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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte THERESA A. MAUDIE, DAVID J. MONK and TIMOTHY S. SAVAGE

Appeal No. 97-1625
Application No. 08/415,900[1]

ON BRIEF

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

ABRAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the decision of the examiner finally rejecting claims 8-12 and 23-31. Claims 1-7 and 13-22 have been withdrawn from consideration as being directed to a non-elected invention.

[1] Application for patent filed April 3, 1995.

The appellants' invention is directed to a microsensor (claims 8-12, 23 and 24) and to a method for forming a microsensor (claims 25-31). The subject matter before us on appeal is illustrated by reference to claims 8 and 25, which can be found in an appendix to the Brief.

THE REFERENCES

The references relied upon by the examiner to support the final rejection are:

Adams	4,655,088	Apr. 7, 1987
Knecht et al. (Knecht)	4,790,192	Dec. 13, 1988
Hegner et al. (Hegner)	5,076,147	Dec. 31, 1991

Gates, L.E. et al. "Hermetic Passivation of Chip-on-Board Circuits." Hughes Aircraft Company, Ionic Systems, 1991, pp. 813-819.

THE REJECTIONS

Claims 8-11 and 23-28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Adams in view of Hegner and Knecht.

Claims 12 and 29-31 stand rejected under 35 U.S.C. § 103 as being unpatentable over Adams in view of Hegner, Knecht and Gates.

The rejections are explained in the Examiner's Answer.

The arguments of the appellants are set forth in the Brief.

OPINION

The claims have been rejected under 35 USC § 103. The examiner therefore 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)), which is established when the teachings of the prior art itself would appear to have suggested the claimed subject matter to one of ordinary skill in the art (see *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993)).

The appellants' invention is directed to improvements in microsensors of the type that are exposed to harsh environments. The device comprises a pressure sensor device including a cavity extending from a first major surface, the cavity having a plurality of sidewalls and an upper surface that forms a diaphragm with a second major surface. A transducer is formed contiguous with the second major surface. An inorganic protective film is formed "on the plurality of sidewalls and the upper surface of the cavity" (independent claim 8). These limitations are repeated in independent method claim 25. For purposes of our evaluation of the examiner's rejections, it is important to note that the appellants have attached particular significance to the limitation regarding the protective film, as

is seen in the description of Figure 2 on page 10 of the specification:

> It is important for inorganic protective coating 37 to cover sidewalls 29 as well as upper surface 31 when cavity 27 is exposed to a media that etches the material that pressure sensor 26 is made of. This is because pressure sensor sensitivity and linearity are determined by the thickness of diaphragm 33, length 39, and the location of transducer 34 with respect to the edge of diaphragm 33 and any changes in these factors can impact device performance.

According to the examiner, Adams shows the basic construction of the device, Hegner teaches placing a inorganic protective film on the entire portion of the sensor surface exposed to the medium whose pressure is being sensed, and Knecht discloses a sensor constructed with a cavity having sidewalls and an upper surface. It is the examiner's position that it would have been obvious to one of ordinary skill in the art to modify the Adams sensor to the type disclosed by Knecht, and to coat the walls and the upper surface of the cavity in which the sensor is installed with an inorganic coating, in view of the teachings of the latter two references (Answer, page 6). The primary argument advanced by the appellants is that none of these references disclose or teach coating the plurality of sidewalls and the upper surface of the cavity with an inorganic coating. To this,

the examiner replies that "Hegner et al. teach protecting all areas of the sensor to be exposed" (Answer, page 11).

We cannot agree with the examiner. Adams discloses a sensor (22) mounted in a cavity adjacent to the upper surface thereof, with a protective coating (22) on its top surface (Figure 3). There is no teaching, explicit or implied, that any portion of the surfaces of the cavity be coated with protective material. In the Hegner arrangement, a protective coating is provided on the side of a pressure sensing diaphragm (11) that faces the applied pressure. No cavity is shown, and we can perceive from this reference no teaching, explicit or implied, which would support a conclusion that the walls of a cavity in which the sensor is to be installed should be coated with protective material. While cavities are present in the relevant Knecht sensor (Figure 19), the only use of coating material is on the outside of the diaphragm, and not in the cavity.

We therefore find no support for the examiner's opinion that the combined teachings of the three references would have suggested to one of ordinary skill in the art that the sidewalls and the upper surface of the cavity in which the sensor is mounted be coated with an inorganic material. This being the case, a *prima facie* case of obviousness has not been established

with respect to the subject matter of independent claims 8 and 25 and, it follows, dependent claims 9-11, 23, 24 and 26-28. We will not sustain this rejection.

The teachings of Gates do not cure this deficiency, and therefore we also will not sustain the rejection of dependent claims 12 and 29-31.

Neither of the rejections is sustained.

The decision of the examiner is reversed.

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

REVERSED

NEAL E. ABRAMS Administrative Patent Judge	)
LAWRENCE J. STAAB Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
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Application No. 08/415,900

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REVERSED

Prepared: April 27, 1999