

**THIS OPINION WAS NOT WRITTEN FOR PUBLICATION**

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* JOSEPH L. ROSS JR. and CHARLES SCHAUB

---

Appeal No. 96-0037  
Application 08/237,224<sup>1</sup>

---

HEARD: Oct. 14, 1997

---

Before ABRAMS, STAAB and McQUADE, *Administrative Patent Judges*.

ABRAMS, *Administrative Patent Judge*.

**DECISION ON APPEAL**

This is an appeal from the decision of the examiner finally rejecting claims 15 through 27, which constitute all of the claims remaining of record in the application.

---

<sup>1</sup> Application for patent filed May 2, 1994. According to appellants, this application is a continuation of Application 08/041,721 filed April 1, 1993, now abandoned; which is a division of Application 07/756,479 filed September 9, 1991, now abandoned.

Appeal No. 96-0037  
Application 08/237,224

The appellants' invention is directed to a process for separating fluidized cracking catalyst solids from hydrocarbon vapors. The subject matter before us on appeal is illustrated by reference to claim 15, which reads as follows:

15. A process for separating fluidized cracking catalyst solids from hydrocarbon vapors comprising:

(a) feeding a mixture of fluidized cracking catalyst solids and hydrocarbon vapors from a riser reactor into a separator having at least one semi-circular separating area;

(b) deflecting the mixture off of a deflecting means in the separator into said at least one semi-circular separating area;

(c) separating said mixture by inertial separation in said at least one semi-circular separating area into a hydrocarbon vapor product stream and a fluidized cracking catalyst stream;

(d) withdrawing said hydrocarbon vapor product stream from said at least one semi-circular separating area through a horizontally upwardly disposed opening on the side of a horizontally disposed gas outlet which extends through said at least one separating area and parallel to said deflector in said at least one semi-circular separating area; and

(e) withdrawing the fluidized cracking catalyst from said at least one semi-circular separating area.

#### **THE REFERENCE**

The sole reference relied upon by the examiner to support the final rejection is:

Barnes

4,666,674

May 19, 1987

Appeal No. 96-0037  
Application 08/237,224

### **THE REJECTION**

Claims 15 through 27 stand rejected under 35 U.S.C. §103 as being unpatentable over Barnes.

The rejection is explained in the Examiner's Answer.

The opposing viewpoints of the appellants are set forth in the Brief and the Reply Brief.

### **OPINION**

Like the claimed invention, Barnes is directed to an apparatus suitable for separating fluidized cracking catalyst solids from hydrocarbon vapors. The sole point of contention between the appellants and the examiner relates to the orientation of the opening through which the vapor product is withdrawn. The appellants' claims require that the hydrocarbon vapor product stream be withdrawn through a horizontally upwardly disposed opening (independent claims 10 and 27), or through an opening whose boundaries are at specified angles which result in such an orientation (independent claims 23 and 25). Insofar as the Barnes reference is concerned, the only explicit teaching is that the opening be "preferably located at the lower central part" (column 3, lines 36 and 37), which is illustrated in Figure

Appeal No. 96-0037  
Application 08/237,224

3. This difference is acknowledged by the examiner, who states that

Barnes differs from the claimed invention in that it is silent on the opening of the fluid outlet being upwardly disposed (Answer, page 3).

In response to the appellants' argument that because Barnes teaches an orientation that is opposite to that claimed it does not provide the basis for a conclusion that the subject matter of the claims would have been obvious, the examiner sets forth two theories. The first is that

it would have been an obvious choice of design for one of ordinary skill in the art to orient the gas outlet of Barnes upwardly, instead of downwardly, because an upwardly pointed gas outlet is functionally equivalent to a downwardly pointed outlet when the catalyst particle velocity is sufficiently high (Answer, page 3).

We cannot agree. First of all, the examiner has presented no evidence that the two orientations are "functionally equivalent." Moreover, evidence and information has been furnished by the appellants in the specification and by way of declaration and explanation that they are not functionally equivalent, in that the claimed orientation provides an increase in separation efficiency over that disclosed by Barnes (specification, pages 10 and 11; Silverman declaration; Brief, pages 7 and 8).

Appeal No. 96-0037  
Application 08/237,224

The examiner's second theory in support of the position that the claims would have been obvious is that

Barnes does not teach away from the claimed invention. Barnes specifically teaches that it is preferable to position the opening downwardly . . . . A fair reading of Barnes suggests that locating the opening at any other position would be a non-preferred embodiment. It, however, does not teach against locating the opening upwardly (Answer, paragraph bridging pages 4 and 5).

We do not agree with this rationale, either. Here, the examiner has taken the position that since the downward orientation in Barnes is labeled as being "preferable," one of ordinary skill in the art would have understood that all other orientations also are contemplated by the reference, though they are non-preferred. The only support provided for this conclusion is the *Japikse* case, which we agree with the appellants is not persuasive.

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art (see *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)), and in establishing a *prima facie* case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference to arrive at the claimed invention (see *Ex parte Clapp*, 227 USPQ 972, 973 (BPAI 1985)).

Appeal No. 96-0037  
Application 08/237,224

The requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellants' disclosure (see *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988)). The examiner has not met this burden. The mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

For the reasons expressed above, it is our view that the teachings of Barnes do not establish a *prima facie* case of obviousness with regard to the claimed subject matter. This being the case, we will not sustain the rejection.

Appeal No. 96-0037  
Application 08/237,224

The decision of the examiner is reversed.

**REVERSED**

NEAL E. ABRAMS	)	
Administrative Patent Judge)	)	
	)	
	)	
LAWRENCE J. STAAB	)	BOARD OF PATENT
Administrative Patent Judge)	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
JOHN P. McQUADE	)	
Administrative Patent Judge)	)	

Appeal No. 96-0037  
Application 08/237,224

Alan B. Clement  
Hedman, Gibson & Costigan  
1185 Avenue of the Americas  
New York, NY 10036