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**Datasheet for the decision
of 15 November 2013**

Case Number: T 0412/10 - 3.2.04

Application Number: 02077232.3

Publication Number: 1283065

IPC: A62C3/08

Language of the proceedings: EN

Title of invention:

Fire suppression system and method for an interior area of an aircraft lavatory waste container fire protection

Patent Proprietor:

The Boeing Company

Opponent:

AIRBUS Deutschland GmbH/AIRBUS France SAS/AIRBUS
UK Limited/AIRBUS España S.L./AIRBUS SAS

Headword:

Relevant legal provisions:

EPC Art. 123(2)
EPC 1973 Art. 54, 56

Keyword:

Novelty - main request (no)
Amendments - added subject-matter (no)
Inventive step - auxiliary request (yes)

Decisions cited:

Catchword:



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Case Number: T 0412/10 - 3.2.04

**D E C I S I O N
of Technical Board of Appeal 3.2.04
of 15 November 2013**

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 12 January 2010
rejecting the opposition filed against European
patent No. 1283065 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman: A. de Vries
Members: J. Wright
T. Bokor

Summary of Facts and Submissions

I. By its written decision dated 12 January 2010 the opposition division rejected the opposition against the patent No. EP 1283065. On 26 February 2010 the appellant (opponent) filed an appeal against the decision and paid the appeal fee. The statement setting out the grounds of appeal was received on 12 May 2010.

Opposition was filed against the patent as a whole and based on Article 100(a) EPC (lack of novelty and inventive step).

II. The following documents play a role in this decision:

D1: EP-A-0170749

D8: US-A-4420047

III. Oral proceedings before the Board of Appeal took place on 15 November 2013.

IV. The appellant requests that the decision under appeal be set aside and the patent be revoked.

The respondent (patentee) requests that the appeal be dismissed (main request), or in the alternative, that the decision under appeal be set aside and the patent be maintained in amended form on the basis of any of the auxiliary requests 1 to 3 filed by letter dated 5 October 2010.

V. Claim 1 of the main and first auxiliary requests of the respondent (patentee) reads as follows:

a) Main request (as granted)

"A fire suppression system (20, 120, 220, 320) adapted to extinguish a fire within a fuselage of an aircraft comprising:

a reservoir (28, 30, 128, 138, 228, 230, 354) for holding a supply of fire extinguishing medium therein; at least one nozzle (26, 26a, 140, 250, 358) for spraying said fire extinguishing medium over a predetermined area within said fuselage; at least one supply line for supplying said fire extinguishing medium from the reservoir to the nozzle; and a valve, positionable between a closed position and an open position and operably associated with the supply line, said valve (32, 150, 248) being positionable in said open position when a fire occurs within said fuselage, characterized by:
a cabin attendant alert [sic] system for providing a signal to a cabin attendant to indicate that said fire extinguishing medium from said reservoir is being communicated through said supply line to said nozzle, so that the cabin attendant may turn off system [sic] or evaluate the need for further assistance."

b) First auxiliary request

Claim 1 is as in the main request but adds the following final feature:

", and by the reservoir comprising a total airplane potable water reservoir (28, 128, 228) of the aircraft".

VI. The appellant (opponent) mainly argued as follows:
Claim 1 as granted lacks novelty with respect to D1. In particular D1 discloses a fire suppression system for an aircraft, wherein the status of the system is displayed during operation.

The Auxiliary requests of the respondent (patentee) add subject matter extending beyond the patent as filed by not including a further water reservoir and a pressure sensor. Claim 1 of these requests lacks inventive step starting from D1 combined with common general knowledge, and/or D8. The main difference between claim 1 and D1 is that water is used as the extinguishant. Using water is generally known, using water from an aircraft's potable water supply is known from D8.

VII. The respondent mainly argued as follows:

Claim 1 is new over D1 because that document discloses neither the feature of a cabin attendant alert system nor that extinguishant is being communicated as claimed.

