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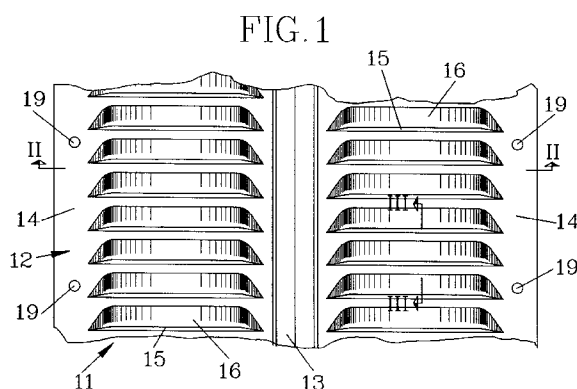
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Heating- and/or cooling panel.

Heating- and/or cooling baffle, shaped as panels (12) of that stroke which includes, at least a pipeline (13) for a heat-emitting or heat-absorbing flow medium, which pipeline is in heat conducting contact with, from this protruding, longitudinal flanges (14), whereby at least some of the panels are provided with transverse gill-shaped slits (15). A number of panels (12) along the side-edges of the flanges (14) are connected to each other, forming the walls in a baffle-barrel (21), and in some of the walls, the flanges (14) of the panel (12) and the panels respectively, along at least one part at their length provided gill-shaped slits (15), while the panels (12) in remaining walls are non slit.



The present invention refers to a heating- and/or cooling baffle, in the form of panels of the type which, includes at least one pipe for a heat emitting or heat-absorbing flow medium, which pipe is in heat conducting contact, with longitudinal flanges protruding therefrom, whereby at least some of the panels are provided with transverse gill-shaped slits.

THE BACKGROUND OF THE INVENTION

It is a known fact, that the cold surfaces, placed horizontally in a roof, so called cooling panels, give a much better climate. The high radiation ratio of the cooling panels, makes that the air movements in the room can be held on a minimal level. To increase the power of the cooling panels, it has been designed as cooling baffles, shaped at the top and at the bottom as open boxes, in which at least one cooling battery is arranged and which baffles are run through by room air. The cooling baffle consequently emits its power through convection, which causes relatively high air movement and problems with draught. To minimize the air movements, a cooler baffle must consequently use both radiation and convection. In conventional cooling baffles, the air speed normally is so high, that a strong downward airflow is obtained under the baffle, which in its turn reduces the possibilities of people to stay in the room. Another problem with known baffles is the great risk for the appearance of galvanic corrosion between the baffle's copper pipe, ie. the pipe through which the heat-absorbing medium flows, and the aluminium flanges in the convection batteries of the cooling baffles. Galvanic corrosion gives quickly a bad thermal contact and thereby reduced cooling capacity.

Through CH-262895 is known to design a heat exchanger as a tube like radiator, with radial flanges, which are provided with transverse gill-shaped slits.

THE PURPOSE OF THE INVENTION AND MOST IMPORTANT CHARACTERISTICS

The purpose of the present invention is to produce constructively simple and inexpensive producible baffles, which are designed such that, as under-roof-baffles, they emit one part of its power through convection in such a way, that strong downward airflows under the baffle do not appear. These objects have been achieved by, a number of panels along the side-edges of the flanges being connected to each other, forming the walls in a baffle-drum, and that in some of the walls, the flanges of the panel and the panels respectively, along at least one part, at their length provided gill-shaped slits, while the panels in the remaining walls are not slit.

DESCRIPTION OF THE DRAWINGS

The invention is described closer below, referring to the drawings, which show some embodiments.

Fig. 1 shows a sectional plane view of a simple panel according to a known design.

Fig. 2 shows a section along the line II-II in fig. 1.

Fig. 3 shows a section along the line III-III in fig. 1.

Fig. 4 shows a section through one of four panels, comprising a baffle according to the invention.

Fig. 5 is a modified embodiment of the application shown in fig. 4, with six panels involved.

Fig. 6 shows a longitudinal section along the line VII-VII in fig. 4.

Fig. 7 shows in a larger scale, a bottom view through a cooling baffle, of same type which is shown in fig. 4, with connection profiles at the baffle's corner and with an inner stay.

