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Datasheet for the decision of 15 June 2018

Case Number: T 0576/16 - 3.2.03

Application Number: 09785670.2

Publication Number: 2338010

IPC: F24J2/52

Language of the proceedings: EN

Title of invention:
Supporting frame for constructing a building including a thermal panel and a photovoltaic panel

Applicant:
Bankart, Richard David

Headword:

Relevant legal provisions:
EPC Art. 123(2), 84, 56

Keyword:
Claims - clarity (yes)
Amendments - allowable (yes)
Inventive step - (yes)

This datasheet is not part of the Decision.
It can be changed at any time and without notice.

Decisions cited:

Catchword:

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Case Number: T 0576/16 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 15 June 2018

Appellant: (Applicant)	Bankart, Richard David 87 Stockwell Park Road London SW9 0DB (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 3 December 2015 refusing European patent application No. 09785670.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Ashley
Members:	V. Bouyssy
	E. Kossonakou

Summary of Facts and Submissions

I. European patent application No. 09 785 670.2 (in the following: "the application") relates to a method and device for constructing a building, in particular one that simultaneously provides weather protection, insulation and solar energy capture.

II. The examining division refused the application because
- claim 1 of the main request before it comprised added subject-matter (Article 123(2) EPC), lacked clarity (Article 84 EPC) and lacked inventive step (Article 56 EPC);
- claim 1 of the first auxiliary request before it lacked inventive step (Article 56 EPC); and
- the applicant had not approved the text for grant proposed by the examining division, based on the second auxiliary request before it.

III. This decision was appealed by the applicant (in the following "the appellant").

IV. With the summons to oral proceedings, the Board sent a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating its preliminary opinion of the case.

V. Oral proceedings before the Board were held on 15 June 2018.

VI. Final request

The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the set of amended claims filed during the oral proceedings.

VII. Claims of the appellant's request

Independent claim 1 is directed to the following subject-matter (the feature numbering is introduced by the Board for ease of reference):

a) A power generation member adapted to be attached to a framework to form a wall or roof of a building, the power generation member being a self-supporting structural unit (10)
b) comprising a first, a second and a third layers, wherein the first layer is a support member (18) to which the second and third layers are attached,
c) the support member comprising insulating material (30) laid within a structure (32, 34) formed from a supporting material made of wood, or metal, or concrete or plastic, or glass reinforced plastic,
d) wherein the second layer comprises a photovoltaic device (12) bonded to a thermal collector (14), and
e) wherein the third layer is positioned in a different plane from the second layer and substantially parallel with it, the third layer being -
f) - either a thermal collector of high thermal conductivity situated between the first and second layers, to allow rapid conduction of heat to the transmission fluid held in the pipe of the thermal collector in use, so maximising absorption of heat from the second layer,
g) - or a substantially transparent thermal collector secured over the second layer, with fluid passing through the thermal collector in use to absorb heat from the second layer.

Dependent claims 2 to 9 define preferred embodiments of the power generation member of claim 1.

VIII. Prior art

The decision under appeal refers to the following prior art documents:

D1: WO 2008/037016 A1
D3: WO 03/085329 A1
D5: US 5,968,287 A
D20: S. Riffel, "iRoof® / iWall® - Strom, Wärme und Kühlung mit intelligenten Fertigteilen aus Beton - das Konzept", Congress documentation on the 47th Ulm Concrete and Precast Concrete Congress, BFT (Betonwerk + Fertigteil-Technik), 2/2005, pages 50 and 51

IX. The arguments of the appellant, insofar as relevant for the present decision, can be summarised as follows:

(a) Article 123(2) EPC

The current claims correspond essentially to claims 1, 2 to 6, 9 and 10 of the main request filed with the statement of grounds of appeal dated 25 March 2016, whereby amendments have been carried out to overcome the objections under Article 123(2) and 84 EPC as set out in the Board's communication pursuant to Article 15(1) RBPA. Amended claim 1 corresponds essentially to a combination of claim 11 as originally filed with the teaching on page 2, line 9 to page 3, line 11 of the description as originally filed. Support for feature c) of claim 1 can be found on page 5, lines 15 to 17 of the description as originally filed. Feature d) is supported by the teaching on page 7, line 19 and page

12, lines 28 to 31 of the description as originally filed. Support for feature f) can be found on page 3, lines 13 to 33 of the description as originally filed.

(b) Inventive step

The examining division erred in deciding that the subject-matter of claim 1 lacked an inventive step over D20. This document discloses how to construct a whole building from precast concrete elements. The building roof comprises, from bottom to top, a supporting concrete layer, an intermediate pressure-resistant thermal insulation layer and a floating precast concrete tile with integrated photovoltaic cells and absorber pipes. The tile is manufactured off-site, transported to the site and then placed on the insulating layer of the building. There is no teaching of the roof system being manufactured as complete integrated structural unit as required in claim 1. D20 also fails to disclose the provision of a further thermal collector, as required by features f) and g).

