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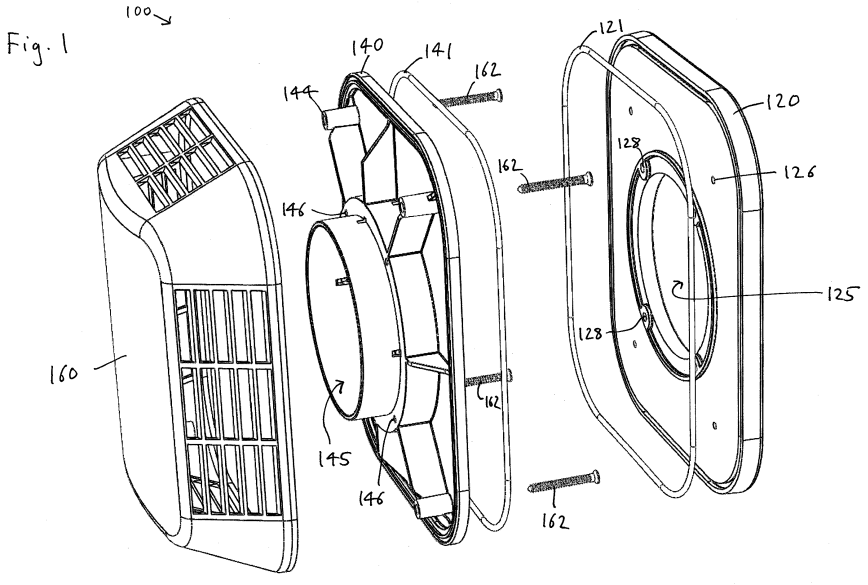
(54) **FAN MOUNTING SYSTEM**

(57) A fan mounting assembly comprising: a first plate to which a fan is mountable; a second plate for attachment to said first plate; at least one fixing means for attaching said first plate to said second plate, said at least one fixing means attaching to at least one mount point on said second plate, and said second plate being formed from a material comprising polycarbonate. The polycarbonate strengthens the structure and reduces brittleness. The reinforced structure increases the resistance of the structure to impact and/or crushing attacks. Other reinforcements may be used to hinder access to the structure by various tools which may be used in such attacks. A method of mounting a fan is also provided.



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Description

[0001] The invention relates to a mounting system for mounting a fan in a window.

[0002] Where space permits, domestic ventilation fans are typically installed and mounted in a wall of a building, e.g. in a bathroom or kitchen wall, drawing air from the inside of the room and venting it to the outside. However in smaller rooms, e.g. particularly in smaller, more compact properties, there may not be adequate wall space for mounting a fan. For example, wall space may be taken up with cupboards or with other appliances. In such cases, a ventilation fan can still be installed by installing it in a window. For such installations, a circular hole is cut into a window pane and the fan is inserted through the hole. The installation will typically involve an external part and an internal part which are connected together through the hole in the window pane so that the internal and external parts sandwich the window pane.

[0003] It has been found that such window fan installations can introduce a security threat. The mountings which hold the internal part to the external part provide a point of attack. If these mountings can be broken, the internal part and the external part are no longer held together. The external part can be removed and the internal part (the fan) can be pushed through to the inside, leaving a hole large enough to reach through from the outside and operate the window opening mechanism from the inside. With such an attack, a person can gain relatively silent and safe access to the building without having to break the window. Having to break glass for entry into a building is generally considered a deterrent as it creates noise which may draw unwanted attention and it creates a hazard in the form of broken glass.

[0004] The present invention has been made with a view to providing a secure mounting mechanism for a window mounted fan which cannot be easily broken and separated from the window without breaking the window.

[0005] According to a first aspect the invention provides a fan mounting assembly comprising: a first plate to which a fan is mountable; a second plate for attachment to said first plate; at least one fixing means for attaching said first plate to said second plate, said at least one fixing means attaching to at least one mount point on said second plate, said at least one mount point comprising a reinforced structure.

[0006] In a typical window mounting arrangement, the first plate would be located on the inside of the window with the fan mounted to the first plate. The second plate would be located on the outside of the window and the two plates are attached together by the fixing means so as to hold the two plates together with the window sandwiched between them. it will be appreciated that the mounting assembly is not restricted to use in windows, but applies more generally to any partition in which a fan is to be mounted, the first and second plates sandwiching the partition in use.

[0007] The first and second plates generally have at least one surface generally flat in nature for mating with the window (or other partition surface). The first and second plates are also generally thin so as to minimise the size, weight and visual impact of the mounting assembly. However, the mount points on the second plate will generally be longer than the thickness of the second plate so as to provide a secure engagement between the two plates via the fixing means. The mount points may thus comprise a cylinder which projects outwardly from the plate (i.e. normal to the generally flat surface). The fixing means may be in the form of clips or hooks which engage in the mount points. However, in preferred embodiments, to an adjustable fixing means is provided to accommodate different widths of partition. The fixing means may be nuts and bolts, or preferably screws which engage in the mount points. The inside of the mount points may be pre-threaded or the fixing means may be self-tapping. A single mount point and a single fixing means may be adequate, but in preferred embodiments two or more, preferably three, more preferably four or more fixing means and mount points are provided for additional security as well as a more equalised connection.

[0008] The mount points on the second plate which receive the fixing means have a reinforced structure so as to strengthen the mount points against attack. Reinforcement structures such as ribs, buttresses or radiuses may be used to increase the amount of material connecting the mount point to the second plate, thus increasing strength and resistance to impact attacks. Additionally, such structures provide obstructions which impair the use of tools to break the mount points, for example sloped buttresses or radiused connections remove or reduce parallel sides of the mount point which could be susceptible to the use of crushing tools such as pliers.

[0009] Preferably the mount point comprises two or more reinforcement structures. The use of more than one reinforcement structure provides further strength and further impairs the access of tools, thus reducing the purchasing power of the attacker. For example, two or more ribs or buttresses can be oriented in different directions, thus providing strength in different directions as well as impairing access from different directions.

[0010] In preferred embodiments, the mount point comprises a generally tangential reinforcement structure. Being generally tangential, the reinforcement structure provides additional strength in the tangential direction and also impairs the use of levering tools against the mount point.

[0011] The reinforcement structures are preferably made of the same material as the mount point and the second plate and are preferably moulded integrally therewith for strength and for ease of manufacture.