Fig. 8 shows a section of a further embodiment, which section is analogous to that of fig. 5.

DESCRIPTION OF EMBODIMENTS

The figures 1, 2 and 3 show a heating- and/or cooling baffle 12, preferably of the type which is described in SE 7800864-6, and which consists of a pipe 13 and longitudinal flanges 14 protruding from this, located essentially at the same level. The flanges 14 are along at least a part of their length, provided with transverse, gill-shaped slits 15, the gills 16 of which connect to the flange, with a soft rounding 17. The total length L of the slit 15 is preferably twice as big as height H of the slit. The pipe 13 preferably is constituted by a thin copper pipe, which is located between two thin aluminium sheets, which subsequently are coldwelded together, so that an intimate permanent connection between these three parts is achieved. By this manufacturing process, advantages are achieved, the corrosion problem between copper and aluminium is solved, at same time the baffle has been provided with a small thermal mass, and may be series produced, whereby cost of production becomes low. Of course, the invention is not limited to that type of baffles, but can even be applied to such baffles, where the pipe is fastened through snap-in or by other means, connected with an aluminium baffle or the like. By baffle in this connection, generally is referred to a plate, a box or the like, intended for guiding a gas flow.

If the heating- and/or cooling baffles, according to the invention should be integrated with a ventilation system, a number of panels 12 can be composed to box-shaped units 21 as shown in figs. 4 and 5. In fig. 4 four panels have been connected together, forming in cross section, a rectangular shape, while the embodiment according to fig. 5 shows a baffle composed of six panels 12. In these embodiments, the horizontal

walls -the panels 12 - of the baffle are made in accordance with the invention, ie. provided with gill-shaped slits 15, while the vertical walls, which as well consist of panels, are not slit, ie. they lack the gill-shaped slits 15.

If such a baffle should also be connected to the ventilation system, the baffle can be shaped as it appears in fig. 6, where in the baffle's 21 one front gable 22 a pipe socket 23 may be provided, for connection of supply air. If necessary, a damper 24 can be arranged in the pipe socket. In the baffle's 21 upper horizontal panel 12a, the gill-shaped slits 15a are provided only in that part of the baffle, which is adjacent to the front gable 22, while in the lower, horizontal panel 12b gill-shaped slits 15b and 15c are provided, connected to the front gable 22 as well as connected to a back gable 25, at the baffle's opposite end. The gable 25 seals the baffle's end completely, so that the supply air entered through the pipe socket 23, is forced to turn against the gable 25, and flows out through the slits 15c at an angle corresponding to the angle of the gills against the flanges 14. This angle should be 30 - 60° preferably 45°. The supply air entering into the baffle also entails, that the room-air is coejected through the slits 15a and 15b, which are located immediate to the intake pipe-socket 23 for the supply air.

The embodiment shown in fig. 7, refers to a baffle 21 of same type shown in fig. 4, but in contrast to this, the variant shown in fig. 7 is composed of profiles, preferably aluminium profiles, which makes it possible, by means of snap-in locks, to assemble the panels forming a baffle.

In the corner between two baffles 12, a corner-profile 26, which essentially is U-formed and at whose one shank, a seat 27 for receiving a tongue 28, placed at an inner, frame-shaped stay 29, is provided. The stay 29 in contrary to the corner-profiles 26, which extend along the entire baffle, is only some centimetre wide and positioned with an appropriate mutual distance, which depending on the length of the baffle, can be between 1/2 to 1 meter. The inner stay 29 is also provided with resilient, notch-shaped snap-in means 30, which cooperates with corresponding notch-shaped snap-in means 31, developed as extensions of the seat 27.

The baffle can consequently be assembled for instance, of four panels, two shaped with gill-shaped slits and two non slit. The latter are at their free end-sections 32 bent in 90° angle, so that these end-sections overlap corresponding end-sections of the horizontally located panels 12a and 12b. The assembly is done by placing the angled end-sections 32 of the baffle's flanges 14 in the corner-profiles 26, after which the frame-shaped stay 29 with its tongues 28 is placed in the seats 27, whereby the snap-in profiles 30 and 31 also hook into each other. Subsequently the horizontal baffles 12a and 12b with their longitu-

dinal end-edges are pushed into the seat 27, in front of the stay 29 with the gills 16 of the slits 15 directed towards the interior of the baffle. Next phase of assembly is the mounting of the both other corner-profiles 26 on the angled end-portions of the panel's flanges 14, which unit is pushed subsequently on the other pair of tongues 28 at the inner frame-shaped stay 29, so that a composition of the snap-in profiles 30 and 31 takes place. Thereby, the baffle is assembled, and only the mounting of the gables 22 and 25 is remained.

