

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRIAN D. MEYER and IRA E. BASKETT

Appeal No. 1997-3668
Application 08/395,228

ON BRIEF

Before KRASS, BARRETT and HECKER, Administrative Patent Judges.

HECKER, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 4, 6 through 18, 20 and 21, all claims pending in this application.

The invention relates to a piezoresistive pressure

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sensor. In particular, with reference to Figure 3, diffusion resistors 32 are connected in a bridge configuration by contact diffusion regions 34. Contact regions 34 are formed so that the inside corners are overlapped. These overlaps are shown in more detail in Figure 4 as 42, 44, 46 and 48, and allow the sensor to accommodate small mask misalignments.

Representative independent claim 10 is reproduced as follows:

10. A sensor consisting essentially of four substantially identical piezoresistive diffusion resistors electrically coupled into a bridge configuration having four inside corners essentially only by four diffusion terminals and wherein each of said four diffusion terminals overlaps one of said four inside corners.

The Examiner relies on the following references:

Burger et al. (Burger)	4,620,365	Nov. 4,
1986		
Murakami	4,869,107	Sep. 26,
1989		

Claims 1 through 4, 6 through 18, 20 and 21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Burger in view of Murakami.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the brief, reply brief,

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answer and supplemental answer for the respective details thereof.

OPINION

After a careful review of the evidence before us, we will not sustain the rejection of claims 1 through 4, 6 through 18, 20 and 21 under 35 U.S.C. § 103.

The Examiner has failed to set forth a **prima facie** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions. **In re Sernaker**, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." **Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.**, 73 F.3d 1085, 1087, 37 USPQ2d 1237,

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1239 (Fed. Cir. 1995) (*citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)).

The Examiner reasons that Burger shows the claimed invention except for the resistors and terminals being diffusion

type and except for an overlap of an inside corner. Murakami discloses diffusion contacts and resistors for the purpose of eliminating localized temperature interference caused by metal (answer-pages 3 and 4). Thus, the Examiner states "It would have been obvious in view of Murakami to employ diffused terminals and resistors and the well-known resistor pattern as disclosed therein in the device of Burger et al. for the purpose of eliminating metal on a flexure portion, where Burger et al. teaches that contacts and the resistor should be a similar material, col. 2, lines 46-55, and where Murakami disparages the use of metal contacts." (Answer-page 5)

Appellants argue that their claims recite an overlap of a diffusion contact region or terminal with an inside

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corner, and neither of the two cited references individually or combined shows such an overlap. Appellants state the Examiner admits that Murakami does not show an overlap, and Burger makes it clear in the manufacturing process described (column 4, lines 37-42, column 5, lines 7-9) that the two layers formed are always directly coincident or line-on-line for all regions, with no overlap. (Brief-pages 4 and 5.)

The Examiner responds with a new position that Burger discloses a **functional overlap**, or alternatively, that Burger when modified by Murakami, **results in an overlap**. (Answer-page 5.) The Examiner explains the **functional overlap** as all resistive portions under the terminal portions L11, L12...L32 being effectively not present owing to the low conductivity of the contacts overlying the resistive portions. In the alternative, the Examiner's **resultant overlap** is reasoned that employing the Murakami resistor pattern (R1, R2-
-Figure 10) in place of the resistors of Figure 2 of Burger results in the claimed overlap because Burger's terminal

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geometry would result in inside corner overlap in Murakami's Figure 10 resistors R1, R2. (Answer-page 4.)

In the reply brief and the supplemental answer, Appellants and the Examiner amplify their respective positions of Burger's **functional overlap**, or alternatively, the **resulting overlap** derived from Burger's geometric layout. However, we agree with Appellants on both points. A functional overlap does not meet the structural language recited in the claims, nor would a functional overlap make a structural overlap obvious as

proffered by the Examiner in the supplemental answer. We find this reasoning to clearly be a hindsight reconstruction, by combining references to obtain a particular geometric shape, and further, not employing resistive material in the inside corner of Burger because the extra resistive material would be wasted and serve no functional utility (as explained by the Examiner).

