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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NATHAN R. ANDRYSCO and KEVIN L. LIN

Appeal 2017-002948
Application 14/040,101[1]
Technology Center 2600

Before MAHSHID D. SAADAT, ALLEN R. MacDONALD, and JOHN P. PINKERTON, *Administrative Patent Judges*.

PINKERTON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–25, which constitute all the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

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[1] Appellants identify Intel Corporation as the real party in interest. App. Br. 2.

STATEMENT OF THE CASE

Introduction

Appellants' described and claimed invention relates generally to "[r]endering techniques . . . for displays capable of adjusting/changing the angle of individual pixels (or pixel groups)." Abstract.[2]

Claim 1 is representative and reads as follows (with the disputed limitation *emphasized*):

> 1. A method comprising:
>
> determining per-pixel surface normal data for *a textured display* including a plurality of pixels and *capable of changing the angle of individual pixels within the textured display*, the surface normal data relevant to a given scene to be presented on the textured display; and
>
> transferring the per-pixel surface normal data to the textured display to cause the angle of the individual pixels of the textured display to be adjusted based on the per-pixel surface normal data in effort to improve upon the visual realism of the given scene when presented on the textured display.

App. Br. 12 (Claims App'x).

Rejections on Appeal

Claims 1–3, 5, and 7–9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tsuneo Ikedo, *Illumination Engine for a Billion Pixels per Second*, Technical Report HCIS-2003-03, Hosei University, Faculty of Computer and Information Sciences (March 16, 2003) ("Ikedo"), in view of

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[2] Our Decision refers to the Final Office Action mailed Mar. 24, 2016 ("Final Act."), Appellants' Appeal Brief filed Sept. 9, 2016 ("App. Br.") and Reply Brief filed Dec. 14, 2016 ("Reply Br."), the Examiner's Answer mailed Oct. 14, 2016 ("Ans."), and the original Specification filed Sept. 27, 2013 ("Spec.").

Yamazaki et al. (US 2012/0099049 A1; published Apr. 26, 2012) ("Yamazaki").

Claims 10–14 and 16–25 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ikedo, in view of Yamazaki, and further in view of Kothari et al. (US 2011/0149375 A1; published June 23, 2011) ("Kothari").

Claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Ikedo, in view of Yamazaki, and further in view of Shirbabadi (US 2011/0316828 A1; published Dec. 29, 2011).

Claim 6 stands rejected under 35 U.S.C. § 103 as being unpatentable over Ikedo, in view of Yamazaki, and further in view of Palmqvist et al. (US 2009/0015425; published Jan. 15, 2009) ("Palmqvist").

Claim 15 stands rejected under 35 U.S.C. § 103 as being unpatentable over Ikedo, in view of Yamazaki, in view of Kothari, and further in view of Kim et al. (US 2010/0289740 A1; published Nov. 18, 2010) ("Kim").

ANALYSIS

Appellants argue the cited references fail to teach or suggest "a textured display . . . capable of changing the angle of individual pixels within the textured display," as recited in independent claims 1, 10, 18, and 23.[3] *See* App. Br. 5. More specifically, as argued by Appellants, Yamazaki does not disclose or reasonably suggest a textured display capable of changing the angle of individual pixels within the textured display, as Yamazaki merely describes a micro-electro-mechanical system ("MEMS") switch used to provide a lateral shutter function in a display device. *See*

[3] Appellants' arguments raise additional issues, but we do not reach them because the identified issues are dispositive of the appeal.

App. Br. 6. Appellants further argue the shutter of the MEMS switch of Yamazaki only moves in a lateral direction parallel to a light emitting substrate, and the shutter action does not change an angle of a pixel. *See* App. Br. 7.

