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(54) **Device for mechanically controlled ventilation**

Vorrichtung zur einem mechanisch geregelten Lüfter

Dispositif de ventilation mécanique contrôlée

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Description

Field of the Art

[0001] The present invention relates to controlled mechanical home ventilation, proposing a device intended for said function provided with a structural configuration which determines advantageous features for the assembly of application, since it allows a coupling arrangement versatility of the pipes to which it has to be connected in the installations of application.

State of the Art

[0002] In home ventilation the use of mechanically controlled ventilation (MCV) units is known, which comprise a hollow body provided with a series of intake mouths and a discharge mouth, a ventilator being included inside said body for forcing the circulation of air through the ventilation installation.

[0003] With regard to said mouths of the body of the MCV unit nozzles are arranged intended for establishing the connection of communication pipes with the enclosures to be ventilated, such as the kitchen, bathrooms or other rooms of the homes of application in order to extract the air from said enclosures and, through the MCV unit, expel it through the discharge mouth towards an exhaust outlet outside connected with that discharge mouth by means of another pipe.

[0004] Conventional mechanically controlled ventilation (MCV) units incorporate the nozzles of the intake and discharge mouths arranged in a fixed orientation, which conditions the assembly for the ventilation installations, the placing being difficult in some cases since the MCV unit is usually arranged in attics or similar locations where space is usually limited.

[0005] Utility Model ES 1069642, pertaining to the same proprietor as the present invention, provides a solution of an MCV unit in which nozzles are arranged which can be incorporated into two perpendicular positions, which thus allows adapting the MCV unit according to the direction of the pipes to which it has to be coupled in the installation of application. In said solution the nozzles are assembled on the MCV unit by means of coupling by clamping, whereby the fastening is not duly airtight to prevent air escaping from the ventilation through those fastening couplings for the nozzles.

[0006] EP 1 959 208 discloses a device upon which the preamble of appending claim 1 is based.

Object of the Invention

[0007] According to the invention, a device is proposed which forms a mechanically controlled ventilation unit, with structural features essentially improving the known solutions, eliminating the drawbacks thereof.

[0008] This device object of the invention consists of a hollow body in which a ventilator is housed for forcing the circulation of air, said body being provided with a cover which closes the housing of the ventilator, whereas structurally the body is divided into two complementary halves which are coupled to one another, being fastened by means of retaining engagements, determining between the two halves openings in which nozzles are arranged for the coupling of intake pipes of the ventilation installation, whereas between the body and the cover which closes the housing of the ventilator an opening provided with a cylindrical ring for the coupling of an ejection pipe for the air from the ventilation is defined.

[0009] The coupling openings of the intake nozzles determine a grooved edge in each of the halves of the body, in which grooved edge a peripheral brim fits which the nozzles have at the coupling end, determining an inclined tubular projection with respect to said coupling end for being coupled on the body of the device.

[0010] The fastening assembly of said intake nozzles is thus established with the fitting of the peripheral brim of the end thereof between the grooved edges of the two halves of the coupling openings, determining a secure fastening and with a closure which prevents the air escaping through those coupling fastenings, being provided that the peripheral brim of the end of the nozzles made from an elastic material, which favors the airtightness of the fastening couplings.

[0011] The peripheral brim of the coupling end of said intake nozzles can have, in correspondence with to the openings defined between the two halves of the body of the device, any geometric shape which has at least one axis of symmetry, allowing the assembly of the nozzles in at least two different orientation positions, or it can have a circular shape, allowing the assembly of the nozzles in any orientation position around the coupling.

[0012] The device object of the invention therefore determines an airtight MCV unit, allowing the coupling of the pipes of the ventilation installation in which it is applied from any direction, thus facilitating the assembly of the installation and the placement in reduced spaces, whereas by means of removing the cover which closes the housing of the ventilator, the functional mechanism can be accessed without disassembling the MCV unit from its installation, which facilitates the maintenance operations which may be necessary.

[0013] Therefore, said device object of the invention has truly advantageous features, acquiring a life of its own and a preferred character for the function for which it is intended.

Description of the Drawings

[0014]

Figure 1 shows an exploded perspective view of the device of the invention, according to an embodiment.

Figure 2 is a perspective view of the device of the previous figure once assembled.

Figure 3 is a top plan view of the device, with the

intake nozzles according to an orientation arrangement.