[0012] Preferably the mount point comprises two generally tangential reinforcement structures. These structures could be used to provided strength in different directions by being positioned perpendicular to one another. However, in preferred embodiments, the two structures are generally parallel with one another, being pro-

vided on opposite side of the mount point. The generally tangential structures may be straight, but are preferably curved arcs of a much larger radius than the mount point. For example, they may be an internal arc and an external arc having a common centre and different radii such that the mount point lies between the two arcs.

[0013] Each mount point may have its own separate reinforcement structures. However, for ease of manufacturing and for additional strength and resistance to attack, the second plate preferably comprises two or more mount points and the reinforcement structure is preferably common to said two or more mount points. In particularly preferred embodiments, the reinforcement structure comprises a ring adjoining said two or more mount points. The provision of a ring adjoining the mount points provides a large smooth surface between the mount points, reducing leverage points.

[0014] Preferably the reinforcement structure comprises an inner ring and an outer ring, and the two or more mount points are situated between the inner ring and the outer ring and adjoining both the inner ring and the outer ring. The two concentric rings with mount points in between provide a large strength reinforcement to the mount points and also severely hinder access to the mount points. It should be noted that the mount points are generally located adjacent to a central opening in the plates, which corresponds to an opening in the window through which the fan is inserted (so that the fixing means can extend through the hole in the window (or other partition) while minimising the size of the opening). This means that the two concentric rings provide only a small gap adjacent the mount points, reducing access for striking the mount point or applying a cutting or crushing tool. Meanwhile, access in the perpendicular direction is hindered by the fan which is inserted through the aperture of the second plate. In particularly preferred embodiments, a further cylindrical projection extends out around the aperture, essentially being an extension of the inner concentric ring. Additionally, in preferred embodiments, the two rings may be joined at the external surface (i.e. the surface furthest from the partition), thus further reducing access to the mount points.

[0015] It will be appreciated, that a similar or greater level of reinforcement could be achieved by simply providing the mount points in a solid ring of material, but the additional weight and material is unnecessary and is preferably avoided. Also, drainage channels can more easily be provided in a non-solid structure. Drainage is necessary to ensure that any water present inside the fan or the assembly can be drained from the system to the outside.

[0016] The second plate may further comprise ribs extending along the plate outwardly from the ring. Such ribs are preferably radially extending with respect to the ring and provide a hindrance to striking or crushing attacks on the ring.

[0017] Preferably the second plate is formed from a material comprising polycarbonate. Polycarbonate (or an alloy of polycarbonate and e.g. ASA plastics) is a strong, tough and non-brittle material that is resistant to striking or crushing. Less expensive materials such as ABS plastics are much more brittle and can more easily be fractured by a sharp blow or by applying leverage to the structure.

[0018] According to another aspect, the invention provides a fan mounting assembly comprising: a first plate to which a fan is mountable; a second plate for attachment to said first plate; at least one fixing means for attaching said first plate to said second plate, said at least one fixing means attaching to at least one mount point on said second plate, and said second plate being formed from a material comprising polycarbonate.

[0019] As mentioned above, the use of polycarbonate or a polycarbonate alloy improves impact resistance and resistance to leverage (the material is more likely to deform than to break under high pressure). In particularly preferred embodiments, the second plate is formed from an alloy of polycarbonate and ASA plastics (Acrylonitrile Styrene Acrylate).

[0020] Preferably the mounting assembly further comprises a cowl mountable to the second plate. The cowl protects the exhaust of the fan from entry of foreign objects as well as improving appearance. The cowl is preferably made from a weaker material than the second plate. This prevents the cowl from being used for leverage of the underlying mounting plates. If forces are applied to the cowl it will easily break or break away from the second plate, leaving the attacker with the underlying attack-resistant structure to contend with. The cowl is thus preferably more brittle than the underlying second plate so that it will break or shatter under impact or stress. In particularly preferred embodiments, the second plate is formed from a material comprising polycarbonate and the cowl is formed from Acrylonitrile Butadiene Styrene.

[0021] The second plate may comprise one or more cowl mount points and the cowl mount points are preferably non-coaxial with the mount points for the first plate. As the two connections (cowl to second plate and second plate to first plate) are separate and non-coaxial, when one is broken, it does not facilitate access to the other. Thus the mount points for the cowl can be of a simpler structure and when the cowl is broken away, the mount points for the fixing means which connect the first and second plates are unaffected and must be attacked separately. Nevertheless, if ribs are provided on the second plate as described above, it is preferred that one or more of said ribs adjoin said one or more cowl mount points. This provides extra support for the cowl mount points and also keeps the cowl mount points within the rest of the structure, thus reducing leverage points.

[0022] Preferably the first plate comprises one or more fan mount points and, in use, the fan mount points are non coaxial with the mount points on said second plate for attachment of the first plate. Again, the non-coaxial arrangement ensures that the different connections remain separate and cannot be attacked together.

[0023] According to a further aspect, the invention provides a method of mounting a fan to a partition, said partition having a hole therethrough for passage of air, the method comprising: providing a first plate on a first side of said partition, wherein a fan is mountable to said first plate; providing a second plate on a second, opposite side of said partition; attaching said second plate to said first plate by at least one fixing means extending through said hole in said partition; wherein said at least one fixing means is attached to at least one mount point on said second plate, said at least one mount point comprising a reinforced structure.

[0024] According to yet a further aspect, the invention provides a method of mounting a fan to a partition, said partition having a hole therethrough for passage of air, the method comprising: providing a first plate on a first side of said partition, wherein a fan is mountable to said first plate; providing a second plate on a second, opposite side of said partition; attaching said second plate to said first plate by at least one fixing means extending through said hole in said partition; wherein said at least one fixing means is attached to at least one mount point on said second plate, and wherein said second plate is formed from a material comprising polycarbonate.

[0025] Preferably the partition is a window. When mounted, the fan may be fully situated on one side of the partition, but in preferred embodiments the fan extends through the hole in the partition, thus allowing some of the weight and volume of the fan to be situated within the hole in the partition or even on the other (second) side of the partition, thus minimising the weight and volume projecting away from the partition on the first side thereof.

[0026] It will be appreciated that the various preferred features described above in relation to the apparatus apply equally to the methods of mounting a fan. Additionally, the various preferred features described above may be combined together in various combinations according to the circumstances and the skilled person will be able to select and combine features as desired.

