



(22) Date de dépôt/Filing Date: 2007/08/15

(41) Mise à la disp. pub./Open to Public Insp.: 2009/02/15

(51) Cl.Int./Int.Cl. *F24F 7/02* (2006.01)

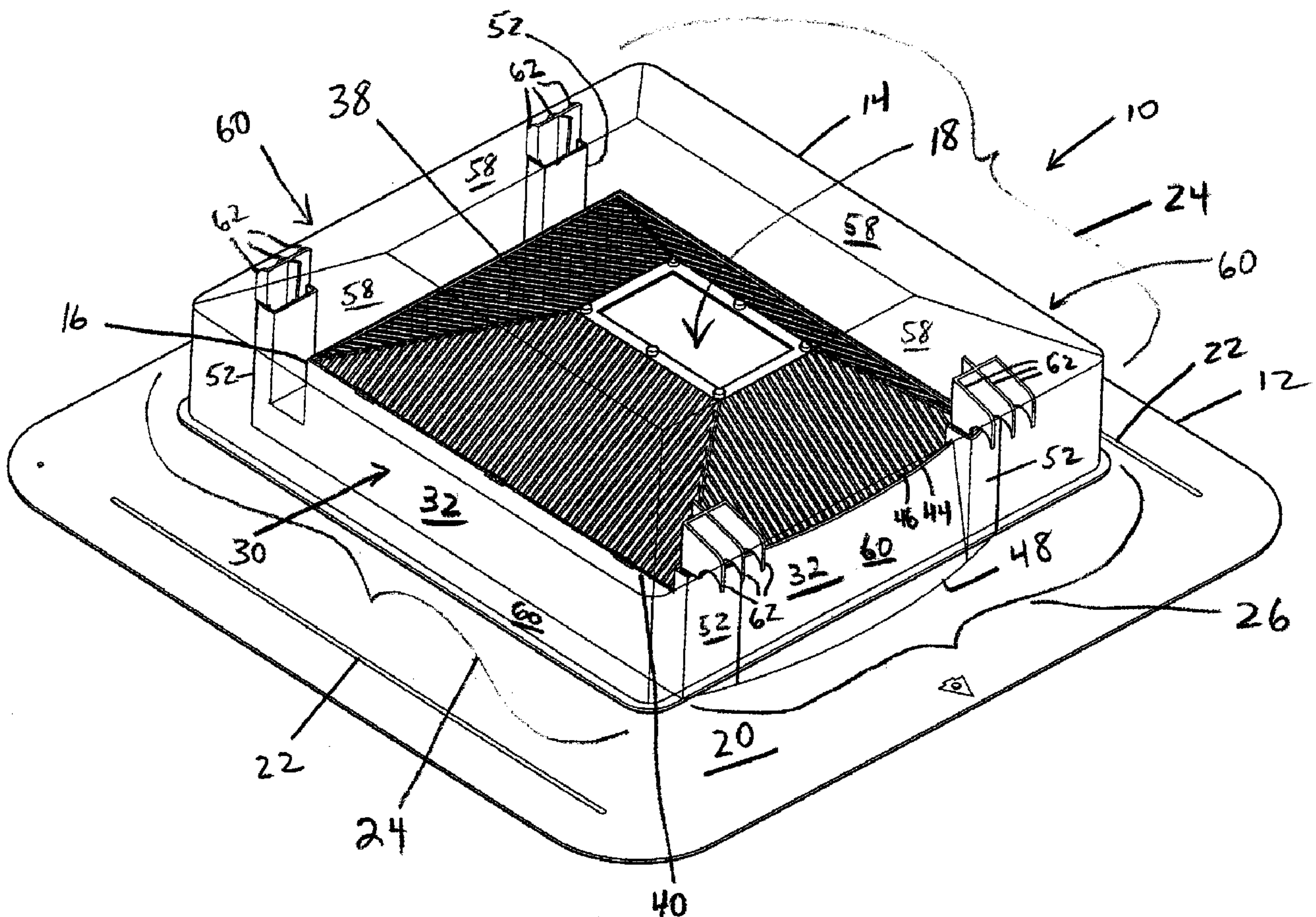
(71) Demandeur/Applicant:
CANPLAS INDUSTRIES LTD., CA

(72) Inventeur/Inventor:
MCKEE, JAMES H.A., CA

(74) Agent: PIASETZKI & NENNIGER LLP

(54) Titre : CHATIERE POUR VENTILATION D'UNE ENVELOPPE DE BATIMENT

(54) Title: ROOF VENT FOR VENTING A BUILDING ENCLOSURE



(57) Abrégé/Abstract:

There is disclosed a vent for venting a building enclosure. The vent comprises a base, a cover and at least one attachment structure configured to attach the cover to the base. The base has an attachment element for attaching the base to the building



(57) **Abrégé(suite)/Abstract(continued):**

enclosure and an aperture in the base to permit gas to pass in and out of the building enclosure therethrough. The cover, which is for covering the aperture, has a first cover portion and a second cover portion which are angled relative to one another. The at least one attachment structure is carried by both the first and second cover portions.

ABSTRACT OF THE DISCLOSURE

There is disclosed a vent for venting a building enclosure. The vent comprises a base, a cover and at least one attachment structure configured to attach the cover to the base. The base has an attachment element for attaching the base to the building enclosure and an aperture in the base to permit gas to pass in and out of the building enclosure therethrough. The cover, which is for covering the aperture, has a first cover portion and a second cover portion which are angled relative to one another. The at least one attachment structure is carried by both the first and second cover portions.

Title: ROOF VENT FOR VENTING A BUILDING ENCLOSURE**FIELD OF THE INVENTION**

5

This invention relates generally to the field of venting devices, and in particular, to venting devices for venting building enclosures.

BACKGROUND OF THE INVENTION

10

Virtually all buildings and enclosures where human activity takes place require venting of one type or another. The type of venting device employed will depend on the kind of enclosure to be vented. For example, bathrooms containing showers typically have active vents with fans to vent steam to the outdoors. Kitchens, particularly in restaurants and hotels, similarly have powered vents for removing odours, smoke and steam to the outdoors.

15

Other types of enclosures, such as attics and yard sheds, do not require active venting. However, such enclosures do typically require a passive vent to allow for air flow from the enclosure to the atmosphere. Such venting is required, for example, to prevent a buildup of moisture in the enclosure. Passive vents do not include a mechanism for forcing air out of the enclosure. Rather, they simply include a vent structure, in the form of an air passageway which allows air to flow through the vent structure.

20

Because passive vents simply allow air to flow in and out through an opening in the enclosure, they typically include a screen that blocks animals or unwanted objects from entering the enclosure through the opening, but still allows air flow. The presence of the screen tends to reduce airflow area because the screen elements block some of the area through which air could flow.

25

Whether active or passive, the venting of an interior space of a building

30

-2-

enclosure involves making a hole in the building envelope (e.g. the roof), and then covering the hole to prevent rain, snow and pests such as birds and animals from entering the enclosure through the hole, while at the same time permitting the passage of air into and out of the interior space of the building.

5

While there are many different types and designs of vents, both active and passive vents include some common elements, namely, a base for securing about the hole in the roof and a cover connected to the base, to prevent rain, snow or the like from entering the hole through the base. Typically the base has a nailing flange or flashing strip to attach the vent around the hole in the building enclosure, a grill across the hole to keep out unwanted pests while allowing air to pass through. The cover of such a vent prevents rain, snow or the like from impinging upon the grill. Typically the nailing flange of the vent is made larger than the hole formed in the building envelope, so that the vent can be fixed in place around the hole. For a sloped roof application, the flange is then underlapped and overlapped with, for example, roofing shingles, to provide for water shedding along the roof past the vent structure.

Passive vents are well-known and have been extensively used. In the past, they have tended to be made from a metal such as galvanized steel or aluminum. Metal has certain advantages, including that it can be formed to exact shapes and according to precise specifications. Depending upon the metal, it is durable in the sense that aluminum, for example, is generally not degraded by exposure to the elements such as rain and sunlight. However, metal products can also be difficult to work with, expensive to form and fragile when formed in thin pieces. In a vent, the metal is not required to carry any significant loads. To save material and cost, therefore, thin metal is typically used. Thin sheet metal is easily bent; this feature facilitates the forming of the vent in the first place, but also means that the formed product can be damaged easily.

30

Thus, the thin sheet metal will be easy to bend into and then possibly out

-3-

of the desired shape. Any bumps or knocks which typically occur during shipping can leave dents in the surface of the vent cover, which dents make the vent unacceptable to customers. Alternately, the base may become misshapen and twisted, making it difficult to attach the device onto a planar surface of the building enclosure, such as a roof. Sheet metal vents therefore tend to suffer from very high return rates due to delivery or other incidental damage.

