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(54) A VENTILATION APPARATUS FOR A ROOF WINDOW

(57) A roof window (1) with a frame (2) and a sash (3). The sash (3) being pivotally mounted on the frame (2). The roof window (1) has a ventilation aperture (4) leading to a ventilation passage (34) and a ventilation aperture sealing arrangement (5). The ventilation aperture sealing arrangement (5) being adjustable between a ventilation aperture closed position and a ventilation aperture open position. The ventilation aperture sealing arrangement (5) having a fixed intermediate ventilating position between the closed position and the open position.

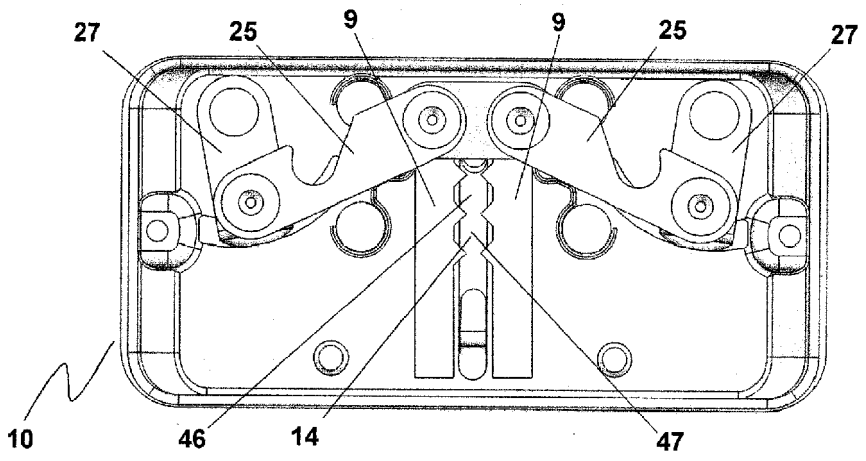

Figure 2

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Description

[0001] The present invention relates to a ventilation apparatus and in particular to a ventilation apparatus for a roof window.

[0002] Conventionally roof windows consist of a frame within which a sash, securing the glass pane, is mounted and rotates about a pivot point of a hinge mounted between the sash and the frame. The sash and frame also typically have a latch which secures the two window components together in a co-planar configuration when the sash is in the closed position. In the open positon the latch unlocks the sash from the frame allowing it to pivot about the hinges coupling the sash and frame together. Conventional latches of this kind also possess features that allow a user to move the latch and permit ventilation of the room without affecting the lock between the window's sash and frame; thus providing security to one's property. However there is an inherent issue with the modern day latches enabling this ventilation. Conventional modern latches do not enable a user to control the volume of air entering and/or leaving a room, once the ventilation mechanism is in the ventilation position. Depending upon circumstances, once in the ventilation position, airflow in the room could be excessive. On the other hand if the conventional modern latch is in the closed ventilation position there would be no ventilation in the room via the roof window.

[0003] It is an object of the present invention to obviate or mitigate the above problem of limited or no control of airflow leaving and/or entering a user's room when the latch is in a ventilation position.

[0004] Accordingly, the present invention provides a roof window with a frame and a sash pivotally mounted on the frame, the roof window having a ventilation passage for providing fluid communication between the inside and the outside of the roof window, the ventilation passage having an aperture leading to the ventilation passage and the roof window having a ventilation aperture sealing means, the ventilation aperture sealing means being hinged to the roof window so as to be adjustable between a ventilation aperture closed position and a ventilation aperture open position, the ventilation aperture sealing means having a fixed intermediate ventilating position between the closed position and the open position, characterised in that the ventilation aperture sealing means has a second intermediate fixed ventilating position.

[0005] Ideally, control means are provided between the ventilation aperture sealing means and the roof window for fixing the ventilation aperture sealing means at the fixed intermediate ventilating positions.

[0006] Advantageously, the ventilation aperture sealing means of the roof window having two fixed intermediate ventilating positons acts as a means for controlling the volume of air flow by acting as a type of choke at at least two further fixed positions of the ventilation aperture sealing means between the closed position and the open position. This allows an operator additional control over the ventilation of the roof window depending on their requirements and/or depending on the prevailing weather conditions.

[0007] Ideally, the ventilation aperture sealing means being hinged to the sash of the roof window.

[0008] Preferably, the ventilation aperture sealing means is coupled to the roof window by coupling means.

[0009] Ideally, the coupling means has a roof window engaging means moveably mounted on the roof window and a ventilation aperture sealing means engaging means moveably mounted on the ventilation aperture sealing means.

[0010] Preferably, the ventilation aperture sealing means is a ventilation flap.

[0011] Ideally, the ventilation flap is the main ventilation flap for opening and closing the ventilation aperture.

[0012] Preferably, the ventilation flap comprises means for locking and unlocking the sash relative to the frame.

[0013] Preferably, the ventilation flap has a ventilation flap handle.

[0014] Ideally, the control means comprises braking means.

[0015] Ideally, the braking means engages the roof window engaging means for fixing the ventilation aperture sealing means at a second fixed intermediate ventilating position. By fixed we mean that the ventilation aperture sealing means is releasably fixed temporarily at an intermediate positon along its travel between the closed position and the open position. The fixing is sufficient so that the sash will remain in the fixed positon when a strong gust of wind catches the sash. This avoids the situation where a sash is moved away from a desired ventilating position to a more open position possibly allowing rain or unnecessary over ventilation in cold conditions for example. It also avoids the situation where the gust of wind slams the sash closed preventing the desirable ventilation.

