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(54) A window for a prison

(57) A window assembly for a prison comprising an exterior opening window panel, an interior fixed window panel and a surrounding frame that holds the interior window panel substantially parallel to and spaced apart from the exterior window panel and creates a closed cavity therebetween.

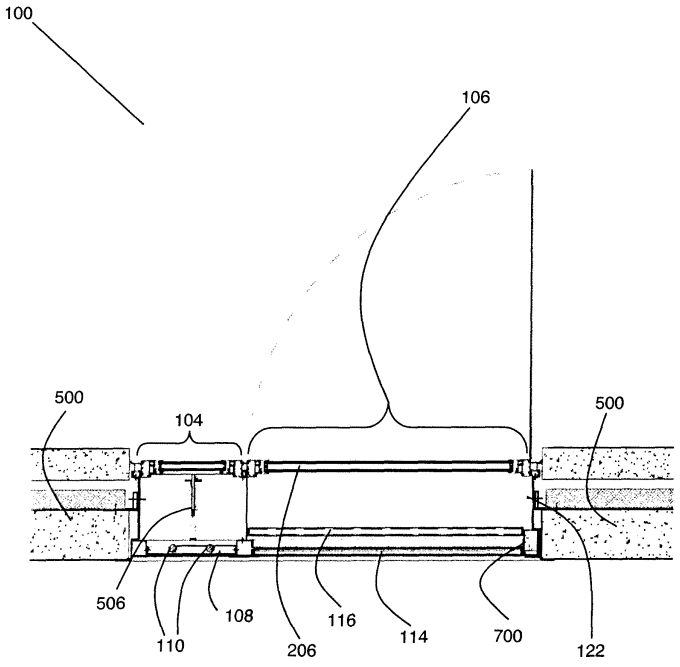

Fig. 7

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Description

[0001] This invention relates to a window assembly for a prison.

[0002] Security is obviously the primary concern for any prison. In all parts of a prison, but particularly in prison cells, where inmates spend the majority of their time, it is important that the inmates are securely housed at all times. As inmates spend long periods of time in their prison cells, often out of view from prison wardens, it is imperative that the prison cell and all of the fixtures and fittings in the cell are secure and do not offer any opportunity for an inmates to escape. Heretofore, prison cells were designed with small windows that did not have any ventilation as this design was considered to be the most secure type of window fixture design for the prison cell. Security bars were usually mounted across the window, either on the inside of the prison cell or on the outside of the prison building. There are problems with such types of prison window.

[0003] The safety of inmates and prison wardens in the prison is also a high priority. It is important that prison cells and the fixtures and fittings within those cells do not provide any opportunity for inmates to harm themselves using the fixtures and fittings as ligature points or dislodging the fixtures and fittings and using them as weapons against one another or the prison wardens. Windows having any handles, fixtures for ventilation and/or hinges that are accessible by inmates are prone to vandalism, damage and/or use as ligature points.

[0004] A solution to this has been to place fixtures such as hinges, guide rails, ventilation associated fixtures and the like on the outside of the window on the prison building, akin to mounting the security bars on the outside of the prison building. This prevents the inmates in the prison cell from being able to access these fixtures. However, the fixtures are still accessible from the outside and could pose a problem in the event of a security breach during a riot or attempted escape, or alternatively, external parties could use these fixtures to aid them from gaining access to the prison from the outside.

[0005] In general, the access to any fixtures or fittings on a window could potentially pose a threat to prison wardens or the inmates themselves. Also, a general removal of as many fixtures as possible has been implemented in current designs for prison windows in order to obviate the need to consider where the fixtures should be mounted or located.

[0006] A further consideration when designing a prison is the cost and time schedule for the construction of the prison. Although, the security and the safety aspects of constructing a prison are the primary concerns, attention must also be paid to the cost and time schedule for constructing a prison and installing items such as windows and the like. Given that a prison is likely to use a modular design, re-using the same window design many times over in the construction of the prison, a relatively small cost saving associated with each window will translate into quite large savings in the overall cost of the construction of the prison. Similarly, ease of installation of a window for a prison and the associated fixtures for the window will result in a quicker construction time and a reduction in the installation cost as well.

[0007] An easy to fit, cost effective window is ideally required for modular type buildings such as prisons.

[0008] Lastly, to a lesser degree, the aesthetic look of the prison will also be taken into account when designing and constructing the prison. The aesthetics of a prison can assist in inculcating a positive atmosphere within the prison and have a beneficial effect on the mental health of inmates. A pleasing aesthetic character will therefore have significant effects in reducing mental health issues that may arise from being incarcerated in a prison and will contribute to controlling inmates by lessening the likelihood of a riot within the prison. The windows currently in place in many prisons were not designed with any aesthetic consideration in mind.

[0009] As previously mentioned, the windows designed for prisons up to now have been generally quite small for security reasons. Consequently, these windows do not allow much natural light to enter into a prison cell. Furthermore, many of the older, existing prison windows do not have any vents in them. Very little or no fresh air at all will enter the prison cell. This lack of natural light and fresh air is not healthy for the inmates and can have detrimental effects on the mental health of an inmate.

[0010] The present invention is direction at overcoming at least one of the above mentioned problems.

Summary of the Invention

[0011] The present invention is directed to a window assembly for a prison comprising an exterior opening window panel , an interior fixed window panel and a surrounding frame that holds the interior window panel substantially parallel to and spaced apart from the exterior window panel and creates a closed cavity therebetween; security bars are located within the cavity.

[0012] The use of an interior and exterior window panel forms a cavity that can be used to house fixtures which are kept remote from inmates in the prison cell and also remote from external parties tampering with the outside of the window. The cavity can be used to house and protect any number of window fixtures, such as security bars, that would normally have to be integrated into a prison wall or the like in order to prevent the inmates from accessing them. In effect, the cavity provides a secure storage space for fixtures associated with the prison window.

[0013] Moreover, the design of the interior window panels, the exterior window panels and the surrounding frame form a single window unit which is quick and easy to install on site, reducing construction costs and reducing the time needed on site to install the window assembly. Additionally fresh air from the outside can be communicated through the closed cavity, for example through a mesh or grill in the interior window panel. The outer

window can be opened without allowing a prisoner access to the open window.

[0014] In a further embodiment, the exterior window panel being openable and closeable by an actuation means located within the cavity.

[0015] The advantage of providing a window assembly in accordance with the above description is that the interior window panel and an exterior window panel allows the inmates the possibility of opening the exterior window panel to increase the amount of airflow entering the prison cell whilst not jeopardising the security of the prison cell as the interior window panel remains fixed in a closed position at all times. This control over the amount of airflow into their cells will have a positive mental effect on the inmates.

[0016] It should be noted that the interior window panel and the exterior window panel are substantially different to a window comprising double glazing as the operation of the interior window panel is separate to the operation of the exterior window panel. Double glazing does not allow for one of the window panes to be moved and opened relative to the other pane. Doubling glazing is inherently different to the proposed structure of the interior window panel and the exterior window panel.

[0017] In a further embodiment, the exterior window panel only being openable by a predetermined amount.

[0018] In a further embodiment, the actuation means comprises a mechanical opening means.

[0019] In a further embodiment, the mechanical opening means comprises a screw drive mechanism.

[0020] In a further embodiment, the screw drive mechanism comprises a rotating threaded bar and a complementary inter-engaging threaded sliding nut; the sliding nut being connected to a backing panel on the exterior window panel by a connecting rod.