[0027] Preferred embodiments of the invention will now be described, by way of example only, and with reference to the accompanying drawings in which:

Figure 1 shows an exploded view of a mounting system according to an embodiment of the invention;

Figure 2 shows a top view of a fan attached to the mounting system of Figure 1;

Figure 3 shows an internal face of an internal plate of the mounting system of Figure 1;

Figure 4 shows a window facing face of the internal plate of Figure 3;

Figure 5 shows a window facing face of an external plate of the mounting system of Figure 1; and

Figure 6 shows an external face of the external plate of Figure 5.

[0028] Referring first to Figure 1, the mounting system 100 comprises a first plate 120 which is for mounting on the internal face of the window, i.e. on the inside of the building, and a second plate 140 which is for mounting on the external face of the window, i.e. on the outside of the building.

[0029] It will be appreciated that the description here is provided in relation to a window installation. However, the invention applies equally to mounting a fan in any partition where it is desirable to prevent access through the mounting hole. Such partitions include doors, walls, ceilings, roofs, floors, etc. It will also be appreciated that the terms inside and outside are used here in relation to a typical installation, but the system may be used equally well in a partition separating two indoor rooms or areas or indeed two outdoor areas.

[0030] Also shown in Figure 1 is a cowl 160 which mounts onto the external plate 140 to cover and protect the exhaust outlet.

[0031] The cowl 160 is mounted to the external plate 140 by means of screws 162 (although it will be appreciated that other fixing means such as nails, bolts, clips or clasps could be used instead). Four such screws 162 are used in this embodiment and they are positioned at radially outer portions of the cowl 160 and external plate 140. The screws 162 are inserted from the window-side of the external plate 140 via through holes 142 in the external plate 140 and fix into mounting points (not shown in the figures) on the inside of the cowl 160.

[0032] The cowl 160 is sacrificial in the sense that it is designed to break away relatively easily if attacked, thus leaving just the external plate 140 facing the attacker. To facilitate this, the cowl 160 is made of a weaker material than the external plate 140. Typically the cowl 160 is formed from ABS plastic while the external plate 140 is made from stronger material such as polycarbonate or a polycarbonate-containing compound. By making the cowl 160 weaker and ensuring it breaks off easily, it is ensured that the cowl 160 cannot be used as leverage to break other components of the mounting system 100.

[0033] On the window facing side of the external plate 140 is a seal 141 which, in use, is seated in a groove 143 in external plate 140 and contacts the window to prevent moisture ingress around the mounting system 100.

[0034] A similar seal 121 which, in use, is seated in a groove 123 in internal plate 120 is provided between the internal plate 120 and the window, again preventing moisture ingress around the mounting system 100.

[0035] Figure 2 shows the mounting assembly 100 of Figure 1 and the cowl 160 mounted together in an installation configuration together with a fan 200 (comprising a main fan body unit 210 with an internal facing grille 220. The rear portion of the fan (not visible in Figure 2) is inserted through the main central circular apertures 125 and 145 of the internal and external plates respectively

and is mounted to the internal plate 120 via fixing means (not shown, but for example screws) at mount points 126 on internal plate 120.

[0036] The internal plate 120 will now be described in more detail with reference to figures 3 and 4 which respectively show the internal side of the internal plate 120 (i.e. the side which faces into the room) and the window-facing side of the plate 120 (i.e. the side which faces the window in use.

[0037] As shown in figure 3, the internal plate 120 is generally rectangular in shape with rounded corners and has a central aperture 125 through which the cylindrical housing of an axial fan is inserted in use. The four holes 128 that are immediately adjacent the aperture 125 are countersunk through holes through which a fixing means (such as a screw, not shown) is inserted for connecting the internal plate 120 to the external plate 140. It will be appreciated that four holes is merely one example. In other embodiments a single fixing means could hold the plates together or two, three or more fixing means could be used. Further out from the centre of plate 120 is a second set of holes 126. These holes 126 are located about halfway between the outer edge of aperture 125 and the outer circumference of the plate 120. Holes 126 are mounting points to which the fan 200 can be mounted in use. Four such mounting points 126 are provided in this embodiment, although again it will be appreciated that more or fewer mounting points 126 could be provided in other embodiments. Mounting points 126 take the form of cylinders projecting out perpendicular to the plate 120 and away from the window. Each mount point 126 has four small rib projections on its sides for additional support and strength.

[0038] Figure 4 shows the opposite side of internal plate 120, i.e. the side which faces the window in use. This side is generally flat across its surface. Around the aperture 125, the through holes 128 (which are countersunk on the opposite side as shown in Figure 3) can be seen. Also the mounting points 126 can be seen from this side although it will be appreciated that the mounting points 126 do not need to use through holes. It is convenient in this embodiment to manufacture the mounting points 126 with through holes. Around the outer periphery of plate 120 there is a groove 123 which forms a seat for a seal member 121. In use, the seal member 121 (shown in Figure 1) is inserted into groove 123 and is pressed against the window, thus forming a watertight seal around aperture 125.

[0039] Figure 5 shows the window-facing side of external plate 140. Again a groove 143 forms a seat for seal 141 which, in use is seated in groove 143 and presses against the window to form a watertight seal around aperture 145. Near to the outer periphery of external plate 140, four (in this embodiment) through holes 144 are provided through which fixing means (such as screws) are inserted for attaching cowl 160 to the external plate 140. As shown in figure 5, through holes 144 are countersunk on the window-side of external plate 140.

[0040] Adjacent to the central aperture 145 of plate 140 are four mounting points 146 (again the use of four holes is exemplary). Mounting points 146 receive the fixing means which are inserted through holes 128 in internal plate 120 so as to fix the two plates 120, 140 together and hold them securely against the window in between them. Each mounting point 146 takes the form of a cylinder into which the fixing means (e.g. screws, not shown) is located. The mounting points 146 are located on plate 140 between an inner reinforcement 150 and an outer reinforcement 152. In this embodiment, the inner and outer reinforcements are provided in the form of circles which each adjoin and support all four mounting points 146. Inner reinforcement circle is provided radially inwardly of the four mounting points 146 (but adjacent thereto) and outer reinforcement circle is provided radially outwardly of the four mounting points 146 (but adjacent thereto). In this embodiment the reinforcements 150, 152 extend the full height of the cylindrical mounting points for maximum support. In other embodiments, if less reinforcement is required, the reinforcements 150, 152 could be less than the full height of mounting points 146. Additionally the reinforcements 150, 152 need not be provided as circles, but could be circular arcs each contacting one or more mounting points 146 or they could be provided as straight (or substantially straight) tangential reinforcements. Tangential or circular reinforcements are preferred in this embodiment so that the reinforcements 150, 152 do not interfere with aperture 145 while still allowing the mounting points 146 to be located close to the aperture 145 (as the fixing means for these mounting points must pass through the hole in the window pane). However in other embodiments, the reinforcements could take the form of support ribs or buttresses (including sloped buttresses) extending radially outwardly from the mounting points 146.

