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Datasheet for the decision of 30 September 2022

Case Number: T 1730/20 - 3.2.01

Application Number: 14716711.8

Publication Number: 2967224

IPC: A47C27/08, A47C31/12, A61B5/11, A61B5/00

Language of the proceedings: EN

Title of invention:
INFLATABLE AIR MATTRESS SYSTEM WITH DETECTION TECHNIQUES

Patent Proprietor:
SELECT COMFORT CORPORATION
SleepIQ Labs Inc.

Opponent:
Strawman Limited

Headword:

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
Novelty - (yes)
Inventive step - main request (no) - auxiliary request (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
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Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1730/20 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 30 September 2022

Appellant: (Opponent)	Strawman Limited Orchard Lea Horns Lane Combe, Witney Oxfordshire OX29 8NH (GB)
Representative:	Mummery, Thomas Zack Reddie & Grose LLP The White Chapel Building 10 Whitechapel High Street London E1 8QS (GB)
Respondent: (Patent Proprietor 1)	SELECT COMFORT CORPORATION 9800 59th Avenue North Minneapolis, Minnesota 55442 (US)
Respondent: (Patent Proprietor 2)	SleepIQ Labs Inc. 111 West Saint John Street, Suite 1200 San Jose CA 95113 (US)
Representative:	Fish & Richardson P.C. Highlight Business Towers Mies-van-der-Rohe-Straße 8 80807 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 22 June 2020 concerning maintenance of the European Patent No. 2967224 in amended form.**

Composition of the Board:

Chairman	G. Pricolo
Members:	M. Geisenhofer
	A. Jimenez

Summary of Facts and Submissions

I. The appeal was filed by the opponent (appellant) against the interlocutory decision of the opposition division finding that, on the basis of the auxiliary request 1 (then on file), the European patent EP 2 967 224 met the requirements of the EPC.

II. The opposition division decided that the subject-matter of claims 5 and 11 of this request was novel and inventive, in particular over the following document:

O5 US 2008/0189865 A1

III. Oral proceedings were held before the Board.

(a) The appellant (opponent) requested that the decision under appeal be set aside and that the European patent be revoked.

(b) The respondent (patent proprietor) requested that the appeal be dismissed or in the alternative that the patent be maintained in amended form based on auxiliary request 2 filed with the reply to the statement of grounds of appeal.

(c) The respondent filed during oral proceedings a replacement page 8 of the description with handwritten amendments in paragraphs [0055] and [0056].

IV. Independent claim 5 according to the **main request** (patent as maintained by the opposition division) reads as follows:

"*A method comprising:*
detecting whether a user is present on an air mattress, comprising:
receiving, at a central controller (302) of an air mattress system, a plurality of air pressure values;
determining (602) a rate of air pressure change using the plurality of the received air pressure values;
comparing (604) the determined rate of air pressure change to a threshold value; and
determining (606), based on the comparison, whether a user of the air mattress transitioned out of and left the air mattress or transitioned onto and is now on the air mattress."

Independent claim 11 according to the main request reads as follows:
"*A bed system (10, 300) comprising:*
an inflatable air mattress;
an adjustable foundation; and
a central controller (302) comprising a pump; and a processor (36, 402) configured to detect whether a user is present on the air mattress, the detection comprising:
receive a plurality of air pressure values;
determine a rate of air pressure change using the plurality of the received air pressure values;
compare the determined rate of air pressure change to a threshold value; and
determine, based on the comparison, whether a user of the air mattress transitioned out of and left the air mattress or transitioned onto and is now on the air mattress."

The main request comprises two further independent claims 1 and 7.

Auxiliary request 2 differs from the main request only in that independent claims 5 and 11 are omitted, and the remaining claims renumbered.

V. The appellant's arguments can be summarised as follows:

The subject-matter of claims 5 and 11 according to the main request was not novel over O5, at least not inventive over a combination of O5 with the general common knowledge of the skilled person.

(a) O5 disclosed a bed system with an inflatable air mattress having a plurality of compartments, and a central controller. The controller received a plurality of air pressure values from the compartments and determined a respective rate of air pressure change using the plurality of the received air pressure values. The determined rate of air pressure change was compared to a threshold value for each compartment such that the controller could distinguish whether or not a patient was located on the respective compartment of the mattress.

If none of the compartments was subject to a patient's load, the controller thus determined that a user of the air mattress transitioned out of and left the air mattress. Analogously, the controller did also determine whether a patient transitioned onto and was on the air mattress.

(b) Under the assumption that the controller of O5 did not determine whether a user transitioned out of or onto the mattress, it was obvious to use the information on whether a patient was present on any

of the compartments to also check whether the patient transitioned out of or onto the mattress.

No objections were raised with regard to further independent claims 1 and 7 of the main request.

The auxiliary request 2 was not objected either.

VI. The respondent’s arguments can be summarised as follows:

Document O5 neither anticipated the subject-matter of claim 5 nor of claim 11 of the main request.

(a) The controller of O5 used four load beams for determining the weight of the patient. These sensors were also used to determine whether the patient transitioned out and left the air mattress or transitioned onto and was on the air mattress. The rate of air pressure change was used in O5 only to monitor the patient's mobility once the user transitioned onto the air mattress but not for determining whether a user was present on the air mattress.

(b) There was no need to search for an alternative way of determining the presence of a patient on the mattress since the solution used in O5 worked sufficiently well.

