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**MODULE FOR AN AIR HANDLING UNIT AND AIR HANDLING UNIT
INCLUDING SUCH A MODULE**

[0001] The invention relates to a module for an air handling unit and to an air handling unit including such a module.

[0002] In the field of air handling, it is known to use a unit for the renewal and conditioning of air in a building. This unit includes several modules such as a ventilation module, a heat treatment module, a filtration module or also a humidification module.

[0003] Each module is in the form of an open, semi-open or closed chamber including two side surfaces formed by the assembly of several panels arranged next to one another. Posts having a T-shaped cross section ensure the mechanical connection between two adjacent panels. These posts include fins for the positioning of the panels. A base is mounted at each end of a post. This base makes it possible to attach the post to the upper surface or to the lower surface of the module.

[0004] To prevent air leaks at the connection posts, it is known to arrange a bead of sealant in the space between the lower or upper panel and the fins of the posts. The placement of this bead is expensive, since it takes place during the assembly of the unit. In addition, the sealant deteriorates rapidly over time and it is not an ecological product.

[0005] These are the disadvantages that the invention aims to overcome more particularly by proposing a module for an air handling unit in which the seal between the fins of the connection posts and the upper or lower surface of the module is produced more economically and lastingly.

[0006] For this purpose, the invention relates to a module for an air handling unit, including:

- at least one side surface formed by the assembly of several panels arranged next to one another,
- a connection post between two adjacent panels, including two facing fins for positioning the panels, and
- two bases for attaching the post to an upper surface and to a lower surface, respectively, of the module, these bases being mounted at the two ends of the post.

[0007] According to the invention, each base comprises two facing strips which carry, on the interior side of the module, a rectilinear sealing gasket for sealing the space between the fins of the post and the upper surface or the lower surface of the module.

[0008] By means of the invention, the sealing function between the fins of the posts and the upper or lower surface of the module is incorporated directly into the base. Therefore, the installer does not need to add a bead of sealant below or above the fins of each post.

[0009] According to advantageous but nonobligatory aspects of the invention, the module can have one or more of the following features, considered in any technically acceptable combination:

- The sealing gasket of each strip is compressed between the strip and a rim formed on the upper surface or on the lower surface of the module.
- The sealing gasket of each strip is attached on a first portion of the strip, while a second portion of the strip bears against an end of the fins of the post.
- Each base delimits at least one recess for the passage of a screw for attaching the base to the rim of the upper surface or of the lower surface of the module.
- Each base delimits two recesses for the passage of screws.
- Each post is an aluminum profile having a T-shaped cross section.
- Each post comprises a hollow portion in which the bases are fit.
- Each base is made of plastic material.
- The adjacent panels bear against the exterior wall of the fins of the post.

[0010] The invention also relates to an air handling unit including a module as described above.

[0011] The invention and other advantages of said invention will become clearer in the light of the following description of an embodiment of a module for an air handling unit which is in accordance with its principle, given only as an example and in reference to the appended drawings in which:

- Figure 1 is an exploded perspective view of a module for an air handling unit according to the invention,
- Figure 2 is a view on a larger scale of the circled portion 2 of Figure 1, and
- Figure 3 is a view on a larger scale of the circled portion 3 of Figure 1.

[0012] In Figure 1, a module 1 is represented for an air handling unit that is not represented. This module 1 is a chamber having a rectangular cross section extending along a longitudinal axis X1. The axis X1 defines an axis of passage of the air in the module 1. The module 1 includes two longitudinal end surfaces, that is to say which are perpendicular to the longitudinal axis X1, of which one surface is closed by a panel 10, while the other surface is open. The module 1 also includes a lower panel 2 forming a lower surface and an upper panel 4 forming an upper surface of the module 1. The upper surface and the lower surface are

arranged parallel to one another. The module 1 also includes side surfaces formed by the assembly of panels 6 arranged next to one another. The two side surfaces are parallel to the longitudinal axis X1. Each panel 6 includes an exterior plate 62, an interior plate 60, and a layer of insulating material, not shown, which is inserted between the two plates 60 and 62.

[0013] In the present document, the orientations "interior" and "exterior" should be interpreted relative to the internal volume of the module, that is to say the volume of circulation of the air inside the module 1.

