

Filed on behalf of Collabo Innovations, Inc.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY CORPORATION,
Petitioner,

v.

COLLABO INNOVATIONS, INC.,
Patent Owner.

Case IPR2016-00941
U.S. Patent No. 5,952,714

PATENT OWNER'S RESPONSE TO PETITION

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PATENT OWNER'S EXHIBIT LIST

Exhibit No.	Description
2001	Declaration of Martin Afromowitz, Ph. D.
2002	S. O. Kasap, <i>Optoelectronics and Photonics: Principles and Practices</i> (2d ed. 2013)
2003	Prosecution File History of U.S. Pat. No. 5,952,714

I. INTRODUCTION

Patent Owner Collabo Innovations, Inc. (“Patent Owner” or “Collabo”) files Patent Owner’s Response (“Response”) to the Petition for *Inter Partes* Review (the “Petition,” Paper No. 2) of U.S. Patent No. 5,952,714 (the “’714 Patent,” Ex. 1001) in IPR2016-00941 filed by Sony Corporation (“Petitioner” or “Sony”).

On October 13, 2016, the Patent Trial and Appeal Board (the “Board” or “PTAB”) instituted trial with respect to claims 1–13, and 15, For the reasons that follow, Petitioner has failed to establish by a preponderance of the evidence that any of claims 6-11, 15, and 16 are unpatentable.

Briefly, the subject matter of claims 6 is not obvious over Ex. 1003 (“Yoshino”) and Ex. 1016 (“Izumi”) because one of ordinary skill in the art would not have understood Izumi to disclose or teach it as disclosed. Specifically, the different opening areas of said openings are not disclosed by Izumi, nor does Sony explain why one having ordinary skill in the art would have found the limitations obvious over the combination of Yoshino and Izumi.

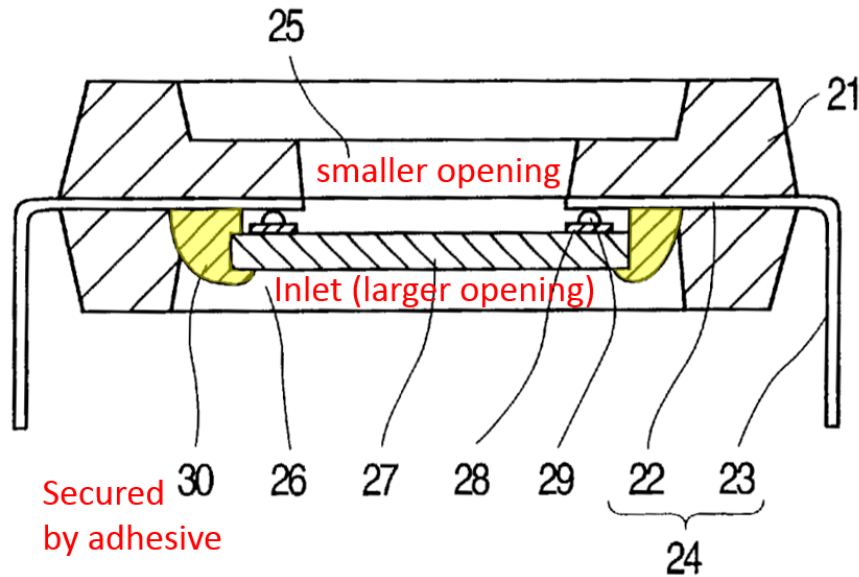
II. THE ’714 PATENT

The ’714 Patent solves the problem of providing a low cost image sensor that can be positioned within its package to a high degree of precision. This is needed in home-use video cameras, among other applications, in which three CCD chips, acquiring red, green and blue images of the scene, must be positioned with

great accuracy so that these three images superimpose correctly, producing a full-color image.

