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(54) **HEATER FOR AN OPEN SPACE IN A CLOSED ROOM BY MEANS OF A HOT AIRSTREAM**

ERHITZER FÜR EINEN OFFENEN RAUM INNERHALB EINES GESCHLOSSENEN RAUMS MITHILFE EINES HEISSEN LUFTSTROMS

DISPOSITIF DE CHAUFFAGE D'UN ESPACE OUVERT DANS UNE PIÈCE FERMÉE À L'AIDE D'UN COURANT D'AIR CHAUD

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(73) Proprietor: **Picozzi, Carlo**
28028 Pettenasco (NO) (IT)

(72) Inventor: **Picozzi, Carlo**
28028 Pettenasco (NO) (IT)

(74) Representative: **Aprà, Mario**
Aprà Brevetti
Via Bertola 2
10121 Torino (IT)

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Description

[0001] This invention is about a heater for an open space in a closed room by means of a hot air stream. A heater according to the preamb

[0002] le of claim 1 is known from document US 5099587.

[0003] In the following description the expression "closed room" is used to describe a defined space, for instance a bedroom or hall and the like, while the expression "open space" is used to describe a part of said "closed room" not defined by significant barriers.

[0004] There are already well known hot air stream heaters for a closed room. Those known heaters produce a hot air stream which is blown into the room to be heated and the air stream will diffuse to heat the air of the whole room. Nevertheless with those heaters it is impossible to heat just a limited part or open space of the considered room (e.g. the part with the open shower cabin or the bath tub in a bathroom or the only part with bed of a bedroom) but we need to heat the whole closed room, even if it isn't required or useful, using a lot of energy and time to obtain the desired effect.

[0005] This invention, starting from the notion of this inconvenience, is meant to remedy to it.

[0006] A purpose of this invention is to provide a heater of an open space in a closed room by means of a hot air stream, which is able to heat, in an efficient way and in accordance with the needs of the user, just an open space or part of a room chosen by the user himself, reducing in this way the energy costs and the time needed.

[0007] Another purpose of the invention is to provide a heater which could work well also in a closed room with a high degree of humidity, as happens for example in a bathroom, and being anyhow protected against risks of vapour mist and similar.

[0008] A further aim of the invention is to provide a heater as specified, with a simple structure, with a safe and effective functioning and easy to be used.

[0009] In sight of those purposes this invention supplies a heater of an open space of a closed room by means of a hot air stream, whose main characteristic is subject of the claim 1.

[0010] Other advantages of the invention are described in the dependent claims.

[0011] An embodiment of this invention will be described in detail with reference to the attached drawings, which are supplied just as a non-restrictive example. The first form of realization or first embodiment, however, shown in the drawings and described in the corresponding part of the description does not fall within the scope of the claims. In the drawings:

- Fig.1 is a vertical section, in accordance with line I-I of fig.2, of the heater of an open space of a closed room by means of a hot air stream, according to the first form of realization, in use inside an open shower cabin or similar;
- fig. 2 is a plan view of the heater of fig. 1, with parts in section to be shown clearly;
- fig. 3 is a section view according to line III-III of fig. 2;
- fig. 4 is a vertical section in larger scale and according to line IV-IV of particular A of fig. 3;
- fig. 5 is a horizontal section according to line V-V of fig. 4;
- fig. 6 is a vertical section of the heater in a second version and installed in a open shower cabin or similar according to the invention;
- fig. 7 is a bottom view in the direction of the arrow VII of fig. 6;
- fig. 8 is a schematic and front view of the heater as per other embodiments of the invention, in use on a bath tub or similar;
- fig. 9 is a schematic plan perspective, three-quarters view of the heater as per fig.1;
- fig. 10 shows schematically, with different scale and in a front view, the heater of fig. 9 together with a shower column in an open shower cabin or similar;
- fig. 11 is a schematic plan perspective, three-quarters view, showing a second embodiment of the ;
- fig. 12 shows schematically in different scale and in a front view the heater of fig. 11 together with a shower column in an open shower cabin or similar;
- fig. 13 is a schematic plan perspective, three-quarters view showing the heater in another embodiment ;
- fig. 14 shows schematically in different scale and in a front view, the heater of fig. 13 together with a shower column in an open shower cabin or similar.

First embodiment: figures from 1 to 5

[0012] In those figures, P indicates a normal quadrangular shower tray, placed in a bathroom.

[0013] The shower tray P has got two vertical walls M1, M2 along two of its sides; the walls are perpendicular to each other and belong to the bathroom while along the other two sides of the shower tray are the sliding vertical panels PA1, PA2, which are perpendicular to each other and to the walls M1, M2 in order to form the shower cabin. B indicates a normal shower head on wall M2, over the shower tray P; B has got a perforated cover below and is connected to the plumbing (which is not shown) to supply a rain water jet towards the shower tray P when opened.

[0014] In figures 1, 2, 3, 10 indicates on the whole the heater of an open space in a closed room by means of a hot air stream, in conformity with the following example of realization .

[0015] This heater 10 includes a hanging roof self-bearing unit 11, for example made of plastic, which is flat, has got edges 11. 1 bent downwards. Said roof unit 11 is fixed horizontally in respect to the walls M1 M2 by means of suitable rawlplugs (not shown) at the height substantially nearby the shower head B.

[0016] We point out that in the present description the

expression "hanging roof unit" defines substantially a "lid" -shaped structure suspended and fixed in-between the floor and the ceiling of the considered closed room (bathroom, bedroom, etc.).

[0017] The hanging roof unit 11 has got slightly smaller dimensions than those of shower tray P, so that there will be a narrow air passage between it and the panels PA1, PA2 of the shower cabin.

[0018] The hanging roof unit 11 is provided with stiffening ribs 11.2, for example level with the rawplugs and its middle part.

[0019] The mentioned hanging roof unit 11 has got an opening 11.3 which goes from a central area to the wall M2 and where the shower head B is situated. This opening 11.3 is closed in the upper part by a stiff lid 11.4, for example made of plastic material, placed on the shower head B and fitted with a watertight gasket.

