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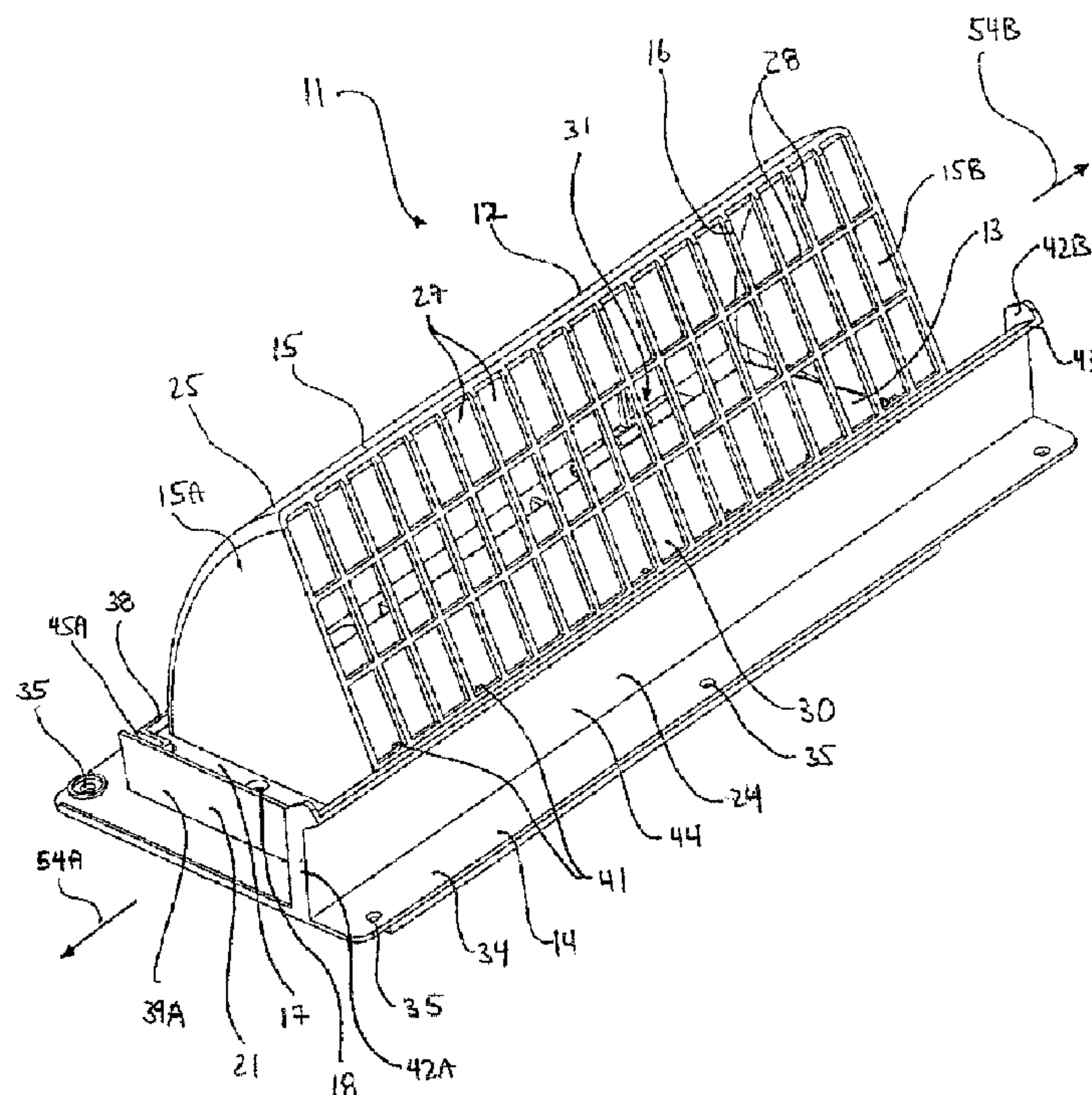
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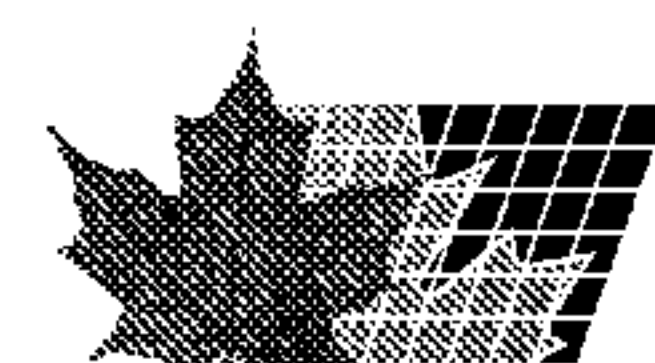
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(54) Title: VENT APPARATUS WITH REPLACEABLE VENT COVER



(57) Abrégé/Abstract:

A vent, together with one or more building apertures, provides a route for gas exchange through a building surface. The vent comprises a base member having a vent aperture therethrough and a generally planar mounting flange on its perimeter. The base member may be mounted within a building surface such that the mounting flange extends between an internal building surface layer and one or more external building surface layers and the vent aperture is in fluid communication with the one or more building apertures. The vent also comprises a vent cover which is removably mountable to the base member when the base member is mounted within the building surface. The vent cover has a hood member which projects downwardly and outwardly from the base member for conveying moisture away from the vent aperture. A bottom drainage flange may project outwardly and downwardly from beneath the vent aperture to convey moisture downwardly and outwardly past an outermost one of the one or more external building layers.



Abstract of the Disclosure

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route for gas exchange through a building surface. The vent comprises a
base member having a vent aperture therethrough and a generally planar
mounting flange on its perimeter. The base member may be mounted
within a building surface such that the mounting flange extends between an
internal building surface layer and one or more external building surface
10 layers and the vent aperture is in fluid communication with the one or more
building apertures. The vent also comprises a vent cover which is
removably mountable to the base member when the base member is
mounted within the building surface. The vent cover has a hood member
which projects downwardly and outwardly from the base member for
15 conveying moisture away from the vent aperture. A bottom drainage
flange may project outwardly and downwardly from beneath the vent
aperture to convey moisture downwardly and outwardly past an outermost
one of the one or more external building layers.

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VENT APPARATUS WITH REPLACEABLE VENT COVER

Technical Field

5 [0001] The invention pertains to vent apparatus which, together with their associated building aperture(s), provide a route for the exchange of air and/or other gases through a building envelope.

Background

10 [0002] Typical buildings comprise building apertures which provide a route for exchange, ventilation, circulation and/or movement of gas through the building envelope. Such gases may comprise air or water vapour, for example. Buildings may have ventilation systems, which take in "fresh" air from outside of the building and expel "stale" air from inside the building. Fresh air may be taken into a building or
15 stale air may be expelled from a building through one or more building apertures. Some buildings incorporate other systems and/or apparatus, such as air conditioning systems and forced air clothes dryers, which require gas exchange between the inside and outside of a building through building aperture(s).

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[0003] Buildings may comprise vent apparatus, each of which is associated with one or more building apertures. Such vent apparatus (or simply "vents") are typically in fluid communication with their one or more associated building aperture(s) to provide a means for gas
25 exchange through the building envelope. Vents may provide a number of additional functions. For example, vents may comprise weatherproofing features to minimize the amount of moisture which flows into their associated building aperture(s). Vents may provide a more aesthetically pleasing terminus for their associated building
30 aperture(s). Vents may also incorporate means to control the flow of gases and/or other materials through their associated building

aperture(s). For example, vents may restrict the back-flow of expelled gases or other external matter through their associated building aperture(s) and into the interior of the building.

5 **[0004]** There are many vent designs known in the art. For example:

- Canadian patent No. 2,062,907 (Sirjoo) discloses a vent incorporating an adjustable screw cap vent cover which extends outwardly from the external wall of a building and which is
10 adjustable to permit air flow through the vent when the cap is open and to prevent air flow through the vent when the cap is closed; and
- Canadian patent No. 2,357,531 (Myint) shows a security air vent which allows for the flow of air, but which comprises a screen
15 having S-shaped structural members for preventing the back flow of solids or liquids into the associated building aperture.

[0005] Vents may be installed in a variety of external building surfaces, such as the walls or the roof, for example. Vents are typically
20 installed between the layers of a building's external surface, during construction and/or finishing. For example, vents may include one or more laterally and/or vertically extending flange(s) which are installed between an interior sheathing layer and an exterior siding layer of a building wall. The installation of vents between the interior and exterior
25 layers of a building wall causes difficulties when the vent must be replaced (for example, when the vent is broken). Replacement of such vents requires dismantling one or more exterior layer(s) of the wall in a vicinity of the vent. Once the exterior wall layer(s) are removed from the vicinity of the vent, the damaged vent may be removed and/or
30 replaced. After replacement of the vent, the exterior wall layer(s) must

be rebuilt around the new vent. For this reason, vent replacement can be an expensive, arduous and time-consuming task.

[0006] Some vent apparatus comprise a vent cover which extends outwardly from the exterior surface of the building. Such vent covers
5 may provide weatherproofing for the vent and its associated building aperture(s) and may also provide desirable aesthetics. Vents and vent covers are typically formed in a single unitary construction.

[0007] Vent covers are particularly susceptible to damage which
10 may be caused, for example, by exposure to natural elements (i.e. weather and temperature), age, physical blows, etc. Because of the unitary construction of vents and vent covers, however, replacement of a damaged vent cover usually requires replacement of the entire vent apparatus, which requires dismantling and rebuilding of the building
15 surface layer(s) as described above.

[0008] Vents and their associated building aperture(s) cause an interruption in the external surfaces of buildings. If a vent is not adequately sealed, moisture may intrude into or between the layers of
20 the building surface, damaging the building surface over time and eventually resulting in the need for repair or replacement of the building surface. Moisture or other foreign material may also intrude past the vent, into the associated building aperture(s) and possibly into the building itself. For these reasons, there is a general desire to provide
25 vents which deter inward movement of moisture and other foreign material through the vent and prevent or minimize the intrusion of moisture between building surface layers.

Summary of the Invention

[0009] A first aspect of the invention provides a vent, which together with one or more building apertures, provides a route for gas flow through a building surface. The vent comprises a base member
5 having a vent aperture therethrough and a generally planar mounting flange on at least a portion of its perimeter. The base member may be mounted within a building surface such that at least a portion of the mounting flange extends between an internal building surface layer and one or more external building surface layers and the vent aperture is in
10 fluid communication with the one or more building apertures. The vent also comprises a vent cover which is removably mountable to the base member when the base member is mounted within the building surface. The vent cover has a hood member which projects downwardly and outwardly from the base member for conveying moisture away from the
15 vent aperture.

[0010] The base member may comprise an outwardly projecting intermediate base flange which is spaced apart from the vent aperture. The intermediate base flange may have a bottom drainage flange which
20 projects outwardly and downwardly from beneath the vent aperture for conveying moisture outwardly past the outermost one of the one or more external building surface layers.

[0011] The intermediate base flange may have a pair of outwardly
25 projecting side portions which extend upwardly from above the bottom drainage flange on either side of the vent aperture. The intermediate base flange may have an outwardly projecting upper portion which is located above the vent aperture and which extends between the two side portions. The upper portion of the intermediate base flange may
30 comprise a transversely extending main section and a pair of wells. Each of the wells may extend downwardly and transversely from a

corresponding transverse end of the main section to meet with a corresponding one of the side portions at a location which is below the upwardmost end of the side portion. An upper surface of the hood member may fit under the upper portion of the intermediate base flange.

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[0012] When the base member is mounted within the building surface, the one or more external building surface layers may abut against the side portions and the upper portion of the intermediate base flange. The one or more external building surface layers may also abut

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[0013] The bottom drainage flange may comprise two side edges located on either side of the vent aperture. The side portions of the intermediate base flange may extend upwardly from the bottom drainage flange at locations that are closer to the vent aperture than the side edges of the bottom drainage flange. Each side edge may have a dam which projects upwardly from the side edge for preventing moisture received on an upper surface of the bottom drainage flange from travelling transversely past the side edges of the bottom drainage flange. The

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[0014] The vent cover may comprise an apertured grille which extends inwardly from an outer edge of the hood member. The vent may comprise one or more notched ribs for receiving an inward edge of the grille.