Figure 4 is a top plan view of the device with the intake nozzles according to another orientation arrangement.

Figures 5 and 6 are, respectively, a perspective and side view of a nozzle for the coupling in the intake mouths of the device of the invention according to an embodiment.

Figures 7 and 8 are, respectively, a perspective and side view of a nozzle for the coupling in the intake mouths of the device of the invention according to another embodiment.

Detailed Description of the Invention

[0015] The object of the invention relates to a device for controlled mechanical home ventilation installations, of the type forming a functional unit to which the intake pipes of the ventilation installation are connected to drive the air of the ventilation through an outlet outside the corresponding building.

[0016] The proposed device consists of a casing which determines a hollow body (1) in which a ventilator (2) is housed, having a cover (3) that closes the housing in which said ventilator (2) is arranged.

[0017] The hollow body (1) is formed by two complementary halves (1.1 and 1.2) which are coupled to one another, being fastened by means of retaining engagements (4) assuring the attachment.

[0018] Said complementary halves (1.1 and 1.2) making up the hollow body (1) determine openings (5) in the attachment area, with respect to which openings there are assembled nozzles (6) intended for the coupling of the intake pipes of the ventilation installation in which the device is applied.

[0019] Those openings (5) defined between the complementary halves (1.1 and 1.2) of the hollow body (1) determine a grooved edge (7), whereas the nozzles (6) intended for coupling therein have a coupling end edge provided with a peripheral brim (8) which is fitted into the grooved edge (7) of the openings (5), such that when the two complementary halves (1.1 and 1.2) of the hollow body (1) are attached, said brim (8) of the nozzles (6) remains fitted between the grooved edges (7) of the two halves of the corresponding opening (5), thus establishing a secure assembly and preventing air escaping through the coupling.

[0020] The peripheral brim (8) of the nozzles (6) is further provided in an elastic material, which favors the airtightness of the assembly coupling in the openings (5) of the hollow body (1).

[0021] With respect to the coupling end for being coupled on the hollow body (1), the nozzles (6) have a tubular projection intended for the coupling of the corresponding pipes of the ventilation installation, said tubular projection being able to be straight, as in the example of Figures 5 and 6, or bent, as in the example of Figures 7 and 8.

[0022] On the other hand, the peripheral brim (8) of the end of the mentioned nozzles (6) can have, combined with the openings (5) of the hollow body (1), for example, an elongated shape, as in the example of Figures 5 and 6, allowing the assembly of said nozzles (6) in two opposite orientation positions, to adapt the coupling with respect to the respective pipes of the ventilation installation according to the side on which said coupling has to be formed.

[0023] Said peripheral brim (8) of the end of the nozzles (6) can also have, combined with the openings (5) of the hollow body (1), a circular shape, as in the example of Figures 7 and 8, whereby the assembly of the nozzles (6) can be performed in any orientation position around the assembly coupling, allowing the coupling with respect to the pipes of the ventilation installation in any direction.

[0024] In general terms that peripheral brim (8) of the end of the nozzles (6) can have any geometric shape having at least one axis of symmetry, whereby the assembly of the nozzles (6) can be performed in at least two different orientation positions.

[0025] The closure cover (3) of the housing of the ventilator (2) is fastened on the hollow body (1) by means of respective retaining engagements (9), which are practicable for releasing that cover (3) and opening the housing of the ventilator (2), thus allowing access to the ventilator (2), for maintenance operations which may be necessary, without having to disassemble the hollow body (1) from the assembly in the ventilation installation.

[0026] An opening (10) is defined between the cover (3) and the hollow body (1) for the exit of the air of the ventilation, a ring (11) intended for establishing the coupling of a communication pipe with the exhaust outlet of the air in the ventilation installation being arranged in said opening (10).

[0027] The cover (3) determines a gap in which the electric supply and control set (12) for the ventilator (2) is housed, said gap being closed with an outer lid (13), which is also fastened with retaining engagements (14) which are practicable for releasing said outer lid (13), thus allowing access to the electric set (12) without having to disassemble any other part of the hollow body (1).

