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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* ZVIKA GILAD and SEMION KHAIT

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Appeal 2011-003561  
Application 10/879,054  
Technology Center 3700

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Before DONALD E. ADAMS, JEFFREY N. FREDMAN, and  
ULRIKE W. JENKS, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims 5, 7-12, 19, 37, 39, 40, and 42-45 (App. Br. 1; Reply Br. 1; Ans. 3). We have jurisdiction under 35 U.S.C. § 6(b).

STATEMENT OF THE CASE

The claims are directed to an autonomous in vivo imaging device. Claim 37 is representative and is reproduced in the Claims Appendix of Appellants' Brief.

Claims 5, 7-10, 12, 19, 37, 40, and 42-45 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Suzushima.<sup>1</sup>

Claim 39 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Suzushima.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Suzushima and Cho.<sup>2</sup>

The rejection of claims 5, 7-10, 12, 19, 37, 40, and 42-44 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Suzushima is affirmed. The rejection of claim 45 under 35 U.S.C. § 102(e) as being anticipated by Suzushima is reversed. The rejection of claim 39 under 35 U.S.C. § 103(a) as unpatentable over Suzushima is reversed. The rejection of claim 11 under 35 U.S.C. § 103(a) as unpatentable over the combination of Suzushima and Cho is affirmed.

*Anticipation:*

ISSUE

Does the preponderance of evidence on this record support Examiner's finding that Suzushima teaches Appellants' claimed invention?

FACTUAL FINDINGS (FF)

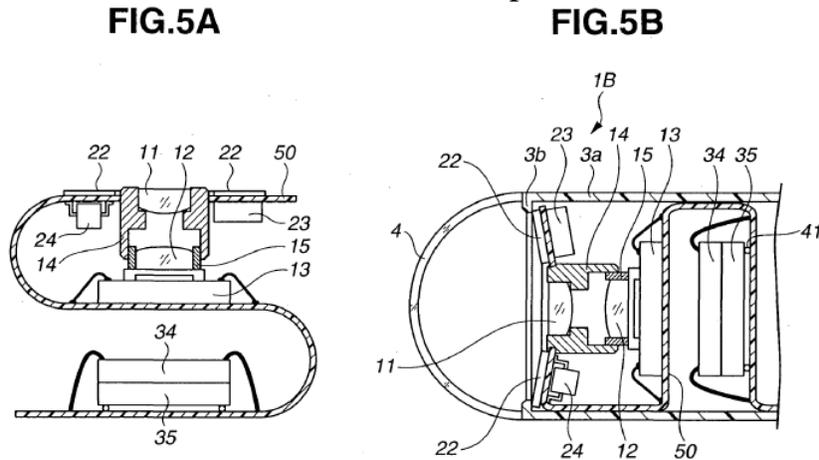
FF 1. Suzushima teaches "an autonomous in vivo imaging device [(i.e., a capsule endoscope)] comprising a device housing and a flexible circuit board inserted within said housing" (Ans. 4).

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<sup>1</sup> Suzushima, US 2005/0043586 A1, published February 24, 2005.

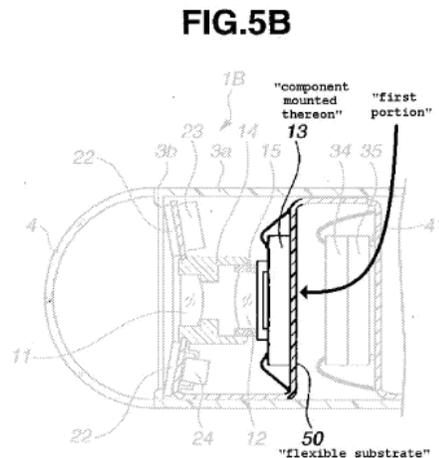
<sup>2</sup> Cho et al., US 2004/0106849 A1, published June 3, 2004.

FF 2. Suzushima's FIGs. 5A and 5B are reproduced below:



“**FIG. 5A** is a diagram explaining a flexible substrate having an EL [(electroluminescence device)] device” (Suzushima 1: ¶ [0021]; *see also id.* at 2: ¶ [0032]). “**FIG. 5B** is a diagram explaining a state in which the flexible substrate is arranged in a capsule portion” (*id.* at ¶ [0022]).

