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

(11) EP 1 538 274 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
08.06.2005 Bulletin 2005/23

(51) Int Cl.[7]: **E04C 2/292**, F24F 13/20

(21) Application number: **03257611.8**

(22) Date of filing: **03.12.2003**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

(71) Applicant: **CARRIER CORPORATION**
Syracuse New York 13221 (US)

(72) Inventors:
- **Van Benthem, Rien**
  Waalwijk Noord-Brabant 5144 NX (NL)
- **Bijams, Andy**
  Waalwijk Noord-Brabant 5144 NX (NL)
- **Kievits, Peter**
  Waalwijk Noord-Brabant 5144 NX (NL)
- **Van Haperen, Kees**
  Waalwijk Noord-Brabant 5144 NX (NL)
- **Mewis, Bastin**
  Waalwijk Noord-Brabant 5144 NX (NL)

(74) Representative: **Leckey, David Herbert**
Frank B. Dehn & Co.,
European Patent Attorneys,
179 Queen Victoria Street
London EC4V 4EL (GB)

(54) Panel for air handling unit

(57) A thermal insulating panel (12) for an air handling unit comprises first and second sheet metal members (26, 30) and thermal insulation material (29) retained between the sheet metal members. Peripheral portions (28, 32) of the sheet metal members are joined together at a peripheral flange (34), with a peripheral portion (32) of the second sheet metal member (30) being wrapped around a peripheral portion (28) of the first sheet metal member (26) so as to trap the peripheral portion (28) of the first sheet metal member (26) between two layers of the second sheet metal member (30).

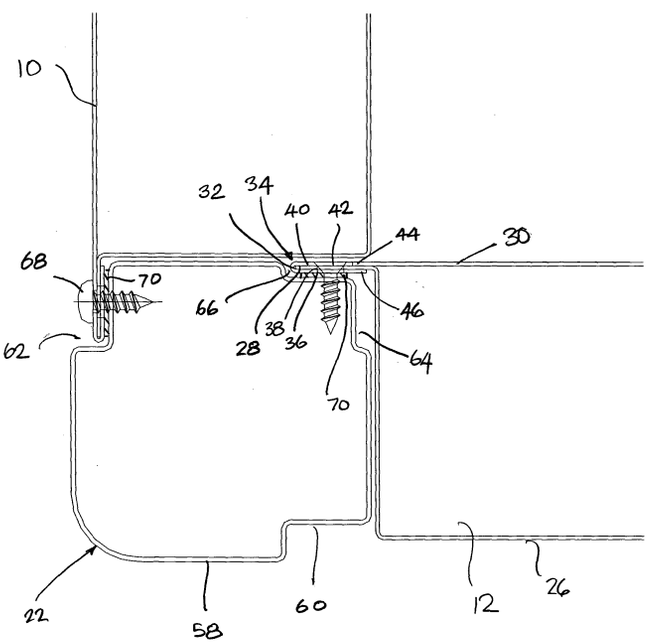

Fig 2

EP 1 538 274 A1

Description

[0001] The present invention relates to air handling units and in particular to panel constructions and panel support arrangements for air handling units.

[0002] An air handling unit typically comprises a casing made up from a number of thermally insulating panels which are joined together into a desired shape. Typically such panels comprise inner and outer sheet metal skins which sandwich an insulating material between them.

[0003] The panels are connected together by mounting them to supports which incorporate elastomeric seals arranged to prevent leakage of air between the panel and support.

[0004] The present invention seeks to provide an improved panel construction and mounting arrangement.

[0005] From a first aspect, the present invention provides a thermal insulating panel comprising first and second sheet metal members and thermal insulation material retained between the sheet metal members, peripheral portions of said sheet metal members being joined together at a peripheral flange, characterised in that a peripheral portion of the second sheet metal member is wrapped around a peripheral portion of the first sheet metal member so as to trap the peripheral portion of the first sheet metal member between two layers of the second sheet metal member.

[0006] Thus in accordance with this aspect of the invention, a peripheral portion of one sheet member is sandwiched between two thicknesses of the other sheet material. This arrangement gives a particularly strong construction which is capable of withstanding substantial pressures and forces.

[0007] Preferably the first sheet metal member is channel-like in cross section order to receive the insulating material, and the second sheet metal member substantially planar, closing the open face of the channel.

[0008] The insulating material may be a polymeric foam, rockwool, fibreglass or any suitable material depending on the particular mechanical and/or thermally insulating properties required of the panel.

[0009] Depending on the properties required, the sheet metal is preferably less than 1.5mm thick. For example in a panel which is required to have good acoustic insulation properties, it may be up to 1.25mm thick. For thermal insulation properties, however, a thinner material is desirable.

[0010] A thickness which has been found to give a good combination of strength and low heat conduction is 0.8mm. However, thinner material for example 0.6mm thick, may be used if strength is less of a requirement or if the panel is filled with a relatively strong insulation material such as a foam.

[0011] Preferably the panel walls are spaced apart by between 50 and 100mm. Preferably, however, the walls are spaced apart by 60mm.