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[0015] The base member may comprise an interior base flange, an inner portion of which projects inwardly into the one or more building apertures. An outer portion of the interior base flange may project outwardly. The interior base flange may be located on a perimeter of the vent aperture.

[0016] The vent may include a damper member which is pivotally coupled to the base member. Preferably, the vent aperture is sized to prevent the damper member from pivoting therethrough. The damper member may be removably coupled to the base member or the vent cover.

[0017] The mounting flange of the base member may project from a transverse and/or vertical side of the vent aperture to form a transverse and/or vertical part of the perimeter of the base member.

[0018] Another aspect of the invention provides a base member for a vent, which together with one or more building apertures, provides a route for gas flow through a building surface. The base member comprises a generally planar mounting flange on at least a portion of its perimeter for mounting the base member within a building surface. When the base member is mounted within the building surface, at least a portion of the mounting flange extends between an internal building surface layer and one or more external building surface layers. The base member also comprises a vent aperture, which is in fluid communication with the one or more building apertures when the base member is mounted within the building surface. The base member also comprises a bottom drainage flange which projects outwardly and downwardly from beneath the vent aperture for conveying moisture outwardly past an outermost one of the one or more external building surface layers.

[0019] Another aspect of the invention provides a vent, which together with one or more building apertures, provides a route for gas flow through a building surface. The vent comprises a means for mounting a base member between an internal building surface layer and one or more external building surface layers. The base member includes a vent aperture for fluid communication with the one or more building apertures. The vent also comprises a means for covering and conveying moisture away from the vent aperture, which is removably mountable to the base member when the base member is mounted between the building surface layers.

[0020] The vent may comprise a means for conveying moisture from within the building surface outwardly past an outermost one of the one or more external building surface layers.

[0021] Another aspect of the invention provides a vent comprising a base member and a vent cover. The base member has a substantially planar mounting flange on at least a portion of its perimeter, which is capable of being received between layers of a building surface, and a vent aperture extending between inward and outward sides of the base member. The vent cover is removably coupleable to the outward side of the base member. The vent cover comprises a hood member disposed to shield the vent aperture.

[0022] Another aspect of the present invention relates to a method for installing a vent within a building surface to provide fluid communication through one or more building apertures in the building surface. The method involves mounting a base member to an internal building surface layer such that a vent aperture in the base member is in fluid communication with the one or more building apertures. After mounting the base member, one or more external building surface layers

are installed onto the internal building surface layer, such that the one or more external building surface layers overlap a portion of the of the base member. After installing the external building surface layer(s), a vent cover is removably mounted to the base member, the vent cover
5 extending downwardly and outwardly from above the vent aperture to a location that is outside of the outermost one of the one or more external building surface layers.

[0023] Further aspects of the invention, features of specific
10 embodiments of the invention and features and applications of the invention are described below.

Brief Description of the Drawings

[0024] In drawings which depict non-limiting embodiments of the
15 invention:

Figure 1 is an isometric view of a vent according to one embodiment of the invention;

Figure 2 is an elevated plan view of the back of the vent of Figure 1;

20 Figure 3 is an elevated plan view of the bottom of the vent of Figure 1;

Figure 4 is an elevated plan view of the top of the vent of Figure 1;

25 Figure 5 is an elevated plan view of the right side of the vent of Figure 1;

Figure 6 is an elevated plan view of the front of the vent of Figure 1;

Figure 7 is an exploded isometric view of the vent of Figure 1;

30 Figure 8 is an elevated plan view of the front of the vent of Figure 1 with the vent cover removed;

Figure 9 is an isometric view of the vent of Figure 1 with the vent cover removed;

Figure 10 is an elevated plan view of the right side of the vent of Figure 1 with the vent cover removed;

5 Figure 11 is a cross-sectional view of the vent of Figure 1 installed between the layers of an external building wall;

Figure 12 is an isometric view of a vent apparatus according to an alternate embodiment of the invention;

10 Figure 13 is an exploded isometric view of the vent apparatus of Figure 12;

Figure 14 is an isometric view of a vent apparatus according to another alternative embodiment of the invention; and

Figure 15 is an exploded isometric view of the vent apparatus of Figure 14.

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Detailed Description

20 [0025] Throughout the following description, specific details are set forth in order to provide a more thorough understanding of the invention. However, the invention may be practised without these particulars. In other instances, well known elements have not been shown or described in detail to avoid unnecessarily obscuring the invention. Accordingly, the specification and drawings are to be regarded in an illustrative, rather than a restrictive, sense.

25 [0026] The invention disclosed herein relates to vents which, together with their associated building aperture(s), provide a route for the exchange of air or other gases through a building envelope. A building aperture may be connected to a conduit for transporting such gases. A conduit may comprise any aperture, duct, passageway, flume,
30 spout, hose, tube, pipe, channel or other means of transporting fluids. Typical examples of conduits include, but are not limited to, air ducts

for moving air within a building's heating, cooling or ventilation systems and exhaust hoses from forced-air clothes dryers and/or air conditioning systems.

5 **[0027]** Vents according to preferred embodiments of the invention
comprise: a base including a transversely and/or vertically extending,
substantially planar flange which may be installed between the layers of
a building wall; at least one outwardly extending flange for diverting to
10 the outdoors any moisture which may be moving downward within the
layers of the building wall; and a removeable vent cover. The
construction of the vent permits the vent cover to be replaced without
dismantling the external layer(s) of the building wall. The vent cover
extends downwardly and outwardly to deter the entrance of moisture
and other foreign material into the associated building aperture(s). The
15 vent may also comprise a damper member for restricting the flow of gas
and other materials.

[0028] Figures 1 through 11 depict a vent **11** according to a
particular embodiment of the invention. As shown most effectively in
20 the exploded view of Figure 7, vent **11** comprises: a vent cover **12**, a
damper member **13** and a base **14**. Vent cover **12** and damper member
13 are removably mounted to base **14**. Base **14** comprises a vent
aperture **26** which permits the movement of gas through building
aperture **23** (Figure 11). Preferably, vent **11** and its components are
25 made of plastic, but those skilled in the art will appreciate that vent **11**
and/or some of its components may be constructed from a wide variety
of suitable materials including suitable metals, plastics and the like.

[0029] Figure 11 depicts vent **11** installed in a vertical building wall **22** having an associated building aperture **23**. The embodiments of the invention described herein are installed in building walls; accordingly, a number of directional conventions are used to clarify this description:

- (i) “upward”, “upwardly”, “upwardmost” and similar words refer to a direction extending along wall **22** as indicated by arrow **50** (Figure 11);
- (ii) “downward”, “downwardly”, “downwardmost” and similar words refer to a direction extending along wall **22** as indicated by arrow **52** (Figure 11);
- (iii) “vertical”, “vertically” and similar words refer to either of the upward or downward directions;
- (iv) transverse”, “transversely”, “side”, “sideways” and similar words refer to either direction that extends along wall **22** in a direction orthogonal to the upward and downward directions as indicated by arrows **54A**, **54B** (Figure 1);
- (v) “outward”, “outwardly”, “outwardmost” and similar words refer to a direction that extends away from wall **22** towards an exterior of the building as indicated by arrow **56** (Figure 11); and,
- (vi) “inward”, “inwardly”, “inwardmost” and similar words refer to a direction that extends away from wall **22** towards an interior of the building as indicated by arrow **58** (Figure 11).

Those skilled in the art will appreciate that wall **22** need not be strictly vertical and that the directional words used in this description should not be interpreted narrowly.

[0030] Vent cover 12 comprises a hood 15 and a grille 16 which may be formed in a unitary construction or which may be separate components that are connected to one another. Hood 15 comprises a hood aperture 29. Vent cover 12 is removably connected to base 14 such that hood aperture 29 is in fluid communication with vent aperture 26 and building aperture 23 (Figure 11). In the illustrated embodiment, hood aperture 29 is larger than vent aperture 26. Vent cover flange 17 extends around the upper and side edges of hood aperture 29.

10 [0031] As shown in Figures 6 and 7, vent cover flange 17 may incorporate a number of spaced apart apertures 18, through which screws or other fasteners (not shown) may be inserted to removably mount vent cover 12 to base 14. Preferably, the fasteners used to mount vent cover 12 to base 14 are non-permanent to facilitate removal
15 of vent cover 12 from base 14. Vent cover flange 17 may incorporate portions 17A which project inwardly toward base 14. When vent cover 12 is mounted to base 14, vent cover flange portions 17A preferably form a snug fit with an inner transverse surface intermediate base flange 21 (see description below). Vent cover flange 17 may help to channel
20 moisture away from vent 11 and may also provide structural reinforcement for vent 11.

[0032] Alternative embodiments of the invention may comprise alternative means for removably mounting vent cover 12 to base 14.
25 For example, vent cover 12 may be removably connected to base 14 by other types of removable fasteners, such as staples, nails, rivets or the like. Vent cover 12 may be removably connected to base 14 with a pressure fit or a "snap-together" connection, wherein a male member on one of vent cover 12 or base 14 "snaps" into and is removably held in a
30 corresponding female member on the opposing one of vent cover 12 and base 14. For example, vent cover 12 may include a member that

projects (i.e. “snaps”) into vent aperture **26**, so as to hold vent cover **12** in place relative to base **14**.

[0033] Hood **15** preferably extends outwardly and downwardly from base **14** to shelter building aperture **23**, vent aperture **26** and hood aperture **29** from the elements. In the illustrated embodiment, hood **15** comprises a pair of sidewalls **15A**, **15B**, which extend from cover flange **17**, and a curved top portion **25**, which extends from cover flange **17** and arcs outwardly and downwardly between the curved edges of sidewalls **15A**, **15B**.

[0034] Moisture, which may collect on the top of the convex curved surface of top portion **25**, is directed downwardly and outwardly away from building aperture **23**, vent aperture **26**, and hood aperture **29**. Those skilled in the art will appreciate that hood **15** may have other shapes. For example, a hood may have a downwardly and outwardly angled and/or curved shape which performs the same function of directing moisture downwardly and outwardly away from building aperture **23**, vent aperture **26**, and hood aperture **29**.

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[0035] Grille **16** extends transversely between opposing edges of sidewalls **15A**, **15B** and extends inwardly from an outer edge of top portion **25**. An inner edge of grill **16** may be held in place on base **14** by notches **47** in ribs **41** (see description below). In the illustrated embodiment, grille **16** comprises a grid of intercrossing bars **28** which defines a plurality of apertures **27**. Apertures **27** permit the passage of gas through building aperture **23**, vent aperture **26**, and hood aperture **29**, while deterring the entry other larger objects, such as leaves and animals, for example. Grille **16** may be provided by a number of alternative designs. For example, grille **16** may comprise a screen of fine mesh, a plate having several apertures therein, or any other design

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that permits the passage of gas. Grille **16** is not a required feature of vent **11**. Hood **15** may alternatively comprise an aperture formed by sidewalls **15A**, **15B**, the outer edge of top portion **25** and base **14**.

5 **[0036]** In the illustrated embodiment, damper member **13** is provided between vent aperture **26** and hood aperture **29** for controlling the flow of gas and/or other material therethrough. For example, damper member **13** may restrict the inward flow of gases and/or other material from hood aperture **29** through vent aperture **26** and into
10 building aperture **23**. Damper member **13** may be implemented in a wide variety of different forms. In the illustrated embodiment, damper member **13** comprises a flap **30** which is pivotally coupled to base **14** through a pair of hinge assemblies **31**. Damper member **13** may comprise a different number of hinge assemblies **31**. Hinge assemblies
15 **31** permit the pivotal movement of flap **30** about hinge axis **32** (see Figure 9). Flap **30** is preferably larger in cross-sectional area than vent aperture **26**. Damper member **13** permits outward flow of gas from vent aperture **26** through hood aperture **29** when positive pressure of gas coming from vent aperture **26** causes flap **30** to pivot outwardly through
20 hood aperture **29**. However, damper member **13** restricts the inward flow of gas and other material from hood aperture **29** through vent aperture **26**, because flap **30** is too large to pivot through vent aperture **26**.

25 **[0037]** Each hinge assembly **31** preferably comprises a "snap-together" hinge structure made up of a damper hinge member **19** that extends from an edge of flap **30** and a base hinge member **20** that extends from base member **14**. In the illustrated embodiment, damper hinge member **19** comprises a portion **19A** that extends in the direction
30 of hinge axis **32**. Portion **19A** may be cylindrical in shape. Base hinge member **20** is preferably semi-tubular in shape, such that portion **19A** of

damper hinge member **19** may "snap" into loose fit engagement with semi-tubular base hinge member **20** for pivotal motion therein.