[0020] In front of the opening 11.3 the hanging roof unit 11 has got a through hole 11. 5, with vertical axis (figs. 3, 4, 5). Level with this hole 11.5 the hanging roof unit 11 bears an electrical centrifugal fan 12, laid upon and fixed to it thanks to a stirrup 12.1, with suitable gaskets in-between.

[0021] The above mentioned electrical fan 12 has got an air intake vent 12.2 with horizontal axis and a forced air outlet with vertical axis.

[0022] The air outlet 12.3 is connected in a fixed and sealed way to the hole 11.5 of the hanging roof unit 11. Level to the air outtake 12.3 the electrical fan 12 has got some resistors 12.4 (fig.3) to heat the forced air stream coming out of the fan. Both the electrical engine of the fan 12 and the resistors 12.4 are connected to an electric supply circuit (not shown) linked to the existing bathroom electric circuit, by means of a power switch 13, whose hand drive is of chain type 13.1 hanging from and next to the hanging roof unit 11, inside the shower cabin.

[0023] With 12.5 we indicate a stiff protection lid, for example made of plastic material, placed over the electrical fan 12. This lid 12.5 is provided with openings for the air intake vent 12.2 and for the electric cables of the fan 12 and the resistors 12.4 connected to the switch 13. The air intake vent 12.2 is besides protected by filters (not shown) to absorb the room humidity.

Functioning:

[0024] Before starting to shower the user pulls down the chain 13.1 causing the electrical closing of the switch 13 and the simultaneous turning on of the electrical fan 12 and of the resistors 12.4, obtaining a hot air stream from the top towards the shower tray, through the hole 11.5 of the hanging roof unit 11.

[0025] The hot air stream slows down gradually as it approaches the shower tray P and tends to go up again, creating an uninterrupted upward draught, which goes against the main downward stream.

[0026] A substantial part of this upward hot air stream is retained temporarily by the hanging roof unit 11, which acts as a blind hood, and it is not immediately wasted in the room outside the shower cabin. In this way, in a very short time we will gather temporarily hot air in the shower cabin, which will be cosily heated, while in the rest of the bathroom the temperature will be the previous, lower one.

[0027] To point out is that a part of this upward hot air stream can anyhow flow upwardly because there is a gap between the hanging roof 11 and the panels PA1, PA2 of the shower cabin.

[0028] Pulling the chain 13.1 a second time the user causes the opening of the switch 13 therefore the disconnecting of the electrical fan 12 and of the resistors 12.4. The user can therefore cause the water supply of the rain shower and have a shower in an open space (the shower cabin opened at the top) now cosy heated in a closed room (the bathroom).

[0029] You will note that during the supply of a hot water jet through the shower head B there will be a certain amount of vapour which will condense on the lower part of the hanging roof unit 11, while the vapour itself cannot pass through the hole 11.5 of the hanging roof 11 and therefore into the electrical fan 12, if it is in use.

[0030] When stopped, on the contrary, the cavity of the electrical fan 12 could be filled by vapour with the risk of damages to its mechanical and electrical parts.

[0031] To avoid this effect there is a device 11.50 to plug automatically the hole 11.5 at the stop of the hot forced air stream coming out of the electrical fan 12.

[0032] As can be seen in fig.4, the lower part of the mentioned hole 11.5 has got a conical countersink 11.51 opened downward, followed by a short final cylindrical part 11.52 with a diameter corresponding to the larger diameter of the countersink 11.51.

[0033] A ring made of plastic material 11.53, whose inside diameter is smaller compared to the one of the final cylindrical part 11.52 of the hole 11.5, is fixed on the lower surface of the hanging roof unit 11, in a coaxial position in comparison to the mentioned hole 11.5 in order to provide a round bracket which narrows the opening corresponding to the final cylindrical part 11.52 of the hole 11.5. On this bracket 11. 53 is based the lower part of a helical spring 14, which has got conical coils tapered upward and which will stress elastically upward, with its top part, a self centring truncated cone-shaped disk retaining valve 15.

[0034] The above mentioned disk valve 15 has got a complementary shape to the one of the countersink 11. 51, and it acts as a housing for the valve 15 itself.

[0035] Thanks to this disposition the above-mentioned valve 15 seals the housing 11. 51 in the hole 11. 5, blocking it (as it is sketched in the semi-section on the right of fig.4).

[0036] This disk valve 15 is made for example of plastic material and it has got an integral axial stem 15.1.

[0037] The stem 15.1 is stretched upward through the hole 11.5 in which it slides thanks to four integral sliding blocks 15.2, disposed 90° one from the other and lean sliding on the inside wall of the hole itself.

[0038] The pressure exerted by the air stream coming out of the electrical fan 12 pushes the disk valve 15, which withdraws axially in comparison to the housing 11.51, overcoming the elastic strength of the spring 14 (as sketched in the semi-section on the left of fig.4) and allowing the passage of the air stream itself. When the pressure of the air stops the elastic strength of the spring will automatically lift up the valve 15, which will seal the corresponding housing 11.51. In this position the valve 15 avoids, when the electrical fan is off, that the water vapour can pass through the hole 11.5 to reach the electrical fan itself.

Second embodiment: figures 6 and 7

[0039] 20 indicates, in these figures, the heater as per another example of realization of the invention.

[0040] The parts of heater 20 similar to those of heater 10, above described, are indicated with the same reference numbers and are not further described.

[0041] The heater 20 includes a double spout B1, respectively for a rain shower jet and for a forced hot air stream, which are coaxial to each other. The spout B1 is placed, in comparison with the hanging roof unit 11 of the heater 20, in a similar position to the shower head B, described with reference to the heater 10.

[0042] The spout B1 includes an inside head B11 to supply water, formed by a normal shower jet system connected directly to the plumbing. This spout B1 includes also an outside ring head B12, which wraps around the head B11 and which is the hot air diffuser and is pneumatically connected in a sealed way to the hole 11. 5 of the hanging roof 11 for the passage of the hot air coming out of the electrical fan 12. The above mentioned heads B11 and B12 are for example made of plastic material.