[0021] In a further embodiment, the mechanical opening means comprises a geared rack and pinion mechanism.

[0022] In a further embodiment, the actuation means comprises an electrical opening means.

[0023] In a further embodiment, the actuation means comprises an air or gas powered opening means.

[0024] In a further embodiment, the exterior window panel comprises a vent.

[0025] In a further embodiment, a blind is housed within the cavity.

[0026] The advantage of providing a window assembly with a blind housed in the cavity is that it allows the inmates the possibility of opening and closing the blind to control the amount of light entering the prison cell. This control of their surroundings will have a positive effect on the mental health of the inmates.

[0027] In a further embodiment, a blind control is mounted on an inner facia of the interior window panel to control the position of the blind within the cavity.

[0028] In a further embodiment, a vent control is mounted on an inner facia of the interior window panel to control the amount the exterior window panel opens.

[0029] In a further embodiment, a vent control thrumbscrew and a blind control thumbscrew is flush with the interior window panel.

[0030] In a further embodiment, the interior window panel comprises a bullet-resistant, bullet proof or safety laminated pane of glass.

[0031] In a further embodiment, the exterior window panel comprises double glazing.

[0032] In a further embodiment, the window assembly comprises a vented section and a blinded section; the vented section of the window assembly comprising an opening exterior window panel, and, the blinded section of the window assembly comprising a blind in the cavity; the vented section being partitioned from the blinded section by a divider.

[0033] In a further embodiment, the interior window panel of the vented section comprises a perforated sheet and the exterior window panel of the vented section comprises a glass pane mounted on a hinged frame; and, the interior window panel of the blinded section comprises a fixed glass pane and the exterior window panel of the blinded section comprises a fixed glass pane. The perforated sheet may be constructed from any material selected from the group comprising steel, stainless steel, aluminium, or plastics.

[0034] In a further embodiment, any manually operated actuator for (i) opening and/or closing the exterior window panel; or (ii) opening and/or closing a blind, may be flush against the interior window panel. Any manually operated actuator may be, for example, the vent control thrumbscrew and/or the blind control thumbscrew.

Detailed Description of Embodiments

[0035] The invention will be more clearly understood from the following description of some embodiments thereof, given by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a photographic view of an interior window panel of a prison window assembly in accordance with the present invention;

Fig. 2 is a photographic view of an exterior window panel of the prison window assembly;

Fig. 3 is a front view of the interior window panel;

Fig. 4 is a front view of the exterior window panel;

Fig. 5 is a cross-sectional view along line V-V' of the prison window assembly;

Fig. 6 is a cross-sectional view along line VI-VI' of the prison window assembly;

Fig. 7 is a cross-sectional view along line VII-VII' of the prison window assembly;

Fig. 8 is a detail partially sectioned side view of a screw drive mechanism used in the prison window assembly;

Fig. 9 is a detail partially sectioned side view of a blind control mechanism used in the prison window assembly; and,

Fig. 10 is a perspective view of a mounting bracket for use with the prison window assembly.

[0036] The following description of the prison window assembly has been made with reference to the prison window assembly installed in a prison cell.

[0037] Referring in particular to Figs. 1 and 3, there is provided a prison window assembly indicated generally by the reference numeral 100. The prison window assembly 100 comprises an interior window panel 102 that is partitioned into a vented section 104 and a blinded section 106.

[0038] The interior window panel 102 of the vented section 104 comprises a perforated metallic sheet 108. Two vertical security bars 110 can be seen located behind the perforated metallic sheet 108. A vent control thumbscrew 112 is positioned on the interior window panel 102 of the vented section 104. This vent control thumbscrew 112 is constructed to be of a low profile design, that is, flush against the interior window panel, so as to avoid offering any ligature points to an inmate (not shown) in the prison cell (not shown).

[0039] The interior window panel 102 of the blinded section 106 comprises a fixed bullet-resistant pane of glass 114. A plurality of horizontal security bars 116 can be seen located behind the fixed bullet-resistant pane of glass 114. Furthermore, a blind 118 is also located behind the fixed bullet-resistant pane of glass 114. A blind control thumbscrew 120 is positioned on the interior window panel 102 of the blinded section 106. As with the vent control thumbscrew 112, the blind control thumbscrew 120 is also constructed to be of a low profile design, that is, lying flush against the interior window panel, so as to avoid offering any ligature points to the inmate.

[0040] The prison window assembly 100 comprises a surrounding frame 122.

[0041] Referring in particular to Figs. 2 and 4, there is provided the prison window assembly 100 comprising an exterior window panel 200. A vent 202 is located on the vented section 104 of the exterior window panel 200. This vent 202 will allow a certain amount of airflow into the prison cell. This amount of airflow may be augmented by the adjustment of an exterior opening window panel 204 on the vented section 104 of the exterior window panel 200 of the prison window assembly 100, as will be described in more detail below. The blinded section 106 of the exterior window panel 200 of the prison window assembly 100 comprises a fixed glass pane 206 through which can be seen the blind 118 and the horizontal security bars 116. In one embodiment, as can be seen in Fig. 2 and Fig. 4, the fixed glass pane 206 is mounted on a hinged frame to allow the fixed glass pane 206 to be opened outwardly to the exterior.

[0042] Referring in particular to Figs. 5 to 7, there is provided the prison window assembly 100. The prison window assembly 100 is shown mounted in an ope in a wall 500. The interior window panel 102, and, the exterior window panel 200, are positioned and held at a predetermined distance from one another by the surrounding frame 122. The surrounding frame 122, the interior window panel 102, and the exterior window panel 200 form a substantially rectangular block unit which is relatively simple and quick to install in an ope of suitable dimensions. A cavity 502 is created between the interior window panel 102 and the exterior window panel 200. The cavity 502 is used to house a number of fixtures associated with the prison window assembly 100. A divider 504 is mounted within the cavity 502 to separate the vented section 104 from the blinded section 106. The divider 504 may preferably be constructed of a metal such as stainless steel or aluminium. The cavity 502 may also house the vertical security bars 110 and a screw drive mechanism 506 which is used to move the exterior opening window panel 204 on the vented section 104 into an opened or closed position. This feature will be described in greater detail below. The cavity 502 also houses the blind 118 and the plurality of horizontal security bars 116. The fixed glass pane 206 may preferably be double glazed as illustrated in Fig. 6. A blind control mechanism 700 (Fig. 9) is also housed in the cavity 502.

[0043] Referring in particular to Fig. 8, the screw drive mechanism 506 is shown in more detail. The screw drive mechanism 506 comprises a rotating threaded bar (or screw) 800 and a complementary inter-engaging sliding threaded nut 802 which is connected to a backing plate 806 via a connecting rod 804. The backing plate 806 is mounted on the exterior opening window panel 204 on the vented section 104 of the exterior window panel 200. The vent control thumbscrew 112 is connected to the rotating threaded bar 800 for rotation of the thumbscrew 800 to open and close the window 204.