Both Appellants and the Examiner have assumed that overlap in Appellants' claims means overlap as disclosed in

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Appellants' specification. That is, overlap wherein a top geometric shape exceeds the boundaries of an underlying geometric shape. We have accepted this definition because of Appellants' disclosure as a basis for the claim language, Appellants arguments relying on this definition as a distinction over the prior art, and the lack of the Examiner challenging this definition. However, viewed from another perspective, overlap could simply mean "1: to extend over and cover a part of 2: to have something in common with" (Webster's Ninth New Collegiate Dictionary, 1986). Thus, from a dictionary definition, overlap by itself, is easily met by Burger in that the resistive material at the inside corners of Burger is lapped over by low impedance connections (i.e., terminals). "Extend over and cover a part of" or "having something in common with" does not preclude the layers being geometrically the same and aligned with each other (i.e., line-on-line).

However, the overlap issue aside, the significant

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question is whether would it have been obvious to use Murakami's diffused resistors and terminals in Burger.

Appellants argue:

Appellants' claims recite diffused regions. Murakami does not suggest to one of ordinary skill in the art that these diffused regions should have an overlap because no overlap is shown. Further, Burger is directed to the use of a metal material, not a diffused region. One of ordinary skill in the art desiring to form diffused regions would follow the teachings of Murakami and not those of Burger. The Examiner has failed to demonstrate a contrary suggestion. (Brief-page 7.)

The Examiner states:

It would have been obvious in view of Murakami to employ diffused terminals and resistors and the well-known resistor pattern as disclosed therein in the device of Burger et al. for the purpose of eliminating metal on a flexure portion, where Burger et al. teaches that contacts and the resistor should be a similar material, col. 2, lines 46-55, and where Murakami disparages the use of metal contacts. (Answer-page 5.)

We see no "purpose of eliminating metal on a flexure portion" stated in the cited portion of Burger. However, Burger does eliminate metal on a flexure portion and does not have to look elsewhere, to Murakami, as suggested by the Examiner. Furthermore, we find the suggested combination incompatible.

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Murakami requires a semi-conductive substrate to have diffused resistors and terminals. This semi-conductive substrate also serves as a flexible beam. Burger, on the other hand, has a thin, organic foil, which is glued to an elastically deformable spring element and provides vapor deposited resistors and terminals. Any modification of Burger by the teachings of Murakami would amount to something totally foreign to Burger. The foil and elastically deformable spring of Burger would have to be replaced with a semi-conductive substrate, replacing beyond recognition, the initial structure of Burger. We find no teaching or suggestion in either reference, or as a whole to one of ordinary skill in the art, to convert Burger's thin film technology to the semi-conductor diffusion technology of Murakami.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior

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art suggested the desirability of the modification." ***In re Fritch***, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), ***citing In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." ***Para-Ordnance Mfg. v. SGS Importers Int'l***, 73 F.3d at 1087, 37 USPQ2d at 1239, ***citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.***, 721 F.2d at 1553, 220 USPQ at 312-13.

As pointed out above, any modification of Burger by Murakami destroys the basic structure of Burger. Burger does not provide a suitable substrate for diffused resistors and terminals. Such an attempted modification is prompted by nothing more in the record than hindsight. None of the references even allude to terminal "overlap". Since there is no evidence in the record to support the Examiner's combination, we will not sustain the Examiner's rejection of

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independent claims 1, 10¹, 11, 15 and 20.

The remaining claims on appeal also contain the above limitations discussed in regard to claims 1, 10, 11, 15 and 20, and thereby, we will not sustain the rejection as to these claims.

We have not sustained the rejection of claims 1 through 4, 6 through 18, 20 and 21 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED

	ERROL A. KRASS)	
	Administrative Patent Judge)	
)	
)	
)	
PATENT	LEE E. BARRETT)	BOARD OF
	Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES

¹ The language of claim 10 presents some difficulty in reading smoothly, thus we might suggest placing the clause "essentially only by four diffusion terminals" after "electrically coupled".

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STUART N. HECKER
Administrative Patent Judge

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