

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen
(D) [] No distribution

D E C I S I O N
of 14 February 2002

Case Number: T 0047/01 - 3.2.3

Application Number: 89907236.7

Publication Number: 0378636

IPC: F25C 3/04, A63C 19/10

Language of the proceedings: EN

Title of invention:
Snow making equipment and method

Patentee:
Clulow, Malcolm George

Opponent:
Linde AG

Headword:
-

Relevant legal provisions:
EPC Art. 56
EPC R. 67

Keyword:
"Inventive step - (yes) after amendment"
"Reimbursement of the appeal fee - (denied)"

Decisions cited:
G 0007/95, T 0930/92

Catchword:
-



Case Number: T 0047/01 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 14 February 2002

Appellant: Clulow, Malcolm George
(Proprietor of the patent) Kidderminster DY 104TT (GB)

Representative: Cowan, David Robert
WITHERS & ROGERS
Goldings House
2 Hays Lane
London SE1 2HW (GB)

Respondent: Linde AG
(Opponent) Abraham-Lincoln-Straße 21
D-65189 Wiesbaden (DE)

Representative: Obermüller, Bernhard
Linde Aktiengesellschaft
Zentrale Patentabteilung
D-82049 Höllriegelskreuth (DE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office dated 19 October 2000,
posted on 13 November 2000, revoking European
patent No. 0 378 636 pursuant to Article 102(1)
EPC.

Composition of the Board:

Chairman: F. Brösamle
Members: J. Kollar
U. Tronser

Summary of Facts and Submissions

- I. European patent No. 0 378 636 was opposed by Linde AG - respondent in the following - for reasons of Articles 100(b), 100(c) and also 100(a) EPC in the light *inter alia* of
- (E1) US-A-3 250 530.
- II. In the oral proceedings held on 19 October 2000 the opposition division revoked European patent No.0 378 636 for reasons of Article 100(c) EPC. Although being duly summoned the representative of the patentee-appellant in the following - was not present in these oral proceedings as can be seen from the minutes thereof, page 1, first paragraph (not from the **front sheet** thereof!).
- III. Against the above decision -which was posted on 13 November 2000 - the appellant filed an appeal on 9 January 2001 paying the fee on the same day and filing the statement of grounds of appeal on 12 March 2001 in which it is requested to delete the word "substantially" from granted claims 1 and 7.
- IV. Claims 1 and 7 read as follows:
- "1 A method of making snow within a confined envelope (V) of cold air wherein the envelope (V) is defined by a building structure (10), part of the envelope defining a surface (12) on which the snow is to be deposited, the method comprising cooling and maintaining the envelope of air (V) at a temperature below the freezing point of water

and at a humidity of below 100% at least during snow making by introducing cooled and dry air into the envelope, discharging water droplets in a flow of air into the body of air so that the water droplets are transformed into snow in said body of air and are received on said surface, discharge of air into the envelope being separate from the discharge of air with the water droplets, thermal storage means (32) which includes a mass (36) of cold material providing a source of cooling at least the cold, dry air discharged into the envelope (V), and refrigeration means (26, 27, 28) cooling the thermal storage means."

- "7. Snow making equipment for making snow within a confined envelope (V) of cold air, defined by a building structure (10), part of the envelope defining a surface on which the snow is to be deposited, which equipment comprises spray generating means (17) for directing a flow of water droplets and air into the envelope (V), air cooling and drying means and fan means (20) for directing a flow of cold, dry air into the envelope (V), the air cooling and drying means and fan means (20) providing cold air for introduction into said envelope (V) independently of air discharged from the spray generating means (17), thermal storage means (32) which comprises a mass of material (36) with thermal retention properties and provides a thermal store for the air cooling and drying means and refrigeration means (26, 27, 28) for cooling the thermal storage means (32)."