FF 3. Examiner's first annotation of Suzushima's FIG. 5B is reproduced below:

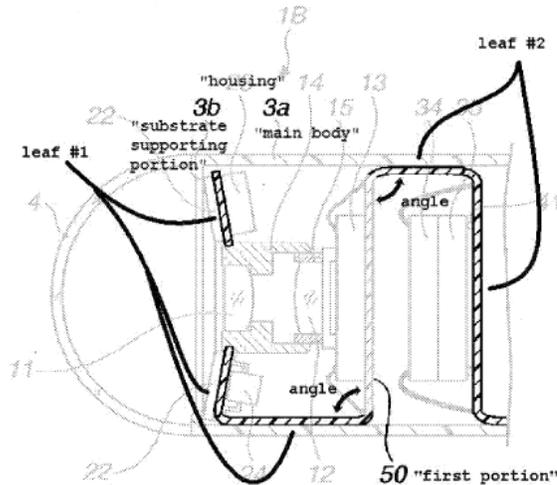


Examiner's first annotation of Suzushima's FIG. 5B illustrates a first portion **50**, of Suzushima's flexible circuit board (*see* Suzushima's FIG. 5A) inserted within a housing (*see* Suzushima's FIG. 5B), which (1) defines a plane and (2) has components (e.g., image pick-up element **13**) mounted thereon (Ans. 4 and 6; *see also id.* at 17 (“the imager itself (‘13’) is mounted

on the ‘first portion’, i.e. the middle portion of the S-shaped flexible substrate 50’’).

FF 4. Examiner’s second annotation of Suzushima’s FIG. 5B below is reproduced below:

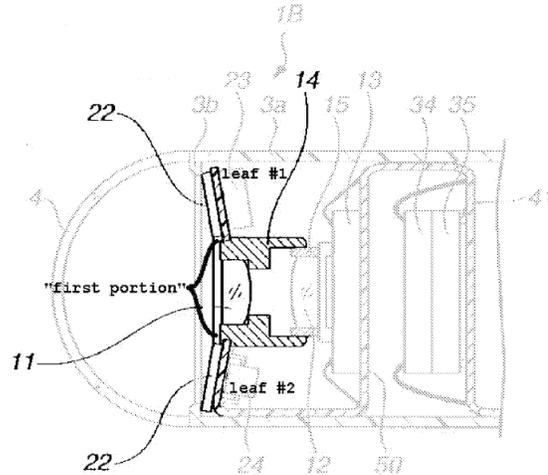
**FIG.5B**



Examiner’s second annotation of Suzushima’s FIG. 5B illustrates (1) a first, or middle, portion of Suzushima’s S-shaped flexible substrate 50 and (2) a plurality of flexible leaves that (a) extend from the perimeter of the first portion, (b) abut against the housing, and (c) are disposed at an angle with respect to the plane of the first portion that is determined by the inner wall of the housing when the leaves abut the housing (Ans. 4-5, 7, and 14; *see also* Ans. 14 (“the definition of leaf is broad, and there is nothing in ... [Appellants’] [S]pecification or the art to suggest a narrower definition’’)).

FF 5. “[A]t least one of ... [Suzushima’s] plurality of flexible leaves comprises an illumination source (‘EL device 22’) mounted thereof such that the illumination source abuts said housing” (Ans. 5; Suzushima’s FIG. 5B; *see also* FF 4).

FF 6. Examiner's third annotation of Suzushima's FIG. 5B is reproduced below:



Examiner's third annotation of Suzushima's FIG. 5B illustrates an alternative interpretation of Suzushima's device, wherein "lens frame 14' and the objective lens '11' are mounted in a hole in the 'flexible substrate 50'" such that the portion of 50 "that surrounds the frame '14' ... may be considered [(1)] a 'first portion' ... that is roughly coincident with the image plane of the objective lens '11'" ; (2) flexible leaves (a) extend from the perimeter of the first portion, (b) abut against the housing, and (c) are disposed at an angle with respect to the plane of the first portion that is determined by the inner wall of the housing when the leaves abut the housing extends from either side of the first portion; and (3) an illumination source 22, 23 is mounted to each leaf (Ans. 12).

### ANALYSIS

Appellants present separate arguments for the following groups of claims: (I) claims 5, 7-10, 12, 19, 37, 40, and 43; (II) claim 40; (III) claim 42; and (IV) claim 44; and (V) claim 45. Claims 37, 40, 42, 44, and 45 are representative.