The Examiner states that, with regard to functional claim limitations, the relevant issue is whether it is impossible for the prior art to perform the functional claim limitation at issue (*see* Ans. 3). In response, Appellants argue the "impossible standard" is improper because the claim additionally recites an "active-type element" (i.e., "to cause the angle of the individual pixels of the textured display to be adjusted"), which the Board treats differently than claims that simply recite "capable of-type" elements in the absence of "active-type elements." *See* Reply Br. 2–3. Further, the Examiner reasons that the device of Yamazaki is capable of performing the claimed function of changing the angle of individual pixels within the textured display because Yamazaki's description of lateral movement does not preclude a determination that Yamazaki's device is capable of changing the angle of individual pixels (*see* Ans. 4–6). In response, Appellants argue the Examiner has failed to provide any explanation as to how Yamazaki's MEMS switch could possibly be capable of changing the angle of individual pixels within a display. *See* Reply Br. 3–4.

Regarding the standard to determine whether the prior art teaches a functional claim limitation, we note:

> A patent applicant is free to recite features of an apparatus either structurally or functionally. . . . Yet, choosing to define an element functionally, *i.e.*, by what it does, carries with it a risk. . . .
>
> > [W]here the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing

> novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.

In re Schreiber, 128 F.3d 1473, 1478 (Fed. Cir. 1997) (quoting *In re Swinehart*, 439 F.2d 210, 213 (CCPA 1971)).

In other words, to establish a prima facie case that Yamazaki teaches "a textured display . . . capable of changing the angle of individual pixels within the textured display," the Examiner only needs to establish the functional limitation is an inherent characteristic of Yamazaki's MEMS switch (i.e., Yamazaki's MEMS switch is capable of changing the angle of individual pixels within the textured display). Once established, the burden shifts to Appellants to prove Yamazaki's MEMS switch does not possess the functional limitation (i.e., Yamazaki's MEMS switch is incapable of changing the angle of individual pixels within the textured display). *See Schreiber*, 128 F.3d at 1478 (citing *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990)). We disagree with Appellants that the aforementioned standard does not apply simply because the claims further recite an "active-type element" (i.e., "to cause the angle of the individual pixels of the textured display to be adjusted"), because the "active-type element" is a separate limitation from the functional limitation at issue, and does not affect the standard to determine whether the prior art teaches the functional limitation at issue.

However, we agree with Appellants that the Examiner has not established Yamazaki's MEMS switch is capable of changing the angle of individual pixels within the textured display Thus, the Examiner has not established a prima facie case that Yamazaki teaches the functional limitation at issue. As articulated by the Federal Circuit, the Examiner's

burden of proving non-patentability is by a preponderance of the evidence. *See In re Caveney*, 761 F.2d 671, 674 (Fed. Cir. 1985) ("preponderance of the evidence is the standard that must be met by the PTO in making rejections"). "A rejection based on section 103 clearly must rest on a factual basis[.]" *In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967). "The Patent Office has the initial duty of supplying the factual basis for its rejection. It may not . . . resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis." *Id.*

Yamazaki merely describes the MEMS switch includes a shutter combined with two flexible actuators, where the actuators perform the function of moving the shutter in a <u>lateral</u> direction parallel to a surface of insulating film 505 and the substrate. *See* Yamazaki ¶ 199; Fig. 9. Appellants argue, and we agree, that the Examiner has not established how lateral movement of the shutter is capable of changing an angle of individual pixels of Yamazaki's display device. *See* Reply Br. 3–4. Further, the portions of Yamazaki cited by the Examiner fail to teach or suggest the actuators of the MEMS switch provide a tilting movement, rotational movement, or other type of movement capable of changing an angle of individual pixels.

Accordingly, we do not sustain the Examiner's rejection of independent claims 1, 10, 18, and 23 for obviousness under 35 U.S.C. § 103. We also do not sustain the Examiner's rejection of dependent claims 2–9, 11–17, 19–22, 24, and 25, which variously depend from one of the aforementioned independent claims.

DECISION

We reverse the Examiner's decision rejecting claims 1–25 under 35 U.S.C. § 103.

REVERSED