

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

**UNITED STATES PATENT AND TRADEMARK OFFICE**

---

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

---

Ex parte ERNEST J. GARCIA, MARC A. POLOSKY, and GERARD E. SLEEFÉ

---

Appeal No. 2006-2656  
Application No. 10/307,216

---

ON BRIEF

---

Before THOMAS, JERRY SMITH, and HOMERE, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1, 3-6, 8-11 and 16. Claims 2, 12-15, 17-21 and 23-37 have been indicated by the examiner to contain allowable subject matter. Claim 7 has been objected to as being dependent upon a rejected base claim, but has otherwise been indicated by the examiner to contain

allowable subject matter if rewritten in independent form. Claim 22 has been cancelled.

The disclosed invention pertains to a mechanically latchable tiltable platform for forming micromirrors and micromirror arrays.

Representative claim 1 is reproduced as follows:

1. A microelectromechanical apparatus, comprising:
  - (a) a platform supported above a substrate and electrostatically moveable from a first position parallel to the substrate to a second position wherein the platform is tilted at an angle to the substrate; and
  - (b) an electrostatically-operable latch mechanism formed on the substrate with a pivot arm extending substantially parallel to the substrate for engaging with a tab protruding from the platform in response to an applied latch actuation voltage, thereby mechanically latching the platform in the second position even after the applied latch actuation voltage is removed.

The examiner relies on the following references:

Raccio et al. (Raccio)	WO 01/55770A2	Aug. 2, 2001
Couillard et al. (Couillard)	6,360,036	Mar. 19, 2002 (filed Jan. 14, 2000)
Pan et al. (Pan)	6,577,431	Jun. 10, 2003 (filed Jun. 15, 2001)

Hung et al. (Hung)	6,664,706	Dec. 16, 2003 (filed Dec. 10, 2001)
Gutierrez et al. (Gutierrez)	6,738,177	May 18, 2004 (filed Sep. 5, 2001)

The following rejections are on appeal before us:

1. Claims 1, 3-5, 11 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the teachings of Raccio in view of Couillard, and further in view of Pan [answer, pages 4 and 5].
2. Claims 6 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the teachings of Raccio in view of Couillard, and further in view of Pan, and further in view of Gutierrez [answer, pages 5 and 6].
3. Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the teachings of Raccio in view of Couillard, and further in view of Pan, and further in view of Hung [answer, page 6].

Rather than repeat the arguments of appellants or the examiner, we make reference to the brief and the answer for the respective details thereof.

#### OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of obviousness relied

upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the 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. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered and are deemed to be waived. See 37 C.F.R. § 41.37(c)(1)(vii)(2004). See also In re Watts, 354 F.3d 1362, 1368, 69 USPQ2d 1453, 1458 (Fed. Cir. 2004).

It is our view, after consideration of the record before us, that the evidence relied upon by the examiner does not support the examiner's rejection of claims 1, 3-6, 8-11 and 16. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). The examiner must articulate reasons for the examiner's decision. In re Lee, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). In particular, the examiner must show that there is a teaching, motivation, or suggestion of a motivation to combine references relied on as evidence of obviousness. Id. at 1343, 61 USPQ2d at 1433-34.

The examiner cannot simply reach conclusions based on the examiner's own understanding or experience - or on his or her assessment of what would be basic knowledge or common sense. Rather, the examiner must point to some concrete evidence in the record in support of these findings. In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). Thus the examiner must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the examiner's conclusion. However, a suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. In re Kahn, 441 F.3d 977, 987-88, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (citing In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000)). See also In re Thrift, 298 F. 3d 1357, 1363, 63 USPQ2d 2002, 2008 (Fed. Cir. 2002). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). 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 and the relative persuasiveness of the arguments. See Id.; 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).

We consider the examiner's rejection of claims 1, 3, 4, 5, 11 and 16 as being unpatentable over the teachings of Raccio in view of Couillard, and further in view of Pan [answer, pages 4 and 5]. Since appellants' arguments with respect to this rejection have treated these claims as a single group which stand or fall together, we consider independent claim 1 as the representative claim for this rejection. See 37 C.F.R. § 41.37(c)(1)(vii)(2004).

Appellants note that Raccio discloses a latching mechanism 130 (Fig. 1) which operates to hold mirror 102 in a tilted position with the mirror being tilted at an angle with respect to substrate 145 to reflect an incident light beam 120 (see Raccio, fig. 1; page 7, lines 23-25; page 7, line 30 through page 8, line 9) [brief, page 6]. Appellants further note that latching mechanism 130 of Raccio is oriented vertically with respect to substrate 145 with release post 138 extending outwardly from an upper surface of substrate 145 (page 7, lines 30-31) [id.]. Appellants argue that there is nothing in Raccio that teaches or suggests the desirability of using "a pivot

arm extending substantially parallel to the substrate” to hold the mirror “tilted at an angle to the substrate” as recited in Claim 1 [id.].

Appellants note that Pan teaches the use of a latching mechanism which is a stationary horizontal element 50 in fig. 9 comprising tenon 53 that engages with bulge 47 on reflective mirror 44 [brief, page 6, ¶13].

Appellants note that, unlike Raccio, the latching mechanism of Pan is only used when mirror 44 is in an untilted position that is parallel to substrate 41 [id.]. Appellants further note that Pan’s latching mechanism is not used at all during the tilting of mirror 44 to reflect an incident light beam for optical switching [id.]. In particular, appellants note that Raccio only latches the micro mirror device during transportation to prevent damage to the mirror from vibration or shock [id., emphasis added]. Appellants point to Pan’s Abstract as explicitly disclosing this feature [id.; see Pan, abstract; see also col. 7, lines 37-42].

