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

(11) **EP 2 949 854 A1**

(12) # EUROPEAN PATENT APPLICATION

(43) Date of publication:
02.12.2015 Bulletin 2015/49

(21) Application number: **15168331.5**

(22) Date of filing: **20.05.2015**

(51) Int Cl.:
E06B 7/10 *(2006.01)* ***E04D 13/03*** *(2006.01)*
F24F 13/08 (2006.01)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

(30) Priority: **30.05.2014 PL 40838914**

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(54) **ROOF WINDOW WITH AN AIR SUPPLY DUCT**

(57) The invention relates to a roof window with an air supply duct 1 constructed inside the upper window frame member, with the inlet opening 11 located on the outside of the window and the outlet opening 12 located on the inside of the window, whereas inside the air supply duct there is an elastic strip 5 mounted in the groove along the fixed edge 51, the said strip deviating when the air flows and returning to its initial position under the influence of the reverse elasticity force, with at least one counterweight 6, 6', which, together with the strip 5, forms a balanced doublearm lever, mounted rotationally or rotationally-slidably on the fulcrum "P".

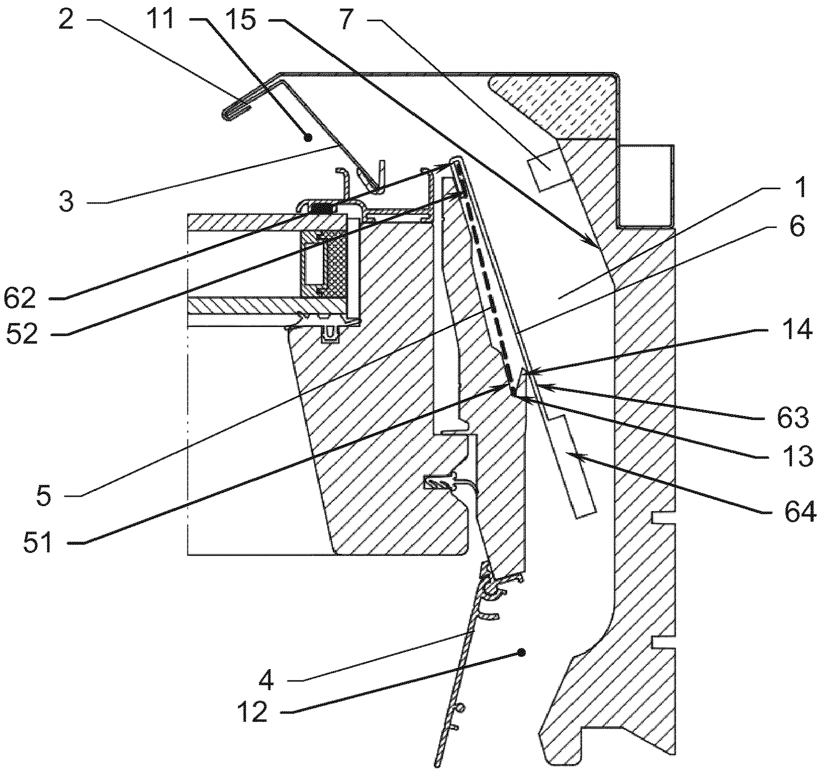

Fig. 1a

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Description

[0001] The invention relates to a roof window with an air supply duct located inside the upper window frame member and having automatic control of the amount of air flowing through the duct.

[0002] The air outlet functions as a duct conveying fresh air to rooms. The necessity to use air outlets occurred as a result of the trend towards a reduction of heat losses in buildings by excessive sealing and blocking of natural air exchange in rooms. In general, vents are used in façade windows. In case of attics, where the only windows are usually roof windows, a need has arisen for vents structurally connected with roof windows. Vents located in the window structure are a natural solution because of relative ease of their manufacturing and installation. In this case, making additional air outlet holes in the exterior wall or in the roof is not necessary.

[0003] Solutions with pressure control of the size of the air inflow are known, equipped with an elastic or elastic-rotating element changing the size of the air flow duct. They find application both in façade and roof windows. They include solutions applied particularly in façade windows, using ducts formed between the window frame and the sash frame in closed position. One of such solutions was revealed in the application No. DE19610428 A1. A uniform longitudinal gasket mounted in the window frame, sealing the closed window in the window frame, has vents and an elastic strip along the whole gasket profile. This solution provides for an uncontrolled airflow towards the exterior, and for a controlled airflow in the opposite direction. Control of the airflow size is realised by the elastic strip which remains in its base position when there is no airflow. The flowing air exerts a dynamic pressure onto the surface of the strip, bending it in the direction of closure of the vents. Thus, the size of the clearance of the ventilation duct depends on the speed of the flowing air, being - under a relatively constant pressure - proportional to the size of the flow of incoming air. This solution is intended for stabilising the size of the airflow under a variable pressure difference between the outside and the inside of the window. However, its application is limited basically to façade windows. In case of roof windows, there is a problem of protection from precipitation water, which is not provided by this solution.

[0004] An example of a vent built-in into the structure of a window frame is shown, among others, in European Patent No. EP 2150658 B1, in which a solution for automatic opening or closing of the air supply duct under the influence of pressure is revealed. In this solution, a roof window has a window frame and a window sash rotating around a horizontal axis. The air supply duct is made in the upper window frame member. The inlet opening of the air supply duct is located on the outside, and the outlet opening - on the inside of the window. The longitudinal edges of the inlet and outlet openings are parallel to the edge of the upper window frame member, and their length determines the width of the air supply duct, while the length of the air supply duct determines the distance between the inlet opening and the outlet opening.

[0005] Inside the air supply duct, a strip is mounted, adhering with one longitudinal edge to one internal surface of the air supply duct, and having the other longitudinal edge oriented towards the inlet of air to the air supply duct. The length of the longitudinal edges of the strip is at least equal to the width of the air supply duct, and the shorter edges of the strip are longer than the distance between the internal surfaces of the duct, those with which the edges of the strip mate. The strip is mounted inside the air supply duct so as to after its deviation from its initial position, it always returns under the influence of the reverse elasticity force.