[0038] The "snap-together" implementation of hinge assemblies **31** shown in the illustrated embodiment allows for simple removal and/or replacement of damper member **13**. Those skilled in the art will appreciate that hinge assemblies **31** may be implemented with a wide variety of alternative hinge assemblies or alternative pivotal joint mechanisms. For example, hinge assemblies **31** may be implemented using conventional hinges which are mounted to both base **14** and flap **30** via screws, rivets, staples, nails or other fasteners. Preferably, the mechanisms used to implement hinge assemblies **31** permit the easy removal of damper member **13** from base **14** and/or easy replacement of damper member **13**.

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[0039] Base **14** comprises an interior base flange **33**, which is located around a perimeter of vent aperture **26**, an intermediate base flange **21**, which surrounds and is spaced apart from interior base flange **33**, and a mounting flange **34**, which extends vertically and transversely to form a perimeter of base **14** and to provide a means for mounting vent **11** to a building surface. Base **14** may also comprise a plurality of fastener holes **40** positioned at spaced apart locations between interior base flange **33** and intermediate base flange **21** for receiving fasteners (not shown). Such fasteners may be used to mount vent cover **12** to base **14**, as described above.

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[0040] As shown in Figures 1, 7, 8 and 9, mounting flange **34** is substantially planar and extends vertically and transversely to form a perimeter of base **14**. Mounting flange **34** preferably comprises a plurality of apertures **35** which penetrate mounting flange **34** at spaced apart locations. Suitable fasteners (e.g. screw, rivets, nails, staples or

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the like) may be inserted through apertures **35** to mount vent **11** to or between layers **22A**, **22B** of building wall **22**. Fasteners used to mount base **14** to or between layers **22A**, **22B** of building wall **22** may not require apertures **35** and may simply be driven through mounting flange **34** and into internal wall layer **22A** and/or into external wall layer **22B**.

[0041] In the illustrated embodiment, base **14** also comprises a plurality of "blind holes" **48** at spaced apart locations between intermediate base flange **21** and interior base flange **33**. Blind holes **48** represent particular locations where the thickness of base **14** is reduced so that fasteners may be more easily driven through base **14** and into internal wall layer **22A** and/or into external wall layer **22B** to mount base **14** between layers **22A**, **22B** of building wall **22**.

[0042] Those skilled in the art will appreciate that other techniques may be used to mount base **14** to or between layers **22A**, **22B** of building wall **22**. Such alternative mounting techniques may include glue, sealant or "snap-together" fittings wherein a portion of base **14** is sized for a snap-together fit with building aperture **23**, for example. When mounted according to any of these techniques, the substantially planar and vertically and transversely extending profile of mounting flange **34** allows mounting flange **34** to extend between and substantially parallel to layers **22A**, **22B** of building wall **22**.

[0043] Interior base flange **33** preferably forms a perimeter of vent aperture **26**. When vent **11** is mounted to or within building wall **22**, an inner portion **36** of interior base flange **33** may extend inwardly into building aperture **23** (Figure 11). An outer portion **37** of interior base flange **33** extends outwardly towards vent cover **12**. In the illustrated embodiment, outer portion **37** of interior base flange **33** is sized and

shaped to be just smaller than flap **30** of damper member **13**, so as to prevent damper member **13** from pivoting inwardly about hinge axis **32**.

[0044] Intermediate base flange **21** surrounds and is spaced apart from interior base flange **33**. Intermediate base flange **21** projects outwardly from base **14** and functions to move moisture away from vent aperture **26** and out from within building wall **22**. In the illustrated embodiment, intermediate base flange **21** comprises an upper portion **38**, a pair of side portions **39A**, **39B** and a downwardly sloping bottom drainage flange **24**, all of which extend outwardly from base **14**. In the illustrated embodiment, side portions **39** extend further outwardly than upper portion **38** and bottom drainage flange extends outwardly even further still. Upper portion **38** of intermediate base flange **21** may comprise a downwardly indented well **45** on each of its sides and side portions **39** of intermediate base flange **21** may extend upwardly past the level of wells **45**. Wells **45** may help to prevent moisture running transversely on upper portion **38** from traveling transversely past side portions **39** and into wall **22**.

[0045] Bottom drainage flange **24** may comprise a pair of dams **42**, which extend upwardly from its side edges, and an outer drip lip **43**, which extends more sharply downwardly at its outer edge. As shown in the illustrated embodiment, dams **42** are preferably located at the side edges of bottom drainage flange **24**. In alternative embodiments, dams **42** may have other transverse locations. For example, dams **42** may be located between side portions **39** of intermediate base flange **21** and the side edges of bottom drainage flange **24** or dams **42** may be vertically aligned with side portions **39** of bottom drainage flange **24**. In further alternative embodiments, the side edges of bottom drainage flange **24** may be vertically aligned with side portion **39** of bottom drainage flange **24**.

[0046] Base **14** may also comprise one or more ribs **41** which extend outwardly from base **14** between bottom drainage flange **24** and interior base flange **33**. Ribs **41** may comprise notches or similar cut-outs **47** which receive an inner edge of grill **16** when vent cover **12** is mounted to base **14**.

[0047] As shown in Figure 11, vent **11** is preferably installed between layers **22A**, **22B** of building wall **22** during the building's construction. Vent **11** is installed in a location where vent aperture **26** is in fluid communication with building aperture **23** to provide gas flow between the interior and exterior of the building. Base **14** is preferably mounted to internal wall layer **22A** using fasteners which project through apertures **35** in mounting flange **34** and into internal wall layer **22A**. Internal wall layer **22A** may be a sheathing layer, for example. Preferably, when base **14** is mounted in this manner, inner portion **36** of interior base flange **33** extends inwardly into building aperture **23**, such that building aperture **23** surrounds the peripheral edges of inner portion **36**.

[0048] After mounting base **14** to internal wall layer **22A**, the building may then be finished by applying one or more external wall layer(s) **22B** over the outside of internal wall layer **22A**. Such external wall layer(s) **22B** may comprise vinyl siding, wood siding or stucco, for example. External wall layer(s) **22B** are preferably cut, such that, when installed, they extend over mounting flange **34** and abut against intermediate base flange **21**. More specifically, external wall layer(s) **22B** may abut against the outer transverse surfaces of side portions **39** and the upper surface of upper portion **38** and against an undersurface **44** of bottom drainage flange **24**. Bottom drainage flange **24** is sized such that after the installation of external wall layer(s) **22B**, bottom

drainage flange **24** extends outwardly past the outermost external wall layer **22B**.

[0049] Interior base flange **33**, side portions **39**, upper portions **38**
5 and wells **45** of intermediate base flange **21** and vent cover flange **17**
help to direct moisture out from within wall **22**, away from building
aperture **23** and toward bottom drainage flange **24**. Moisture received
on the top and side portions of interior base flange **33** may be conveyed
along interior base flange **33** and downwardly to bottom drainage flange
10 **24**. Moisture received on the surfaces of side portions **39** of
intermediate base flange **21** may also be directed downwardly along side
portions **39** to bottom drainage flange **24**. When moisture is received on
upper portion **38** of intermediate base flange **21**, it may be directed
outwardly onto curved top portion **25** of hood **15** and/or transversely in
15 either direction along upper portion **38** until it reaches one of wells **45**.
Once received in wells **45**, such moisture may be directed outwardly to
vent cover flange **17**, which conveys the moisture downwardly to
bottom drainage flange **24**. Any moisture which may leak between vent
cover flange **17** and side portions **39** of intermediate base flange **21** may
20 be directed downwardly to bottom drainage flange **24** on an inside
transverse surface of side portions **39**.

[0050] Bottom drainage flange **24** extends outwardly past
outermost wall layer **22B** to provide a mechanism for removing
25 moisture from within building wall **22** and directing the moisture away
from building aperture **23**. Moisture may be directed to bottom
drainage flange as described above or may be received directly on
bottom drainage flange **24**. Once received on bottom drainage flange
24, moisture is directed downwardly and outwardly with gravity to the
30 outside of building wall **22**. Dams **42** prevent moisture from escaping
transversely from the sides of bottom drainage flange **24** and outer drip

lip **43** provides a drip edge to ensure that water droplets do not accumulate on bottom drainage flange **24**.

[0051] Damper member **13** and vent cover **12** may be installed during construction or, preferably, after construction of wall **22** is completed. Damper member **13** may be pivotally attached to base **14** by snapping portions **19A** of damper hinge members **19** into corresponding semi-tubular shaped base hinge members **20**, as described above. Vent cover **12** is preferably mounted to base **14** using a plurality of fasteners which extend through apertures **18** and into fastener holes **40** of base **14**. As discussed above, vent cover **12** may be mounted to base **14** using other mechanisms, such as snap-together fittings.

[0052] Vent **11** provides a number of advantages over the prior art. Vent **11** may be installed between layers **22A**, **22B** of building wall **22** as described above. If vent cover **12** or damper member **13** requires replacement (for example, because the component has broken), then vent cover **12** or damper member **13** may be removed from base **14** and replaced without having to remove base **14** from wall **22** and without having to dismantle any part of wall **22**. In addition, vent **11** comprises bottom drainage flange **24** and a number of associated features which provide a mechanism for removing moisture from within building wall **22** and directing the moisture away from building aperture **23**.

[0053] Figures 12 and 13 depict a vent **11'** according to an alternative embodiment of the invention. Vent **11'** comprises many features which are the same or similar to the features of vent **11** depicted in Figures 1-11. The features of vent **11'** are shown in Figures 12 and 13 with reference numbers corresponding to similar features of vent **11**, except that the reference numerals for vent **11'** (Figures 12 and 13) are followed by a "prime" symbol (').

[0054] As shown in Figures 12 and 13, vent 11' comprises a base 14', a damper member 13' and a vent cover 12'. Vent cover 12' and damper member 13' are removably mounted to base 14', which comprises a vent aperture 26'. Vent 11' is shaped differently than vent 11 and comprises a round vent aperture 26' and a round damper member 13'. Round-shaped vent aperture 26' and the round-shaped interior base flange 33' facilitate use of vent 11' with a round-shaped building aperture (not shown). In other respects, vent 11' is substantially similar to vent 11, comprising substantially similar components which function in a substantially similar manner. The components and functionality of vent 11' are not described further herein.

[0055] Figures 14 and 15 depict a vent 11" according to another alternative embodiment of the invention. Vent 11" comprises many features which are the same or similar to the features of vent 11 depicted in Figures 1-11. The features of vent 11" are shown in Figures 14 and 15 with reference numbers corresponding to similar features of vent 11, except that the reference numerals for vent 11" (Figures 14 and 15) are followed by a "double prime" symbol ("). Vent 11" of Figures 14 and 15 is substantially similar to vent 11, except that side portions 39" and upper portion 38" of intermediate base flange 21" extend outwardly by the same amount and intermediate base flange 21" does not include wells 45. Moisture received on upper portion 38" of intermediate base flange 21" may be directed transversely to side portions 39", where it may be conveyed downwardly to bottom drainage flange 24". In other respects, vent 11" is substantially similar to vent 11, comprising substantially similar components which function in a substantially similar manner. The components and functionality of vent 11" are not described further herein.

[0056] As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. For example:

- 5 • Damper member **13** is not a necessary feature of the invention. Vent cover **12** and base **14** may, when mounted to one another, provide sufficient weatherproofing and prevent entry of foreign material into associated building aperture **23**.
- 10 • As demonstrated by the embodiments described above, the shape of the vent of the present invention may be changed, for example to suit the associated building aperture(s), to suit the angle of the building wall within which it is mounted, and/or to suit the environmental conditions in which it is deployed.
- 15 • The embodiments described above are preferably mounted between the layers of a building wall. Those skilled in the art will appreciate that by changing the shape of certain components, such as the vent cover, the vent of the present invention may be implemented on other building surfaces, such as a roof, for example.