[0044] In use, the vent control thumbscrew 112 is partially housed within a bushing 810 which allows the thumbscrew 112 to rotate a predetermined amount in both directions. Rotating the vent control thumbscrew 112 rotates the screw 800. A bracket 808 mounts and holds the rotating threaded bar 800 in a fixed position, and, the rotation of the rotating threaded bar 800 causes the sliding threaded nut 802 to move axially along the length of the rotating threaded bar 800. An upwardly extending projection 814 fixedly attached to an upper portion of the sliding nut 802 is pivotably connected by a pivot pin 812 to the connecting rod 804. The connecting rod 804 is pivotably connected to the backing plate 806 by a further pivot pin 812 and transfers the sliding movement of the sliding nut 802 to the backing plate 806. As the backing plate 806 is fixedly mounted on the exterior opening window panel 204, the backing plate 806 will

either push or pull the exterior opening window panel 204 into an open or closed position respectively. The screw drive mechanism 506 is entirely housed within the cavity 502 so as to be inaccessible to the inmates and thus tamper-proof.

[0045] In further embodiments, it is foreseen to use an electrically operating opening mechanism to drive a small electrical motor which can be used to open and close the exterior opening window panel 204. Alternatively, small pneumatic pistons and pumps could be used to effectuate the opening and closing of the exterior opening window panel 204. Furthermore, a pressurized fluid supply such as an air or gas could be used to drive pistons and/or pumps to effectuate the opening and closing of the exterior opening window panel 204. In a further embodiment, the rotation of the vent control thumbscrew 112 may cause a pinion to rotate and this pinion will slide a complementary inter-engaging rack forward and backward so as to open and close the exterior opening window panel 204 respectively. In yet another embodiment, the rack may be arcuate in structure so as to be housed within the cavity 502.

[0046] Referring in particular to Fig. 9, there is provided the blind control mechanism 700. The blind control mechanism 700 comprises a rotating inner pin 900 that is engaged with and fixedly attached to a blind cord 902. The blind cord is constructed of a relatively rigid material so as to translate the rotation imparted to a proximal end 908 of the blind cord 902 from the inner pin 900 along the length of the blind cord 902 to a distal end (not shown) of the blind cord 902. The blind control thumbscrew 120 is partially housed within a bushing 906 which allows the thumbscrew 120 to rotate a predetermined amount in both directions. The inner pin 900 and the bushing 906 are located in a blind control housing 904.

[0047] In use, rotating the blind control thumbscrew 120 rotates the inner pin 900. The inner pin 900 causes the blind cord 902 to rotate. The rotation of the blind cord 902 causes the blind 118 to open and close as is well known in the art. It should be noted that in a further embodiment (not shown), a right-angled gearing mechanism is envisaged to be used in replacement of the inner pin 900. This will translate the rotation of the blind control thumbscrew 120 from about a horizontal axis to be about a vertical axis and this rotation about the vertical axis can then to carried along the blind cord 902 or an elongated rigid rod (not shown) to the opening and closing mechanism typically found in venetian blinds and then like.

[0048] Referring to Fig. 10, there is provided a mounting bracket indicated generally by the reference number 1000. The mounting bracket 1000 comprises a L-shaped bracket having a wall leaf engaging plate 1002 and a prison window assembly engaging plate 1004. The wall leaf engaging plate 1002 comprises a through hole 1006 to allow a screw, bolt or other such fixing means to mount the prison window assembly 100 in an ope (not shown) by fixing the wall leaf engaging plate 1002 against an inner face of an inner concrete wall leaf (not shown). The prison window assembly engaging plate 1004 comprises a through hole 1008 to allow a screw, bolt or other such fixing means to mount the prison window assembly 100 to the prison window assembly engaging plate 1004. A protective U-shaped plate 1010 is arranged to cover the through hole 1008 of the prison window assembly engaging plate 1004. A nut may be slid inside the protective U-shaped plate 1010 and a complementary inter-engaging bolt is pushed through the prison window assembly 100 to engage with the nut. In such a manner a substantially tamper-free fixing may be formed by the mounting bracket 1000. Once the prison window assembly 100 is fixed to the mounting bracket 1000 and the wall leaf engaging plate 1002 is fixed against the inner face of the inner concrete wall leaf, an outer concrete wall leaf (not shown) will be built up beside the inner concrete wall leaf. In such a manner, the mounting bracket 100 will be encased within the inner and outer concrete leafs of the prison wall.

[0049] Throughout the preceding specification, the term "prison" shall be understood to encompass any secure housing location such as psychiatric units, juvenile offender camps, holding cells and the like.

[0050] In the specification the terms "comprise, comprises, comprised and comprising" or any variation thereof and the terms "include, includes, included and including" or any variation thereof are considered to be totally interchangeable and they should all be afforded the widest possible interpretation.

[0051] The invention is not limited to the embodiments hereinbefore described which may be varied in both construction and detail within the scope of the appended claims.

Claims

1. A window assembly for a prison comprising an exterior opening window panel, an interior fixed window panel and a surrounding frame that holds the interior window panel substantially parallel to and spaced apart from the exterior window panel and creates a closed cavity therebetween.

2. A window assembly according to claim 1, wherein security bars are located within the cavity.

3. A window assembly according to any of claim 1 or claim 2, wherein the exterior window panel is openable and closeable by an actuation means located within the cavity.

4. A window assembly according to claim 3, wherein the actuation means comprises a mechanical opening means.

5. A window assembly according to claim 4, wherein the mechanical opening means is selected from the

group comprising a screw drive mechanism and a geared rack and pinion mechanism.

6. A window assembly according to claim 5, wherein the screw drive mechanism comprises a rotating threaded bar and a complementary inter-engaging threaded sliding nut.

7. A window assembly according to claim 6, wherein the sliding nut is connected to a backing panel on the exterior window panel by a connecting rod.

8. A window assembly according to claim 3, wherein the actuation means comprises an electrical opening means.

9. A window assembly according to claim 3, wherein the actuation means comprises an air or gas opening means.

10. A window assembly according to any of claims 1 to 9, wherein the exterior window panel only being openable by a predetermined amount.

11. A window assembly according to any of claims 1 to 10, wherein the exterior window panel comprises a vent.

12. A window assembly according to claim 11, wherein a vent control is mounted on an inner facia of the interior window panel to control the amount the exterior window panel opens.

13. A window assembly according to any of claims 1 to 12, wherein a blind is housed with in the cavity.

14. A window assembly according to claim 13, wherein a blind control is mounted on an inner facia of the interior window panel to control the position of the blind within the cavity.

15. A window assembly according to any of claims 1 to 14, wherein the interior window panel comprises a bullet-resistant, a bullet proof, or a laminated safety pane of glass.

16. A window assembly according to any of claims 1 to 15, wherein the exterior window panel comprises double glazing.

17. A window assembly according to claim 1, further comprising a vented section and a blinded section; the vented section comprising an opening exterior window panel, and, the blinded section comprising a blind in the cavity.

18. A window assembly according to claim 17, wherein the vented section is partitioned from the blinded section by a divider.

19. A window assembly according to any of claims 17 and 18, wherein an interior window panel of the vented section comprises a perforated sheet and the exterior window panel of the vented section comprises a glass pane mounted on a hinged frame.

20. A window assembly according to any of claims 17 to 19, wherein the interior window panel of the blinded section comprises a fixed glass pane and the exterior window panel of the blinded section comprises a fixed glass pane.

21. A window assembly according to any preceding claim wherein a manually operated actuator for (i) opening and/or closing the exterior window panel; or (ii) opening and/or closing a blind, is flush against the interior window panel.