[0006] The above solution has an unsolved problem, consisting in unstable characteristics of the flow in the lower range of pressure difference. The moving strip installed in the air supply duct deviates from its basic position to the working position being the function of the airflow rate, at constant values of other parameters. The basic position corresponds to maximum opening of the air supply duct with no airflow. Deviation of the strip located in the upper window frame member depends additionally on the angle of installation of the window in the roof, resulting from an unfavourable effect exerted by gravitational force on the strip. Thus, the strip is fixed in the air supply duct by its one longitudinal edge, while the other edge is free. In its basic position, the strip is inclined at an angle to the direction of gravitational force. A change in the window installation angle leads to a change in the strip inclination, and thus a change in the resultant reverse force of the strip. Therefore, this solution enables proper selection of parameters of the strip only for a certain narrow range of the window installation angles. When this range is exceeded, it leads to a change in the resultant force acting on the strip and another, less stable characteristics of its operation, particularly in the range of low pressure difference on both sides of the strip.

[0007] **The aim of the proposed solution** is a roof window with an air supply duct in the window frame, with pressure-controlled airflow, having a repeatable stream flow characteristics irrespective of the window installation angle in the roof and close to linear, with the smallest possible dependence of the airflow on the pressure difference between the outside and the inside of the window in the whole designed range.

[0008] In this solution, the roof window has a window frame and a rotating window sash, and the air supply duct is made in the upper window frame member. The inlet opening of the air supply duct is located on the outside, and the outlet opening - on the inside of the window. The air supply duct may be a single duct with a preferably longitudinal profile, in which the longitudinal edges of the inlet and outlet openings are parallel to the edge of the upper window frame member, and their length determines the width of the air supply duct, while the length of the air supply duct determines the distance between the inlet opening and the outlet opening. Alternatively, the air supply duct may be a set of several smaller ducts located in parallel along the longitudinal edge of the upper window frame member.

[0009] Air flowing through the air supply duct is drawn from the space shielded by a profiled element, protecting the whole window frame and mating with flashings connecting the roof window with the roofing. The profiled element protects the window from the influence of atmospheric conditions, particularly precipitation water. At the inlet to the air supply duct, a rough filter is built-in, prefiltrating the incoming air from larger solid contaminants, such as, for example, leaves, and protecting the air supply duct from interference of minute animals or birds. The outlet opening of the air supply duct is equipped with air grating, which enables manual control of the amount of air flowing to the interior.

[0010] The strip mounted inside the air supply duct is fixed by its longitudinal edge, fastened to one internal surface of the air supply duct, and has its other free longitudinal edge oriented towards the inlet of air to the air supply duct, partially covering its clearance. The length of the longitudinal edges of the strip is at least equal to the width of the air supply duct, and the shorter edges of the strip are longer than the distance between the internal surfaces of the air supply duct, those with which the edges of the strip mate. The strip is mounted inside the air supply duct so as to after its deviation from its initial position, it always returns to this position under the influence of the reverse elasticity force.

[0011] The air flowing through the air supply duct presses one side of the strip and creates a pressure difference between its sides. When the force originating from the pressure difference exceeds the value of the reverse force of the strip, the strip deviates from the mounting surface towards the opposite internal surface of the duct cavity, thus narrowing the clearance of the air supply duct for the flowing air. The higher the speed of air, the higher the pressure difference between the sides of the strip, which deviates stronger towards the opposite wall of the air supply duct. In this way, the strip assumes a particular working position, depending on the pressure difference. In order to prevent a complete shut-off of the air supply duct, the strip cannot adhere to the opposite wall of the air supply duct with the entire length of its moving edge. This is achieved by use of spacers. Change of the clearance of the air supply duct is inversely proportional to average speed of incoming air, stabilising the size of the stream of incoming air even when the speed of air is very high.

[0012] The distinguishing feature of the invention consists in the set comprising the strip, being a basically flat strip made of flexible elastic material, and a counterweight, connected with the strip. The counterweight serves the purpose of balancing the moment of force being an effect of gravitational force on the strip supported along the fixed edge, while the other edge of the strip remains free. This solution renders operation of the vent independent of the installation angle of the window in the roof and improves versatility of the solution. After balancing the effect of gravitational force, the strip responds only to forces resulting from the pressure difference on its both sides. A preferable effect of the proposed solution consists in a very favourable flat characteristics of the airflow vs. the pressure difference between the outside and the inside of the window in the whole designed range. It means that the passed stream of air depends on the pressure difference only to a slight degree.

[0013] The counterweight is an element connected with the strip, forming, together with the strip, a balanced double-arm lever, mounted on a rotating or slidable-rotating fulcrum, along the fixed edge of the strip. Such a system is balanced irrespective of the installation angle of the window in the roof, within limits of typical inclination angles of the roofing, as well as for flat roofs. The counterweight is basically an element which is non-symmetrical in relation to the fulcrum's position, and in which the first lever arm is shaped as a holder for the strip, mating with the free edge of the strip, and the second arm of the counterweight constitutes a mass balancing the moment of force. The fulcrum of the counterweight is located basically near the fixed edge of the strip. The holder of the strip is a part of the counterweight serving the purpose of application of a force counterbalancing the gravitational force to the strip. It is important for the solution of the holder's design to ensure the best possible, uniform distribution of the counterbalancing force acting on the strip or its free edge. A preferable solution consists in a counterweight with an at least double, two-point holder of the strip. In such a solution, the counterweight basically has a Y-shape, where the second arm of the counterweight is the base of the letter, and the upper forked branch corresponds to the holders of the strip.

[0014] The balancing mass is situated on the side opposite to the strip holder in relation to the fulcrum of the counterweight. It may be placed as a point mass on the arm or as a continuous or dispersed mass, e.g. in the form of a bar mounted on the other arm of the lever.

[0015] Depending on the adopted detailed solution, mating of the counterweight with the strip may occur in several different ways.

[0016] In the first embodiment, the counterweight is connected non-slidably with the free edge of the strip, and the arm of the counterweight rests freely on the surface of the strip or on the slide edge, made in the internal surface of the air supply duct, next to the groove, in which the fixed edge of the strip is mounted. Therefore, the counterweight must be always situated on the upper side of the strip, so as to, under the influence of gravity, in the installation position of the window, it rests on the strip and on the slide edge. While the strip deviates under the influence of the flowing air, the strip holder deviates together with the free edge, and the counterweight performs basically a rotating-sliding motion in relation to the fulcrum.

