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**Datasheet for the decision
of 31 July 2024**

Case Number: T 1193/22 - 3.4.03

Application Number: 17733951.2

Publication Number: 3398187

IPC: G09B9/32, G09B9/00, G09B9/08

Language of the proceedings: EN

Title of invention:

APPARATUS, ENGINE, SYSTEM AND METHOD OF PROVIDING SIMULATION
OF AND TRAINING FOR THE OPERATION OF HEAVY EQUIPMENT

Applicant:

Flightsafety International Inc.

Headword:

Relevant legal provisions:

EPC Art. 52(1), 56

Keyword:

Patentable invention - (yes)
Inventive step - (yes)

Decisions cited:



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Boards of Appeal
Chambres de recours

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Case Number: T 1193/22 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 31 July 2024

Appellant: Flightsafety International Inc.
(Applicant) Marine Air Terminal
Flushing, New York 11371 (US)

Representative: Gulde & Partner
Patent- und Rechtsanwaltskanzlei mbB
Wallstraße 58/59
10179 Berlin (DE)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 8 December 2021
refusing European patent application
No. 17733951.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman M. Stenger
Members: A. Böhm-Pélissier
G. Decker

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division to refuse European patent application No. 17 733 951 on the grounds of lack of inventive step (Articles 52(1), 56 EPC).

II. Reference is made to the following **document**:

D1 US 2008/206720 A1

III. The appellant (applicant) **requests** that the decision to refuse the patent application be set aside and that a patent be granted on the basis of the (new) main request, or alternatively of one of (new) auxiliary requests 1 to 9. All requests were filed with the statement setting out the grounds of appeal and correspond to the requests underlying the impugned decision. The then auxiliary request 8 was made the new main request by letter dated 25 April 2024, with the other requests being renumbered accordingly. Claim 1 of the new main request was slightly corrected by letter dated 8 May 2024 to align the wording with the originally filed dependent claims. An amended description was filed on 18 June 2024.

IV. **Claim 1** according to the **(new) main request** reads as follows:

(labelling (A), (B), ... introduced by the board,
basis: claims 1 and 10 to 12 as published)

*(A) A simulated cockpit training system,
comprising:*

(B) at least one pane (304, 306) that is large, clear, seamless and sized and shaped to at least partially present an approximation of physical portions of the cockpit;

(C) at least one projector (302) to backproject, via an optical path comprising at least one optical element (402), a simulation of the cockpit onto the at least one pane (304, 306);

(D) at least one tactile aspect, discrete from the at least one pane (304, 306), interactively provided in association with the simulation;

(E) at least one processor (110) having communicatively associated therewith non-transitory computing code for at least partially providing the simulation and the interaction with the at least one tactile aspect, and

(F) further for enabling at least one training feature to be at least partially overlaid on the backprojected simulation; and

(G) at least one power supply, communicative with and physically associated with the at least one pane (304, 306) and suitable to provide power to at least the at least one tactile aspect, wherein the at least one power supply comprises at least one wireless power receiver comprising a plurality of solar cells to receive power at least from illumination provided by the at least one projector (302).

V. The **arguments** of the appellant can be summarised as follows:

(a) D1 did not disclose or teach feature (C) (back-projecting the simulation of cockpit instrument panels onto the panes) and feature (G) (power

supply of the at least one tactile aspect by means of solar cells).

(b) Consequently, the subject-matter of claim 1 of the new main request was novel and inventive.

Reasons for the Decision

1. The invention

1.1 The aim of the invention is to provide a low-cost flight simulator that does not require complex instruments and installations and where the tactile aspects, used for data input and interacting with the simulator, do not have to be connected to the power supply by cable.

1.2 The goal is achieved by back-projecting (rear projection) simulated instruments onto the panels and generating electrical power from solar cells using the projected light. The power generated by the solar cells is used to supply the tactile data input.

2. Main Request - inventive step

2.1 Closest prior art

D1 is the only document considered in the contested decision. The appellant concedes in the statement setting out the grounds of appeal that D1 is relied upon as the closest prior art, although it argued that the subject-matter of D1 was fundamentally different from the subject-matter of the present invention because it did not disclose the same type of cockpit simulation and back-projection as that claimed in the invention.

2.2 Disclosure of D1

2.2.1 The appellant argues that "back-projection" is in general understood as being a method of projecting pictures onto a translucent screen so that the pictures are viewed from the opposite side (front side, wherein the pictures are projected from a rear side).