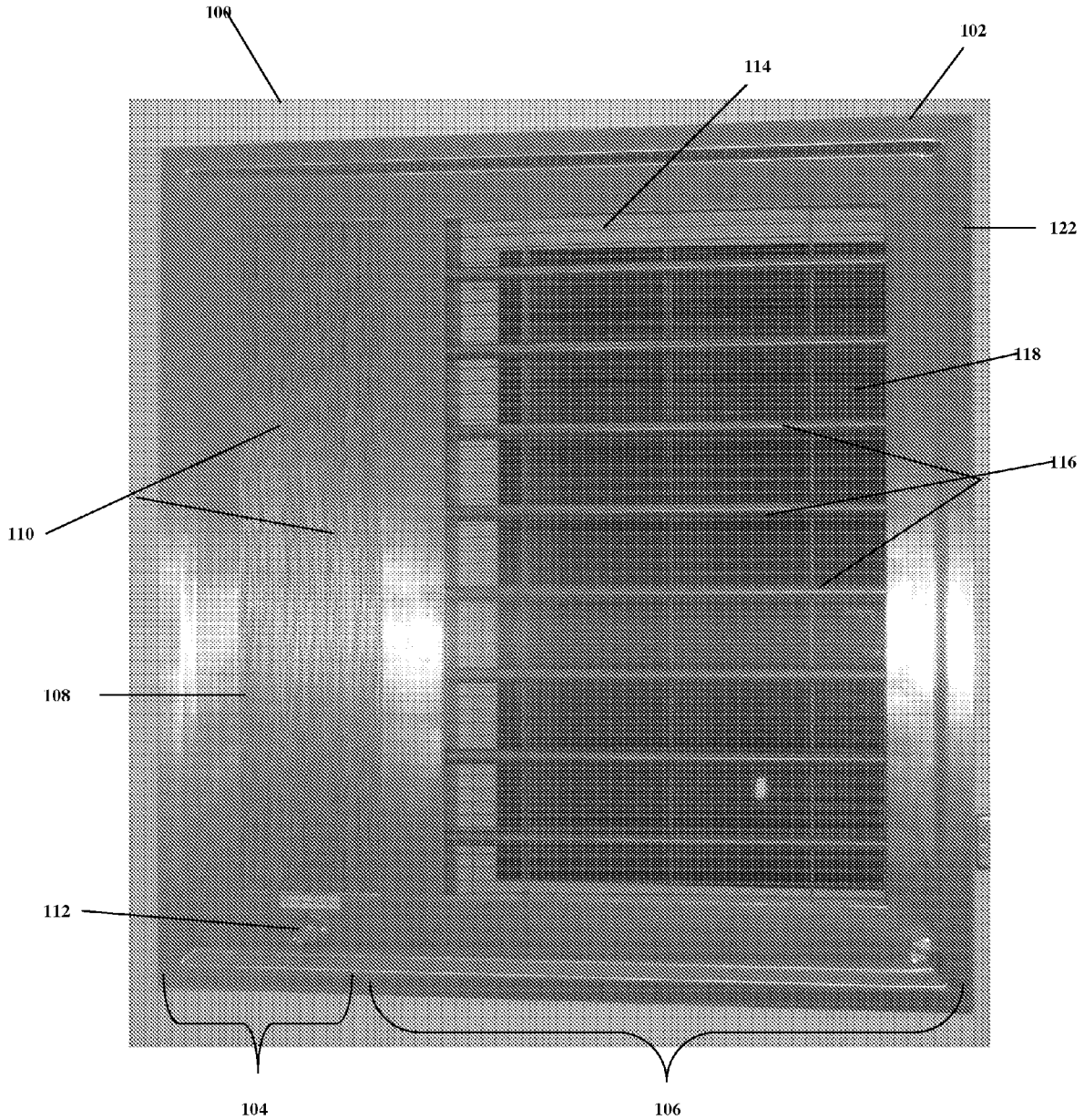

Fig. 1

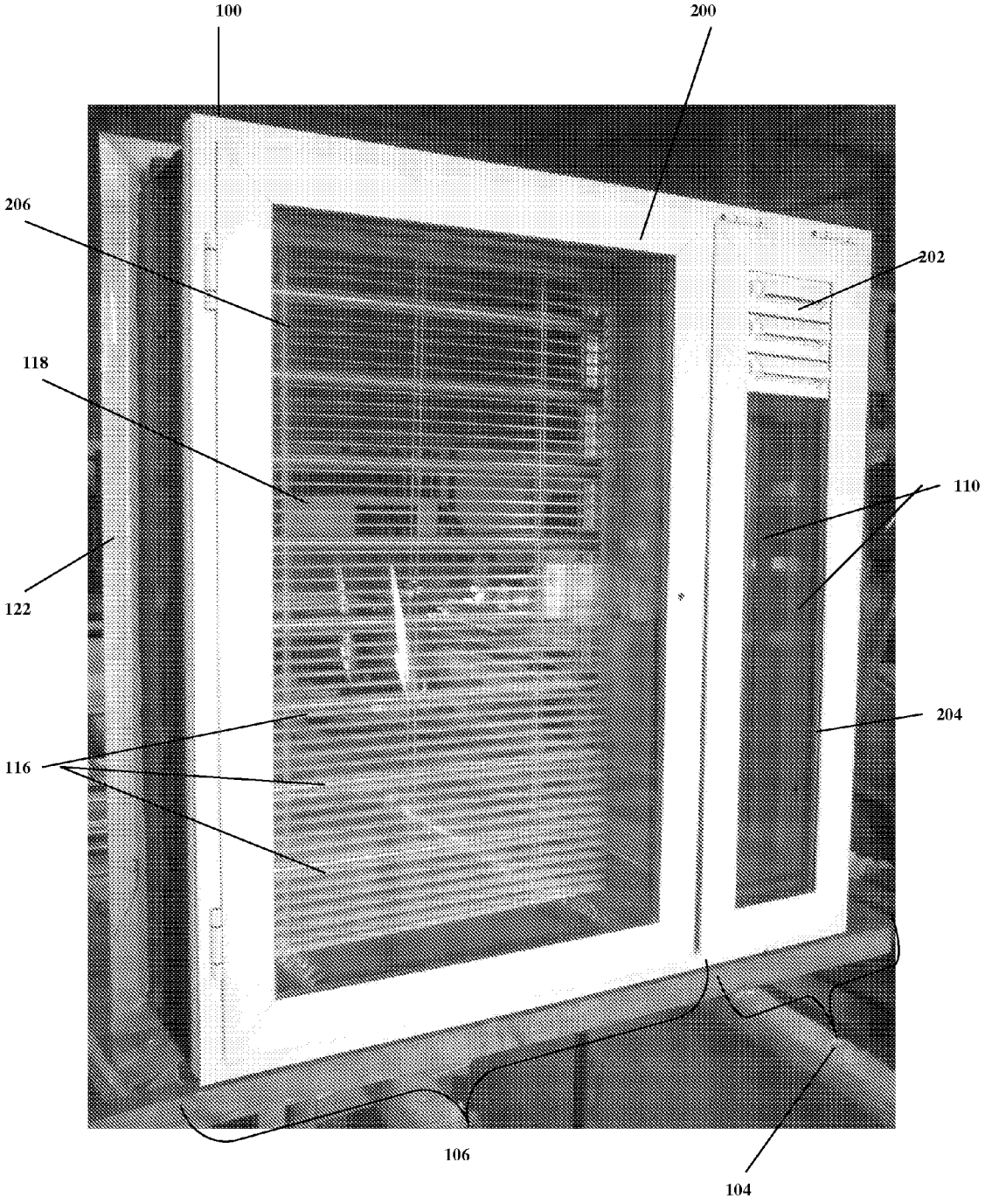

Fig. 2