More recently, plastic roof vents have been developed which are typically made by injection moulding or the like from thermoplastic resins, such as polypropylene. In this manner many units can be made quickly and for less cost than incurred in bending and forming sheet metal. Plastic roof vents are much more durable than metal ones during transportation, handling and delivery, since any bumps or blows inflicted will tend to be resiliently absorbed by the plastic without any lasting marking or damage. Unlike thin sheet metal, the plastic does not permanently deform under the range of stresses typically incurred in shipping. Therefore, the return rate for plastic vents is advantageously relatively low.

In a typical plastic vent, due to the complexity of its structure, the base and the cover need to be moulded separately. The base and cover are then attached together to form the finished vent. Accordingly, an important consideration in the design of such plastic vents is the structural connection between the cover and the base. Several known methods of attachment include screws, nails, clips, glue, sonic welding and heat staking.

A preferred mode of attachment is disclosed in U.S. Pat. No. 6,612,924, which involves using an attachment means in the form of four attachment structures, each comprising a shaft extending from a surface on the underside of the cover and a receptacle extending from the base. At its free end, the shaft has an arrowhead-shaped attachment head. At the free end of the receptacle is an aperture, which is configured to register with the corresponding attachment head. In operation, the cover is attached to the base by registering each attachment head with the corresponding aperture. The aperture of each

-4-

receptacle flexes open to admit the matching attachment head. Once the head has been inserted beyond the aperture, the aperture, having a memory, returns to its pre-flexed size and closes around the head. Thus, the aperture catches the head at its upper end and is adapted to grip the head to prevent it from withdrawing from the receptacle. The result is that each shaft and receptacle lock together to form unitary pillars which hold and support the cover at a predetermined position above the base.

As shown in U.S. Pat. Nos. 6,155,008, and 6,520,852 the shafts and receptacles are integrally moulded to the base and cover in matching relation, with the shafts being attached to the underside of the top portion of the cover, and the receptacles being attached to the base. Although this means of attaching the cover to the base is quite effective, it suffers from some disadvantages. For example, it has been discovered that when several assembled vents are stacked one on top of the other for packaging and shipping to customers, the weight of the stacked vents on the lowermost vents causes discolourations on the top portions of the covers of those lowermost vents at the points of attachment of the shafts.

Also, it is typical for vents like those described in the aforementioned patents to be made for use on sloped roofs. They have an upward end for facing up the roof, a downward end for facing down the roof, and two sides. Typically, the attachment structures are positioned between the vent structure and the sides. The result is that the side of the vent structure presents a complicated, jagged profile. When lapping the shingles over the flange at the sides, an installer must first cut out sections of the shingle corresponding to this jagged profile in order to install the shingles flush with the venting device. This additional step is time consuming and skipped by some installers, in which case a gap is created between the shingles and the venting device. This shortcut increases the chance that water will seep under the shingles and damage the roof.

Furthermore, passive vents may be required on a variety of different

-5-

surfaces, such as level roofs or sloped roofs. In the case of steeply sloped roofs, water will flow down the slope at a high rate of speed. One problem that can arise in such a circumstance is that water flowing quickly down the sloped roof strikes the vent and splashes into the vent structure. This problem is particularly likely to occur during heavy rainfall, which would produce heavy water flow down the sloped roof. Similar heavy water flow might occur, for example, when snow and ice on the roof begin to melt. One attempt for overcoming this problem is disclosed U.S. Pat. No. 6,155,008, which discloses a passive venting device having a vent structure, which when viewed from above is generally rectangular, with three of its sides parallel to the sides of the outer attachment flange. However, the fourth side of the vent structure is slightly angled, forming a peak in the middle of the fourth side. When the passive venting device is mounted on a sloped roof, the passive venting device is positioned such that the peak is pointed up the slope. This positioning prevents water from pooling against the side of the vent structure.

Although the peak functions well in this regard, installation of a vent having this peak can be difficult, since the installer must cut the shingles at least twice in order to accommodate the jagged peak. This procedure risks overcuts, which may lead to damaging the shingle at the vicinity of the peak. If this happens, the shingles will not be flush with the upstanding side walls of the base, which is less than optimal.

A related problem is that, during times of heavy precipitation, raindrops can hit the roof and bounce under the cover and into the vent structure.

25 **SUMMARY OF THE INVENTION**

Therefore, what is desired is a passive venting device, which addresses one or more of the aforementioned problems with prior art venting devices, yet which is suitable for use at a variety of different locations on a roof. Preferably, the passive venting device provides increased airflow to

-6-

and from the enclosure being vented and is simple and inexpensive to manufacture and install.

Accordingly, in one aspect of the present invention there is provided a vent for venting a building enclosure, the vent comprising:

5 a base comprising an attachment element for attaching the base to said building enclosure and an aperture to permit gas to pass in and out of said building enclosure through said base;

a cover for covering the aperture, the cover having a first cover portion and a second cover portion, the first and second cover portions being angled
10 relative to one another; and

at least one attachment structure configured to attach the cover to the base, the attachment structure being carried by both the first and second cover portions.

In another aspect, there is provided a vent for venting a building
15 enclosure, the vent comprising:

a base comprising an attachment element for attaching the base to said building enclosure and an aperture to permit gas to pass in and out of said building enclosure through said base, wherein the base includes sides configured to face sideways along a sloped roof, and at least one non-side
20 portion;

a cover for covering the aperture; and

at least one attachment structure comprising an attachment member and a corresponding attachment receptacle for attaching the base and the cover, the attachment member being carried by one of the base and the
25 cover, and the attachment receptacle being carried by the other of the base and the cover;

wherein one of the attachment member and the attachment receptacle that is carried by the base is positioned at said non-side portion.

30 **BRIEF DESCRIPTION OF THE DRAWINGS**

-7-

Reference will now be made to the preferred embodiments of the present invention with reference, by way of example only, to the following drawings in which:

5 Figure 1 is a perspective view of a vent having a base and a cover according to an embodiment of the present invention, with the cover shown as transparent;

 Figure 2 is a side exploded view of the vent of Figure 1;

 Figure 3 is a plan view of Figure 2 taken along line 3-3;

10 Figure 4 is a cross-sectional view of region 4 of Figure 2;

 Figure 5 is plan view of an underside of the cover of Figure 1;

 Figure 6 is a top view of the base of Figure 1;

 Figure 7A is a perspective view of the base of Figure 1 with louvers ready for installation on the base;

15 Figure 7B is a perspective view of Figure 6A with the louvers installed on the base; and

 Figure 8 is a cutaway cross-sectional view of a portion of an alternate embodiment of the cover.

20 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

 The present invention is described in more detail with reference to exemplary embodiments thereof as shown in the appended drawings. While the present invention is described below including preferred embodiments, it
25 should be understood that the present invention is not limited thereto. Those of ordinary skill in the art having access to the teachings herein will recognize additional implementations, modifications, and embodiments which are within the scope of the present invention as disclosed and claimed herein. In the figures, like elements are given like reference numbers. Figure 1 shows a
30 vent 10 for venting a building enclosure according to an embodiment of the

-8-

present invention. The vent 10, which comprises a base 12 and a cover 14, is attachable to an external surface of the building enclosure, typically a roof (not shown), over a vent opening in the roof.

5 The base 12 includes a vent structure 16, including an aperture 18 (best seen in Figure 3) therein to permit gas to pass in to and out of the building enclosure through the vent opening. Accordingly, the base 12 preferably also includes an attachment element for attaching the base 12 to the roof such that the aperture 18 is in fluid communication with the opening in the roof material. In the preferred embodiment the attachment element comprises an outer flange
10 20 extending away from the aperture 18. The outer flange 20 may be secured to the roof in any convenient manner, including using clips, nails or screws. Furthermore, it will be appreciated that the outer flange 20 is sized and shaped so as to allow shingles to be lapped over the flange 20 during installation, in a manner that prevents water from leaking under the shingles and onto the roof material below. In this way, the flange 20 functions similarly to a shingle on a
15 sloped roof. Since the portion of the flange 20 disposed downward along the sloped roof is lapped over the shingles, during periods of rain, the water is discharged off of the flange 20 onto the shingles disposed downwardly of the flange 20, thus preventing water from entering underneath the shingles.

20 However, particularly in conditions of heavy rain, it is preferred to prevent the rain falling onto the outer flange 20 from working its way under shingles which are lapped over the outer flange 20 along the side of the vent 10. This is accomplished in part providing the flange 20 with a rain ridge 22 along both sides, as shown in Figures 1 and 6. The purpose of the rain ridge 22 is to direct
25 the water toward the portion of the vent 10 disposed downwardly along the sloped roof. Since the downwardly-disposed portion of the flange 20 is lapped over the shingles, the water is discharged off of the flange 20 on top of the shingles, thus preventing water from entering underneath the shingles.

30 Preferably, the base 12 comprises at least two sides 24 to face sideways along a sloped roof. The base 12 also preferably includes at least one non-side

-9-

portion 26. Most preferably, the base 12 comprises a vent structure 16 including an aperture-surrounding wall 30, itself comprising vent structure walls 32, two of said vent structure walls 32 facing sideways along the sloped roof and functioning as the sides 24 of the base 12. Preferably, the at least one
5 non-side portion 26 comprises a third vent structure wall 32 facing upward along the sloped roof, and a fourth vent structure wall 32 facing downward along the sloped roof.