[0012] The peripheral flange of the panel may be provided with holes extending therethrough to receive a fastener for fastening the panel to a support.

[0013] The invention also extends to a system for mounting a thermal insulating panel, and from a second aspect provides apparatus comprising a thermal insulating panel and a support or connecting member therefor, said insulating panel comprising first and second sheet metal members having peripheral edges which contact each other in a face to face manner to define a peripheral flange, said flange being attached to the support or connecting member by a fastener which passes through the overlapping edges and into a receiving surface formed on the support.

[0014] A seal, typically 0.2 to 0.5mm thick may be positioned between the flange and support to provide airtightness.

[0015] Preferably the panel construction is one as described above with the peripheral edge of one of the sheet metal members being received in the folded over peripheral edge of the other sheet metal member.

[0016] Preferably the fastener is a self-tapping screw which taps into the receiving surface. However, other fasteners, for example bolts and so on, may be envisaged.

[0017] Preferably the support or connecting member is a hollow body. Most preferably it is a roll formed and welded body. For strength purposes it is preferably at least 1mm thick.

[0018] A member for supporting and joining two panels together at an angle may comprise engagement surfaces arranged at the desired angle to each other. Preferably the engagement surfaces are arranged at right angles to allow panels to be connected at right angles.

[0019] Preferably the support or connecting member has one or more recesses to receive the peripheral flange of the panel so that the latter does not stand proud of the support.

[0020] The support or connecting member may be generally square or rectangular in section and have recesses formed in at least three corners to receive panels' connecting flanges.

[0021] In a preferred embodiment, two recesses are provided on adjacent faces of one corner to allow panels to be connected together in different orientations with the same connector.

[0022] In another embodiment, the support or connecting member may simply be a rectangular or square body onto one or more of whose surfaces one or more panels' connecting flanges are attached, so that, for example, two panels may be attached in line.

[0023] In another arrangement the support or connecting member has a recess formed in one face thereof, the recess aligning with a corresponding recess on an adjacent support or connecting member and a seal is received in the cavity defined by the aligned recesses. This allows two panels to be keyed together end to end.

[0024] The fastener may be countersunk into the pe-

ripheral flange of the panel where it is desired to position the flange of one panel adjacent the wall of an adjacent panel. Alternatively, the fastener may stand proud of the flange.

[0025] One problem which arises with connections between panels is that of transmission of heat to the outside of the unit through the fastener. This potentially gives a higher spot temperature on the outside leading to the unit being given a lower thermal bridging rating.

[0026] This problem is overcome in accordance with a further aspect of this invention by providing a heat distribution member arranged in contact with the fastener and acting to distribute heat from the fastener over a larger area, thereby reducing the spot temperature.

[0027] From a further aspect, therefore, there is provided a thermal panel connector comprising a fastener and a heat distribution member arranged in contact with the fastener and acting to distribute heat from the fastener over a larger area.

[0028] Preferably the heat distribution member is a cap or the like which fits over the head of the fastener to cover the head of the fastener from view. Most preferably it clips over the fastener head. To this end it may have a plurality of resilient tangs which clip under the head of the fastener when the cap is placed in position.

[0029] Preferably the heat distribution member fits over a plurality of fasteners, and most preferably it is in the form of a strip having spaced apart formations for engaging the respective fasteners. The strip is preferably sheet steel, most preferably between 0.6 and 1mm thick, most preferably 0.8mm thick.

[0030] Preferably the strip is generally rectangular in cross section with spaced inner and outer walls, the inner wall having formations for engaging the fasteners and the outer wall covering the fastener head.

[0031] From a yet further aspect the invention provides a heat distribution strip for fitting over a plurality of fasteners, having spaced apart inner and outer walls, the inner wall having a plurality of formations for engaging over the heads of the respective fasteners.

[0032] The panel connections may allow the panels to be separated. In one embodiment, the side wall of the connector may be provided with a recess to receive a seal which, when assembled together with a complementary connector, provides airtightness between the panels.

[0033] A particularly preferred structure may be constructed in accordance with the invention comprising panels arranged parallel to one another and spaced apart by a further panel or panels.

[0034] A preferred embodiment of the invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows a cross-section through a construction formed in accordance with the invention;

Figure 2 shows a first detail of the construction of Figure 1;

Figure 3 shows a second detail of the construction of Figure 1;

Figure 4 shows a detail of Figure 3; and

Figure 5 shows a corner joint for connecting connectors together.

[0035] With reference to Figure 1, a wall construction 2 comprises a number of thermally insulating panels 4,6,8,10,12,14 joined together by connectors 16,18,20,22,24.

[0036] The top panels 4,6,8 and side panel 10 are of the same construction. The floor panels 12,14 are of the same construction as each other, but differ in detail from the top and side panels 4,6,8,10. However, the construction of each panel is substantially the same and this will be described with reference to panel 12.

[0037] The panel 12 comprises a first sheet metal member 26 which is generally channel shaped and which is formed with a peripheral flange 28 (see Figure 2). This first member 26 receives a body of insulating material 29.