Claims

1. A device for mechanically controlled ventilation, of the type comprising a hollow body (1) said hollow body (1) being provided with openings (5) for the coupling of the air intake pipes of the ventilation installation and with an opening (10) for the coupling of a discharge pipe for the air of the ventilation, the hollow body (1) consists of two complementary halves (1.1 and 1.2) which are coupled to one another with fastening by means of retaining engagements (4), openings (5) being defined in the attachment of said complementary halves (1.1 and 1.2) provided with a grooved edge (7), nozzles (6) being

coupled in said openings (5), in which they have a peripheral brim (8) with which they fit into the grooved edge (7) of the mentioned openings (5), **characterized in that** the nozzles (6) are determining an inclined tubular projection with respect to the coupling end; and
a ventilator (2) is housed in the hollow body (1) for forcing the circulation of air, whereas the housing of the ventilator (2) in the hollow body (1) is closed with a cover (3), between said cover and the half (1.1) of the hollow body (1) an opening (10) provided with a ring (11) is defined.

2. The device for mechanically controlled ventilation according to claim 1, **characterized in that** the cover (3) is fastened by means of practicable retaining engagements (9), being able to be disassembled from the hollow body (1) to open the housing gap of the ventilator (2).

3. The device for mechanically controlled ventilation according to claim 1, **characterized in that** the cover (3) determines a gap in which an electric supply and control set (12) for the ventilator (2) is housed, said gap being closed with an outer lid (13) which is fastened with practicable retaining engagements (14), said outer lid (13) being able to be removed to open the gap for housing the electric set (12).

4. The device for mechanically controlled ventilation according to claim 1, **characterized in that** the peripheral brim (8) of the end of the nozzles (6) determines, combined with the openings (5) of the hollow body (1), a geometric shape which has at least one axis of symmetry, allowing the assembly coupling of the nozzles (6) in at least two different orientation positions.

5. The device for mechanically controlled ventilation according to claim 1, **characterized in that** the peripheral brim (8) of the end of the nozzles (6) determines, combined with the openings (5) of the hollow body (1), a circular shape, allowing the assembly coupling of the nozzles (6) in any orientation position around the assembly coupling.

6. The device for mechanically controlled ventilation according to the claim 1, **characterized in that** the peripheral brim (8) of the end of the nozzles (6) is made of an elastic material, determining an airtight closure in the fitting with respect to the grooved edge (7) of the corresponding coupling opening (5).

Patentansprüche

1. Vorrichtung für eine mechanisch geregelte Lüftung des Typs, der einen Hohlkörper (1) umfasst, wobei der Hohlkörper (1) mit Öffnungen (5) zum Koppeln der Luftsaugrohre der Lüftungsanlage und mit einer Öffnung (10) zum Koppeln eines Ablassrohrs für die Luft der Lüftung bereitgestellt ist, wobei der Hohlkörper (1) aus zwei komplementären Hälften (1.1 und 1.2) besteht, die durch eine Befestigung mittels Halteeingriffen (4) miteinander gekoppelt sind, wobei Öffnungen (5) in der Befestigung der komplementären Hälften (1.1 und 1.2) definiert sind, die mit einer Nutkante (7) bereitgestellt sind, wobei Düsen (6) in den Öffnungen (5) gekoppelt sind, in denen sie einen Umfangsrandabschnitt (8) aufweisen, mit dem sie in die Nutkante (7) der Öffnungen (5) passen, **dadurch gekennzeichnet, dass** die Düsen (6) einen geneigten rohrförmigen Vorsprung in Bezug auf das Kupplungsende festlegen; und
wobei ein Lüfter (2) in dem Hohlkörper (1) zum Erzwingen der Zirkulation von Luft untergebracht ist, während das Gehäuse des Lüfters (2) in dem Hohlkörper (1) mit einer Abdeckung (3) geschlossen ist, wobei zwischen der Abdeckung und der Hälfte (1.1) des Hohlkörpers (1) eine Öffnung (10) mit einem Ring (11) definiert ist.

2. Vorrichtung für eine mechanisch geregelte Lüftung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Abdeckung (3) mittels zweckmäßiger Halteeingriffe (9), die vom Hohlkörper (1) abmontiert werden können, zum Öffnen des Gehäusespalts des Lüfters (2) befestigt ist.

