

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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 W. KYLE ANDERSON, ARTHUR A. PERSHALL and STEPHEN E. JACKSON

Appeal No. 96-3106
Application 08/052,015¹

ON BRIEF

Before BARRETT, FLEMING and LALL, Administrative Patent Judges.

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1 through 9, 18

¹ Application for patent filed April 22, 1993.

and 19, claims 10 through 17 having been canceled².

The disclosed invention pertains to a package for multiple high power electrical components. The package comprises a plurality of subassemblies 18 which each include a semiconductor device 20, and which are disposed on the package support member 12 in an array surrounding a central electrode structure 16. Each semiconductor device includes at least a first electrode and a second electrode. The first electrodes of all the semiconductor devices are electrically connected to the package support member 12. The second electrodes of all the semiconductor devices are connected to the central electrode structure 16 via tab 44, and then to terminal 104. As a result of this structure, a compact package is attained. The package further facilitates the testing of its subassemblies prior to incorporation therein to reduce waste.

Representative claim 1 is reproduced as follows:

² An amendment after final was filed on June 28, 1995. It made no changes to the claims, and is considered entered in the record here.

1. A semiconductor package, comprising:

an electrically conductive package support member having a central aperture therethrough;

a central electrode structure extending through the central aperture of the package support member and electrically isolated therefrom;

a plurality of semiconductor devices disposed on the package support member in an array surrounding the central electrode structure, each semiconductor device including first and second electrodes wherein the first electrodes of the semiconductor devices are electrically interconnected by the support member; and

a first terminal electrically connected to the package support member;

wherein the central electrode structure includes a bus for electrically interconnecting the second electrodes of the semiconductor devices and a second terminal is coupled to the bus.

The Examiner relies on the following references:

Sutrina	4,614,964	Sep. 30, 1986
Granberg et al. (Granberg)	4,639,760	Jan. 27, 1987

Claim 19 stands rejected under 35 U.S.C. § 112, first paragraph, as not describing the claimed invention in such full, clear, concise and exact terms as to enable any person skilled in the art to make and use the same, and for failure to provide an clear written description. Claim 19 further stands rejected under 35 U.S.C. § 112, second paragraph for

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failing to particularly point out and distinctly claim the subject matter which Appellants regard their invention. Also, claims 1 through 9, 18 and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Sutrina and Granberg³.

Rather than repeat the discussions of Appellants and the Examiner, we make reference to the brief and the answer for the respective details thereof.

OPINION

We have considered the rejections advanced by the

³ The record seems to be conflicting. Specifically, an "Examiner Interview Summary Record" was mailed on June 26, 1995, Paper no. 15. It states: "claims 1 and 18 appear to distinguish over Sutrina . . . member." But there was no indication of allowance of any claims in any office action, besides this form.

Further, in the Advisory Action mailed on August 4, 1995, Paper no. 17, the Examiner gave a different interpretation to the primary reference, Sutrina, and stated: "The disclosure of Sutrina needs to be considered collectively. . . . The Examiner mistakenly referred to element (10) in Sutrina as being the claimed support member. . . ." However, in the Examiner's Answer, pages 4 to 5, the Examiner went back to the position taken in the final rejection, pages 2 to 4. We here consider the Examiner's position as laid out in the Examiner's Answer, which is consistent with the Final Rejection.

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Examiner and the arguments in support of the rejections. We have, likewise, reviewed the Appellants' arguments set forth in the brief.

We conclude that the rejection of claim 19 under 35 U.S.C. § 112, first and second paragraphs, is not sustained, the rejections of claims 1, 2, 6 through 9, 18 and 19 under 35 U.S.C. § 103 over Sutrina and Granberg are sustained, and rejections of claims 3 through 5 under 35 U.S.C. § 103 over

Sutrina and Granberg are not sustained. Accordingly, we affirm-in-part.

We first consider the rejection of claim 19 under 35 U.S.C. § 112, first and second paragraphs, and then the rejections of claims 1 through 9, 18 and 19 under various groupings under 35 U.S.C. § 103 over Sutrina and Granberg.

