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Datasheet for the decision of 10 March 2017

Case Number: T 2461/11 - 3.4.03

Application Number: 03816916.5

Publication Number: 1573487

IPC: G09G3/20

Language of the proceedings: EN

Title of invention:
METHOD AND APPARATUS FOR FACILITATING ENTRY OF MANUALLY-ADJUSTABLE DATA SETTING IN AN AIRCRAFT COCKPIT

Applicant:
INNOVATIVE SOLUTIONS & SUPPORT, INCORPORATED

Headword:

Relevant legal provisions:
EPC 1973 Art. 56
EPC Art. 123(2)

Keyword:
Inventive step - (yes)

Decisions cited:
T 0177/01, T 0799/02, T 1802/13

Catchword:

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Case Number: T 2461/11 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 10 March 2017

Appellant: (Applicant)	INNOVATIVE SOLUTIONS & SUPPORT, INCORPORATED 720 Pennsylvania Drive Exton, PA 19341 (US)
Representative:	Epping - Hermann - Fischer Patentanwaltsgesellschaft mbH Schloßschmidstraße 5 80639 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 19 July 2011 refusing European patent application No. 03816916.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Eliasson
Members:	T. M. Häusser
	T. Bokor

Summary of Facts and Submissions

I. The appeal concerns the decision of the examining division refusing the European patent application No. 03816916 for lack of inventive step (Article 56 EPC 1973).

II. The following following documents were cited by the examining division:

D1: WO-A-02/25212,

D3: WO-A-02/31795,

D4: Holahan J: *LCDs, Mice on the Flight Deck! Digital engine to drive Primus avionics into the dawn of the next century*, Aviation International News, Convention News, Midland Park, NJ, USA (November 1996), pages 56-58,

D5: US-A-5,784,036,

D6: WO-A-99/57521,

D7: JP-A-11-196297,

D8: US-B-6,252,596.

III. In writing the appellant (applicant) requested as a main request to set aside the decision and to grant a patent on the basis of the following documents:

- Claims 1-19 as filed during the oral proceedings before the examining division on 26 May 2011 as "Main Request";
- Description: pages 1, 2, and 4 to 10 as published under the PCT; pages 3 and 3a as filed with letter dated 23 June 2016; pages 11 and 12 as filed with letter dated 4 November 2008;
- Drawings: sheets 1/2 to 2/2 as published under the PCT.

IV. The wording of independent claims 1 and 10 of the main request is as follows (board's labelling "(a)", "(b)", "(c)"):

"1. A method of facilitating user entry of a manually-adjustable data setting normally imaged in a pre-determined size on a display (18) in an aircraft cockpit, comprising the steps of:
- sensing a manipulation of a control by the user for adjusting the data setting;
(a) - enlarging (104), in response to said sensed manipulating of the control by the user, the image of the data setting on the display (18) from the predetermined size to a predeterminately enlarged size to unambiguously direct the user's attention to the predeterminately enlarged imaged data setting to be adjusted;
(b) - maintaining the enlarged image of the data setting on the display during said sensed manipulating of the control by the user; and
(c) - reducing (112) the enlarged image of the data setting on the display from the predeterminately enlarged size to the predetermined size when said sensed manipulating of the control is determined to have ceased."

"10. An aircraft instrumentation display system (10) for presenting to a user at least one manually-adjustable data setting normally imaged in a predetermined size and for facilitating user entry of the manually-adjustable data setting, comprising:
a display (18) for presenting the image of the at least one manually-adjustable data setting for viewing by the user,
a user-manipulatable control for user adjustment of the manually-adjustable data setting; and

a graphics rendering controller (16) connected to the control and to the display and adapted to:
- receive the data setting,
- to image the data setting on the display (18) in the predetermined size,
- to enlarge, in response to user-manipulation of the control, the image of the data setting on the display from the predetermined size to a predeterminately enlarged size to unambiguously direct the user's attention to the predeterminately enlarged imaged data setting to be adjusted,
- to maintain the enlarged image of the data setting on the display (18) during said user manipulation of the control, and
- to reduce the enlarged image of the data setting on the display (18) from the predeterminately enlarged size to the predetermined size when user manipulating of said control has ceased."

V. The appellant argued essentially as follows in relation to inventive step of the subject-matter claimed according to the main request:

Document D4 represented the closest state of the art, in which the steps of enlarging, maintaining, and reducing the image were not disclosed.

The examining division's definition of the technical problem did not reflect the special situation of a pilot in an aircraft cockpit and contained elements of the solution. The objective technical problem was rather to increase the pilot's awareness that he is about to adjust the data setting and to allow safer aircraft operation.

Document D5 did not disclose that the enlarged image was reduced to a predetermined size, when the sensed manipulation of the control ceased. Furthermore, document D6 disclosed neither image enlargement upon sensing the adjustment of the data setting nor the last step of reducing the enlarged size.

Reasons for the Decision

1. Main request - amendments

Claims 1 and 10 of the main request are based on claims 1 and 10 as originally filed, respectively.