Appellants argue that there is nothing in Pan that teaches or suggests the use of a latching mechanism “extending substantially parallel to the substrate” for latching a platform or mirror when “tilted at an angle to the substrate” as recited in instant claim 1 [brief, page 7, ¶11]. Appellants argue that one skilled in the art would not be motivated to modify Raccio with the teachings of Pan in the manner suggested by the examiner [brief, page 7, ¶12]. Appellants further argue that Raccio discloses an optical switching device that is fully functional such that no advantage would be gained by

substituting Pan's horizontal latching mechanism for Raccio's latching mechanism [id.]. Appellants assert that there is no teaching or suggestion to use the latching mechanism of Pan for latching a mirror in a tilted position as recited in claim 1 [id.]. Appellants further argue that the motivation proffered by the examiner, i.e., "with the actuator being electrostatic because it allows for electrical control rather than thermal control" is flawed since the latching mechanism in Raccio is already electrostatic to begin with [brief, page 8, §2]. Appellants conclude that one skilled in the art would not be motivated to make changes to Raccio's device that are totally unnecessary and would provide no clear advantage [id.].

The examiner disagrees [answer, page 8, ¶1]. The examiner notes that both Pan and Couillard teach the latch moving parallel to the substrate to frictionally engage and hold the platform in position without the continued application of an electrical current [id.]. The examiner points out that Raccio suggests (at page 11, ¶2) that the disclosed embodiments are only examples and that other embodiments and modifications would be apparent to those skilled in the art [id.]. The examiner asserts that Raccio suggests the latches of Pan and Couillard are known equivalents used for the same purpose [id.]. The examiner finds unpersuasive appellants' argument that Raccio teaches away from the teachings of Pan [id.]. The examiner asserts that the combined references show the optical platforms can be locked in either position and by various types of actuators [answer, page 9, ¶2].

At the outset, we note that to reach a proper conclusion under § 103, the examiner, as finder of fact, must step backward in time and into the mind of a person of ordinary skill in the art at a time when the invention was unknown, and just before it was made. In light of all the evidence, we review the specific factual determinations of the examiner to ascertain whether the examiner has convincingly established that the claimed invention as a whole would have been obvious at the time of the invention to a person of ordinary skill in the art. We note that the Court of Appeals for the Federal Circuit has determined that the motivation to combine under § 103 must come from a teaching or suggestion within the prior art, within the nature of the problem to be solved, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources, to select particular elements, and to combine them as combined by the inventor. Ruiz v. A.B. Chance Co., 234 F.3d 654, 665, 57 USPQ2d 1161, 1167 (Fed. Cir. 2000) [emphasis added]. It is impermissible to use a claimed invention as a “template or guide” in order to piece together the teachings of prior art references which show only individual elements of the claimed invention in an effort to create a mosaic of such prior art to argue obviousness. In re Fritch, 972 F.2d 1260, 1265-6, 23 USPQ2d 1780, 1783-4 (Fed. Cir. 1992). Piecemeal reconstruction of an invention is the result of improper hindsight reconstruction, which is strictly forbidden by law. In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). The

teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442, (Fed. Cir. 1991).

In the instant case, we note that the examiner asserts that Raccio teaches every aspect of the present invention except the pivot arm extending parallel to the substrate engaging a tab protruding from the platform [answer, page 5, ¶1]. After carefully considering all of the evidence before us, we agree with appellants that Raccio discloses an optical switching device that is fully functional such that no advantage would be gained by replacing Raccio's latching mechanism with the latching mechanism of Pan. We see no deficiency in Raccio's vertical latching mechanism 130 (fig. 1) that would motivate an artisan to look to Pan's horizontal latching mechanism (i.e., tenon 53, figs. 9 and 14) as a viable substitute. We agree with appellants that if one skilled in the art wanted an electrostatic latching mechanism, that person would use the electrostatic latching mechanism already present in Raccio [see brief, page 8, ¶2]. We further find that the examiner has failed to provide a convincing line of reasoning regarding the proffered motivation of: "because it is within the ordinary skill in the art to choose between known equivalents" [see answer, page 5, ¶1, emphasis added].

In light of the foregoing, it is our determination that the examiner's obviousness conclusion is based upon impermissible hindsight derived from appellants' own specification and claims rather than from some teaching, suggestion or motivation derived from the prior art. Accordingly, we reverse the examiner's obviousness rejection of claims 1, 3, 4, 5, 11 and 16 as being unpatentable over Raccio in view of Couillard, and further in view of Pan. Because the deficiencies of these references are not overcome by the additional Gutierrez and Hung references, we also reverse the examiner's obviousness rejection of dependent claims 6 and 8 as being unpatentable over the combination of Raccio, Couillard, Pan and Gutierrez, and we likewise reverse the examiner's obviousness rejection of claims 9 and 10 as being unpatentable over the combination of Raccio, Couillard, Pan and Hung.

In summary, we agree with appellants that the examiner has failed to meet his/her burden of presenting a prima facie case of obviousness. Therefore, we will not sustain the examiner's rejection of any of the claims on appeal. Accordingly, the decision of the examiner rejecting claims 1, 3-6, 8-11 and 16 is reversed.

REVERSED

JAMES D. THOMAS  
Administrative Patent Judge

JERRY SMITH  
Administrative Patent Judge

JEAN R. HOMERE  
Administrative Patent Judge

)  
)  
)  
)  
)  
) BOARD OF PATENT  
) APPEALS AND  
)  
) INTERFERENCES  
)  
)  
)  
)

Appeal No. 2006-2656  
Application No. 10/307,216

Page 13

SANDIA NATIONAL LABORATORIES  
P.O. BOX 5800 – MS-0161  
ALBUQUERQUE, MN 87185-0161