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D E C I S I O N
of 14 August 1997

Case Number: T 0481/94 - 3.2.3

Application Number: 90904191.5

Publication Number: 0461160

IPC: F25C 3/04

Language of the proceedings: EN

Title of invention:
Snow-making method and device

Applicant:
FRENCH, Andrew Boyd

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0481/94 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 14 August 1997

Appellant: FRENCH, Andrew Boyd
42 Rio Vista Boulevard
Broadbeach Waters, QLD 4218 (AU)

Representative: Ede, Eric
Fitzpatricks
4 West Regent Street
Glasgow G2 1RS
Scotland (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 9 February 1994 refusing European patent application No. 90 904 191.5 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: C. T. Wilson
Members: J. du Pouget de Nadaillac
L. C. Mancini

Summary of Facts and Submissions

I. The appeal was lodged on 8 April 1994 against the decision dated 9 February 1994 of the Examining Division of the EPO, which refused the European patent application No. 90 904 191.5 (Publication No. WO 90/10183) for lack of novelty of the subject-matter according to claim 1 of this application.

II. The prescribed appeal fee was duly paid on 11 April 1994. The appellant (proprietor of the patent application) submitted the grounds of appeal on 10 June 1994 with a new set of claims. On 16 August 1994, he filed a declaration from Mr Hermann Fuhrmann and also some documentation concerning the invention.

III. The same day third party observations under Article 115 EPC were submitted, citing the following prior art documents:

D1: US-A-3 762 176
D2: FR-A-2 594 528
D3: US-A-2 968 164
D4: JP-63-254 363 (patents abstracts of Japan)

During the examination proceedings, the following documents were taken into account:

D5: FR-A-1 444 733
D6: EP-A-0 277 933
D7: US-A-3 250 530
D8: US-A-4 790 531
D9: FR-A-1 372 024
D10: US-A-3 733 029
D11: EP-A-0 266 859
D12: US-A-3 257 815
D13: US-A-2 020 719

IV. Oral proceedings were held on 6 May 1997. The appellant requested that a patent be granted on the basis of claims 1 to 8, as amended in the oral proceedings. At the end of these proceedings, the Board decided to continue the procedure in writing, so that a new description and new drawings adapted to the claims could be submitted.

On 4 July 1997, these documents were received.

V. Claim 1 reads as follows:

"A light-weight portable snow making apparatus which is easily transported for assembly and use at any selected location comprising an artificial environment (1) provided within a stowable tent or dome-like structure (2); means (5) for controlling the temperature and humidity within the environment and at least one snow gun (10) having at least the nozzle provided within or adjacent to the environment."

VI. The appellant argued as follows:

The object underlying the present invention is to provide an apparatus or a method for obtaining a snow surface in situ, directly at any number of selected locations. The main features of claim 1 are that the apparatus is light-weight and portable. Important also is the tent or dome-like structure, which allows to create an artificial environment. Said tent is a controlled collector means for protecting the just produced snow until it stabilizes. A snow gun must therefore be used and not apparatus of the fan-type.

The closest prior art, revealed by document D3, has no controlled and enclosed environment, and requires the use of a fan for snow-making, which cannot suggest the provision of a light-weight structure for such an environment.

Having regard to the prior art documents, which are concerned with indoor arrangements for the manufacturing of snow, they all disclose **huge** fixed structures, enclosing the entire ski area. In document D8, a movable module providing a controlled environment slides on guide-rails running above artificial ski runs, which are provided in an indoor skiing coliseum. This module is a very heavy structure and moreover it permanently moves, so that no indication is given to provide a controlled environment within a fixed structure for protecting the snow, which has just been produced, until it stabilises. Moreover, this module is associated with a self-powered track-supported snow machine, which can only be of the fan snow making machine configuration, leading away from both a light-weight and portable structure and a stowable tent.

VI. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 8 amended during the oral proceedings, and filed together with the adapted description and drawings on 4 July 1997.

Reasons for the Decision

1. The appeal is admissible.

2. Claim 1, which is the only independent claim, is limited to one embodiment among those disclosed in the patent application, as originally filed. This embodiment is illustrated in the original Figures 1 and 2, which show a tent, that is to say a structure which is stowable by nature. According to page 3 of the original description, the tent can be transported on a ski-like structure and can be assembled on and connected to a ground surface by means of tent pegs. It may also be inflated. Such a tent forms a closed environment separated from the external natural environment. Page 2 of the description, as originally filed, indicates that "temperature, humidity and otherwise conditioned air is supplied" into such an environment by appropriate means. Moreover, according to page 3, a snow gun is supplied within this closed environment or can be provided externally therethrough, the nozzle of the snow-gun being directed through a hole of the tent wall (page 5, lines 3 to 8). Claim 1 is therefore supported by the documents of the application, as originally filed.

   The description and the drawing have been adapted to the new claims. In particular, all the passages and drawings concerning other embodiments (original Figures 3a to 3d, and 4) are deleted. The closest prior art, namely document D3, has been acknowledged in the introductory part of the description.

   Thus, the requirement of Article 123(2) EPC is satisfied.