3. Vorrichtung für eine mechanisch geregelte Lüftung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Abdeckung (3) einen Spalt festlegt, in dem ein elektrischer Versorgungs- und Steuersatz (12) für den Lüfter (2) untergebracht ist, wobei der Spalt mit einem äußeren Deckel (13) geschlossen wird, der mit zweckmäßigen Halteeingriffen (14) befestigt ist, wobei der äußere Deckel (13) zum Öffnen des Spalts zum Unterbringen des elektrischen Satzes (12) entfernt werden kann.

4. Vorrichtung für eine mechanisch geregelte Lüftung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Umfangsrandabschnitt (8) des Endes der Düsen (6), zusammen mit den Öffnungen (5) des Hohlkörpers (1), eine geometrische Form festlegt, die mindestens eine Symmetrieachse aufweist, wodurch die Anordnungskupplung der Düsen (6) in mindestens zwei unterschiedlichen Ausrichtungspositionen erfolgen kann.

5. Vorrichtung für eine mechanisch geregelte Lüftung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Umfangsrandabschnitt (8) des Endes der Düsen (6), zusammen mit den Öffnungen (5) des Hohlkörpers (1) eine kreisförmige Form festlegt, wodurch die Anordnungskupplung der Düsen (6) in jeder Aus-

richtungsposition um die Anordnungskupplung erfolgen kann.

6. Vorrichtung für eine mechanisch geregelte Lüftung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Umfangsrandabschnitt (8) des Endes der Düsen (6) aus einem elastischen Material hergestellt ist, das einen luftdichten Verschluss in der Fassung mit Bezug auf die Nutkante (7) der zugehörigen Kupplungsöffnung (5) festlegt.

Revendications

1. Dispositif de ventilation à commande mécanique, du type comprenant un corps creux (1), ledit corps creux (1) étant doté d'ouvertures (5) pour le couplage des tuyaux d'admission d'air de l'installation de ventilation et d'une ouverture (10) pour le couplage d'un tuyau d'évacuation pour l'air de la ventilation, le corps creux (1) est constitué de deux moitiés complémentaires (1.1 et 1.2) qui sont couplées l'une à l'autre par fixation au moyen d'enclenchements de retenue (4), les ouvertures (5) étant définies dans la fixation desdites moitiés complémentaires (1.1 et 1.2) dotées d'un bord à gorge (7), des buses (6) étant couplées dans lesdites ouvertures (5), dans lesquelles elles ont un rebord périphérique (8) avec lequel elles s'ajustent dans le bord à gorge (7) des ouvertures (5) mentionnées, **caractérisé en ce que** les buses (6) déterminent une protubérance tubulaire inclinée par rapport à l'extrémité de couplage ; et
un ventilateur (2) est logé dans le corps creux (1) pour forcer la circulation d'air, tandis que le logement du ventilateur (2) dans le corps creux (1) est fermé par un cache (3), entre ledit cache et la moitié (1.1) du corps creux (1) est définie une ouverture (10) dotée d'une bague (11).

2. Dispositif de ventilation à commande mécanique selon la revendication 1, **caractérisé en ce que** le cache (3) est fixé au moyen d'enclenchements de retenue praticables (9) aptes à être désassemblés du corps creux (1) pour ouvrir l'espacement de logement du ventilateur (2).

3. Dispositif de ventilation à commande mécanique selon la revendication 1, **caractérisé en ce que** le cache (3) détermine un espacement dans lequel un ensemble d'alimentation et de commande électrique (12) pour le ventilateur (2) est logé, ledit espacement étant fermé par un couvercle extérieur (13) qui est fixé par des enclenchements de retenue praticables (14), ledit couvercle extérieur (13) étant apte à être retiré pour ouvrir l'espacement permettant de loger l'ensemble électrique (12).

4. Dispositif de ventilation à commande mécanique selon la revendication 1, **caractérisé en ce que** le rebord périphérique (8) de l'extrémité des buses (6) détermine, combiné aux ouvertures (5) du corps creux (1), une forme géométrique qui présente au moins un axe de symétrie, permettant le couplage d'ensemble des buses (6) dans au moins deux positions d'orientation différentes.

5. Dispositif de ventilation à commande mécanique selon la revendication 1, **caractérisé en ce que** le rebord périphérique (8) de l'extrémité des buses (6) détermine, combiné aux ouvertures (5) du corps creux (1), une forme circulaire, permettant le couplage d'ensemble des buses (6) dans toute position d'orientation autour du couplage d'ensemble.