(c) Even if the skilled person would search for an alternative, he/she would not consider using the rate of air pressure change for determining the presence of a user on the air mattress since the controller could not clearly distinguish between the pressure being increased to provide more

stiffness to the air mattress, a person moving on the air mattress or a person transitioning onto the air mattress.

(d) Furthermore, the air mattress of O5 comprised *inter alia* a section (reference sign 36) that was not an inflated compartment but was made of foam. A user sitting only on that section hence could not be detected by the controller.

Reasons for the Decision

Main request

Novelty and inventive step (Articles 54 and 56 EPC)

1. The opposition division held that the subject-matter of claims 5 and 11 is novel over O5.

1.1 It is undisputed between the parties that document O5 discloses a bed system comprising:
- an inflatable air mattress (14) with several compartments (32, 34, 38);
- an adjustable foundation (12); and
- a central controller (26) comprising a pump (64).

The processor of the controller of the bed system of O5 carries out a method comprising the steps of:
- receiving, at the central controller (26) of the air mattress system, a plurality of air pressure values (from pressure sensors 28a, 28b, 28c);
- determining a rate of air pressure change using the plurality of the received air pressure values (paragraph [0074]: "pressure change rate test"); and

- comparing the determined rate of air pressure change to a threshold value ([0074]: "a dp/dt greater than a threshold value...").

1.2 It is however disputed whether the pressure change rate test described in paragraph [0074] allows for detecting whether a user is present on the air mattress, in particular whether the controller is configured for determining, based on the comparison, whether a user of the air mattress transitioned out of and left the air mattress or transitioned onto and is now on the air mattress.

1.3 Document O5 describes in paragraph [0074] that the "pressure change rate test" is carried out to determine whether the patient is supported on a certain compartment ("bladder"). Determining for each of the compartments (32, 34, 38) that the patient is not supported on it hence provides only the information that the patient is not supported on the respective part(s) of the bed equipped with inflatable compartments. Moreover, there might be other areas of the mattress which are not provided with inflatable compartments such as the section (36) shown in figure 3 which is made of foam (cf. paragraph [0045]).

1.4 Paragraph [0074] further refers in the last sentence of the paragraph to other means to conclude that the patient is on the bed ("*the system otherwise concludes the patient is on the bed*"), referring to the weight sensor readings described in paragraph [0051]. The weight sensor readings stem from four load beams (74a, 74b, 74c, 74d) of the scale system between the support deck (76) with upper frame (78) and the mattress, and intermediate frame (80). A load beam does not involve

an air pressure within a compartment but uses force sensors.

1.5 The method carried out by the controller of O5 thus does not clearly and unambiguously involve determining, based on the comparison of the determined rate of air pressure change to a threshold value, whether a user of the air mattress transitioned out of and left the air mattress or transitioned onto and is now on the air mattress.

The method of claim 5 and the bed system of claim 11 are hence novel over document O5.

2. It is however not inventive to use the information on the presence of a patient on each of the compartments respectively to allow the controller to determine whether a patient has transitioned out of and left the air mattress or has transitioned onto and is on it.

2.1 Paragraph [0045] of O5 suggests to provide instead of the foam section (36) an additional inflatable compartment such that O5 also discloses an embodiment with all parts of the mattress being covered by inflatable compartments.

Furthermore, paragraph [0075] describes that the pressure change rate test can be performed in all compartments simultaneously to improve the accuracy of the patient position determination.

2.2 If all zones provide the information that the patient is not supported by the respective compartment and if the zones cover the entire mattress, it is the logical consequence that the patient is no longer on the air mattress but must have transitioned out of it.

2.3 Using this additional information based on the signals already available to the controller allows for an alternative to the use of the load beams for determining whether the user is still on the air mattress, thus resulting in a bed system with a more simple design.

Albeit O5 already discloses a way of deriving the information on the presence of a user on the air mattress, this would not prevent the skilled person from considering alternative ways for achieving the same goal with other means.

2.4 The controller of O5 obviously is - contrary to the allegation of the respondent - able to distinguish between the user changing his or her position on a particular compartment of the air mattress (i. e. moving from a supine position to a side-lying position) and a user being no longer supported by this compartment. This is *expressis verbis* described in paragraphs [0074] and [0078].

2.5 The skilled person hence not only could but also would use the already present information from each of the compartments, based on the comparison of the determined rate of air pressure change to a threshold value, for also determining whether a user of the air mattress transitioned out of and left the air mattress (and, analogously, for determining whether a user transitioned onto and is now on the air mattress).

2.6 The skilled person would therefore arrive at the subject-matter of claim 1 without inventive step, whereby the main request does not comply with the requirement of Article 56 EPC.

Auxiliary request 2

3. The appellant did not object to the set of claims according to the auxiliary request 2.

4. The adapted description with replacement page 8 being filed during oral proceedings before the board was not objected either.

5. The board also has no objections and therefore the patent can be maintained in amended form based on the auxiliary request 2.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

Description:
Page 2-7 and 9 of the patent specification,
Page 8 filed during the oral proceedings on 30 September 2022;

Claims :
N° 1-10 as filed as auxiliary request 2 with the reply to the statement of grounds of appeal on 3 March 2021;

Drawings of the patent specification.

The Registrar: The Chairman:

A. Voyé G. Pricolo

Decision electronically authenticated