Reasons for the Decision

1. Admissibility of appellant's request

1.1 The appellant filed the current main request after oral proceedings had been arranged, in replacement of the main request filed with the statement of grounds of appeal.

1.2 The Board exercised its discretion to admit this new request into the proceedings for the following reasons (Article 13(1) RPBA):

1.3 Claim 1 of the current request differs from that of the main request filed with the statement of grounds of appeal - apart from minor editorial amendments - in that it is directed to a power generation member adapted to be attached to a framework to form a wall or roof of a building, and is a self-supporting structural unit comprising three layers as defined in claim 1, rather than a self-supporting structural unit with two power generation members, as was defined in the main request filed with the grounds of appeal.

1.4 These amendments are in response to objections under Articles 123(2) and 84 EPC which were raised for the first time in the Board's communication pursuant to Article 15(1) RPBA.

1.5 They clearly overcome all outstanding objections without introducing any new issues.

2. Amendments

2.1 Claim 1 differs from claim 11 as originally filed in that features a) to g) have been incorporated in it.

2.2 These amendments are supported by the information in the application documents as originally filed. Support for features a), b), e), f) and g) can be found on page 2, line 9 to page 3, line 33 of the description as originally filed. Feature c) is based on page 5, lines 15 to 17 of the description as originally filed. Support for feature d) can be found on page 7, line 19 and page 12, lines 28 to 31 of the description as originally filed. In conclusion, the amendments meet the requirements of Article 123(2) EPC.

2.3 In the decision under appeal, the examining division objected that the feature of claim 1 "or the self supporting structural unit simply fastened in place at the construction site to form a wall or roof" constituted added subject-matter (see points 22.2.2 to 22.2.4 of the reasons). Amended claim 1 does not comprise this feature and therefore overcomes this objection.

3. Article 84 EPC

3.1 The amended claims are clear and concise and supported by the description (Article 84 EPC).

3.2 In the decision under appeal, the examining division objected that the functional statement "simply fastened in place" rendered claim 1 unclear (see point 22.2.5 of the reasons). Amended claim 1 does not comprise this statement and therefore overcomes this objection. The clarity objection raised by the examining division *obiter dictum* (see point 25.2 of the reasons), regarding the arrangement of two power generation members, has also been overcome since the present claim 1 is directed to a single power generation member.

4. Inventive step

4.1 In the decision under appeal, the examining division held essentially that the subject-matter of claim 1 lacked an inventive step in light of D20 because it disclosed a self-supporting structural unit having all the features recited in the claim, except for the feature that the pipes of the thermal collector are made of metal, and this feature was an obvious modification for the skilled person (see points 22.2.6 to 22.2.8 of the reasons).

4.2 In support of its opinion the examining division referred to a number of passages of D20, namely figures 1, 2, and 13, the abstract, paragraph 1, page 4, column 1, paragraph 6, page 4, column 2, point 4 and page 6, column 2, paragraph 1.

4.3 The cited passages cannot be found in article D20, which comprises only two pages and two figures, apart from a photograph of the author. In fact, it is apparent that the examining division did not rely on document D20, but rather on the following document, which the examining division introduced in the proceedings, along with D20, with the communication dated 12 July 2012:

D20a: S. Riffel, "iRoof® / iWall® - Strom, Wärme, Kühlung und hohe Wohnqualität mit dem intelligenten und multifunktionalen Fertigteilsystem aus Beton", 11 pages

4.4 However, D20a does not bear a date and the Board has doubts as to whether it was actually publicly available before the priority date of the application (19 September 2008). It cannot be inferred from the file that the examining division has shown when D20a was in the public domain.

4.5 The Board itself has tried searching the Internet for D20a and found the following document on the site www.ksp.kit.edu:

D20b: S. Riffel, "iRoof® / iWall® - Strom, Wärme und Kühlung mit intelligenten Fertigteilen aus Beton", 3rd Symposium Baustoffe und Bauwerkserhaltung Universität Karlsruhe,

Universitätsverlag Karlsruhe, 2006, front page, bibliographic data and pages 79 to 89

4.6 The content of D20b corresponds to that of D20a, apart from the title, and is highly relevant for reviewing the decision under appeal along with deciding on the patentability of the claimed invention. It clearly belongs to the state of the art according to Article 54(2) EPC. Therefore D20b is introduced into the appeal proceedings (Article 114(2) EPC).

4.7 In light of the content of D20b, the Board shares the appellant's view that the subject-matter of claim 1 has an inventive step.