3. Since the combination of a light-weight, portable snow-making apparatus including a stowable tent and a snow gun is disclosed by none of the cited prior art documents, the subject-matter of claim 1 is new.

4. The documents cited in the proceedings can be divided into two categories:

- one category concerns the snow making devices, which can be considered to pertain to two different types, namely:

  * the snow guns, in which air and water, both under pressure, are mixed, sometimes with a refrigerant (citations D1, D2, D5, D9 and D11)

  * the fan devices, in which a fan projects an air flow into sprayed water (D3, D6 and D10), eventually also with a refrigerant.

- and the other category relates to indoor ski slopes or area (D4, D7, D8).

Among these citations, the single one which aims at producing snow at any selected locations and thus describes a snow making device which is easily transported, is the citation D3. This document represents therefore the closest prior art.

5. Said closest prior art describes a motor-driven air propeller for producing a large volume of air drawn from the ambient surroundings. This fan is associated with a hose nozzle which directs a stream of water mixed with crushed ice into the air stream. This snow making device is mounted on the platform of a truck.

6. Therefore, the object underlying the present invention is to provide a portable snow making apparatus which can provide a snow surface in situ, directly at any number of selected locations.

7. The solution as defined by claim 1 comprises a snow gun provided within or adjacent to an artificial and controlled environment located within a tent or the like, both components being easily portable.

Snow guns per se are known in the prior art, see in this respect D1, D2, D5 and D9. In this kind of device, however, one main problem is the freezing of the nozzles or of the entire gun during use. The present invention by providing a controlled artificial environment prevents this disadvantag and therefore the blockage of the nozzle. Moreover, since this environment is created within an enclosed structure, in which the snow is produced and **collected,** the snow crystals being under appropriate environmental conditions have time to complete their crystallization process and to stabilize, so that a snow of good quality isolated from the ambient environment is obtained. The heat transfer from the surroundings is minimized and only the heat exchange between the air, water and the cooling gas takes place. The controlled environment further ensures that the ground first cools down and thus the first layer of snow remains in state, isolating the following layers, so that the snow retention is improved. Once the snow is stabilized, it can be collected from the tent and spread over the ski runs, or the stowable tent can also be moved.

- The use of snow guns and not fan devices, with the large volumns of air they imply, is imperative, since this kind of snow making device is combined with a light-weight, stowable tent or the like, which implies a small structure. This small light-weight and portable structure is to be distinguished from big structures, which can enclose a ski run or a whole skiing area. The appellant has filed photographs, which show for example a small tent for the production of snow according to the present invention, said tent being inside a large structure in the form of a tunnel covering a ski run. According to claim 1, the controlled environment is provided in the stowable tent and not in a large indoor structure, if the latter is present.

- From the above, it follows that the two features of the solution according to claim 1, namely the use of a snow gun and the provision of an artificial environment in the form of a light-weight enclosure, are so interrelated technically, that they form a combination of features, the controlled environment permitting the snow crystals to stabilize and then improving the quality of the snow being realized without large structures, the use of snow-guns, which are light-weight apparatuses, allowing the use of a stowable tent or the like for said controlled environment.

8. It remains to be decided whether this combination of features is obvious in the light of the prior art.

8.1 The only prior document, which could provide a suggestion in the direction of the claimed solution, is D8. This document relates to an indoor ski area in the form of an enclosed building having one or more support towers, around which a helically descending ski ramp is

secured. This **structure** is insulated. However it is not artificially cooled to snow-making temperature, since the object of **this** prior art is to reduce the energy costs. In order to nevertheless solve the problem of having the ramp covered with a layer of snow, a moveable module with a roof and curtain sides but no floor is suspended from rails above the ski ramp. A controlled refrigerated environment is provided in this module, which is a huge structure with great dimensions (25 m; 30 m; 10 m;), and, within this module, self-powered and mobile snow-making machines produce the snow. These snow-making machines and the module are moved along the ramp at the same speed while the artificial snow is being made. The snow-making machine with self-propelling endless tracks shown in Figure 16 of this citation appears to be of the fan type.

8.2 Although this prior art described a rather confined controlled environment combined with snow making machines, it cannot suggest the solution according to claim 1 of the patent in suit, since the module is continuously moving so that it cannot suggest a **fixed** structure provided with a controlled environment for stabilizing snow, which has just been made. Moreover, the snow-making machines of the **fan** type cannot suggest the use of a light-weight, stowable tent or the like, nor can the huge module with its snow-making self-propelled machines direct the skilled person to a solution, which would improve or replace the solution according to the closest prior art D3, such as to arrive at the subject-matter of claim 1.

8.3 Neither do the other cited documents of the prior art give any indication in the direction of the solution according to claim 1 of the patent application in suit. As seen above in point 4, they mainly concern the snow-making machines per se, or indoor structures in the form of buildings.

8.4 Therefore, the subject-matter of claim 1 involves an inventive step. Claims 2 to 8 which are dependent on claim 1, concern further structural features of the claimed apparatus and are therefore also allowable.

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 grant a patent on the basis of the documents filed on 4 July 1997, namely claims 1 to 8, description pages 1, 1a and 2 to 6, and drawings page 1/1.

The Registrar: The Chairman:

N. Maslin C. T. Wilson