In one embodiment, the '714 Patent describes a solid-state image sensing apparatus with a lead frame comprising an inner lead and an outer lead sealed into a package. A CCD chip inserted into the package has an electrode pad that is connected to the inner lead via a bump that completes an electrical connection. Optical positioning of the chip is then performed, and then the positions of these components are fixed within the package with glue that is then hardened. The press-fit jig holds the chip in place from the back side. As a result, a solid-state image sensing apparatus can be manufactured at a low cost, and an accurate positioning can be realized. Thus, the solid-state image sensing apparatus can be employed in a video camera of high quality to reproduce vivid colors and fine pictures.

In one embodiment (see Fig. 2, below), the solid-state image sensing apparatus comprises a package having a through hole therein, a lead frame comprising an inner lead and an outer lead sealed therein, and a CCD chip loaded therein. Both the front and back faces of the package have different opening areas. The CCD chip can be mounted from the opening having the wider opening area, and thereby shutting the through hole tightly. '714 Patent, at 2:25-33.



'714 Patent, Fig. 2.

Another embodiment of the solid-state image sensing apparatus differs from that of Fig. 2 by having the inner leads 22 slightly protrude into the opening of the package. The elasticity of the protruding tips facilitates the optical positioning of the chip and the bonding between the inner leads and the bump 29. '714 Patent, at 5:23-30.

A further modification of the device replaces connections between the chip and the inner lead frame using a bump with connection made using an anisotropic conducting material. '714 Patent, at 3:48-65.

Still another embodiment of the solid-state image sensing apparatus differs from the previous designs in that the CCD chip and peripheral circuit elements are mounted on a substrate. The substrate is loaded into the package and the electrode

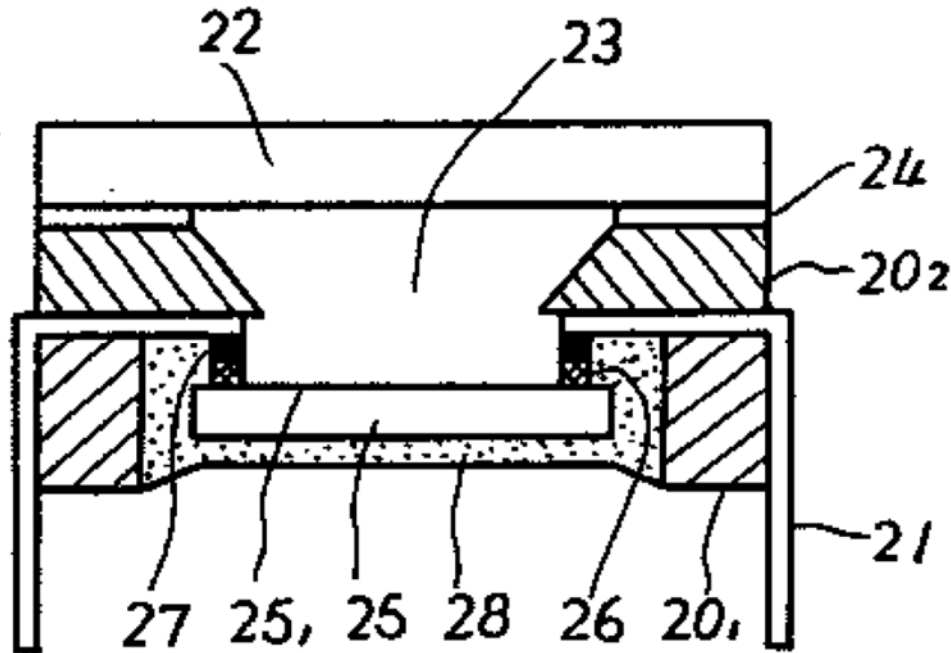
pad of the substrate connects to the inner leads. Several variations in the manner in which the several chips may be mounted on the substrate are presented. '714 Patent, at 2:49-59

In all the various designs, bump connections may be replaced by connections using anisotropic conductors, and the inner leads may also protrude into the cavity to enhance optical positioning and bonding. The patent also describes the steps required for manufacturing the invention, including materials that may be used. The process of optical positioning is also explained.

