(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 499 338 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
31.01.1996 Bulletin 1996/05

(51) Int Cl.[6]: **F24F 13/18**, F24F 13/12

(21) Application number: **92200447.8**

(22) Date of filing: **17.02.1992**

(54) **Air vent**

Lüftungsvorrichtung

Dispositif aérateur

(84) Designated Contracting States:
BE DE FR GB NL

(30) Priority: **15.02.1991 NL 9100271**

(43) Date of publication of application:
19.08.1992 Bulletin 1992/34

(73) Proprietor: **Zwaan, Adrianus Jacobus**
NL-2252 BD Voorschoten (NL)

(72) Inventor: **Zwaan, Adrianus Jacobus**
NL-2252 BD Voorschoten (NL)

(74) Representative:
Smulders, Theodorus A.H.J., Ir. et al
NL-2587 BN 's-Gravenhage (NL)

(56) References cited:
FR-A- 394 337
NL-A- 7 201 567

EP 0 499 338 B1

Printed by Jouve, 75001 PARIS (FR)

Description

The invention relates to an air vent comprising an assembly of a substantially plate-shaped front member provided with vent openings and guide means, a plate-shaped valve member provided with guide means adapted to cooperate with the guide means of the front member and with openings, and a plate-shaped retaining member rigidly mounted relative to the front member and provided with vent openings equal to and in alignment with the vent openings in the front member, the valve member being slidably locked between the front member and the retaining member such that the vent openings can be cleared in part or in whole or not at all by sliding the valve member relative to the front member and the retaining member by an operating mechanism so as to bring the valve member into an open, closed or partly opened position.

Such an air vent is known from FR-A-394 337. By locking the valve member between the front member and the retaining member bending of the valve member due to pressure differences or varying pressure differences between both sides of the air vent, and thus the danger of leakages or a rattling or trembling valve member, is decreased because irrespective of the direction of bending, the valve member is always pushed in close contact with either the front member or the retaining member.

However, when used in practice, the sealing effect can be adversely influenced by dirt. In case dirt adheres to the inner sides of the front member and the retaining member, it will hardly be possible to remove said dirt because said inner surfaces are not accessible. However, said dirt can prevent the desired face-to-face sealing contact between said member and the valve member and thus causing leakages experienced as draught and sometimes as extremely irritating whistling noises or in case of varying pressure differences causing a rattling or trembling valve member. In other words the same problems as experienced with an air vent consisting of a front member and a valve member without retaining member as known from NL-A-7201567, where leakages may occur owing to bending of the valve member as a result of pressure differences, for instance in the case of wind loads, although said known air vent shows less cleaning problems due to the two-plate instead of a three-plate construction.

The object of the invention is to eliminate the above described disadvantages by providing the possibility of easily cleaning the air vent and thus removing or even preventing leakages due to adhering dirt in an air vent of the type described in the preamble.

This is achieved, in accordance with the invention, in that the air vent comprises a box-like element with two opposing wall sections provided with vent openings, at least one of said wall sections being detachably mounted, said at least one wall section being provided with the guide means of the front member of a first assembly in the form of a substantially U-shaped channel extending in the sliding direction of the valve member along two opposite longitudinal edges of the valve member and slidably receiving both the valve member and the retaining member, the retaining member having a length corresponding to the length of the front member and the U-shaped channel being closed off at both ends by end partitions forming part of the box-like element when the assembly is mounted in the box-like element. By these features is provided for an easy mounting and demounting of the assembly consisting of a front member, a valve member and a retaining member. After demounting of the assembly the retaining member and the valve member can be slid out of the U-shaped channel and thoroughly cleaned. After sliding back both members and mounting of the assembly in the box-like element the retaining member is locked in its desired position to the front member by the end partitions of the box-like element. So, in case of leakages due to dirt the source of the problem can be removed easily and quickly. Moreover, said possibility can have the additional advantageous effect that the air vent will be maintained in optimum condition.