[0041] The reinforcing members 150, 152 provide two functions, firstly they provide structural support to strengthen the mounting points against impact or crushing forces. Secondly, they hinder direct access of tools which may be used to break the mounting points 146 such as hammers, pliers or similar.

[0042] It will be appreciated that in some embodiments one of the reinforcing members 150 or 152 may provide sufficient support in itself, but in this embodiment both reinforcement members are provided for extra strength and security.

[0043] Figure 6 shows the external plate 140 from the opposite side to that of figure 5, i.e. from the external viewpoint. At the outer periphery of this side of plate 140, a groove 158 is provided into which the edge of cowl 160 is seated when installed. Cowl 160 is held in place by fixing means inserted via through holes 144 which lie between the outer periphery of plate 140 and the outer edge of central aperture 145, but closer to the outer periphery of the plate 140. These fixing means engage in mounting points provided on the internal side of cowl 160 (not visible in the figures), thus holding the cowl 160 to

the external mounting plate 140.

[0044] Cowl 160 is made of a weaker material than the external plate 140. In this embodiment, cowl 160 is made from ABS plastic which is relatively brittle, while external plate 140 is made from an ASA+PC compound (Acrylonitrile Styrene Arcylate and Polycarbonate compound) which is much less brittle and has a much greater resistance to impact. The stronger material used in external plate 140 is more expensive than the traditionally used ABS, but it is necessary to provide sufficient strength and rigidity to resist the typical methods of attack used by opportunistic burglars (who are generally lightly equipped with a simple tool such as a hammer, pliers or screwdriver).

[0045] As the cowl 160 is designed to be weaker than the external plate 140 to which it is mounted, the cowl 160 breaks away easily when attacked. The cowl 160 thus cannot be used as leverage to damage or weaken the stronger underlying structure of the internal and external plates 120, 140.

[0046] As can be seen in Figure 6, the reinforcing circles 150, 152 which can be seen in figure 5 are connected at the top to form a reinforcement ring 154 forming a complete circle around aperture 145. In other embodiments a full circle may not be required, but an advantage of the full circle arrangement is that it provides a smooth surface to the attacker with no leverage points which can be readily used to exert enough force on the structure to break or damage it.

[0047] Mount points 146 can be seen from this view as they are formed as through holes, but this is not necessary and the mount points 146 could be formed with closed holes instead of through holes in other embodiments.

[0048] Extending radially outwardly from the reinforcement ring 154 towards the external periphery of plate 140 are reinforcement ribs 156. Reinforcement ribs 156 provide additional rigidity to the plate 140 as a whole, keeping it tightly in plate against the window and preventing access for leverage-based attacks. Additionally, the ribs 156 provide extra structural support to the through holes 144 for the cowl attachment. Ribs 156 also provide obstructions which make it more difficult to impact the reinforcement ring with large objects (such as bricks) or to gain purchase with a large crushing device (such as a vice).

[0049] It will be noted from the aforementioned description that this embodiment utilizes three separate connections to connect firstly the cowl 160 to the external plate 140, secondly the fan 200 to the internal mounting plate 120 and thirdly the external mounting plate 140 to the internal mounting plate 120. The three connections (i.e. the mounting points and any corresponding through holes) are non-coaxial. This means that from the outside, the internal fixings are obscured from view, and thus obscured from attack. No fixing means provides a direct means of attack on any other fixing means, e.g. the fixing means used to attach cowl 160 to external plate 140 cannot be used to attack the central fixing means holding the two plates 120, 140 together. Neither can the fixings for the fan 200 to the internal plate 120 be used to attack the central fixing means. In the embodiment shown the three connections are provided on a common radius (but non-coaxially with each other) for convenience of manufacture and for use of the support ribs 156, but it will be appreciated that in other embodiments this need not be the case.

[0050] Certain clauses that describe aspects of the invention are presented here:

Clause 1. A fan mounting assembly comprising:

a first plate to which a fan is mountable;
a second plate for attachment to said first plate;
at least one fixing means for attaching said first plate to said second plate, said at least one fixing means attaching to at least one mount point on said second plate, said at least one mount point comprising a reinforced structure.

Clause 2. An assembly as in clause 1, wherein the mount point comprises two or more reinforcement structures.

Clause 3. An assembly as in clause 1 or 2, wherein the mount point comprises a generally tangential reinforcement structure.

Clause 4. An assembly as in clause 3, wherein the mount point comprises two generally tangential reinforcement structures.

Clause 5. An assembly as in any preceding clause, wherein the second plate comprises two or more mount points and wherein the reinforcement structure is common to said two or more mount points.

Clause 6. An assembly as in clause 5, wherein the reinforcement structure comprises a ring adjoining said two or more mount points.

Clause 7. An assembly as in clause 6, wherein the reinforcement structure comprises an inner ring and an outer ring, and wherein the two or more mount points are situated between the inner ring and the outer ring and adjoining both the inner ring and the outer ring.

Clause 8. An assembly as in clause 6 or 7, wherein the second plate further comprises ribs extending along the plate outwardly from the ring.

Clause 9. An assembly as in any preceding clause, wherein the second plate is formed from a material comprising polycarbonate.

Clause 10. A fan mounting assembly comprising:

a first plate to which a fan is mountable;
a second plate for attachment to said first plate;
at least one fixing means for attaching said first plate to said second plate, said at least one fixing means attaching to at least one mount point on said second plate, and
said second plate being formed from a material comprising polycarbonate.

Clause 11. An assembly as in clause 10, wherein said second plate is formed from an alloy of polycarbonate and Acrylonitrile Styrene Acrylate.

Clause 12. An assembly as in any preceding clause, further comprising a cowl mountable to the second plate.

Clause 13. An assembly as in clause 12, wherein said cowl is made from a weaker material than said second plate.

Clause 14. An assembly as in clause 13, wherein said second plate is formed from a material comprising polycarbonate and said cowl is formed from Acrylonitrile Butadiene Styrene.