6. Dispositif de ventilation à commande mécanique selon la revendication 1, **caractérisé en ce que** le rebord périphérique (8) de l'extrémité des buses (6) est réalisé en un matériau élastique, déterminant une fermeture étanche à l'air dans l'ajustement par rapport au bord à gorge (7) de l'ouverture de couplage (5) correspondante.

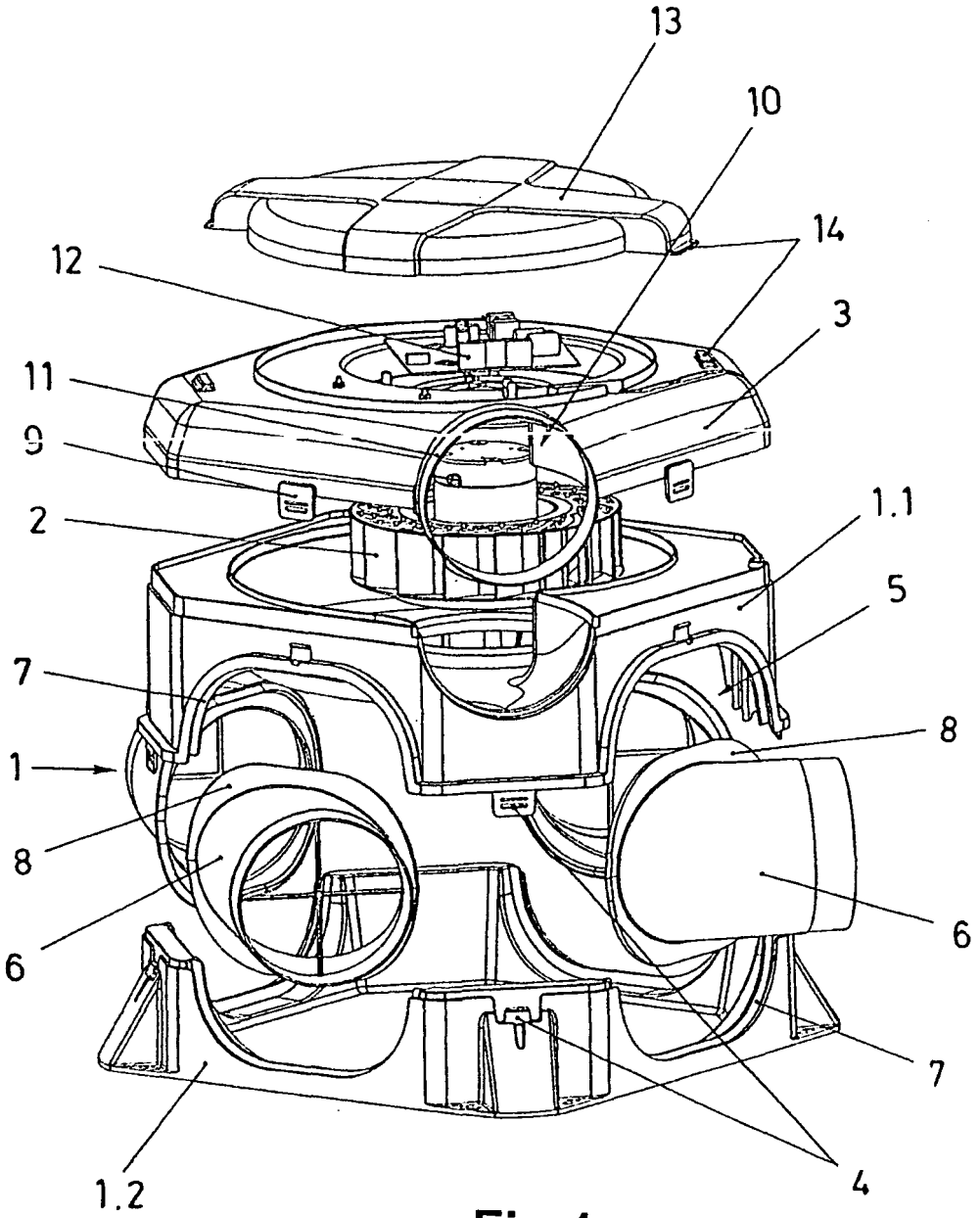


Fig.1

