

**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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 44

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte KAORU TORIKOSHI, KATSUHIRO SATO, HIROYUKI TANAKA,  
FUMIAKI TAMBO and YUTAKA AKASAKI

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Appeal No. 1996-1568  
Application No. 08/235,235<sup>1</sup>

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HEARD: November 4, 1999

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Before GARRIS, WALTZ and LIEBERMAN, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

**DECISION ON APPEAL**

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<sup>1</sup> Application for patent filed April 29, 1994. According to appellants, this application is a continuation of Application No. 08/153,198 filed November 17, 1993, now abandoned; which is a continuation-in-part of Application No. 07/844,856 filed March 3, 1992, now abandoned.

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This is a decision on an appeal from the final rejection of claims 1 through 5, 21 through 23 and 25 through 28 which are all of the claims pending in the application.

The subject matter on appeal relates to a process for producing a resistive element which comprises coating a glass-glazed substrate with a resistive element-forming paste and calcining the paste in a first heating step at a first temperature level to form an element comprising a film on the substrate and subjecting the resulting element to a heat treatment in a second heating step at a second temperature higher than the first temperature level to diffuse an amount of the glass into the film to increase resistivity of the element. This appealed subject matter is adequately illustrated by independent claim 1 and dependent claim 28, copies of which taken from the appellants' Brief are appended to this decision.

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

Maeda et al. (Maeda)	5,100,702	Mar. 31,
		1992

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Jones, Hybrid Circuit Design and Manufacture, Marcel Dekker, Inc., New York (1982) pp. 9-49.

Claims 27 and 28 stand rejected under the second paragraph of 35 U.S.C. § 112 for failing to particularly point out and distinctly claim the subject matter which the appellants regard as their invention.

Claims 1 through 4, 21 through 23 and 25 through 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Jones, and claim 5 stands correspondingly rejected over Jones and further in view of Maeda.

We cannot sustain any of the above noted rejections.

Concerning the § 112, second paragraph, rejection, it is the examiner's position that "[i]n claims 27 and 28, the limitation of selecting the heat treatment to control the resistivity of the element is indefinite because deciding whether or not said limitation is met would require a subjective determination" (Answer, pages 3-4). We cannot agree for generally the reasons expressed by the appellants in their Brief and Reply Brief. More specifically, contrary to the examiner's belief, whether the limitation of these claims is met is determined in dependence upon whether resistivity is

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controlled as a consequence of the selected heat treatment conditions. We perceive nothing indefinite in this regard.

As for the § 103 rejection, it is the examiner's basic position that the method of Jones would inherently achieve the calcining, heat treating and resistivity increasing desiderata of the appealed claims. From our perspective, however, the examiner has failed to provide the requisite evidence or scientific reasoning to establish the reasonableness of his inherency position. Ex parte Skinner, 2 USPQ2d 1788, 1789 (Bd. Pat. App.

& Int. 1986). Certainly, the mere fact that Jones' process may employ temperatures which fall within the heat treatment temperatures envisioned by the appellants is alone insufficient to establish that the glass diffusion and concomitant resistivity increase of the appealed claims will necessarily and inevitably occur in practicing the prior art process of Jones as required under the principles of inherency.

In this latter regard, we remind the examiner that inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result

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from a given set of circumstances is not sufficient. In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981) taken from Hansgirg v. Kemmer, 102 F.2d 212, 214, 40 USPQ 665, 667 (CCPA 1939).

In summary, the steps and consequences required by the appealed claims, and in particular the heat treating step and its diffusion/resistivity consequences of the independent claims on appeal, are not taught or suggested by Jones and do not inherently and necessarily result from the operation of Jones' process. It follows that we cannot sustain the § 103 rejection of claims 1 through 4, 21 through 23 and 25 through 28 as being unpatentable over Jones. For analogous reasons, we also cannot sustain the corresponding rejection of claim 5 as being unpatentable over Jones in view of the Maeda patent particularly in light of the fact that Maeda has not been relied upon by the examiner for supplying any of the previously discussed deficiencies of Jones.

The decision of the examiner is reversed.

**REVERSED**

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BRADLEY R. GARRIS	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
THOMAS A. WALTZ	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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PAUL LIEBERMAN	)	
Administrative Patent Judge	)	

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**APPENDIX**

1. A process for producing a resistive element, comprising:

(A) forming a substrate glazed with glass;

(B) printing or coating a resistive element-forming paste onto said substrate glazed with glass;

(C) calcining the paste in a first heating step by maintaining said paste at a first temperature level to decompose and eliminate organic substances in the coated paste without interaction between the coated paste and the glass to form an element comprising a film on said substrate glazed with glass; and

(D) subjecting the resulting element to a heat treatment in a second heating step at a second temperature higher than said first temperature level to diffuse an amount of the glass into said film to increase resistivity of said element.

28. A process as claimed in claim 1, wherein conditions of said heat treatment are selected to control resistivity of said element.