20

[0057] Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

WHAT IS CLAIMED IS:

1. A vent, which together with one or more building apertures, provides a route for gas flow through a building surface, the vent comprising:

5 a base member having a vent aperture through a surface thereof, the base member comprising a generally planar mounting flange on at least a portion of a perimeter thereof for mounting the base member within a building surface such that the vent aperture is in fluid communication with the one or more building apertures, the mounting flange shaped to permit at least a portion of the mounting
10 flange to extend between an internal building surface layer and one or more external building surface layers in a direction generally parallel to at least one of: the internal building surface layer and the one or more external building surface layers; and

15 a vent cover which is removably mountable to the base member when the base member is mounted within a building surface and the portion of the mounting flange extends between the internal building surface layer and the one or more external building surface layers, the vent cover comprising a hood member which, when the vent cover is mounted on the base member, projects downwardly and outwardly from the base member for conveying moisture away from the vent
20 aperture.

2. The vent of claim 1 wherein the base member comprises an outwardly projecting intermediate base flange which is spaced apart from the vent aperture, the intermediate base flange comprising a bottom drainage flange which projects
25 outwardly and downwardly from beneath the vent aperture for conveying moisture on a surface thereof, wherein when the base member is mounted within a building surface, an outermost edge of the bottom drainage flange projects outwardly past the outermost one of the one or more external building surface layers.

30 3. The vent of claim 2 wherein the intermediate base flange comprises a pair of outwardly projecting side portions which extend upwardly from above the bottom drainage flange on either side of the vent aperture.

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4. The vent of claim 3 wherein the intermediate base flange comprises an outwardly projecting upper portion located above the vent aperture and extending between the two side portions of the intermediate base flange.
- 5 5. The vent of claim 4 wherein the upper portion of the intermediate base flange comprises a transversely extending main section and a pair of wells, each well extending downwardly and transversely from a corresponding transverse end of the main section to meet with a corresponding one of the side portions of the intermediate base flange below an upwardmost end of the corresponding side portion.
10
6. The vent of claim 2 wherein the intermediate base flange comprises an outwardly projecting, transversely extending upper portion located above the vent aperture.
- 15 7. The vent of any one of claims 4 to 5 wherein, when the vent cover is mounted to the base member, an upper surface of the hood member fits under the upper portion of the intermediate base flange.
- 20 8. The vent of any one of claims 4 to 5 and 7 wherein, when the base member is mounted within a building surface, the one or more external building surface layers abut against the side portions and the upper portion of the intermediate base flange.
- 25 9. The vent of any one of claims 2 to 8 wherein, when the base member is mounted within a building surface, the one or more external building surface layers abut against an undersurface of the bottom drainage flange.
- 30 10. The vent of any one of claims 3 to 5, 7 and 8 wherein the bottom drainage flange comprises two side edges located on either side of the vent aperture and wherein the side portions of the intermediate base flange extend upwardly from above the bottom drainage flange at locations that are transversely closer to the vent aperture than the side edges of the bottom drainage flange.

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- 5
11. The vent of claim 10 wherein each side edge of the bottom drainage flange comprises a dam which projects upwardly from the side edge for preventing moisture received on an upper surface of the bottom drainage flange from travelling transversely past the side edges of the bottom drainage flange.
- 10
12. The vent of any one of claims 3 to 5, 7, 8 and 10 comprising a pair of dams which project upwardly from an upper surface of the bottom drainage flange at locations aligned with the side portions of the intermediate base flange for preventing moisture received on the upper surface of the bottom drainage flange from travelling transversely past the side edges of the bottom drainage flange.
13. The vent of any one of claims 1 to 12 comprising one or more releasable fasteners for removably holding the vent cover to the base member.
- 15
14. The vent of claim 13 wherein at least one of the one or more releasable fasteners comprises a snap together connection.
- 20
15. The vent of any one of claims 2 to 12 wherein the vent cover comprises an apertured grille which extends inwardly from an outer edge of the hood member.
- 25
16. The vent of claim 15 comprising one or more ribs which extend upwardly from and outwardly along an upper surface of the bottom drainage flange at spaced apart locations, each rib comprising a notch for receiving an inward edge of the grille.
- 30
17. The vent of any one of claims 1 to 16 wherein the base member comprises an interior base flange, an inner portion of which projects inwardly into the one or more building apertures.
18. The vent of claim 17 wherein the interior base flange comprises an outwardly projecting outer portion.
19. The vent of claim 17 wherein the interior base flange is located on a perimeter of the vent aperture.

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20. The vent of any one of claims 1 to 19 comprising a damper member which is pivotally coupled to the base member.
- 5 21. The vent of claim 20 wherein the vent aperture is sized to prevent the damper member from pivoting therethrough.
22. The vent of claim 20 wherein the damper member is removably coupled to the base member.
- 10 23. The vent of claim 22 wherein the damper member is removably and pivotally coupled to the base member by one or more snap-together hinge assemblies.
24. The vent of any one of claims 1 to 23 comprising a damper member which is pivotally coupled to the vent cover.
- 15 25. The vent of any one of claims 1 to 24 wherein the mounting flange projects from a transverse side of the vent aperture to form a transverse part of the perimeter of the base member.
- 20 26. The vent of any one of claims 1 to 25 wherein the mounting flange projects from a vertical side of the vent aperture to form a vertical part of the perimeter of the base member.
- 25 27. A vent, which together with one or more building apertures, provides a route for gas flow through a building surface, the vent comprising:
- 30 means for mounting a base member between an internal building surface layer and one or more external building surface layers, the base member comprising a vent aperture for fluid communication with the one or more building apertures;
- means for covering and conveying moisture away from the vent aperture which is removably mountable to the base member when the base member is mounted between the building surface layers;

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means for conveying moisture from within the building surface outwardly past an outermost one of the one or more external building surface layers, wherein the means for conveying moisture comprises a bottom drainage flange which extends downwardly and outwardly from beneath the vent aperture.

5

28. The vent of claim 27 wherein the means for conveying moisture comprises a pair of outwardly projecting side flanges which extend upwardly from above the bottom drainage flange on either side of the vent aperture.

10

29. The vent of claim 28 wherein the means for conveying moisture comprises an outwardly projecting upper flange located above the vent aperture and extending between the two side flanges.

30. A vent comprising:

15

a base member having a vent aperture extending between inward and outward sides of the base member and a substantially planar mounting flange on at least a portion of its perimeter, at least a portion of the mounting flange extending between layers of a multiple layer building surface in a direction generally parallel to the building surface for mounting the base member within the building surface; and

20

a vent cover removably coupleable to the outward side of the base member when the portion of the mounting flange extends between the internal building surface layer and the one or more external building surface layers, the vent cover comprising a hood member disposed to shield the vent aperture.

25

31. The vent of claim 30 wherein the base member comprises an outwardly projecting intermediate base flange which is spaced apart from the vent aperture, the intermediate base flange comprising a bottom drainage flange which projects outwardly and downwardly from beneath the vent aperture for conveying moisture on a surface thereof, wherein when the mounting flange is received between the layers of the building surface, an outermost edge of the bottom drainage flange projects outwardly past the outermost one of the one or more external building surface layers.

30

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32. The vent of claim 31 wherein the intermediate base flange comprises a pair of outwardly projecting side portions which extend upwardly from above the bottom drainage flange on either side of the vent aperture.
- 5 33. The vent of claim 32 wherein the intermediate base flange comprises an outwardly projecting upper portion located above the vent aperture and extending between the two side portions of the intermediate base flange.
- 10 34. The vent of any one of claims 30 to 33 wherein the base member comprises an interior base flange, an inner portion of which projects inwardly from the inward side of the base member.
- 15 35. A method for installing a vent within a building surface to provide fluid communication through one or more building apertures in the building surface, the method comprising:
- mounting a base member to an internal building surface layer such that a vent aperture in the base member is in fluid communication with the one or more building apertures;
- 20 after mounting the base member, installing one or more external building surface layers onto the internal building surface layer, such that the one or more external building surface layers overlap a portion of the base member; and
- after installing one or more external building surface layers, removably mounting a vent cover to the base member, the vent cover extending downwardly and outwardly from above the vent aperture to a location that is outside of the
- 25 outermost one of the one or more external building surface layers.

