

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES C. MCKINNELL,
JOHN LIEBESKIND,
and CHIEN-HUA CHEN

Appeal 2008-3707
Application 10/353,332
Technology Center 2800

Decided: November 24, 2008

Before BRADLEY R. GARRIS, CHARLES F. WARREN, and
ROMULO H. DELMENDO, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Statement of the Case

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-6, 13-15, 18, 24, 26-30, 33-35, 43, 44, 48-53, 58, 74, 76, and 79. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM the Examiner's decision.

Appellants claim a micro-fabricated device 100 comprising a support structure 140, a device substrate 130, a thermally isolating structure 120 coupled to the support structure and the device substrate, and a package 111 enclosing the device substrate, the package having a vacuum portion 197 and a fluid flow portion 198 (Figs. 1a-1e; claim 1).

Representative independent claim 1 reads as follows:

1. A micro-fabricated device, comprising

a support structure having a support attachment portion;

a device substrate disposed a distance G from said support structure[;]

said device substrate having a device attachment portion;

at least one thermally isolating structure having a characteristic length, said at least one thermally isolating structure coupled to said device attachment portion and said support attachment portion, wherein said characteristic length is greater than said distance G; and

a package enclosing said device substrate, said package having a vacuum portion and a fluid flow portion.

The Examiner has rejected all appealed claims under 35 U.S.C. § 102(e) as being anticipated by Rensing (US Patent 6,701,038 B2, issued Mar. 2, 2004) and under 35 U.S.C. § 103 (a) as being unpatentable over either Wong (US Patent 6,569,754 B2, issued May 27, 2003) or Kudrie (US Patent 6,912,078 B2, issued June 28, 2005) in view of Rensing.

Issue

Have Appellants shown error in the Examiner's finding that Rensing explicitly or inherently discloses the claim 1 limitation "said package having a vacuum portion and a fluid flow portion"?

Findings of Fact

Rensing discloses a micro-electromechanical optical switch assembly (Fig. 13; Abstract) comprising micro-mirrors respectively supported on structure 284 (*Cf.*, the claim 1 device substrate) which is joined to surrounding substrate 286 (*Cf.*, the claim 1 support structure) via torsional springs 285 (*Cf.*, the claim 1 thermally insulating structure) (Figs. 32A-32G; col. 11, ll. 7-58).

Rensing's assembly includes a hermetically sealed cavity 122 which may contain vacuum, gas or liquid (*Cf.*, the claim 1 package having a vacuum portion and fluid flow portion) (Fig. 13; col. 7, ll. 30-56).

Principles of Law

"To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

Although "[a] patent applicant is free to recite features of an apparatus either structurally or functionally [,] . . . choosing to define an element functionally, i.e., by what it does, carries with it a risk." *Schreiber*, 128 F.3d at 1478. "[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 or 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." *Id.*, quoting *In re Swinehart*, 439 F.2d 210, 213 (CCPA 1971).

To overcome a *prima facie* case of anticipation based on inherency, it is an applicant's burden "to show that the prior art structure did not inherently possess the functionally defined limitations of th[e] claimed apparatus." *Id.*

Analysis

Appellants acknowledge that "Rensing discloses either a cavity that uses a vacuum or a cavity that is filled by liquid" but argues that "[b]y itself cavity 122 of Rensing does not disclose a 'package having a vacuum portion and a fluid flow portion,' as claimed by Appellant[s]" (App. Br. 12.)¹ Rensing does not expressly disclose that cavity 122 includes a vacuum portion and a fluid flow portion. Nevertheless, Rensing will still anticipate claim 1 if the cavity inherently possesses a vacuum portion and a fluid flow portion. *See Schreiber*, 128 F.3d at 1477. The pivotal question, therefore, is whether portions of cavity 122 inherently possess the capability of performing a vacuum function and fluid flow function.