Document D8 is late filed so it should not be admitted into the proceedings. With respect to the auxiliary requests, the features of a further water reservoir and pressure sensor are optional, therefore not claiming them does not extend the subject matter beyond that filed. The systems of D1 and D8 are incompatible and therefore not combinable when assessing inventive step.

Reasons for the Decision

1. The appeal is admissible.
2. *Background*
 - 2.1 The patent concerns a fire suppression system, in particular for an aircraft. The main idea of the invention is to use water as a fire extinguishant on an aircraft, so avoiding using dangerous chemicals, see specification paragraphs [0001] and [0006]. A further idea of the invention is to easily identify that the system has been activated, paragraph [0007]
3. *Main Request*
 - 3.1 Interpretation of the claim
 - 3.1.1 A first question to be answered is what is meant by the feature "cabin attendant alert system", in particular what structural limitations if any in the claimed system are implied by this feature. The respondent argues that the alert system of the fire suppression system claimed is implicitly located in an aircraft cabin, the word "attendant" only making sense if there are cabin passengers to attend to.
 - 3.1.2 The Board is unconvinced that this feature implies any specific structural limitation of the system components or of their arrangement on board an aircraft. The Board agrees with the appellant that defining the fire suppression system as "adapted to extinguish a fire within a fuselage of an aircraft" only implies that the fire extinguishing characteristics of the system make it capable of extinguishing a fire in an aircraft environment. It does not imply that the system is

installed in a fuselage of an aircraft as the respondent argued at oral proceedings before the Board, let alone that the alert system comprised therein is located in an aircraft cabin.

An important aspect of the invention is to provide a fire suppression system which is "easy to install" in an aircraft and which is "modular", specification paragraph [0010], therefore the Board holds that the system exists independently of an aircraft or aircraft cabin. Consequently it is irrelevant whether or not, if installed in an aircraft, the "cabin attendant alert system" defined in claim 1, would generate a warning in a cabin or elsewhere in the aircraft. Thus the Board interprets the feature "cabin attendant alert system" to mean an alert system capable of providing a signal perceivable by an individual.

- 3.1.3 In any case the Board agrees with the finding of the opposition division in its decision, see reasons 2.5, that in some aircraft cabin attendants would have access to (and thus could perceive signals in) an aircraft cockpit.

- 3.2 Novelty with respect to D1
 - 3.2.1 It is common ground that D1 discloses all the features in the preamble of claim 1. In summary, referring to page 6, line 11, to page 7, line 10, and figure 1, D1 discloses an aircraft fire suppression system comprising a reservoir consisting of bottles 19a, 19b..., at least one supply line in the form of conduits 20a, 20b...28, 32..., at least one nozzle 44, 46... and a valve 26, 30... as claimed.

- 3.2.2 Regarding the characterizing feature of a "cabin attendant alert system for providing a signal to a cabin attendant" D1 discloses a control panel 54 for the fire suppression system, see figure 2. That the panel 54 represents an alert system relating to the fire suppression system is evident, for example, from page 7, line 12, to page 8, line 12. Thus the control panel has switches 64,66 and 68 that are backlit, see the paragraph bridging pages 9 and 10, and top and bottom LEDs 78a-78g, 80a-80g.
- 3.2.3 As indicated on page 7, lines 12 to 17, the control panel is "readily accessible to the pilot, pilots or other personnel", which could include a cabin attendant. Hence the control panel of D1 is suitable to serve the purpose of alerting a cabin attendant and the Board holds the feature "cabin attendant alert system for providing a signal to a cabin attendant" to be disclosed by D1.
- 3.2.4 Regarding the feature "a signal...to indicate that said fire extinguishing medium is being communicated through said supply line to said nozzle", the respondent argues that this feature should be interpreted to mean that the signal is only generated when extinguishing medium is flowing in the supply line. The appellant argues for a broader interpretation, namely for the feature to mean that the system is activated.