[0038] The nature of the insulating material may vary from panel to panel. It may, for example in the floor panels 12,14, be a foam material giving greater strength. However, in the top and side panels 4,6,8,10 it may be a weaker material such as a rock wool or glass wool insulating material.

[0039] The panel member 12 further comprises a second sheet metal member 30. The second member 30 is substantially planar and it is formed with a turned-over peripheral edge 32. This edge wraps around the flange 28 of the first sheet metal member 26 so as to trap the flange 28 inside the edge 32. This forms a triple thickness panel mounting flange 34.

[0040] The flange 28 and folded edge 32 are provided with aligned openings 36, 38, 40 to receive a self-tapping fastener 42 (see Figure 2). The opening 40 through the upper surface 44 of the edge 32 is larger than those 36, 38 in the flange 28 and lower surface 46 of the edge 32 to allow the head of the fastener 42 to lie flush with the upper surface of the sheet 30.

[0041] In the particular embodiment described, the sheet metal members 26,30 are formed from 0.8 mm galvanized steel which is suitably bent to the appropriate shape. However other materials, such as stainless steel may be used. The spacing between the panel walls is 60mm giving a total panel thickness of 61.6mm.

[0042] The flange 34 is constructed in the same manner at both sides of the panel 12.

[0043] As stated above, the top and side wall panels 4,6,8,10 are constructed in a generally similar manner, but with different lengths. A further difference is in the arrangement of the openings through the mounting flange 34, as shown in Figure 3.

[0044] In that arrangement, the opening 50 through the top surface of the flange 34 is smaller than the underlying openings 52, 54 in the flange 34 so as to receive a non-countersunk fastener 56. Again, the construction of the flange 34 is the same at both ends of the panel.

[0045] The mechanism by which the panels are joined together with now be described with reference to Figures 2 and 3.

[0046] It will be seen that there are a number of different joining arrangements disclosed. Dealing firstly with the corner connectors 20,22, one of these connectors 22 is shown in greater detail in Figure 2.

[0047] Each connector 22 comprises a roll formed and welded metal body 58 with a wall thickness of 1mm. It comprises four recesses 60,62,64,66 for receiving the mounting flanges 34 of the various panels. The external recesses 60,62 are deeper than the internal recesses 64,66 so as to accommodate the head of a non-countersunk fastener 68.

[0048] The floor of each recess 60,62,64,66 provides a engagement surface against which the inner surface of each panel mounting flange 34 will be clamped by a respective fastener 42,68 via a seal strip 70, typically 0.2 to 0.5mm thick. This provides for airtightness in the connection.

[0049] A further connector 18 is shown in Figure 3. In this embodiment, the connector comprises a rectangular section roll formed and welded body 72, also with a wall thickness of 1 mm, which receives two screw fasteners 56, as shown.

[0050] In this embodiment a pair of heat distribution strips 72 are provided over the heads of the fasteners 56 in order to distribute any heat coming through the fasteners and indeed the connection flanges over a larger area to prevent higher spot temperatures occurring.

[0051] Each strip 72 comprises an inner wall 76 and an outer wall 78 which covers the fasteners 56. The inner wall 76 is provided with spaced apart clips 80 with spring tangs 82 which clip over the heads of the fasteners 56 to retain the strip in position.

[0052] Yet further connectors 16,24 are also disclosed in Figure 1. Each of these connectors comprises two rectangular bodies 84, each having one panel joined thereto by respective fasteners 42, 56. One side of each body 84 comprises a recess 86 which faces the recess 86 of the opposed body 84. A generally rectangular seal member 88 is received in the cavity defined by the aligned recesses 86. This arrangement allows the panels to be disconnected from one another disconnected from each other in a direction perpendicular to their length.

[0053] It will be seen that the assembled panels have smooth internal and external surfaces.

[0054] It has been found that the above constructions provides exceptional thermal, leakage and mechanical properties. In particular they provide thermal insulation to class T2 and class TB2 of EN 1886, air leakage to class L2 of EN1886 and pressure resistance to class D1 and D2 of EN 1886.

[0055] The panels can be joined together in substantial lengths, for example from unit dimensions 600 x 300 mm to 3000 x 4500 mm and can be assembled in varying combinations and sizes.

[0056] Different shaped spaces may easily be defined by the panels, for example a rectangular space as shown in Figure 1, with panels arranged parallel to one another and connected by one or more other panels.

[0057] A corner joint 90, for joining together corner connectors 20 to form a three dimensional frame is shown in Figure 5.

[0058] Here three individual connectors 20 are joined by a member 92 which has three projections 94 which extend into the internal space of the connectors to hold them in position. Panels can then be fitted onto the respective connectors as described above.

Claims

1. A thermal insulating panel (12) comprising first and second sheet metal members (26, 30) and thermal insulation material (29) retained between the sheet metal members, peripheral portions (28, 32) of said sheet metal members being joined together at a peripheral flange (34) , **characterised in that** a peripheral portion (32) of the second sheet metal member (30) is wrapped around a peripheral portion (28) of the first sheet metal member (26) so as to trap the peripheral portion (28) of the first sheet metal member (26) between two layers of the second sheet metal member (30).