[0016] Preferably, the braking means is provided between the roof window and the ventilation flap for fixing the ventilation flap at the at least two fixed intermediate ventilating positions.

[0017] Ideally, the ventilation flap braking means is locatable proximal to the sash.

[0018] Preferably, the ventilation flap braking means is mountable on or within the sash.

[0019] Ideally, the ventilation flap braking means is mechanically coupled to the sash.

[0020] Advantageously, a roof window with a means to more finely control the volume of air ventilating a room provides a user with greater control over how room ventilation is regulated beyond that of the prior art. As discussed conventional roof window ventilation utilises a simple open and closed position with one fixed intermediate ventilating positon which is inefficient depending on the circumstances and needs of the user. There is no ventilation with the conventional system in its closed po-

sition and excessive ventilation in the open position where the whole sash is free to move relative to the frame. The one fixed intermediate ventilating positon may also allow too much or too little ventilation depending on the prevailing circumstances and there is nothing a person can do as this ventilating position is fixed. This problem of the prior art ventilation system is overcome with the greater control provided by the ventilation flap braking means of the present invention providing two or more fixed intermediate ventilating positions.

[0021] Ideally, the ventilation aperture sealing means has three or more fixed intermediate ventilating positions.

[0022] Ideally, the ventilation flap is moveably mounted proximal to the ventilation aperture.

[0023] Preferably, the ventilation flap controls the exposed surface area of the ventilation aperture between the closed and open position.

[0024] Ideally, the ventilation passage extends through the upper portion of the sash.

[0025] Alternatively, the ventilation passage extends through a ventilation module mounted on top of the sash.

[0026] Advantageously, this control of the exposed surface area of the ventilation aperture leading to the ventilation passage between the closed and open position of the ventilation flap enables the ventilation flap to control the volume of air flow during the ventilation similar to a mechanical choke.

[0027] Ideally, the ventilation flap is located proximal to the top of the sash of the roof window.

[0028] Preferably, at least a portion of the ventilation flap is hinged to the sash of the roof window proximal the ventilation aperture.

[0029] Ideally, at least a portion of lower region of the ventilation flap is hinged to the sash of the roof window below the ventilation aperture.

[0030] Preferably, the ventilation aperture sealing means is coupled to a latch mechanism of the roof window.

[0031] Ideally, the latch mechanism is for locking and releasing the sash to and from the frame of the roof window.

[0032] Ideally, the ventilation flap is coupled to the latch mechanism of the roof window. The ventilation flap is capable of operating the latch mechanism for locking and releasing the sash to and from the frame of the roof window. The ventilation aperture sealing means being operably coupled to the latch mechanism provides the means for controlling the position of the ventilation flap providing the two or more fixed intermediate ventilating positions.

[0033] Preferably, the ventilation aperture sealing means is coupled to the latch mechanism by coupling means.

[0034] Ideally, the coupling means comprises a latch mechanism engaging means moveably mounted in or on the latch mechanism and a ventilation flap engaging means moveably mounted on the ventilation flap.

[0035] Preferably, the latch mechanism engaging means is moveable between a first position on the latch mechanism corresponding to an aperture open position and a second position on the latch mechanism corresponding to an aperture closed position by activation of the ventilation flap through its range of movement.

[0036] Preferably, the braking means is operably couplable with the latch mechanism.

[0037] Ideally, the braking means is operably engageable with the moveable latch mechanism engaging means between the open position and the closed position for providing two or more fixed intermediate ventilating positions for the ventilation flap.

[0038] Preferably, the braking means engages with the moveable latch mechanism engaging means during movement of the ventilation flap between the closed position and the open position.

[0039] Preferably, the latch mechanism comprises guide means for guiding the moveable latch mechanism engaging means between the open position and the closed position.

[0040] Ideally, the guide means for guiding the moveable latch mechanism engaging means extends in the general direction from the interior to the exterior of the roof window.

[0041] Preferably, the braking means is locatable proximal to the guide means, ideally on opposing sides of the guide means.

[0042] Ideally, the braking means comprises an engagement member to engage with the moveable latch mechanism engaging means.

[0043] Preferably, the engagement member protrudes into the normal path of travel of the moveable latch mechanism engaging means along the guide means to enable engagement therewith.

[0044] Ideally, the engagement member extends along all or a part of the length of the guide means.

[0045] Preferably, the engagement member comprises a channel for receiving the movable latch mechanism engaging means.

[0046] Preferably, the coupling means comprises a connecting rod which is moveably coupled between the moveable latch mechanism engaging means and the ventilation flap engaging means.

[0047] Preferably, the latch mechanism comprises a housing and/or a cover plate for enclosing the components of the latch mechanism.

[0048] Ideally, the cover plate is removably fixed onto the housing and/or sash.

[0049] Preferably, the cover plate is removably fixed onto the outside surface of the top member of the sash on the side of the top member opposing the underside for receiving the glass.

[0050] Ideally, the guide means comprises a guide slot in the housing of the latch mechanism.