A. The Cited Prior Art

1. Japanese Pat. App. Pub. No. S61-131690 (“Yoshino”)

Yoshino is a solid-state image pickup device characterized such that the opening of the packaging substrate supporting a solid-state image sensor is tapered so that the edge of the opening expands as it becomes more distant from the solid state image sensor's photoreceptive face, and “extraction from the solid-state image sensor to the electrodes is achieved via a conductive bonding material.” Ex. 1003, 2.



Yoshino, Fig. 1.

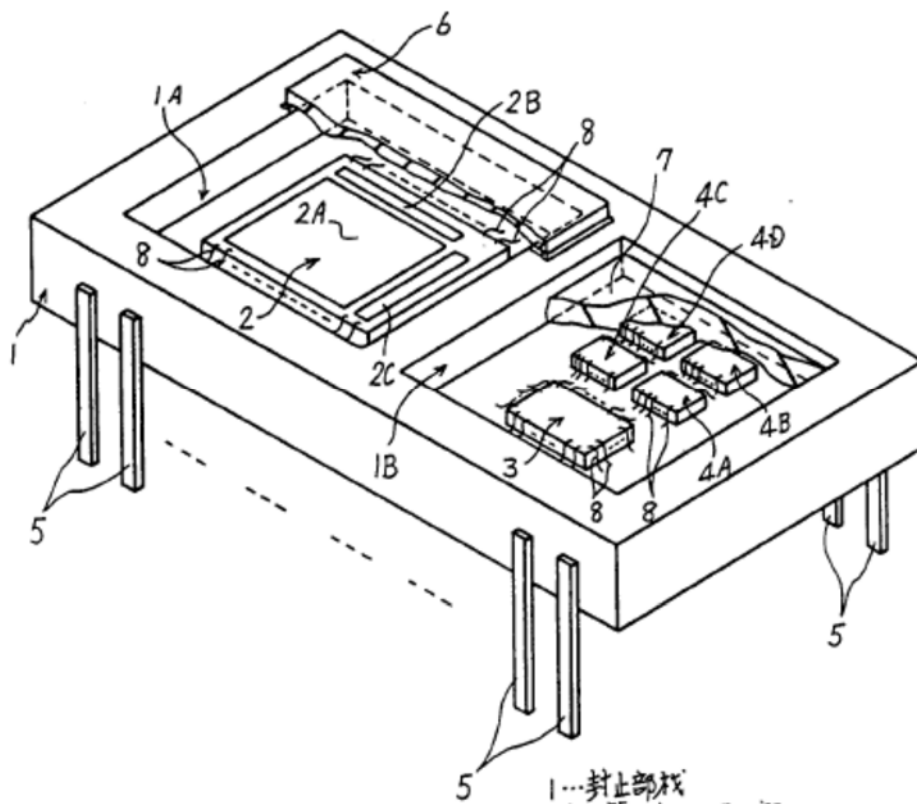
Electrode leads (21) and the bonding pads (26) are electrically connected by crimping while interposing the conductive bonding material (27), and thus avoiding metal wire bonding which Yoshino avoids in order to make the device more compact. Yoshino, at 3 (“[A]nd thus the space can be reduced to make the device compact as compared to metal wire bonding.”) Notably, Yoshino supports the solid-state image sensor (25) in the packaging substrate (20) via a *molded resin* (28). *Id.* As shown below, injecting a molded resin is not “securing” the substrate with an adhesive as is used in the claims of the ’714 patent.

2. Japanese Pat. App. Pub. No. S63-221667 (“Izumi”)

Izumi describes its solution to the problems posed in the prior art as

In solid state imaging device, a solid state imaging element chip is furnished in a hermetically sealed manner inside a first cavity part of a package member, and a peripheral circuit chip is furnished sealed with a sealing material inside a second cavity part which is formed independently of the first cavity part of the aforementioned package member.

Izumi, Ex. 1016, Fig. 1.



Izumi, Fig. 1.

The package member 1 is comprised of a multi-layer ceramic substrate, and possesses a two layer wiring layer which is not shown in the drawing for this embodiment.