2. A panel as claimed in claim 1 wherein first sheet metal member (26) is channel-like in section in order to receive the insulating material.

3. A panel as claimed in claim 2 wherein the second sheet metal member (30) is substantially planar, closing the open face of the channel.

4. A panel as claimed in any preceding claim wherein the insulating material (29) is a polymeric foam, rockwool, fibreglass.

5. A panel as claimed in any preceding claim wherein the sheet metal is less than 1.5mm thick, preferably 0.6mm thick.

6. A panel as claimed in any preceding claim wherein the first and second sheet members (26, 30) are spaced apart by between 50 and 100mm, preferably by 60mm.

7. A panel as claimed in any preceding claim wherein the peripheral flange (34) of the panel (12) is provided with holes (36, 38, 40)extending therethrough

to receive a fastener (42, 56) for fastening the panel to a support.

8. Apparatus comprising a thermal insulating panel (12) and a support or connecting member (16, 18, 20, 22, 24) therefor, said insulating panel (12) comprising first and second sheet metal members (26, 30) having peripheral edges which contact each other face to face to define a peripheral flange (34), said flange being attached to the support or connecting member by a fastener (42, 56) which passes through the overlapping edges and into a receiving surface formed on the support.

9. Apparatus as claimed in claim 8 wherein said panel (12) is a panel as claimed in any of claims 1 to 7.

10. Apparatus as claimed in claim 8 or 9 wherein a seal (70) is positioned between the flange (34) and support or connecting member(20).

11. Apparatus as claimed in claim 8, 9 or 11 wherein the fastener (42, 56) is a self-tapping screw which taps into the receiving surface.

12. Apparatus as claimed in any of claims 8 to 11 wherein the support or connecting member (20) is a hollow body.

13. Apparatus as claimed in claim 12 wherein said body has walls about 1mm thick.

14. Apparatus as claimed in any of claims 8 to 13 wherein the support or connecting member (20) has one or more recesses (60, 62, 64, 66) to receive the peripheral flange (34) of the panel (12) so that the latter does not stand proud of the support or connecting member (20).

15. Apparatus as claimed in claim 14 wherein the support or connecting member (20) is generally square or rectangular in section and have recesses formed in at least three corners to receive panels' connecting flanges.

16. Apparatus as claimed in claim 15 wherein two recesses (64, 66) are provided on adjacent faces of one corner.

17. Apparatus as claimed in any of claims 8 to 16 wherein the support or connecting member (84) has a seal-receiving recess (86) formed in a face thereof.

18. Apparatus as claimed in claim 17 wherein said recess (86) aligns with a corresponding recess on an adjacent support or connecting member (84).

19. Apparatus as claimed in any of claims 8 to 18 wherein the inner surface of said support or connector is flush with the inner surface of the panel.

20. Apparatus as claimed in any of claims 6 to 19 further comprising a heat distribution member (72) arranged in contact with the fastener (42, 56) and acting to distribute heat from the fastener over a larger area.

21. A thermal panel connector comprising a fastener (56) and a heat distribution member (72) arranged in contact with the fastener and acting to distribute heat from the fastener over a larger area than the fastener head.

22. Apparatus as claimed in claim 20 or 21 wherein the heat distribution member (72) fits over the head of the fastener (56) to cover the head of the fastener from view.

23. Apparatus as claimed in claim 22 wherein the heat distribution member (72) clips over the head of the fastener (56).

24. Apparatus as claimed in claim 23 wherein the heat distribution member (72) comprises a plurality of resilient tangs (82) which clip under the head of the fastener (56).

25. Apparatus as claimed in any of claims 20 to 24 wherein the heat distribution member (72) fits over a plurality of fasteners (56).

26. Apparatus as claimed in claim 25 wherein the heat distribution member (72) is in the form of a strip having spaced apart formations (80) for engaging the respective fasteners (56).

27. Apparatus as claimed in claim 26 wherein the strip (72) is generally rectangular in cross section with spaced inner and outer walls (76, 78), the inner wall (76) having formations (80) for engaging the fasteners (56) and the outer wall (78) covering the fasteners.

28. A heat distribution strip (72) for fitting over a plurality of fasteners (56) , having spaced apart inner and outer walls (76, 78), the inner wall having a plurality of formations (80) for engaging over the heads of the respective fasteners.

29. Apparatus comprising a thermal insulating panel (12) and a support or connecting member (20) therefor, said insulating panel comprising first and second sheet metal members (26, 30) having overlapping peripheral edges which define a peripheral flange (34), said flange being attached to the sup-

port or connecting member by a fastener which passes through the overlapping edges and into a receiving surface formed on the support.

30. Apparatus as claimed in any preceding claim providing thermal insulation to class T2 of EN1886 and/or thermal bridging to class TB 2 of EN1886 and/or air leakage to class L2 of EN1886 and/or pressure resistance to class D1 and D2 of EN1886.