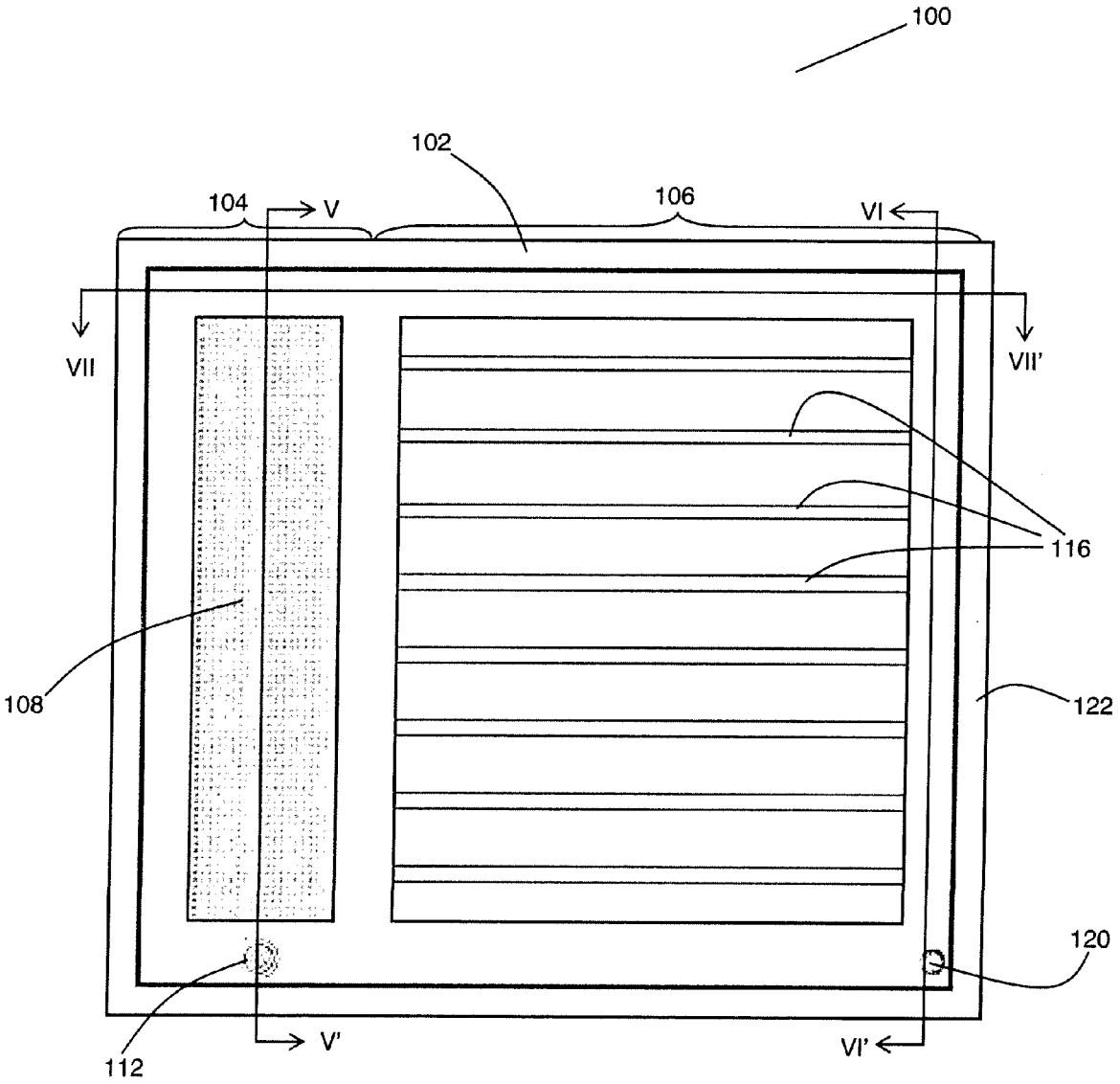

Fig. 3

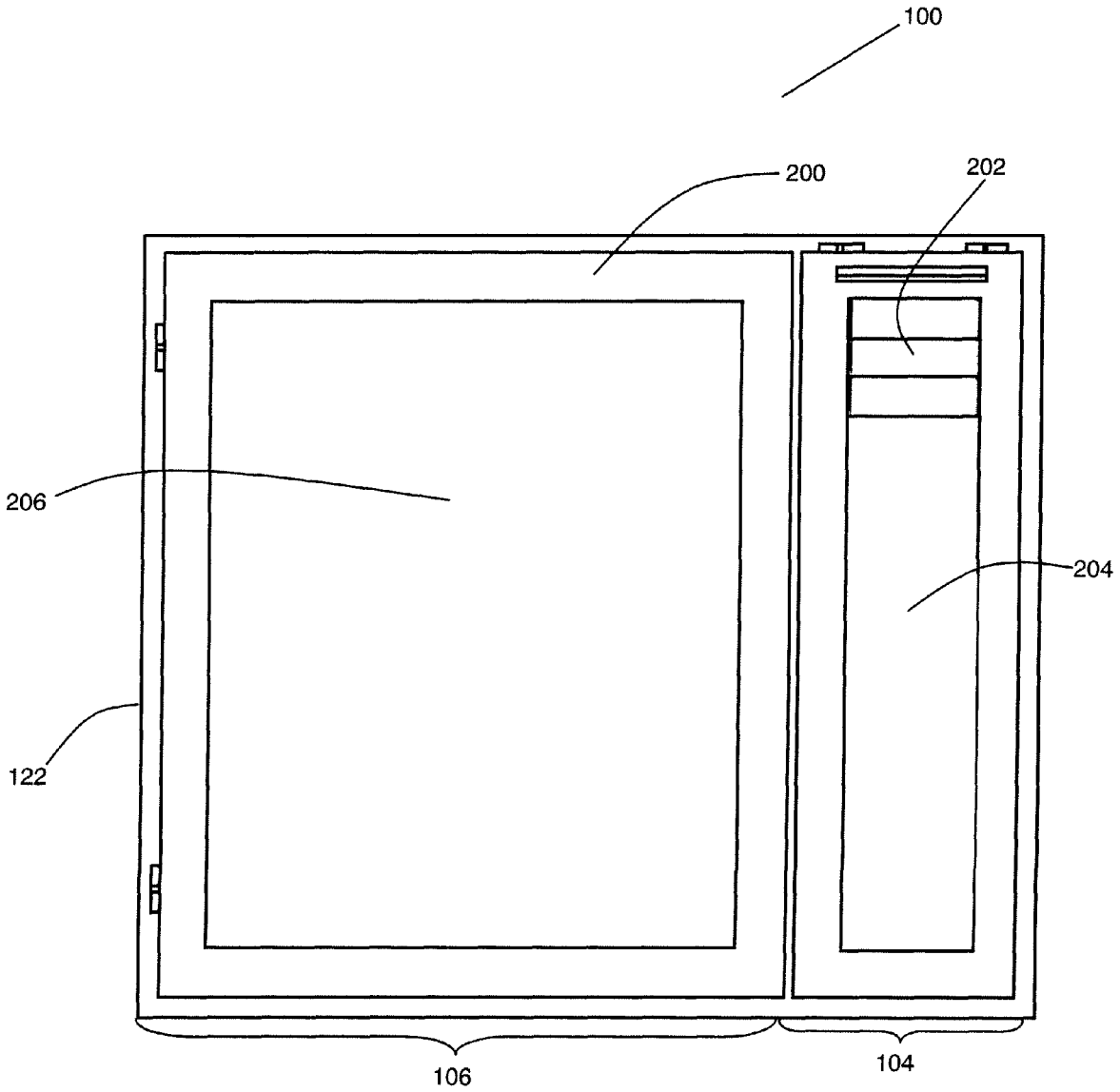

Fig. 4