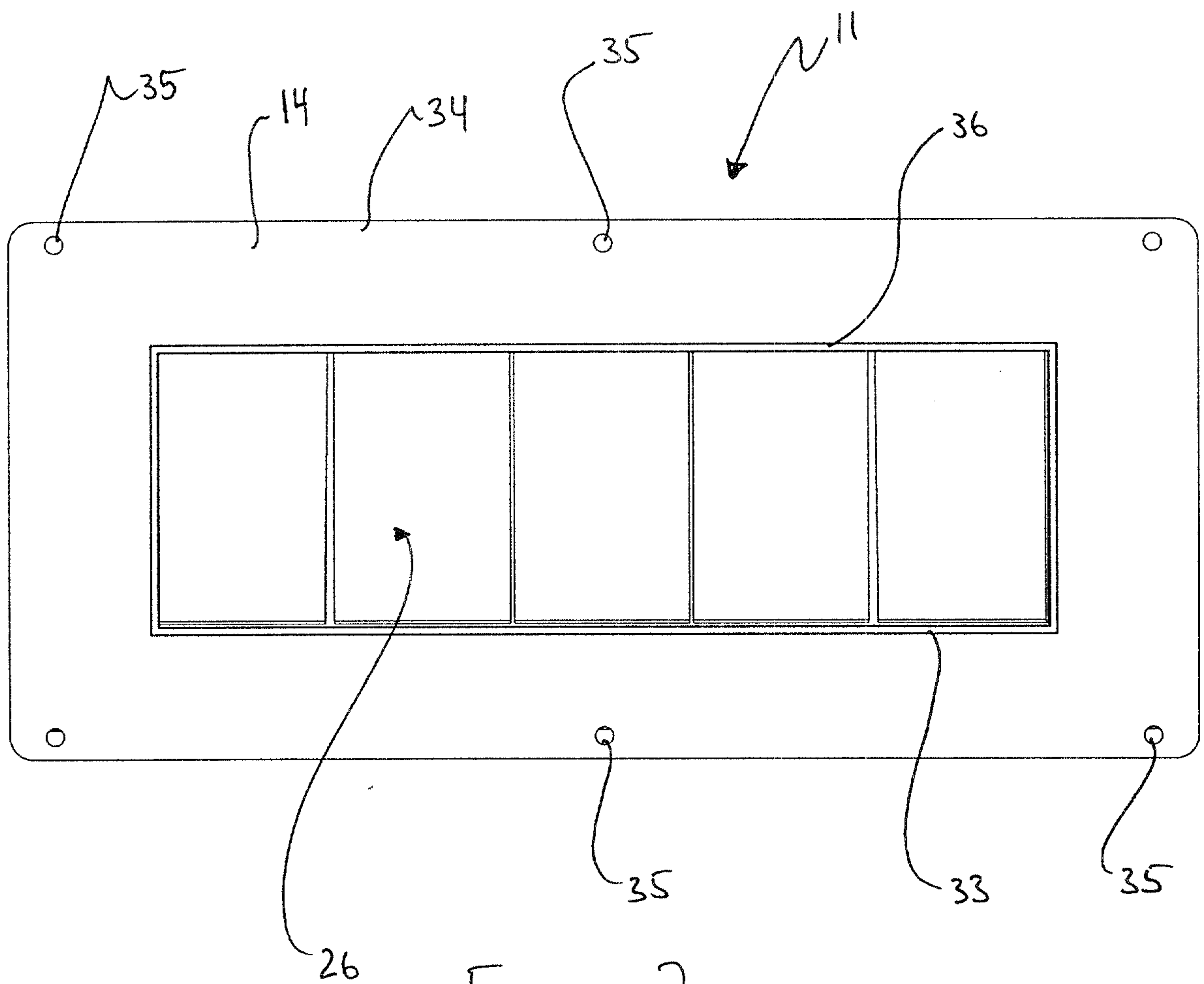


FIGURE 2

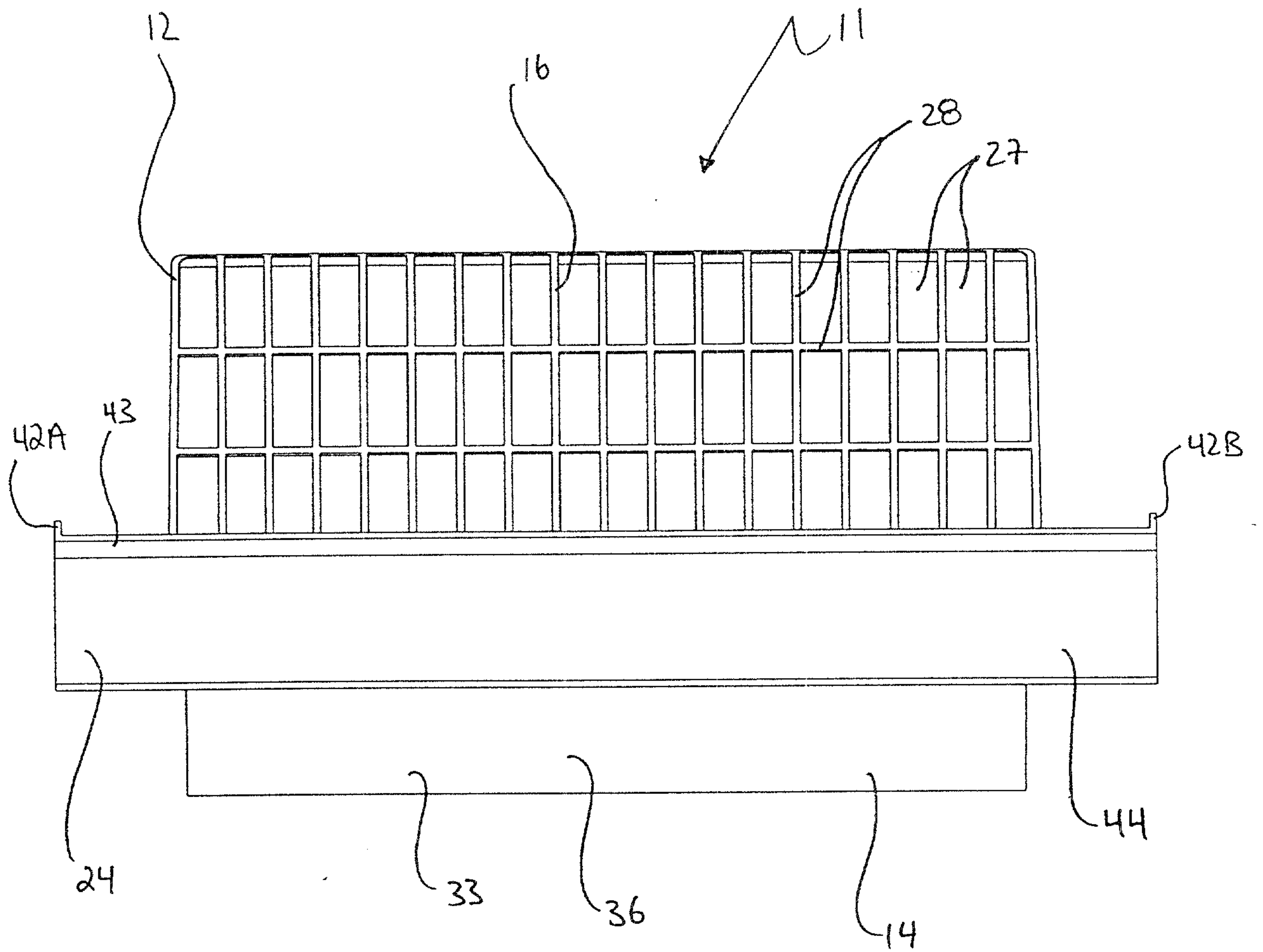


FIGURE 3

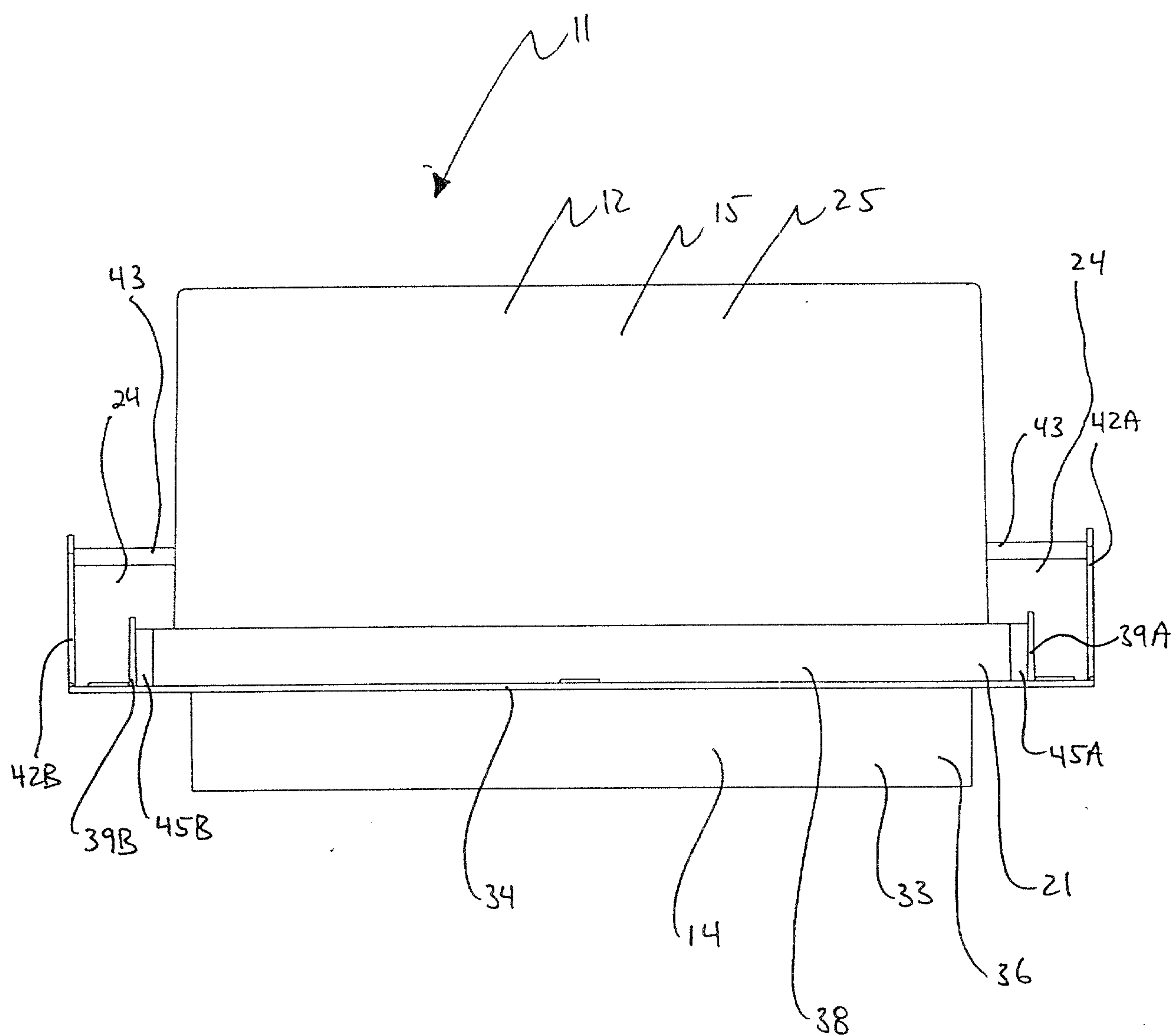


FIGURE 4

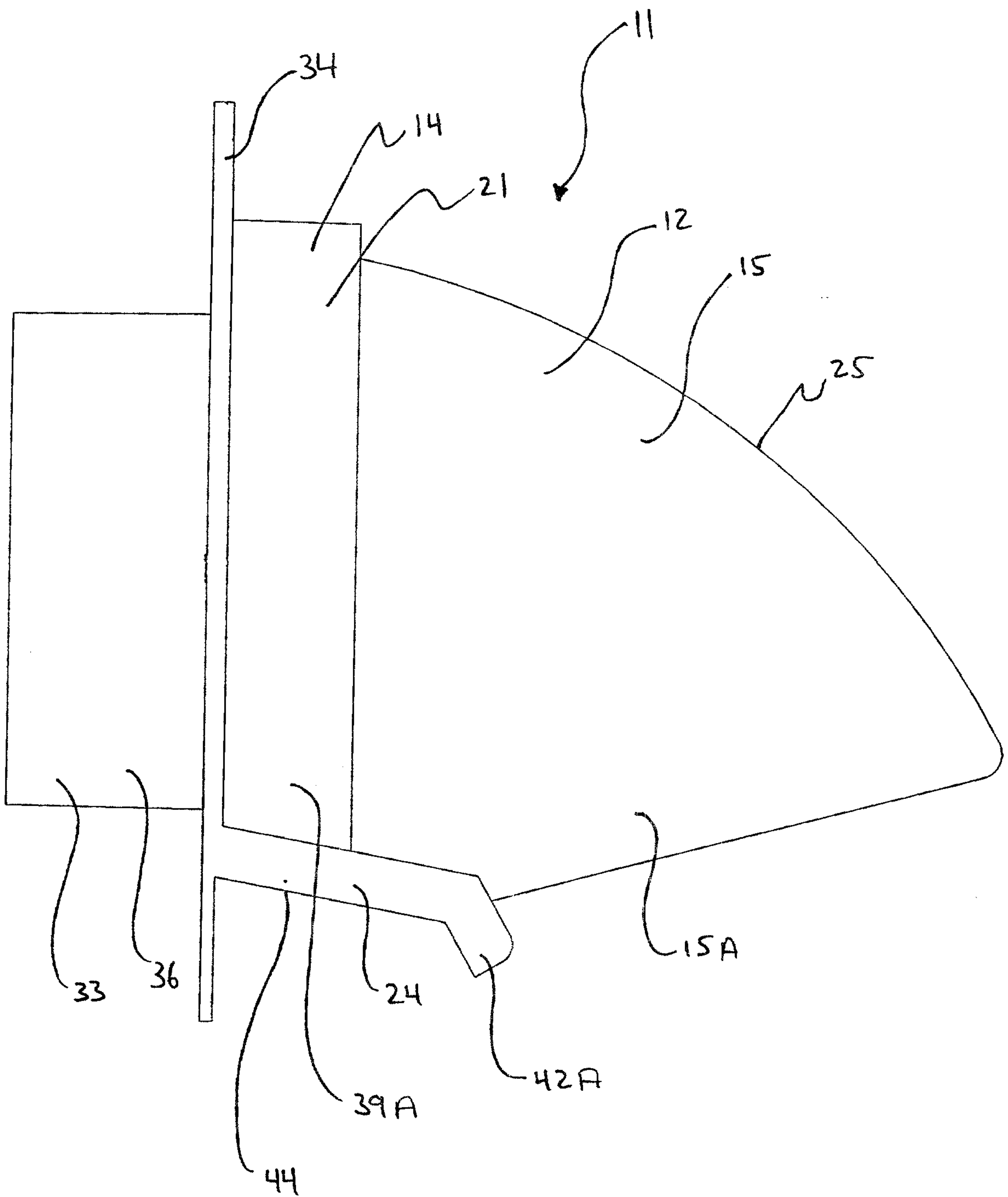