[0043] In detail, the head B12 includes a ring space B12.1, airtight, closed in the lower part thanks to a perforated cover B12.2. A hose 16, for example made of metal, U-bent, is connected and sealed at one end to the hole 11.5 of the hanging roof 11 and at the other end to the above-mentioned perforated cover of head B12, conveniently arranged for the connection.

[0044] Thanks to this arrangement, the forced hot air stream coming out of the electrical fan 12 through the above-mentioned hole 11. 5 is conveyed through the hose 16 to the ring space B12.1, where it is diffused thanks to the holes of the corresponding lower cover B12.2, providing in this way a downward hot air stream towards the shower tray P.

[0045] For the rest we make reference to the description of the first form of realization.

Version as per fig. 8

[0046] Fig. 8 shows a simple, different use of the heater 10 as per figures from 1 to 5, placed over a normal bath tub V. In this version the hanging roof, here indicated as 11', has got dimensions basically corresponding to those of the bath tub V. For the rest we make reference to the description supplied with pictures from 1 to 5.

Versions as per figures from 9 to 14

[0047] Fig. 9 shows a perspective three quarters view from above of the heater 10 as per figures from 1 to 5 but without the protection cap of spout B.

[0048] The heater 10 is shown in fig. 11 as built-in in a shower column C1 for shower cabin. This shower column C1 includes, as it normally does, a multi-jet shower head and a control handle. Obviously many other arrangements of shower heads for shower or water massage in the shower column C1 are possible in combination with the heater.

[0049] Even if this has not been shown in detail, the shower column C1 is also fitted with a spout 18 to supply a forced hot air stream. This spout 18 is airtight connected to the air outlet of the electrical fan 12 of the heater 10 thanks to a flexible hose (not shown).

[0050] This spout 18 guarantees therefore the diffusion of a forced hot air stream coming out of the electrical fan at a lower level than that of the hanging roof unit 11. The spout 18 is connected in an adjustable way to the shower column C1, for example by means of a ball joint, so that the user can direct the hot air stream with his favourite inclination: downward, in an horizontal direction or upward.

[0051] In any case the hot air stream is kept by the hanging roof unit 11, where a static hot air mass forms and which warms cosily the inside of the shower cabin.

[0052] Fig. 11 shows a version of realization of the heater, which is indicated with 30. The heater 30 includes a hanging roof self-bearing unit 31 which is dome-shaped (cross vault type) and placed over it there is a spherical cover 32 to protect the electrical fan (not shown). The shape of the hanging roof unit 31 is able to collect a great hot air mass inside of it.

[0053] In fig. 12 the heater 30 is shown in combination with shower column C2 with has got a different shape in comparison to column C1 but it has got the same structure and functioning and it is therefore not further described.

[0054] In fig. 13 is shown another heater 40 fitted with a barrel vault - shaped hanging roof unit 41 with a protection cover 42 over it. The cover 42 is cylindrical and has got a half-spherical top.

[0055] Also this particular shape of the hanging roof unit 41 shall collect and keep temporarily a great static mass of hot air.

[0056] Fig. 14 shows heater 40 together with a shower column C3 which has got a different shape in comparison to column C1 but has got the same structure and functioning.

[0057] The shape, the dimensions, the materials and the components of the heater as could therefore change.

[0058] As a consequence of this the means producing the forced hot air stream in the heater could be different

of the ones described and shown in the attached drawings: for example the forced hot air stream could be produced by a traditional hot air generator whose air stream is directed so that at least a part of it is collected under the hanging roof unit of the heater. This traditional heater can be airtight connected to the hanging roof unit, for example by means of a flexible hose, or it can also be independent from it.

[0059] A simple hair dryer may be used if it has got the right dimensions and it can be connected to an air spout in the hanging roof unit and/or in a shower column or similar, where the roof is part of the equipment.

[0060] Moreover, even though the heater as per the invention has been shown in use in a bathroom to heat the specific area of the open shower cabin or of the open space corresponding to a bath tub, any other use of the heater to warm an open space or area of any closed room is included in the domain of the disclosure. For example in a bedroom (closed room) the heater according to the invention could be used to warm in a short time and with energy saving the open space where the bed is placed.

Claims

1. A heater for an open space in a closed room by means of a hot air stream wherein the heater includes a self bearing hanging roof unit (11, 11', 31, 41) for being placed in the open space of said room and generators / suppliers means of a forced hot air stream (12, 12.4, 11.5; B1, B12; 18), which can be collected, at least partially, under said self bearing hanging roof unit, which can retain temporarily, as in a blind hood, a hot air mass which warms said open space of said room at said hanging roof unit;
wherein said generators/suppliers means of said forced hot air stream (12, 12.4, 11.5; B1, B12; 18) are air-tight connected to the self bearing hanging roof unit (11, 11', 31, 41);
and wherein said self bearing hanging roof unit (11, 11', 31, 41) bears the generators means of said forced hot air stream, including electrical fan means (12) and resistors means (12.4), which are connected to an electric supply circuit by means of electrical switch means (13, 13.1) provided to determine selectively the electrical connection to said electrical fan and resistors means (12, 14.4) ; and an air spout (11.5, B1, B12, 18) is provided in said roof unit (11.5), provided as a separate component (B1, B12, 18) for releasing said forced hot air stream, which air spout is air tight connected to said generators of said forced hot air stream (12, 12.4);
characterized by the fact that the heater includes a double selective spout (B1) respectively for a water jet for shower or similar and for said forced hot air stream, where a first head (B11) is connected to plumbing while a second head (B12) is airtight connected (16) to said generators/suppliers means of said forced hot air stream (12, 12.4, 11.5).

2. The heater according to the previous claim, **characterized by** the fact that said self bearing hanging roof unit (11, 11', 31, 41) includes a dome-shaped part which allows to retain a relatively great mass of static hot air inside of it.

3. The heater according to one or more previous claims, **characterized by** the fact that said self bearing hanging roof unit (11, 11', 31, 41) is associated with shower column means (C1, 18; C2, C3) for shower cabin, shower massage or similar.