*Claim 37:*

We are not persuaded by Appellants' contention that "Suzushima does not teach that the flexible circuit board comprising 'a first portion having components mounted thereon, said first portion defining a plane,' as recited in independent claim 37" (App. Br. 3; *Cf.* FF 1-3 and 6).

We are not persuaded by Appellants' contention that "Suzushima does not teach that the flexible circuit board comprises 'a plurality of flexible leaves extending from the perimeter of said first portion', as recited in independent claim 37" (*id.* at 4; *Cf.* FF 4 and 6). We recognize, but are not persuaded by, Appellants' contention that Suzushima's leaves "are not 'leaves' in the context of the[ir] claims" (Reply Br. 3). Appellants fail to identify an evidentiary basis on this record that rebuts Examiner's reasoning that "the definition of leaf is broad, and there is nothing in ... [Appellants'] [S]pecification or the art to suggest a narrower definition" (*see* FF 4). *In re Geisler*, 116 F.3d 1465, 1471 (Fed. Cir. 1997) (Argument by counsel cannot take the place of evidence).

We are not persuaded by Appellants' contention that Suzushima fails to teach an illumination source mounted to at least on flexible leaf such that the illumination source abuts the housing (App. Br. 4-5; Reply Br. 3; *Cf.* FF 5-6).

*Claim 40:*

We are not persuaded by Appellants' contention "that imager 13 is [not] positioned on ... the 'first portion' of flexible substrate 50" (*id.* at 5; *Cf.* FF 3).

*Claim 42:*

Appellants contend that Suzushima's illumination source (e.g., **24**) points "generally towards the front of the housing" not "in a direction towards a side of said housing" (*id.*). We are not persuaded. The front of the housing is a *side* of the housing (*see* Ans. 17 ("a tilt in *any* direction will necessarily be towards *some* portion of the housing")). Claim 42 does not specify the side to which the illumination source is directed (*see* Appellants' claim 42). Therefore we are not persuaded by Appellants' contentions relating to the particular side the illumination source is directed (Reply Br. 4-5).

*Claim 44:*

We are not persuaded by Appellants' contention that Suzushima fails to teach "that each of the plurality of flexible leaves can be folded at a different angle in relation to the longitudinal axis of the device" (App. Br. 5; *Cf.* FF 4). Notwithstanding Appellants' contention to the contrary, as illustrated in Examiner's second annotation of Suzushima's FIG. 5B "the two angles at which leaves #1 and #2 are folded in relation to a longitudinal axis of the device are [*not*] identical," as the two angles result in the leaves folding in *opposite* directions (*see* Reply Br. 6; *Cf.* FF 4).

*Claim 45:*

Appellants contend that Examiner failed to establish an evidentiary basis to support a finding that Suzushima teaches an illumination source mounted on *each* flexible leaf, wherein *each* leaf is folded at a different

angle in relation to a longitudinal axis of the device (Reply Br. 6; *Cf.* FF 4 and 6). We agree.

In Examiner's first interpretation of Suzushima, while the leaves are folded in opposite directions, the illumination source is mounted on only one flexible leaf (*see* FF 4-5). With respect to Examiner's alternative interpretation of Suzushima, while an illumination source is mounted to each leaf, the leaves are folded in the same direction relative to the longitudinal axis of the device (Reply Br. 6; *see* FF 6). Examiner's assertion that Suzushima leaves *could* have been folded as required by Appellants' claimed invention does not make up for Suzushima's failure to teach the structure required by Appellants' claimed invention (Ans. 17).

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

#### CONCLUSION OF LAW

With respect to claims 37, 40, 42, and 44, the preponderance of evidence on this record supports Examiner's finding that Suzushima teaches Appellants' claimed invention. The rejection of claims 37, 40, 42, and 44 under 35 U.S.C. § 102(e) as being anticipated by Suzushima is affirmed. Claims 5, 7-10, 12, 19, 40, and 43 are not separately argued and fall together with claim 37.

With respect to claim 45, the preponderance of evidence on this record fails to support Examiner's finding that Suzushima teaches Appellants' claimed invention. The rejection of claim 45 under 35 U.S.C. § 102(e) as being anticipated by Suzushima is reversed.