[0017] As there is a possibility for sudden gusts of air, leading to a rapid transition of the strip and the counterweight positions, which may cause noise as a result of the impact onto the retaining wall in the air supply duct, the solution according to the proposed invention comprises spacing and shock-absorbing elements, holding the strip and the counterweights in the position closing the air supply duct. These elements are mounted in the wall of the air supply duct or in one of the arms, preferably of each counterweight. In the second case, the first arm of the counterweight may be a spacer for the strip in the position closing the air supply duct.

[0018] In the second embodiment, preferably every counterweight is mounted rotationally in the counterweight holder, fixed inside the air supply duct, while the strip holder is loosely connected with the strip and constitutes a socket, inside which the free edge of the strip may move in a limited range.

[0019] The strip deviating under the influence of the flowing air causes rotation of the counterweight in relation to the fulcrum in the counterweight holder. In this solution, application of spacing and shock-absorbing elements is more desirable, because of a greater ease of rotation of the counterweight and a possibility of hitting the retaining wall with a greater force. Apart from the elements used in the first embodiment, a shock-absorbing leaf was used, softening the impacts of the counterweight onto the retaining wall of the air supply duct during transitions of the strip to the position closing the air supply duct. The shock-absorbing leaf is an elastic element fixed in the first arm or being its integral part. During closing of the strip, the shock-absorbing leaf takes over and dissipates a part of kinetic energy of the counterweight. Using additionally a cushion board, mounted in the retaining wall in the point of contact with the spacer and/or the leaf, silent operation of the strip during its transitions is ensured. In order to enhance the damping effectiveness, voids may be preferably created in the retaining wall under the cushion board, in the form of a small hollow in the material. In this solution, the cushion board has free space for a slight elastic bending under the impact of the counterweight's arm, thus efficiency of shock absorption being improved.

[0020] Also a detailed solution is preferable, in which the counterweight is permanently connected with the strip, e.g. by gluing, or one arm of the counterweight, replacing the strip holder from previous solutions, may be integrated with the strip or may be its fragment. The other arm of the counterweight constitutes a mass balancing the moment of force acting on the strip because of gravity.

[0021] In the solutions proposed above, the operating position of the strip with the counterweight does not depend on the installation angle of the window, but only on the balance of forces of the flowing air and elastic response of the strip. It is also possible to select masses and dimensions of the strip and the counterweight so as to ensure a stable and foreseeable characteristics of the flow rate vs. the pressure difference between the outside and the inside of the window.

[0022] The solution for a roof window vent according to **the first embodiment** of the invention, in which the counterweight is placed on a **rotating-slidable fulcrum,** is shown in Figures: Fig. 1a, Fig. 1b, Fig. 2a, Fig. 2b, where:

- in Fig. 1a, a cross-section of the upper window frame member and of the vent with the strip in open position is shown,
  in Fig. 1b, a cross-section of the upper window frame member and of the vent with the strip in closed position is shown,

- in Fig. 2a, a three-dimensional view of a fragment of the upper window frame member and of the vent with the strip in open position is shown,
  in Fig. 2b, a three-dimensional view of a fragment of the upper window frame member and of the vent with the strip in closed position is shown.

[0023] The solution for a roof window vent according to **the second embodiment** of the invention, in which the counterweight is mounted on a **rotating fulcrum,** is shown in Figures: Fig. 3a, Fig. 3b, Fig. 4a, Fig. 4b, where:

- in Fig. 3a, a cross-section of the upper window frame member and of the vent with the strip in open position is shown,
  in Fig. 3b a cross-section of the upper window frame member and of the vent with the strip in closed position is shown,

- in Fig. 4a, a three-dimensional view of a fragment of the upper window frame member and of the vent with the strip in open position is shown,
  in Fig. 4b a three-dimensional view of a fragment of the upper window frame member and of the vent with the strip in closed position is shown.

[0024] In Fig. 5a, an exemplary graph of dependence of the airflow stream on the pressure difference between the sides of the partition for a standard strip without a counterweight is shown. In the range up to 15 Pa, lack of control of the parameters is evident - variable values of the airflow stream depending on the angle.

[0025] In Fig. 5b, a graph of dependence of the airflow stream on the pressure difference between the sides of the partition for a balanced strip with a counterweight is shown. In the whole range of the pressure difference, full control of the airflow stream is evident.

[0026] A roof window with an air supply duct according to the first embodiment of the invention, basically consisting of a window frame and a rotating sash, is equipped with an air supply duct 1 in the upper window frame member. The inlet opening 11 of the air supply duct 1 is located on the outside, and the outlet opening 12 on the inside of the window. The air supply duct 1 is a set of several smaller ducts located in parallel along the longitudinal edge of the upper window frame member.

[0027] Air flowing through the air supply duct 1 is drawn from the space shielded by a profiled element 2, which mates with flashings connecting the roof window with the roofing. A rough filter 3 is built-in on the inlet to the air supply duct. The outlet opening 12 of the air supply duct 1 is equipped with air grating 4.

[0028] An elastic strip 5 mounted inside the air supply duct 1 is fastened along the fixed edge 51 mounted in a groove 13, made along the window frame member rigidly, so as to after deviating from its initial position, i.e. from open position, it always returns under the influence of the reverse elasticity force. The other edge of the strip 5, the free edge 52, is oriented towards the inlet opening 11 of the air supply duct 1, partially covering its clearance.

[0029] An additional element, belonging to the essence of the invention, mating with the strip 5, consists in a counterweight 6, serving the purpose of balancing the moment of force acting on the strip 5 fixed in the groove 13, the said moment resulting from action of gravitational force.