V. Following the board's Communication pursuant to Article 11(2) RPBA in which the board expressed its

provisional assessment of the case oral proceedings before the board were held on 14 February 2002 in which the parties agreed to discuss only the issue of Article 100(a) EPC and not to remit the case to the first instance for further prosecution. The board restricted the discussion to the issue of inventive step since novelty was not objected in the statement of opposition.

VI. The arguments brought forward by the parties essentially can be summarized as follows:

(a) appellant:

- (E5) and (E7) are common technical knowledge and therefore superfluous whereas (E6) is not clearly prepublished; these documents should therefore not be allowed into the proceedings;
- with the claimed subject-matter **indoor** snow making is possible over a long period since the conditions for snow making are clearly observed, namely temperature **and** humidity of the envelope's body of air;
- the combination of the controlled body of air within the envelope, namely below the freezing point of water and a humidity of below 100% **at least during snow making**, the spray generating means and the thermal storing means safeguard making snow on a **continuous basis**; in addition the thermal store can be charged up during non snow making periods with reduced refrigeration capacity; on the other hand the thermal store takes over the function of a cooler when snow

making so that the temperature of the body of air within the envelope does not rise towards values detrimental to snow making;

- in contrast (E1) does not disclose a thermal store rather an air condition equipment acts as the **cooler** without, however, recognizing the crucial importance of the **humidity** of the air within the tunnel(s), see column 1, second paragraph and column 3, first paragraph, of (E1);
- summarizing, the crucial influence of the humidity of the body of air within the envelope and the recognition that saturation of the body of air stops snow making makes the subject-matter claimed nonobvious; the kind of snow can be influenced by controlling the degree of humidity;
- in combination with the thermal storage means - not rendered obvious by (E1)- the subject-matter of claim 1 is nonobvious; it is true that claim 7 does not literally contain the functional term "air at a humidity of below 100%", however, claim 7 prescribes "air cooling/drying means...for directing a flow of... dry air into the envelope" being a synonym to a humidity of air of below 100%; under these circumstances claim 7 also defines a nonobvious subject-matter;
- with respect to the request for reimbursement of the appeal fee it is observed that the first instance decided in the absence of appellant's representative on a merely formal matter leading to the present appeal.

(b) respondent:

- the appellant's letter dated 9 January 2002 gives rise to the introduction of (E5) and (E7), namely extracts of "Chemical Engineers Handbook" and US-A-4 790 531 (E6) being published on 13 December 1988 to show that any air conditioning comprises the simultaneous control of the temperature and humidity of the air and the specific heats, for instance of alumina and of stone. The US- document not being prepublished is seen as evidence for "indoor"- snow making (see Figure 16);
- from (E1) all structural features are known, namely an envelope, a snow receiving surface, the introduction of water and atomizing air, an independent discharge of atomizing air and air for maintaining the humidity of the air within the envelope below 100% and below the freezing point of water, a thermal storage means including a mass of cold material cooling at least the body of air in the envelope and refrigeration means cooling the thermal storage means;
- in (E1) the air conditioning means are separate from the cooling of thermal storage means; this difference with respect to claims 1 and 7 is, however, obvious for a skilled person;
- the functional term of claim 1, namely cooling/maintaining the body of air within the envelope "below the freezing point of water and at a humidity of below 100%" is seen as trivial since otherwise conditions were present in favour of raining/snowing/fog building making the spray gun

superfluous; a humidity of below 100% for a skilled person is a must in areas where human beings are active so that this functional term is not appropriate to distinguish the claimed subject-matter from (E1);

- claims 1 and 7 are silent about the material and size of the thermal storage means so that again no difference to the disclosure of (E1) can be seen;
- with respect to claim 7 it is observed that its structural features are known from (E1) and that any feature relating to the humidity of the body of air within the envelope is missing;
- summarizing, the subject-matter of claims 1 and 7 lacks inventive step.

VII. The appellant requests to set aside the decision under appeal, maintenance of the patent on the basis of documents submitted during the oral proceedings and reimbursement of the appeal fee.