2.2.2 The board concurs partly with the appellant. D1 discusses rear projection flight simulators in the discussion of the prior art ([0006]). The term "rear projection" is in the given context considered equivalent to "back-projection" as used in the claims of the present application. However, back-projection can be understood as a projection onto the side of the pane facing away from the user, as well as anything that is somehow reflected back (e.g. by a mirror), even if it is then projected onto the side of the pane facing the user (front side). In the embodiments described in D1, the latter kind of back-projection is performed by back-projection of a frontal projection with the aid of back-reflecting mirrors. The board concurs with the appellant that the embodiments described in D1 therefore do not disclose "rear projection" as commonly understood by the skilled person. However, due to the broad meaning of "back-projection" in claim 1 of the main request, the disclosure of the invention in D1 can be read (at least in part) on the wording of claim 1, as is set out in the following.

2.2.3 D1 discloses a "back-projection" on a panoramic screen (120, 570A-J) by means of a projector and a back-reflecting mirror (510, 520, 530):

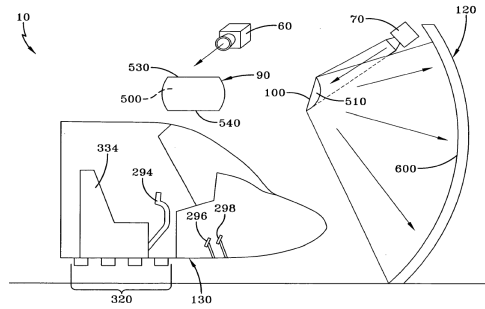


FIG-2

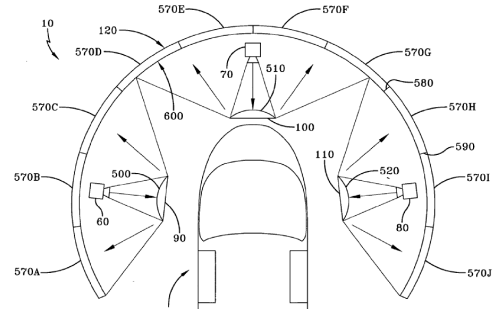


FIG-5

D1

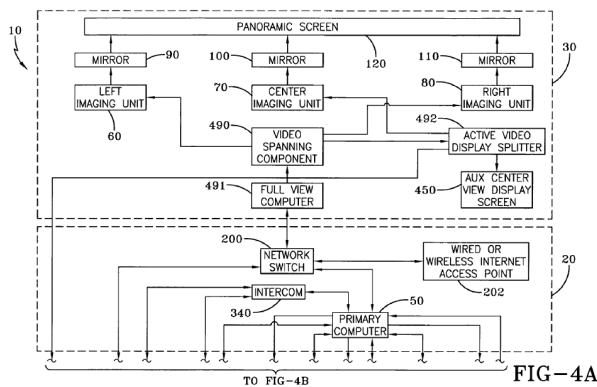


FIG-4A

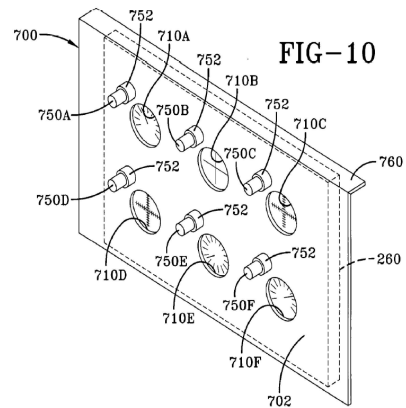


FIG-10

2.2.4 Cockpit 130 is optional in D1 ([0031]). Paragraphs [0035] and [0053] relating to Fig. 10 of D1 disclose that a touch screen (250, 260) is an option to display the cockpit instruments and to detect the user's input. Tactile data input may take place via a frame 760 on the touchscreen. The frame may include switches (750, 752, see Fig. 10) for tactile data input.

2.3 Disclosure of D1 with respect to claim 1

2.3.1 It is undisputed that D1 discloses features (A), (B) and (D) to (F) of claim 1 (cf. D1, Figs. 1B, 2, 4A, 5 and 10, paragraphs [0031], [0035], cf. impugned decision, section 2.1). The board concurs with the appellant that D1 discloses features (C) and (G) only in part as follows (references with respect to D1,

features in strike-through not disclosed in D1,
underlined features not part of claim 1):

(C) *at least one projector (60, 70, 80 in Fig. 5)
to backproject, via an optical path (back-
reflecting mirrors 510, 520, 530) comprising at
least one optical element (510), a simulation ~~of~~
the cockpit of landscape onto the at least one pane
(back projection of outside landscape and view from
the cockpit onto screens 120, 570A-J);*

(G) *at least one power supply (implicit due to the
presence of the touch screen 260), communicative
with and physically associated with the at least
one pane (260) and suitable to provide power to at
least the at least one tactile aspect, ~~wherein the
at least one power supply comprises at least one
wireless power receiver comprising a plurality of
solar cells to receive power at least from
illumination provided by the at least one
projector.~~*

2.3.2 Therefore, D1 fails to disclose:

- (a) backprojection of *instruments* onto the pane;
- (b) wireless reception of power to be provided to the
at least one tactile aspect;
- (c) solar cells receiving power from illumination
provided by the projector.

2.4 **Effect - problem**

The technical effect of the distinguishing features is
that reliable input by the tactile aspects is provided
with an instrument panel that does not need to be
connected to the rest of the flight simulator for power
supply or to a power supply network.

2.5 Objective technical problem

The problem to be solved is therefore - starting from the disclosure of D1 - to create a reasonably simple and inexpensive flight simulator with a simple and inexpensive instrument panel, which is electrically self-sufficient, using an alternative projection method.

2.6 Non-obviousness

- 2.6.1 In the embodiments shown in Figs. 2, 5 and 10 of D1, only the landscape is projected and not the instrument panel. The frontal projection used in D1 would make it difficult to project the instrument panel as well, because shadows would be cast on the instrument panel when the user operated any of the tactile aspects, thereby obscuring the instrument panel itself. In particular, the shadows cast would make it difficult to use a solar cell receiving power from illumination provided by the projector. Therefore, the disclosure of D1 related to Fig. 10 leads away from an instrument panel which is projected and using solar cells, not being connected to the power grid.
- 2.6.2 Paragraph [0006] of D1 teaches not to use "rear projection" for the projection of landscape and instruments, but the "back projection" via mirrors used in the invention of D1.
- 2.6.3 If nevertheless the skilled person were to follow the teaching in paragraph [0006] of D1 and use rear projection not only for the landscape but also for the instruments, then they would use a frame with electromechanical switches for tactile data input, as described in D1. However, such a frame does not seem to

be suitable for solar cells and must be connected to the power grid. D1 makes no reference to a wireless power supply and solar cells.

- 2.6.4 If nevertheless the skilled person were to use solar cells in the system of D1, they would use solar cells outside the pane to convert daylight into electricity, rather than projected light in such a way that as much daylight as possible is captured and the frontal projection is not disturbed. In other words, they would mount the solar cells on the side facing away from the frontal projection, or on a side part of the instrument display, in order to receive daylight and not the light from the illumination by the projector.
- 2.6.5 If nevertheless the skilled person were to consider attaching solar cells to the panel on the front side, they would encounter technical difficulties, as the solar cells would have to be adapted to the frame and the openings of the instrument in a complex manner. Consequently, the skilled person would refrain from this solution.
- 2.6.6 Rear projection would therefore lead away from the proposed solution of using projected light to generate electricity in the panes.
- 2.6.7 In summary, D1 contains no reference to wireless power transmission or solar cells. As mentioned above, a frontal projection would complicate the use of solar cells in that the solar cells would obscure the projected landscape and instruments.
- 2.6.8 Consequently, based on the disclosure and teachings of D1, the skilled person would not arrive at a combination of features (C) and (G).

2.6.9 Consequently, the subject-matter of claim 1 of the main request is inventive within the meaning of Article 56 EPC. Since all further claims of the new main request depend on claim 1, the subject-matter of these claims is also inventive.

2.7 The board notes that the new main request also fulfils the other requirements of the EPC, in particular clarity (**Article 84 EPC**) and **Article 123(2)** EPC (the new claim 1 is based on claim 1 and dependent claims 10 to 12 as published). The board further notes that the description has been adapted to the new claims and D1 has been discussed therein. Since the main request fulfils the requirements of the EPC, there is no need to examine auxiliary requests 1 to 9.

3. Conclusions

Since the application documents according to the new main request and the invention to which they relate fulfil the requirements of the EPC, a patent is consequently to be granted on the basis of the claims of this request, the corresponding adapted description and the drawings sheets as published (Articles 97(1) and 111(1) EPC).

Order

For these reasons it is decided that:

1. The appealed decision is set aside.
2. The case is remitted to the examining division with the order to grant a patent in the following version:

Description: Pages 1 to 40, filed with the letter of
18 June 2024;

Claims: No. 1-13, filed with the letter of
8 May 2024;

Drawings: Sheets 1/20 to 20/20 as published.

The Registrar:

The Chairman:



S. Sánchez Chiquero

M. Stenger

Decision electronically authenticated