The Board considers that, even the narrower interpretation of the feature (and therefore also the broader interpretation) is disclosed in D1. It is common ground that the green LEDs 78a-78g indicate a bottle is available and the amber LEDs 80a-g indicate when a bottle is discharged, i.e. it is empty. The question to answer is whether they indicate that

extinguishing medium is flowing. The respondent argues that the green LEDs remain on until the bottle is empty when the green LEDs turn off and the amber LEDs turn on. He bases this interpretation on page 25, lines 34-38 "*... each bottle that is discharged results in energization of the associated amber LED and de-energization of the associated green LED to provide a visual indication that the bottle has been discharged and is no longer available.*"

In order to understand this statement, the Board considers it expedient to examine the process by which bottles are discharged. The process starts when current is supplied to the corresponding detonator bridge 232a-g, as explained in D1, page 16, lines 24-33 with figure 6: "*When supplied with sufficient current, the bridges 232a-232g actuate respective bottle electrical initiators for the respective bottles 19a-19g to discharge the contents thereof.*" Furthermore, from page 25, lines 26 to 30, this destroys the detonator bridges and interrupts the current supply to the associated green LED: "*Each time a bottle is discharged, the associated detonator bridge 232a-232g is destroyed and the path to ground through the corresponding green LED 78a-78g is interrupted.*"

From these passages the Board infers that the green LED associated with a particular bottle will go out when that bottle starts to discharge.

The amber LEDs 80a to 80g also illuminate when current can pass through them to ground. However their paths to ground are controlled by pressure switches PS1 to PS7, see page 25, lines 30 to 33: "*Each time a bottle is discharged, the corresponding pressure switch PS1-PS7 closes due to the pressure drop in the bottle. This*

completes a circuit path to ground for the corresponding amber LED 80a-80g."

Therefore, independently of the state of the detonator bridge, the amber LED associated with a particular bottle will illuminate when the pressure in the bottle has dropped due to its having been discharged.

Reading these passages in conjunction with page 25, lines 34 to 38 the Board derives the following sequence of status signalling for a given bottle:

- Firstly, the associated green LED is lit to show that the bottle is available. Because the bottle is pressurised the amber LED is not lit.
- Secondly as soon as the bottle is detonated and flow of extinguishant is initiated, the green LED goes out.
- Thirdly, when extinguishant no longer flows from the bottle because the bottle is discharged, the associated amber LED turns on.

Thus whilst extinguishant flows from the bottle, neither the green nor the amber LED is lit. The opposition division's decision likewise interprets D1 as disclosing this signalling sequence, reasons 2.3. However, contrary to the division's finding that the D1 control panel does not signal information of extinguishant flow, the Board holds that the lighting sequence of the LEDs associated with a particular bottle (green on and amber off; green off and amber off; green off and amber on) does indeed constitute an unambiguous signal to an individual that (during that part of the sequence where both LEDs are off) fire

extinguishant from that bottle is being communicated via a supply line to a nozzle.

Thus the Board holds that D1 discloses "a cabin attendant alert system for providing a signal to a cabin attendant to indicate that said fire extinguishing medium is being communicated through said supply line to said nozzle".

3.2.5 The Board follows the parties in considering the final characterising feature of claim 1 "...so that the cabin attendant may turn off the system or evaluate the need for further assistance" to define possible actions of a cabin attendant apprised of the fact that extinguishant is flowing. Since an attendant is not part of the system claimed, the feature plays no role in the assessment of novelty.

3.2.6 The Board concludes that claim 1 of the patent as granted lacks novelty with respect to document D1, therefore the requirements of Article 52(1) with 54(2) EPC 1973 are not fulfilled. Thus the main request of the respondent (patentee) must fail.

4. *First auxiliary request*

4.1 Allowability of amendments, Article 123(2) EPC

4.1.1 Claim 1 of the respondent's first auxiliary request adds to claim 1 as granted the further feature "...and [characterised] by the reservoir comprising a total airplane potable water reservoir (28, 128, 228)". The appellant argues that the feature is only disclosed in combination with a further water reservoir and a pressure sensor, neither of which have been claimed, resulting in an unallowable intermediate generalization

(see the Case Law of the Boards of Appeal, 7th edition, 2013, (CLBA) II.E.1.2). The respondent argues that both the latter features are optional.