[0014] On its two side surfaces, the module 1 includes posts 12 for ensuring the mechanical connection between two adjacent panels 6. These posts 12 ensure the mechanical strength of the module 1. Each post 12 is an aluminum profile having a T-shaped cross section, which is attached to the upper surface 4 and to the lower surface 2 by attachment bases 14. Each connection post 12 extends perpendicularly to the surfaces 2 and 4 and includes a hollow portion 120 having a rectangular cross section, in which the bases 14 are fit, and two side fins 122 which extend over the entire height of the post 12 and which are parallel to the axis X1. The bases 14 are mounted at the ends of each post 12. The fins 122 make it possible to position the panels 6. In an assembled configuration of the module 1, the panels 6 bear against the fins 122 on the exterior side.

[0015] The bases 14 are made of plastic material and each include a body 15 having a rectangular cross section, which is partially pressed into the hollow portion 120 of each post 12. The bases 14 are attached against a rim 3 formed on the lower surface 2 or on the upper surface 4, respectively. Each rim 3 forms a step perpendicular to the rest of the surface 2 or 4. The rim 3 of the lower surface 2 is visible in the viewing angle of Figure 2, while the rim of the upper surface 4 is not visible in the viewing angle of Figure 3. In the assembled state of the module 1, the side panels 6 are arranged against the rims 3.

[0016] The bases 14 each delimit two rectangular recesses 16 for the passage of attachment screws which are not represented. These screws have the function of firmly connecting the base 14 to the rim 3 formed on the upper surface 4 or on the lower surface 2. The recesses 16 thus extend perpendicularly to the rims 3 of the surfaces 2 and 4.

[0017] Each base 14 includes two strips 18 which extend from the body 15 and parallel to the axis X1 in two opposite directions. The strips 18 are as wide as the fins 122 of the post 12 to which the base 14 belongs, this width being measured parallel to the axis X1. On the interior side, the strips 18 carry a rectilinear sealing gasket 20 for sealing the space between the fins 122 of the post 12 and the upper surface 4 or the lower surface 2 of the module. This gasket 20 extends parallel to the axis X1. In the assembled state, the sealing

gasket 20 of each strip 18 is compressed between the strip 18 and the rim 3 formed on the lower surface 2 or on the upper surface 4 or of the module. As can be seen in Figure 2, the sealing gasket 20 of each strip 18 is attached on a first portion S18a of the strip 18, while a second portion S18b of the strip 18 bears against an end of the fins 122 of the post 12. The strips 18 thus cover the two ends of the exterior wall of the fins 122.

[0018] The sealing gaskets 20 then prevent leakage or infiltration of air above and below the fins 122 of each post 12, such infiltration of air being potentially detrimental to the proper operation of the unit.

[0019] In a variant which is not represented, the module 1 is a reinforced model in which the lower panel and the upper panel are framed in a framework made of aluminum, for example. The bases 14 are then screwed directly in the framework of the panels 2 and 4.

[0020] The features of the variants and embodiments considered above can be combined with one another to generate new embodiments of the invention.

CLAIMS

1. Module (1) for an air handling unit, including:

- at least one side surface formed by the assembly of several panels (6) arranged next to one another,

- a connection post (12) between two adjacent panels (6), including two facing fins (122) for positioning the panels, and

- two bases (14) for attaching the post (12) to an upper surface (4) and to a lower surface (2), respectively, of the module, these bases being mounted at the two ends of the post.

characterized in that

- each base (14) comprises two facing strips (18) which carry, on the interior side of the module, a rectilinear sealing gasket (20) for sealing the space between the fins (122) of the post (12) and the upper surface (4) or lower surface (2) of the module.

2. Module according to Claim 1, characterized in that the sealing gasket (20) of each strip (18) is compressed between the strip and a rim (3) formed on the upper surface (4) or on the lower surface (2) of the module.

3. Module according to Claim 2, characterized in that the sealing gasket (20) of each strip (18) is attached on a first portion (S18a) of the strip (18), while a second portion (S18b) of the strip bears against an end of the fins (122) of the post (12).