[0051] Preferably, the guide means comprises a guide slot in the cover plate of the latch mechanism.

[0052] Ideally, the guide slot is linear, most preferably rectilinear.

[0053] Ideally, the moveable latch mechanism engaging means comprises a locating and guiding member having a head member protruding out of the latch mechanism via the guide means and a shoulder member held in position by the part of the latch mechanism defining the guide means.

[0054] Preferably, the main plane of the shoulder member is coplanar with the outside top surface of the sash upon which the latch mechanism is mounted upon.

[0055] Ideally, the head member protrudes generally orthogonally from the main plane of the shoulder member through the guide means in the latch mechanism.

[0056] Ideally, the braking means is formed for engagement with the locating and guiding member of the movable latch mechanism engaging means.

[0057] Preferably, the braking means is formed for engagement with the head member of the locating and guiding member of the movable latch mechanism engaging means.

[0058] Ideally, the engagement member is formed for engagement with the locating and guiding member of the movable latch mechanism engaging means.

[0059] Preferably, the engagement member is formed for engagement with the head member of the locating and guiding member of the movable latch mechanism engaging means.

[0060] Ideally, the channel of the engagement member comprises at least three constricted regions spaced apart along the length of the channel for preventing the head member of the locating and guiding member from passing freely along the channel without user intervention.

[0061] Ideally, the first constricted region of the channel prevents the head member from moving freely along the channel away from a vent flap handle closed position.

[0062] Preferably, the second constricted region being spaced apart from the first constricted region defines a first partially enclosed region for preventing the head member from moving freely along the channel and retaining the head member in a first intermediate ventilating position.

[0063] Ideally, the third constricted region being spaced apart from the second constricted region defines a second partially enclosed region preventing the head member from moving freely along the channel and for retaining the head member in a second intermediate ventilating position.

[0064] Preferably, a fourth constricted region being spaced apart from the third constricted region defines a third partially enclosed region preventing the head member from moving freely along the channel and for retaining the head member in a third intermediate ventilating position.

[0065] Preferably, the partially enclosed regions correspond to the fixed intermediate ventilating positions.

[0066] Ideally, the partially enclosed regions are dimensioned for receiving the head member of the locating and guiding member.

[0067] Preferably, the partially enclosed regions are dimensioned for forming a tight fit with the head member of the locating and guiding member.

[0068] Preferably, the partially enclosed regions are dimensioned for forming an interference fit with the head member of the locating and guiding member.

[0069] Advantageously, the tight/interference fit between the partially enclosed region and the head provides positive haptic feedback to a user that the vent flap is securely retained in one of the fixed intermediate ventilating positions of the roof window.

[0070] Preferably, the engagement member comprises an element defining the elongate channel extending there along, the channel having each mutually opposing longitudinal edge thereof being generally aligned along all or part of one of the mutually opposing longitudinal edges of the guide slot, each longitudinal edge of the channel having spaced apart ridges protruding towards each other for defining the constricted regions and the partially enclosed regions of the channel.

[0071] Ideally, the engagement member comprises a pair of spaced apart elements defining the channel there between, each element having one mutually opposing edge thereof being generally aligned along all or part of one mutually opposing longitudinal edge of the guide slot, each element having spaced apart ridges protruding towards each other from their mutually opposing edges for defining the constricted regions and the partially enclosed regions of the channel.

[0072] Preferably, the mutually opposing spaced apart ridges are generally in alignment with one another along the length of the channel for defining the constricted regions of the channel.

[0073] Ideally, the element comprises one plate member or a pair of separate plate members.

[0074] Preferably, the engagement member is manufactured from a material suitable to allow a degree of flex to allow the head to pass through the constricted regions. As an operator applies a force to the ventilation flap to move it between a closed and open position, the head member passes through the constricted region and presses the ridges apart.

[0075] Preferably, urging means acts on at least one outside longitudinal edge of the engagement member.

[0076] Ideally, urging means acts on both outside longitudinal edges of the engagement member.

[0077] Ideally, the urging means returns the ridges to their original positon after the head member has passed through a constricted region from one partially enclosed region to another.

[0078] Preferably, the channel of the engagement member is substantially in alignment with the guide slot of the housing of the latch.

[0079] Preferably, the moveable latch mechanism engaging means comprises a linkage assembly for coupling the locating and guiding member to the latch mechanism.

[0080] Ideally, the linkage assembly comprises a butterfly wing arrangement protruding laterally from both free ends of the shoulder member and extending to two

pivotal connections with the latch mechanism.

[0081] Preferably, the butterfly wing arrangement comprises a first wing member pivotally coupled to the shoulder member at a first end and movably pivotally coupled to a second wing member, the second wing member being pivotally coupled about the other end to a fixed pivot on the latch housing.

[0082] Ideally, the movable pivotal coupling between the two wing members operates the latch for locking or releasing the sash to and from the frame.

[0083] Preferably, the engagement member comprises an urging means.

[0084] Ideally, the urging means comprises a spring.

[0085] Preferably, the latch mechanism is connectable to a latch keep for forming a locking mechanism of the roof window for locking the sash in a closed position relative to the frame.

[0086] Ideally, the latch mechanism is an integral component of the locking mechanism of the roof window.