4.1.2 In the application as filed, see sentence bridging description pages 2 and 3, a stated aim of the invention is to provided a system "...which forms a small modular apparatus that may be used with its own water supply or with the main water supply of the aircraft." In the following paragraph, summary of the invention, this aim is reflected in the first two preferred embodiments which mention "the aircraft's [or plane's] water system" as alternative water supply. Aim and summary thus already clearly consider the use of the aircraft water system as extinguishant supply as an alternative to a separate supply. These preferred embodiments are then detailed in figures 2, 3 and 4 and corresponding parts of the description, where the relevant feature (28, 128, 228) is variously referred to as a "total airplane potable water reservoir", (figure 2) or simply an "airplane potable water reservoir", (figures 3 and 4). In the corresponding text to the figure 2 embodiment, description page 6, lines 11 to 16, both terms are indeed used to denote the same water reservoir 28. From the above the Board concludes that these various terms are in fact used synonymously. Thus, the first two preferred embodiments as identified in the summary of invention can be read as already relating to the use of the total airplane potable water reservoir as main supply, independently of the features of the specific embodiments, such as the separate reservoir (30,138,230 in figures 2,3,4) or a pressure sensor (34 in figure 2).

4.1.3 Furthermore, in the description of the first embodiment, figure 2, see application as filed page 6, line 10 to page 7, line, 22, the water reservoir 30 is defined as being "optional" (page 6, line 10). Likewise the pressure sensor 34, which is only disclosed in the embodiment of figure 2, is presented as an alternative means to a heat or smoke detector 35 for sending a signal to the cabin attendant alert system 36. (page 7, lines 12 to 15).

Hence the "total airplane potable water reservoir" is disclosed in the specific embodiments independently of a further reservoir and of a pressure sensor.

4.1.4 The Board thus finds claim 1 to meet the requirements of Article 123(2) EPC.

4.2 Inventive step

4.2.1 Admissibility of document D8

Document D8 was filed with the grounds of appeal and thus outside the opposition period. It is thus late filed and subject to the discretion afforded by Article 114(2) EPC and Article 12(4) RPBA. In exercising their discretion the Boards considers among other factors whether or not late filing is justified by developments in the procedure, cf. CLBA, IV.C.1.4.5 b).

In the present case D8 is cited by the appellant in response to claim amendments that are in part based on subject matter added from the description. The respondent argues that D8 could have been cited earlier, at least during the opposition proceedings, in which the same requests were on file.

The Board notes that the earliest date the appellant (as opponent) could have become aware of the auxiliary requests of the respondent (as patentee) before the opposition division was 10 November 2009, which was also the the last day for making written submissions prior to the oral proceedings before that instance, Rule 116 EPC. As the patent was maintained as granted, the respondent's auxiliary requests were not discussed at those proceedings. There was thus no opportunity or indeed need to present new evidence in respect of those requests at that stage. As it is only now in the appeal that these auxiliary request are being discussed, and these are based on material from the description, the Board considers it equitable that the opponent now be given such an opportunity.

Furthermore, given that the appellant uses D8 (see his letter of 28 January 2011, page 6) to argue lack of inventive step of claims according to the respondent's auxiliary requests filed in appeal, it is likewise appropriate that the appellant first cites D8 in response to the filing of those requests.

For these reasons the Board exercised its discretion under Rule 12(4) RPBA to admit document D8 into the proceedings.

- 4.2.2 For assessing inventive step the Board applies the standard problem-solution approach, as for example outlined in the CLBA I.D.2.
- 4.2.3 It is common ground that D1 represents the closest prior art. Following from the findings of the Board with respect to novelty of claim 1 of the main request, claim 1 of the auxiliary request differs from D1 only in respect of the feature, "*...by the reservoir*

comprising a total airplane potable water reservoir".
In D1 the extinguishant, which is not identified, is stored in separate pressurized bottles.