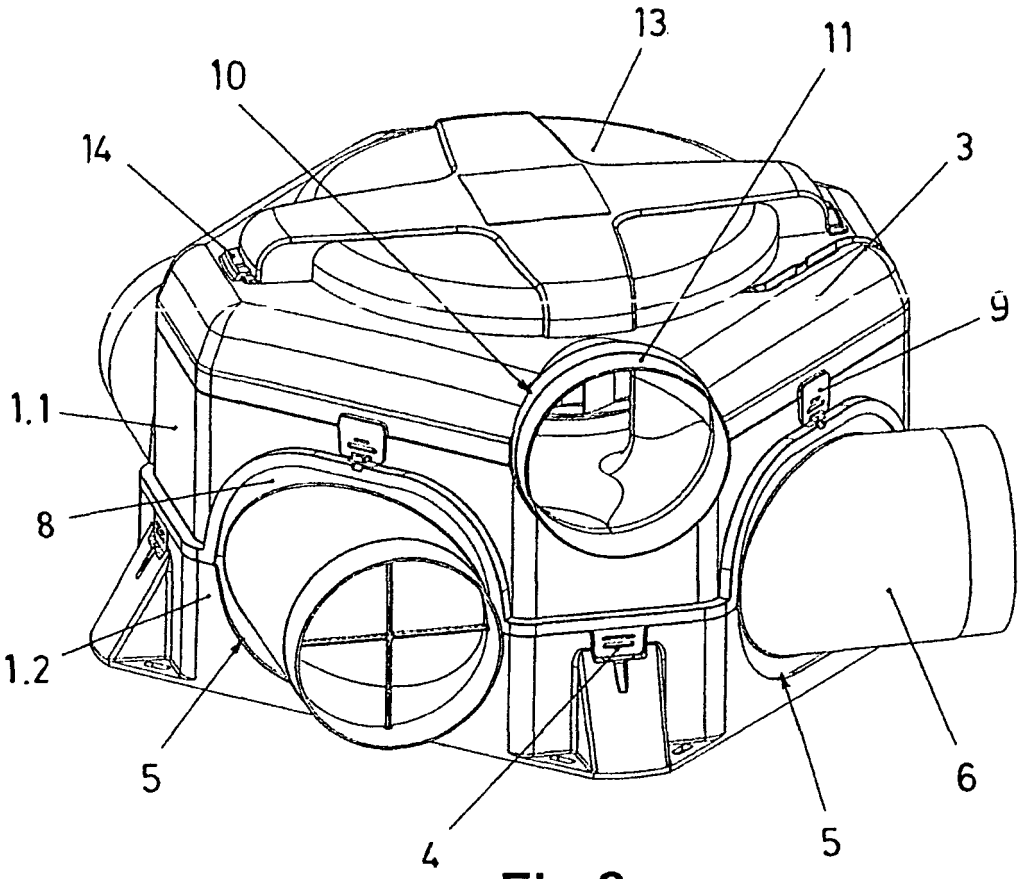


Fig.2

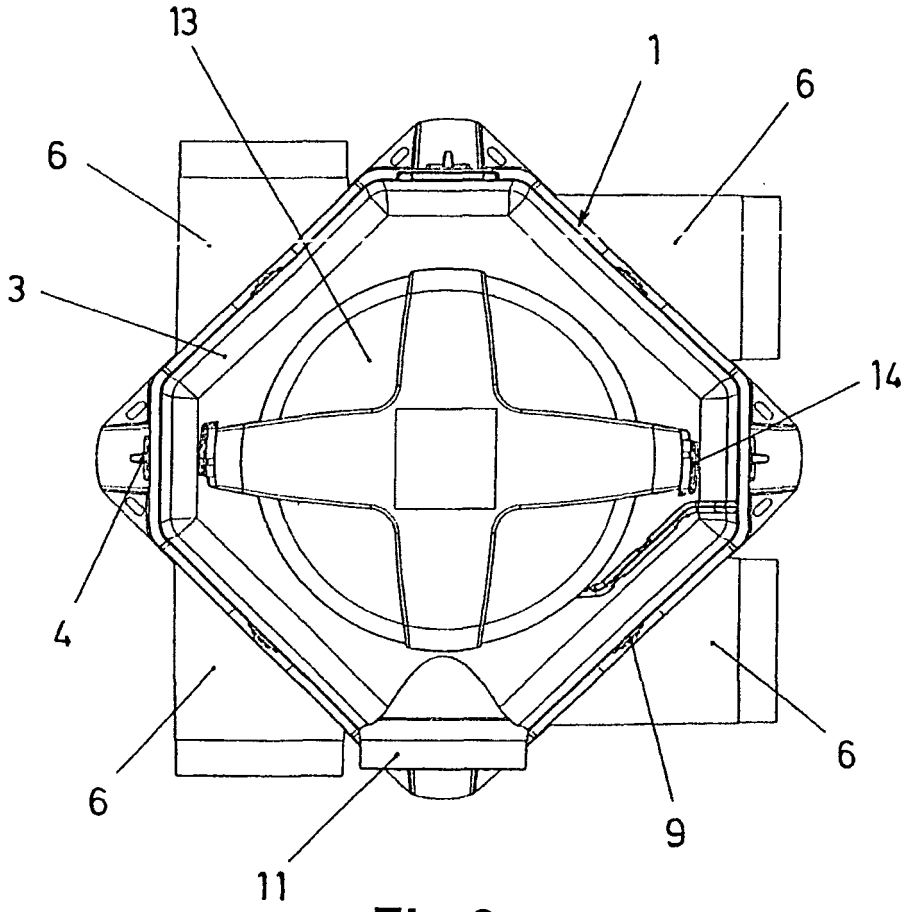


Fig.3

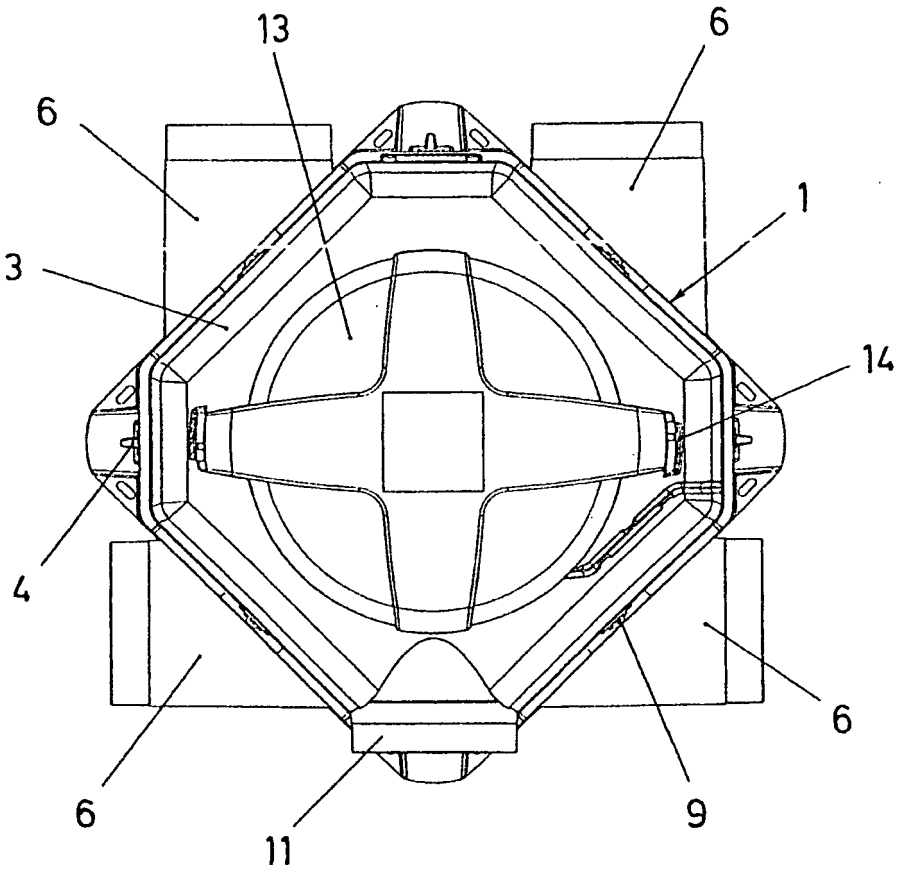


Fig.4

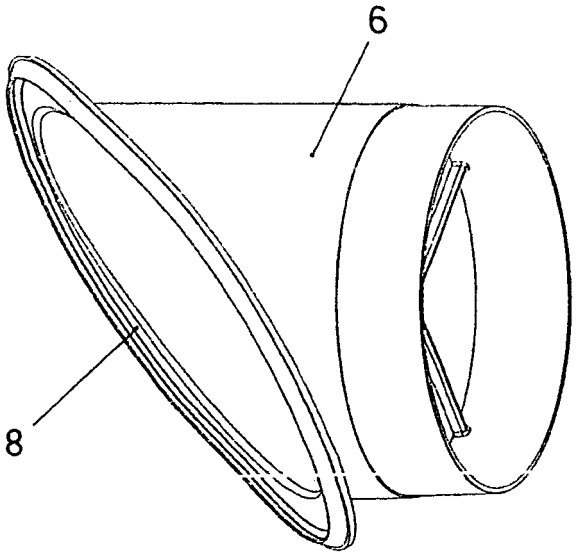


Fig.5

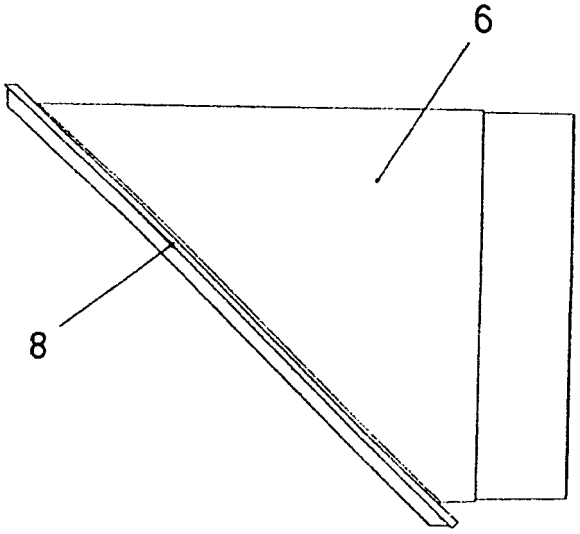