[0087] Preferably, two protruding lugs of the latch are engageable with a corresponding latch keeper on a corresponding location of an underside surface of the top transverse member of the frame.

[0088] Preferably, when moved and/or rotated away from the ventilation aperture into first fixed ventilating position, the sash mounted ventilation flap engages the latch mechanism to open the ventilation aperture of the roof window whilst retaining the lock between the sash and the frame.

[0089] Ideally, with sufficient movement of the sash mounted ventilation flap away from the ventilation aperture of the roof window, the locking mechanism will be disengaged such that the sash is free to pivot upon the frame.

[0090] Ideally, when moved and/or rotated away from or towards the ventilation aperture such that the sash mounted portion of the ventilation flap is in one of the fixed intermediate ventilating positions or in the closed positon, the roof window locking mechanism is engaged to secure the sash to the frame.

[0091] Ideally, the ventilation aperture is a quadrangular aperture.

[0092] Preferably, the ventilation aperture is an elongate rectangular aperture extending through the sash or through a module on the sash or between the sash and frame.

[0093] Preferably, the ventilation flap is pivotally movable towards and away from the ventilation aperture to open and close the ventilation aperture.

[0094] The skilled man will appreciate that all preferred or optional features of the invention described with reference to only some aspects or embodiments of the invention may be applied to all aspects of the invention.

[0095] It will be appreciated that optional features applicable to one aspect of the invention can be used in any combination, and in any number. Moreover, they can also be used with any of the other aspects of the invention in any combination and in any number.

[0096] The invention will now be described with reference to the accompanying drawings which shows by way of example only one embodiment of an apparatus in accordance with the invention.

Figure 1 is a partial section view through a roof window comprising the ventilation flap and handle and latch mechanism in the ventilation aperture closed position.

Figure 2 is a detailed underside view of the latch mechanism in the ventilation aperture closed position.

Figure 3 is a partial section view through a roof window comprising the ventilation flap and handle and latch mechanism in one of the intermediate ventilation positions.

Figure 4 is a detailed underside view of the latch mechanism in the intermediate ventilation position of Figure 3.

Figure 5 is a partial section view through a roof window comprising the ventilation flap and handle and latch mechanism in the open position.

Figure 6 is a detailed underside view of the latch mechanism in the open position.

[0097] In the drawings, there is shown a roof window indicated generally by the reference numeral 1 with a frame (2) and a sash (3). The sash (3) being pivotally mounted on the frame (2). The roof window (1) has a ventilation aperture (4) leading to a ventilation passage (34) and a ventilation aperture sealing arrangement (5). The ventilation aperture sealing arrangement (5) being adjustable between a ventilation aperture closed position (Figures 1 and 2) and a ventilation aperture open position (Figures 5 and 6). The ventilation aperture sealing arrangement (5) having a fixed intermediate ventilating position (Figures 3 and 4) between the closed position and the open position. Furthermore, the ventilation aperture sealing arrangement (5) has a second and third intermediate fixed ventilation position.

[0098] A control arrangement is provided between the ventilation aperture sealing arrangement (5) and the roof window (1) for fixing the ventilation aperture sealing arrangement (5) at the open position and at the two or more fixed intermediate ventilating positions. Advantageously, the ventilation aperture sealing arrangement (5) of the roof window (1) having two fixed intermediate ventilating positons acts as a means for controlling the volume of air flow by acting as a type of choke at at least two further fixed positions of the ventilation aperture sealing arrangement (5) between the closed position and the open position. This allows an operator additional control over the ventilation of the roof window depending on their requirements and/or depending on the prevailing weather conditions.

[0099] The ventilation aperture sealing arrangement (5) is a ventilation flap and is coupled to the roof window (1) by a coupling arrangement (6, 7, 8). The coupling

arrangement has a coupling member (6) movably coupled to a roof window engaging component (7), see Figure 1 which is moveably mounted on the sash (3) of the roof window (1). The coupling member (6) is also movably coupled to a ventilation flap engaging component (8) mounted on the ventilation flap (5) of the roof window (1).

[0100] Braking arrangement (9), see Figures 2, 4 and 6 is located on a latch mechanism indicated generally by reference numeral (10), see figure 2 mounted on the sash (3) controls the intermediate fixed ventilating positons of the vent flap (5) and thus controls the volume of airflow through the ventilation flap (5) in these positions. The braking arrangement (9) engages a part of the movable roof window engaging component (7) to stop the ventilation flap (5) at a second intermediate fixed position (as seen in Figures 3 and 4). The use of braking elements (9) enables the roof window (1) to more finely control the volume of air entering into or out of a room. This provides a user with greater control over how room ventilation is regulated beyond that of the prior art. Advantageously, the roof window (1) with an arrangement to more finely control the volume of air ventilating a room provides a user with greater control over how room ventilation is regulated beyond that of the prior art. As discussed conventional roof window ventilation utilises a simple open and closed position with one fixed intermediate ventilating positon which is inefficient depending on the circumstances and needs of the user. There is no ventilation with the conventional system in its closed position and excessive ventilation in the open position where the whole sash is free to move relative to the frame. The fixed intermediate ventilating positon may also allow too much or too little ventilation depending on the prevailing circumstances and there is nothing a person can do as this intermediate ventilation position is fixed. This problem of the prior art ventilation system is overcome with the greater control provided by the ventilation flap braking arrangement (9) of the present invention providing a second or more fixed intermediate ventilating positions, see Figures 3 and 4.