A still further improved seal can be obtained in accordance with a further embodiment of the invention in case said both wall sections are provided with guide means of the front member for a first and a second assembly in the form of a substantially U-shaped channel for guiding a value member and receiving a retaining member, said box-like element providing by an insulating material a thermal interruption between the two assemblies, the two front members forming external surfaces of the air vent and the operating mechanism bringing the two valve members simultaneously into the open, closed or partly opened position. Thus, not only the number of seals is doubled, but also the pressure difference between opposite sides of the air vent is taken up in a stepped manner. In other words, the pressure difference across each of the two valve members is smaller - ideally by half - than the pressure difference in the case of an air vent with only one valve member, so that the chance of leakage is accordingly smaller. A further advantage of this embodiment is that by providing a thermal interruption, heat insulation is improved.

In order to have the possibility to easily clean the second assembly, i.e. acting from the same side of the air vent for demounting the first assembly, it is preferred in accordance with a further elaboration of the invention, that the front member of the second assembly is an integral part of the box-like element, the second assembly being provided with guide means, which enable demounting of the retaining member and the valve member from the box-like element.

A simple demounting of the retaining member is achieved in case the second assembly comprises a U-shaped channel which receives both the retaining member and the valve member the length of one of the legs of said channel being reduced in such a manner that the retaining member and the valve member can be dis-

engaged from the confinement of the two channels, there being provided locking means cooperating with the first detachable assembly, which locking means in the mounted position of the detachable assembly prevent the retaining member and the valve member from disengaging from the confinement of the channels. Thus a direct consequence of demounting the detachable assembly is that the non-detachable assembly can also be demounted quickly and simply for cleaning. Cumulatively acting clearances can be compensated for, and hence the sealing effect can again be improved, when, in accordance with a further embodiment of the invention, the locking means consist of a longitudinal flange connected to the front member and/or the retaining member of the one assembly and a strip of resilient material connected to the retaining member of the other assembly.

As already stated, pressure differences can be taken up in a stepped manner by virtue of the box-like design. This effect can be further improved when, in accordance with a further embodiment of the invention, the longitudinal edge and one of the external walls of the box-like element are provided with pressure equalizing bores, these pressure equalizing bores in the external wall in question terminating in an inner space of the box-like element, which is separated by the longitudinal flange and the strip of resilient material from an inner space which is partly defined by the retaining means provided with vent openings.

A further safeguard against bending of the valve members, in particular valve members of a relatively great height, can be obtained when, in accordance with a further embodiment of the invention, the retaining members of the two assemblies are mutually supported by at least one strip-shaped member which is located within the box-like element and made of a resilient material, which strip-shaped member preferably extends parallel to the sliding direction of the valve members.

The air vent according to the invention will now be further explained and illustrated, by way of example only, with reference to the accompanying drawings showing one embodiment of the invention. In said drawings:

Fig. 1 is a section of an air vent according to the invention;

Fig. 2 is a partly cut away view of a part of the air vent shown in Fig. 1.

The air vent shown in the drawings comprises a first section 1, which, via a section 2 of a thermally insulating material, for instance a plastics, is coupled with a second section 3 which extends throughout the height of the air vent and, by means of a section 4 similar to section 2, is coupled with a section 5. The sections 2, 3, and 5 are made of a relatively stiff and form-retaining material, such as aluminium.

The section 1 comprises an insertion opening 6, while the section 5 has a retaining flange 7. A further section 8 is so designed that it fits between sections 1 and 5 and can be coupled to the section 1 by means of an insertion flange 9. Adjacent the point where section 8 adjoins section 5, the former has a flange 10 which at several points is provided with bores for passing therethrough a screw 11 which further extends through bores provided in line therewith in the retaining flange 7 of the section 5. In this manner, a box-like construction is formed which is closed at its ends by end partitions (not shown) which are secured by means of screws 12 in the longitudinal recesses 13 provided for that purpose in the sections 1, 3, and 5.

The recesses 13 of the section 3 further serve for clampingly mounting a plurality of local retaining strips 14 for receiving a plurality of covering strips 15 extending throughout the width of the air vent to prevent rain from entering.

The section 8, which is detachably coupled to the sections 1 and 5, comprises a multiplicity of slot-shaped vent openings 16, as shown in Fig. 2. Viewed in the longitudinal direction of the air vent, the ventilation openings are mutually separated by plate surfaces 17 which are slightly wider than the vent openings. The drawings show an embodiment which is preferably used for relatively high air vents. To provide for sufficient rigidity, pairs of openings 16 provided above each other are mutually separated by a plate-shaped material bridge 18.