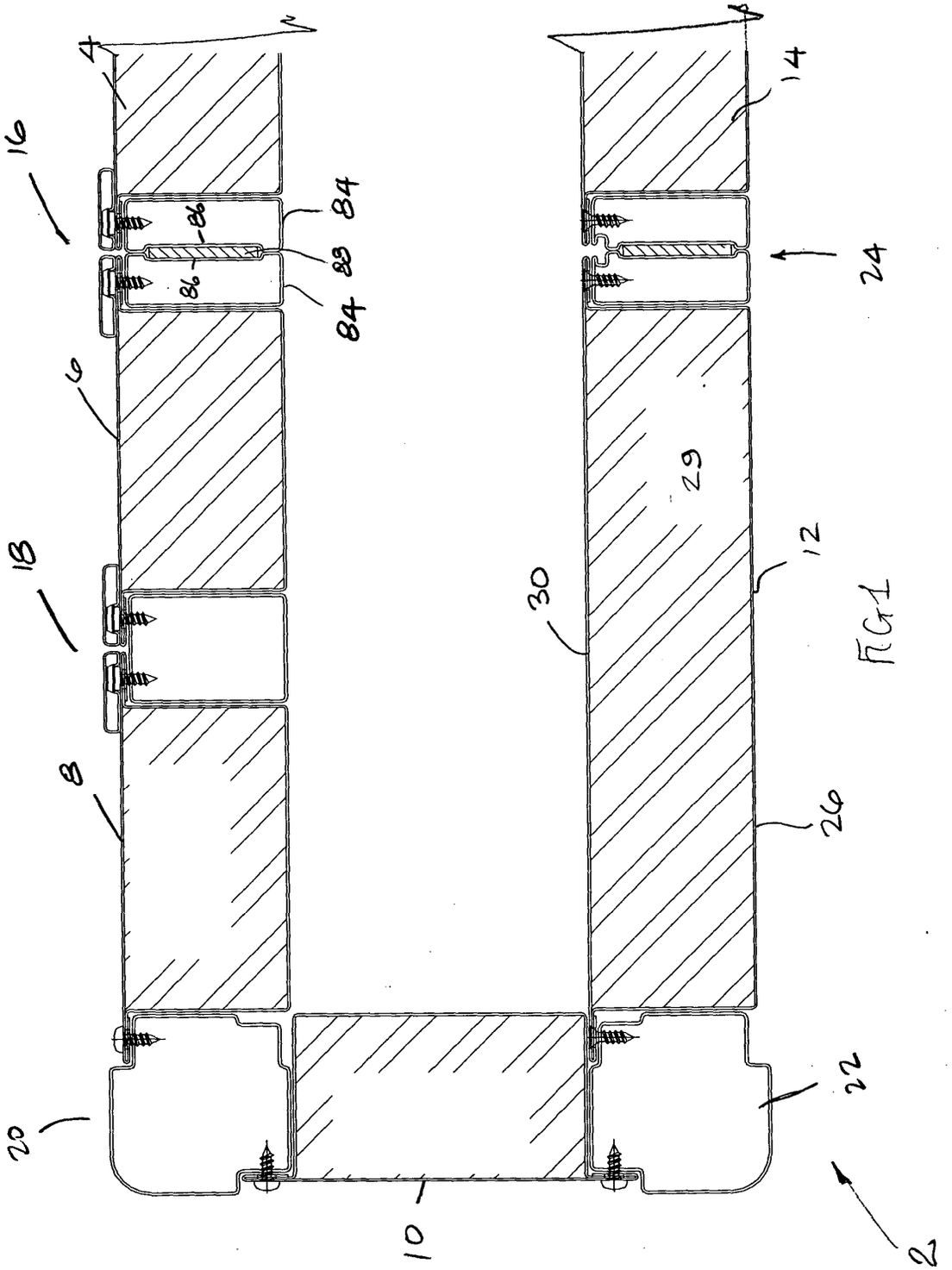

FIG 1

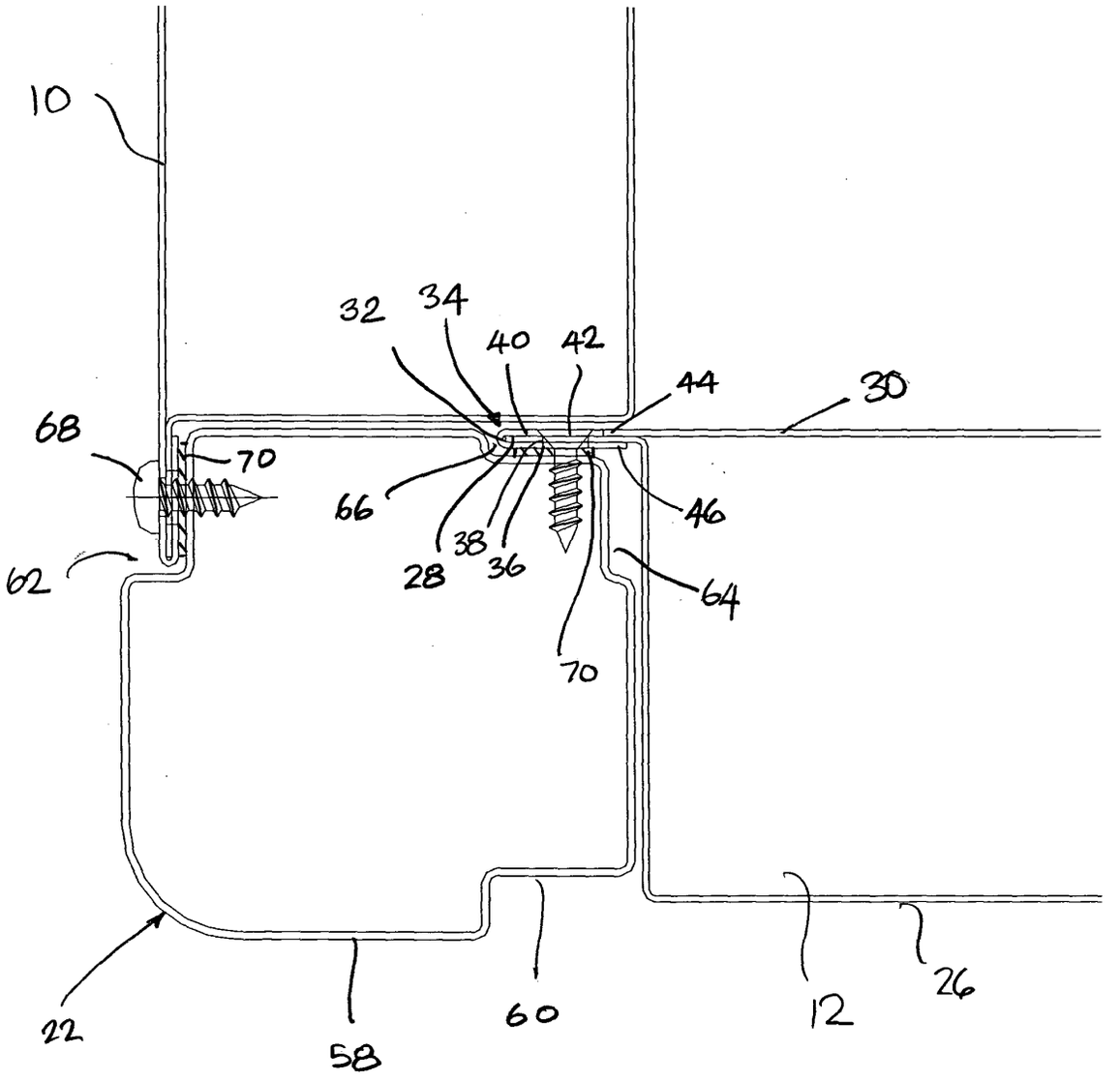

FIG 2

