

The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT J. HERBST,
THANH HO, and
DUANE R. JOHNSON

Appeal 2007-1314
Application 10/227,933
Technology Center 3700

Decided: July 17, 2007

Before WILLIAM F. PATE, III, TERRY J. OWENS, and STUART S. LEVY,
Administrative Patent Judges.

PATE, III, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the Final Rejection of claims 1-10 and 21-30. Claims 11-20 stand withdrawn from consideration. These are the only claims in the application. We have jurisdiction under 35 U.S.C. §§ 134 and 6.

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Appellants claim an improved pneumatic flow control valve for a pneumatic brake system. The improvement consists in the design of the valve seats. With reference to Figure 2, inlet/exhaust valve 50 has a first seating surface 61 and second seating surface 62 which are rounded.

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

1. An inlet/exhaust valve assembly for directing the flow of a fluid comprising:

a cylindrical portion with a cavity extending therethrough and having an inner diameter and an outer diameter;

a first valve seat having a rounded seating surface on the outer diameter of the cylindrical portion; and

a second valve seat having a rounded seating surface on the inner diameter of the cylindrical portion, the rounded seating surfaces facilitating self-alignment of the first and second valve seats with respective additional seating surfaces that contact the rounded seating surfaces of the first and second valve seats for creating a seal between the first and second valve seats and the respective additional seating surfaces.

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

Abel	US 4,649,803	Mar. 17, 1987
Oda	US 4,763,876	Aug. 16, 1988
Bayliss	US 5,690,397	Nov. 25, 1997

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Claims 1-5, 7-10, and 21-30 stand rejected under 35 U.S.C. § 103 as unpatentable over Abel in view of Oda.

Claim 6 stands rejected under 35 U.S.C. § 103 as unpatentable over Abel and Oda and further in view of Bayliss.

ISSUE

The sole issue for our consideration in this decision is the obviousness of the claims on appeal.

FINDINGS OF FACTS

Abel discloses an inlet/exhaust valve. The Examiner directs our attention to Figure 8 wherein a cylindrical portion 860 has a cavity extending therethrough and an inner and outer diameter. First valve seat is disposed on the outer diameter of the cylindrical portion and interacts with portions 864 of the housing. A second valve seat is disposed on the inner diameter of the cylindrical portion interacting with the element 870 near 872. According to the Examiner, Abel discloses the claimed subject matter with the exception of disclosing valve seats that have rounded seating surfaces.

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Oda discloses a reciprocating valve for an internal combustion engine where the associated valve seat is provided with a rounded contour. The purpose of the rounded contour is to resist repeated impacts by the valve against the relatively brittle ceramic material of the high temperature valve seat. The brittle ceramic lacks toughness, i.e., resistance to impacts.

Bayliss has been cited to establish that it is well known in this art to manufacture valve components out of polymer materials. We fully credit this finding of fact by the Examiner.

PRINCIPLES 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*

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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 Appellants. *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

As noted above, it is incumbent on the Examiner to provide some articulated reasoning with rational underpinnings to support the legal conclusion of obviousness. In this instance, we are in agreement with the Appellants, that the Examiner has failed to articulate convincing reasoning. The Examiner's Answer and Final Rejection are devoid of reasoning as to why one of ordinary skill would draw a conclusion of obviousness from the combined teachings of Abel and Oda, the collective knowledge in the valve art, or even conventional engineering knowledge and common sense. Oda teaches that a rounded convex valve seating surface is desirable when using a material that lacks toughness, such as the disclosed ceramic valve seat. Oda does not suggest any other use for the rounded seating surface. The Examiner has failed to provide even a common-sense reason

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why such a valve seat would satisfy a problem recognized in the art or provide predictable results in the pneumatic valve of Abel. Accordingly, we are unable to sustain the rejections on appeal.

CONCLUSION

The rejections of claims 1-10 and 21-30 are reversed.

REVERSED

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