As will appear from Fig. 1, the section 8 comprises adjacent its two longitudinal edges a rib 19 which forms a guide channel 20 together with a plate portion of the section disposed beyond the vent opening and with a portion of the section that connects that plate portion and the rib. A valve member 21 and a retaining member 22 have been slid into the guide channel 20. The valve member 21 is in surface-to-surface contact with the part of the section 8 that is provided with vent openings 16, while the retaining member 22 in turn is in surface-to-surface contact with the valve member 21. The retaining member 22 has a length which is substantially equal to that of the section 8, the arrangement being such that shifting of the retaining member 22 is prevented by the end partitions (not shown). The valve member 21, on the other hand, is shorter as viewed in the longitudinal direction thereof, in such a manner that it can be slid back and forth in longitudinal direction by means of a turning knob 23 and a transmission mechanism (not shown).

The valve member 21 comprises vent openings 24 and the retaining member 22 comprises vent openings 25, which vent openings all have the same dimensions and location as those in the section 8, while in all three elements the same number of vent openings have been provided. In the non-sliding retaining member 22 the vent openings 25 are in alignment with those in the section 8. The longitudinal displacement of the valve member 21 by means of the turning knob 23 is defined between an open position wherein the vent openings 24 align with the vent openings 16 and 25, as shown in Fig. 1, and a closed position wherein the vent openings 24 are covered entirely by the plate surfaces 17 on one side and

the corresponding plate surfaces of the retaining member 22 on the other side. Fig. 2 shows the closed position. It will be clear that between the open and the closed position, a large number of intermediate positions are possible.

Like section 8, section 3 is provided with vent openings 26 and guide channels 27, in which are mounted a sliding valve member 28 with vent openings 29 and a non-sliding retaining member 30 with vent openings 31. The valve member 28 and the valve member 21 can be slid simultaneously by means of the turning knob 23, in such a manner that the vent openings 24 and 29 are simultaneously cleared completely, closed or partly opened.

The section 8 with associated parts can be demounted in a simple manner by unscrewing screws 11, whereafter section 8 can be swung sideways and taken from the section 1 by pulling the insertion flange 9 from the insertion opening 6. The retaining member 22 and the valve member 21 can then be demounted in a simple manner by sliding them laterally out of the guide channels 20.

The section 3 is not demountable in this manner. To permit demounting of the valve member 28 and the retaining member 30, the lower guide channel 27 comprises a rib 32 of reduced dimensions, such that the retaining member 30 and the valve member 28, after removal of section 8, can be detached from the guide channel 27 by pushing it up and swinging it sideways. In mounted position, the retaining member 30 and hence the valve member 28, are retained in position by a resilient plastics strip 33 connected to the retaining member, while a hold-down flange 34, which is part of the section 8, bears on this strip 33.

Provided in the hold-down flange 34 are a plurality of apertures 35 which interconnect the space between the retaining members 25 and 30 and a space 36 between the sections 3, 4, and 5 under the hold-down flange 34. This space 36 communicates with the outside air via apertures 37 in the section 3.

The section 8 further comprises two longitudinally extending receiving channels 38 for an insect wire screen 39 which, therefore, is detachable together with the section 8, for instance for the purpose of cleaning or replacement, and subsequently can be slid out of the receiving channels 38 of the section 8.

It has already been observed that the embodiment shown is a relatively high air vent, which is the reason why material bridges 18 are provided to increase stiffness. The valve members 21 and 28 as well as retaining members 22 and 30 can be made of plastics so as to give the valve members good sliding properties. To prevent bending of the retaining members and the valve members, a strip-shaped member 40 is provided which extends in longitudinal direction and receives support from the two retaining members. The strip-shaped member 40 is preferably made of a resilient plastics material, so that independently of the tolerances of the various members, at all times a proper hold-down and relative support can be maintained. On account of the presence of the insect screen 39, the strip-shaped member 40 consists of two parts.

In this way, an air vent is provided which in the closed position is always sealed in a particularly effective manner. In the first place this is accomplished by locking a valve member in surface-to-surface contact between members arranged on opposite sides thereof, whereby the surface-to-surface engagement of the valve member with an adjacent member prevents bending of the valve member as a result of pressure differences. The surface-to-surface engagement not only prevents bending but also improves the sealing effect in that the member which the valve member comes in contact with is provided, opposite the vent openings in the valve member, with plate surfaces that overlap those openings. Thus, although a slight bending leads to the formation of slight gaps on one side of the valve member, it leads to an intensification of the sealing surface-to-surface contact on the other side.

