 34** and **36** which provide a somewhat flattened pyramidal shape. The cover **28** includes a marginal depending flange **38** arranged to extend around the exterior of the channel section of the frame **14** and to wedgingly engage the latter so as to provide a weathertight and leakproof seal, as clearly seen in FIG. **5**. To supplement such seal, a flat gasket **40** is provided at the underside of the marginal portion of the cover **28**, in engagement with the web portion **20** of the web **14**.

The cover **28** is pivotally mounted on the frame **14** by means of hinges **42** secured to the cover flange **38** and also to the frame flange **22**. Also, in accordance with the invention, adjustable telescopic struts designated generally by the numeral **44** are secured to opposite portions of the depending skirt **26** of the frame **14** and to spaced-apart portions of the cover **28** to support the latter in different raised positions on the frame. One such raised position is illustrated in FIG. **3**.

As provided by the invention, the cover **28** may be locked in its closed position by means of a first fastener device **46** mounted on the underside of the cover at the center of one marginal portion thereof, and by a second fastener device **48** which is mounted on the inside of the frame **14** and is cooperable with the first fastener device. As shown herein, the fastener device **46** on the cover comprises a pivotally mounted screw **50** having a hand nut or knurled nut **52**, said screw being receivable in a bifurcated fitting which comprises the second fastener device and which is indicated by the numeral **48**. The fitting **48** has a pair of ears **54** adapted to extend on opposite sides of the screw **50** and to be engaged by the locking nut **52**, all as illustrated in FIG. **2**.

Referring to FIGS. **2, 3** and **6**, each telescopic strut **44** comprises an outer tubular member **56** which telescopically receives an inner round bar member **58**, the latter being pivotally carried by a bifurcated fitting **60** secured to the underside of the cover **28**. The bar member **58** passes through an eye-bolt **62** which is carried by a head fitting **64** secured to the end of the outer tubular member **56**. A wing nut **66** on the eye-bolt **62** is adapted to tighten the bolt whereby the bar **58** can be clamped in various adjusted positions in the fitting **64**. The tubular member **56** of the strut is secured in a pivot fitting **68** which is connected by means of a rivet **70** to a mounting **72** in turn secured to the depending skirt **26** of the frame **14**.

It will be understood that when the wing nut **66** is loose, the strut bar member **58** may be shifted in the tubular member **56** to permit the raising and lowering of the cover **28**. Tightening of the wing nut **66** will lock the strut **44** in adjusted position, thereby securing the cover **28** either closed or else in various open positions.

In accordance with this invention, the flange **22** of the frame **14** has a special configuration by which a more effective seal can be established between the frame and the deck **10** and at the same time a deflecting means is had to divert driving wind and rain upward past the wedged portions **18, 38** of the frame and cover, and over the top of the latter. Referring to FIG. **5**, the flange **22** has reverse bends providing an upwardly extend-

ing bead portion **74** and a downwardly extending bead portion **76**. Disposed under the bead portion **76** is a flat gasket **78** adapted for engagement with said bead portion and also with the deck **24**. The gasket **78** is sufficiently thick and yieldable so that it can be compressed by the bead **76** when the flange **22** is screwed or bolted to the deck or panel **24**, as shown. The plastic formulation of the frame **14** and cover **28** provides for resilience and flexibility of these parts, whereby a slight amount of yielding of the bead sections **74, 76** can take place as the flange **22** is bolted down and against the gasket **78**. The bead portion **74** which extends upward is not quite as high as the channel section of the frame **14** but is higher than a bottom edge of the cover flange **38**. The bead portion **74** constitutes a shield which acts to divert driving wind and rain (indicated by the arrows **80**) upward and past the wedgingly engaged portions **18, 38** of the frame and cover, said wind and rain being directed over the top of the cover **28** as indicated. Accordingly, there is had an improved seal and weathertight joint by virtue of the deflecting means comprising the beads **74** and **76**.

When the cover **28** is pulled down tightly and locked in the closed position, the flange **38** thereof will wedge tightly above the outside of the wall **18** of the channel section of the frame **14**, said parts yielding slightly as required. The locking of the cover **28** in the closed position as illustrated in FIG. **2** will effect a sealing engagement between the frame **14** and the gasket **40** so that there is double insurance against leakage.

I have found that with a prefabricated hatch construction of reinforced plastic as above illustrated and described, great strength is had, sufficient to withstand the weight of a 300 lb. person or more, standing on the cover **28**. The reinforced plastic is resistant to corrosion and to the adverse effects of weather, and normally will not warp nor loose its strength or structural characteristics. The frame and cover parts may be quickly economically molded or formed in dies, and assembled to the fittings with a minimum of labor and expense. Accordingly, the hatch can be produced at a desirable low cost, while at the same time representing a sturdy and effective accessory for marine or other use.

Variations and modifications are possible without departing from the spirit of the invention.

I claim:

1. A hatch for attachment to a panel-like structure in which there is an opening, comprising in combination:

a. a continuous frame having a channel section, and having an outwardly extended horizontal flange adapted to overlie marginal portions of the panel-like structure which border the opening thereof,

b. said frame including a continuous depending skirt disposed along its inner sides and adapted to extend into the opening of said structure,

c. a crowned cover spanning the area of the frame,

d. said cover including a marginal depending flange extending around the exterior of the channel section of the frame,

e. hinge means securing said flange to the outwardly-extended flange of the frame,

f. a pair of adjustable telescopic two-part struts secured to opposite portions of the depending skirt of the frame and to spaced-apart portions of the cover to support the latter in different raised positions on the frame,

g. a first fastener device mounted on the underside of the cover, and

h. a second fastener device mounted on the inside of the frame and cooperable with said first fastener device to secure the cover to the frame in closed position thereover,

i. inner areas of the outwardly extended flange of the frame being formed with a narrow, elongate upwardly displaced portion comprising a raised bead of lesser height that the channel section of the frame and constituting a wind and rain deflector tending to shield the bottom edge of the cover flange and to divert horizontally directed wind and rain across the top of the cover, the outer periphery of said flange lying in a flat horizontal plane disposed below the level of said raised bead.

2. A hatch as in claim **1**, and further including:

a. a gasket disposed under the said inner areas of the outwardly extended flange of the frame, and

b. fastening means provided at the outer marginal areas of the flange of the frame, for securing the frame to the panel-like structure.

3. A hatch as in claim **2**, wherein:

a. the outwardly-extended flange of the frame has a section characterized by reverse bends providing rounded bead surfaces at the top and bottom surfaces of the flange,

b. said gasket being disposed below the bead surface at the bottom of the flange.

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