[0101] The ventilation flap (5) is moveably mounted proximal to the ventilation aperture (4) by hinges (31) and the angular orientation of the vent flap (5) relative to the ventilation aperture (4) controls the exposed surface area of the ventilation aperture (4). This control of the exposed surface area of the ventilation aperture (4) between the sealed and open positions enables the ventilation flap (5) to control the volume of air flow during the ventilation similar to a mechanical choke or baffle plate.

[0102] The ventilation flap (5) is coupled to the latch mechanism (10) by a coupling arrangement (11, 12, 13) for controlling the position of the ventilation flap (5). The coupling arrangement has a coupling component (11) movably coupled to a latch mechanism engaging element (12) moveably mounted in or on the latch mechanism (10). The coupling component (11) is movably coupled to a ventilation flap engaging element (13) mounted on the ventilation flap (5). The latch mechanism engaging element (12) is moveable between a first position on the latch mechanism (10) which corresponds to an aperture open position, see Figures 5 and 6, and a second position on the latch mechanism (10) which corresponds to an aperture closed position, see Figures 1 and 2 by activation of the ventilation flap (5) through its pivotal range of motion about hinge (31).

[0103] The latch mechanism (10) comprises a guide slot (14), see figures 2, 4, and 6 extending in the general direction between the interior (15) and the exterior (16) of the roof window (1) for guiding the latch mechanism engaging element (12) between the aperture open position and the closed position. The guide slot (14) is formed in the latch mechanism cover plate, the underside of which is illustrated in figures 2, 4 and 6. The slot (14) extends substantially perpendicular to the main plane of the roof window pane. The braking elements (9) are locatable proximal to the guide slot (14) of the latch mechanism (10), on opposing sides of the guide slot (14); as best illustrated in Figure 6 of the drawings.

[0104] The braking elements (9) are operably engageable with the moveable latch mechanism engaging element (12) during movement of the ventilation flap (5) between the closed position and the open position to provide a second and more fixed ventilating positions for the ventilation flap (5), see figure 6. The braking elements (9) protrudes into the normal path of travel of the moveable latch mechanism engaging element (12) to enable engagement therewith as the element (12) passes by the braking elements (9).

[0105] The coupling arrangement (11) comprises a moveable latch mechanism engaging element (12) moveably coupled to a connecting rod (18) which is moveably coupled to a ventilation flap engaging element (13). The moveable latch mechanism engaging element (12) comprises a locating and guiding member (19) having a head member (20) (see Figures 3 and 5) protruding up and out of the latch mechanism (10) via the guide slot (14) and a shoulder member (21) (see Figure 6) being held in position by the part of the latch mechanism (10) defining the guide slot (14) being the cover plate.

[0106] The moveable latch mechanism engaging element (12) comprises a linkage assembly (22) (see Figures 4 and 6) for coupling the locating and guiding member (19) to the latch mechanism (10). The linkage assembly (22) comprises a butterfly wing arrangement protruding laterally from both free ends of the shoulder member (21) to two corners of the latch mechanism (10). The butterfly wing arrangement comprises a first wing member (25) pivotally coupled to the shoulder member (21) at a first end and a second wing member (27) pivotally coupled about one end to the first wing member (25) and pivotally coupled about the other end to the latch mechanism (10).

[0107] The channel of the engagement member (9) has four constricted regions (41), (42), (43) and (44) referenced in Figure 6 but also shown in Figures 2 and 4, spaced apart along the length of the channel for prevent-

ing the head member (20) of the locating and guiding member (19) from passing freely along the channel without user intervention.

[0108] The first constricted region (41) of the channel prevents the head member (20) from moving freely along the channel away from a vent flap handle closed position. The second constricted region (42) being spaced apart from the first constricted region (41) defines a first partially enclosed region (45) for preventing the head member (20) from moving freely along the channel and retaining the head member (20) in a first intermediate ventilating position (45). The third constricted region (43) being spaced apart from the second constricted region (42) defining a second partially enclosed region (46) preventing the head member (20) from moving freely along the channel and for retaining the head member (20) in a second intermediate ventilating position (46). A fourth constricted region (44) is spaced apart from the third constricted region (43) defining a third partially enclosed region (47) preventing the head member (20) from moving freely along the channel and for retaining the head member (20) in a third intermediate ventilating position (47).

[0109] The partially enclosed regions (45 to 47) correspond to the fixed intermediate ventilating positions (45 to 47). The partially enclosed regions (45 to 47) are dimensioned for receiving the head member (20) of the locating and guiding member (19). The partially enclosed regions (45 to 47) are dimensioned for forming a tight fit/interference fit with the head member (20) of the locating and guiding member (19).

[0110] Advantageously, the tight/interference fit between the partially enclosed region (45 to 47) and the head (20) provides positive haptic feedback to a user that the vent flap (5) is securely retained in one of the fixed intermediate ventilating positions of the roof window (1).