Rejection of claim 19 under 35 U.S.C. § 112

The Examiner rejected claim 19 under 35 U.S.C. § 112, first paragraph and second paragraph, first alleging that the

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invention of claim 19 is ". . . not described in such full, clear, concise and exact terms to enable any person skilled in the art to make and use the same, and/or for failing to particularly point out and distinctly claim the subject matter which applicant regard as the invention" [Answer, page 3]. The Examiner provides no explanation about what is not enabled or what is indefinite about the claims and we will not guess at what was meant. The rejections under 35 U.S.C. § 112, first paragraph, for lack of enablement, and 35 U.S.C. § 112, second paragraph, for vagueness and indefiniteness are reversed.

The Examiner objects to the specification and rejects claim 19 under 35 U.S.C. § 112, first paragraph for lack of written description, by stating "The Examiner cannot find support in the specification for the phrase 'input and output elements connected ... apparatus'" [Answer, page 3].

Appellants argue that the disclosure as originally filed does have the support for the invention of claim 19 and cite

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numerous pages of the disclosure to support that view [Brief, pages 6 to 7].

The Examiner responds that ". . . pages and line numbers referenced by Appellants do[es] not provide the proper support necessary to set out a clear description of or best mode for carrying out the invention" [Answer, page 5].

We have reviewed the various references made by Appellants to the disclosure to support their position. We find that figures 2 and 2A, for example, show the various electrodes and the various structure members being interconnected within each subassembly and then to the outside environment via the terminals 104 and 106. Terminals 104 and 106 correspond to the input and output terminals. Thus, we conclude that the disclosure does provide a clear written description of the invention. Therefore,

we reverse the rejection of claim 19 under 35 U.S.C. § 112, first paragraph, for lack of written description.

Next we consider the various rejections of claims 1 through 9, 18 and 19 under 35 U.S.C. § 103 as unpatentable over Sutrina and Granberg.

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As a general proposition in an appeal involving a rejection under 35 U.S.C. § 103, an examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

1. Rejection of claims 1, 2 and 6 through 9 over Sutrina and Granberg

With respect to claim 1, the only independent claim in this grouping, the Examiner takes the position that Sutrina shows all the features except that the first electrodes are not

interconnected by the support member. The Examiner uses Granberg for this interconnection. Thus, the Examiner concludes that it

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would have been obvious, to one of ordinary skill in the art at the time of the invention, to interconnect the first electrodes in Sutrina as taught by Granberg, to improve power dissipation capabilities and achieve compact package [Answer, page 4 to 5].

Appellants argue that there is no suggestion in the cited art to combine the references in the manner proposed by the Examiner. Appellants further argue that, even if combinable, the suggested combination does not meet the invention claimed in claim 1. Appellants contend that to make the Examiner-suggested interconnection in Sutrina using Granberg teaching would render Sutrina's device inoperative [Brief, pages 8 to 11].

We note that while combining references, there does not have to be an express suggestion in a single reference to achieve the combination. Rather, it is what the collective teaching of the references would have suggested to one of ordinary skill in the art about the combination. See In re Bozek, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969); In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981); In re Andros, 988 F.2d 131, 28

USPQ2d 1146, 1147-1148 (Fed. Cir. 1993). Here, we find that the

applied references together would have suggested the combination. We find that Sutrina discloses an electronically conductive support member 10 having a central aperture 12. Sutrina further discloses a plurality of semiconductors 46 located in a radial array surrounding a central conductor 76 (electrode). Each semiconductor device 46 is supported by support member 10 via plates 32 and 36 on shoulder 20. First electrode 48 is electrically connected to member 10 which serves as a bus. Central control electrode 50 is electrically connected to central conductor 76 via members 66 and 74, and the peripheral electrode 52 is electrically connected to power bus 90 via 58, 84 and 90. We also note that, although not shown, Sutrina has to have electrical terminals attached to its electrodes to provide for the input and output to the semiconductors in the package assembly. In addition, the general concept of providing terminals to the electrodes for such purposes is illustrated in Granberg see figure 1, where terminal 11a is an output lead for the output

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connections from all of transistor die 12 [column 4, lines 61 to 64], and terminal 11b is an input lead for the input connections to all of transistor die 12 [column 4, line 65 to

column 5, line 12]. Thus, we conclude that the subject matter of claim 1 would have been obvious over Sutrina and Granberg. We, therefore, sustain the Examiner's rejection of claim 1.