Fig.6

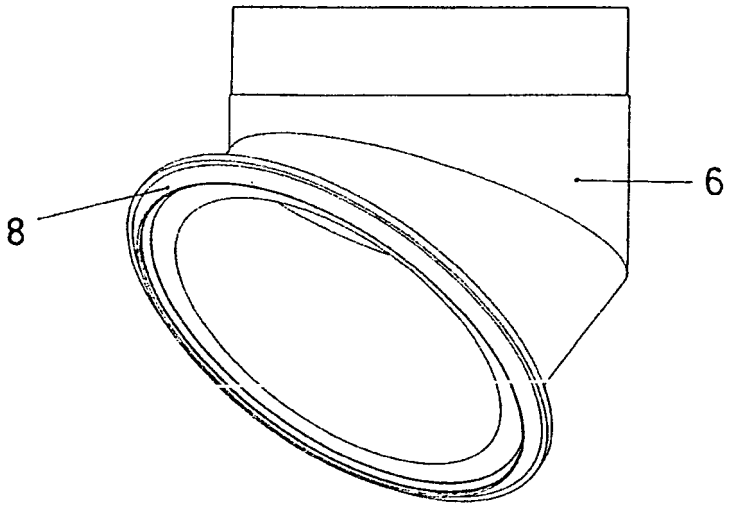


Fig.7

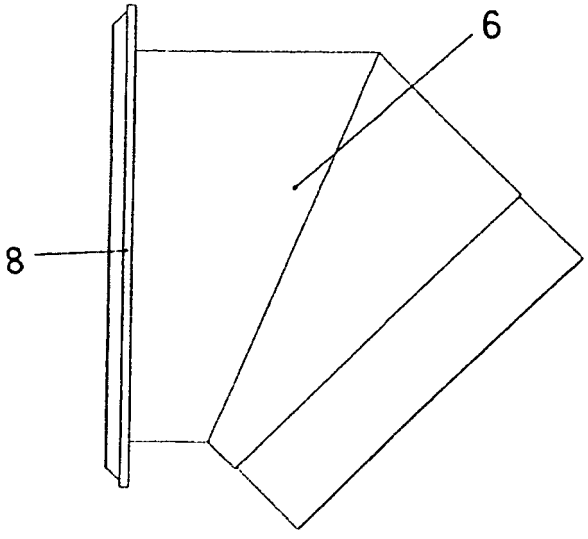


Fig.8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- EP 1959208 A **[0006]**