The connection of the feeder (not shown) and the pipe bends 18, to the baffle's 12 pipes 13 is done by flaring these at the end-sections of the baffles so, that they obtain circular cross section, whereby a connecting-pipe or pipe bend can be fixed by soldering.

The embodiment shown in fig. 8 differs from the one shown in fig. 5, by gill-shaped slits 15 being machined in the vertical baffles 12c, while the horizontal baffles do not have similar slits. This type of baffle 21 can be used conveniently both as heating or cooling baffle, and for this purpose the horizontal, lower panel's pipes 13 are suitably connected to a heat-emitting medium and the pipelines 13 to the upper horizontal panels 12a and the vertical panels 12c are connected to a heat-absorbing medium.

The invention is not limited to the embodiments shown and described embodiments, but a number of variations within the scope of claims are possible. Consequently the embodiments are described only as being cooling baffles, but it is naturally conceivable that one or some of the pipes 13 can be used for a heat-emitting medium.

REFERENCE NUMERALS

12	= heating- and/or cooling baffle
12a	= Upper, horizontal panel
12b	= Lower, horizontal panel
12c	= Vertical panels
13	= Pipe
14	= Flanges
15	= Gill-shaped slits
15a	= Slits in the upper panel 12a
15b	= Slits in the lower panel 12b
15c	= Gill-shaped slits
16	= Gills
17	= Roof
18	= Pipe bend
19	= Hole
20	=
21	= Baffle barrel
22	= Gable
23	= Pipe socket
24	= Damper
25	= Gable
26	= Corner-profile
27	= Seat

- 28 = Tongue
 29 = Inner, frame-shaped stay
 30 = Resilient, notch shaped snap-in profiles at the stay 29
 31 = Resilient, notch shaped snap-in profiles at the seat 27
 32 = Angled end sections of the panel flanges 14

Claims

1. Heating- and/or cooling baffle, in the form of panels (12), of that stroke which includes, at least a pipeline (13) for a heat-emitting or heat-absorbing flow medium, which pipe is in heat conducting contact with, from this protruding, longitudinal flanges (14), whereby at least some of the panels are provided with transverse gill-shaped slits (15),
characterized thereby,
 a number of panels (12) along the side-edges of the flanges (14) are connected to each other, forming the walls in a baffle-barrel (21), and that in some of the walls, in the flanges (14) of the panel (12) and the panels respectively, along at least one part of their length are provided gill-shaped slits (15), while the panels (12) in remaining walls are non slit.
2. Heating- and/or cooling baffle according to claim 1,
characterized thereby,
 that the baffle barrel (21) at its one end is provided with a connection (23) for supply of room- or supply-air, that the baffle barrel's other, opposite end is closed by means of an end-gable (25), that the baffle's upper (12a) and lower horizontal panels (12b), within a area adjacent to the connection (23), are provided respectively with gill-shaped slits (15), provided for coinjection of surrounding room-air, and that the baffle's lower, horizontal panel/panels (15b), at least within a area adjacent to the closed end-gable (25) is provided respectively with gill-shaped slits (15), as outlet openings for the airflow turning at the closed end-gable.
3. Heating- and/or cooling baffle according to claim 1,
characterized thereby,
 that the panels (12) along meeting side-edges and side-sections respectively, are connected by means of corner-profiles (26), which in their turn are connected, via snap-in profiles (30,31), to each other and with a number of stays, situated (29) within the baffle.
4. Heating- and/or cooling baffle according to claim

1,
characterized thereby,
 that vertical arranged panels (12c) of the baffle-barrel (21) are provided with gill-shaped slits (15) while the horizontal panels (12a,12b) are non slit, and
 that the pipe or pipes (13) of the horizontal panels (12b) are intended for a heat-emitting flow medium and the pipe or pipes (13) of the upper horizontal, as well as vertical pipes (13) of the panels (12a,12c) are intended for a heat-absorbing flow medium.

