

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SUSANNE WYREMBECK,
PETER MAY and KLAUS MUTHREICH

Appeal 2007-1831
Application 10/313,052
Technology Center 3600

Decided: June 21, 2007

Before WILLIAM F. PATE III, MURRIEL E. CRAWFORD, and
JENNIFER D. BAHR, Administrative *Patent Judges*.

WILLIAM F. PATE III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

This is an appeal from the final rejection of claims 1-15 and 18-25. Claims 16 and 17 have been cancelled. These are the only claims in the application.

We have jurisdiction under 35 U.S.C. § 134.

Appellants claim an improvement in winglets for commercial aircraft. The improvement includes selectively pivotable control elements for varying the coefficient of drag of the aircraft without varying the coefficient of lift and without exerting a net yaw influence upon the aircraft.

Claim 1 reproduced below, is further illustrative of the claimed subject matter.

1. In an aircraft including a fuselage, a tail unit having a vertical stabilizer fin and a vertical rudder extending aft from said fuselage, two wings protruding laterally from opposite sides of said fuselage, and two aerodynamic components arranged respectively on outboard wingtips of said two wings,

an improvement wherein said aerodynamic components comprise control means including selectively pivotable control elements for selectively varying a coefficient of drag of said aircraft without varying a coefficient of lift of said aircraft and without exerting a net yaw influence on said aircraft by selectively pivotally deflecting said selectively pivotable control elements.

The references of record relied upon by the examiner as evidence of obviousness are:

Burnelli	1,987,050	Jan. 08, 1935
Mitchell	2,480,040	Aug. 23, 1949
Boyle	4,042,197	Aug. 16, 1977
Daude	4,457,479	Jul. 03, 1984
Jupp	4,714,215	Dec. 22, 1987
Sigalla	4,784,353	Nov. 15, 1988

Arnold	5,417,385	May 23, 1995
Burhans	5,542,625	Aug. 06, 1996

Claims 1-4, 9, 13-15 and 18 stand rejected under 35 U.S.C. § 103 as unpatentable over Arnold in view of Burnelli and Burhans.

Claims 2-4, 10 and 23-24 stand rejected under 35 U.S.C. § 103 as unpatentable over Arnold in view of Burnelli, Burhans and further in view of Mitchell.

Claims 19-21 stand rejected under 35 U.S.C. § 103 as unpatentable over Arnold in view of Burnelli, Burhans and further in view of Boyle.

Claims 5-7 stand rejected under 35 U.S.C. § 103 as unpatentable over Arnold in view of Burnelli and Burhans and further in view of Daude.

Claims 8, 11 and 12 stand rejected under 35 U.S.C. § 103 as unpatentable over Arnold in view of Burnelli, Burhans, Daude and Jupp.

Claims 22 and 25 stand rejected under 35 U.S.C. § 103 as unpatentable over Sigalla, in view of Burnelli, and Burhans, further in view Daude.

ISSUE

The sole issue provided for our decision on appeal is whether the examiner has established a prima facie case of obviousness of claims 1-15 and 18-25.

FINDINGS OF FACT

1. The patent to Arnold is directed to structural components for the fuselage skin of commercial aircraft. The structural component is comprised of aluminum honeycomb and several sheets of carbon fiber with an aluminum or copper foil exterior. This composite structure is able to reduce lightning strike damage. The examiner has cited Arnold to show a conventional aircraft with wings and a tail.
2. Sigalla teaches an aircraft tail section with a drag inducing vertical tail fin to compensate for the tendency of the aircraft to pitch down into the “Mach tuck” effect. The Examiner has cited Sigalla to show an aircraft with conventional wings and a tail.
3. Burnelli discloses a tailless airplane. The tailless airplane or flying wing of Burnelli does not possess a conventional tail structure and instead relies on vertical stabilizers 13 carried on the tips of the wings.
4. Burhans teaches a gull wing aircraft with a wing of inverted V-shape but lacking the conventional empennage or tail section of a conventional aircraft. We note that Burhans has fully adequate directional stability and control while lacking the conventional tail. Burhans relies on ailerons 41-44 or 45-48 to provide control of pitch, yaw and roll.
5. Mitchell discloses an aircraft with conventional control surfaces and auxiliary control surfaces placed adjacent the conventional control surfaces to either assist or replace the conventional controlling

means if they become inoperative in flight. The auxiliary control surfaces are cut away to allow a blast of air to reach the conventional control surfaces so that both controls surfaces can be used at the same time.

6. Boyle discloses automatic control of conventional aircraft control surfaces so that landing and takeoff can be automated.
7. Daude discloses a winglet which is rotatable about a substantial vertical axis with respect to the plane of symmetry of the aircraft so that the lift drag ratio of the aircraft may be improved. We note that Appellants' claims specify no increase in lift but an increase in drag.
8. Jupp discloses a shape of a winglet that minimizes flow breakaway and stalling of the winglet.

PRINCIPAL OF LAW

In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). It is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *See id.* at 1073, 5 USPQ2d at 1598. In so doing, the examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), *viz.*, (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art. In addition to these factual determinations, the

examiner must also provide “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (*cited with approval in KSR Int'l. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007)). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *See Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444. *Id.* at 1445, 24 USPQ2d at 1444. *See also Piasecki*, 745 F.2d at 1472, 223 USPQ at 788. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444; *Piasecki*, 745 F.2d at 1472, 223 USPQ at 788.

ANALYSIS

We reverse all of the rejections on appeal.

As noted above, it is incumbent upon the examiner to provide some articulated reasoning with a rational underpinning to support the legal conclusions of obviousness. We do not find a rational underpinning with regard to the combined teachings cited by the examiner.

Arnold and Sigalla both disclose conventional aircraft as claimed in the preamble of Appellants’ claims. However, with respect to Burnelli, we recognize that Burnelli is directed to a flying wing or tailless aircraft. The structures 13 and 14 of Burnelli are the stabilizers and the rudder of the aircraft and are provided instead of a tail having such a stabilizer and rudder.

Therefore, we are in agreement with Appellants that Burnelli's teaching only relates to wing tip rudders. Tailless airplanes that do not have tail units do not provide an express teaching of winglets with aerodynamic control elements in an aircraft with a conventional tail.

Similarly, Burhans discloses a gull wing aircraft lacking an empennage or conventional tail. The ailerons and flaps 41-44 or 45-48 along the trailing edges of the wing inherently influence lift and they also substitute for the control that a tail would give a normal aircraft. The examiner has not articulated a rational underpinning for any rejection based on these combined teachings of Burnelli and Burhans with Arnold, and we certainly do not recognize one.

Likewise with respect to claims 22 and 25 wherein Sigalla is used as a primary reference instead of Arnold, we do not find that a rational basis exists for a finding of obviousness based on these combined teachings.

We have carefully considered the other cited references but nothing therein can ameliorate the problems we have already discussed with respect to Arnold or Sigalla in view of Burhans and Burnelli. Accordingly, all of the rejections on appeal based on the grounds of obviousness are reversed.

Appeal 2007-1831
Application 10/313,052

CONCLUSION

The examiner has failed to establish that claims 1-16 and 18-25 are prima facie obvious. Therefore, the rejections on appeal are reversed

REVERSED

vsh

FASSE PATENT ATTORNEYS, P.A.
P.O. BOX 726
HAMPDEN ME 04444-0726