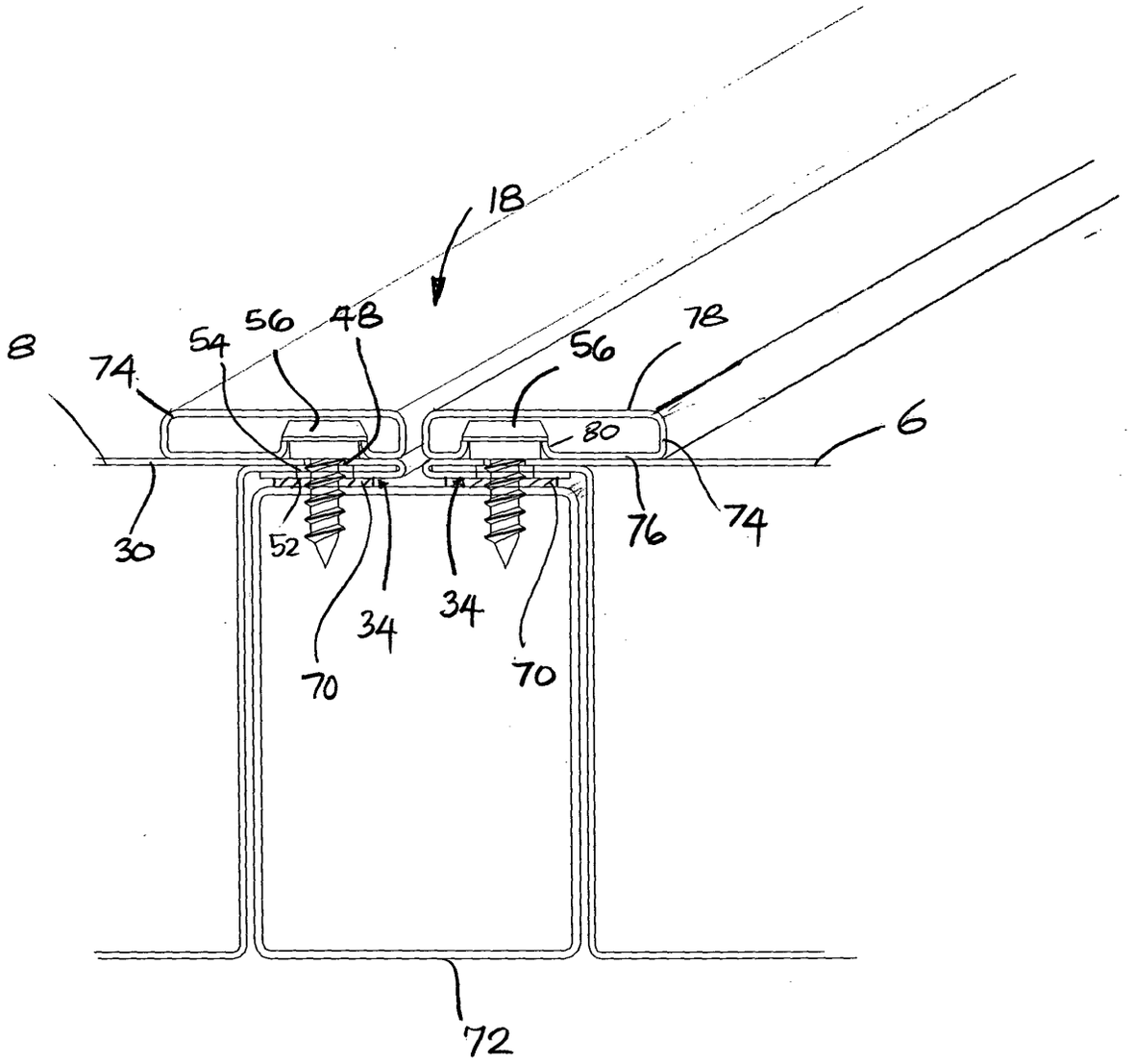
18
8
74
54
56
48
56
78
80
6
30
52
34
34
70
70
76
74
72