Dependent claims 2 to 9 and 11 to 19 of the main request are based on original claims 2 to 9 and 11 to 19, respectively. The description has been brought into conformity with the amended claims and supplemented with an indication of the relevant content of the prior art without extending beyond the content of the application as filed.

Accordingly, the board is satisfied that the amendments comply with the requirements of Article 123(2) EPC.

2. Main request - inventive step

2.1 Closest state of the art

In the decision under appeal the examining division started from document D4 as the closest state of the art (see point 3.1 of the Reasons, where document D4 was mislabeled as "D1"). The appellant also argued in relation to inventive step starting from document D4. Indeed, this document relates to the same purpose as

the claimed invention, namely to facilitating user entry of data in an aircraft cockpit and has the most relevant technical features in common with it, as detailed below. Document D4 is therefore considered the closest state of the art.

2.2 Distinguishing features

2.2.1 The examining division considered as distinguishing features the three steps of enlarging the image, maintaining the enlarged image, and reducing the enlarged image (see point 3.2 of the decision), an assessment shared by the appellant (see page 2, paragraph 3 of the appellant's letter dated 25 November 2011).

2.2.2 Indeed, document D4 discloses (page 56, column 1, last paragraph - column 5, first paragraph; page 57, column 1, third paragraph - column 2, second paragraph) an avionics system comprising colour, all-angle-viewing, flat-screen LCD displays. With a mouse called "cursor controlled device" in the form of a touch pad, track ball or joystick, pilots are able to manage the flight with their eyes up and have point and click control as on a personal computer, instead of turning knobs or pushing buttons. The system allows many of the aircraft's utility systems to be switched on and off and adjusted via pointing, clicking and dragging of the cursor over synoptic displays. A primary flight display is provided, which allows layering of images, images within images and pop-up menus and may show a fuel-information window and a window for engine data. Moreover, a multifunction display shows, for example, a flight plan view with vertical profile and superimposed weather map.

Using the wording of claim 1 of the main request document D4 discloses therefore a method of facilitating user entry of a manually-adjustable data setting (of aircraft's utility systems) normally imaged in a predetermined size on a display (LCD display) in an aircraft cockpit, comprising the steps of:
- sensing a manipulation of a control by the user (point and click control) for adjusting the data setting (of aircraft's utility systems).

The board agrees with the examining division and the appellant in that the steps of enlarging, maintaining, and reducing the image are not disclosed in document D4. The distinguishing features are therefore the features concerning these steps, i. e. features (a), (b), and (c) of claim 1 of the main request.

2.3 Objective technical problem

2.3.1 The examining division considered as the objective technical problem the aim to make the items of data imaged on a display more visible to a user when they are manipulated (see points 3.3 to 3.5 of the decision).

2.3.2 The appellant argued that the examining division's definition of the technical problem did not reflect the special situation of a pilot in an aircraft cockpit and contained elements of the solution. The objective technical problem was rather to increase the pilot's awareness that he is about to adjust the data setting and to allow safer aircraft operation.

2.3.3 The board notes that the examining division's reference, in its formulation of the objective technical problem, to the manipulation of items of data is a

pointer to the claimed "sensed manipulating of the control by the user" in features (a), (b) and (c) of claim 1 of the main request. Moreover, this formulation of the technical problem is also a pointer to the claimed solution, i. e. making the items of data imaged on a display more visible alludes to enlarging the image of the data setting on the display, maintaining the enlarged image and reducing the enlarged image as defined in features (a), (b) and (c).

However, it is the established jurisprudence of the Boards of Appeal that the technical problem addressed by the invention must be formulated in such a manner that there are no pointers to the solution (see T 177/01, Reason 4.3; T 799/02, Reason 4.3). Otherwise the assessment of inventive step would be tainted by *ex post facto* considerations and could not be regarded as having an objective basis.

2.3.4 From the description of the invention on page 3, lines 1 to 19, it emerges that the problem faced by the skilled person is that the pilot with the task of entering manually-adjustable data settings imaged on a display in an aircraft cockpit must devote unusual attention to entering the desired setting in order to avoid inadvertent, potentially disastrous errors.

The board considers that enlarging the image of the data setting on the display, maintaining the enlarged image and reducing the enlarged image as defined in features (a), (b) and (c) in dependence of the sensed manipulation of the control by the user credibly assists the pilot in performing entry of manually-adjustable data settings in an aircraft cockpit. In particular, manipulation of the wrong knob or viewing of the wrong onscreen data is avoided. Hence, the

distinguishing features (a), (b) and (c) contribute to the technical solution of a technical problem (see Reason 2.1.5 of T 1802/13).

It is therefore the object of the invention to facilitate entry of a manually adjustable data setting in an aircraft cockpit so as to minimize the attention that must be devoted to the task of adjusting the data setting. The board hence sees no reason to re-formulate the technical problem as derivable from the application as filed.

2.4 Obviousness

2.4.1 In the decision under appeal the examining division referred to documents D5 to D8 as evidence that the concept of enlarging a displayed item was well-known (see points 3.7 to 3.12 of the decision).