VIII. The respondent requests dismissal of the appeal.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

2.1 In claims 1 and 7 the word "substantially" was deleted. This deletion does not infringe the requirements of Article 123(2) EPC, see originally filed claim 1 and

its feature "within a confined envelope of air".

2.2 Claims 1 and 7 do not extend the scope of protection since they are **narrower** than granted claims 1 and 7 covering "substantially confined", Article 123(3) EPC.

2.3 Summarizing, claims 1 and 7 are not open to objections under the requirements of Article 123 EPC.

3. *Novelty*

In the statement of opposition only inventive step was objected under Article 100(a) EPC. In agreement with the appellant who objected against discussing the requirements of Article 100(a) EPC the board did not allow the discussion of novelty with respect to (E1), see decision of the Enlarged Board of Appeal G 0007/95, OJ 1996, 626, in particular remark 4.3 and 4.6 as well as the Order, paragraph 2.

4. *Prior art to be considered:*

The board did not allow document (E5) to (E7) into the proceedings, Article 114(2) EPC, since it came to the conclusion that they relate to general knowledge in the field of chemical engineering, see (E5) and (E7), or relate to a non-published document, see (E6). The respondent's argument that the Japanese document corresponding to (E6) was prepublished might be correct; however, the board and the appellant being confronted with (E6) only in the oral proceedings could not verify whether or not the Japanese document was identical with (E6). Moreover, (E6) appeared to relate to a **mobile** snow making apparatus not being claimed in the discussed patent.

5. *Inventive step*

Claim 1

5.1 The nearest prior art is (E1) which discloses a confined envelope, namely tunnels "12, 13, 14", being based on air conditioning units "31" mounted upon ceiling "which will provide a substantially uniform snow maintaining **temperature**" (emphasis added), see column 3, lines 6 to 10 and lines 18 to 21 of (E1). During snow making large amounts of latent heat on snow formation are released so that the temperature rises and the humidity of the air quickly reaches 100% humidity.

A microclimate being formed of moist and warming air can lead to the formation of ice instead of snow.

5.2 Most of the structural features of claim 1 are known from (E1), such as a confined envelope, a snow receiving surface, an installation to introduce water and atomizing air into the confined envelope, independent means for discharging the atomizing air and cooling air. As an alternate to the means for cooling the air to be discharged into the envelope means for cooling the snow receiving surface can be provided for.

5.3 Contrary to the opinion of the respondent the board takes the view that claim 1 differs from (E1) by the following features:

- (a) the body of air in the confined envelope is maintained at a humidity of below 100% at least during snow making;

- (b) the cooled air introduced in the confined envelope is dry;
- (c) thermal storage means including a mass of cold material as the means to cool the air discharged into the confined envelope and
- (d) refrigeration means cooling the thermal storage means being provided for.

5.4 (E1) is completely silent about any other crucial parameter of the air within the confined envelope than temperature. The board holds that above feature (a) is not trivial (humidity of below 100% at least during snow making) since it has to be accepted that not only the air temperature but also its humidity are responsible for **saturation** - under which condition snow making becomes impossible - which condition according to feature (a) is avoided by introducing **dried air**.

5.5 In (E1) the circulating brine system, see reference signs "32" in Figure 3, can replace the air conditioning units "31" mounted upon ceiling of the confined envelope, both cooling means being, however, no **thermal storage means including a mass of cold material**. Any other interpretations of the known cooling means according to (E1) are clearly the result of inadmissible hindsight. Since above feature (d) is linked to above feature (c) it is also not known from (E1). The thermal storage means is seen as a distinguishing feature with respect to (E1) -contrary to the findings of the respondent.

5.6 Starting from (E1) it is the object of the present invention to provide a method of making snow and a snow

making equipment, respectively, which overcomes the problems encountered with snow making in confined or enclosed spaces.

5.7 The above object is solved by the features laid down in claim 1 (method claim) and 7 (apparatus claim) basically by introducing not only cold but rather cold **and** dried air into the confined area when making snow to safeguard a humidity of the body of air in the confined envelope below 100% and by the existence of a thermal storage means including a mass of cold material which mass is cooled by refrigeration means.