FIG3

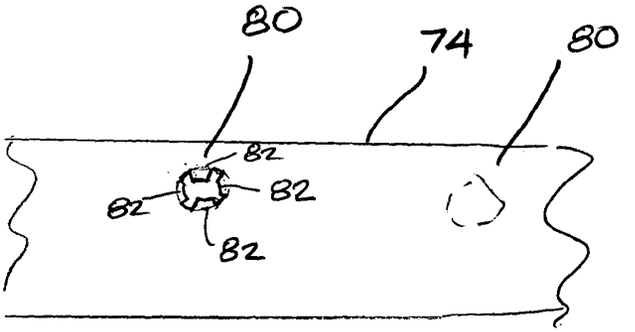
80
74
80
82
82
82
82

FIG4

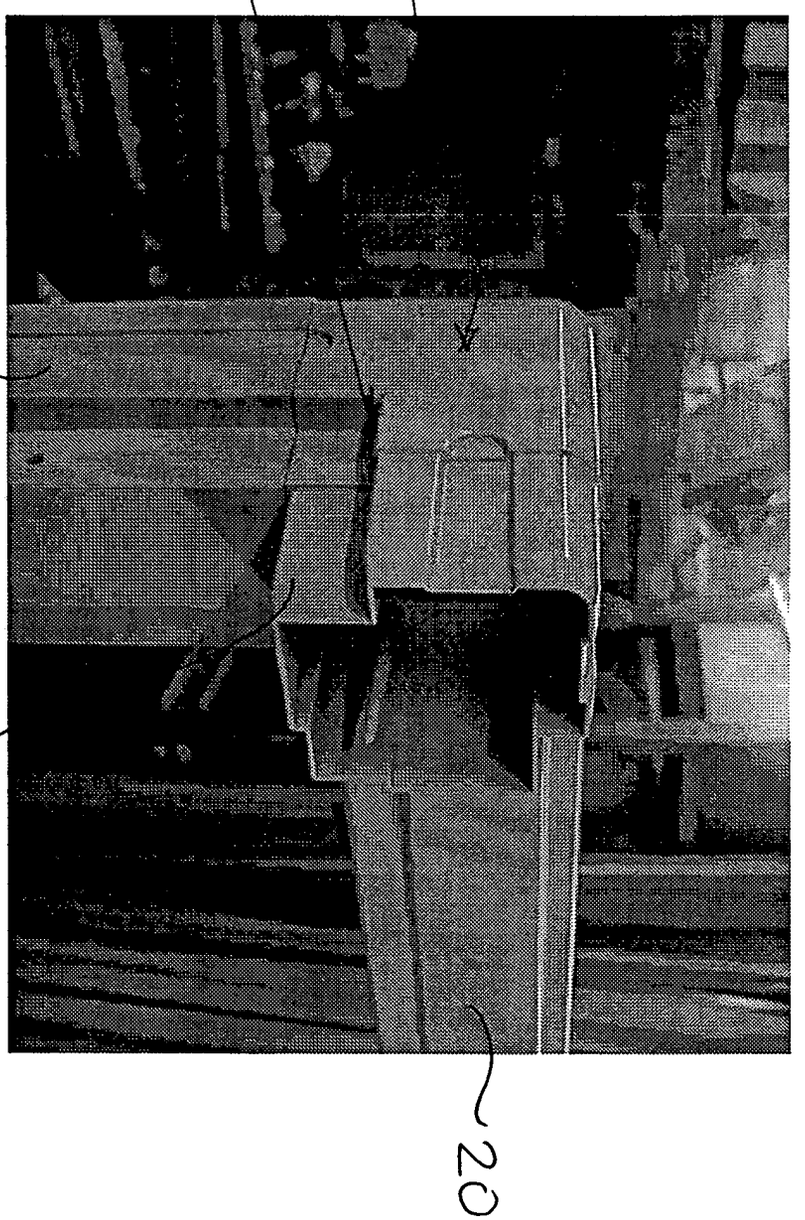

FIG 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 25 7611

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.7)
X	US 5 285 609 A (GOAD GARY N) 15 February 1994 (1994-02-15) * column 1, line 6-12; figures 2-5 * * column 2, line 19-23,43-48,62-68 * * column 3, line 1-7 * ---	1,7-9,29	E04C2/292 F24F13/20
X	GB 842 939 A (LIGHTALLOYS LTD;KENNETH CHARLES TECKLENBOROUGH) 27 July 1960 (1960-07-27) * page 1, line 11-40; figures 5-7,11 * ---	1-4	
X	US 445 262 A (WILLIAM R. KINNEAR) 27 January 1891 (1891-01-27) * page 1, line 25-34,56-61; figure 4 * ---	1-4	
X	US 3 267 626 A (DALY EDWIN A) 23 August 1966 (1966-08-23) * column 1, line 7-10; figures 2,10 * * column 2, line 14-19 * * column 3, line 41-44 * * column 4, line 13-16 * ---	1-4,6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
X	US 4 326 365 A (SVENSSON GUNNAR) 27 April 1982 (1982-04-27) * column 1, line 10-13; figures 1,2,11 * * column 2, line 64-67 * * column 4, line 52-57 * ---	1-4,7-9,29	E04C F24F
X	US 3 540 116 A (BOHNSACK JOHN A ET AL) 17 November 1970 (1970-11-17) * column 1, line 41-50; figures 1,6,15,16 * * column 2, line 37-44 * ---	1-3,5	
	-/--		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	16 April 2004	Vratsanou, V

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
O : non-written disclosure
P : intermediate document

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
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 25 7611

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.7)
X Y	EP 0 468 597 A (HOLLAND HEATING BV) 29 January 1992 (1992-01-29) * column 1, line 14-29; figures 1,5-8 * * column 3, line 17 - column 4, line 11 * ---	8,10,14, 19,29 11,20, 22,25,26	
X Y	US 4 782 637 A (ERIKSSON ARNE ET AL) 8 November 1988 (1988-11-08) * column 1, line 4-7,28-35,58-61; figure 2 * * column 2, line 44-68; claim 8 * ---	8,12-16, 29 11,20, 22,25,26	