4. The heater according to claim 3, **characterized by** the fact that said shower column means (C1) include at least an adjustable spout (18) so that the user can direct the forced hot air stream as per his favourite inclination in a predetermined range.

5. The heater according to claim 1, **characterized by** the fact that it includes an automatic closing device (11.50) of an air spout outlet (11.5) when the hot air stream coming out of the said generators (12, 12.4) through the said spout (11.5) stops.

6. The heater according to claim 5, **characterized by** the fact that said automatic closing device (11.50) of the said air spout outlet (11.5) includes a valve housing (11.51) provided in the said air spout outlet (11.5) and valve means (15) which are elastically stressed by spring means (14) to plug the said housing (11.51) in the air spout outlet (11.5) closing it, while the pressure exerted by the forced hot air stream coming out of the said air generators (12, 12.4) will move the valve (15) in an open position of the said housing (11.51) overcoming the elastic strength of those spring means (14) and allowing the passage of the air stream itself till the disconnection of the said generators means.

Patentansprüche

1. Ein Heizgerät mittels eines Warmluftstroms für eine Freifläche in einem geschlossenen Raum, wobei das Heizgerät eine selbsttragende Hängedacheinheit (11, 11', 31, 41) umfasst, um in der Freifläche besagten Raums platziert zu werden, und Erzeugungs-/Versorgungsvorrichtungen eines erzwungenen Warmluftstroms (12, 12.4, 11.5; B1, B12; 18), der, zumindest teilweise, unter der besagten selbsttragenden Hängedacheinheit gesammelt werden kann, die wie eine Blindkappe eine Warmluftmasse zeitweise zurückhalten kann, die besagte Freifläche des besagten Raums bei der besagten selbsttragenden Hängedacheinheit heizt; wobei besagte Erzeugungs-/Versorgungsvorrichtungen des besagten er-

zwungenen Warmluftstroms (12, 12.4, 11.5; B1, B12; 18) luftdicht verbunden sind mit der besagten selbsttragenden Hängedacheinheit (11, 11', 31, 41); und wobei besagte selbsttragende Hängedacheinheit (11, 11', 31, 41) die besagten Erzeugungsvorrichtungen des besagten erzwungenen Warmluftstroms trägt, die elektrische Ventilator-Vorrichtungen (12) und Widerstandsvorrichtungen (12.4) einschließen, die verbunden sind mit einem Versorgungsstromkreis mittels elektrischer Schaltervorrichtungen (13, 13.1), vorgesehen, um wahlweise die elektrische Verbindung mit den besagten elektrischen Ventilator- und Widerstandsvorrichtungen (12, 14.4) zu bestimmen; und eine Lufttülle (11.5, B1, B12, 18) ist in besagter Dacheinheit (11.5) vorgesehen, vorgesehen als ein separater Bauteil (B1, B12, 18), um den besagten erzwungenen Warmluftstrom freizugeben, wobei die Lufttülle luftdicht verbunden ist mit den besagten Erzeugern des erzwungenen Warmluftstroms (12, 12.4); **gekennzeichnet durch** die Tatsache, dass das Heizgerät eine selektive Doppeltülle (B1) umfasst, jeweils für einen Wasserstrom für Dusche oder Ähnliches und für besagten erzwungenen Warmluftstrom, wobei ein erster Kopf (B11) mit Wasserleitungen hydraulisch verbunden ist, während ein zweiter Kopf (B12) luftdicht verbunden ist (16) mit den besagten Erzeugungs-/Versorgungsvorrichtungen des besagten erzwungenen Warmluftstroms (12, 12.4, 11.5).

2. Ein Heizgerät gemäß dem vorherigen Anspruch, **gekennzeichnet durch** die Tatsache, dass besagte selbsttragende Hängedacheinheit (11, 11', 31, 41) einen kuppelartig geformten Teil umfasst, der es ermöglicht, eine relativ große Masse statischer Warmluft in seinem Inneren zurückzuhalten.

3. Ein Heizgerät gemäß einem oder mehreren der vorherigen Ansprüche, **gekennzeichnet durch** die Tatsache, dass besagte selbsttragende Hängedacheinheit (11, 11', 31, 41) mit Duschsäulenvorrichtungen (C1, 18; C2, C3) für Duschkabinen, Duschmassage oder Ähnliches verbunden ist.

4. Ein Heizgerät gemäß Anspruch 3, **gekennzeichnet durch** die Tatsache, dass besagte Duschsäulenvorrichtungen (C1) mindestens eine orientierbare Tülle (18) umfassen, so dass der Benutzer den erzwungenen Warmluftstrom gemäß einer gewünschten Neigung innerhalb eines vorgegebenen Umfangs richten kann.

5. Ein Heizgerät gemäß Anspruch 1, **gekennzeichnet durch** die Tatsache, dass es eine automatische Verschlussvorrichtung (11.50) eines Lufttüllenausgangs (11.5) bei Beendigung des erzwungenen Warmluftstroms aus den besagten Erzeugungsvorrichtungen (12, 12.4) **durch** besagte Tülle (11.5) umfasst.

6. Ein Heizgerät gemäß Anspruch 5, **gekennzeichnet durch** die Tatsache, dass besagte automatische Verschlussvorrichtung (11.50) des besagten Lufttüllenausgangs (11.5) ein Ventilgehäuse (11.51), vorgesehen in besagtem Lufttüllenausgang (11.5), sowie Ventilvorrichtungen (15) umfasst, die elastisch durch Federvorrichtungen (14) angeregt werden, um das besagte Gehäuse (11.51) am Lufttüllenausgang (11.5) zu verschließen, während der **durch** den erzwungenen Warmluftstrom aus den besagten Erzeugungsvorrichtungen (12, 12.4) ausgeübte Druck das Ventil (15) in eine offene Position des besagten Gehäuses (11.51) bewegt, indem er die elastische Kraft der besagten Federvorrichtungen (14) überwältigt und den Durchfluss des Luftstroms selbst bis zum Abschalten der besagten Erzeugungsvorrichtungen erlaubt.