FIGURE 5

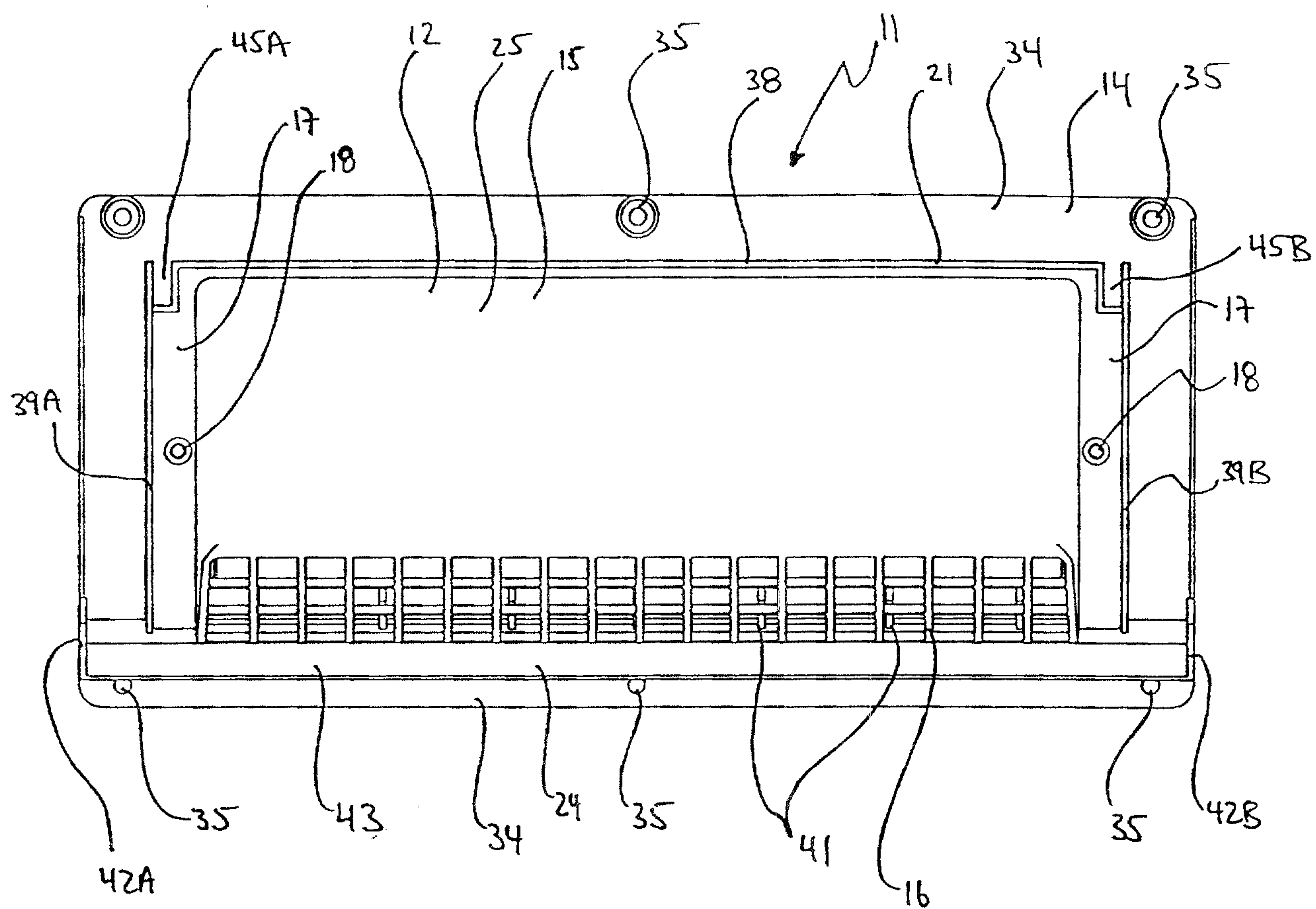


FIGURE 6

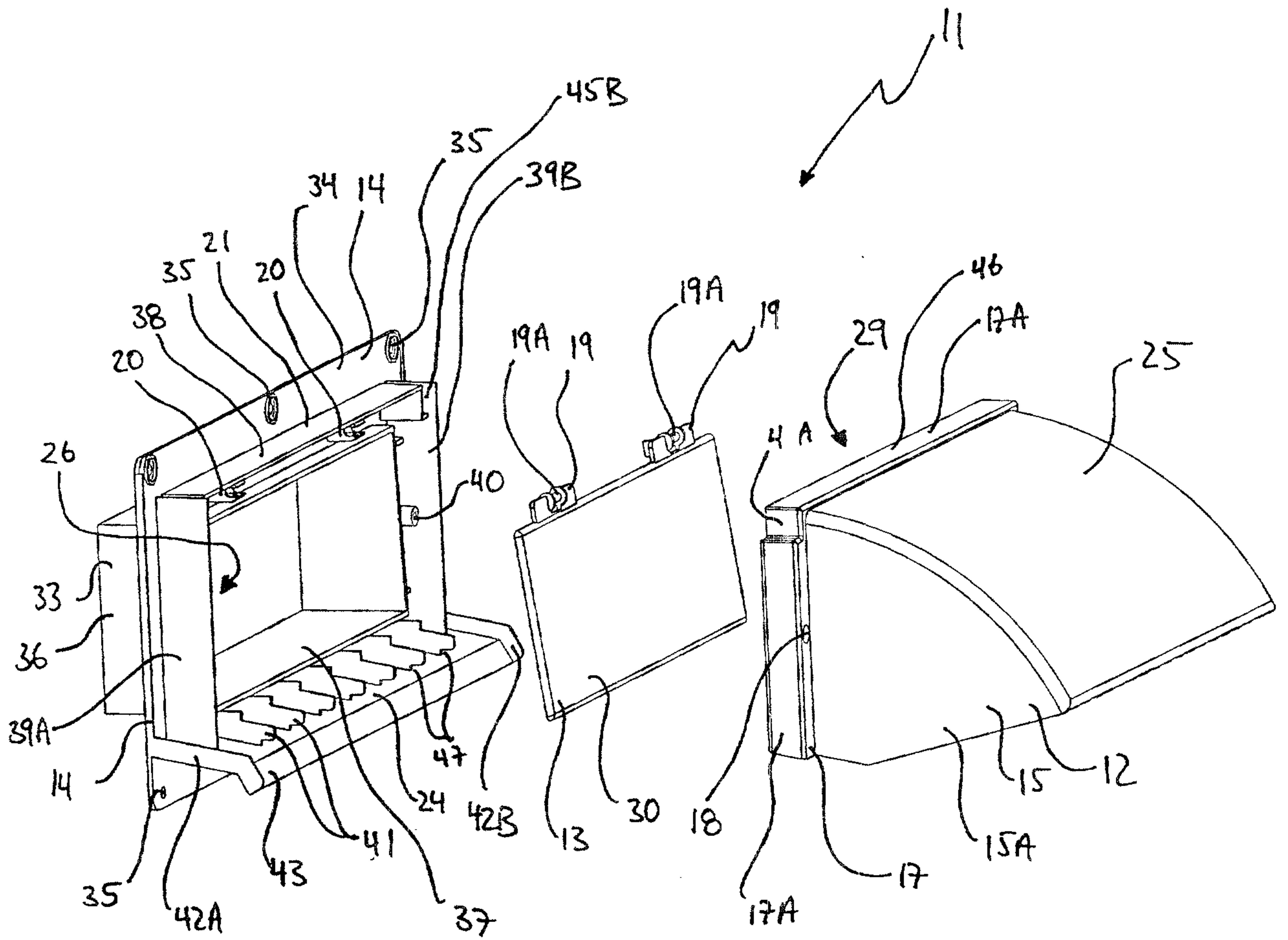


FIGURE 7

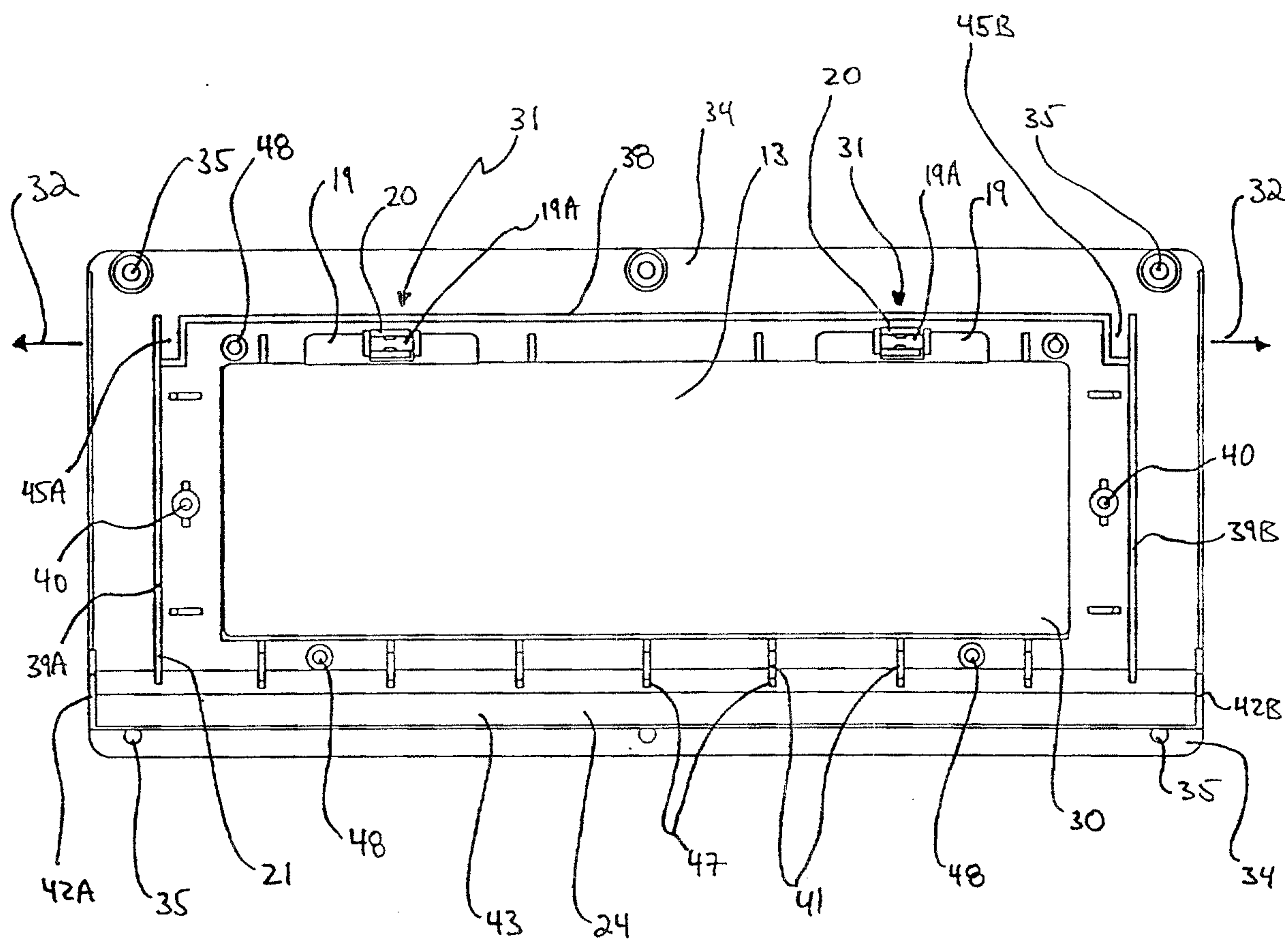


FIGURE 8