5.8 The board holds that already the recognition of the influence of humidity of the body of air within the confined area during snow making is a first step away from the teaching derivable from (E1) which is restricted to a temperature control, namely holding the body of air below the freezing point of water.

The second step not rendered obvious by(E1) is the provision of a thermal storage means including a mass of cold and cooled material. It is clear that the thermal storage means **in combination** with the means for discharging cold air into the confined envelope **during snow making** are the means for safeguarding the humidity of the body of air within the confined envelope to be below 100% - so that **saturation effects**, rendering snow making over a long period impossible, are excluded. The degree of humidity of the air within the confined envelope is furthermore a suitable means for varying the kind of wanted snow.

5.9 As an additional effect the mass of cold material forming the thermal storage means can be recharged with

reduced refrigeration capacity during non-snow making periods. It is believed that the thermal storage means plays an important role in the indoor snow making and that its dimension clearly is a matter of the given conditions.

In contrast to the facility according to (E1) the air condition equipments of the prior art are to be seen as coolers and nothing else. Even taking document (E5) into consideration - in this document several parameters of an air conditioning are presented (including humidity) - said document is silent about the requirement that the cooled air has to be dry in any air condition equipment (as explicitly claimed in claim 1 of the discussed patent). What might be favourable under non-snow making conditions is not necessarily a must in the indoor snow making areas. The board holds that the restriction of humidity in claim 1 is a **distinguishing feature** with respect to (E1).

5.10 Summarizing, (E1) cannot render obvious the subject-matter of claim 1 even if the general technical knowledge of a skilled person were duly considered. The requirements of Articles 56 and 100(a) EPC are therefore met so that claim 1 is valid.

This is also true for the dependent claims 2 to 6 as granted.

Claim 7

6. Claim 7 does not contain the feature that the body of air in the confined envelope is maintained at a humidity of below 100% at least during snow making. Claim 7 contains, however, sufficient technical informations for a skilled person that the above feature can be and is to be carried out, see claim 7 "for directing a flow of cold, **dry air** into..." and "the air cooling and **drying** means" (emphasis added), so that nothing is missing in claim 7 with respect to the teaching of claim 1.

Under these circumstances the considerations with respect to the validity of the subject-matter according to claim 1 are likewise applicable to the subject-matter of claim 7. Claim 7 is therefore also valid, Articles 56 and 100(a) EPC.

The dependent apparatus claims 8 to 12 are likewise valid.

7. *Reimbursement of the appeal fee.*

- 7.1 As can be seen from the minutes of the oral proceedings held before the opposition division, see page 1, first paragraph, the appellant's representative (being duly summoned) was not present. The opposition division tried to clarify the absence of the representative, however, without success. In addition the oral proceedings were postponed by thirty minutes.

The board is convinced that the opposition division acted correctly.

- 7.2 The opposition division came to the conclusion that the expression "substantially" in claims 1 and 7 as granted violated the requirements of Articles 123(2) and 100(c) EPC and that the patent had to be revoked.
- 7.3 According to Rule 67 EPC reimbursement of the appeal fee shall be ordered where the board of appeal deems an appeal to be allowable, if such reimbursement is equitable by reason of a substantial procedural violation.
- 7.4 In the present case no substantial procedural violation can be seen by the board in view of the fact that the oral proceedings were held before the opposition division in the absence of one of the appellant's representatives, who in spite of being duly summoned did not attend the oral proceedings, without having informed the opposition division previously of the intention not to participate in the oral proceedings, what they should have done, see decision T 0930/92, OJ 1996, 191.
- 7.5 Summarizing, the request for reimbursement of the appeal fee cannot be allowed.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the

following documents submitted during the oral proceedings:

claims: claims 1 to 12;

description: pages 2 to 4;

drawings: Figures 1 to 3.

3. The request for reimbursement of the appeal fee is refused.

The Registrar:

The Chairman:

A. Counillon

F. Brösamle