Y	EP 0 427 626 A (WESPER S A) 15 May 1991 (1991-05-15) * column 4, line 23-27 * ---	11	
X Y	US 6 350 000 B1 (BLEIJS PHILIPPUS JOHANNES MARI ET AL) 26 February 2002 (2002-02-26) * column 1, line 36-44; figures 5-7 * * column 2, line 21-52 * -----	21 20	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	16 April 2004	Vratsanou, V

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
O : non-written disclosure
P : intermediate document

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
L : document cited for other reasons

& : member of the same patent family, corresponding document

1

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 03 25 7611

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-04-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5285609 A	15-02-1994	NONE	
GB 842939 A	27-07-1960	NONE	
US 445262 A		NONE	
US 3267626 A	23-08-1966	NONE	
US 4326365 A	27-04-1982	SE 417625 B	30-03-1981
		CH 628106 A5	15-02-1982
		DE 2808484 A1	14-09-1978
		DK 89578 A ,B,	11-09-1978
		FI 780546 A ,B,	11-09-1978
		FR 2383278 A1	06-10-1978
		GB 1602514 A	11-11-1981
		JP 1174135 C	28-10-1983
		JP 53113121 A	03-10-1978
		JP 58007783 B	12-02-1983
		NL 7801569 A	12-09-1978
		NO 780678 A ,B,	12-09-1978
		SE 7702695 A	11-09-1978
US 3540116 A	17-11-1970	NONE	
EP 0468597 A	29-01-1992	NL 9001684 A	17-02-1992
		AT 167720 T	15-07-1998
		DE 69129646 D1	30-07-1998
		DE 69129646 T2	24-12-1998
		DK 468597 T3	06-04-1999
		EP 0468597 A1	29-01-1992
		ES 2119757 T3	16-10-1998
US 4782637 A	08-11-1988	SE 448399 B	16-02-1987
		DE 3711222 A1	08-10-1987
EP 0427626 A	15-05-1991	FR 2654199 A1	10-05-1991
		EP 0427626 A1	15-05-1991
US 6350000 B1	26-02-2002	NL 1006974 C2	09-03-1999
		AU 752182 B2	12-09-2002
		AU 9096798 A	29-03-1999
		CN 1269878 T	11-10-2000
		EP 1012506 A1	28-06-2000
		WO 9913273 A1	18-03-1999
		SK 3122000 A3	11-06-2001

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82