The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID W. GAILUS and PAUL A. HOISINGTON

Appeal No. 2001-0189
Application No. 09/033,873

HEARD: SEPTEMBER 18, 2002

Before RUGGIERO, BLANKENSHIP, and SAADAT, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of claims 1-6, which are all of the claims pending in the present application. An amendment filed November 26, 1999 after final rejection was approved for entry by the Examiner.

The claimed invention relates to an ink jet printhead having a pattern of deformable electrode material adhesively bonded to a surface of a ceramic piezoelectric transducer layer. Further included is a chamber plate having a surface formed with ink

pressure chambers affixed to the ceramic piezoelectric layer, the ink pressure chambers being disposed at locations corresponding to the electrode locations in the deformable electrode material pattern.

Claim 1 is illustrative of the invention and reads as follows:

> 1. An ink jet printhead comprising a ceramic piezoelectric transducer layer, a pattern of deformable electrode material adhesively bonded to a surface of the ceramic piezoelectric layer and a chamber plate with a surface formed with ink pressure chambers affixed to the ceramic piezoelectric layer with the ink pressure chambers disposed at locations to corresponding to the locations of electrodes in the pattern of deformable electrode material.

The Examiner relies on the following prior art:

Pies et al. (Pies)	5,554,247	Sep. 10, 1996 (filed Apr. 11, 1995)
Moynihan et. al. (Moynihan)	5,605,659	Feb. 25, 1997 (filed Jun. 02, 1995)
Hine et al. (Hine)	5,771,052	Jun. 23, 1998 (filed Nov. 04, 1996)

Claims 1-6 stand finally rejected under 35 U.S.C. § 102(e) as being anticipated by Moynihan. Claims 1, 3, 5, and 6 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Hine in view of Pies.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Brief (Paper No. 9) and Answer (Paper No. 10) for the respective details.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the Examiner, and the evidence of anticipation and obviousness relied upon by the Examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellants' arguments set forth in the Brief along with the Examiner's rationale in support of the rejections and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that the Moynihan reference does not fully meet the invention as set forth in claims 1-6. With respect to the Examiner's obviousness rejection, we are also of the view that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the invention as recited in claims 1, 3, 5, and 6. Accordingly, we reverse.

We consider first the rejection of claims 1-6 under 35 U.S.C. § 102(e) as being anticipated by Moynihan. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well

as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.), cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

With respect to independent claim 1, the Examiner attempts to read the various limitations on the disclosure of Moynihan. In particular, the Examiner directs attention (Answer, pages 3 and 4) to the illustrations in Figures 11 and 14 of Moynihan along with the accompanying description beginning at column 9, line 60.

Appellants' arguments in response assert a failure of Moynihan to disclose every limitation in independent claim 1 as is required to support a rejection based on anticipation. At pages 21 and 22 of the Brief, Appellants' arguments focus on the contention that there is no teaching or suggestion that Moynihan's piezoelectric plate structure has a deformable electrode material adhesively bonded to a surface of the ceramic piezoelectric layer as required in the appealed claims. Instead, in Appellants' view, the electrode pattern in Moynihan is formed on a conventional metallized layer which is not deformable since

it solidifies on and is rigidly attached to the ceramic plate. Appellants further contend, that, contrary to their invention, Moynihan's electrodes are on the opposite side of the ceramic plate from the unelectroded side which is adhesively bonded to the carbon plate.

After reviewing the Moynihan reference in light of the arguments of record, we are in general agreement with Appellants' position as expressed in the Brief. Our interpretation of the disclosure of Moynihan coincides with that of Appellants, i.e., while a ceramic piezoelectric plate is adhesively bonded to a carbon plate to form a print head, the electrode pattern on the piezoelectric plate is not constructed of deformable material which is adhesively bonded to the surface of the piezoelectric plate.

We further find the Examiner's reliance on the structure illustrated in Moynihan's Figure 11 to be misplaced. This illustration is directed to a "poling" procedure for polarizing the piezoelectric plate before it is placed on the carbon plate. As pointed out by Appellants (Brief, page 24), the electrodes 143 and 144 used in the "poling" procedure are not constructed of a pattern of deformable material and, further, are removed before the polarized piezoelectric plate is affixed to the carbon plate.

We are aware that the Examiner, at page 7 of the Answer, has expanded the line of reasoning expressed in the statement of the grounds of rejection. The Examiner asserts that the conductive particles in the epoxy adhesive used to bond the piezoelectric plate to the carbon plate constitute an adhesively bonded deformable electrode material as set forth in appealed claim 1. We do not find this assertion to be persuasive. In our view, no evidence exists that any doping of conductive material in the epoxy adhesive in Moynihan would form a "pattern" of electrode material as claimed. We further find to be completely lacking in evidentiary support the Examiner's further assertion (id.) that the skilled artisan " . . . would inherently know electrode, i.e., conductive particle, material is deformable . . . . " The Examiner must not only make requisite findings, based on the evidence of record, but must also explain the reasoning by which the findings are deemed to support the asserted conclusion. See In re Lee, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002).

In view of the above discussion, since all of the claim limitations are not present in the disclosure of Moynihan, we do not sustain the Examiner's 35 U.S.C. § 102(e) rejection of independent claim 1, nor of claims 2-6 dependent thereon.

Turning to a consideration of the Examiner's 35 U.S.C. § 103(a) rejection of claims 1, 3, 5, and 6 based on the combination of Hine and Pies, we do not sustain this rejection as well. As with the Moynihan reference discussed supra, our interpretation of the disclosures of both Hine and Pies coincides with that of Appellants, i.e., there is no "pattern of deformable electrode material" as presently claimed. We agree with Appellants (Brief, page 30) that the electrode layers in Hine and Pies are formed by a metallization process in which the metallized electrode layer solidifies and rigidly adheres to the piezoelectric layer surface. Further, as argued by Appellants (id., at 31), the adhesive bonding feature of Pies relied on by the Examiner relates to the joining of metallized conductive surfaces 34 and 38 on two body portions 12 and 14, rather than the bonding of a deformable electrode layer to a piezoelectric layer surface. Given these deficiencies in the Hine and Pies references, it is unclear to us as to how and in what manner the references might be combined to arrive at the claimed invention. It is further our view that even assuming, arguendo, that proper motivation existed for combining Hine and Pies, the Examiner has failed to establish a prima facie case of obviousness since the resultant structure would fall well short of the claimed

printhead structure requiring the adhesive bonding of a pattern of deformable electrode material to a ceramic piezoelectric layer surface.

In summary, we have not sustained either of the Examiner's rejections of the claims on appeal. Therefore, the decision of the Examiner rejecting claims 1-6 is reversed.

REVERSED

JOSEPH F. RUGGIERO Administrative Patent Judge	)	
HOWARD B. BLANKENSHIP Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
MAHSHID D. SAADAT Administrative Patent Judge	)	

JFR:hh

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