A further improvement of the sealing effect is realized by the double design of this improved sealing, whereby, moreover, an enclosed box-like space is formed, which provides for a stepped taking up of a pressure difference across the air vent, i.e., the pressure difference to be taken up is divided between the two seals.

As stated, the sections 3 and 8 are preferably made of a relatively stiff material, for instance aluminium, while the valve members 21 and 29 as well as the retaining members 22 and 30 are preferably made of a plastics material having a low coefficient of friction. To prevent bending of this relatively slack material, the resilient strip-shaped member 40 is present, pressing the plastics parts in the direction of the stiffer sections. At the same time, this leads to a closer contact and hence to an improved seal between the various members.

It will be clear that within the framework of the invention as defined in the appended claims, many modifications and variants are possible. Thus, like sections 1, 5, and 8, section 3 could be made of three parts, with the end partitions (not shown) forming a framework together with the top and bottom sections, the two valve assemblies being detachably mounted therein. Depending on the height of the air vent, the material bridges 18 could be omitted. Even in that case, a strip-shaped member 40 can be provided, which, if so desired, could extend vertically rather than horizontally, i.e., in vertical direction of the air vent. Reference has been made to metal sections and plastics parts; it will be clear that many other materials and combinations of materials can be used.

Claims

1. An air vent comprising an assembly (8) of a substantially plate-shaped front member provided with vent openings (16) and guide means (20), a plate-shaped

valve member (21) provided with guide means adapted to cooperate with the guide means of the front member and with openings (24), and a plate-shaped retaining member (22) rigidly mounted relative to the front member and provided with vent openings (26) equal to and in alignment with the vent openings in the front member, the valve member being slidably locked between the front member and the retaining member such that the vent openings can be cleared in part or in whole or not at all by sliding the valve member relative to the front member and the retaining member by an operating mechanism (23) so as to bring the valve member into an open, closed or partly opened position, characterized in that the air vent comprises a box-like element with two opposing wall sections (3, 8) provided with vent openings (26, 16), at least one (8) of said wall sections being detachably mounted, said at least one wall section (8) being provided with the guide means of the front member of a first assembly in the form of a substantially U-shaped channel (20) extending in the sliding direction of the valve member along two opposite longitudinal edges of the valve member and slidably receiving both the valve member and the retaining member, the retaining member having a length corresponding to the length of the front member and the U-shaped channel being closed off at both ends by end partitions forming part of the box-like element when the assembly is mounted in the box-like element.

2. An air vent according to claim 1, characterized in that said both wall sections (3, 8) are provided with guide means of the front member for a first and a second assembly in the form of a substantially U-shaped channel (20, 27) for guiding a valve member (21, 28) and receiving a retaining member (25, 30), said box-like element providing by an insulating material (2, 4) a thermal interruption between the two assemblies, the two front members forming external surfaces of the air vent and the operating mechanism (23) bringing the two valve members (21, 28) simultaneously into the open, closed or partly opened position.

3. An air vent according to claim 2, characterized in that the front member of the second assembly is an integral part of the box-like element (1-5), the second assembly being provided with guide means (27), which enable demounting of the retaining member (30) and the valve member (28) from the box-like element.

4. An air vent according to claim 3, characterized in that the second assembly comprises a U-shaped channel (27) which receives both the retaining member (30) and the valve member (28), the length of one of the legs of said channel being reduced in such a manner that the retaining member and the valve member can be disengaged from the confinement of the two channels, there being provided locking means (33, 34) cooperating with the first detachable assembly (8), which locking means in the mounted position of the detachable assembly prevent the retaining member and the valve member from disengaging from the confinement of the channels.

5. An air vent according to claim 4, characterized in that the locking means consist of a longitudinal flange (34) connected to the front member and/or the retaining member (22) of the first assembly (8) and a strip (33) of resilient material connected to the retaining member (30) of the second assembly.