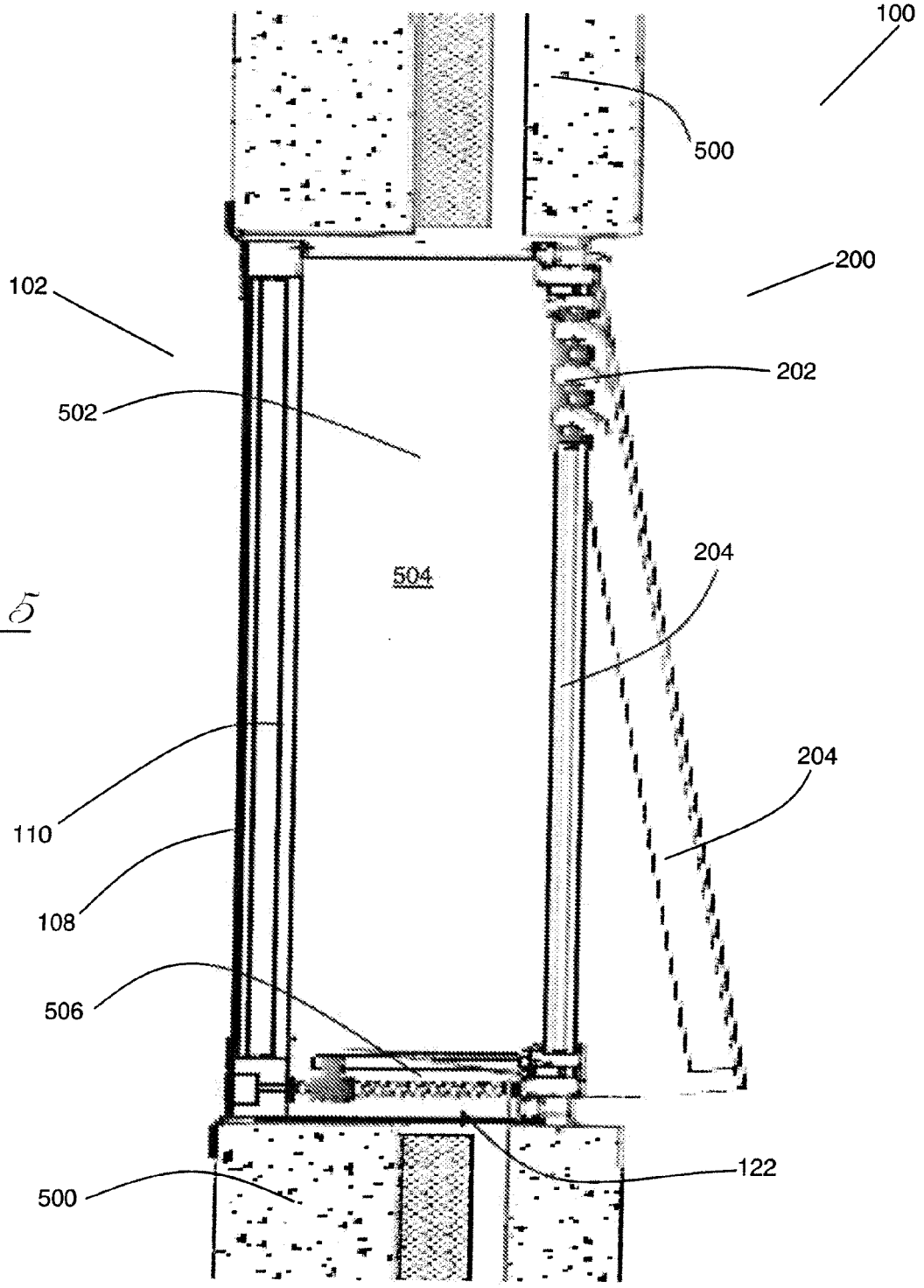

Fig. 5

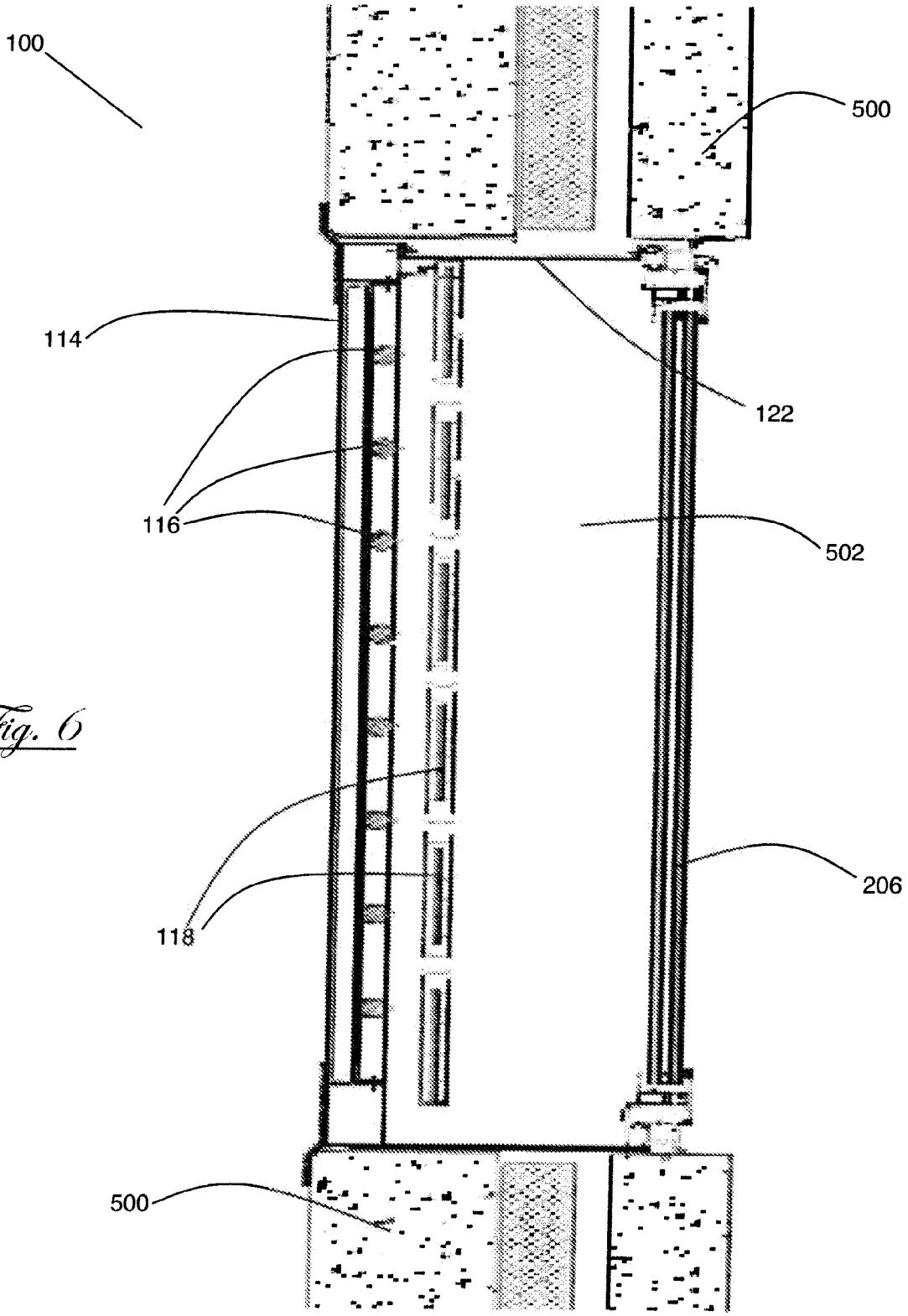

Fig. 6