¹ The limitation "said package having a vacuum portion and a fluid flow portion" is required by each independent claim on appeal and is the only remaining independent claim limitation in dispute with respect to both the § 102 and § 103 rejections. Arguments concerning other claim limitations were made in the Appeal Brief, sufficiently rebutted in the Examiner's Answer, but not further disputed in the Reply Brief. Accordingly, Appellants have failed to show error in the Examiner's position as to these other limitations and thereby have waived such further arguments.

The undisputed fact that Rensing's cavity is expressly disclosed as containing a vacuum or a liquid reasonably supports a determination that the cavity necessarily is capable of containing both vacuum and liquid. Specifically, the cavity is inherently capable of containing vacuum in an upper portion and liquid in a lower portion. Moreover, this lower portion would inherently possess the capability of performing a fluid flow function since the liquid therein would necessarily flow in response to cavity movement and gravity so as to ultimately flow into the bottom-most cavity portion.

The above facts and technical reasoning establish a reason to believe that the vacuum and fluid flow functions of claim 1 are inherent characteristics of Rensing's assembly and concomitantly a reason to require Appellants to prove that this assembly (i.e., cavity 122) does not inherently possess the capability of performing these functions. *See Schreiber*, 128 F.3d at 1478. Under these circumstances, Appellants have the burden of showing that the assembly of Rensing does not inherently possess the capability of performing the claimed vacuum and fluid flow functions. *Id.* This burden has not been carried in the record before us.

The foregoing analysis applies to the claim 1 limitation "said package having a vacuum portion and a fluid flow portion" which is the only independent claim requirement that has been ultimately argued by Appellants in this appeal.

Appellants have presented discussions concerning some, but not all, dependent claim limitations. However, these dependent claim discussions constitute mere allegations of novelty rather than arguments within the meaning of 37 C.F.R. § 41.37(c)(1)(vii).

For example, Appellants point out that Rensing's torsional springs 285 (*Cf.*, the claim 1 thermally isolating structure) comprise layers made of different metals (Reply Br. 15-16) and then allege that "Rensing would not disclose to one of ordinary skill in the art 'a thermally isolating structure comprising two or more layers formed in a manner minimizing tension in said thermally isolating structure,' as claimed in dependent claim 2, or 'wherein said at least one thermally isolating structure, further comprises a cross-sectional area having a substantially uniform thermal coefficient of expansion,' as claimed in dependent claim 3" (*Id.* at. 16). However, Appellants have not explained why Rensing's different metal layers, which have some degree of difference in thermal expansion characteristics, would not perform the claim 2 function of "minimizing tension" compared to layers formed from metals having even greater differences in thermal expansion coefficient. Likewise, Appellants have not explained why a cross-sectional area limited to the nickel layer of Rensing's torsional springs 285 would not satisfy the claim 3 limitation "a cross-sectional area having a substantially uniform thermal coefficient of expansion." Similarly, Appellants allege that Rensing fails to disclose the dependent claim 49 limitation "means for reducing radiation thermal transfer" or the claim 50 limitation "wherein said means for reducing radiation further comprises means for reflecting radiation" (App. Br. 18-20). Absent from these allegations is any explanation of why the radiation reflecting mirrors of Rensing do not satisfy the limitations of these dependent claims.

Under these circumstances, Appellants' discussions of certain dependent claim features must be regarded as unsupported allegations of novelty rather than argument within the meaning of § 41.37(c)(1)(vii).

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Conclusions of Law

Appellants have not shown error in the Examiner's finding that Rensing anticipatorily discloses the independent claim 1 limitation "said package having a vacuum portion and a fluid flow portion."

Therefore, we sustain the rejections of all claims under 35 U.S.C. § 102(e) as being anticipated by Rensing and under 35 U.S.C. § 103(a) as being unpatentable over Wong or Kudrie in view of Rensing.

Order

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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HEWLETT-PACKARD COMPANY
INTELLECTUAL PROPERTY ADMIN.
PO BOX 272400
FORT COLLINS CO 80527-2400