Clause 15. An assembly as in clause 12, 13 or 14, wherein said second plate comprises one or more cowl mount points and wherein said cowl mount points are non-coaxial with said mount points for said first plate.

Clause 16. An assembly as in clause 8 and clause 15, wherein one or more of said ribs adjoin said one or more cowl mount points.

Clause 17. An assembly as in any preceding clause, wherein said first plate comprises one or more fan mount points and wherein, in use, said fan mount points are non coaxial with said mount points on said second plate for attachment of said first plate.

Clause 18. A method of mounting a fan to a partition, said partition having a hole therethrough for passage of air, the method comprising:

providing a first plate on a first side of said partition, wherein a fan is mountable to said first plate;
providing a second plate on a second, opposite side of said partition;
attaching said second plate to said first plate by at least one fixing means extending through said hole in said partition;
wherein said at least one fixing means is attached to at least one mount point on said second plate, said at least one mount point comprising a reinforced structure.

Clause 19. A method of mounting a fan to a partition, said partition having a hole therethrough for passage of air, the method comprising:

providing a first plate on a first side of said partition, wherein a fan is mountable to said first plate;
providing a second plate on a second, opposite side of said partition;
attaching said second plate to said first plate by at least one fixing means extending through said hole in said partition;
wherein said at least one fixing means is attached to at least one mount point on said second plate, and wherein said second plate is formed from a material comprising polycarbonate.

Claims

1. A fan mounting assembly (100) comprising:

a first plate (120) to which a fan (200) is mountable;
a second plate (140) for attachment to said first plate (120);
at least one fixing means for attaching said first plate (120) to said second plate (140), said at least one fixing means attaching to at least one mount point (146) on said second plate (140), and
said second plate (140) being formed from a material comprising polycarbonate.

2. An assembly (100) as claimed in claim 1, wherein said second plate (140) is formed from an alloy of polycarbonate and Acrylonitrile Styrene Acrylate.

3. An assembly (100) as claimed in claim 1 or 2, further comprising a cowl (160) mountable to the second plate (140).

4. An assembly (100) as claimed in claim 3, wherein said cowl (160) is made from a weaker material than said second plate (140).

5. An assembly (100) as claimed in claim 4, wherein said second plate (140) is formed from a material comprising polycarbonate and said cowl (160) is formed from Acrylonitrile Butadiene Styrene.

6. An assembly (100) as claimed in claim 3, 4 or 5, wherein said second plate (140) comprises one or more cowl mount points and wherein said cowl

mount points are non-coaxial with said mount points (146) for said first plate (120).

7. An assembly (100) as claimed in any preceding claim, wherein said first plate (120) comprises one or more fan mount points (126) and wherein, in use, said fan mount points (126) are non coaxial with said mount points (146) on said second plate (140) for attachment of said first plate (120).

8. A method of mounting a fan (200) to a partition, said partition having a hole (125) therethrough for passage of air, the method comprising:

providing a first plate (120) on a first side of said partition, wherein a fan (200) is mountable to said first plate (120);
providing a second plate (140) on a second, opposite side of said partition;
attaching said second plate (140) to said first plate (120) by at least one fixing means extending through said hole (125) in said partition;
wherein said at least one fixing means is attached to at least one mount point (146) on said second plate (140), and wherein said second plate (140) is formed from a material comprising polycarbonate.