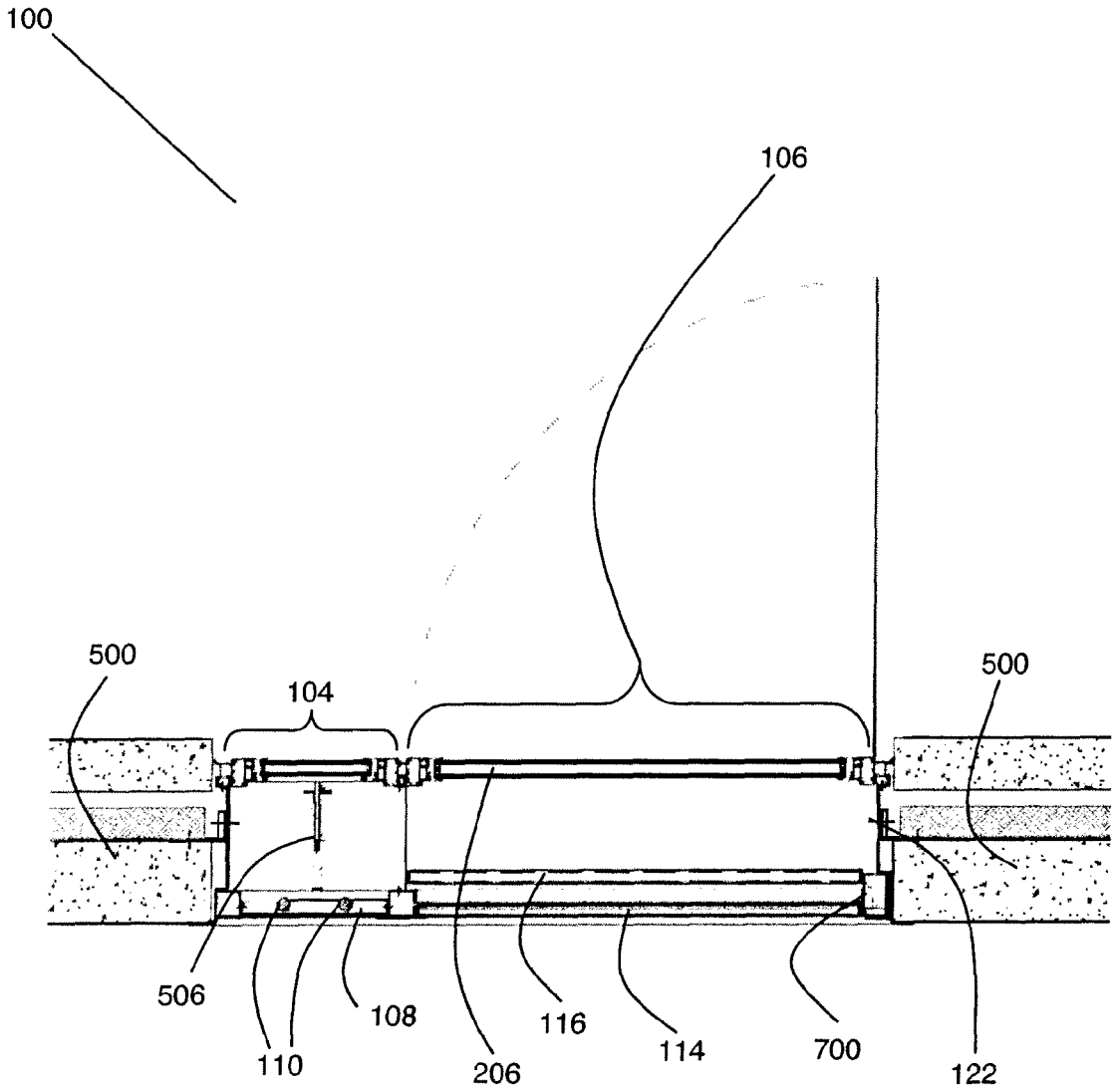

Fig. 7

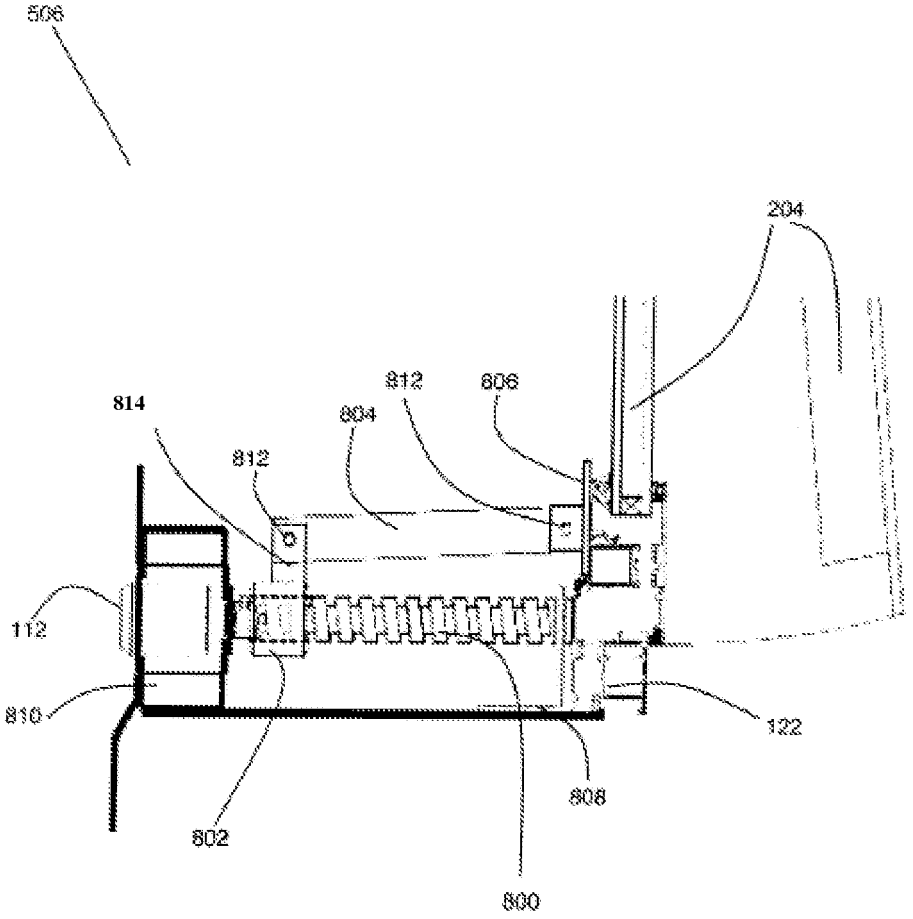

Fig. 8