Revendications

1. Dispositif de chauffage d'une zone ouverte dans un espace clos à l'aide d'un jet d'air chaud, où le réchauffeur comprend une unité autoportante à toit suspendu (11, 11', 31, 41), disposée dans la zone ouverte dudit espace et des moyens (12, 12.4, 11.5; B1, B12; 18) générateurs - distributeurs d'un flux d'air thermique forcé, qui peut être collecté, au moins en partie, au-dessous de ladite unité autoportante à toit suspendu, qui peut retenir temporairement, comme une hotte borgne, une masse d'air thermique qui chauffe ladite zone ouverte dudit espace au niveau de ladite unité à toit suspendu; où lesdits moyens générateurs - distributeurs dudit flux d'air thermique forcé (12, 12.4, 11.5; B1, B12; 18) sont raccordés pneumatiquement à ladite unité autoportante à toit suspendu (11, 11', 31, 41); et où ladite unité autoportante à toit suspendu (11, 11', 31, 41) supporte les moyens générateurs dudit flux d'air thermique forcé, en incluant des moyens à électroventilateur (12) et des moyens à résistance électrique (12.4), branchés électriquement à un circuit électrique d'alimentation à l'aide de moyens à interrupteur électrique (13, 13.1), prévus pour déterminer sélectivement la connexion électrique desdits moyens à électroventilateur et à résistance électrique (12, 14.4); et une embouchure de distribution (11.5, B1, B12, 18) est pourvue dans ladite unité à toit (11.5), prévu comme composant séparé (B1, B12, 18), pour distribuer ledit flux d'air thermique forcé, cette embouchure de distribution étant raccordée pneumatiquement de manière étanche auxdits moyens (12, 12.4) générateurs dudit flux d'air thermique forcé; **caractérisé par le fait que** le réchauffeur comprend une double embouchure sélective (B1) respectivement pour un jet d'eau pour douche ou similaire et pour

ledit flux d'air thermique forcé, où une première tête (B11) est raccordée hydraulique-ment à un circuit de distribution d'eau, tandis qu'une deuxième tête (B12) est raccordée pneumatiquement (16) auxdits moyens générateurs - distributeurs dudit flux d'air thermique forcé (12, 12.4, 11.5).

2. Dispositif de chauffage selon la revendication précédente, **caractérisé par le fait que** ladite unité autoportante à toit suspendu (11, 11', 31, 41) comprend une partie façonnée en coupole qui permet de retenir en elle-même une masse d'air thermique statique relativement importante.

3. Dispositif de chauffage selon une ou plusieurs des revendications précédentes, **caractérisé par le fait que** ladite unité autoportante à toit suspendu (11, 11', 31, 41) est associée à des moyens à colonne équipée (C1, 18; C2, C3) pour cabine de douche, hydromassage ou similaires.

4. Dispositif de chauffage selon la revendication 3, **caractérisé par le fait que** lesdits moyens à colonne équipée (C1) comprennent au moins une embouchure (18) orientable, de sorte que l'utilisateur puisse diriger le flux d'air thermique forcé selon une inclinaison désirée dans une plage prédéterminée.

5. Dispositif de chauffage selon la revendication 1, **caractérisé par le fait qu'**il comprend un dispositif (11.50) de fermeture automatique d'une embouchure de distribution d'air (11.5) lorsque le flux d'air thermique forcé est interrompu en sortie desdits moyens générateurs (12, 12.4) à travers ladite embouchure de distribution (11.5).

6. Dispositif de chauffage selon la revendication 5, **caractérisé par le fait que** ledit dispositif (11.50) de fermeture automatique de ladite embouchure de distribution (11.5) comprend un siège de soupape (11.51) prévu dans ladite embouchure de distribution (11.5) et des moyens à soupape (15), sollicité de manière élastique par des moyens élastiques (14) pour engager de manière étanche ledit siège (11.51) dans l'embouchure de distribution (11.5), en fermant cette dernière, tandis que la pression exercée par le flux d'air thermique forcé en sortie desdits moyens générateurs (12, 12.4) déplace la soupape même (15) en condition d'ouverture dudit siège (11.51), surmontant la force élastique desdits moyens élastiques (14) et permettant le passage du flux d'air jusqu'à la déconnexion desdits moyens générateurs.