In the preferred vent structure 16, the vent structure walls 32 surround the aperture 18 through the base 12 that permits gas to flow through the vent
10 10. A screen 38, configured to permit gas flow therethrough, is preferably associated with the vent structure 16 and aperture 18, and positioned to prevent unwanted material (e.g. rodents, refuse) to enter the aperture 18 from outside.

It is preferable that the aperture 18 be positioned within the aperture-surrounding wall 30, so that a top end 40 of the aperture-surrounding wall 30
15 will be spaced vertically from the roof when the vent 10 is installed thereon. As a result, the aperture-surrounding wall 30 presents a barrier to water flowing along the roof and prevents the water from entering the aperture and into the building enclosure. Instead, water flowing along the roof is simply deflected off of the aperture-surrounding wall 30, and flows away from the vent 10. It will
20 further be appreciated that spacing the top end 40 of the aperture-surrounding wall 30 from the roof reduces the probability that rain will bounce off of the roof, under the cover 14 and through the aperture 18 into the building enclosure. This is because the top end 40 of the aperture-surrounding wall 30 presents a barrier to bouncing raindrops, reducing the risk that they will enter the aperture
25 18.

In the embodiment shown in Figure 6, the screen 38 is substantially (but, not necessarily perfectly) rectangular in plan view, and has four screen sections 42 corresponding to each side of the rectangle (i.e. up, down, two sides). In embodiments where the screen 38 has a different shape in plan view, the
30 screen 38 would typically have a screen section corresponding to each side of

-10-

the shape. Although it is contemplated that the screen 38 may be omitted in certain embodiments of the present invention, it will be appreciated that if a screen 38 is present, it can have one or more screen sections 42.

5 The screen 38 is preferably formed of vertical screen members 44 which provide relatively small spaces 46 between the screen members 44. These spaces 46 are sized such that unwanted objects such as birds, animals or debris are prevented from entering the aperture 18, whereas air, water vapour or gas can flow through the spaces 46 between the screen members 44. It will be appreciated by those skilled in the art that the presence of the screen
10 members 44 has the effect of reducing the available air flow area through the aperture, as air can only flow through the spaces 46 between those screen members 44. To compensate for this, it is preferred to increase the surface area of the screen 38 to enhance air flow. One way of increasing surface area of the screen 38 is to form the screen 38 in the shape of a pyramid which
15 extends upwardly from the top 40 of the aperture-surrounding wall 30, as best seen in the Figure 1.

It can now be appreciated by those skilled in the art that the aperture-surrounding wall 30 also acts as a screen spacer. That is, it spaces the screen 38 vertically away from the flange 20 and the roof. When the vent 10 is
20 positioned on an intermediate portion of a sloped roof (i.e. between the roof ridge or apex and the roof edge), spacing the screen 38 away from the roof helps to prevent flowing water or rain from entering under the cover 14 and leaking through the aperture 18.

Preferably, the vent structure 16 also includes a liquid deflector 48 for
25 use in situations where the vent 10 is mounted on sloped roofs. As best seen in Figures 1 and 6, the liquid deflector 48 is positioned at the upward portion of the aperture-surrounding wall 30. The liquid deflector 48 preferably has a smoothly curved shape which serves two functions. First, the smoothly curved continuous shape of the liquid deflector 48 facilitates the cutting of shingles to
30 match its shape, by permitting a single continuous cut, as opposed to the two

-11-

or more cuts required with prior art liquid deflectors, such as, for example, those formed from two surfaces meeting at a peak or edge. This prevents damaging overcuts in shingles during installation, and reduces the risk of future leaks. Second, the liquid deflector 48 provides additional protection against liquid, such as rain, flowing down the sloped roof from entering the vent structure 16, by guiding the liquid to the sides of the aperture-surrounding wall 30. Thus, the preferred vent 10 will be used on sloped roofs and will be installed with the liquid deflector 48, positioned on the upward vent structure wall 32, facing up the slope. It will be appreciated by those skilled in the art that the invention comprehends vents 10 in which the vent structure 16 does not include the liquid deflector 48 described above.

As shown in Figure 1, the cover 14 is mountable to the base 12 so as to cover 14 the aperture 18 to prevent rain from entering, while permitting gas flow through the aperture 18. In the preferred embodiment as shown in Figure 1, the cover 14 is spaced from the screen 38, flange 20 and aperture 18 to permit gas flow. Other configurations that block rain from entering the aperture 18, and permit gas flow are also comprehended by the invention.

Referring to Figure 1, the preferred mode of attachment involves using an attachment means in the form of four attachment structures. Each attachment structure (see Figure 1) comprises a first attachment member in the form of a shaft 50 extending from the underside of the cover 14 which registers with a second attachment member in the form of a receptacle 52 extending from the base 12 (see Figure 2). As best seen in Figure 4, the free end of the shaft 50 includes an attachment head 54 which preferably is generally in the shape of an arrow head. The embodiment of Figure 4 shows a sagittate member having a first thick end and an opposed thinner or apical end with a tapered or chevron-shaped edge therebetween. At the free end of the receptacle 52 is an opening 56 (best seen in Figure 6), which is configured to register with the corresponding attachment head 54. In operation, the cover 14 is attached to the base 12 by registering each attachment head 54 with the

-12-

corresponding opening 56. The opening 56 of each receptacle 52 flexes open to admit the matching attachment head 54. Once the head 54 has been inserted beyond the opening 56, the opening 56, preferably having a shape memory, returns to its pre-flexed size and shape and closes around the head 54. Thus, the opening 56 catches the head 54 at its upper end and is adapted to grip the head 54 to prevent it from being withdrawn from the receptacle 52. As best seen in Figure 1, the result is that each shaft 50 and corresponding receptacle 52 lock together to form unitary pillars which hold and support the cover 14 at a predetermined position above the base 12. In the preferred embodiment, the attachment heads 54 are sized and shaped to cover substantially the entire width of the openings 56, so as to prevent rain water from leaking into the receptacles 52, and working its way into the aperture 18.

It will be appreciated that the attachment means and attachment structure(s) could take any appropriate form. What is important is that the vent 10 include one or more attachment structures to attach the cover 14 to the base 12 so that precipitation is blocked from entering the aperture 18 and gas flow through the aperture 18 is permitted.

As shown in Figures 2, 4, and 5, the shafts 50 and receptacles 52 are preferably integrally moulded to the underside of the cover 14 and base 12 in matching relation. As best seen in Figure 4, the cover 14 has a first cover portion 58 and a second cover portion 60, the first and second cover portions being angled relative to one another. In the preferred embodiment shown in Figure 4, the first cover portion 58 corresponds to a top portion of the cover 14, while the second cover portion 60 corresponds to a side portion of the cover 14. In the most preferred embodiment, the second portion 60 is sized, shaped and positioned to be oriented substantially perpendicularly to the roof. The shafts 50 are carried by both the first and second cover portions 58, 60 on the underside of the cover 14, and the receptacles 52 are attached to the base 12 (see Figures 2 and 5). As mentioned above, in prior art vents, discolourations often occur on vent covers where the shafts are connected to the covers, as a

-13-

result of the vents being stacked and the shafts bearing the weight of multiple vents. It has been discovered that, by attaching the shafts 50 to at least two cover portions which are angled relative to one another, such discolourations on the top surfaces of the covers are reduced or eliminated. Without being
5 bound to any particular theory, it is believed that by attaching the shafts 50 to at least two cover portions which are angled relative to one another, the stress load from the weight of the stacked vents, on the point of connection of the shaft's attachment to the cover 14 of vents lower in the stack, is evenly distributed over a broader area of the cover 14, providing a sturdier
10 construction, which is less resistant to discolouration due to the stress load. In addition, in the preferred embodiment, some of the weight borne by the shaft 50 is borne at the point of connection between the shaft 50 and the side portion of the cover 14, so that there is shear stress (not normal stress) created on the side portion. It appears that shear stress is less likely to create the problematic
15 discolouration.

It will be appreciated that cover portions 58 and 60 can be angled relative to one another in a variety of ways. For example, in the embodiment of Figures 1 and 2, the portions 58 and 60 are each substantially planar sections that meet at one or more edges. However, portions 58 and 60 need not intersect to be
20 angled relative to one another. Furthermore, portions 58 and 60 need not be planar to be angled relative to one another in accordance with the present invention. Rather, portions 58 and 60 could be arcuate sections of a curved cover, as shown, for example, in Figure 8. In the alternate embodiment of Figure 8, portions 58 and 60 are themselves curved. Line 59 shows the
25 approximate angle of portion 58, while line 61 shows the approximate angle of portion 60. Lines 59 and 61 are, in this example, tangents to the curved cover 14 at the mid-point of portion 58 and portion 60 respectively. The angle between lines 59 and 61 illustrates that portions 58 and 60 are substantially angled relative to one another. Thus, because portions 58 and 60 are

-14-

positioned at different locations along curved cover 14, they are angled relative to one another as shown by lines 59 and 60.