FIG. 1

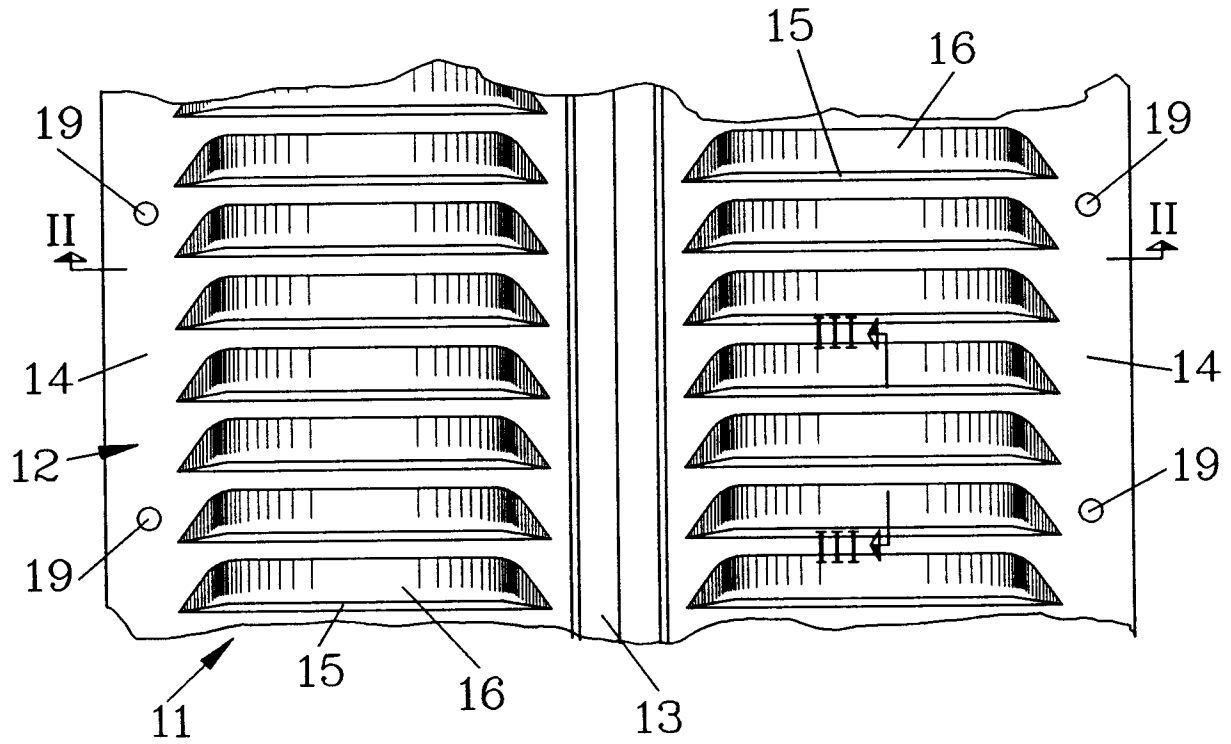


FIG. 2

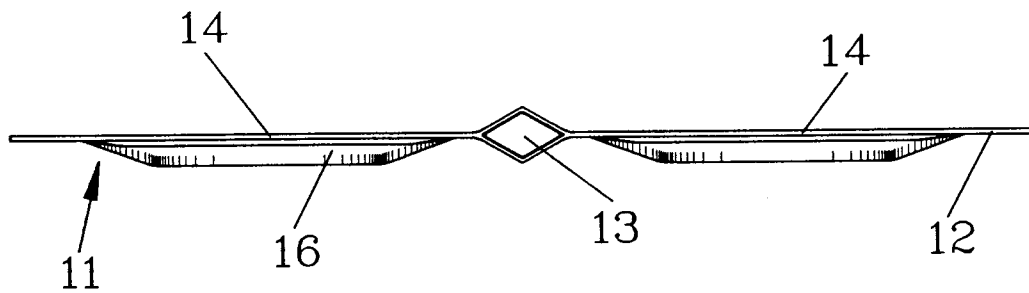


FIG. 3

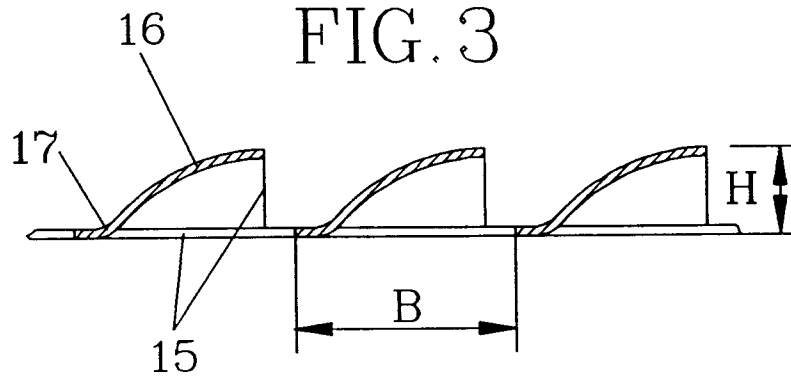


FIG. 4

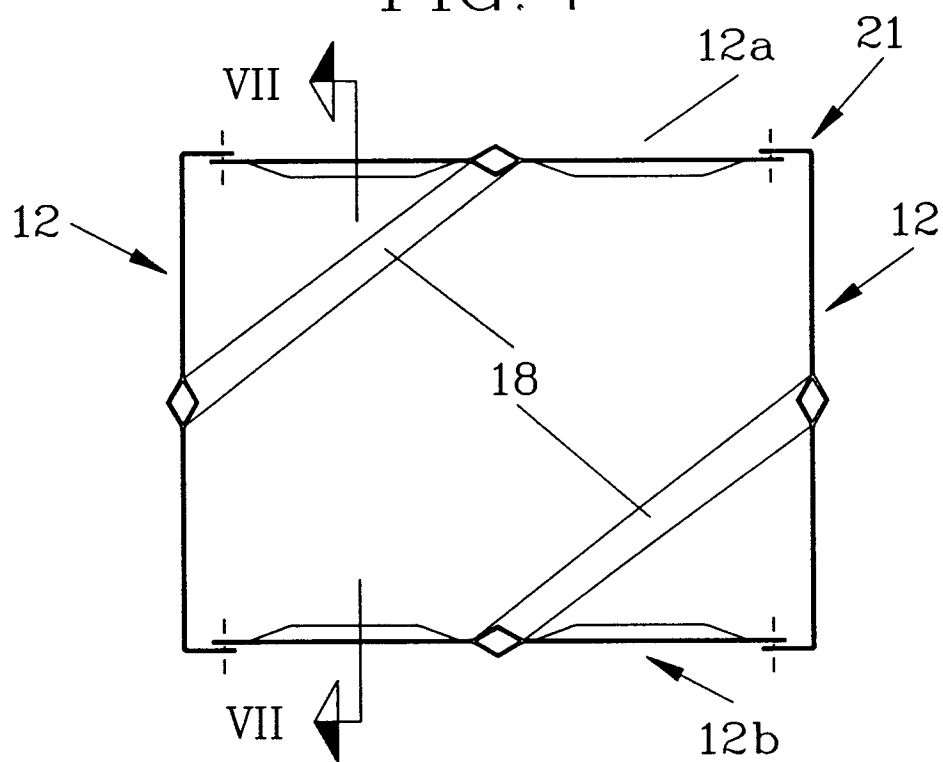


FIG. 5

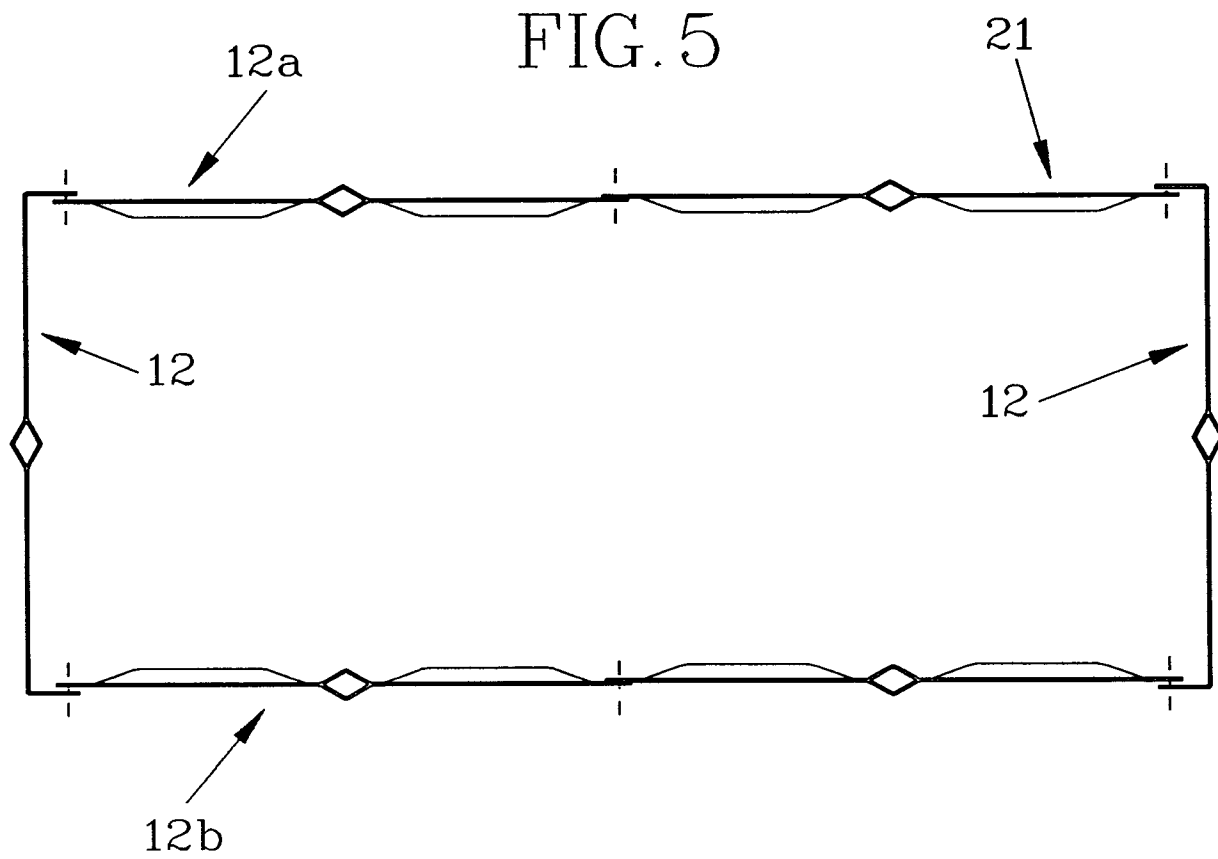


FIG. 6

