

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 22

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 R. MARTIN and CARL M. ROBERTS JR.

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Appeal No. 1998-2907  
Application No. 08/471,748

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ON BRIEF

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Before KRASS, GROSS, and BARRY, Administrative Patent Judges.  
GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 22 and 24 through 41, which are all of the claims pending in this application.

Appellants' invention relates to a package for sealing an integrated circuit die and the method of sealing the die. Claim 25 is illustrative of the claimed invention, and it reads as follows:

25. An apparatus comprising:

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a semiconductor die having a movable part in a top face of the die; and

a cap bonded over the first face so that a void region is defined between the cap and the part, an outer periphery of the cap surrounding and sealing the part, wherein the cap is made of metal.

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

Greiff et al. (Greiff) 5,216,490 June. 01, 1993

Roylance et al., "A Batch-Fabricated Silicon Accelerometer,"  
IEEE Transactions on Electron Devices, Vol. ED-26, No. 12  
(December 1979), pages 1911-17. (Roylance)

Appellants' admitted prior art shown in Figure 1 and discussed on page 6 of the specification. (AAPA)

Claims 1 through 22 and 24 through 41 stand rejected under 35 U.S.C. § 103 as being unpatentable over AAPA in view of Roylance and Greiff.

Reference is made to the Examiner's Answer (Paper No. 17, mailed February 17, 1998) for the examiner's complete reasoning in support of the rejection, and to appellants' Brief (Paper No. 16, filed December 1, 1997) and Reply Brief (Paper No. 18, filed March 23, 1998) for appellants' arguments thereagainst.

OPINION

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We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will reverse the obviousness rejection of claims 1 through 22 and 24 through 41.

We substantially agree with appellants' arguments with the following embellishments. The examiner misinterprets appellants' argument regarding the combinability of AAPA with Roylance and Greiff as an assertion that the references are non-analogous. As such, the examiner never responds to the argument. The examiner should understand the difference. Specifically, references are non-analogous if not from the same field of endeavor and not pertinent to the problem solved by appellants. See In re Clay, 966 F.2d 656, 658, 23 USPQ2d 1058-59, 1060 (Fed. Cir. 1992). On the other hand, references may meet the criteria set forth in Clay and not be combinable. For example, one reference may teach away from the modification suggested by the other or there may be no suggestion in the references to combine.

In the present case, Roylance teaches away from using adhesive for sealing the cap to the die, as required by claims

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3, 9 through 14, 16 through 20, 22, 24, 27, and 29 through 35, because Roylance discloses using anodic bonding specifically to avoid the use of an adhesive. (The adhesive referenced by the examiner fills the region between the two glass covers and around the leads, but does not connect the cover to the die.) Roylance further teaches away from using plastic, as required by claims 1 through 8, 10 through 12, 30 through 36, and 38, because the glass layers are disclosed as taking the place of the TO-5 or dual-in-line package normally used for IC's. Further, Greiff adds nothing to overcome either deficiency. Therefore, the examiner has failed to establish a prima facie case of obviousness, and we cannot sustain the rejection of claims 1 through 14, 16 through 20, 22, 24, 27, 29 through 36, and 38.

Regarding the rejection of claim 15 and the claims dependent therefrom, claims 39 through 41, the examiner states (Answer, pages 4-5) that Greiff shows a silicon cover with metal layers of various conductive materials, wherein the "layers can be connected to voltage wires on the chip." The examiner continues that it would have been obvious "to have used the cover structure of Greiff et al with the devices of

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the prior art and Roylance et al, since Greiff et al teaches the benefits of a transducer with a cover that extends over an accelerometer to isolate and protect it." Later, the examiner asserts (Answer, page 6) that the steps of providing a first and a second layer of glass or metal and heating to hermetically seal them would have been obvious because "Roylance shows glass cover and Greiff shows metal layers."

First, we note that we find no benefits of using a cover over an accelerometer disclosed in the portion of Greiff relied upon by the examiner. Second, the examiner has provided no explanation as to how one would combine the structures of Greiff and Roylance to arrive at the claimed invention. As pointed out by appellants (Brief, page 8), that Roylance discloses a glass cover and Greiff discloses metal layers "does not suggest that it would have been obvious to form these layers in a cap and in a substrate and then bond them together to form a hermetic seal." Accordingly, with no reason to combine the references, the examiner fails to set forth a prima facie case of obviousness, and we cannot sustain the rejection of claims 15 and 39 through 41.

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Similarly, for claim 21 and its dependent, claim 28, the examiner fails to provide motivation for combining the references in such a way as to arrive at the claimed invention. In particular, the admitted prior art includes a paddle bonded to the bottom of the semiconductor die and a movable mass suspended in the top face of the die, as recited in the claims. Roylance, on the other hand, has the paddle supporting the mass with the cover bonded to the end of the paddle. Greiff discloses no paddle at all. Therefore, it is unclear to us how one would combine the three references to arrive at a cap bonded over the top of the die and a metal paddle bonded to the bottom of the die. As the examiner never specifically addresses these limitations, there is no prima facie of obviousness, and we cannot sustain the rejection of claims 21 and 28.

Last, as to claim 25 and its dependents, claims 26 and 37, merely that Greiff includes metal layers in the bridge electrode does not render it obvious to the skilled artisan to form a cap of metal over the accelerometer. There is no indication in Greiff that the bridge electrode completely covers the accelerometer so as to protect it. Further, as

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Roylance actually discloses covers, and forms them of glass, it is unclear why one of ordinary skill in the art faced with Greiff's metal layers in the bridge electrode, would use caps or covers of metal. Thus, the examiner again has failed to establish a prima facie case of obviousness, and we cannot sustain the rejection of claims 25, 26, and 37.

CONCLUSION

The decision of the examiner rejecting claims 1 through 22 and 24 through 41 under 35 U.S.C. § 103 is reversed.

REVERSED

ERROL A. KRASS	)	
Administrative Patent Judge	)	
	)	
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	)	
	)	BOARD OF PATENT
ANITA PELLMAN GROSS	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
LANCE LEONARD BARRY	)	
Administrative Patent Judge	)	

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