As shown in Figures 1 and 4, each shaft 50 is attached to the first and second cover portions 58,60 by web members 62. Although three such web members 62 are shown in the figures, it is contemplated that more or fewer web members 62 may be employed, as long as the shaft 50 is carried by the at least two cover portions 58,60. Furthermore, the web members 62 may be made thicker according to design requirements which will be appreciated by those skilled in the art.

It will also be appreciated by those skilled in the art that the invention comprehends other attachment means not comprising the specific structure described above. What is important in this aspect of the invention is that the attachment means is carried by both the first and second cover portions 58,60, and secures the cover 14 to the base 12 while permitting the flow of gas through the aperture 18 and between the building enclosure and the outside. For example, the shafts 50 and receptacles 52 could be glued, screwed or heat-staked together. Also, other locking mechanisms besides the above-described openings 56 and arrowhead 50 shafts could be used. Similarly, it would be possible to use a different number of attachment structures, heads 54 or shafts 50. What is important is that the base 12 and the cover 14 are adequately secured to one another. Also, the attachment means should be carried by at least two cover portions 58,60 which are angled relative to one another, and should secure the cover 14 to the base 12 while permitting the free flow of gas through the aperture 18 and between the building enclosure and the outside.

Referring now to Figure 6, the base 12 of the vent 10 according to an embodiment of the present invention is shown in plan view. It has been found that by positioning the attachment structures at the non-side portion 26 of the base, the sides 24 are left clear so that overlapping of shingles at the sides is not interfered with. If the attachment structures were positioned at the side 24, they would create a jagged profile with wall 30 that would make it harder to cut

-15-

shingles to overlap the flange 20 so that the shingles abut the aperture-surrounding wall 30. By contrast, with the attachment structures positioned at the non-side portion 26, a smooth profile can be presented on the sides 24, facilitating the cutting of the shingles, and the positioning of the shingles so that they abut the aperture-surrounding wall 30. With a smooth profile, the roofer does not need to make cut-outs in the shingle to match the attachment structures when laying the shingles up against the sides 24.

As mentioned above, the base preferably includes four attachment receptacles 52, two of which are positioned at the upward end of the base 12 and the other two are positioned at the downward end. The attachment receptacles 52 may be formed integrally into the aperture-surrounding wall 30 of the vent structure 16, into the flange 20 apart from the vent structure 16, or any combination thereof.

Preferably, the vent structure 16 has a width W that is approximately the same width as a standard shingle tab - about 20.3 centimetres. In this way, once one shingle tab is cut out, the vent 10 will fit neatly between the remaining shingle tabs, resulting in a clean looking installation. No cutting off of portions of tabs is required.

Referring now to Figures 7A and 7B, louvres 64 removably attachable to the vent structure 16 at the top end 40 of the aperture-surrounding wall 30 are shown. The louvres 64 are preferably attached by way of friction fit coupling of a portion of the louver 64 to a complementary portion of the vent structure 16. Other ways of attaching the louvres 64 to the vent structure are comprehended, as is a vent 10 without louvres 64. What is preferred is that louvres 64 are sized, shaped and positioned to some or all of the precipitation that has fallen under the cover 14 from bouncing up into the aperture 18. In periods of heavy rain, rain drops will hit the shingles and bounce upwards. In some circumstances the rain drops may fall under the cover 14 and bounce up into the aperture 18. The preferred louvres 64 function to block the bouncing rain drops from reaching the aperture 18. Preferably, the louvres 64 also block

-16-

snow from blowing into the aperture 18. Therefore, most preferably, the louvers 64 are attached to the vent structure 16 so as to extend outwardly, and downwardly towards the flange 20 at an angle of about 45 degrees.

5 While reference has been made to various preferred embodiments of the invention other variations are comprehended by the broad scope of the appended claims. Some of these have been discussed in detail in this specification and others will be apparent to those skilled in the art. All such variations and alterations are comprehended by this specification are intended to be covered, without limitation.

-17-

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

1. A vent for venting a building enclosure, the vent comprising:
 - 5 a base comprising an attachment element for attaching the base to said building enclosure and an aperture to permit gas to pass in and out of said building enclosure through said base;
 - a cover for covering the aperture, the cover having a first cover portion and a second cover portion, the first and second cover portions being angled
 - 10 relative to one another; and
 - at least one attachment structure configured to attach the cover to the base, the attachment structure being carried by both the first and second cover portions.
- 15 2. A vent for venting a building enclosure as claimed in claim 1, wherein the first cover portion comprises a top portion of said cover.
3. A vent for venting a building enclosure as claimed in claim 2, wherein the second cover portion comprises a side portion of said cover.
- 20 4. A vent for venting a building enclosure as claimed in claim 1, wherein the base comprises sides configured to face sideways along a sloped roof, and at least one non-side portion.
- 25 5. A vent for venting a building enclosure as claimed in claim 4, wherein the at least one attachment structure is positioned at the at least one non-side portion such that the at least one attachment structure does not interfere with overlapping of shingles at said sides.
- 30 6. A vent for venting a building enclosure as claimed in claim 5,

-18-

wherein the at least one attachment structure comprises a first attachment member attached to said cover, and a second attachment member attached to said base and positioned at the at least one non-side portion, said first and second attachment members being configured to register with one another.

5

7. A vent for venting a building enclosure as claimed in claim 6, wherein the at least one non-side portion includes an upward portion configured to face upward along the sloped roof, and a downward portion configured to face downward along the sloped roof.

10

8. A vent for venting a building enclosure as claimed in claim 7, wherein the vent comprises four attachment structures, two of the attachment structures being positioned at said upward portion and the other two being positioned at said downward portion.

15

9. A vent for venting a building enclosure as claimed in claim 7, wherein the vent further comprises a liquid deflector, positioned at said upward portion, for deflecting liquid flowing downward along said sloped roof, the liquid deflector having a smoothly curved shape to facilitate the cutting of shingles to match said shape.

20

10. A vent for venting a building enclosure as claimed in claim 4, wherein the at least one non-side portion includes an upward portion configured to face upward along the sloped roof, and a downward portion configured to face downward along the sloped roof, the sides, upward portion and downward portion defining a vent structure sized and shaped to prevent unwanted material from entering into said building enclosure.

25

11. A vent as claimed in claim 10, wherein the vent structure includes a screen to block unwanted material from entering said aperture.

30

-19-

12. A vent for venting a building enclosure as claimed in claim 11, further comprising at least one louver attached to said vent structure for preventing precipitation entering under the cover from entering the aperture.

5 13. A vent for venting a building enclosure as claimed in claim 12, wherein the at least one louver is removably attached to said vent structure.

10 14. A vent for venting a building enclosure as claimed in claim 13, wherein the at least one louver is attached to said vent structure by way of a friction fit coupling of a portion of the louver to a complementary portion of the vent structure.

15 15. A vent for venting a building enclosure as claimed in claim 4, wherein the sides are spaced apart by one standard shingle tab width.

16. A vent for venting a building enclosure as claimed in claim 15, wherein the sides are spaced about 20.3 centimetres apart.

20 17. A vent for venting a building enclosure, the vent comprising:
a base comprising an attachment element for attaching the base to said building enclosure and an aperture to permit gas to pass in and out of said building enclosure through said base, wherein the base includes sides configured to face sideways along a sloped roof, and at least one non-side portion;

25 a cover for covering the aperture; and
at least one attachment structure comprising an attachment member and a corresponding attachment receptacle for attaching the base and the cover, the attachment member being carried by one of the base and the cover, and the attachment receptacle being carried by the other of the base and the cover;

-20-

wherein one of the attachment member and the attachment receptacle that is carried by the base is positioned at said non-side portion.

- 5 18. A vent for venting a building enclosure as claimed in claim 17, wherein the at least one non-side portion includes an upward portion configured to face upward along the sloped roof, and a downward portion configured to face downward along the sloped roof.
- 10 19. A vent for venting a building enclosure as claimed in claim 18, wherein the vent comprises four attachment structures, two of the attachment structures being positioned at said upward portion and the other two being positioned at said downward portion.
- 15 20. A vent for venting a building enclosure as claimed in claim 19, wherein the vent further comprises a liquid deflector, positioned at said upward portion, for deflecting liquid flowing downward along said sloped roof, the liquid deflector having a smoothly curved shape to facilitate the cutting of shingles to match said shape.
- 20 21. A vent for venting a building enclosure as claimed in claim 18, wherein the sides, upward portion and downward portion define a vent structure sized and shaped to prevent unwanted material from entering into said building enclosure.
- 25 22. A vent as claimed in claim 21, wherein the vent structure includes a screen to block unwanted material from entering said aperture.
- 30 23. A vent for venting a building enclosure as claimed in claim 21, further comprising at least one louver attached to said vent structure for preventing precipitation entering under the cover from entering the vent structure.