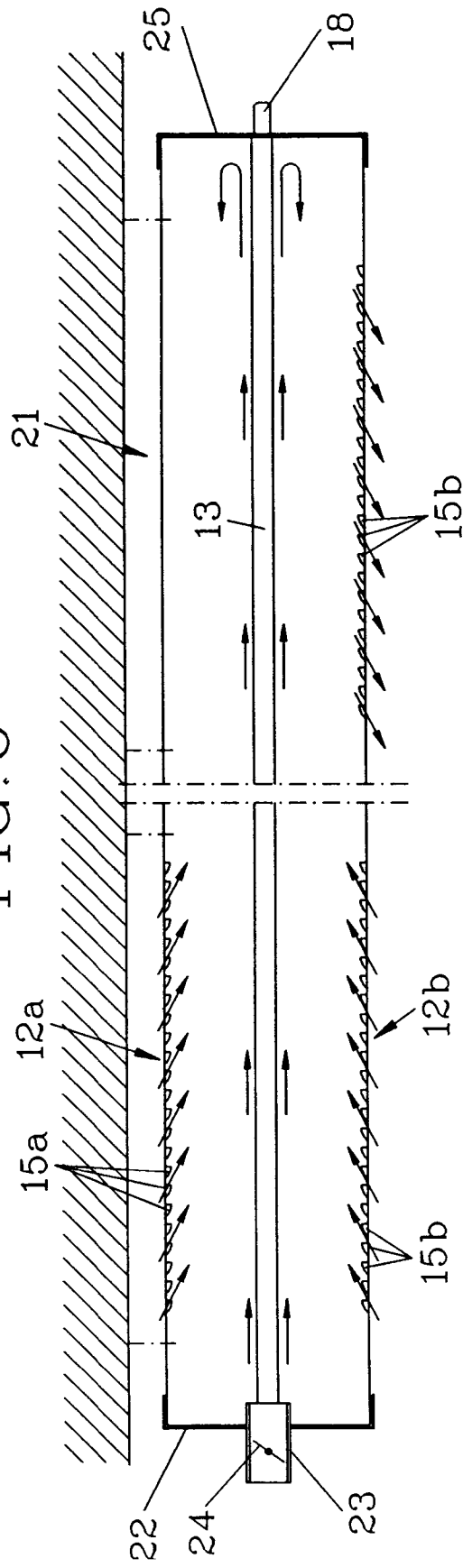


FIG. 7

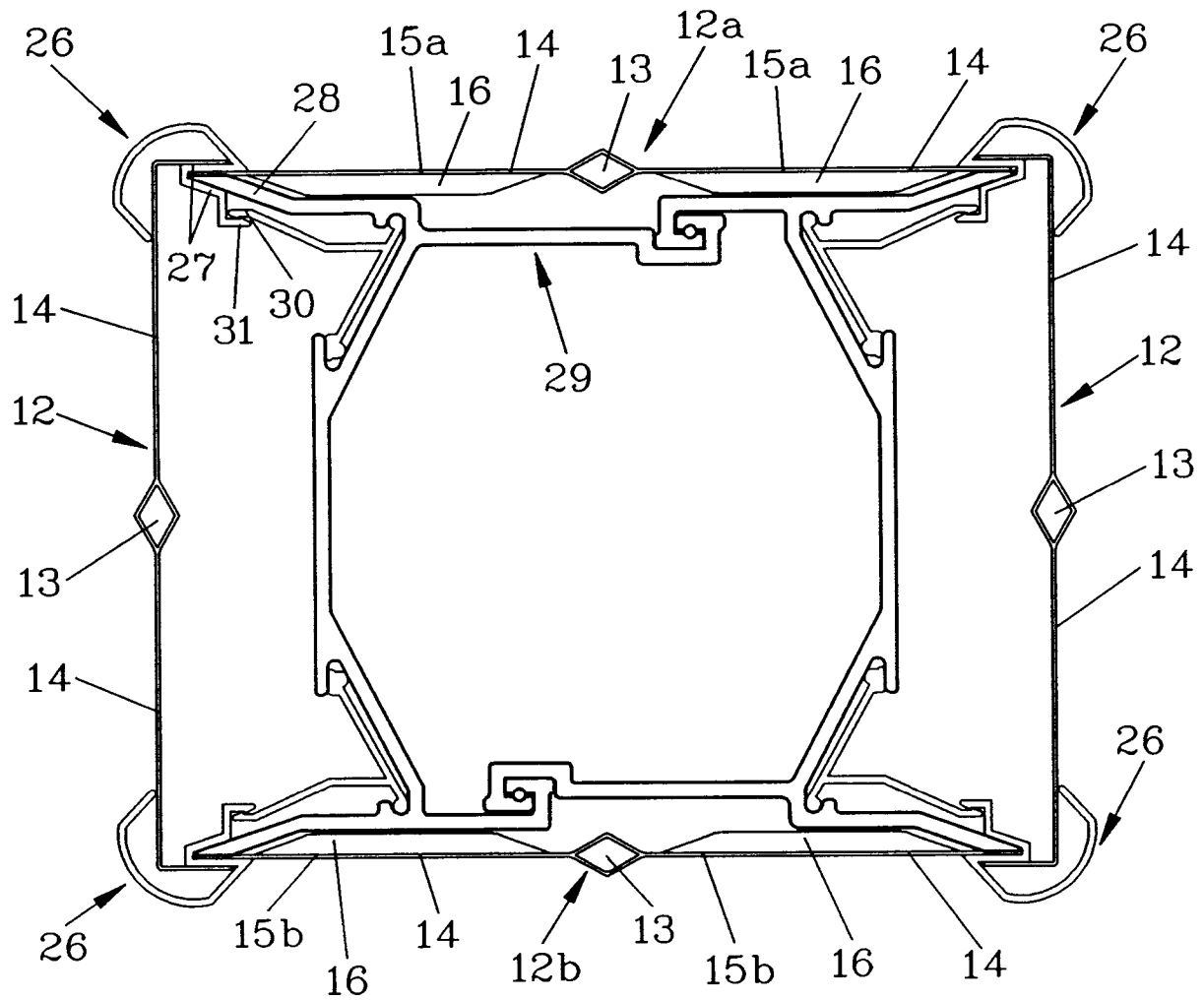
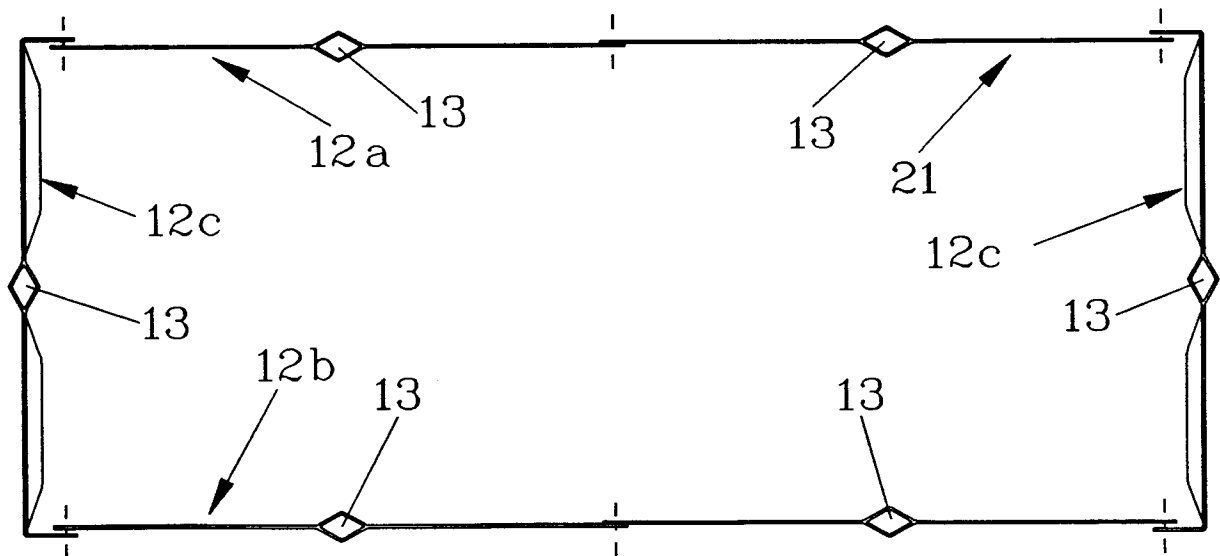


FIG. 8





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 85 0012

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
D, X	CH-A-262 895 (BECK) * page 3, line 40 - page 3, line 62 * * page 4, line 51 - page 4, line 78 * * page 5, line 11 - page 5, line 13; figures 1-4, 11-13 *	1	F28D1/053 F28F1/14 F24F5/00
A	---	2-4	
A	EP-A-0 201 473 (FAREX A/S) * page 3, line 18 - page 4, line 16; figures 2, 3 *	1-4	
A	---		
A	DE-C-835 612 (METALLGESELLSCHAFT AG) * page 1, line 22 - page 2, line 18; figure 3 *	1	
A	---		
A	FR-A-2 559 185 (ELPAN APS) * page 1, line 28 - page 2, line 20; figures 1-4 *	1-4	
A	---		
A	FR-A-2 268 230 (BODIN) * page 5, line 15 - page 8, line 4; figures 1-4 *	1	
A	---		
A	GB-A-2 146 422 (CRYOMEC AG) * page 1, line 60 - page 1, line 119; figures 1-3 *	1	

The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27 APRIL 1992	Examiner BELTZUNG F.C.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

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