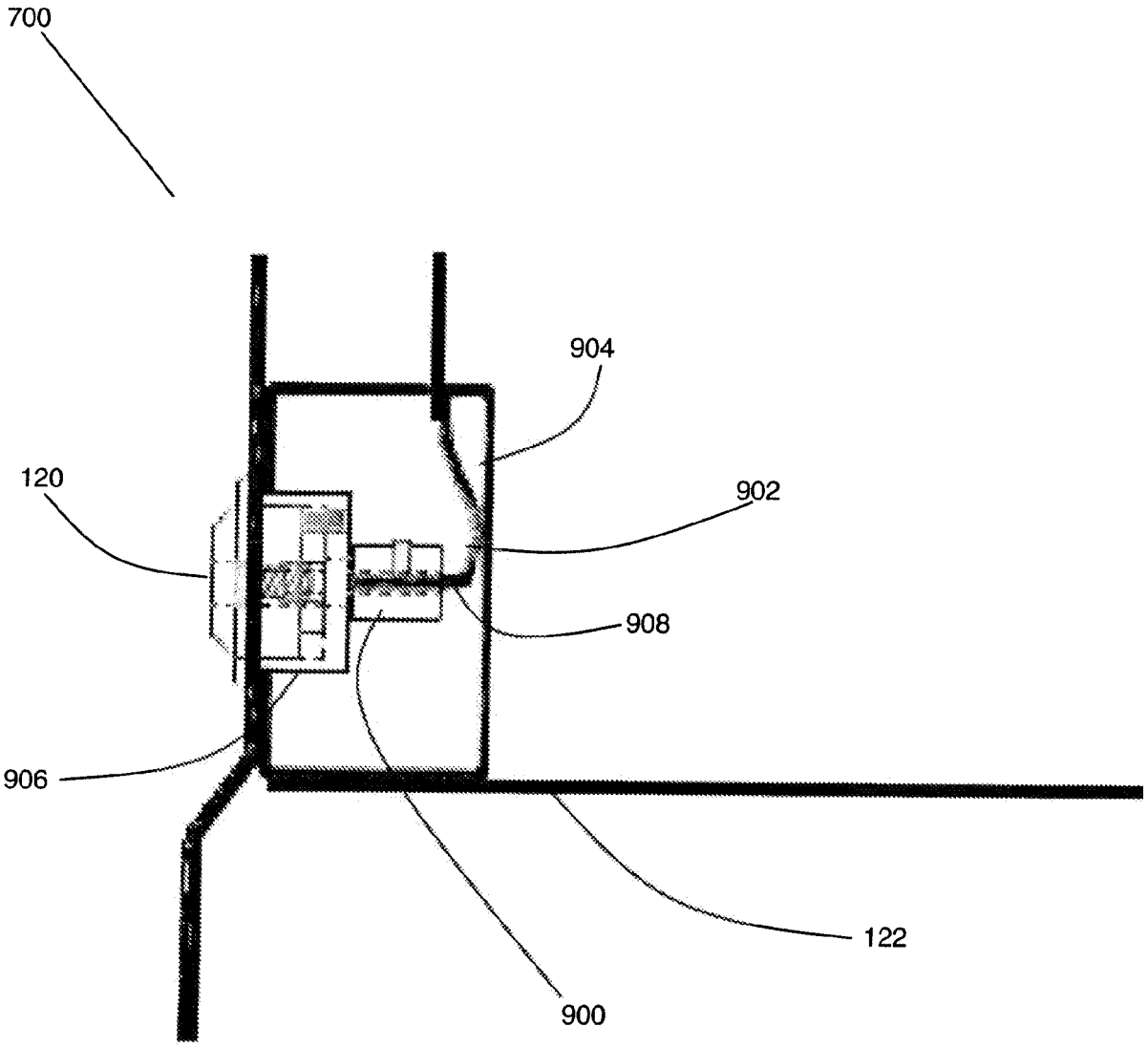

Fig. 9

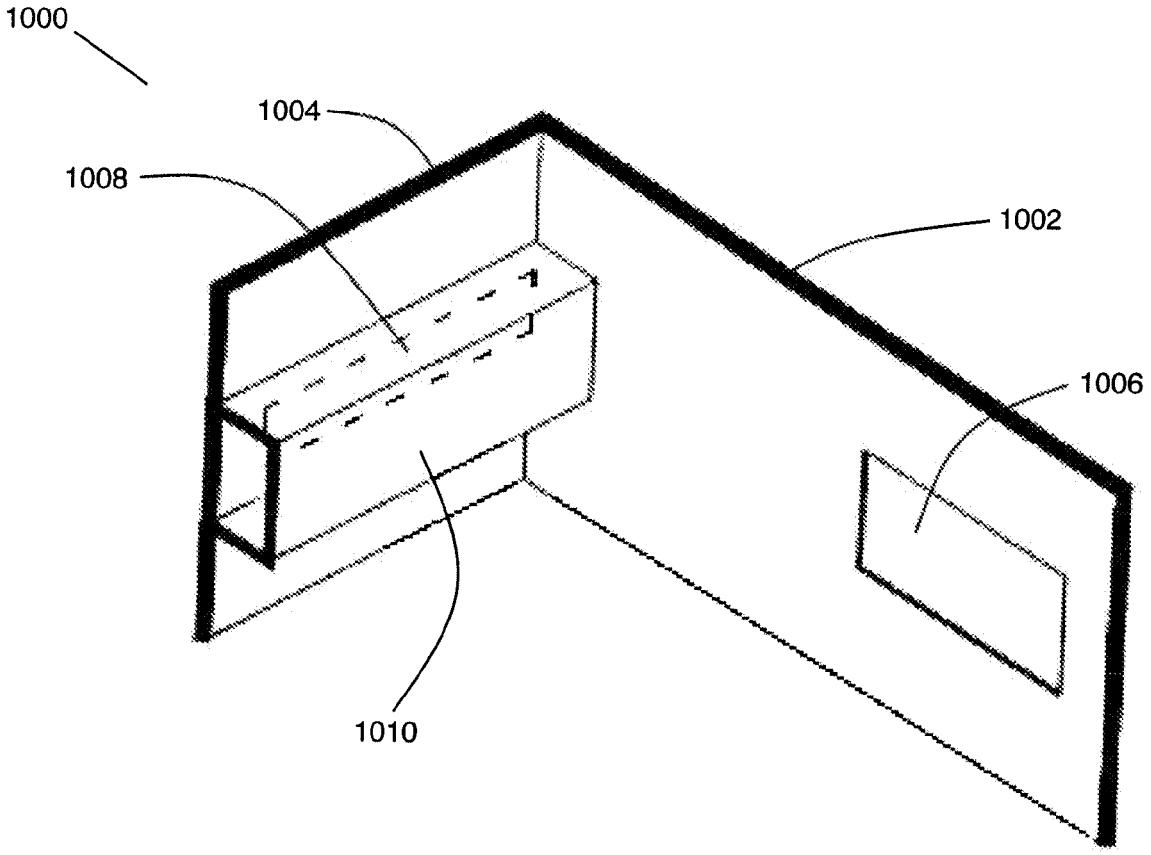

Fig. 10