-21-

24. A vent for venting a building enclosure as claimed in claim 23, wherein the at least one louver is removably attached to said vent structure.

5 25. A vent for venting a building enclosure as claimed in claim 24, wherein the at least one louver is attached to said vent structure by way of a friction fit coupling of a portion of the louver to a complementary portion of the vent structure.

10 26. A vent for venting a building enclosure as claimed in claim 17, wherein the sides are spaced apart by one standard shingle tab width.

27. A vent for venting a building enclosure as claimed in claim 26, wherein the sides are spaced apart about 20.3 centimetres.

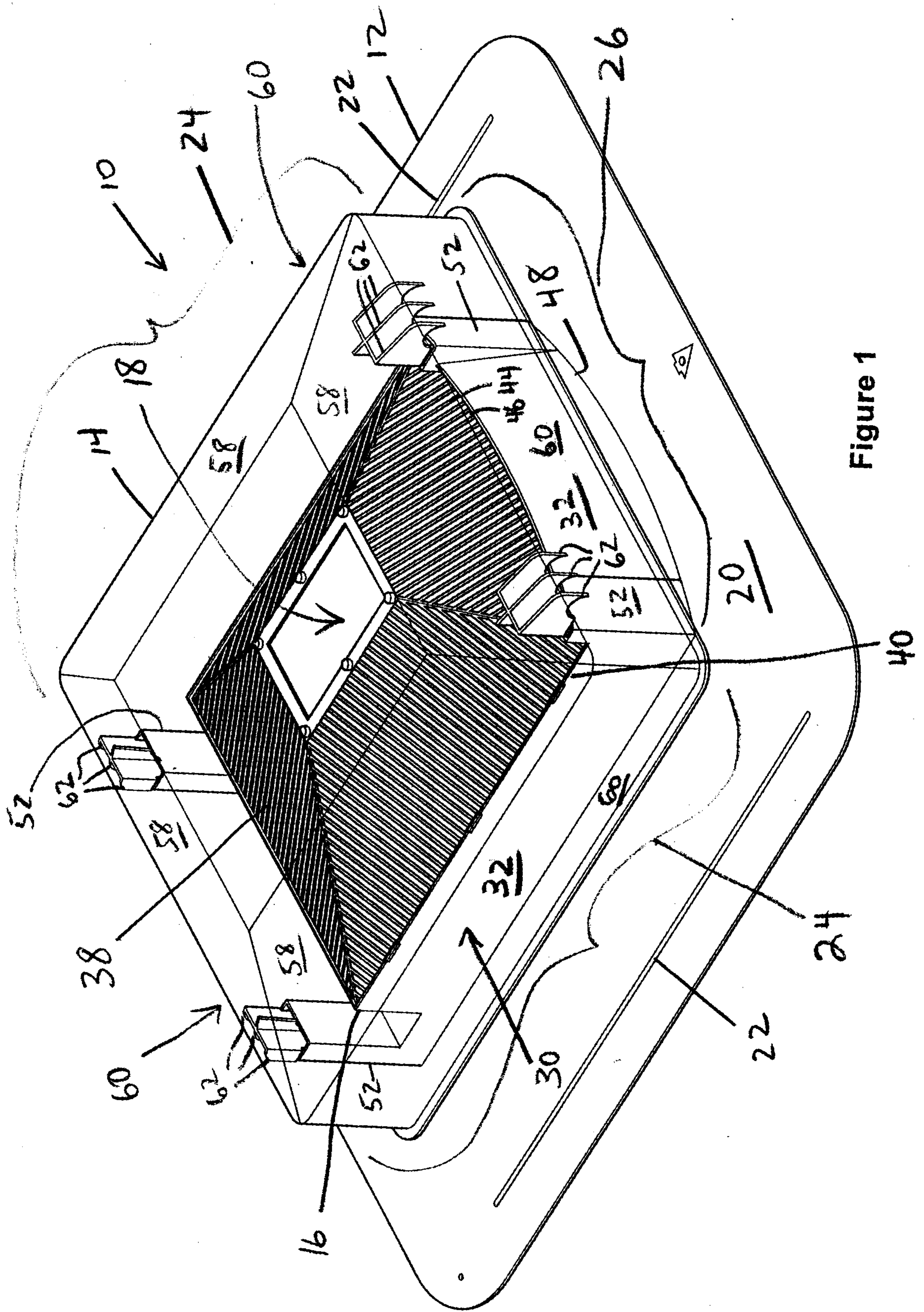