[0030] The counterweight 6, together with the strip 5, forms a balanced double-arm lever, resting freely on the slide edge 14 constituting the fulcrum "P" for the rotating-slidable kinematic pair. The counterweight 6 is a basically non-symmetrical element in relation to the fulcrum "P", in which the first lever arm 61 is terminated with a strip holder 62, mating with the free edge 52 of the strip 5, and the second arm 63 of the counterweight 6 constitutes a mass balancing the moment of force. The fulcrum "P" of the counterweight 6 is located near the fixed edge 51 of the strip 5. In case of optional fixing of the strip 5, e.g. using glue, directly to the surface of the wall of the air supply duct 1, the counterweight 6 rests freely on the strip 5 and the fulcrum "P" has no evident position on the length of the arms of the counterweight 6. The strip holder 62 is a part of the counterweight 6 serving the purpose of application of a force counterbalancing the gravitational force to the strip 6.

[0031] The balancing mass 64 in the form of a beam positioned along the second arm 63 of the counterweight, is situated on the side opposite to the strip holder 62 in relation to the fulcrum "P" of the counterweight 6.

[0032] In order to limit unfavourable phenomena occurring as a result of an impact of the strip holder 62 onto the retaining wall during transitions of the strip 6 from the open position shown in Fig. 1 a to the closed position shown in Fig. 1b, the solution according to the proposed invention comprises, for every counterweight 6, a spacing and shock-absorbing element 7, serving also the purpose of maintaining a constant position of the strip 5, closing the air supply duct. The spacing and shock-absorbing element 7 is mounted in the retaining wall 15 of the air supply duct 1.

[0033] Alternatively to the solution described above, an embodiment not shown in the Figures is possible, in which the counterweight 6 is mounted rotationally on the slide edge 14. In such a embodiment, the slide edge 14 preferably has a rounded shape, performing as a semi-pivot for rotational mounting of a socket being a part of the counterweight 6. The socket has a shape facilitating its rotation in a limited angular range on the slide edge 14.

[0034] The number of the counterweights 6, and spacing and shock-absorbing elements 7 corresponding to them, situated in the air supply duct 1 along the strip 5, is basically matched to rigidity and length of the strip 5. The strip 5 should deviate at its whole length.

[0035] A roof window with an air supply duct according to **the second embodiment** of the invention is characterised in that preferably every counterweight 6' is mounted rotationally in the counterweight holder 8', fixed inside the air supply duct 1, while the strip holder 62' is loosely connected with the strip 5 and constitutes a socket, inside which the free edge 52 of the strip 5 may move in a limited range.

[0036] The strip 5 deviates in relation to its fixing point in the groove 13, and pressing onto the wall of the strip holder 62', causes rotation of the counterweight 6' in relation to the fulcrum of the counterweight holder 8'. In this solution, additional spacing and shock-absorbing elements are of higher importance, because of a greater ease of rotation of the counterweight 6' and possibility of it hitting onto the retaining wall 15 with a greater force while closing the air supply duct 1 under the influence of rapid changes in the pressure difference acting on the strip 5. An element absorbing the impact of the counterweight 6' is a shock-absorbing leaf 65', being an elastic element constituting an integral part of the first arm 61' of the counterweight 6'. During closing of the strip, the shock-absorbing leaf 65' takes over and absorbs a part of energy of the counterweight 6'.

[0037] An additional element ensuring silent operation of the set during transitions of the strip 5, consists in a cushion board 9', mounted in the retaining wall 15, in the point of contact with the shock-absorbing leaf 65' or, in the version without the shock-absorbing leaf, with the first arm 61' of the counterweight 6'. Additionally, in order to enhance the damping effectiveness, a void 10' in the form of a small hollow with a preferably regular shape is applied in the retaining wall 15, directly under the cushion board 9'. The shock-absorbing leaf 65' or the first arm 61' contacts with the cushion board 9' directly over the void 10', ensuring silent and gentle damping and taking over the kinetic energy of the rotating counterweight.

[0038] The embodiments presented above do not exhaust the possibilities for configuration of a balanced system, consisting of the strip 5 and the counterweight 6, 6'. One of the possible configurations not shown in the Figures consists in a detailed solution, in which the counterweight 6 is permanently connected with the strip 5, e.g. by gluing, or the first arm 61 of the counterweight 6, replacing the strip holder 62 from the first embodiment, may be integrated with the strip 5 or may be its fragment.

Claims

1. A roof window with an air supply duct constructed inside the upper window frame member, with the inlet opening located on the outside of the window and the outlet opening located on the inside of the window, whereas inside the air supply duct there is an elastic strip mounted in the groove along the fixed edge, the said strip deviating when the air flows and returning to its initial position under the influence of the reverse elasticity force, the edges of the strip mating with internal surfaces of the air supply duct, and the strip with variable position controlling the size of the airflow through the air supply duct depending on the pressure difference between the outside and the inside of the roof window, **characterised in that** it has at least one counterweight (6, 6'), which, together with the strip (5), forms a balanced double-arm lever, mounted rotationally or rotationally-slidably on a fulcrum "P".

2. A window according to claim 1, **characterised in that** the fulcrum "P" of the rotating-slidable support of the counterweight (6) is constituted by a slide edge (14) inside the air supply duct (1).

3. A window according to claim 1, **characterised in that** the fulcrum "P" of the rotating support of the counterweight (6') is constituted by a slide edge (14) or a counterweight holder (8') fixed inside the air supply duct (1), and the strip holder (62') is loosely connected with the free edge (52) of the strip (5).

4. A window according to claim 2 or 3, **characterised in that** the first arm (61, 61') of the counterweight (6, 6') has a strip holder (62, 62') mating with the free edge (52) of the strip (5), and the second arm (63) of the counterweight (6) constitutes a mass balancing the moment of force caused by gravitational force.

5. A window according to claim 2 or 4, **characterised in that** the strip holder (62) is connected non-slidably with the free edge (52) of the strip (5), and the slide edge (14) inside the air supply duct (1) is constituted by the surface of the strip (5) near its fixed edge (51) or the slide edge (14) inside the air supply duct (1).

6. A window according to claim 2 or 4, **characterised in that** the strip holder (62') is loosely connected with the strip (5) and constitutes a socket, inside which the free edge (52) of the strip (5) may move in a limited range.

7. A window according to claim 4 or 5, **characterised in that** the counterweight (6, 6') has a single strip holder (62, 62').