4. Module according to Claim 2 or 3, characterized in that each base delimits at least one recess (16) for the passage of a screw for attaching the base (14) to the rim (3) of the upper surface (4) or of the lower surface (2) of the module.

5. Module according to Claim 4, characterized in that each base (14) delimits two recesses (16) for the passage of screws.

6. Module according to any one of the preceding claims, characterized in that each post (12) is an aluminum profile having a T-shaped cross section.

7. Module according to any one of the preceding claims, characterized in that each post (12) comprises a hollow portion (120) in which the bases (14) are fit.

8. Module according to any one of the preceding claims, characterized in that each base (14) is made of plastic material.

9. Module according to any one of the preceding claims, characterized in that the adjacent panels (6) bear against the exterior wall of the fins (122) of the post (12).

10. Air handling unit, characterized in that it includes a module (1) according to any one of the preceding claims.

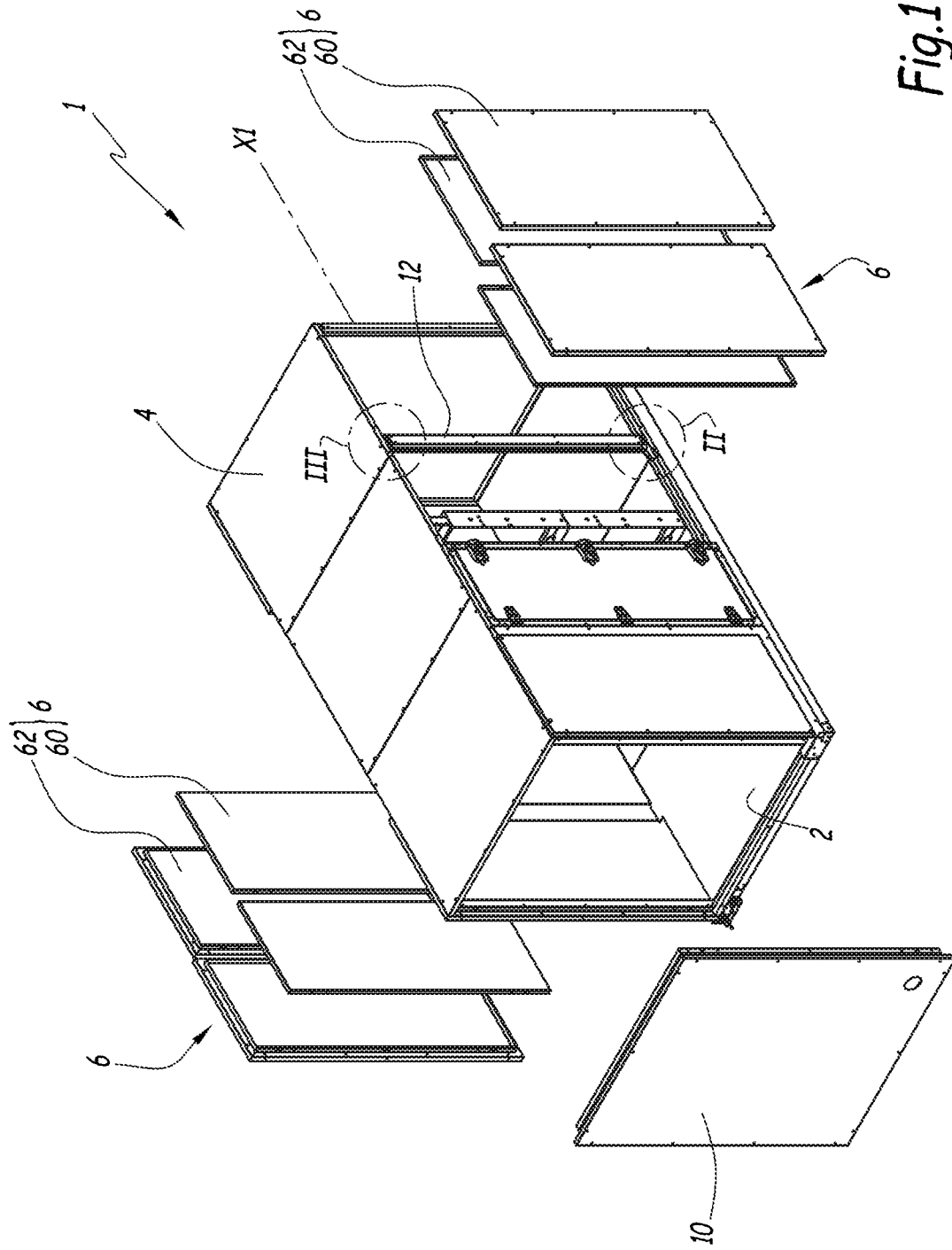


Fig.1

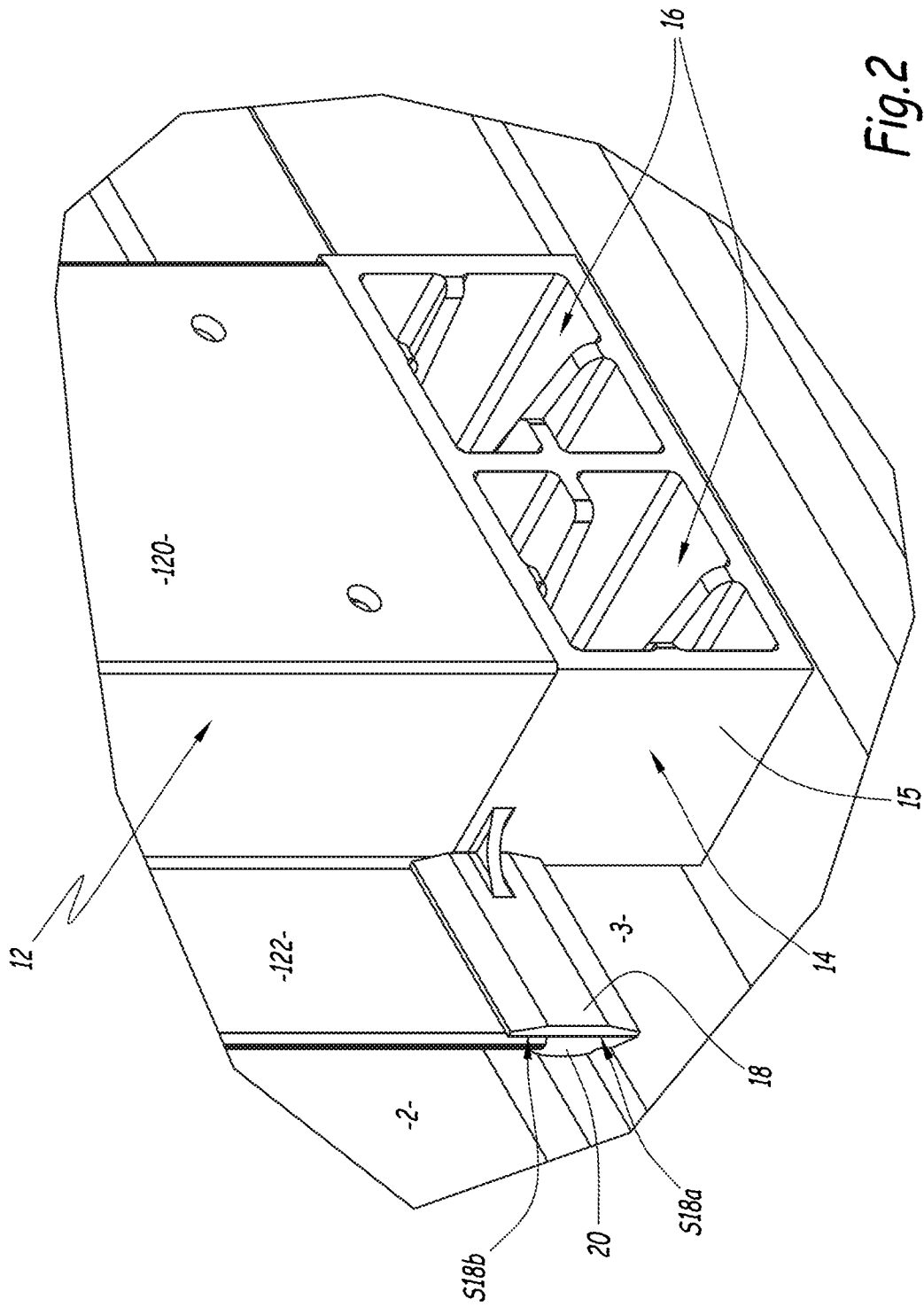


Fig.2

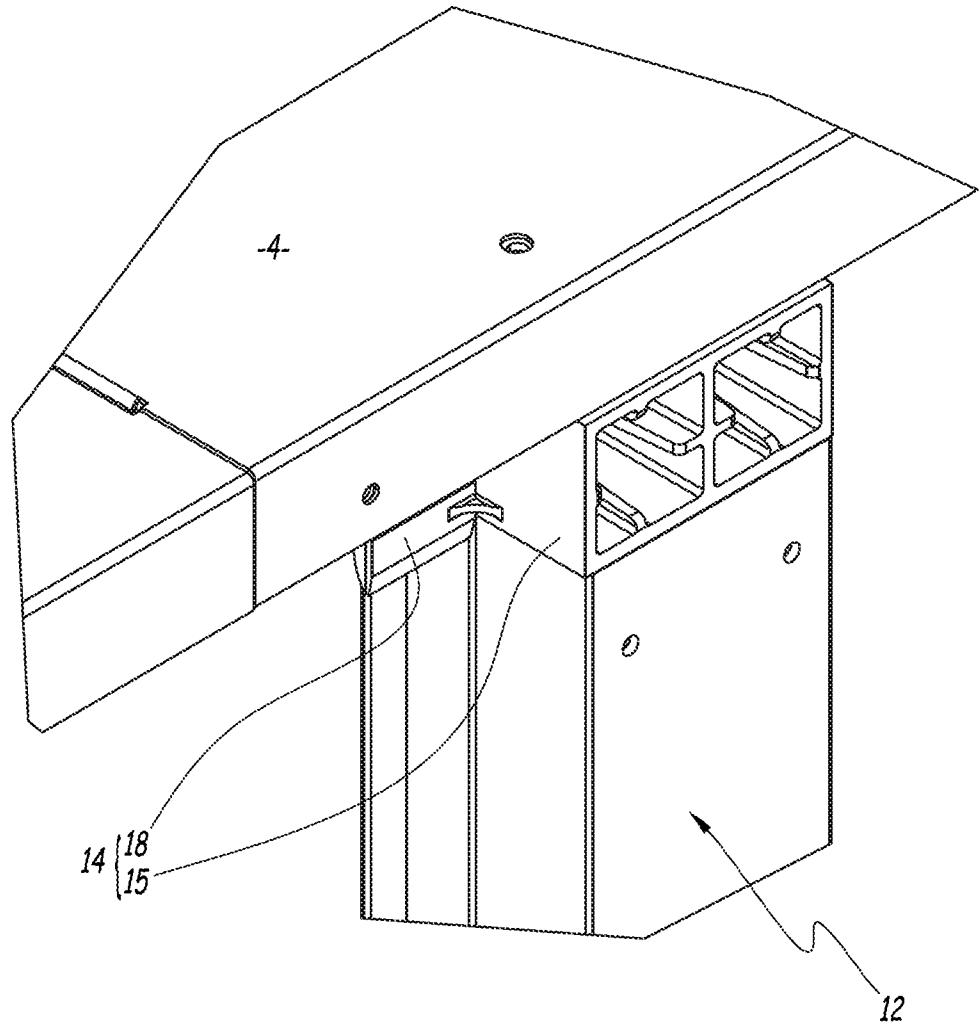


Fig.3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/020349

A. CLASSIFICATION OF SUBJECT MATTER
INV. F24F13/20 F24F13/02
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
F24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 280 951 A (AAF LTD [GB]) 15 February 1995 (1995-02-15) figures 1-3,6 page 6, lines 2-14 page 7, lines 13-15	1-10
X	FR 2 492 498 A3 (VANECKE SOLARONICS [FR]) 23 April 1982 (1982-04-23) page 3, lines 7-18; claims 1-4; figures 1-3	1-10

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
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- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2016/020349

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
GB 2280951	A	15-02-1995	GB 2280951 A	15-02-1995
			SG 55051 A1	21-12-1998

FR 2492498	A3	23-04-1982	NONE	