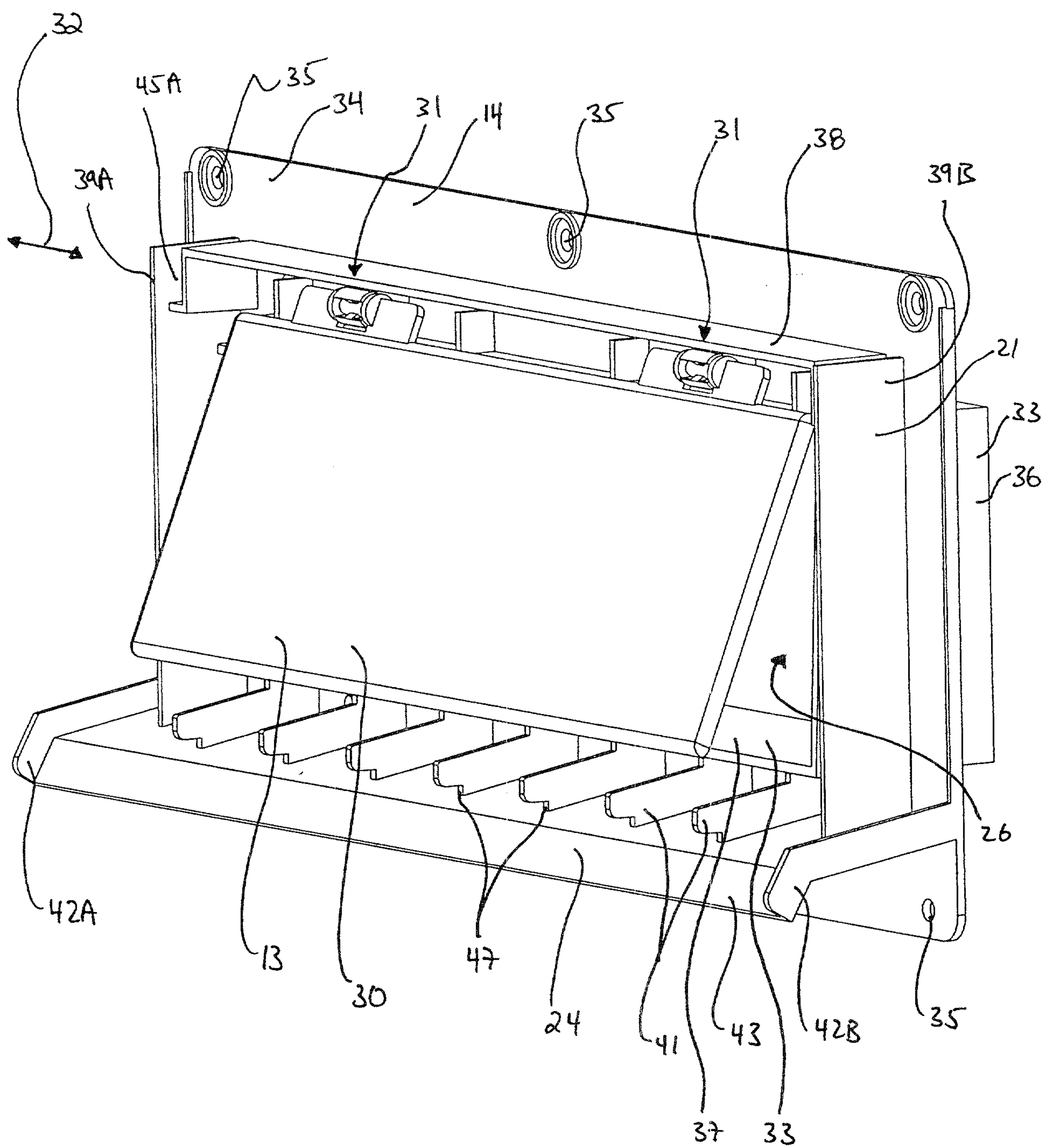


FIGURE 9

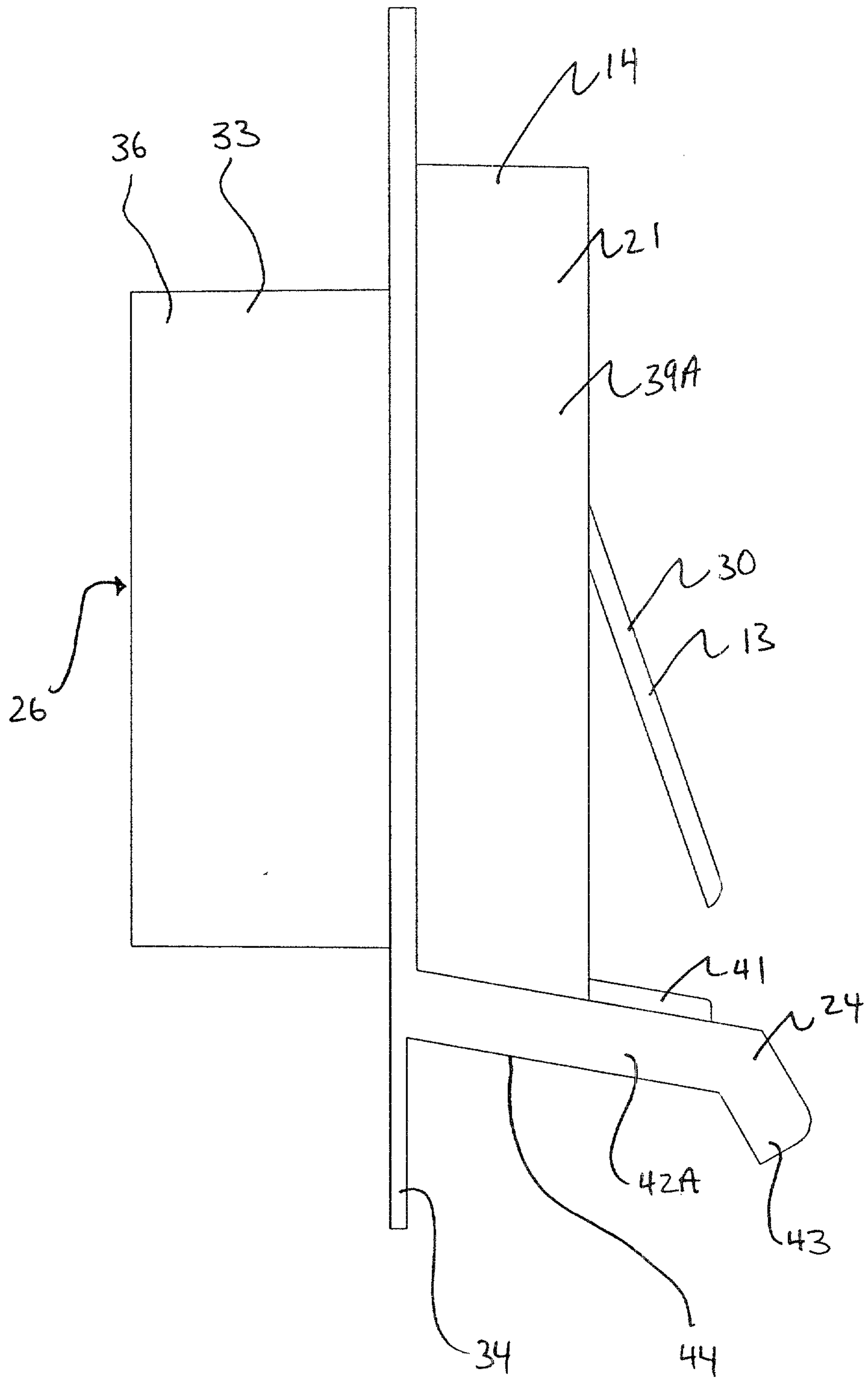


FIGURE 10

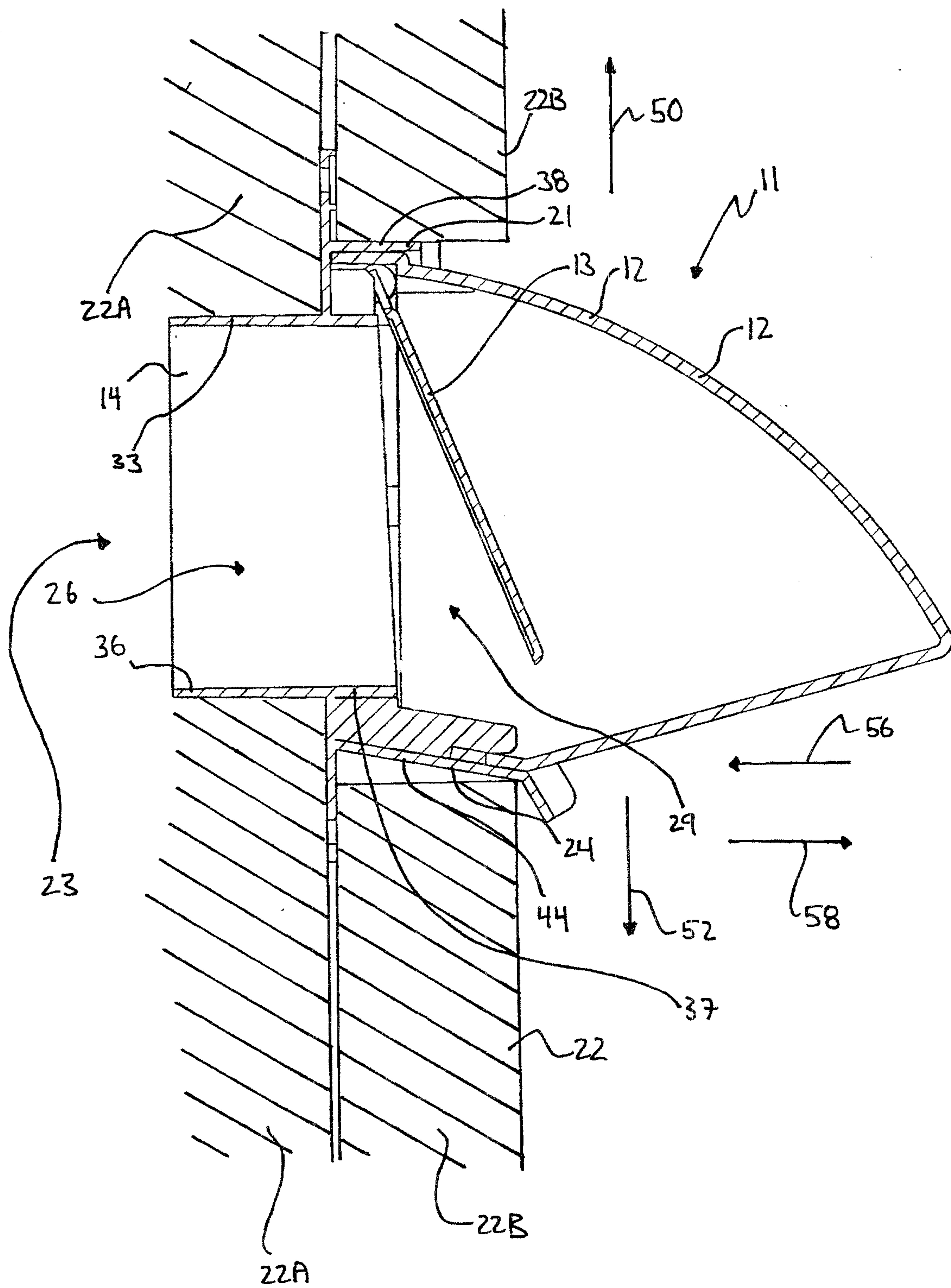


FIGURE 11

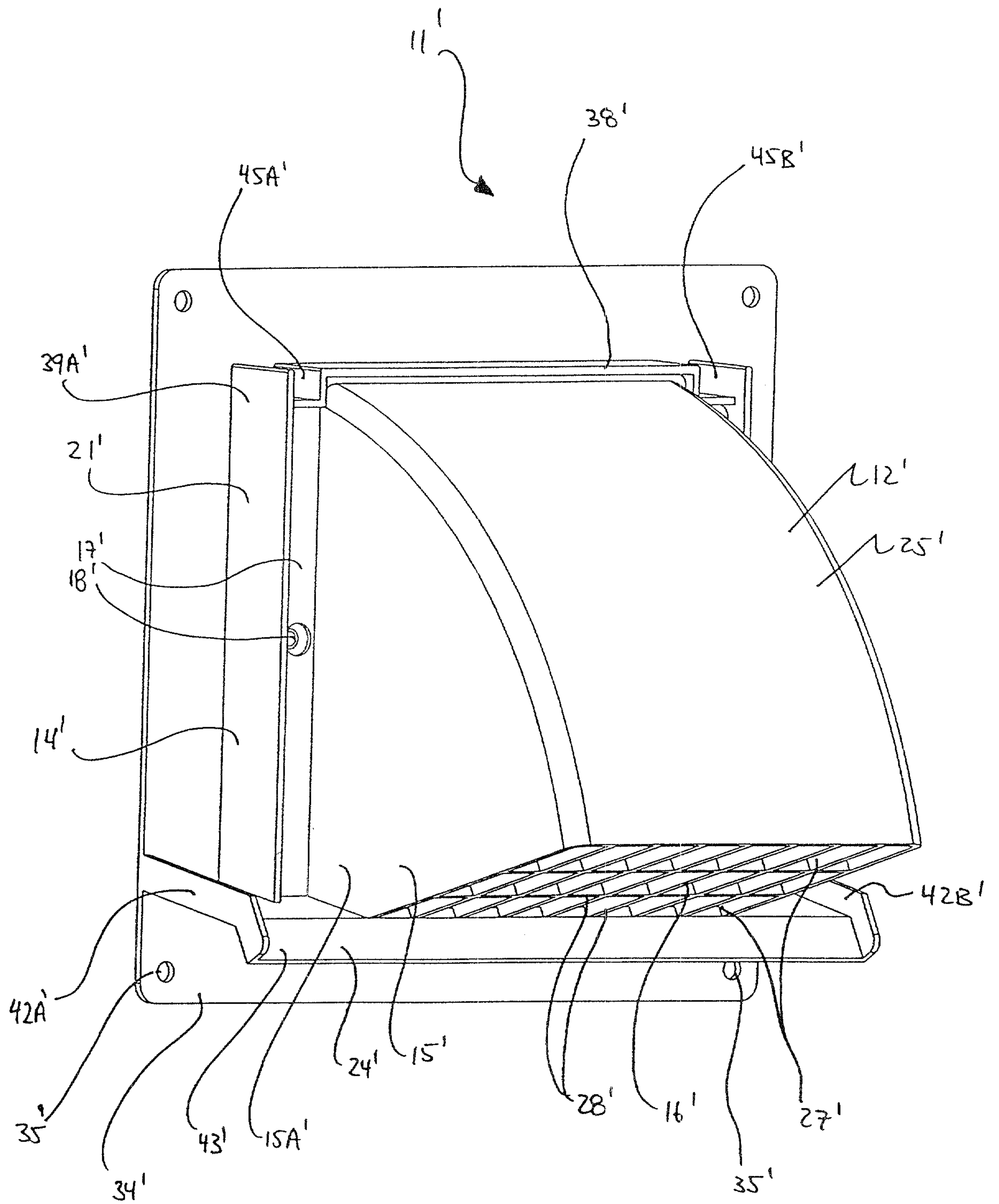


