

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte FRANO BARBIR,  
ROBERT H. BYRON, JR.,  
MATT STONE  
and  
BHASKAR BALASUBRAMANIAN

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Appeal No. 2006-0892  
Application No. 10/202,701

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ON BRIEF

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Before KIMLIN, WALTZ and KRATZ, Administrative Patent Judges.  
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 9-13. We have jurisdiction pursuant to 35 U.S.C. § 134.

BACKGROUND

Appellants' invention relates to a bipolar plate that includes a flow region formed on a first side of the plate that has a length/width ratio greater than or equal to four. An understanding of the invention can be derived from a reading of exemplary claim 9, which is reproduced below:

9. A bipolar plate for an electrochemical cell, said bipolar plate comprising:

a plate having a first side and an opposing second side; and

a flow region disposed on said first side of said plate, said flow region having a length to width ratio of greater than or equal to about four to one.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Rippel	5,441,824	Aug. 15, 1995
Yang et al. (Yang)	6,635,378	Oct. 21, 2003

Claims 9-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yang in view of Rippel.

#### OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we find ourselves in a agreement with the examiner's determination that the claimed invention would have been obvious, within the meaning of 35 U.S.C. § 103(a), based on the applied references' teachings. Our reasoning follows.

At the outset, we note that appellants argue the rejected claims as a group. Accordingly, we select claim 9 as the representative claim on which we decide this appeal. Appellants do not dispute that Yang corresponds to the claimed device in disclosing a bipolar plate useful in an electrochemical cell that includes a plate with a flow region disposed on a side of the plate. However, appellants (brief, page 8) maintain that the claim 9 requirement for a length to width ratio of four to one for the claimed flow region is not taught by and would not have been suggested to one of ordinary skill in the art by Yang. We disagree.

In this regard, we note that Yang teaches that the bipolar plates disclosed therein are designed to allow for a uniform and sufficient pressure differential or pressure drop between inlet and outlet manifolds via flow restrictions placed therein to clear reaction products and condense humidity from flow channels formed on the flow side(s) or region of the bipolar plates thereof.<sup>1</sup> See, e.g., column 2, line 54 through column 3, line 38 of Yang.

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<sup>1</sup> Indeed, Yang's disclosed concern with the plate channels corresponds to appellants' disclosure concerning the prevention of pockets of condensate from forming in plate channels at page 4, paragraph number 0011 of the subject specification.

While Yang furnishes an example of a bipolar plate configuration having an eight inch width and length, Yang clearly is not limited to that exemplified embodiment. Indeed, Yang makes it clear that such an equal length and width bipolar plate configuration is merely illustrative by expressly noting that other configurations of the plate are within the purview of the disclosed invention. See column 6, lines 3-5 of Yang.

In this regard, the claimed rectangular geometry for a bipolar plate flow region would have been well within the ambit of one of ordinary skill in the art from the disclosure of Yang given that disclosure concerning the inclusion of a variety of geometries or configurations for the plate structures thereof. Concerning this matter, Yang provides that the bipolar plate configuration should allow for the requisite uniform pressure drop and desired clearing of reactants and humidity from the channels in the flow regions of the bipolar plates by using flow restrictions in those channels as taught by Yang (column 3, lines 3-43). After all, the configuration or shape of the plates and associated flow regions of Yang in a rectangular geometry would be attended by a reasonable expectation of success in that bipolar plates and flow regions of such shapes would be expected to operate with the desired reactant and humidity clearing

desired by Yang so long as the requisite flow restriction measures taught by Yang were employed.<sup>2</sup>

As a final point, we note appellants arguments with respect to alleged unexpected dissipation of heat advantages for the claimed subject matter as asserted in the sentence bridging pages 8 and 9 of the brief. In this regard, it is well settled that appellants bear the evidentiary burden of presenting persuasive evidence of such secondary considerations that can be weighed together with the evidence of obviousness of record. Here, appellants have not proffered any substantiation for those arguments. Indeed, it would be expected that a rectangular shaped plate would have a greater perimeter and heat dissipation capability than a square shaped plate of equal area. For example, an 8X8 inch square shaped plate face would have a perimeter of 32 inches while a 16X4 rectangular shaped plate side face, while including an equal area to the 8X8 square plate, would have a 40 inch perimeter edge (25% greater than the square shaped plate) which would be expected to enhance heat dissipation at the edges.

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<sup>2</sup> Because we find that the teachings of Yang are adequate to render the claimed subject matter prima facie obvious, we need not reach the examiner's further reliance on the teachings of Rippel and appellants' arguments there against.

Consequently, the unsupported contentions of improved heat dissipation properties for the claimed rectangular plate configuration are entitled to little merit in establishing unexpected results for the claimed subject matter.

It follows that we shall affirm the examiner's rejection, on this record.

CONCLUSION

The decision of the examiner to reject claims 9-13 under 35 U.S.C. § 103(a) as being unpatentable over Yang in view of Rippel is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
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	)	
	)	
	)	BOARD OF PATENT
THOMAS A. WALTZ	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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PETER F. KRATZ	)	
Administrative Patent Judge	)	

Appeal No. 2006-0892  
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Page 8

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