8. A window according to claim 4 or 5, **characterised in that** the counterweight (6, 6') has a double strip holder (62, 62') and has basically a "Y" shape or has a multiple strip holder (62, 62').

9. A window according to claim 4, **characterised in that** the counterweight (6, 6') has a point, continuous or dispersed balancing mass (64), mounted on the second arm (63).

10. A window according to claim 9, **characterised in that** the counterweight (6, 6') has a continuous balancing mass in the form of a bar, mounted on the second arm (63).

11. A window according to claim 2 or 3, **characterised in that** the first arm (61, 61') of the counterweight (6, 6') constitutes a spacer for the strip (5) in the position closing the air supply duct (1).

12. A window according to claim 11, **characterised in that** for every counterweight (6, 6'), it has a spacing and shock-absorbing element (7), maintaining the strip (5) in the position closing the air supply duct (1), mounted in the retaining wall (15) of the air supply duct (1).

13. A window according to claim 3, **characterised in that** the first arm (61') of the counterweight (6') has a shock-absorbing leaf (65'), softening the impacts of the counterweight (6') onto the retaining wall (15) of the air supply duct (1) during motion of the strip (5) closing the air supply duct (1).

14. A window according to claim 11 or 13, **characterised in that** for every counterweight (6'), there is a void (10') in the retaining wall (15), covered with a cushion board (9'), made in the point of contact with the first arm (61, 61') of the counterweight (6, 6') and/or with the shock-absorbing leaf (65'.

15. A window according to claim 3, **characterised in that** the holder (8') of the counterweight is fixed in the retaining wall (15).