We have looked at the references slightly differently from the Examiner in the above analysis. However, even though we sustain the Examiner's rejection of claim 1 for slightly different reasons than those advanced by the Examiner, our position is still based on the collective teachings of the applied references and does not constitute a new ground of rejection. See In re Bush, 296 F.2d 491, 496, 131 USPQ 263, 267 (CCPA 1961); In re Boyer, 363 F.2d 455, 458 n.2, 150 USPQ 441, 444 n.2 (CCPA 1966).

Claims 2 and 6 through 9, being in the same grouping and not having been separately argued, fall with claim 1.

Therefore, we affirm the rejection of these claims under 35 U.S.C. § 103 over Sutrina and Granberg.

2. Rejection of Claim 3 over Sutrina and Granberg

With respect to claim 3, Appellants claim and argue the feature of ". . . coupling means comprising of a strip of conductive material disposed on corrugated fin stock." [claim 3 and Brief, page 11]. The Examiner has not specifically argued

this claim in the Answer. In fact, the Examiner ". . . concedes that neither reference teaches this material." [Answer, page 7]. We interpret this feature as being illustrated by Appellants in figure 5 of their disclosure. We, too, have not found such a feature in the applied art. We, therefore, reverse this rejection under 35 U.S.C. § 103 over Sutrina and Granberg.

3. Rejection of claims 4 and 5 over Sutrina and Granberg

In regard to claims 4 and 5, Appellants point to element 96 in figures 2 and 9 respectively and argue that such features are not shown by either Sutrina or Granberg [Brief, pages 11 and 12]. The Examiner has not discussed these features in the Examiner's answer. We have interpreted the

phrase "a cover" in these claims to mean "a single cover". We find no such feature in the applied art. Thus, we reverse the rejection of these claims under 35 U.S.C. § 103 over Sutrina and Granberg.

**4,5. Rejection of claims 18 and 19 over Sutrina
and Granberg**

Appellants argue that, in addition to the limitations of claim 1, claim 18 defines the planar configuration of the support member, and the first and the second electrodes being electrically isolated from each other and supported by the central electrode structure. Appellants further argue that these features are not shown in the suggested combination of Sutrina and Granberg [Brief, pages 12 to 13].

First, note that our remarks regarding the obviousness rejection of claim 1 above equally apply here. In addition, we find that Sutrina, in figure 2, shows a plurality of semiconductor devices 46 disposed on support member 10 in a planar array (i.e., in the plane of the paper) extending radially outward from the central electrode 76. First electrodes 48 are connected to support member 10 via plates

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36. The two electrodes, 48 and 50 are electrically isolated from each other, and are supported by the central electrode structure comprising of 74 and 76. As for claim 19, it calls for no additional features than claim 18, and in fact leaves out some.

Therefore, we affirm the rejection of claims 18 and 19 under 35 U.S.C. § 103 over Sutrina and Granberg.

In conclusion, the rejections of claim 19 under the first and the second paragraphs of 35 U.S.C. § 112 are not sustained. The rejection of claims 1 through 9, 18 and 19 under 35 U.S.C.

§ 103 over Sutrina and Granberg is sustained with respect to

claims 1, 2, 6 through 9, 18 and 19, but is not sustained with respect to claims 3, 4 and 5. Therefore, the decision of the Examiner rejecting claims 1 through 9, 18 and 19 is affirmed-in-part.

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

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AFFIRMED-IN-PART

LEE E. BARRETT)	
Administrative Patent Judge)	
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MICHAEL R. FLEMING)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
PARSHOTAM S. LALL)	
Administrative Patent Judge)	

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Kristin L. Chapman
Sundstrand Corporation
4949 Harrison Avenue
P. O. Box 7003
Rockford, IL 61125-7003

psl/ki