2.4.2 In view of the formulation of the objective technical problem the skilled person is not considered to be prompted to seek its solution in another technical field. Rather, the board regards the relevant skilled person to be versed in the art of aircraft control systems.

It has to be examined whether the skilled person would take the cited documents into account when attempting to solve the posed problem. Given the similar overall purpose of the devices and methods and the similar user requirements, the fields of automotive navigation and automotive control systems are considered to be neighbouring technical fields in relation to the technical field of aircraft control systems of the present invention. Hence, apart from documents D1 and D3, which belong to the technical field of aircraft

control systems, documents D5 and D6 residing in the neighbouring fields mentioned above would be consulted by the skilled person when attempting to solve the posed problem (see *Case Law of the Boards of Appeal of the EPO*, 8th edition 2016, section I.D.8.2).

On the other hand, documents D7 and D8 belong to the technical fields of video recorders and personal computers, respectively. The board finds that these are neither neighbouring technical fields nor broader general technical fields with respect to the technical field of aircraft control systems and concludes that the skilled person would not consult these documents when seeking a solution for the posed technical problem (*Case Law of the Boards of Appeal of the EPO*, *ibid.*).

2.4.3 Turning now to their content, documents D1 and D3 do not disclose any enlarging or reducing in size of displayed images and thus would not lead the skilled person to the claimed invention.

2.4.4 Document D5 discloses (see column 3, line 30 - column 5, line 20; Figures 1, 3, 5A-5C, and 6A-6F) a combiner 4 attached to the inner side of the windshield 5 in front of the driver's seat of a vehicle. Normally, the vehicle speed is projected onto the combiner 4 so that the driver can observe it while driving. When the driver touches, for example, one of the air outlet selector switches 6, the image of these switches is displayed on the combiner 4 with the particular switch that is touched by the driver being shown in an enlarged manner. When the driver then actuates the selected switch the shade of the image of that switch is reversed. In case another switch is actuated, an enlarged image of the other switch is displayed. After a predetermined period of time has lapsed, the vehicle

speed image is displayed once again on the combiner 4. Corresponding courses of events arise upon touching one of the blower switches 8 or automatic mode switches 9.

While the combiner 4 of document D5 displays only one piece of information at a time in a manner - by means of the head-up display device - which allows the driver to check them without turning his eyes from the forward direction, the displays of the closest state of the art document D4 provide on LCD screens a multitude of information requiring the pilots dedicated attention for monitoring them. Due to these structural and functional differences the skilled person would not be led to combining the two types of displays.

Moreover, the board agrees with the appellant in that document D5 does not disclose that the enlarged image is reduced to a predetermined size, when the sensed manipulation of the control stops. There is also no indication that the enlarged image is displayed *during the sensed manipulating of the control* by the user. Rather, according to D5 the period of time the enlarged image is displayed is predetermined (see column 5, lines 16-20; Figure 4). The subject-matter of features (b) and (c) is therefore not disclosed in document D5.

2.4.5 Document D6 discloses (page 4, line 25 - page 6, line 7; page 8, line 16 - page 10, line 11) an automotive navigation system 20, in which a menu of icons 50-60 is shown in the display 24. One of the icons may be activated for data entry. The activated icon becomes animated, enlarged and a text flag is added adjacent the icon thus distinguishing it from the other icons. The selection of one of the icons leads to the opening of another window for data entry.

Again, there are functional differences between the display of document D6 and that of the closest state of the art document D4. Whereas the latter is multi-functional and designed to be used in real time by the pilot for controlling the aircraft, the former is dedicated to navigation, where data entry is intended to be performed before starting the journey. The skilled person is therefore considered to be discouraged to combine the teaching of these documents.

Furthermore, the board agrees with the appellant in that document D6 discloses neither image enlargement upon sensing the adjustment of the data setting nor the last step of reducing the enlarged size. Rather, the icon chosen for destination entry is enlarged and another window is opened upon selection of the desired icon. There is also no indication in D6 that the enlarged image is displayed *during the sensed manipulating of the control* by the user. Hence, the subject-matter of features (a), (b) and (c) is not disclosed in document D6.

2.4.6 In view of the above, none of the documents D1, D3, D5 and D6 in combination with document D4 would lead the skilled person to the subject-matter of claim 1 of the main request. In the board's opinion the common general knowledge in the art of aircraft control systems would not lead the skilled person to the claimed subject-matter, either.

Consequently, the subject-matter of claim 1 of the main request involves an inventive step.

Independent system claim 10 corresponds essentially to method claim 1. Claims 2 to 9 and 11 to 19 are dependent on claims 1 and 10, respectively.

Accordingly, the subject-matter of claims 1 to 19 involves an inventive step (Article 52(1) EPC and Article 56 EPC 1973).

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 grant a patent on the basis of the following documents:

   - Claims 1-19 as filed during the oral proceedings before the examining division on 26 May 2011 as "Main Request";
   - Description: pages 1, 2, and 4 to 10 as published under the PCT; pages 3 and 3a as filed with letter dated 23 June 2016; pages 11 and 12 as filed with letter dated 4 November 2008;
   - Drawings: sheets 1/2 to 2/2 as published under the PCT.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated