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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES R. JOHNSON

Appeal 2010-009984
Application 11/459,756
Technology Center 3600

Before JOHN C. KERINS, STEFAN STAICOVICI, and WILLIAM A. CAPP, *Administrative Patent Judges*.

STAICOVICI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

James R. Johnson (Appellant) appeals under 35 U.S.C. § 134 from the Examiner's decision finally rejecting under 35 U.S.C. § 103(a) claims 19-36 as unpatentable over Vos (US 6,171,055 B1, iss. Jan. 9, 2001), Page (US 5,315,819, iss. May 31, 1994), and Danielson (US 2007/0110577 A1, publ. May 17, 2007)[1]. Claims 1-18 have been canceled. We have jurisdiction over this appeal under 35 U.S.C. § 6.

THE INVENTION

Appellant's invention relates to a method and system for controlling a propeller aircraft engine during takeoff using as inputs aircraft airspeed and ambient atmospheric conditions to maximize propeller thrust rather than maximizing energy power or engine speed. Spec. 2, para. [0005].

Claims 19 and 30 are illustrative of the claimed invention and read as follows:

> 19. A control system for controlling an engine of an aircraft of the type piloted by a pilot and having at least one propeller powered by the engine, the control system being operative to control the engine during take-off and comprising:
>
> an electronic controller operative for controlling the engine while the aircraft is in take-off mode and, if so, the electronic controller being operative to provide less than full engine power at the initiation of take-off and gradually increases engine power as air speed increases during take-off so as to provide substantially maximum thrust for take-off despite any pilot demands for maximum engine power during take-off, thereby minimizing rollout distance for take-off, the electronic controller providing substantially maximum thrust for take-off

[1] The rejection of claims 19-36 under 35 U.S.C. § 103(a) as unpatentable over Vos, Wikipedia reference, and Danielson has been withdrawn by the Examiner. Ans. 2-3.

and avoiding stalling of the propeller during take-off by determining a maximum effective power to apply to the propeller and comparing the power demanded from the pilot of the aircraft with the maximum effective power, the electronic controller applying the power demanded from the pilot when the power demanded is less than the maximum effective power and applying the maximum effective power when the power demanded from the pilot exceeds the maximum effective power.

30. A method of controlling an engine in an aircraft for take-off, the aircraft being of the type having at least one propeller powered by the engine, the method comprising:

monitoring air speed and an ambient condition during take-off;

determining a maximum effective engine power level that can be applied to the propeller at that moment without stalling the propeller under the circumstances of the air speed and the ambient condition; and

controlling the engine to deliver no more than the maximum effective power to the propeller, thereby limiting the power applied to the propeller to the maximum effective power that can be applied without stalling the propeller, despite a nominal pilot demand for substantially full power.

SUMMARY OF DECISION

We REVERSE.

ANALYSIS

Claims 19-29 and 34-36

The Examiner found that the combined teachings of Vos, Page, and Danielson disclose a system and method for controlling an engine of a propeller aircraft during takeoff by limiting power applied to the engine to less than full power at the initiation of takeoff and gradually increasing the engine power as air speed increases during take-off. Ans. 4-5. Specifically,

the Examiner found that: (1) "the FADECs of Vos et al and Page et al *inherently* teach providing less than full power at the initiation of takeoff and full power during takeoff" (*see id*.) and (2) that "Danielson teaches in figure 5C that the engine is less than full power at the initiation at takeoff and full power during takeoff" (*see* Ans. 5). Emphasis added. According to the Examiner, "[w]hen the aircraft is taxiing (at the initiation of take off), the throttle is at 20. As the aircraft is taking off (from the time of 41-55), the throttle is at 65." Ans. 8.

With respect to the Examiner's first position, we note that the express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. §§ 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." *In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995). However, "[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (BPAI 1990).

Here, although the Examiner found that the FADECs of Vos and Page are capable of providing less than full power at the initiation of takeoff and full power during takeoff, the Examiner provides no other evidence or reasoning that might be construed as support for the Examiner's finding. We agree with Appellant that while Vos discloses controlling an aircraft engine to minimize fuel consumption, *i.e.*, maximize thrust efficiency (*see* App. Br. 6-7; Reply Br. 7) and Page discloses maximizing engine speed (*see* App. Br. 9; Reply Br. 11), neither Vos nor Page necessarily discloses

limiting power applied to the engine to less than full power at the initiation of takeoff and gradually increasing the engine power as air speed increases during take-off, as called for by each of independent claims 19 and 34. Accordingly, without sufficient evidence or reasoning to support the Examiner's finding that the FADECs of Vos and Page necessarily provide less than full power at the initiation of takeoff and full power during takeoff, we find that neither Vos nor Page discloses limiting power applied to the engine to less than full power at the initiation of takeoff and gradually increasing the engine power as air speed increases during takeoff, as called for by each of independent claims 19 and 34.

Regarding the Examiner's second position, we first note that an ordinary and customary meaning of the term "take-off" is "a rise or leap from a surface in making a jump or flight or an ascent in an aircraft." MERRIAM WEBSTER'S COLLEGIATE DICTIONARY (10th Ed. 1997). In contrast, an ordinary and customary meaning of the term "taxi" is "to operate an aircraft on the ground under its own power." *Id*. Thus, we agree with Appellant that, "the maneuver of taxi[i]ng is different than the maneuver of a takeoff." Reply Br. 5. As such, we agree with Appellant that in Figure 5C of Danielson, the control system maintains the power level of the engine at a constant level during takeoff (time 41-55). *Id*. Accordingly, Figure 5C of Danielson does not disclose gradually increasing engine power during takeoff, as required by each of independent claims 19 and 34.

In conclusion, for the foregoing reasons, the rejection of claims 19-29 and 34-36 under 35 U.S.C. § 103(a) as unpatentable over Vos, Page, and Danielson is not sustained. *See In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988).

Claims 30-33

Independent claim 30 requires, *inter alia*, "limiting the power applied to the propeller to the maximum effective power that can be applied without stalling the propeller, despite a nominal pilot demand for substantially full power." App. Br., Claims App'x.

The Examiner found that the throttle level 65 in Danielson constitutes the claimed "maximum effective power" to achieve takeoff. Ans. 9; *see also* Danielson, fig. 5C.

Appellant argues that "[i]n *Danielson*, "the maximum power level angle (throttle position) is the 65% value." Reply Br. 5. Hence, according to Appellant, "*Danielson* teaches the power level angle (*i.e*. throttle) is at full power for takeoff." Reply Br. 10.

The Examiner responds that, "Applicant's conclusion that a throttle of 65 is the maximum engine power is not necessarily convincing since Danielson does not seem to mention that 65 is the maximum." Ans. 9.

Although we appreciate the Examiner's position that Danielson does not explicitly disclose that the power level angle (throttle position) of 65 corresponds to a level of full power, nonetheless, we note that the power level angle (throttle position) of 65 appears to be the highest power level achieved by Danielson's engine between engine start at time 0 and landing at time 70. *See* Danielson, fig. 5C. Moreover, we note that Danielson does not disclose that the power level angle (throttle position) of 65 corresponds to a level that is less than full power, as the Examiner proposes. As such, the Examiner's finding that the power level angle (throttle position) of 65 corresponds to the claimed "maximum effective power," is mere speculation

based on an unfounded assumption that the power level angle (throttle position) of 65 corresponds to a level that is less than full power. Accordingly, the Examiner has not made the initial factual findings required to demonstrate a prima facie case of obviousness of independent claim 30. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967) (the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions, or hindsight reconstruction to supply deficiencies in the factual basis).

Thus, the rejection of independent claim 30 and dependent claim 31-33 under 35 U.S.C. § 103(a) as unpatentable over Vos, Page, and Danielson is not sustained.

SUMMARY

The decision of the Examiner to reject claims 19-36 is reversed.

REVERSED

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