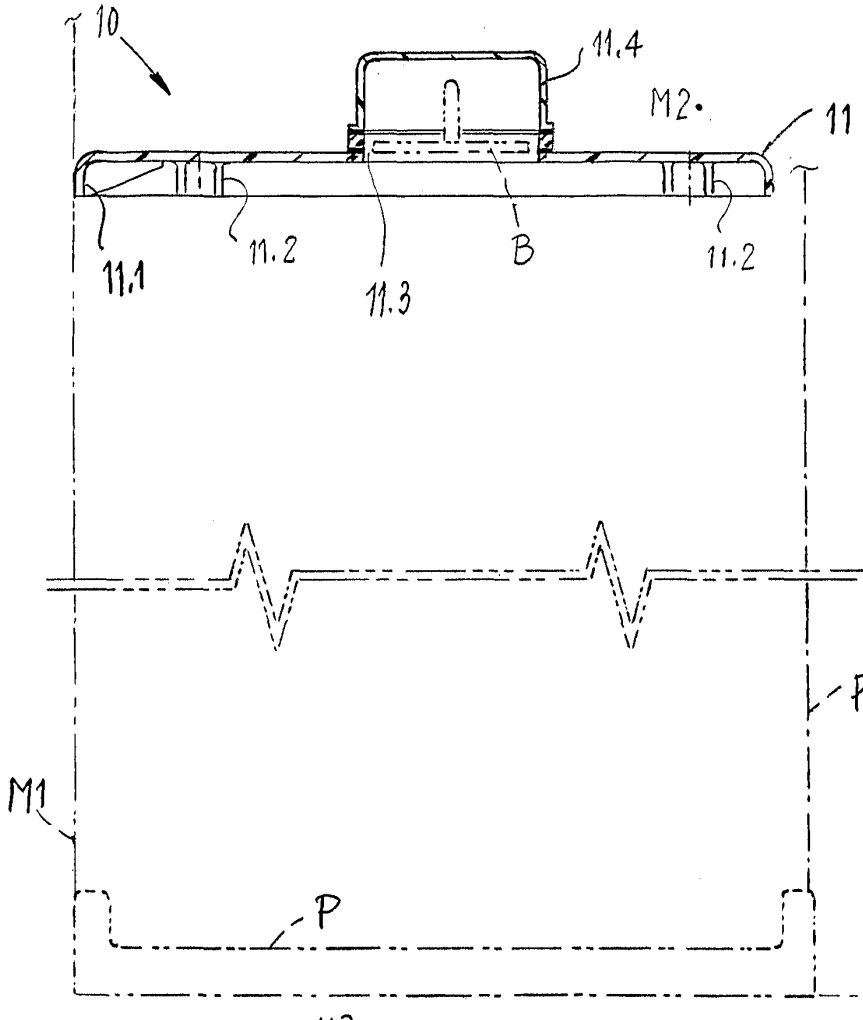

10
11.4
M2
11
11.1
11.2
11.3
B
11.2
PA1
M1
P

FIG.1

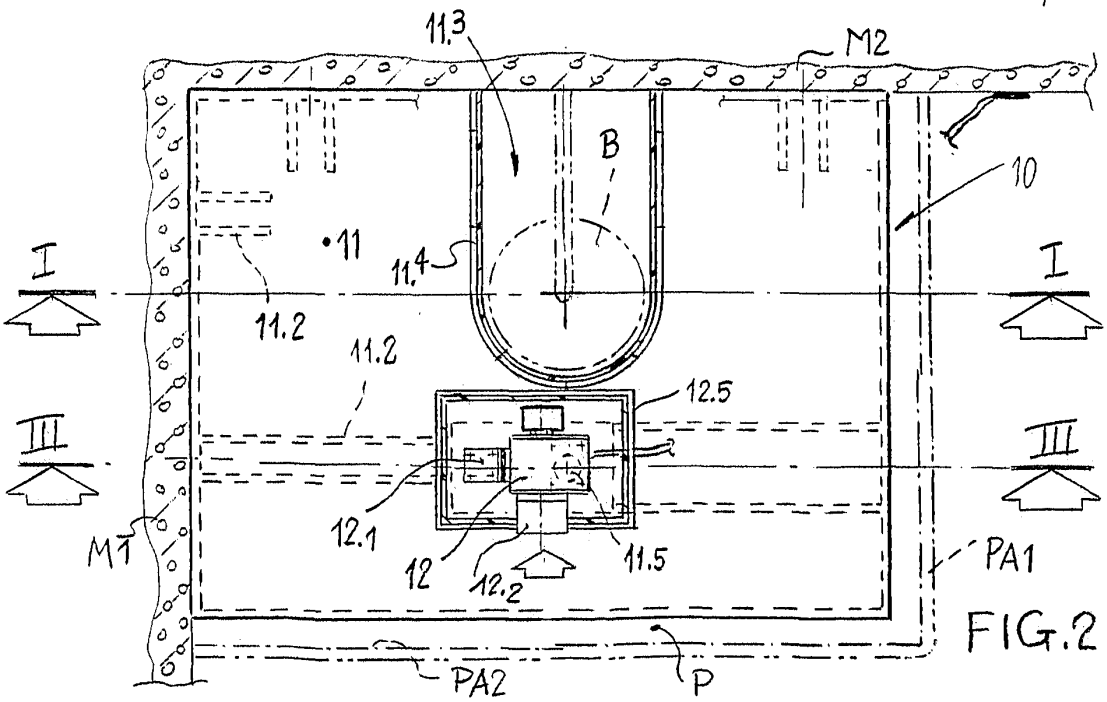

11.3
M2
B
10
11
I
I
11.4
11.2
11.2
12.5
III
III
12.1
12
12.2
11.5
M1
PA1
PA2
P

FIG.2

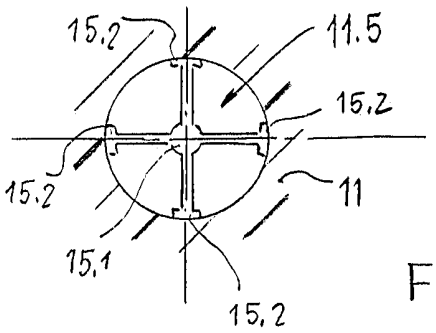