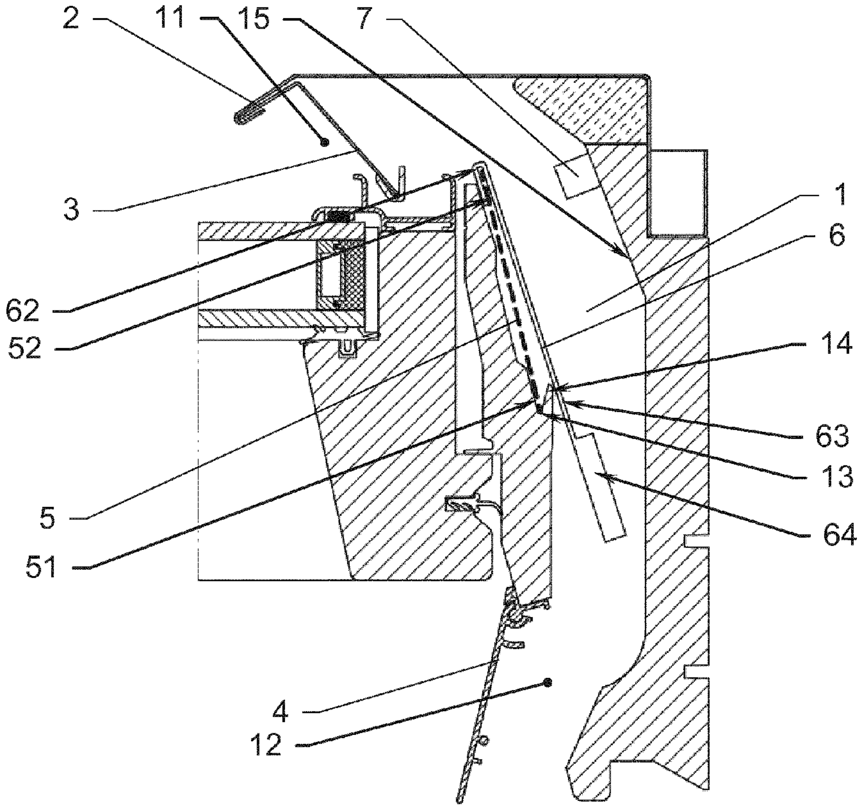

Fig. 1a

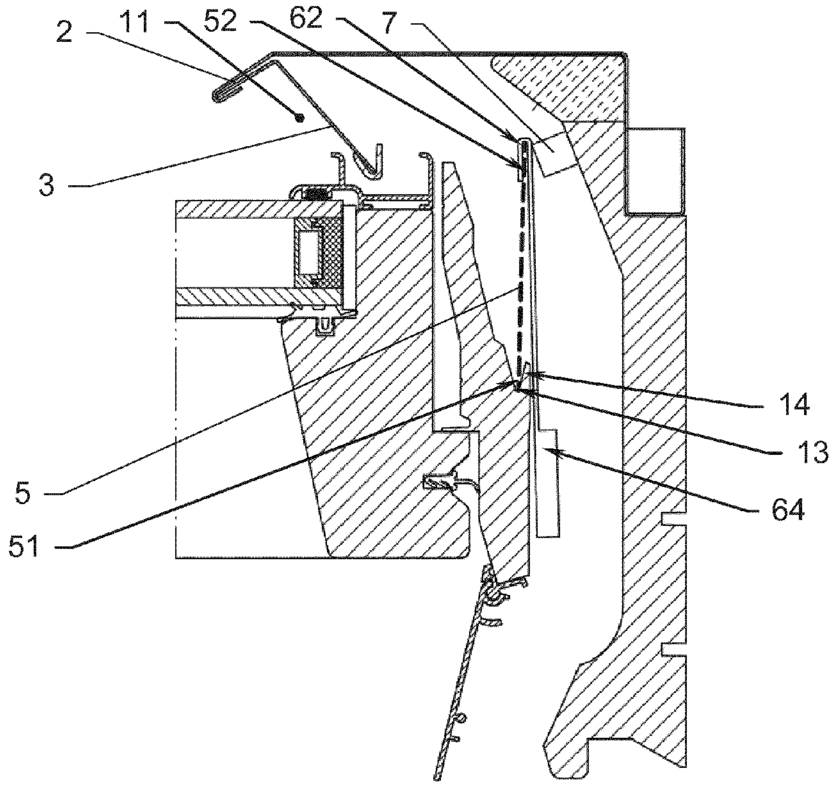

Fig. 1b

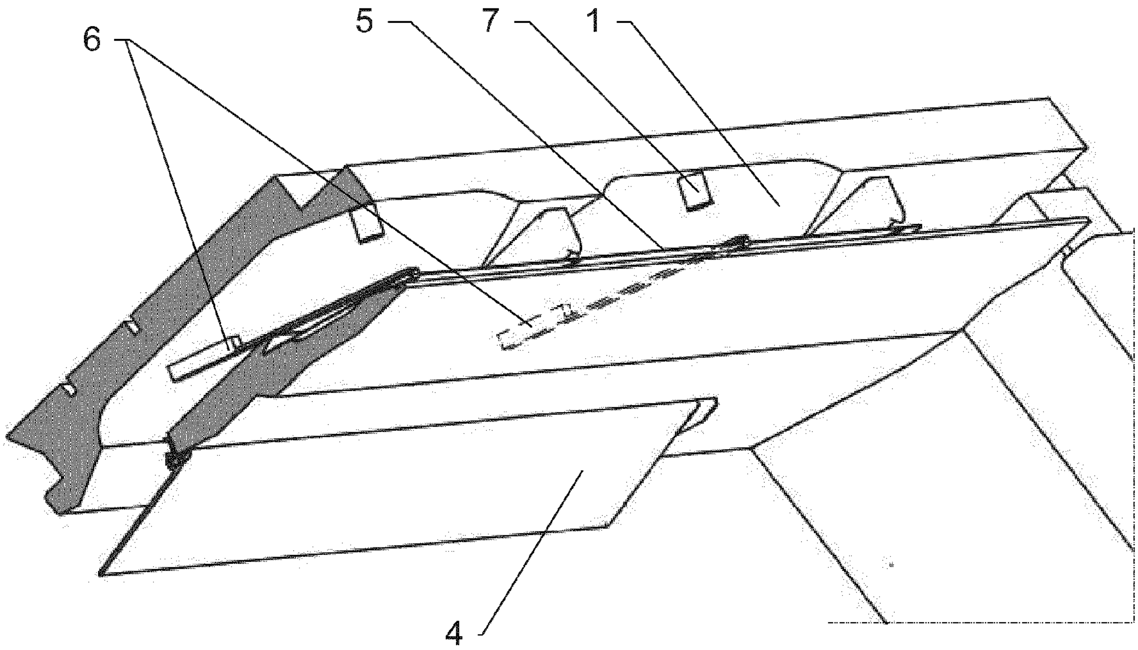

Fig. 2b

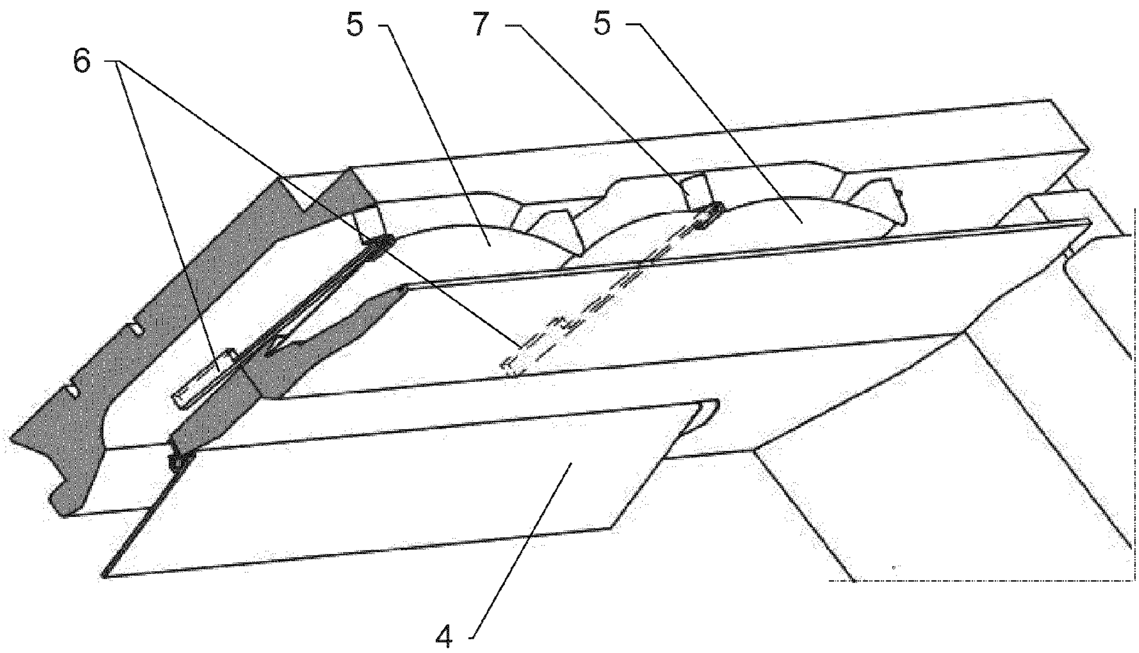

Fig. 2b

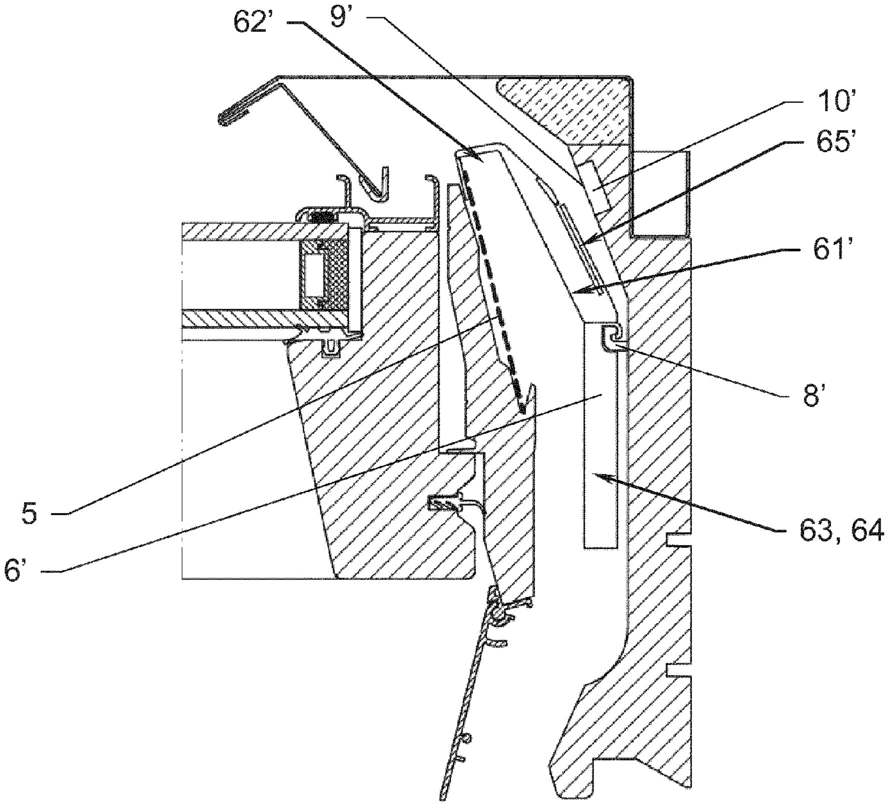

Fig. 3a

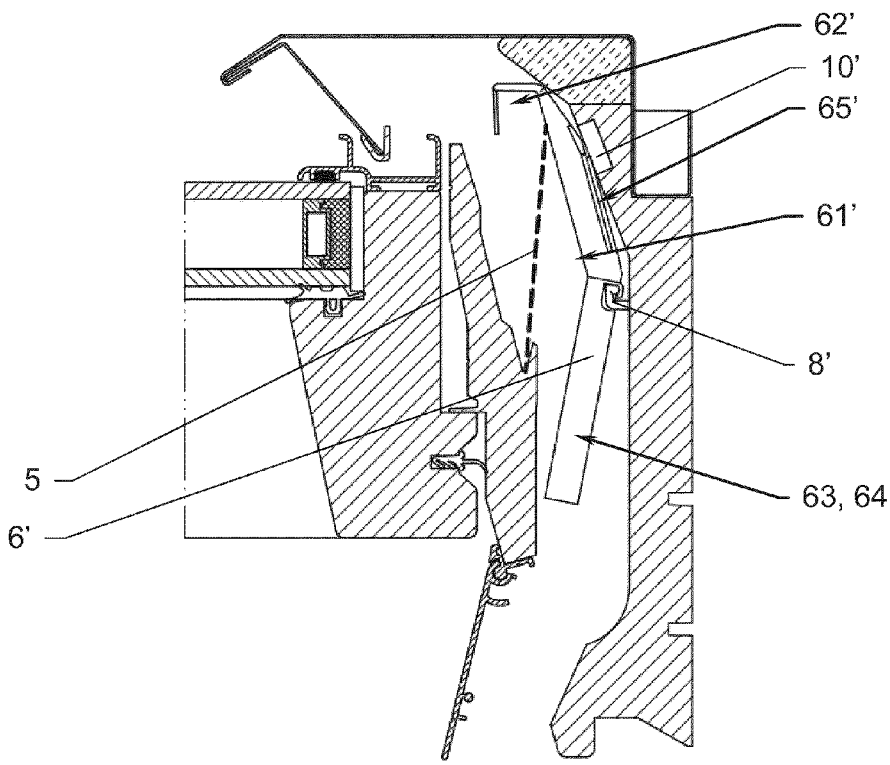

Fig. 3b

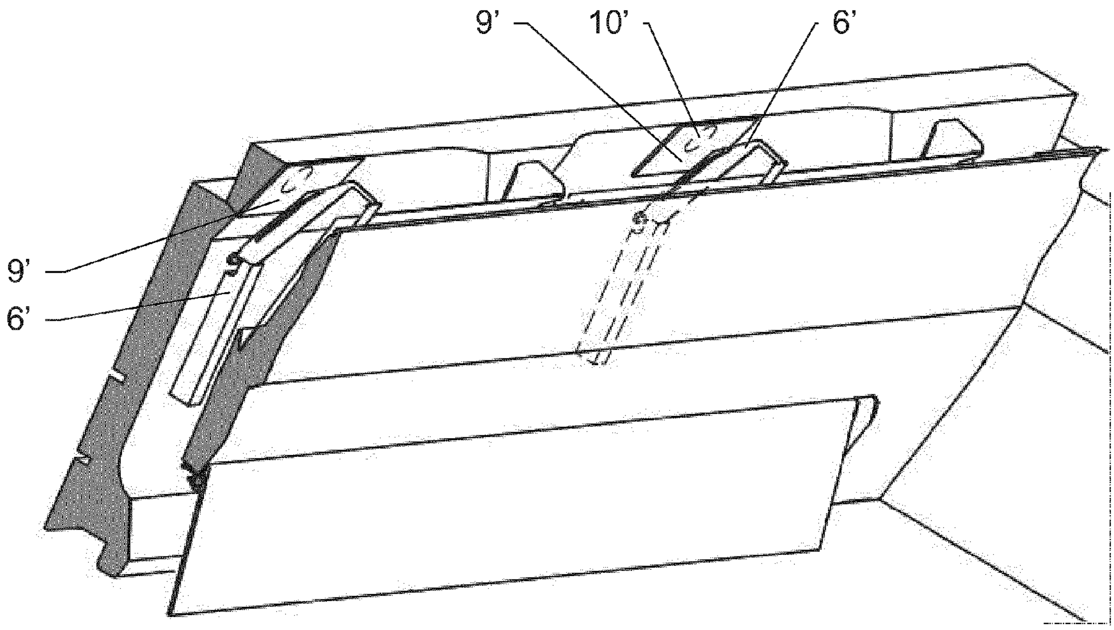

Fig. 4a

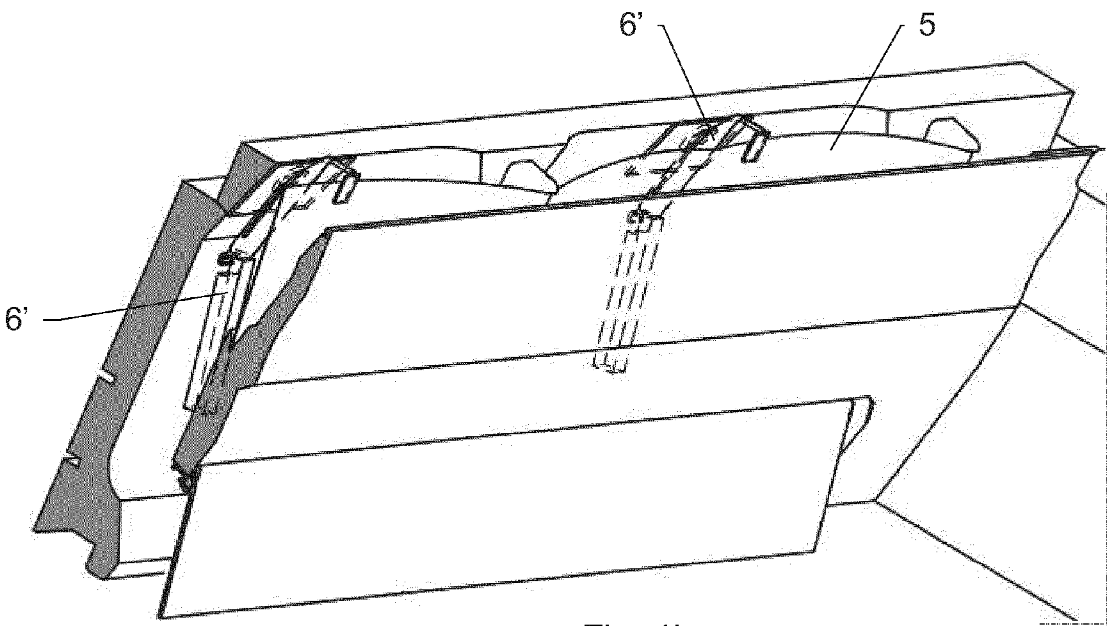

Fig. 4b

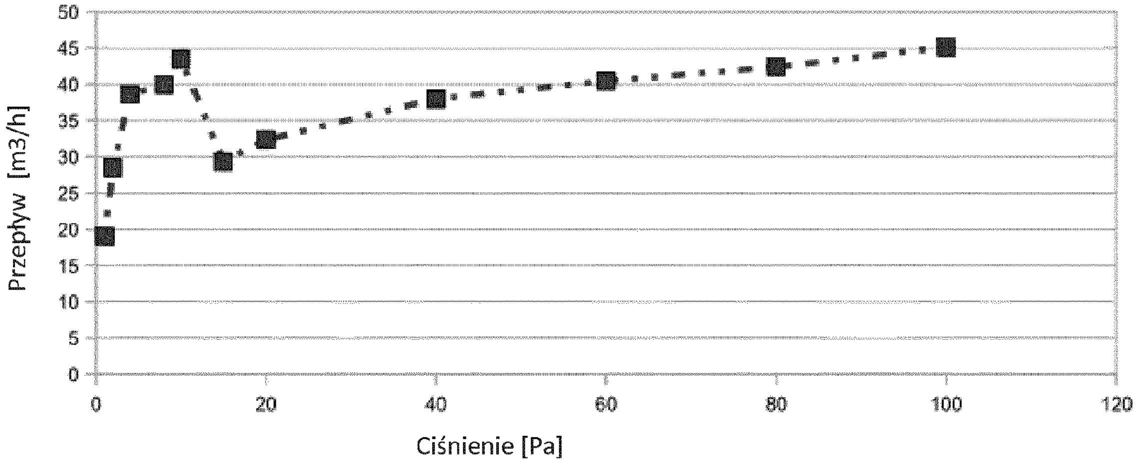
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Fig. 5a