FIGURE 12

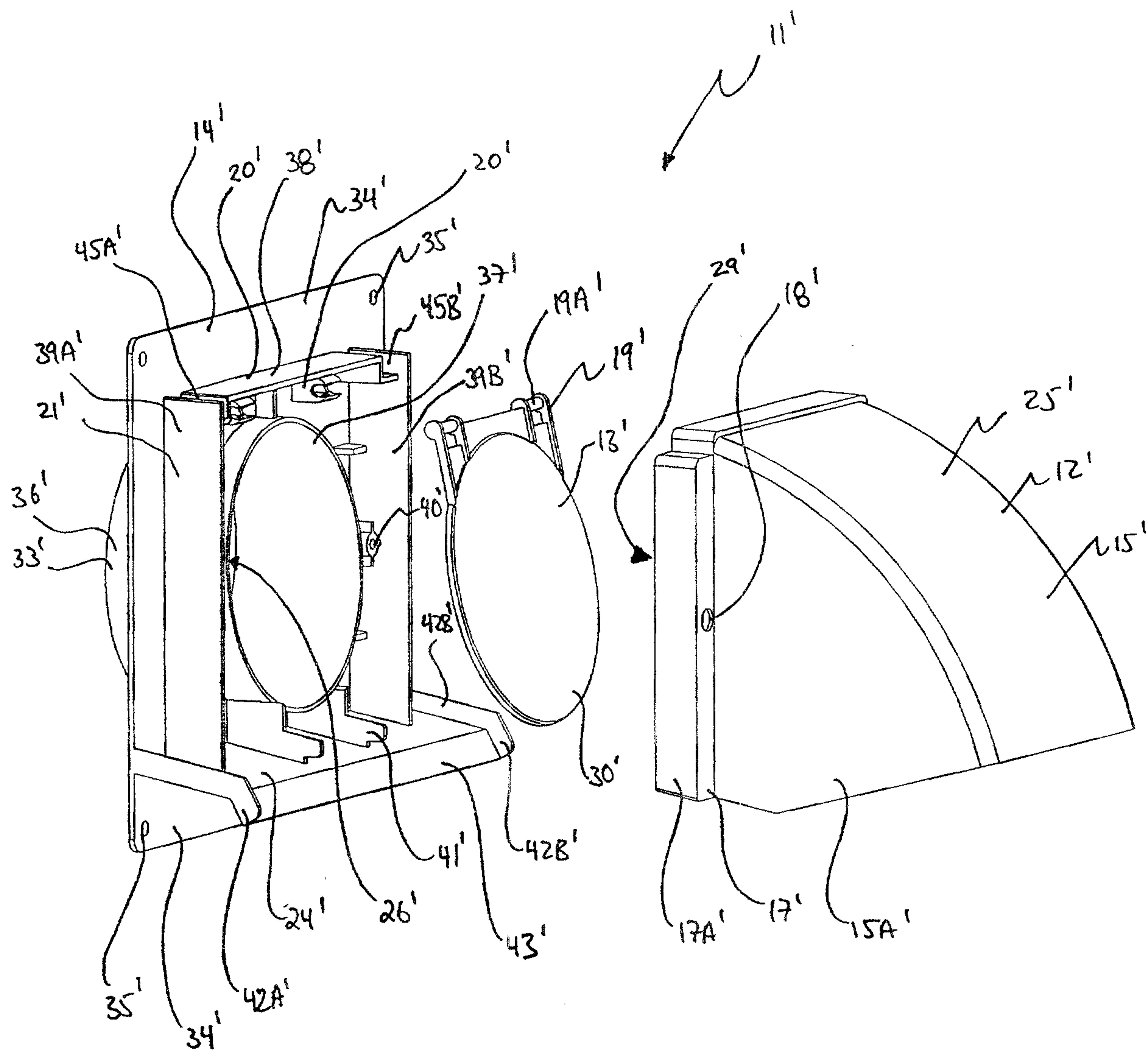


FIGURE 13.

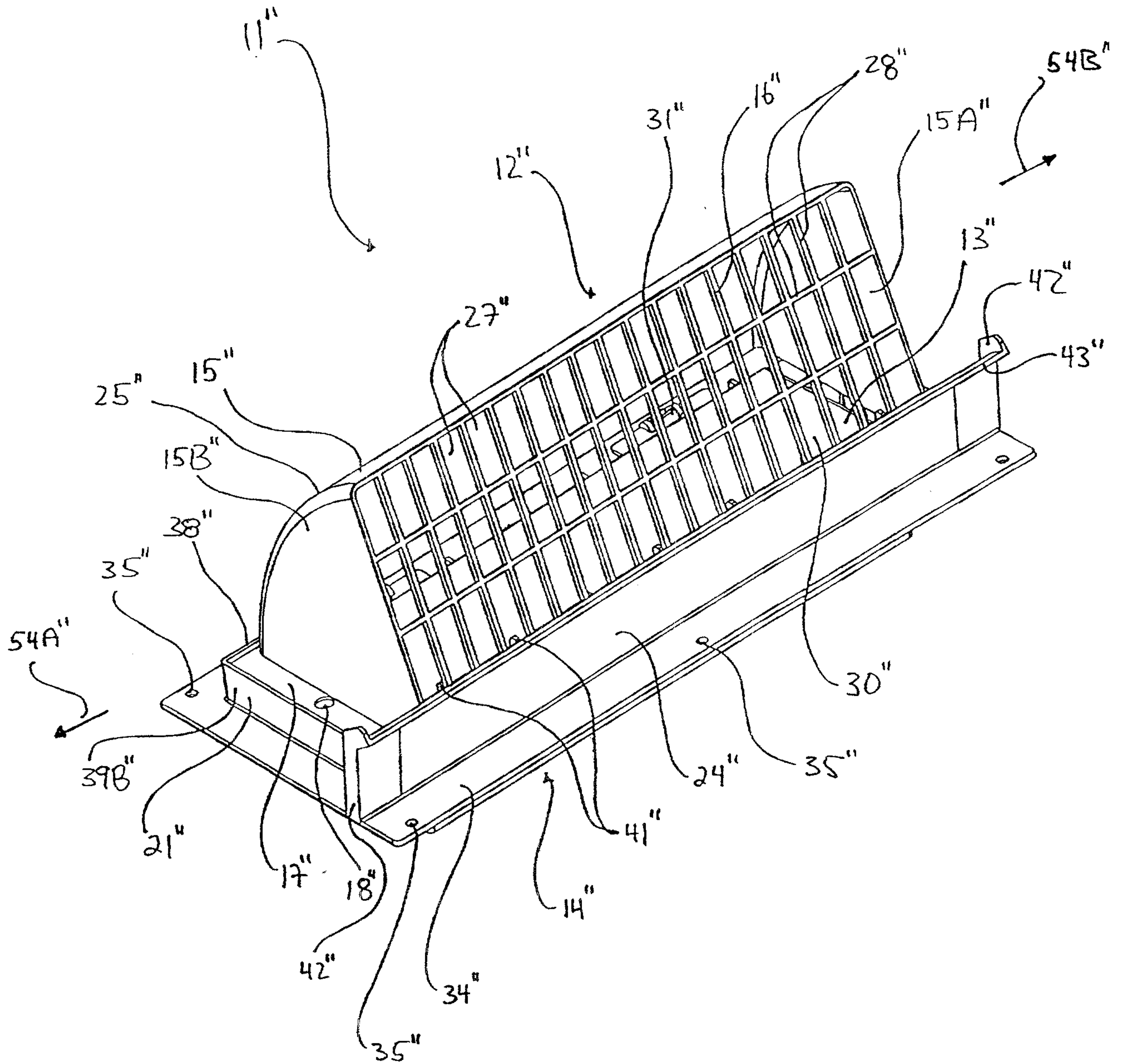


FIGURE 14

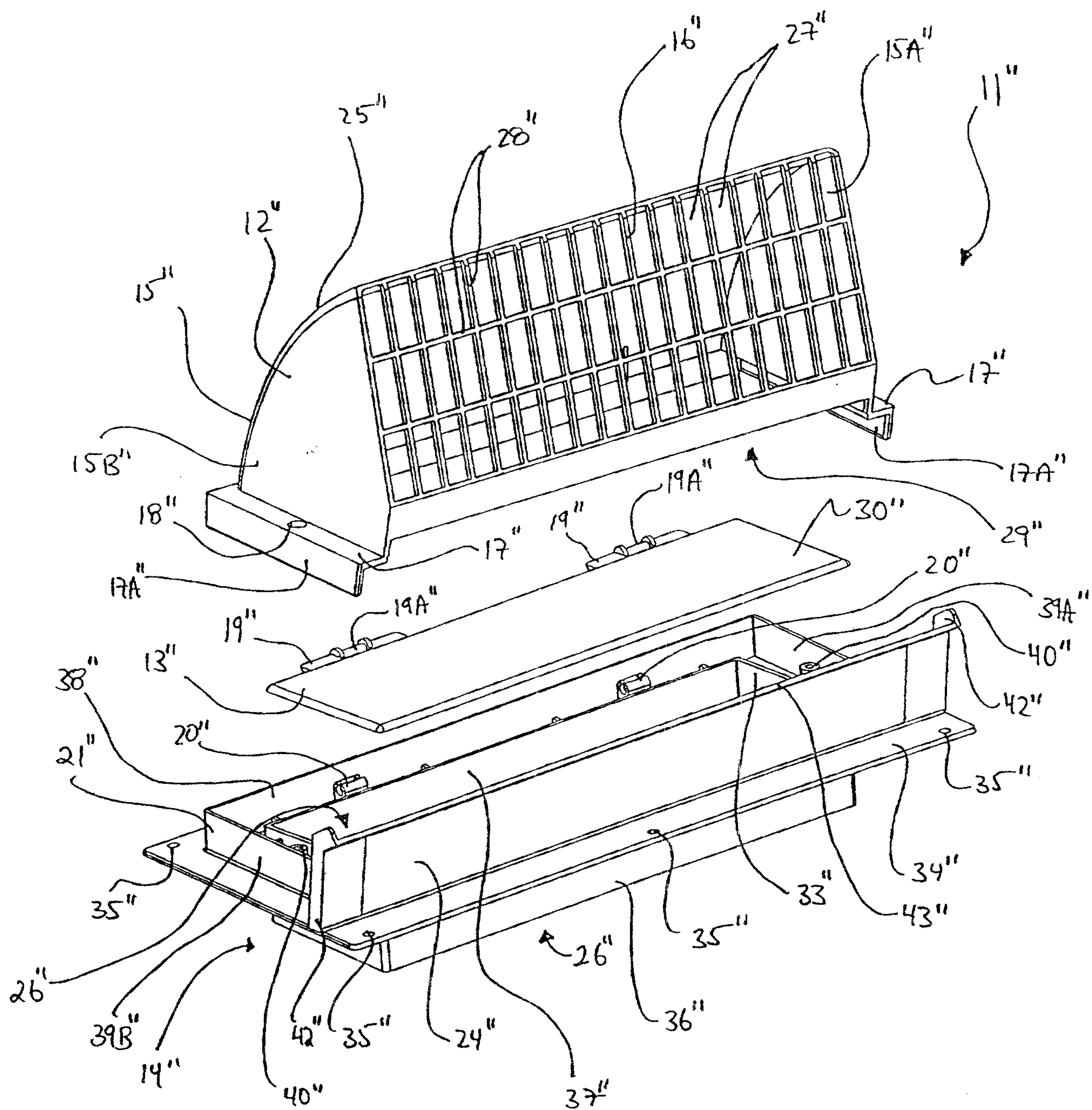


FIGURE 15