FIG.5

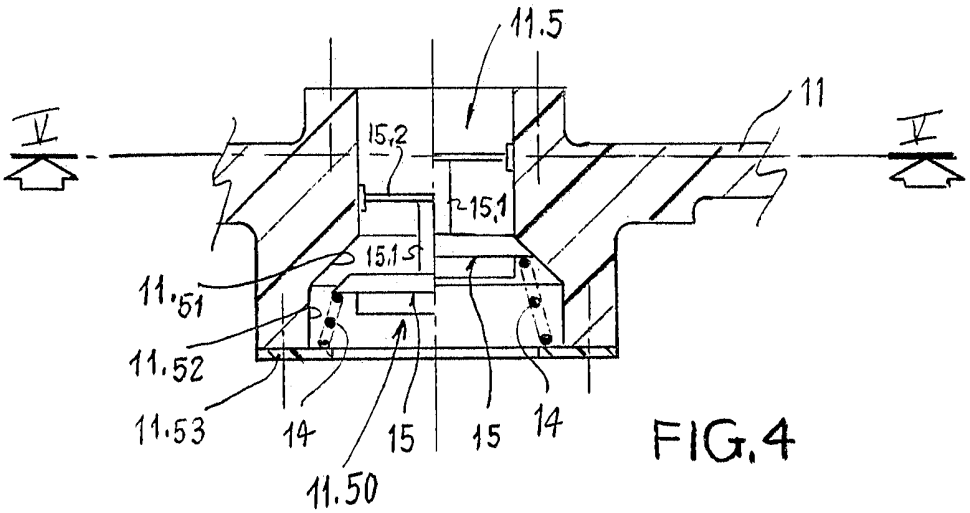


FIG.4

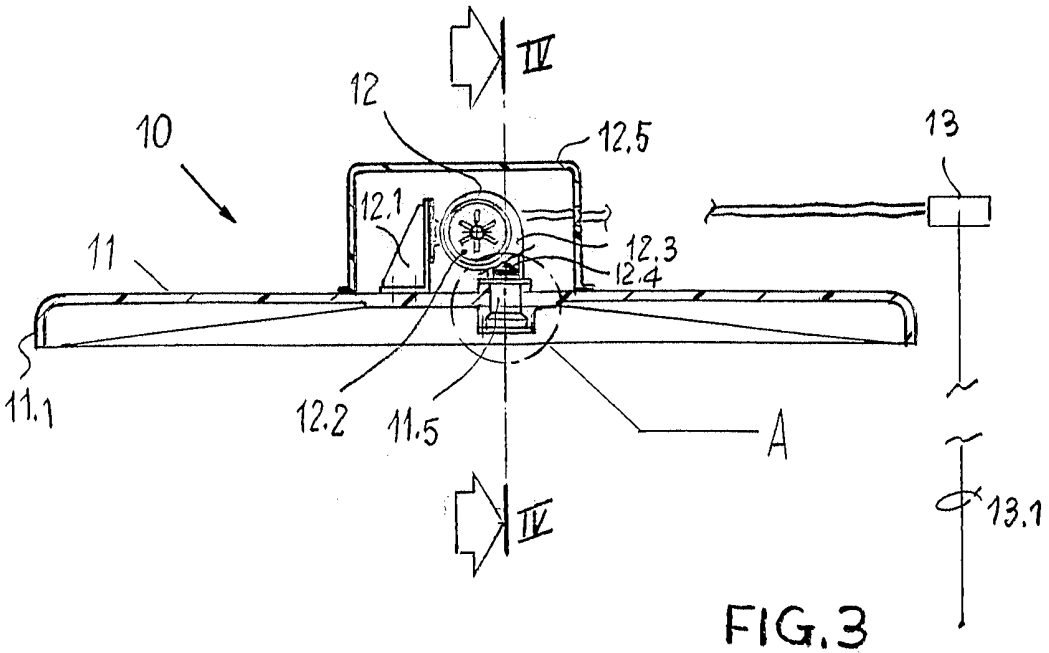


FIG.3

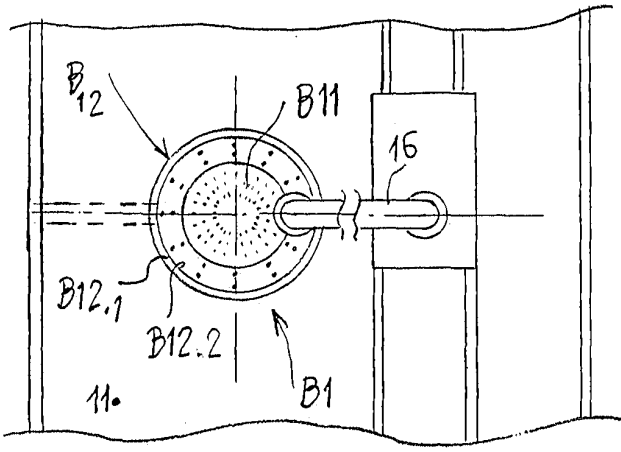


FIG.7

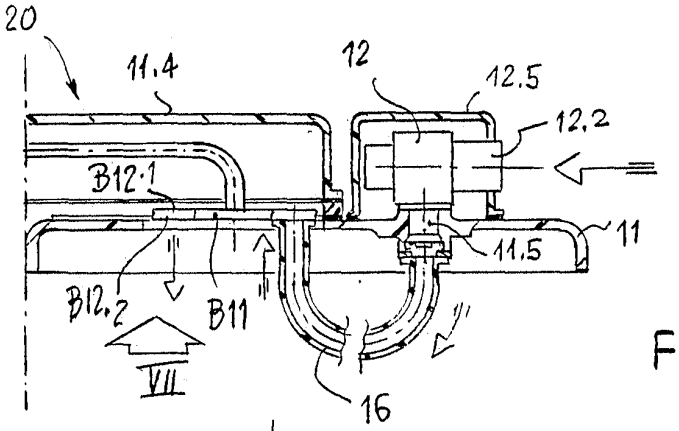
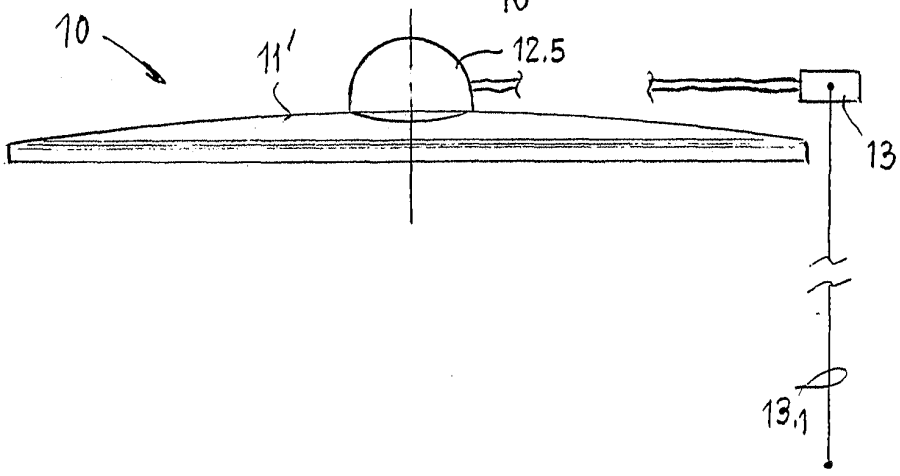