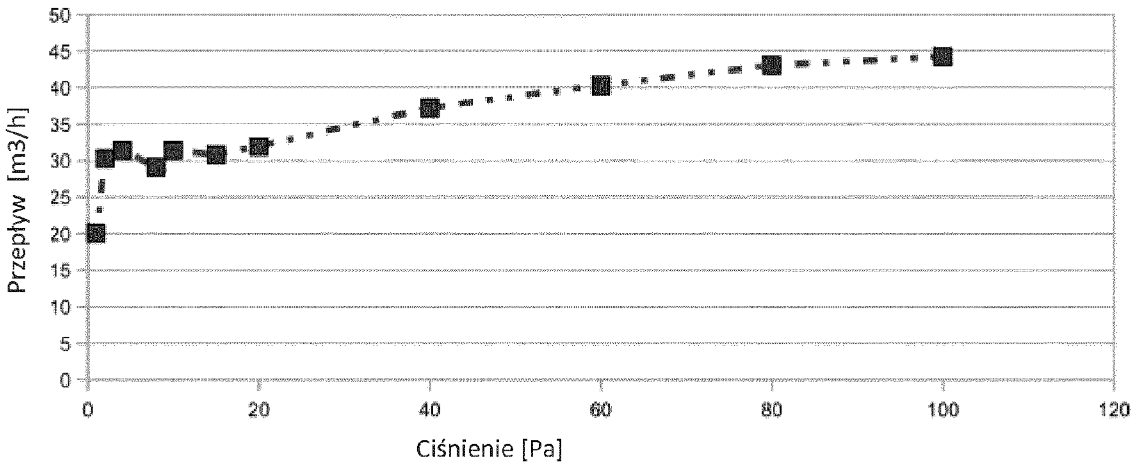
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Fig. 5b

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EUROPEAN SEARCH REPORT

Application Number
EP 15 16 8331

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	EP 2 150 658 B1 (FAKRO PP SPOLKA ZOO [PL]) 20 July 2011 (2011-07-20) * figures 1,5 * -----	1-15	INV. E06B7/10 E04D13/03
A	DE 199 38 430 C1 (EGE FENSTER GMBH & CO KG [DE]) 25 January 2001 (2001-01-25) * figures 1,5,6 * * column 4, line 53 - column 5, line 32 * -----	1-15	ADD. F24F13/08
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TECHNICAL FIELDS SEARCHED (IPC)

E06B
E04D
F24F

The present search report has been drawn up for all claims

1

Place of search	Date of completion of the search	Examiner
Munich	16 October 2015	Tänzler, Ansgar

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 16 8331

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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