6. An air vent according to claim 5, characterized in that the longitudinal flange (34) and one of the external walls of the box-like element are provided with pressure equalizing bores (35, 37), these pressure equalizing bores in the external wall in question terminating in an inner space (36) of the box-like element, which is separated by the longitudinal flange and the strip (33) of resilient material from an inner space which is partly defined by the retaining members (22, 30) provided with vent openings (25, 31).

7. An air vent according to any one of claims 2-6, characterized in that the retaining members (22, 30) of the two assemblies are mutually supported by at least one strip-shaped member (40) which is located within the box-like element and made of a resilient material.

8. An air vent according to claim 7, characterized in that the strip-shaped member (40) extends parallel to the sliding direction of the valve members (21, 28).

Patentansprüche

1. Lüftungsvorrichtung mit einem Aufbau (8) aus einem im wesentlichen plattenförmigen Stirnteil mit Lüftungsöffnungen (16) und Führungsmitteln (20), einem plattenförmigen Schieberteil (21) mit Führungsmitteln, die mit den Führungsmitteln des Stirnteiles zusammenwirken können, und mit Öffnungen (24), und einem plattenförmigen Einschließteil (22), der gegenüber dem Stirnteil fest angeordnet ist und Lüftungsöffnungen (25) aufweist, die den Lüftungsöffnungen im Stirnteil gleich sind und mit diesen fluchten, wobei der Schieberteil zwischen dem Stirnteil und dem Einschließteil derart verschiebbar eingeschlossen ist, daß die Lüftungsöffnungen durch Verschiebung des Schieberteiles gegenüber dem Stirnteil und dem Einschließteil durch einen Betätigungsmechanismus (23) teilweise oder ganz oder gar nicht freigegeben werden können, um den

Schieberteil in eine offene, geschlossene oder teilweise offene Stellung zu bringen, dadurch gekennzeichnet, daß die Lüftungsvorrichtung einen kastenförmigen Teil mit zwei gegenüberliegenden Wandteilen (3, 8) mit Lüftungsöffnungen (26, 16) aufweist, wobei mindestens einer (8) der Wandteile lösbar befestigt ist und der mindestens eine Wandteil (8) die Führungsmittel des Stirnteiles eines ersten Aufbaues in Form eines im wesentlichen U-förmigen Kanals (20) aufweist, der sich in der Verschiebungsrichtung des Schieberteiles über zwei gegenüberliegende Längsränder des Schieberteiles erstreckt und verschiebbar sowohl den Schieberteil als auch den Einschließteil aufnimmt, wobei die Länge des Einschließteiles der Länge des Stirnteiles entspricht und der U-förmige Kanal an beiden Enden durch Stirnwände abgeschlossen ist, die zum kastenförmigen Teil gehören, wenn der Aufbau in dem kastenförmigen Teil angeordnet ist.

2. Lüftungsvorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß beide Wandteile (3, 8) Führungsmittel des Stirnteiles für einen ersten und einen zweiten Aufbau in Form eines im wesentlichen U-förmigen Kanals (20, 27) zum Führen eines Schieberteiles (21, 28) und Aufnehmen eines Einschließteiles (25, 30) aufweisen, wobei der kastenförmige Teil durch ein isolierendes Material (2, 4) eine thermische Unterbrechung zwischen den zwei Aufbauten verschafft und die zwei Stirnteile Außenflächen der Lüftungsvorrichtung bilden und wobei der Betätigungsmechanismus (23) die zwei Schieberteile (21, 28) gleichzeitig in die offene, geschlossene oder teilweise offene Stellung bringt.

3. Lüftungsvorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß der Stirnteil des zweiten Aufbaues einstückig mit dem kastenförmigen Teil (1-5) ausgebildet ist und der zweite Aufbau Führungsmittel (27) aufweist, die das Herausnehmen des Einschließteiles (30) und des Schieberteiles (28) aus dem kastenförmigen Teil ermöglichen.

4. Lüftungsvorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß der zweite Aufbau einen U-förmigen Kanal (27) aufweist, der sowohl den Einschließteil (30) als auch den Schieberteil (28) aufnimmt, wobei die Länge eines der Schenkel des Kanals derart vermindert ist, daß der Einschließteil und der Schieberteil aus der Begrenzung der beiden Kanäle herausnehmbar sind, wobei Einschließmittel (33, 34) vorgesehen sind, die mit dem ersten lösbaren Aufbau (8) zusammenwirken und im montierten Zustand des lösbaren Aufbaues verhindern, daß der Einschließteil und der Schieberteil aus der Begrenzung der Kanäle geraten.

5. Lüftungsvorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß die Einschließmittel aus einem mit dem Stirnteil und/oder dem Einschließteil (22) des ersten Aufbaues (8) verbundenen Längsflansch (34) und einem mit dem Einschließteil (30) des zweiten Aufbaues verbundenen Streifen (33) aus elastischem Material bestehen.

6. Lüftungsvorrichtung nach Anspruch 5, dadurch gekennzeichnet, daß der Längsflansch (34) und eine der Außenwände des kastenförmigen Teiles Druckausgleichsbohrungen (35, 37) aufweisen, wobei die Druckausgleichsbohrungen in der betreffenden Außenwand in einen Innenraum (36) des kastenförmigen Teiles münden, der durch den Längsflansch und den Streifen (33) aus elastischem Material von einem Innenraum getrennt ist, der durch die Einschließteile (22, 30) mit Lüftungsöffnungen (25, 31) mitbegrenzt ist.

7. Lüftungsvorrichtung nach einem der Ansprüche 2-6, dadurch gekennzeichnet, daß die Einschließteile (22, 30) der beiden Aufbauten gegenseitig durch mindestens einen streifenförmigen Teil (40) abgestützt sind, der sich innerhalb des kastenförmigen Teiles befindet und aus elastischem Material steht.

8. Lüftungsvorrichtung nach Anspruch 7, dadurch gekennzeichnet, daß der streifenförmige Teil (40) sich parallel zur Verschiebungsrichtung der Schieberteile (21, 28) erstreckt.

Revendications

1. Dispositif de ventilation comprenant un ensemble (8) d'un élément frontal essentiellement en forme de plaque doté d'ouvertures d'aération (16) et des moyens de guidage (20), un élément de soupape en forme de plaque (21) doté de moyens de guidage destinés à concourir avec les moyens de guidage de l'élément frontal et d'ouvertures (24) et un élément de retenue en forme de plaque (22) fixé rigidement par rapport à l'élément frontal et doté d'ouvertures d'aération (26) similaires et dans l'alignement des ouvertures d'aération dans l'élément frontal, l'élément de soupape étant verrouillé à coulissement entre l'élément frontal et l'élément de retenue de telle sorte que les ouvertures d'aération puissent être dégagées en tout, en partie ou obturées en faisant coulisser l'élément de soupape par rapport à l'élément frontal et à l'élément de retenue par un mécanisme d'actionnement (23) de manière à amener l'élément de soupape dans une position ouverte, fermée ou en partie ouverte, caractérisé en ce que le dispositif de ventilation se compose d'un élément similaire à un boîtier avec deux sections de paroi opposées (3, 8) munies d'ouvertures d'aération (26, 16), au moins une desdites sections de

paroi (8) étant fixée de manière amovible, ladite au moins une section de paroi (8) étant munie de moyens de guidage de l'élément frontal d'un premier ensemble sous la forme d'un canal essentiellement en forme de U (20) s'étendant dans la direction de coulissement de l'élément de soupape le long de deux bords longitudinaux opposés de l'élément de soupape et recevant à coulissement à la fois l'élément de soupape et l'élément de retenue, l'élément de retenue possédant une longueur correspondant à la longueur de l'élément frontal et le canal en forme de U étant fermé à hauteur de ses deux extrémités par des cloisons d'extrémité faisant partie de l'élément similaire à un boîtier lorsque l'ensemble est monté dans l'élément similaire à un boîtier.

2. Dispositif de ventilation selon la revendication 1, caractérisé en ce que lesdites deux sections de paroi (3, 8) sont dotées de moyens de guidage de l'élément frontal pour un premier et un deuxième ensemble sous la forme d'un canal essentiellement en forme de U (20, 27) pour guider un élément de soupape (21, 28) et la réception d'un élément de retenue (25, 30), ledit élément similaire à un boîtier assurant, par un matériau isolant (2, 4), une interruption thermique entre les deux ensembles, les deux éléments frontaux formant des surfaces externes du dispositif de ventilation et le mécanisme d'actionnement (23) amenant les deux éléments de soupape (21, 28) simultanément en position ouverte, fermée ou partiellement ouverte.