First cavity part 1A and second cavity part 1B are respectively constructed to form package member 1 in a concave shape. Solid state imaging element chip 2 is furnished within first cavity part 1A. Second cavity part 1B is furnished in a different position from and independently to first cavity part 1A, and peripheral circuit chips 3 and 4A to 4D are furnished within it.

Solid state imaging element chip 2 comprises a two dimensional photo sensor. That is to say, solid state imaging element chip 2 is principally comprised of light receiving part 2A wherein a plurality of photodiodes are arranged in a matrix form, horizontal shift register 2B and vertical shift register 2C. The bonding pads of the solid state imaging element chip 2, not shown in the drawing, are connected to the wiring of package member 1 through interposed bonding wires 8. This wiring is connected to leads 5 which are plurally arranged in DIP form on the sides of package member 1.

Izumi, at 4.

III. CLAIM CONSTRUCTION

Patent Owner does not disagree with any of the claim constructions provided by the Board in its Institution Decision. Institution Decision, Paper 6, at 8-10. Furthermore, Patent Owner agrees with the Board that Petitioner's other offered constructions are generally arguments regarding the scope of the claim rather than offering a construction of the claim.

Here, where the patent under review is expired, the “broadest reasonable construction” standard does not apply. Rather, the claims must be construed in accordance with their ordinary and customary meanings, as would be understood by a person of ordinary skill in the art, in the context of the specification. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). It should be noted, where Petitioner relies on the declaration of Mr. Guidash for claim construction, that Mr. Guidash admits that he did not consider, or even read, the relevant portions of the file histories.

Q: Did you review the file history in this case?

A: I did not.

Guidash Depo. at 49:6-14. However, by Mr. Guidash’s own declaration testimony, the file history should be considered. Guidash Decl. at ¶ 24 (“The claims may also be interpreted using the record of correspondence between the patent applicant and the Patent Office . . .”). Thus, Mr. Guidash did not consider relevant intrinsic evidence that he implies in his declaration were considered. Moreover, as Patent Owner shows below where the Applicant distinguishes the claim terms over the prior art, this was not considered by Mr. Guidash as is required under the *Phillips* standard. *Phillips*, 415 F.3d at 1313. Therefore, Mr. Guidash’s testimony regarding claim construction, should be afforded little to no weight.

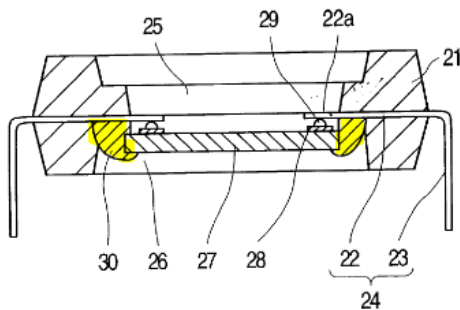
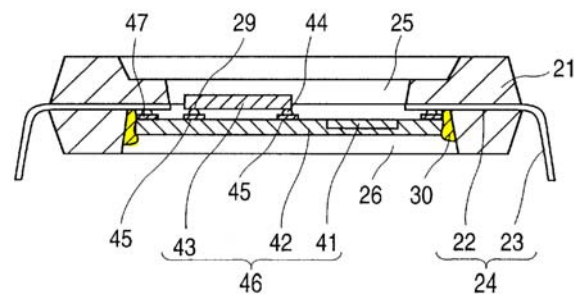
A. “Secured” to the Package via an Adhesive

In each of the independent claims of the '714 Patent, the claims recite that the image sensing device is “secured” to the package with an adhesive. This should be construed as “gluing” to the package. The specification describes this process differently than the epoxy resin “injected into a mold” that is used to form the package including the lead frame. *See, e.g.*, 4:67-5:4. (“Epoxy resin mixed with inorganic filler is injected into a mold where the lead frame 24 made of phosphor bronze, etc. is disposed, and is inmolded at a high temperature. Then the package 21 is taken out from the mold.”).