4.2.4 Formulation of the objective technical problem

Vis-a-vis D1 the use of the on-board water system, in that it requires water as specific extinguishant, firstly avoids disadvantages associated with e.g. chemical alternatives, cf. specification paragraph [0006]. Secondly, separate extinguishant bottles are no longer required, and installation is concomitantly simpler, cf. specification paragraph [0008]. The difference may have the further benefit of reduced weight, as argued by the appellant, however there is no basis for such a benefit in the patent also when considered in the light of the cited prior art.

The associated objective technical problem as may be derived from the patent considered in the light of the prior art can then be formulated as follows: how to provide a fire protection system as in D1 that is environmentally safe and which can be more simply installed in an aircraft.

4.2.5 The Board holds that the claimed solution is neither known from common general knowledge nor suggested by the further cited prior art. D1 discloses a system which is constrained to distribute the same extinguishant from bottles 19a-19g via a common manifold 22 to different fire zones 10, 12, 14... within an aircraft, see page 6, lines 10 to page 7, line 1 and figure 1. It is debatable whether or not the skilled person, who will be familiar with water as a traditional and probably the most common fire extinguishant, would select it as the sole

extinguishant for use in all fire zones of a modern day aircraft, in view of the serious risks posed when used, for example, in the aircraft's electrical compartment. However, even if he might consider it, the Board is unconvinced that this would lead him as a matter of obviousness to replace the system of bottles 19a-19g of D1 with the entire potable water reservoir of the aircraft.

Once detonated, each bottle 19a-19g discharges completely, see page 16 lines 30 to 33. This allows the pilot to dose extinguishant, see sentence bridging pages 24 and 25, *"If one bottle of extinguishant is insufficient to control the fire, switch 64 can be depressed repeatedly to discharge a subsequent bottle for each subsequent depression of the switch"*. Bottles are thus discharged completely and sequentially allowing a measure of dosing. Simply replacing one or more bottles 19a-19g with the entire potable water reservoir of an aircraft would negate this advantage. Without further changes to the system of D1, starting the release of the entire aircraft potable water reservoir would lead to completely emptying its contents, even for extinguishing a small fire. The idea would therefore be counter-intuitive for the skilled person.

4.2.6 Nor does the Board believe the skilled person would draw on D8 to modify the D1 system and so arrive in obvious manner at the claimed subject-matter. In the aircraft fire suppression system of D8, see column 9, lines 12 to 26 and figure 15, a mobile cart 10, having a spraying nozzle 148, is plugged into the entire potable water reservoir 310 of an aircraft and is dosable via trigger 162. This system allows the operator to fight the fire directly on site in an

aircraft cabin. Moreover, depending on their assessment of the fire, they can adjust the composition of the water-based extinguishant between foams and water mist, see column 1, lines 57 to 61.

The D8 system is thus essentially an alternative to the system of D1 and disparate therefrom in terms of how the extinguishant is dosed, its composition can be adjusted and its site of application. The Board holds that it lies outside the routine abilities of the skilled person to combine aspects of the two alternative systems to produce a further hybrid one. In other words he might consider using either one or the other, or possibly both, side by side as independent, separate systems; he would not however combine both in a single system.

- 4.2.7 In conclusion the Board finds that the subject-matter of claim 1 involves an inventive step over the cited prior art. Auxiliary request 1 thus meets the requirements of Article 52(1) with 56 EPC 1973.

5. Taking into account the amendments made to the patent according to the first auxiliary request of the respondent, including amendments made to the description during the oral proceedings of 15 November 2013, the Board finds that the patent and the invention to which it relates meet the requirements of the European Patent Convention, Article 101(3) EPC 1973. Therefore the patent can be maintained according to the first auxiliary request. Thus there is no need for the Board to consider the respondent's second and third auxiliary requests.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent as amended in the following version:

Description:

Columns 1 to 7 received during the oral proceedings of 15 November 2013.

Claims:

1 to 10 according to the first auxiliary request of the respondent filed with the letter of 5 October 2010.

Drawings:

Sheets 1/3 to 3/3 of the patent specification.

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated