UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANCOIS KUBICA

Appeal 2008-0438
Application 10/716,461
Technology Center 3600

Decided: July 25, 2008

Before WILLIAM F. PATE, III, JENNIFER D. BAHR, and
JOHN C. KERINS, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Francois Kubica (Appellant) appeals under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1, 3, 7-11, 13, 26, and 28-30, which are the only pending claims. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

The Invention

Appellant's claimed invention is directed to a method for operating an aircraft provided with electrical fly-by-wire controls and, more particularly, to the architecture of the flight control system for such aircraft (Specification 1:3 and 13-14). Claims 1 and 13, reproduced below, are illustrative of the claimed invention.

> 1. A method for operating an aircraft, comprising the steps of:
>
> receiving guidance instructions and guidance parameters at a navigation computer;
>
> transmitting automatic pilot instructions from said navigation computer to a flight control computer over a dedicated communication link;
>
> receiving control instructions and said automatic pilot instructions at said flight control computer;
>
> in an automatic pilot mode, generating a first plurality of operating commands based on said automatic pilot instructions at said flight control computer; and
>
> in a manual pilot mode, generating a second plurality of operating commands based on said control instructions at said flight control computer.
>
> 13. A method for operating an aircraft, comprising the steps of:
>
> transmitting automatic pilot instructions from a navigation computer to a flight control computer over a dedicated communication link;
>
> receiving control instructions and said automatic pilot instructions at said flight control computer;

> in an automatic pilot mode, generating a first plurality of operating commands based on said automatic pilot instructions at said flight control computer; and
>
> in a manual pilot mode, generating a second plurality of operating commands based on said control instructions at said flight control computer.

The Rejection

Claims 1, 3, 7-11, 13, 26, and 28-30 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pages (US 5,774,818, issued June 30, 1998) and Trikha (US 6,003,811, issued December 21, 1999).

The Examiner provides reasoning in support of the rejection in the Answer, mailed March 26, 2007. Appellant presents opposing arguments in the Appeal Brief ("Appeal Br."), filed December 11, 2006, and Reply Brief ("Reply Br."), filed May 29, 2007. Appellant's counsel presented oral argument on July 9, 2008.

FINDINGS OF FACT

Pages teaches a method for piloting an aerodyne by automatic control onto a path determined from way points. Pages' method includes the pilot inputting data pertaining to a mission into a communications processor 11 via a keyboard 17 and the processor 11 transmitting such data to computer 12. The mission comprises a flight plan defined by a set of geographical points (L, M)[1] possibly associated with a route constraint R. Computer 12 computes the paths, each defined by a set of points, to be followed between each of the points entered by the pilot. In essence, computer 12 computes

[1] L denotes latitude or parallel and M denotes meridian.

and transmits to automatic piloting device 13 a detailed flight path including, at all times during the automatic piloting phase, the position and route of the next point on the flight path to be reached. Automatic piloting device 13 also is connected to and receives input from navigational instruments 15 to compute the instructions to be applied to the control surfaces as a function of the position and course of the aerodyne and to control surface actuators 14 in order to carry out the instructions thus computed. Automatic piloting device 13 also is connected to a tendency bar display 18 which, during the manual piloting phase, indicates to the pilot the piloting commands to be executed to rejoin and follow a predetermined path. In other words, automatic piloting device 13 computes the required changes in flight path to follow a predetermined flight path. (Pages, col. 5, ll. 22-55; fig. 4.)

Pages does not teach receiving control instructions and generating a second plurality of operating commands based on said control instructions during a manual pilot mode, as required in claims 1 and 13.

Trikha teaches an aircraft control system comprising an autopilot 25 that transmits flight path change commands through data bus 22 and data transfer unit 24 to a primary flight computer 26. The primary flight computer 26 also receives through data bus 22 and data transfer units 20, 24 command signals from position sensors 14, which sense the positions of manual pilot controls, such as the wheel, column or pedal, 12 to indicate a desired change in flight path. The primary flight computer 26 converts the autopilot inputs from autopilot 25 as well as the command signals from position sensors 14 into desired surface actuator commands and transmits them to actuator control electronics 18 through data transfer units 20, 24 and data bus 22. The actuator control electronics then controls the actuators of

the control surfaces 42 to achieve the commanded actuator positions. (Trikha, col. 3, ll. 5-28; fig. 1.)

The prior art uses the terminology "autopilot" inputs to describe flight path change commands (Trikha, col. 3, ll. 17-18). *See also* Posting by Jeff Scott to http://www.aerospaceweb.org/question/weapons/q0187.shtml (Aug. 1, 2004) (page 2).[2] Such usage is consistent with Appellant's description of a commanded vertical load factor, a commanded roll rate, and a commanded yaw as examples of automatic pilot instructions (Specification 6:9-10).

OPINION

The dispositive issue in this case is whether Pages and Trikha, alone or in combination, teach transmitting automatic pilot instructions from a navigation computer to a flight control computer over a dedicated communication link, as called for in both independent claims 1 and 13. This issue turns on whether (1) the output of computer 12 of Pages constitutes "automatic pilot instructions" as used in claims 1 and 13 or (2) Trikha teaches transmitting automatic pilot instructions from a navigation computer to a flight control computer over a dedicated communication link.

In reading the limitations of claims 1 and 13 on Pages, as modified in view of Trikha, the Examiner contends that Pages' computer 12 is the "navigation computer" and automatic piloting device 13 is the "flight control computer." The Examiner further contends that the flight path data (position and route information) generated by Pages' computer 12 and transmitted to

[2] A copy of this article (posting) is included in the Evidence Appendix to the Appeal Brief. Page numbers refer to the pagination at the top right of the pages in the copy appended to the Appeal Brief.

automatic piloting device 13 is "automatic pilot instructions." (Answer 3 and 7-9.) Appellant, on the other hand, contends that the flight path data computed and transmitted by computer 12 "is at best 'guidance instructions' or 'guidance parameters,' **not** 'automatic pilot instructions.'" (Appeal Br. 5.) (Emphasis original.)

We agree with Appellant that the flight path data computed and transmitted by Pages' computer 12 does not constitute "automatic pilot instructions" as required in claims 1 and 13. When construing claim terminology in the United States Patent and Trademark Office, claims are to be given their broadest reasonable interpretation consistent with the specification, reading claim language in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). On the basis of our findings above, we conclude that a person of ordinary skill in the art of aircraft control systems would understand "autopilot instructions" as used in Appellant's claims 1 and 13 to be flight path change commands to be executed to return to or follow a predetermined flight path. Pages' computer 12, on the other hand, computes and transmits a predetermined flight path. The computer 13, not computer 12, in the system of Pages computes autopilot instructions, that is, piloting commands to be executed to rejoin and follow a predetermined path, and transmits them to a tendency bar display 18 for display to the pilot during a manual piloting phase or computes instructions to be applied to the control surfaces and to the control surface actuators during the automatic piloting phase.

The Examiner's determination that Pages' computer 12 transmits "autopilot instructions" to computer 13 is flawed in that it is based on an

overly broad interpretation of the terminology "autopilot instructions" as used in claims 1 and 13. Inasmuch as the Examiner's rejection of claims 1, 3, 7-11, 13, 26, and 28-30 as unpatentable over Pages and Trikha is grounded on this flawed determination,[3] it cannot be sustained. Moreover, while Trikha teaches transmitting what appear to be autopilot instructions (flight change commands) from a navigation computer (autopilot 25), and receiving control instructions and said autopilot instructions at a flight control computer (primary flight computer 26), Trikha does not teach transmitting those autopilot instructions (flight change commands) to the flight control computer (primary flight computer 26) over a *dedicated* communication link, as called for in claims 1 and 13. Rather, as we found above, Trikha's autopilot 25 transmits the flight change commands over data bus 22 and data transfer unit 24, which are also used to transmit data from position sensors 14 and thus do not constitute a dedicated communication link. Therefore, Pages and Trikha do not teach all of the limitations of claims 1 and 13 and thus are insufficient to establish that the subject matter of claims 1 and 13, and claims 3, 7-11, 26, and 28-30 depending therefrom, would have been obvious.

CONCLUSION

The decision of the Examiner to reject claims 1, 3, 7-11, 13, 26, and 28-30 is reversed.

REVERSED

[3] The Examiner does not rely on Trikha for any teaching that would overcome this deficiency in Pages.

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

vsh