The specification of the '714 Patent, rather, describes this process as “gluing” the components to the package. *See e.g.*, '714 Patent, at Abstract (“the positions of these components are fixed by glue.”); *id.* 3:10-11 (“Then a back side of the CCD chip is glued to the package by adhesive.”); *id.* 3:27-29 (“Then the back side of the substrate having the CCD chip and peripheral circuit elements thereon is glued to the package by adhesive”); *id.* 3:45-47 (“Then the back side of the substrate having the CCD chip and peripheral circuit elements thereon is glued to the package by adhesive.”); *id.* 3:58-59 (“Then the back side of the CCD chip is glued to the package by adhesive . . .”); *id.* 3:64-65 (“[A]nd then the back side of the peripheral circuit elements is glued to the package by adhesive.”); *id.* 5:18-21 (“At the same time, ultra-violet hardening adhesive 30 is injected in a specified

quantity from a dispenser which is situated beside a press-fit jig to glue four sides of the CCD chip 27 to the package 21 . . .”); *id.* 6:23-28 (“At the same time, ultra-violet hardening adhesive 30 is injected in a specified quantity from a dispenser which is situated beside a press-fit jig to glue four sides of the CCD chip 41 to the package 21”); *id.* 8:18-22 (“At the same time, ultra-violet hardening adhesive 30 is injected in a specified quantity from a dispenser which is situated beside a press-fit jig to glue four sides of the CCD chip 27 to the package 50”); *id.* 8:28-33 (“At the same time, ultra-violet hardening adhesive 30 is injected in a specified quantity from a dispenser which is situated beside a press-fit jig to glue four sides of the peripheral circuit elements 43 to the package 50”).

The figures of the '714 patent show the adhesive (i.e., ultra-violet hardening adhesive 30) is applied such that the substrate is secured to the package by gluing it to the package. *See, e.g.*, Figures 3, 6:

FIG. 3**FIG. 5**

Moreover, one having ordinary skill in the art, gleanng relevant information from the specification and prosecution history would have known that securing to

the package with an adhesive would not include the use of injection molding because “adhesive” as used in the art would not, as the term is typically used, include injection molding. *See* Afromowitz Decl. at ¶32. Further, securing with an adhesive, in light of the specification, would not include injection molding because of the higher probability of disturbing, even slightly, the position of the imaging device in the x, y, or z axis, in contradiction to the purpose of the ’714 patent which is to be “positioned within its package to a high degree of precision.” In short, one having ordinary skill, would have determined that “‘securing’ with an adhesive” or “via an adhesive” in light of the ’714 Patent’s disclosure and figures would mean “gluing with an adhesive.”

IV. INCORPORATION BY REFERENCE

Patent Owner notes that Petitioner, in what appears to be an attempt to circumvent the word count limitations, incorporates by reference a number of arguments, including arguments for determining the level of skill of one having ordinary skill in the art. *See, e.g.,* Pet. at 20 (“The level of ordinary skill is discussed by Mr. Guidash. (Ex. 1002, ¶¶52-59). The level of ordinary skill applies to every ground of obviousness. The rationale for obviousness under § 103 is provided where applicable, in this and every other ground of obviousness.”).

The PTAB has recognized this technique for what it is – a way around the page or word count limit. Numerous Petitions have now been denied as failing to

comply with the page limit because Petitioner's arguments are not contained "within the petition." See e.g., *Bomtech Elec., Co. Ltd. v. Medium-Tech Medizingeräte GmbH*, IPR2014-00138, Paper No. 8 at 32 (PTAB Apr. 22, 2014). 35 U.S.C. § 312(a)(3) ("A petition filed under section 311 may be considered only if...(3) the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim..."); 37 C.F.R. § 42.6 (a)(3) ("Arguments **must not** be incorporated by reference from one document into another document."). By failing to provide argument for the level of skill of one having ordinary skill in the art, the Petitioner fails to provide analysis of one of the required *Graham* factors that are required factual inquiries when making an obviousness argument. *Eli Lilly & Co. v. Teva Pharm. USA, Inc.*, 619 F.3d 1329, 1336 (Fed. Cir. 2010). In light of this statutory failing, Patent Owner requests that the Board terminate institution on all grounds of obviousness.