[0111] The engagement member (19) has a pair of spaced apart elements (51) defining the channel there between, each element (51) having one mutually opposing edge thereof being generally aligned along all or part of one mutually opposing longitudinal edge of the guide slot (14). Each element (51) having spaced apart ridges (52) protruding towards each other from their mutually opposing edges for defining the constricted regions (41 to 43) and the partially enclosed regions (45 to 47) of the channel.

[0112] The mutually opposing spaced apart ridges (52) are generally in alignment with one another along the length of the channel for defining the constricted regions of the channel. The elements (51) is a pair of separate plate members.

[0113] The engagement member (19) is manufactured from a metal or composite material suitable to allow a degree of flex to allow the head to pass through the constricted regions. The metal is a spring steel. As an operator applies a force to the ventilation flap (5) to move it between a closed and open position, the head member (20) passes through the constricted region (41 to 43) and presses the ridges (52) apart. Urging members (55) acts on the outside longitudinal edge of the elements (51) of the engagement member (19). The urging members return the ridges (52) to their original positon after the head member (20) has passed through a constricted region from one partially enclosed region to another. The channel of the engagement member is substantially in alignment with the guide slot (14) of the housing of the latch.

[0114] When moved and/or rotated away from the ventilation aperture (4) the sash mounted ventilation flap (5) engages the latch mechanism (10) to open the ventilation aperture (4) of the roof window (1) whilst retaining the lock between the sash (2) and the frame (3). With sufficient movement of the sash mounted ventilation flap (5) away from the ventilation aperture (4) of the roof window (1), the locking mechanism will be disengaged such that the sash (2) is free to pivot upon the frame (3). When moved and/or rotated towards the ventilation aperture such that the sash mounted portion of the ventilation flap is in one of the fixed intermediate ventilating positions or in the closed positon, the roof window locking mechanism is engaged to secure the sash to the frame.

[0115] In the drawings, the ventilation flap (5) has a ventilation flap handle (29).

[0116] In relation to the detailed description of the different embodiments of the invention, it will be understood that one or more technical features of one embodiment can be used in combination with one or more technical features of any other embodiment where the transferred use of the one or more technical features would be immediately apparent to a person of ordinary skill in the art to carry out a similar function in a similar way on the other embodiment.

[0117] In the preceding discussion of the invention, unless stated to the contrary, the disclosure of alternative values for the upper or lower limit of the permitted range of a parameter, coupled with an indication that one of the said values is more highly preferred than the other, is to be construed as an implied statement that each intermediate value of said parameter, lying between the more preferred and the less preferred of said alternatives, is itself preferred to said less preferred value and also to each value lying between said less preferred value and said intermediate value.

[0118] The features disclosed in the foregoing description or the following drawings, expressed in their specific forms or in terms of a means for performing a disclosed function, or a method or a process of attaining the disclosed result, as appropriate, may separately, or in any combination of such features be utilised for realising the invention in diverse forms thereof.

Claims

1. A roof window (1) with a frame (2) and a sash (3) pivotally mounted on the frame (2), the roof window (1) having a ventilation passage (34) for providing fluid communication between the inside and the out-

side of the roof window, the ventilation passage (34) having an aperture (4) leading to the ventilation passage (34) and the roof window (1) having a ventilation aperture sealing means (5), the ventilation aperture sealing means (5) being hinged to the roof window (1) so as to be adjustable between a ventilation aperture closed position and a ventilation aperture open position, the ventilation aperture sealing means (5) having a fixed intermediate ventilating position between the closed position and the open position, **characterised in that** the ventilation aperture sealing means (5) has a second intermediate fixed ventilating position.

2. A roof window (1) as claimed in claim 1, wherein control means are provided between the ventilation aperture sealing means (5) and the roof window (1) for fixing the ventilation aperture sealing means (5) at the fixed intermediate ventilating positions.

3. A roof window (1) as claimed in claim 2, wherein the control means comprises braking means (9), the braking means (9) is provided between the roof window (1) and the ventilation aperture sealing means (5) for fixing the ventilation aperture sealing means (5) at the at least two fixed intermediate ventilating positions.

4. A roof window (1) as claimed in any one of the preceding claims, wherein the ventilation aperture sealing means (5) is coupled to the roof window (1) by coupling means (6,7,8) wherein the coupling means (6,7,8) has a roof window engaging means (7) moveably mounted on the roof window (1) and a ventilation aperture sealing means engaging means (8) moveably mounted on the ventilation aperture sealing means (5).

5. A roof window (1) as claimed in claim 4 when dependent on claim 3, wherein the braking means (9) comprises an engagement means (9) to engage with the movable roof window engaging means.

6. A roof window (1) as claimed in claim 5, wherein the engagement means (9) comprises a movement restriction means (41, 42, 43, 44) for fixing the ventilation aperture sealing means (5) at the at least two fixed intermediate ventilating positions.

7. A roof window (1) as claimed in claim 5, wherein the engagement means (9) comprises a channel for receiving the movable roof window engaging means (12).

8. A roof window (1) as claimed in claim 7, wherein the channel of the engagement means (9) comprises a movement restriction means (41, 42, 43, 44) spaced apart along the length of the channel for preventing the movable roof window engaging means (12) from passing freely along the channel without user intervention for fixing the ventilation aperture sealing means (5) at the at least two fixed intermediate ventilating positions.