*Obviousness:*

*The rejection over Suzushima:*

### ISSUE

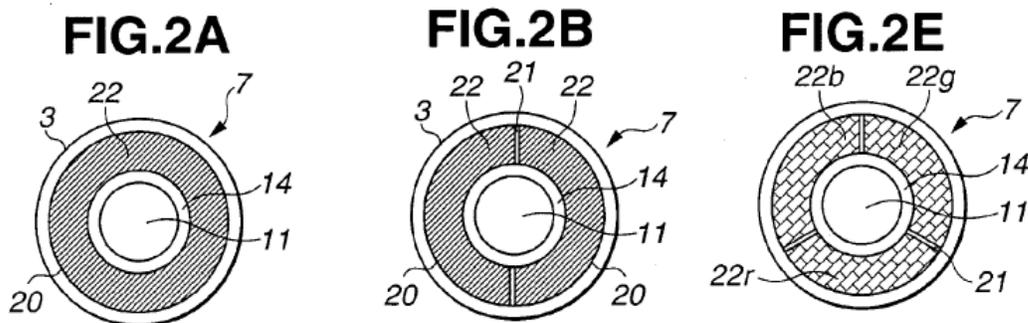
Does the preponderance of evidence on this record support a conclusion of obviousness?

### FACTUAL FINDINGS (FF)

FF 7. Examiner relies on Suzushima as discussed above (Ans. 10-11; *see* FF 1-6; *specifically* FF 6).

FF 8. Examiner finds that Suzushima suggests a flexible circuit board that comprises “a first portion (part of ‘flexible substrate 50’ in Figure 5B) having components (‘lens frame 14’) mounted thereon, said first portion defining a plane (imaging plane of ‘optical lens 11’)” (Ans. 10).

FF 9. For clarity we reproduce Suzushima’s **FIGs. 2B and 2E** below:



“**FIG. 2A** is a diagram showing a state in which an EL device is formed on the entire surface around a lens frame” (Suzushima 1: ¶ [0013]). “**FIG. 2B** is a diagram showing a state in which the EL device is divided and is formed around the lens frame” (*id.* at ¶ [0014]). “**FIG. 2E** is a diagram showing a state in which EL devices for red, green, and blue are formed as three divided ones” (*id.* at ¶ [0017]).

## ANALYSIS

Based on Suzushima, Examiner finds that Suzushima's device comprises a first portion from which leaves extend (FF 6). Examiner explains that "lens frame 14' and the objective lens '11' are mounted in a hole in the 'flexible substrate 50'" such that the portion of **50** "that surrounds the frame '14' ... may be considered a 'first portion'" (*id.*).

With reference to Suzushima's FIGs. 2B and 2E, Examiner finds that Suzushima's device may comprise two or three flexible leaves protruding outwardly [from the objective lens **11**] in a plurality of radial directions and, therefore, four flexible leaves would have been prima facie obvious to a person of ordinary skill in this art (Ans. 11).

Examiner fails to identify (1) precisely what this *first portion* is in Suzushima's FIGs. 2B and 2E or (2) how the multiple leaves illustrated in Suzushima's FIGs. 2B and 2E relate to Suzushima's FIG. 5B such that (a) a *first portion* is retained and (b) that the multiple leaves illustrated in Suzushima's FIGs. 2B and 2E extend therefrom. Instead, Examiner simply concludes that the flexible leaves illustrated in Suzushima's FIGs. 2B and 2E extend from a *first portion* (Ans. 11). "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

## CONCLUSION OF LAW

The preponderance of evidence on this record fails to support a conclusion of obviousness. The rejection of claim 39 under 35 U.S.C. § 103(a) as unpatentable over Suzushima is reversed.

*The rejection over the combination of Suzushima and Cho:*

ISSUE

Does the preponderance of evidence on this record support a conclusion of obviousness?

ANALYSIS

Having found no deficiency in Examiner's reliance on Suzushima to anticipate the invention set forth in Appellants' claim 37, we are not persuaded by Appellants' contention that "[r]egardless of any disclosure with regard to the presence of a pH sensor, Cho does not solve the deficiencies of Suzushima with respect to claim 37" (App. Br. 7).

CONCLUSION OF LAW

The preponderance of evidence on this record supports a conclusion of obviousness. The rejection of claim 11 under 35 U.S.C. § 103(a) as unpatentable over the combination of Suzushima and Cho is affirmed.

TIME PERIOD FOR RESPONSE

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

AFFIRMED-IN-PART

cdc