

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES EDWARD JOHNSON

Appeal 2007-1467
Application 10/689,289
Technology Center 3700

Decided: April 30, 2008

Before WILLIAM F. PATE III, ANTON W. FETTING, and
JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

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

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal from the final rejection of claims 1, 3-5, 7, 8, 10-12, 14-22, 41, 43-45, 47, 48, 50-52, 54, 55, 57-59, 61, 63-65, 67 and 68. Claims 2, 6, 9, 13, 23-40, 42, 46, 49, 53, 56, 60, 62, and 66 stand withdrawn from consideration as subject to a restriction requirement. These are all of the

claims in the application. We have jurisdiction over the appeal pursuant to 35 U.S.C. §§ 6 and 134.

THE INVENTION

The claimed invention is directed to a FLADE aircraft gas turbine engine which is installed and operated in a fixed geometry inlet duct in an aircraft. FLADE is an acronym standing for fan-on-blade used to describe an engine with an outer fan driven by a radially inner fan and discharging the FLADE air into an outer fan duct which is co-annular with and circumscribes the inner fan. See Johnson at col. 1, ll. 60-66.

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

1. An aircraft propulsion system comprising:

a gas turbine engine comprising;

a fan section,

at least one row of FLADE fan blades disposed radially outwardly of and drivingly connected to the fan section, the row of FLADE fan blades radially extending across a FLADE duct circumscribing the fan section,

an engine inlet including a fan inlet to the fan section and an annular FLADE inlet to the FLADE duct, and

a fixed geometry inlet duct in direct flow communication with the engine inlet.

THE REFERENCES

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

Appeal 2007-1467
Application 10/689,289

Kerry	2,940,692	Jun., 14, 1960
Creasey	2,956,759	Oct. 18, 1960
Bullock	3,302,657	Feb. 07, 1967
Krebs	3,673,802	Jul., 04, 1972
Gruner	4,159,624	Jul. 03, 1979
Johnson	5,404,713	Apr. 11, 1995
Tindell	5,447,283	Sep. 05, 1995
Wagner	EP 0567277A1	Oct. 27, 1993

THE REJECTIONS

Claims 1, 3-5, 7, 8, 10-12, 14-22, 41, 43-45, 47, 48, 50-52, 54, 55, 57-59, 61, 63-65, 67, and 68 stand rejected under 35 U.S.C. §103 as unpatentable over Johnson in view of any of Tindell, Creasey, Bullock, or Kerry, and optionally in view of any of Wagner, Krebs or Gruner.

Claims 1, 3-5, 7, 8, 10-12, 14-22, 41, 43-45, 47, 48, 50-52, 54, 55, 57-59, 61, 63-65, 67, and 68 stand rejected under 35 U.S.C. §103 as unpatentable over Wagner in view of any of Tindell, Creasey, Bullock, and Kerry, and optionally in view of any of Johnson, Krebs and Gruner.

THE ISSUE

The sole issue for our consideration is whether the Appellant has established that the Examiner erred in rejecting the claims on appeal on the grounds of obviousness.

FINDINGS OF FACT

Johnson discloses a FLADE aircraft gas turbine engine. These engines are characterized by reduced inlet spillage drag and reduced IR signatures. Col. 1, ll. 6-11. FLADE engines have outer fans driven by an inner fan. See Col. 1, ll. 60-63. Johnson further discloses that the variable cycle is an important advantage of FLADE. See Col. 1, ll. 13-29.

Wagner is also directed to a FLADE engine with a variable duty cycle having a variable area valve or injectors provided between the primary duct for exhausting relatively high pressure fan bypass air and a FLADE duct through which passes relatively low pressure FLADE air flow. This arrangement increases the amount of thrust modulation available to a high-flowing engine having a fixed exhaust nozzle throat area. See Col. 4, ll. 1-9.

The references to Tindell, Creasey, Bullock and Kerry show various examples of fixed geometry inlet ducts. Tindell, Col. 2, ll. 47-61, Creasey, Col. 1, ll. 17-20 and ll. 26-32, Bullock, Col. 1, ll. 11-21 and Kerry, Col. 3, ll. 8-23. Krebs and Gruner have been cited to show that various high and low pressures turbine stages are conventional in a gas turbine engine.

PRINCIPLES OF LAW

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966), the Supreme Court set out a framework for applying the statutory language of §103:

[T]he scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls. If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid or unpatentable under §103. See *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). To facilitate review this analysis should be made explicit. *Id.* at 1741. It can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed invention does. This is so because inventions in most, if not, all cases rely upon building blocks long since uncovered. *Id.* at 1741.

ANALYSIS

We have thoroughly reviewed the rejections on appeal in light of the arguments of the Appellant and the Examiner. As a result of this review, we have reached the conclusion that the examiner has not established a prima facie case of obviousness with respect to the claimed subject matter.

Therefore, the Appellant has sustained his burden of showing that the examiner erred in rejecting the claims on appeal. Our reasons follows.

Appellant argues that the purpose of the FLADE engine as disclosed in Johnson is to prevent the mismatch of the free stream airflow area A0 to the engine inlet area AI. Brief at 9-10. Appellant states that in a situation where a fixed geometry inlet duct is used, the engine will not be exposed to the free stream airflow area A0 because the fixed geometry inlet duct is disposed between area A0 and the engine inlet. We agree. It is apparent that the rationale given for the FLADE engine in Johnson and implicitly in Wagner, the European published application, i.e., to avoid the mismatch of area A0 and area AI, is not applicable to the fixed geometry inlet references that the Examiner has cited. Appellant argues that the engines supplied by a fixed geometry duct do not experience this A0-AI relationship and we agree.

Appellant further argues that since this A0-AI mismatch is not recognized as a problem when a fixed geometry inlet duct is utilized, one of ordinary skill would not select a FLADE engine as disclosed by Johnson or Wagner with its attendant cost and complexities when selecting an engine to use with a fixed geometry inlet. We also agree with this argument of the Appellant.

Accordingly, in our view, it would not have been obvious to combine the teachings of Johnson or the European patent with the teachings of the secondary references *vis-a vis* the fixed geometry inlet ducts. Thus, it is our legal conclusion that the claimed subject matter would not have been obvious in view of the Examiner's evidence.

Appeal 2007-1467
Application 10/689,289

CONCLUSION AND ORDER

As noted above, it is our view that the Appellant has established that the examiner erred in rejecting the claims on appeal. According the rejections of claims 1, 3-5, 7, 8, 10-12, 14-22, 41, 43-45, 47, 48, 50-52, 54, 55, 57-59, 61, 63-65, 67, and 68 are reversed.

REVERSED

vsh

STEVEN J. ROSEN
PATENT ATTORNEY
4729 CORNELL RD.
CINCINNATI OH 45241