9. A roof window (1) as claimed in any one of claims 4 to 7, wherein the ventilation aperture sealing means (5) is coupled to a latch mechanism (10) of the roof window (1) by the coupling means (11,12,13).

10. A roof window (1) as claimed in claim 9, wherein the coupling means (11, 12, 13) comprises a latch mechanism engaging means (12) moveably mounted in or on the latch mechanism (10) and a ventilation aperture sealing means engaging means (13) moveably mounted on the ventilation aperture sealing means (5) wherein the latch mechanism engaging means (12) is moveable between a first position on the latch mechanism (10) corresponding to an aperture open position and a second position on the latch mechanism (10) corresponding to an aperture closed position by activation of the ventilation aperture sealing means (5) through its range of movement.

11. A roof window (1) as claimed in claim 9 or 10, wherein the latch mechanism (10) comprises guide means (14) for guiding the moveable latch mechanism engaging means (12) between the open position and the closed position.

12. A roof window (1) as claimed in claim 11 when dependent on claim 10, wherein the moveable latch mechanism engaging means (12) comprises a locating and guiding member (19) having a head member (20) protruding out of the latch mechanism (10) via the guide means (14) and a shoulder member (21) held in position by the part of the latch mechanism (10) defining the guide means (14).

13. A roof window (1) as claimed in claim 7, wherein the channel of the engagement means (9) comprises at least three constricted regions (41, 42, 43, 44) spaced apart along the length of the channel for preventing the head member (20) of the locating and guiding member (19) from passing freely along the channel without user intervention.

14. A roof window (1) as claimed in claim 7, wherein urging means (55) acts on at least one outside longitudinal edge of the engagement member (19).

15. A roof window (1) as claimed in claim 7 and claim 11, wherein the channel of the engagement means (19) is substantially in alignment with the guide means (14).