4.8 D20b discloses a building roof system comprising three thermally separated, decoupled layers (page 81, point 4 and figure 2), namely a lower supporting layer of concrete ("einer allein tragenden Betonunterschale"), an intermediate pressure-resistant thermal insulation layer ("einer druckfesten Wärmedämmschicht") and an upper floating concrete layer with integrated photovoltaic cells and absorber pipes ("einer „schwimmenden" Betonoberschale als Massivabsorber mit integrierten Photovoltaikmodulen"). In the preferred embodiment shown in figure 3, the roof system comprises (page 82, point 4.2.1):

- a 20 cm thick floating slab of reinforced concrete with integrated photovoltaic cells and absorber pipes;
- a 20 cm thick pressure-resistant insulating layer of EPS 035; and
- a 14 cm thick supporting slab of self-compacting concrete.

4.9 D20b teaches that the floating slab with integrated photovoltaic cells and absorber pipes is precast as a large roof tile in a manufacturing plant, transported to the construction site (figure 4) and then laid loosely on the insulating layer on site. The bottom edge of the floating slab is secured against sliding only by means of two anchors fixed on the supporting concrete slab (page 82, point 4.1 and figure 3; page 83, point 4.2.4 and figure 7).

4.10 The roofing system as disclosed in D20b does not form a power generation member in the sense of claim 1, which clearly is an integrated structural unit adapted to be attached to a framework to form a wall or roof of a building (feature a)).

4.11 In addition, whilst the supporting concrete slab can be seen as a first layer in the sense of claim 1, D20b fails to disclose feature d) of claim 1 that it includes "insulating material laid within a structure formed from a supporting material made of wood, or metal, or concrete or plastic or glass reinforced plastic". In fact, it can be derived from figure 7 of D20b that the insulating material was loosely laid on the supporting concrete layer.

4.12 Finally, the floating precast slab with photovoltaic cells and absorber pipes cast in concrete can be seen as a second layer in the sense of feature d), but D20b does not disclose the provision of a third layer in the form of a further thermal collector, positioned between the floating and supporting slabs (feature f)) or over the floating slab (feature g)).

4.13 The Board concludes that the claimed subject-matter of claim 1 differs from the roofing system disclosed in D20b at least by features a), c), f) and g).

4.14 Among the prior art documents cited by the examining division in the examination proceedings, D1 forms a more realistic and more promising starting point than D20b for the assessment of inventive step.

4.15 D1 discloses, in the terms of claim 1, a self-supporting structural unit adapted to be attached to roof battens to form a building roof (claim 4 of D1) and including (page 15, lines 21 to 28): a first layer being a support member formed from a supporting material made of plastic (polycarbonate body including back 61 and side wall portions 62); a second layer comprising a photovoltaic device (PV cell 65 in figure 4) which is close-thermal bonded to a thermal collector (thermal absorber 64); a third layer being a substantially transparent member (front face portion 63) secured over the second layer.

4.16 D1 does not disclose that insulating material is laid within the support member (see feature c)), nor that a third layer in the form of a further thermal collector is positioned between the first and second layers (feature f)) or over the second layer (feature g)).

4.17 Thus, the unit defined in claim 1 differs from that disclosed in D1 by feature c) and feature f) or g).

4.18 These distinguishing features have the effect that heat from the photovoltaic device can be more efficiently absorbed than in D1. Hence, starting from D1, the objective technical problem to be solved can be

formulated as how to enhance heat absorption efficiency.

4.19 The claimed solution to this problem is not part of the common general knowledge of the skilled person and is neither disclosed nor suggested in the cited prior art documents.

4.20 D2 discloses a photovoltaic roofing tile comprising a rigid transparent front layer, an electrically conductive foil back layer, and a plurality of solar cells therebetween. D3 concerns a roof panel constructed from extruded translucent thermoplastic sheeting for heating a dark, heat absorbing fluid by solar radiation. D5 discloses interlockable roof or wall panels having photovoltaic generator devices supported thereupon. D10 is concerned with a photovoltaic tile adapted for installation on a rooftop.

4.21 In conclusion, with regard to the prior art cited by the examining division, the subject-matter of claim 1 involves an inventive step in the sense of Article 56 EPC.

5. The Board notes that the combination of features a), b), c), d), e) and f) of claim 1 corresponds essentially to the subject-matter of the auxiliary request that has been found allowable by the examining division in the decision under appeal (see point 22.5 of the reasons).

6. The description has been brought into conformity with the amended claims.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division with the order to grant a patent in the following version:
   - claims 1 to 9 filed in the oral proceedings before the Board;
   - description pages 1 to 12 filed in the oral proceedings before the Board;
   - figures 1 to 14 of the application as originally filed.

The Registrar: The Chairman:

C. Spira G. Ashley

Decision electronically authenticated