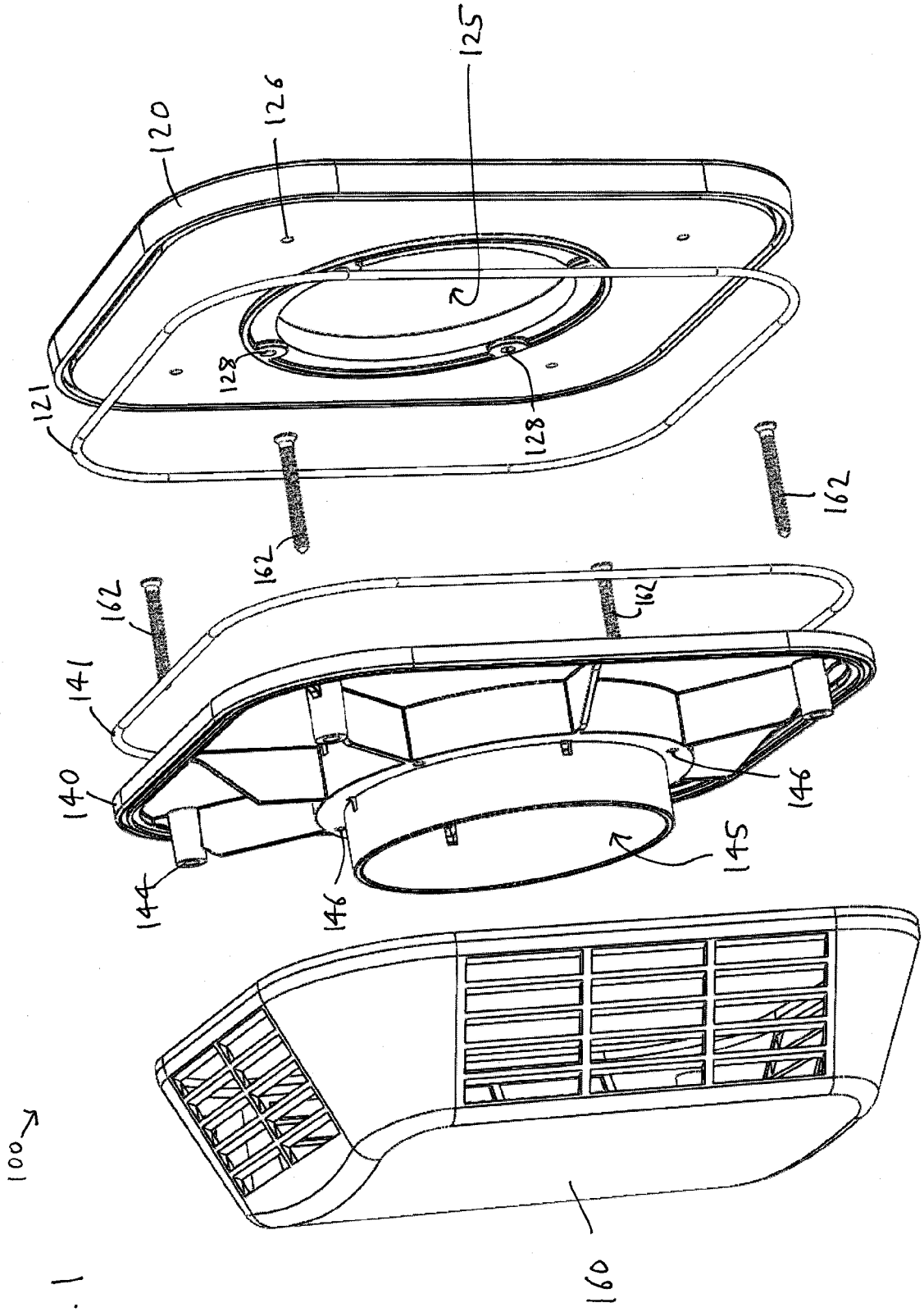
125
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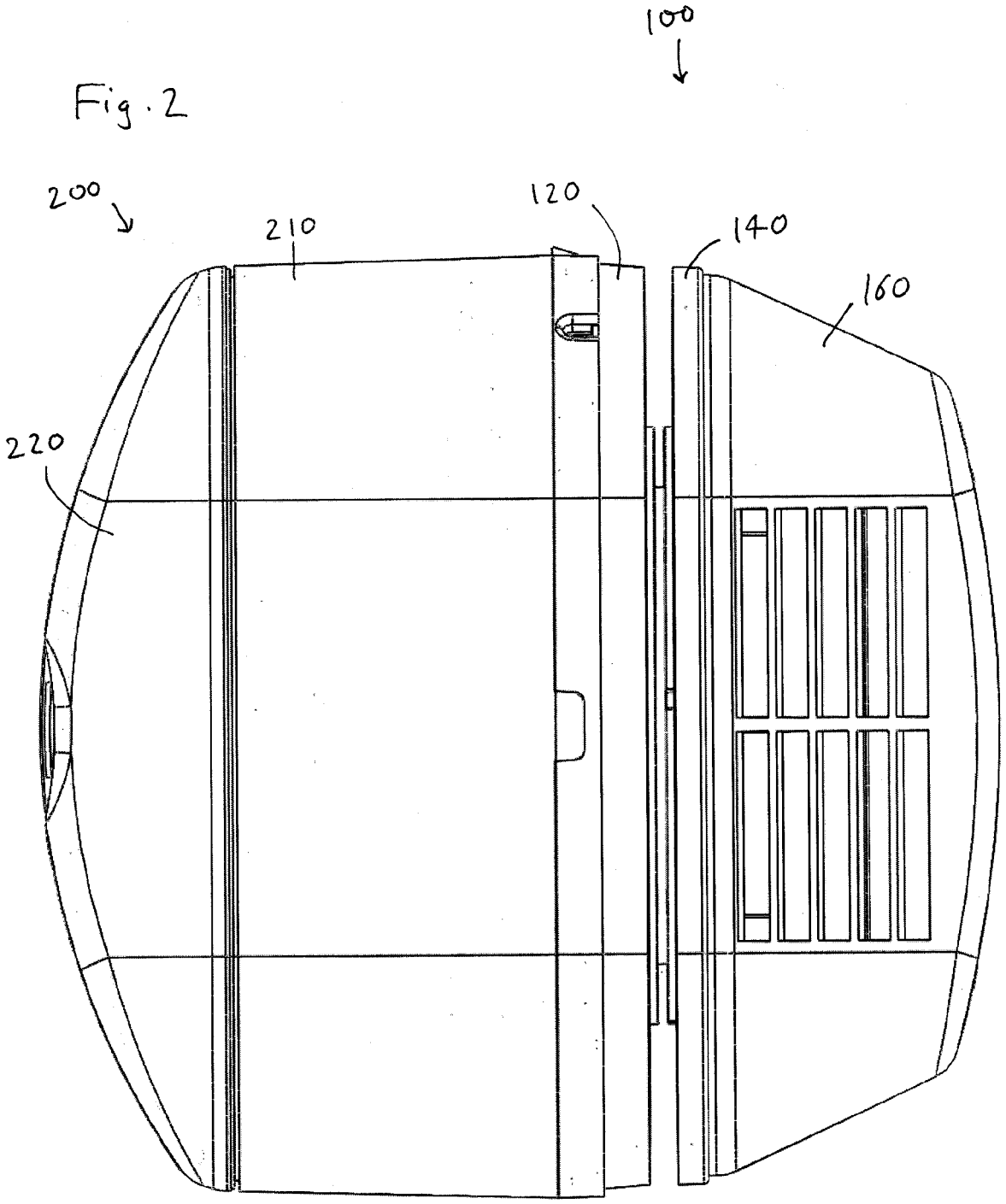
Fig. 1