FIG.6



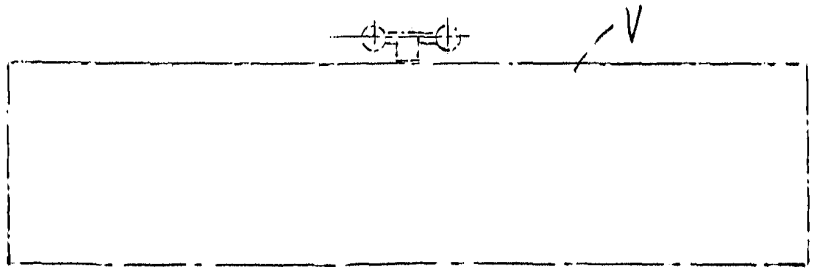


FIG.8

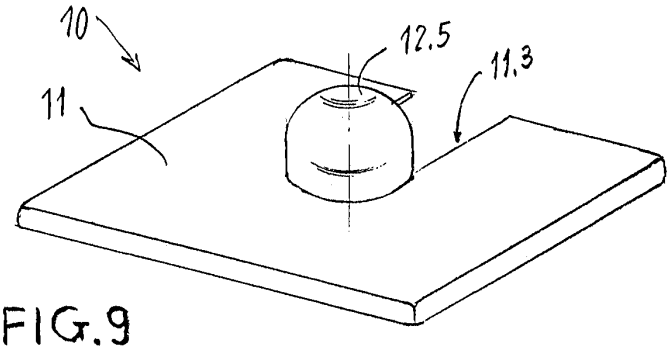


FIG.9

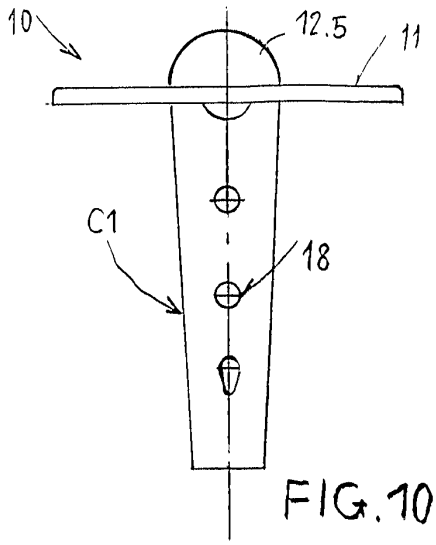


FIG.10

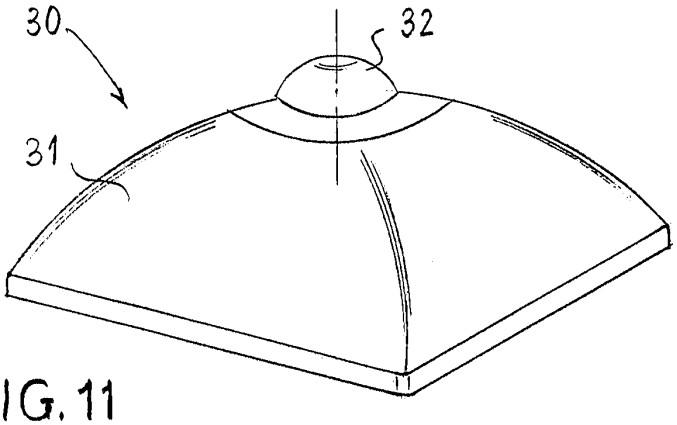


FIG.11

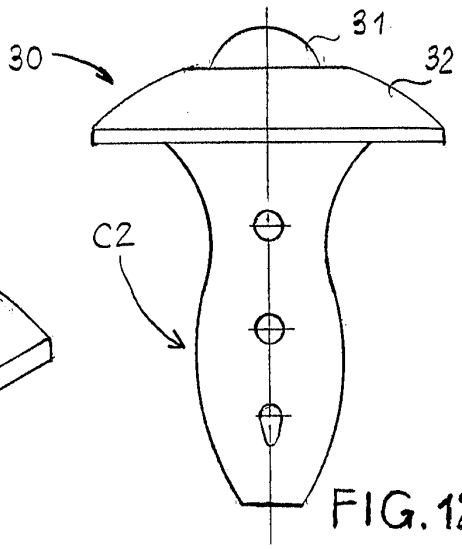


FIG.12

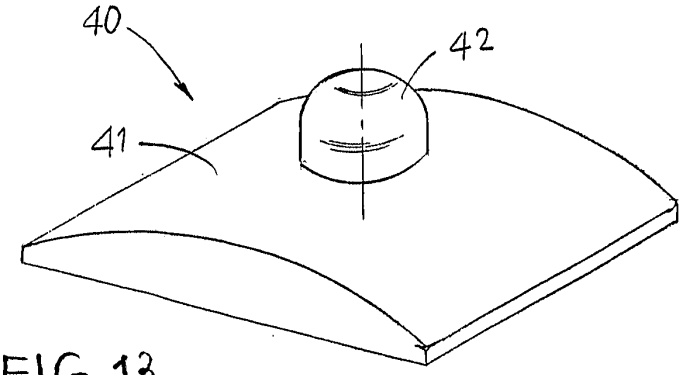


FIG.13

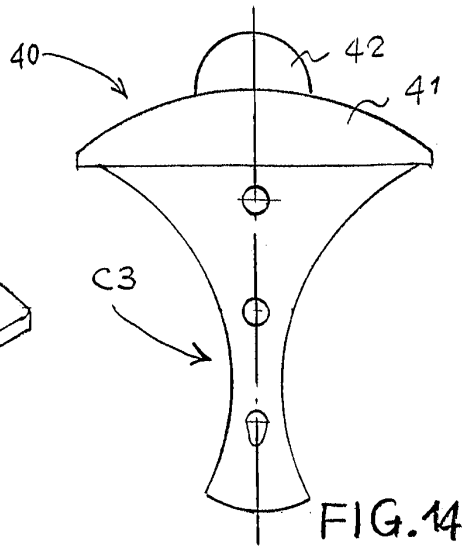


FIG.14

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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