Figure 1

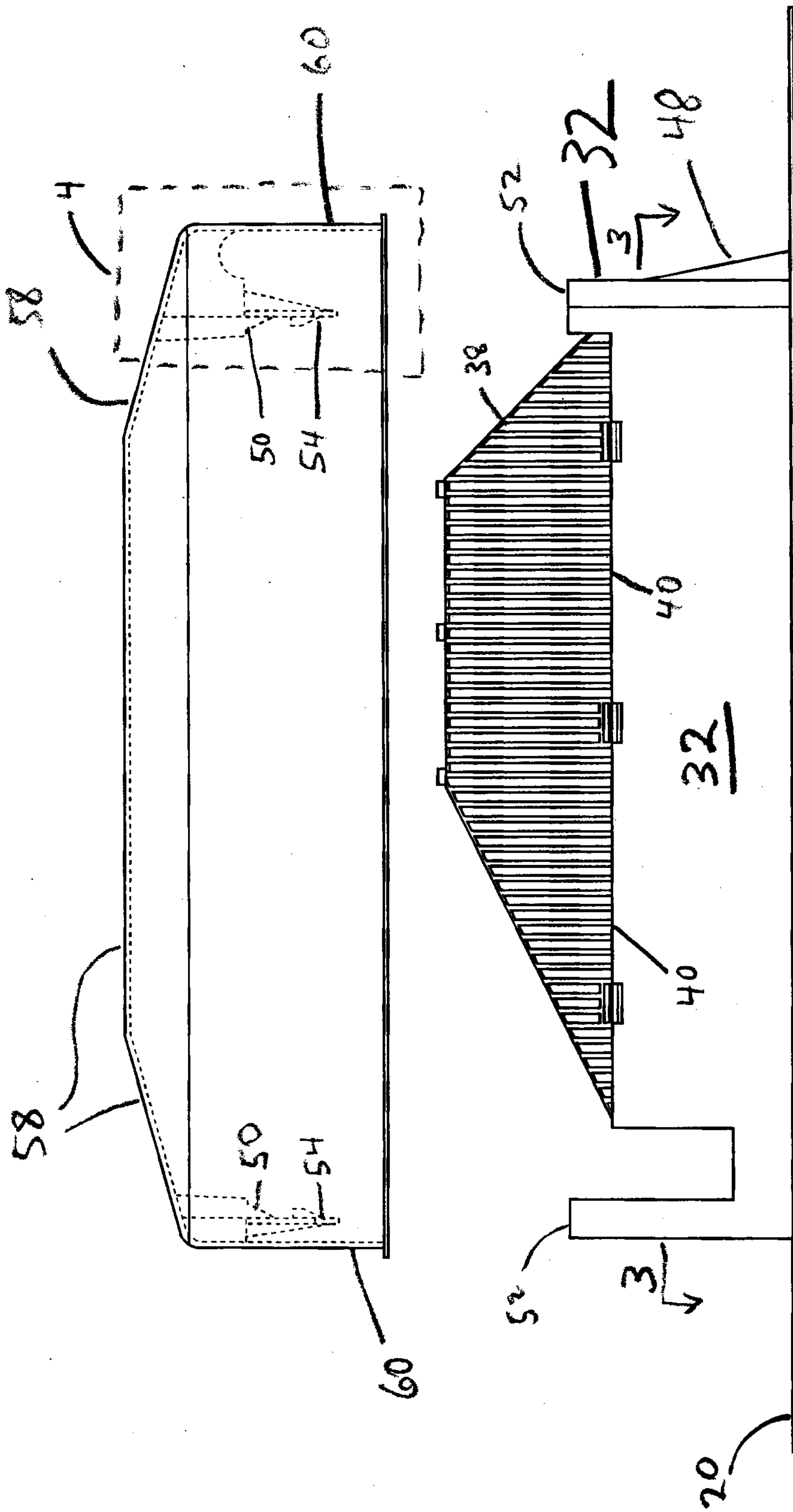


Figure 2

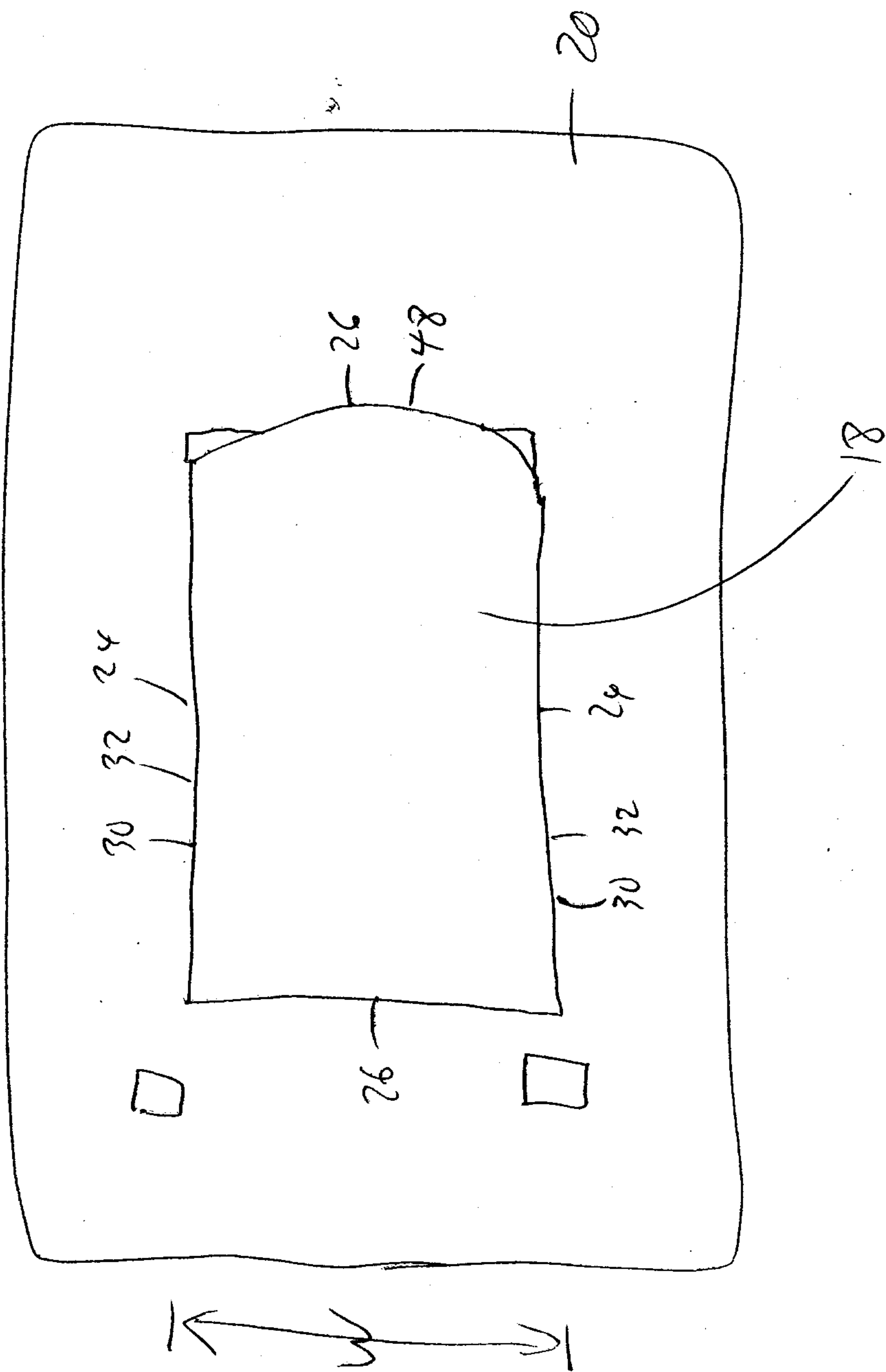


Fig 3

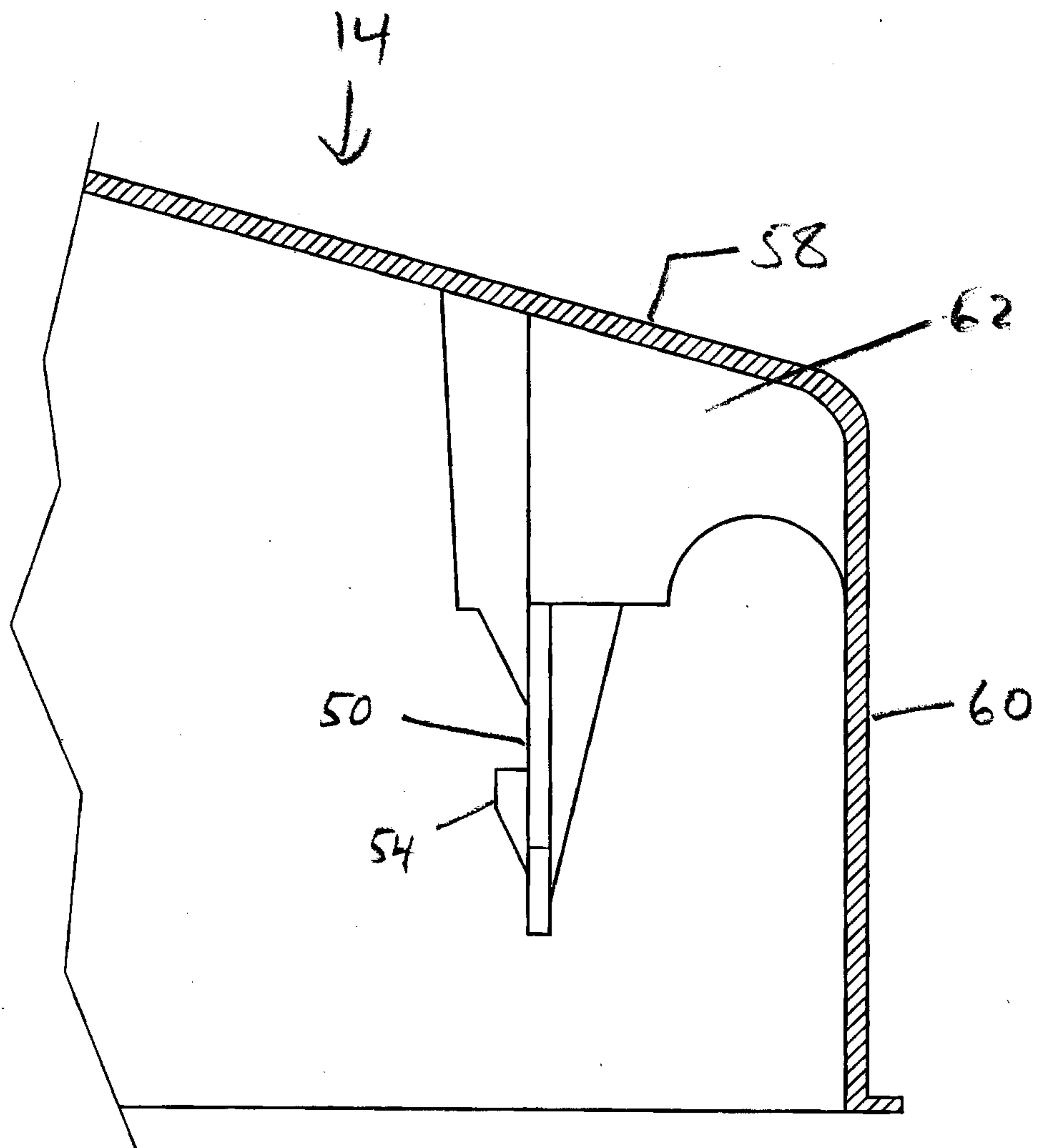


Figure 4

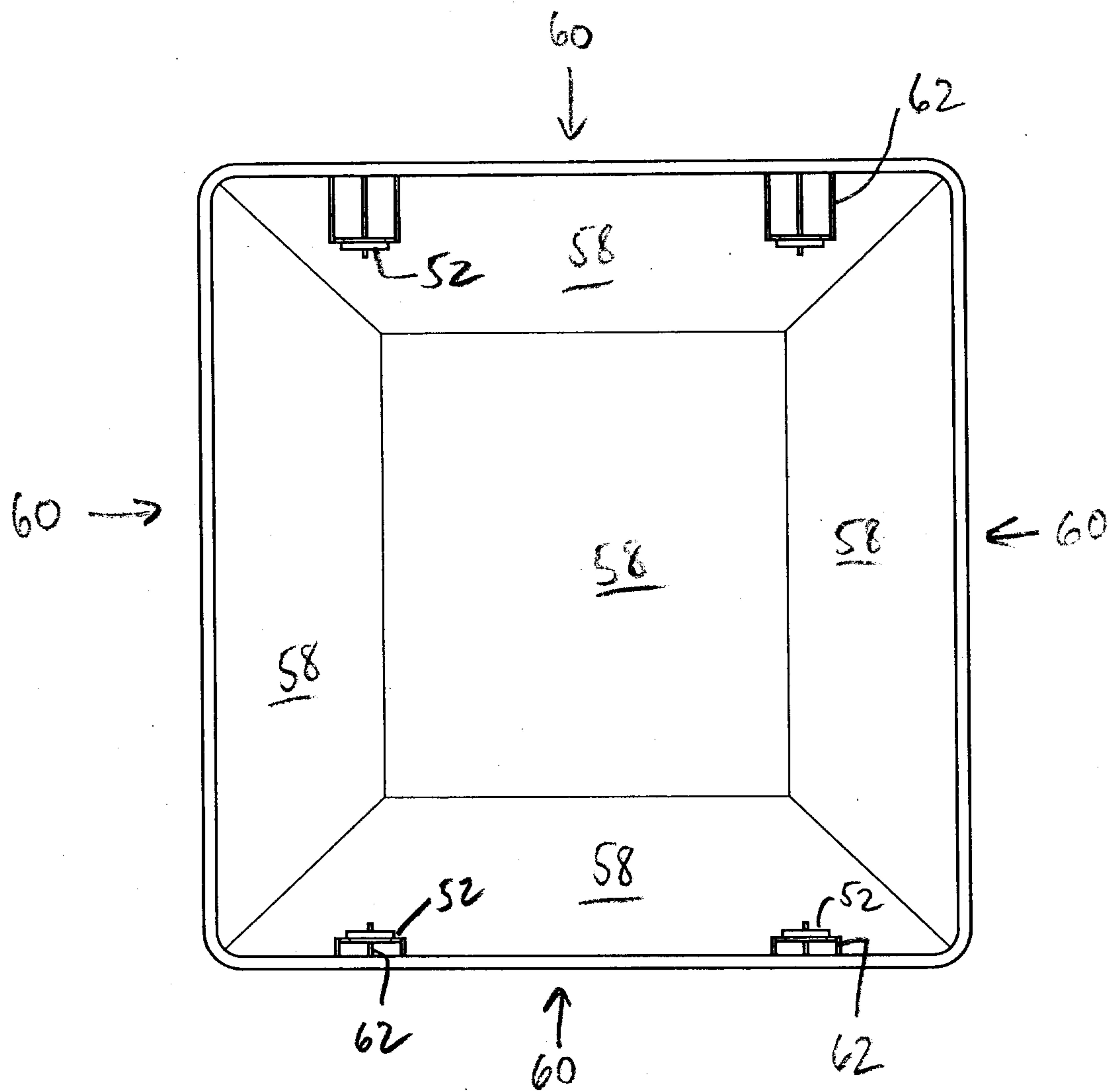


Figure 5

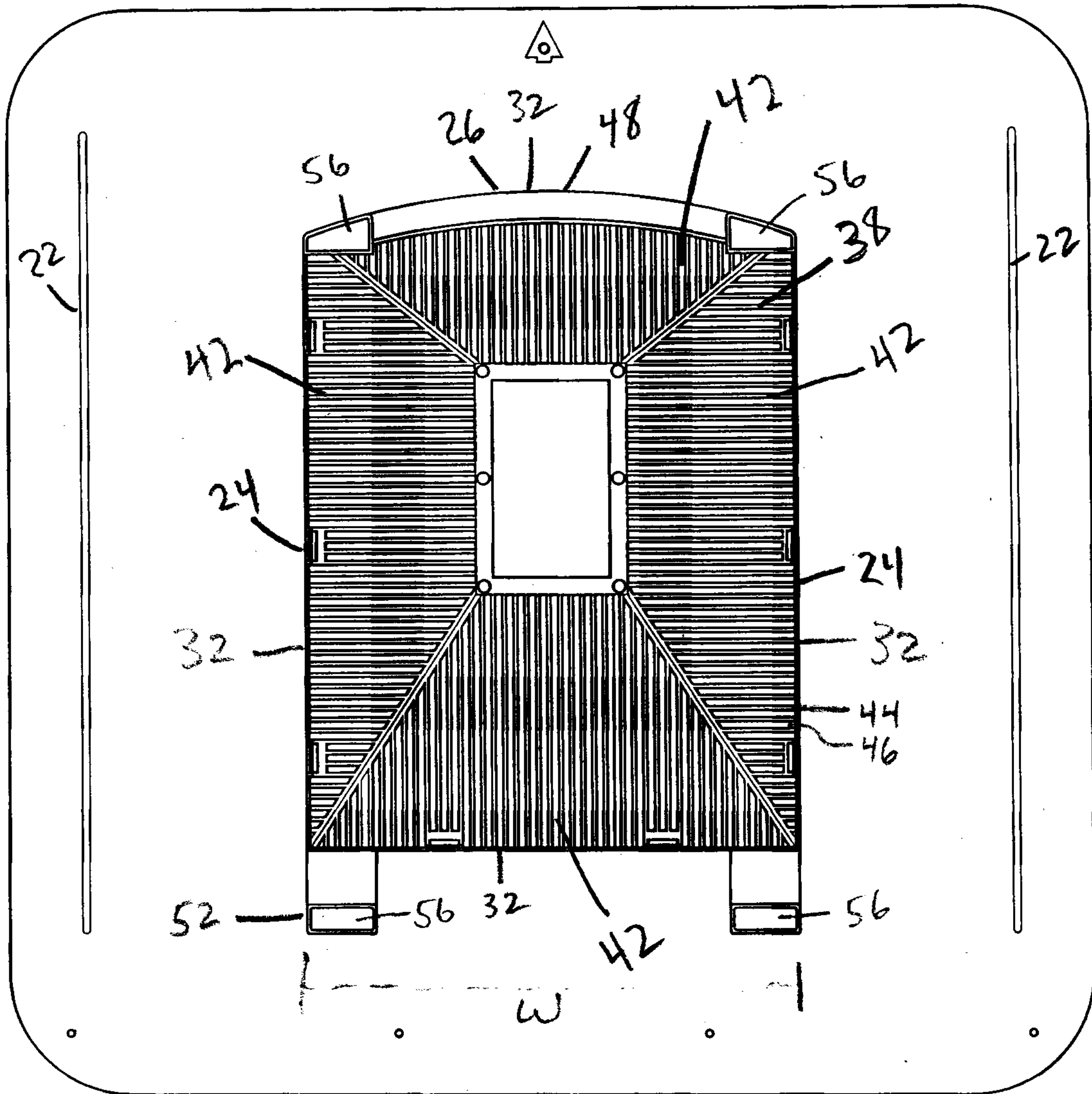
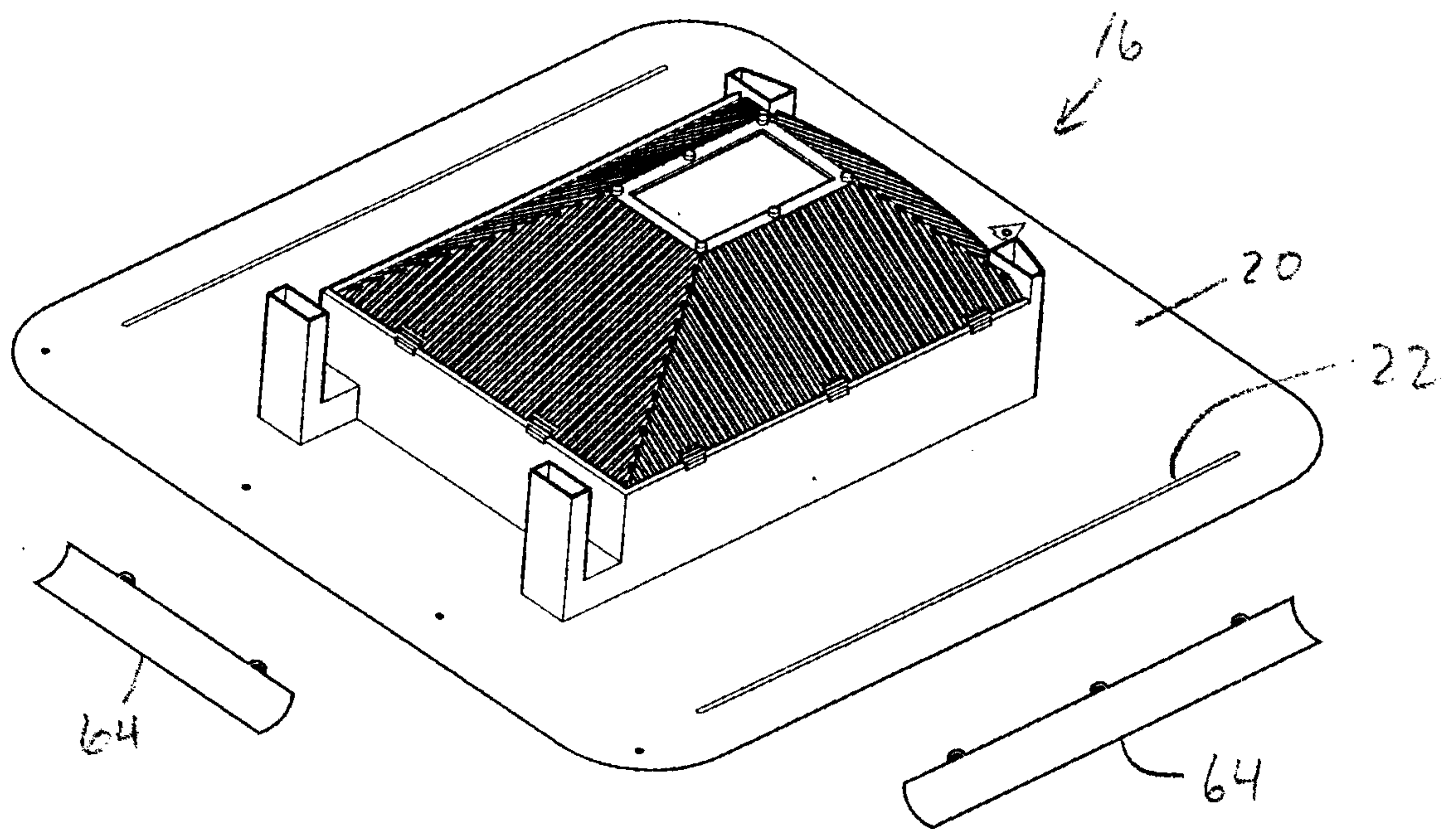
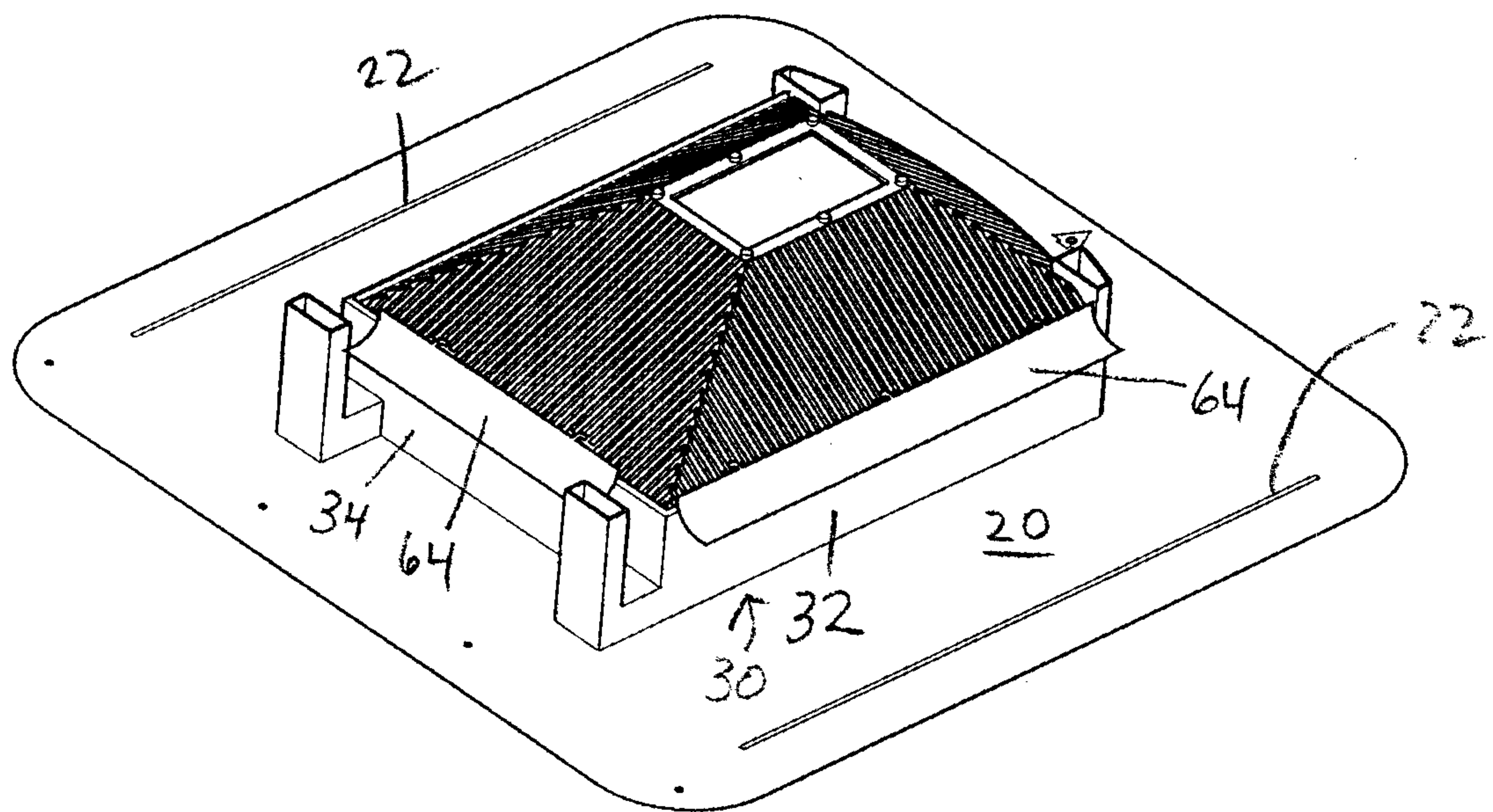