Fig. 2



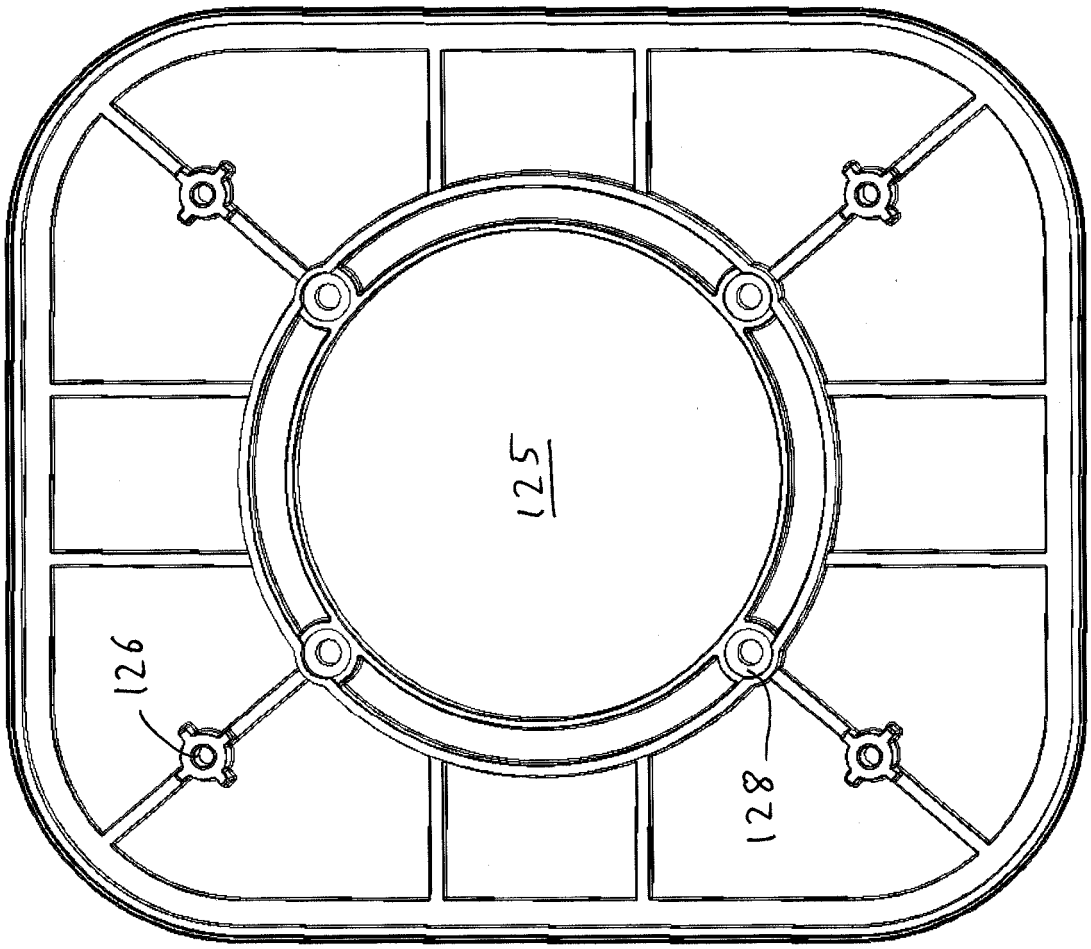


Fig. 3

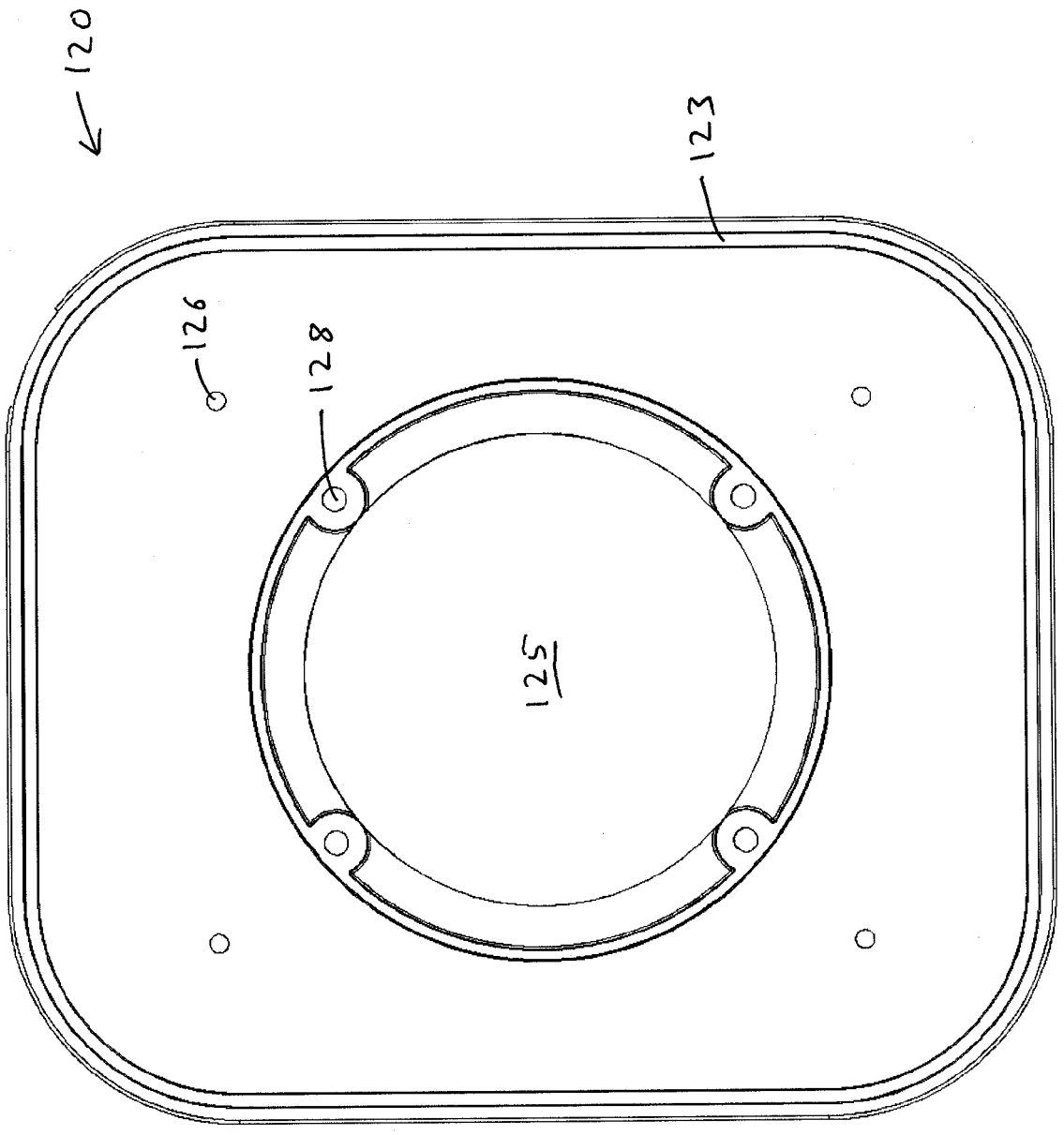