3. Dispositif de ventilation selon la revendication 2, caractérisé en ce que l'élément frontal du deuxième ensemble fait partie intégrante de l'élément similaire à un boîtier (1-5), le deuxième ensemble étant doté de moyens de guidage (27) qui permettent le démontage de l'élément de retenue (30) et de l'élément de soupapge (28) de l'élément similaire à un boîtier.

4. Dispositif de ventilation selon la revendication 3, caractérisé en ce que le deuxième ensemble comprend un canal en forme de U (27) qui reçoit à la fois l'élément de retenue (30) et l'élément de soupape (28), la longueur d'un des montants dudit canal étant réduite de telle manière que l'élément de retenue et l'élément de soupape puissent être dégagés du confinement des deux canaux, des moyens de verrouillage (33, 34) coopérant avec le premier ensemble détachable (8), lesquels moyens de verrouillage dans la position fixée de l'ensemble détachable empêchant l'élément de retenue et l'élément de soupape de se dégager du confinement des canaux.

5. Dispositif de ventilation selon la revendication 4, caractérisé en ce que les moyens de verrouillage se composent d'une bride longitudinale (34) raccordée à l'élément frontal et/ou à l'élément de retenue (22) du premier ensemble (8) et une bande (33) de matériau élastique raccordée à l'élément de retenue (30) du deuxième ensemble.

6. Dispositif de ventilation selon la revendication 5, caractérisé en ce que la bride longitudinale (34) et une des parois externes de l'élément similaire à un boîtier sont munis d'alésages d'égalisation de la pression (35, 37), ces alésages d'égalisation de la pression dans la paroi externe en question se terminant en un espace interne (36) de l'élément similaire à un boîtier qui est séparé par la bride longitudinale et la bnde (33) du matériau élastique d'un espace interne qui est en partie défini par les éléments de retenue (22, 30) munis d'ouvertures d'aération (25, 31).

7. Dispositif de ventilation selon l'une quelconque des revendications 2 à 6, caractérisé en ce que les éléments de retenue (22, 30) des deux ensembles sont soutenus mutuellement par au moins un élément en forme de bande (40) qui est situé dans l'élément similaire à un boîtier et est composé d'un matériau élastique.

8. Dispositif de ventilation selon la revendication 7, caractérisé en ce que l'élément en forme de bande (40) s'étend parallèlement à la direction de coulissement des éléments de soupape (21, 28).