Figure 6



Figures 7A



Figures 7B

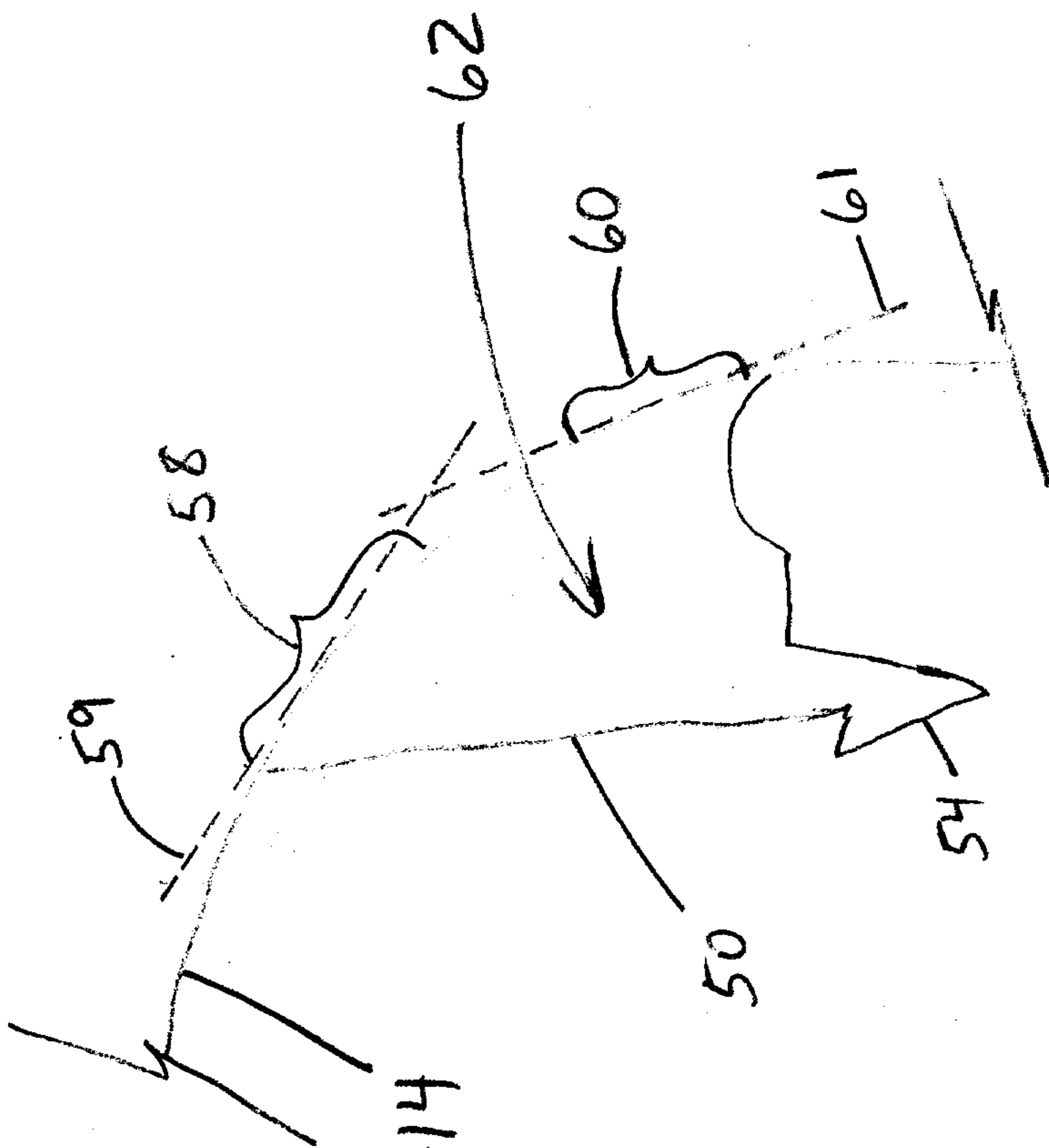


Figure 8