Fig. 4

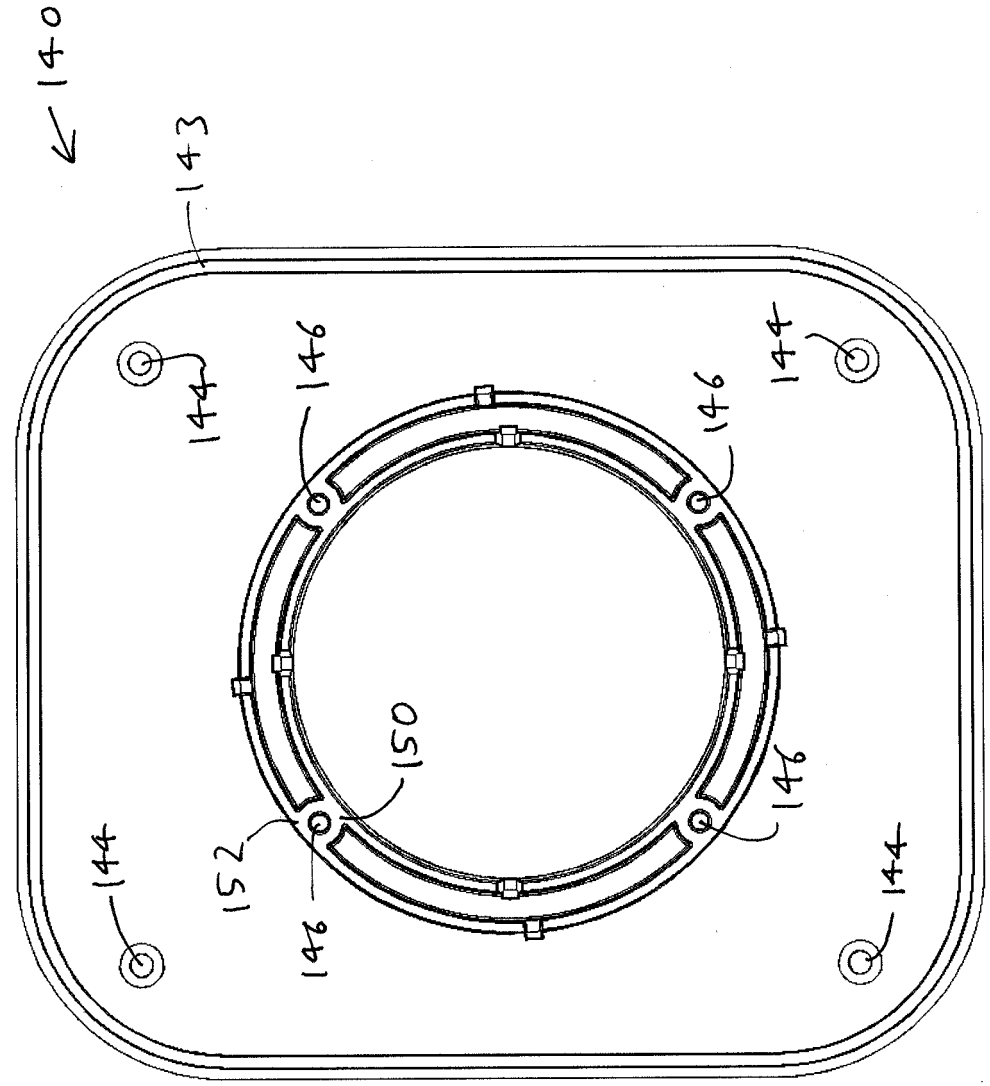


Fig. 5

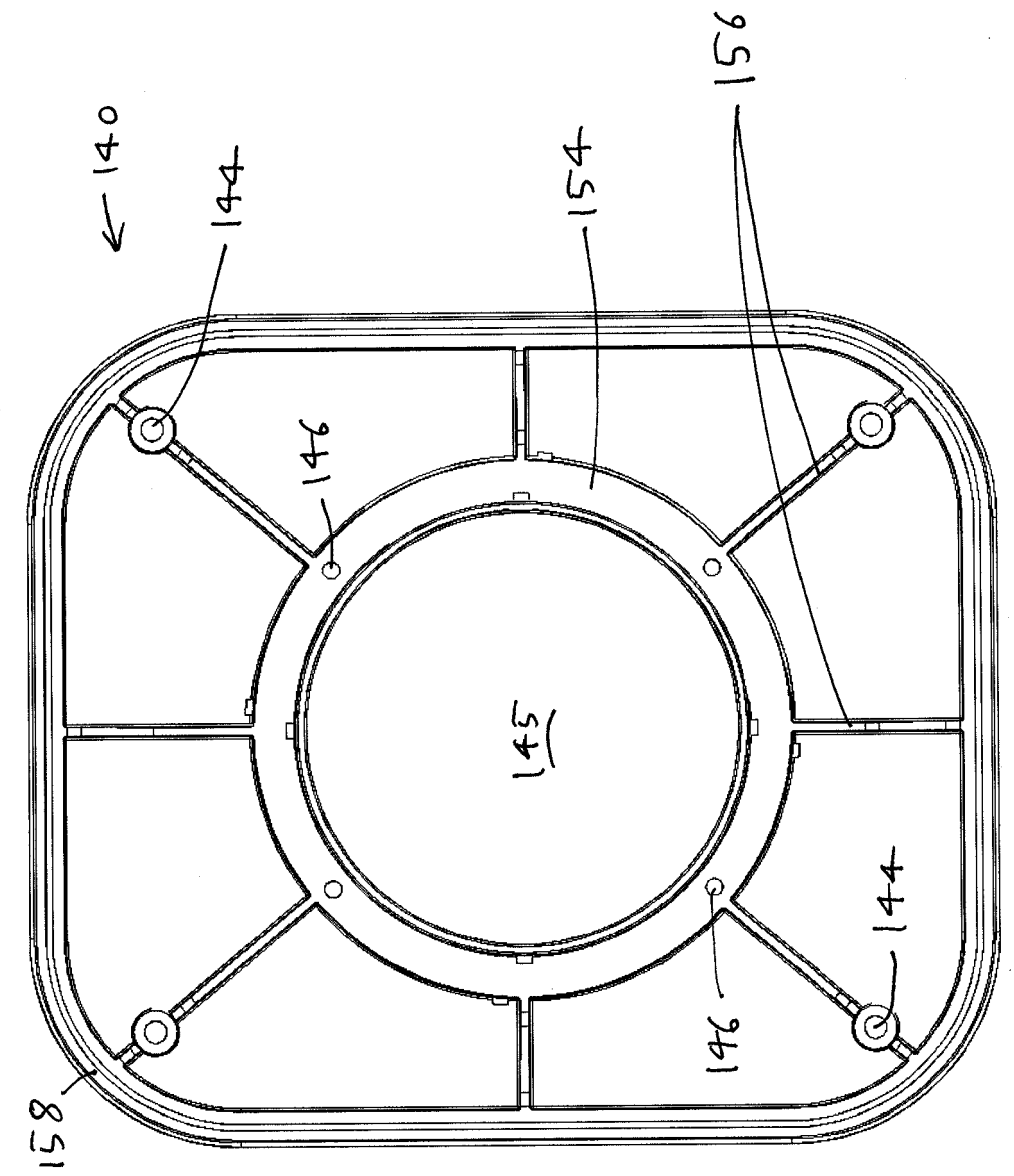


Fig. 6