

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 16

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte JOHN M. LAUFFER AND KONSTANTINOS PAPATHOMAS

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Appeal No. 2002-0942  
Application No. 09/553,715

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ON BRIEF

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Before ABRAMS, STAAB, and NASE, Administrative Patent Judges.  
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 3 and 5 to 9, which are all of the claims pending in this application.

We REVERSE.

### BACKGROUND

The appellants' invention relates to a printed circuit board with embedded decoupling capacitance and method for producing same (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

Claims 1, 3 and 5 to 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,640,761 to DiStefano et al. (DiStefano).

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference to the answer (Paper No. 12, mailed April 4, 2002) for the examiner's complete reasoning in support of the rejection, and to the brief (Paper No. 11, filed March 22, 2002) and reply brief (Paper No. 13, filed April 26, 2002) for the appellants' arguments thereagainst.

### OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art reference, and to the respective positions articulated by the appellants and the examiner. Upon evaluation of all the evidence before us, it is our conclusion that the evidence adduced by the examiner is insufficient to establish a prima facie case of obviousness with respect to

the claims under appeal. Accordingly, we will not sustain the examiner's rejection of claims 1, 3 and 5 to 9 under 35 U.S.C. § 103. Our reasoning for this determination follows.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established by presenting evidence that would have led one of ordinary skill in the art to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) and In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Claim 1, the sole independent claim on appeal, reads as follows:

A method for producing a capacitor embedded in a printed circuit board comprising the steps of  
selecting a first conductor foil and a second conductor foil;  
forming clearance holes in said first and second conductor foils;  
selecting a dielectric material;  
coating the dielectric material on at least one side of the first conductor foil to a thickness of approximately 0.0015 inch; and  
layering the coated foil with said second conductor foil with clearance holes on top of the coating of dielectric material thereby to form a capacitive structure for being embedded in a printed circuit board.

In the rejection of claim 1, the examiner (answer, p. 3) first determined that

DiStefano discloses selecting a first conductor foil (see annotated Fig. 2 [attached to the Office action mailed March 13, 2001 (Paper No. 6)]); forming clearance holes (see annotated Fig. 2) in first conductor foil (see annotated Fig. 2); selecting a dielectric material (see annotated Fig. 2); coating the dielectric material on at least one side of the first conductor foil to a thickness (see annotated Fig. 2); and layering the coated foil with a second conductor foil with clearance holes on top of the coating of dielectric material thereby to form a capacitive structure for being embedded in a printed circuit board (two foils 30 as shown in annotated Fig. 2 are spaced by a dielectric material to form a capacitive structure; Fig. 3 shows all the layers stacked to form a printed circuit board).

The examiner then ascertained<sup>1</sup> that "DiStefano fails to disclose a thickness of approximately 0.0015 inch." The examiner then concluded that

[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made as a matter of design choice to coat the dielectric material to a thickness of approximately 0.0015 inch, since the applicants have not disclosed that a thickness of approximately 0.0015 inch solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the thickness shown in the DiStefano reference.

The appellants argue (brief, p. 9) that

an applicant for patent protection is not required to defend or support each and every limitation in a claim. If, as the examiner suggests, the thickness is a 'matter of design choice', the burden is on the Examiner to provide support for this contention. Such support has not heretofore been forthcoming. In addition, the fact remains that DiStefano et al do not produce a capacitor by the method claimed by the Appellants. This is merely a conclusionary statement on the part of the Examiner. It is well settled art that conclusionary statements do not satisfy

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<sup>1</sup> After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

the Examiner's burden of providing reasons of unpatentability. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Therefore, the thickness of the dielectric material of DiStefano et al is totally irrelevant to the teachings claimed in the present invention.

On the other hand, Appellants' use of a claimed film thickness of 1.5 mils has clear advantages. The capacitance value bears a direct relationship to dielectric constant and dielectric thickness - the thinner the dielectric, the higher the capacitance. If the dielectric layer is too thin, there is a risk of the capacitor shorting out. Appellants' claimed thickness is an ideal thickness for achieving maximum capacitance with a low probability of shorting. Because DiStefano et al are not trying to create a capacitor, there is no need for them to define a thickness for the dielectric layer, nor attach any significance to the foil thickness.

In response to the appellants' argument regarding the thickness of the coated dielectric material, the examiner maintained (answer, pp. 6-7) that

it would have been obvious to one of ordinary skill in the art at the time the invention was made as a matter of design choice to coat the dielectric material to a thickness of approximately 0.0015 inch, since the appellants have not disclosed that a thickness of approximately 0.0015 inch solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the thickness shown in the DiStefano reference. Furthermore, the specific thickness of the coated dielectric material must result in a manipulative difference in the recited process steps as compared to the prior art. In this instance it is obvious that the thickness of the dielectric material does not result in any difference in the claimed manufacturing process.

In a proper obviousness determination, whether the changes from the prior art are minor, the changes must be evaluated in terms of the whole invention, including whether the prior art provides any teaching or suggestion to one of ordinary skill in the

art to make the changes that would produce the claimed invention. See In re Chu, 66 F.3d 292, 298, 36 USPQ2d 1089,1094 (Fed. Cir. 1995); Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 935, 15 USPQ2d 1321, 1324 (Fed. Cir.), cert. denied, 498 U.S. 920 (1990). This includes what could be characterized as simple changes, as in In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (Although a prior art device could have been turned upside down, that did not make the modification obvious unless the prior art fairly suggested the desirability of turning the device upside down.).

"[W]here the prior art gives reason or motivation to make the claimed [invention] . . . the burden (and opportunity) then falls on an applicant to rebut that *prima facie* case. Such rebuttal or argument can consist of . . . any other argument or presentation of evidence that is pertinent." In re Dillon, 919 F.2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (in banc), cert. denied, 500 U.S. 904 (1991). After evidence or argument is submitted by the applicant in response to an obviousness rejection, "patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of the argument." In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

In this case, we find ourselves in agreement with the appellants that the claimed method for producing a capacitor embedded in a printed circuit board would not have been obvious at the time the invention was made to a person of ordinary skill in the art from the teachings of DiStefano. Specifically, the step of "coating the dielectric material on at least one side of the first conductor foil to a thickness of approximately 0.0015 inch" would not have been obvious at the time the invention was made to a person of ordinary skill in the art from the teachings of DiStefano since (1) DiStefano does specifically teach what the thickness of the dielectric material on at least one side of the first conductor foil is; (2) the claimed film thickness of 1.5 mils has clear advantages as pointed out by the appellants; and (3) there is no suggestion in DiStefano that the dielectric material on at least one side of the first conductor foil be approximately 0.0015 inch, in fact, it would appear to us that the thickness of the dielectric material on both sides of the first conductor foil would greatly exceed 1.5 mils. Thus, when the totality of the record is considered, it is our view that the evidence fails to establish a prima facie case of obviousness with respect to the subject matter of claim 1.

For the reasons set forth above, the decision of the examiner to reject claim 1, and claims 3 and 5 to 9 dependent thereon, under 35 U.S.C. § 103 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 3 and 5 to 9 under 35 U.S.C. § 103 is reversed.

REVERSED

NEAL E. ABRAMS  
Administrative Patent Judge

LAWRENCE J. STAAB  
Administrative Patent Judge

JEFFREY V. NASE  
Administrative Patent Judge

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