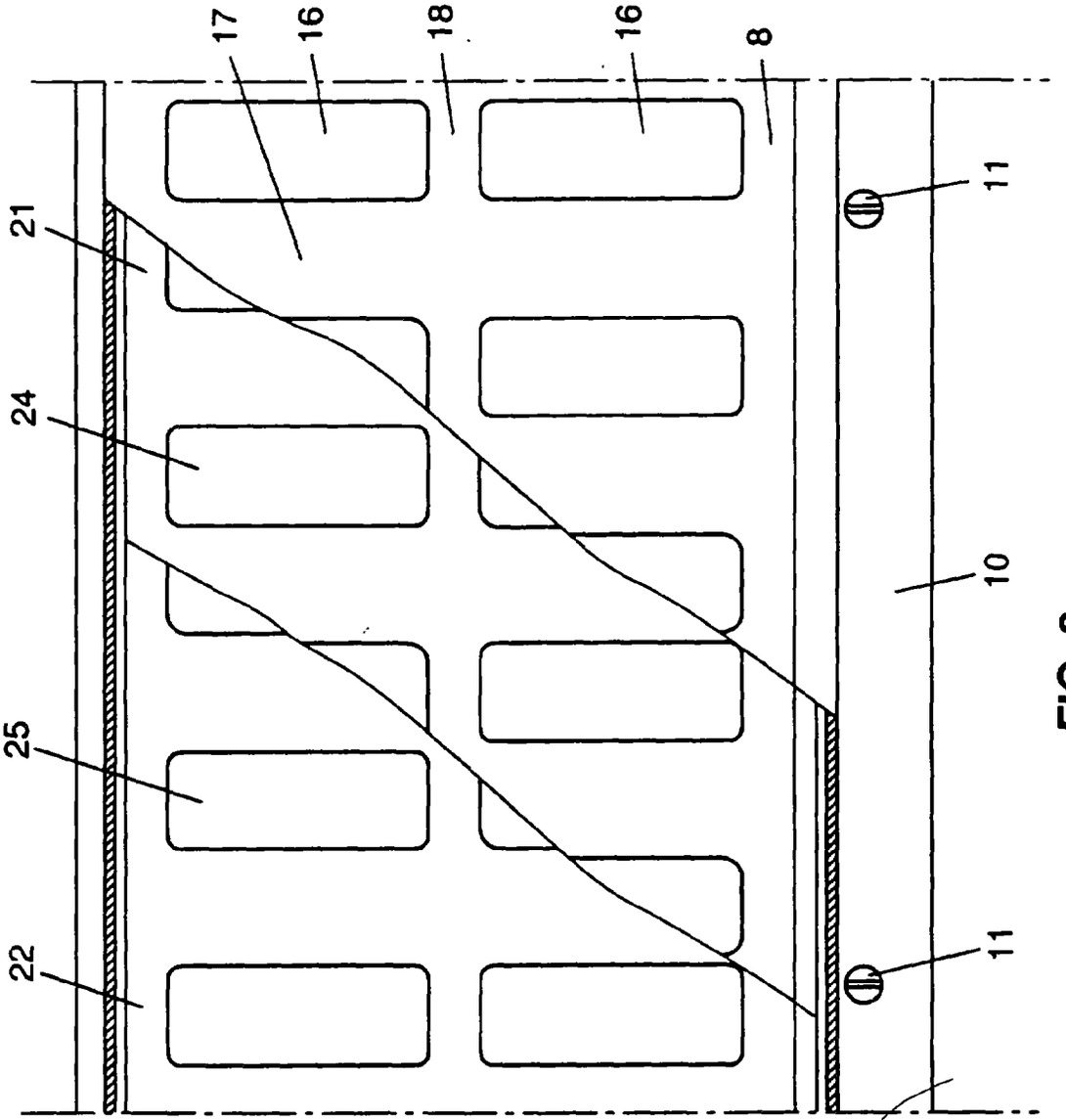
17
16
18
16
8
11
21
24
10
25
22
11

FIG. 2

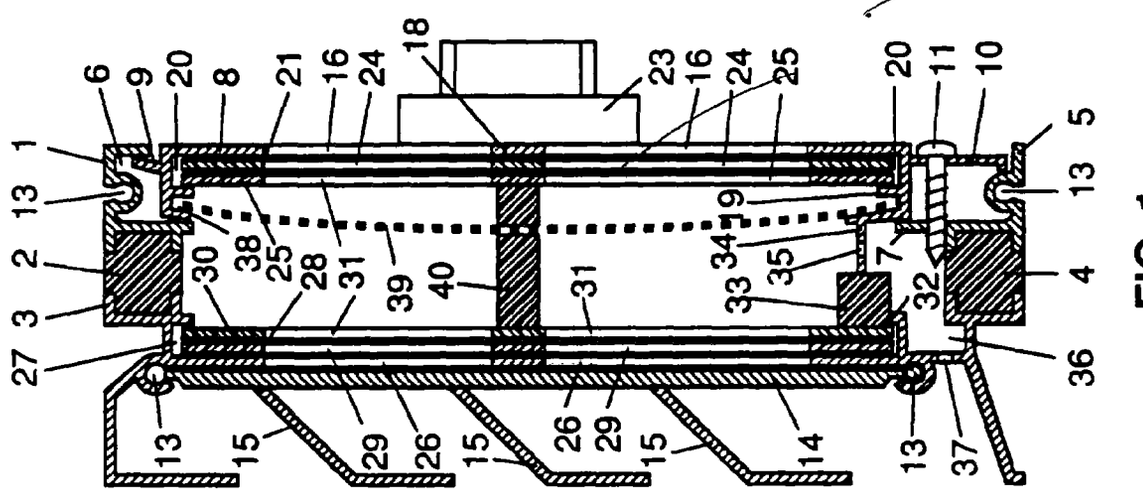
18
6
9
20
8
21
16
24
23
16
24
25
20
11
10
1
5
13
13
19
2
34
7
30
38
25
28
31
39
40
31
35
33
32
4
3
27
36
13
15
29
26
15
26
29
15
14
13
37

FIG. 1