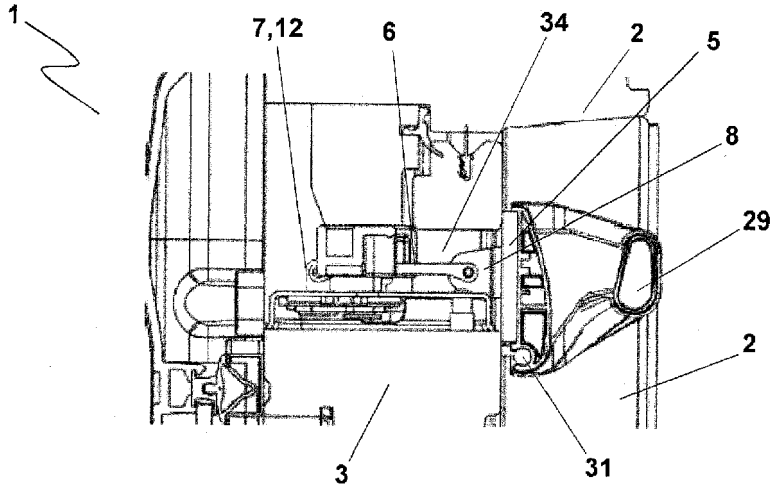

Figure 1

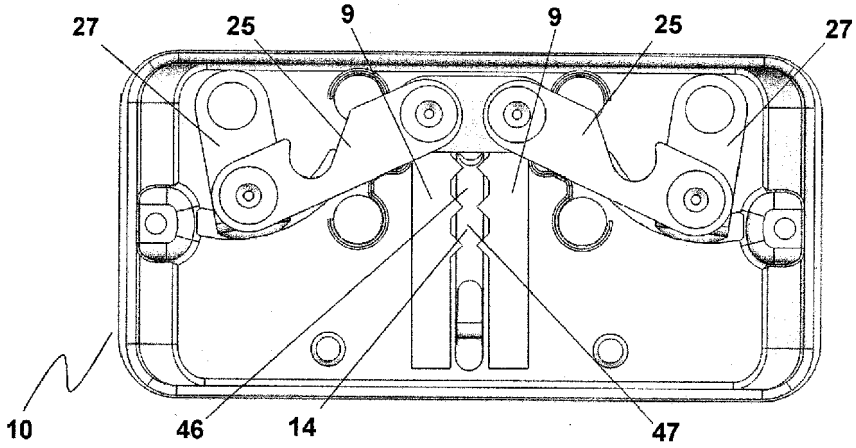

Figure 2

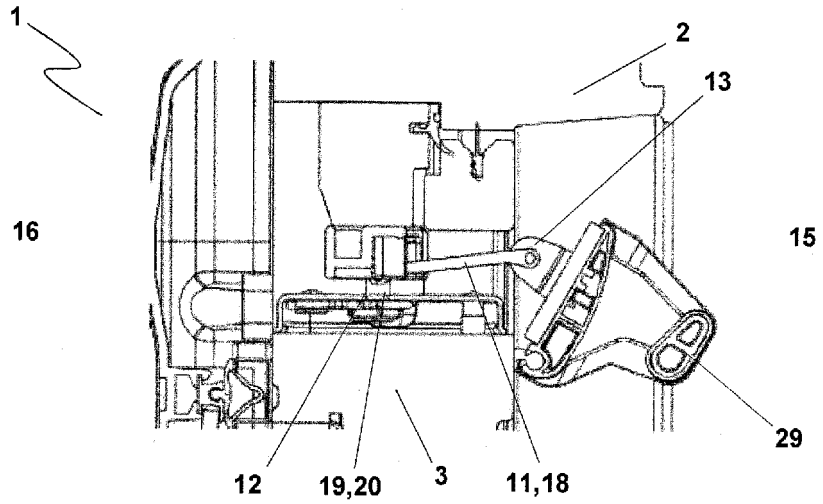

Figure 3

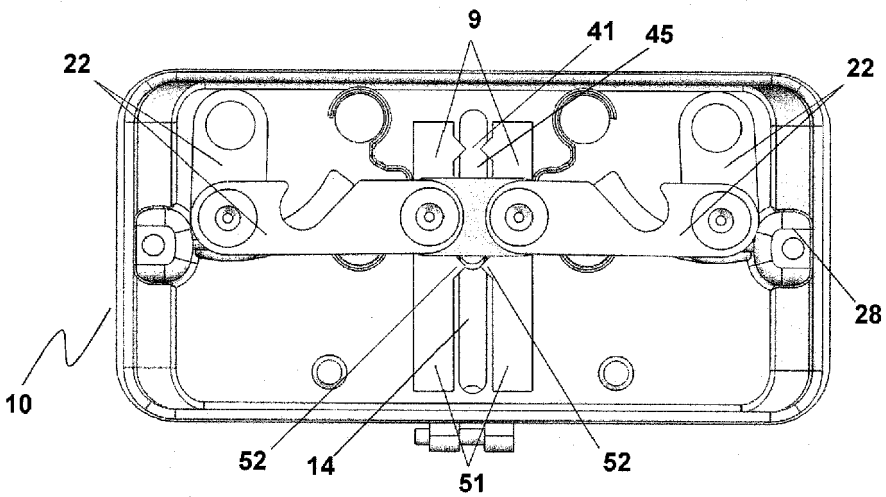

Figure 4

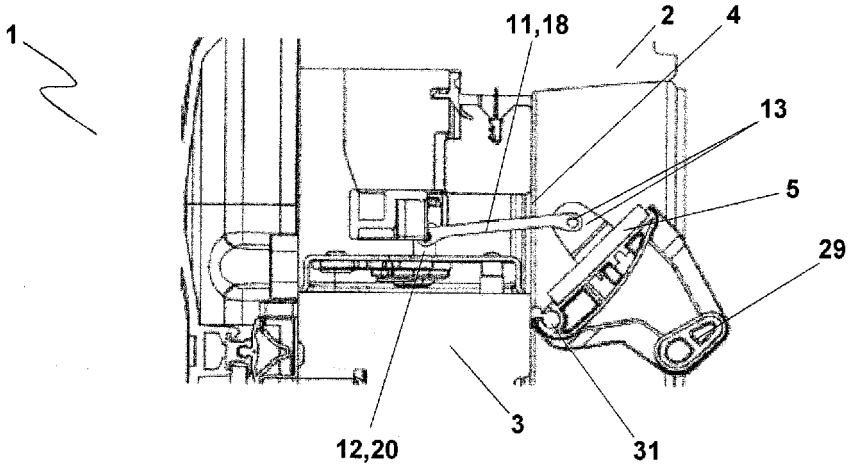

Figure 5

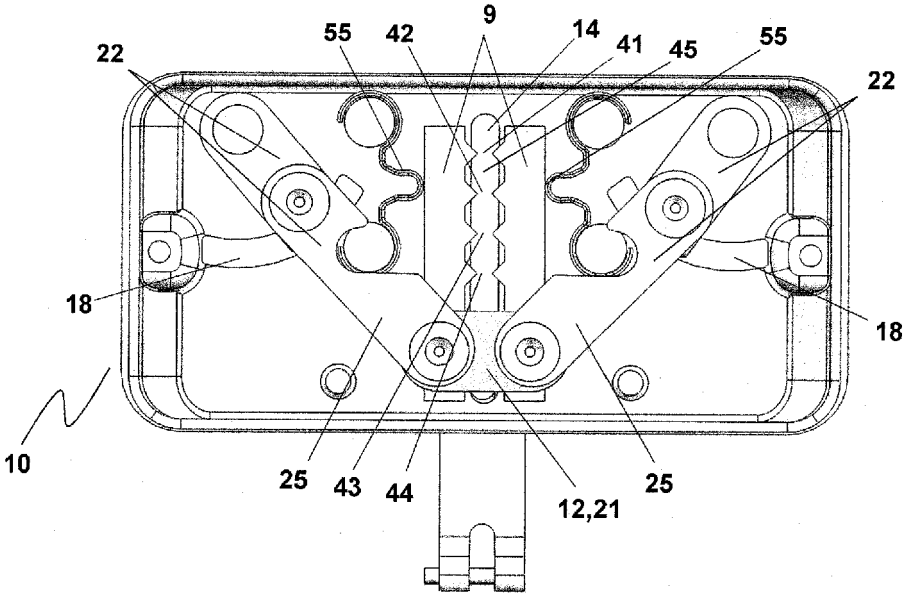

Figure 6

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EUROPEAN SEARCH REPORT

Application Number
EP 17 17 4859

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Place of search	Date of completion of the search	Examiner
The Hague	1 September 2017	Leroux, Corentine

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