Specifically, the Board has held that even where a level of skill could be determined by the Board, that where a Petitioner fails to meet its statutory obligations by incorporating by reference the "level of ordinary skill in the art" and such incorporation would cause the Petition to exceed its page limit, that the Board should refuse to consider certain arguments, otherwise it would be encouraging such behavior. *Shenzhen Huiding Tech. Co., Ltd. v. Synaptics Inc.*, IPR2015-

01741, Paper 8 at 29-31 (PTAB Aug. 7, 2015) (“we exercise our discretion and do not consider pages 50–59 of the Petition (starting with the discussion of claim 16 as anticipated by Dietz) because doing so would effectively result in a petition greater than sixty pages in length.”).

Alternatively, Patent Owner urges the Board to consider only the arguments properly supported in the Petition. *Nuvasive v. Warsaw Orthopedic, Inc.*, IPR2013-00206, Paper No. 46 at 2 (PTAB March 28, 2014) (“[I]f a party improperly incorporates by reference material into another paper, the party runs the risk that such incorporated material will not be considered.”).

The Board may terminate review of claims that have been instituted for challenges based on statutory failures “questions that are closely tied” or “closely related” to “the application and interpretation of statutes related to the Patent Office’s decision to initiate inter partes review.” *Medtronic, Inc. v. Robert Bosch Healthcare Sys., Inc.*, 839 F.3d 1382, 1384 (Fed. Cir. 2016) (citing *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2141-42 (2016)). Such termination would also be unappealable. *Id.*

V. ARGUMENT

As set forth in the pending claims, the ’714 patent discloses an apparatus which allows for the accurate positioning and mounting of an image sensor. The image sensing apparatus of the ’714 patent comprises a package in which a solid-

state image sensing device is mounted. The package has leads sealed therein, which are coupled to the image sensor. The package also has a through hole which allows an optical positioning adjusting device to view the image sensor during the mounting process so that the image sensor can be properly positioned.

The image sensor further comprises electrodes which are coupled to the inner portion of the leads sealed in the package. The electrodes, which are bumps, are pressed into contact with the leads during the mounting process and allow for adjustment of the position of the CCD chip. Ex. 2003, '714 History at 85. Then the positions of these components are glued by an adhesive is utilized to secure the CCD chip to inner sidewalls of the package, thereby securing the CCD chip in the proper location. '714 History at 85; Abstract. The adhesive or glue is such that it allows the CCD chip to be held in place until the glue can be hardened. '714 Patent, at 5:12-22. It is noted that all of the independent claims recite that the CCD chip or the substrate holding the chip are secured to the package via an adhesive.

Claim 5 recites that the inner lead extends beyond the ledge formed in the package. This advantageously makes the lead more flexible, which facilitates the optical positioning of the CCD chip as well as the coupling between the lead and the bump electrode. '714 History at 85.

A. Claim 1 Is Not Anticipated by Yoshino (Ground 1)

Claim 1 recites, among other things, “said solid-state image sensing device being secured to said package via an adhesive.” Yoshino does not explicitly disclose being mounted by being inserted from the opening having a wider area nor that its image sensing device is “secured” to the package via an adhesive.

1. The Law of Anticipation - Anticipation Requires More Than Disclosing All the Elements

“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.*, 814 F.2d 628, 631 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) (emphasis added). But identity of terminology is not required. *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

Further, with regard to anticipation under 35 U.S.C. §102, the Federal Circuit has held:

unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the *limitations arranged or combined in the same way as recited in the claim*, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.

Net MoneyIN, Inc. v. Verisign, Inc., 545 F.3d 1359, 1371 (Fed. Cir. 2008)(emphasis added).

In *Net MoneyIN*, the claim at issue recited an internet payment system comprising five “links”. *Net MoneyIN* at 1368. The prior art reference disclosed two separate “protocols” in a single document. The district court found that neither protocol taught all five links, but that the protocols together taught all five links, and thus held the claim was anticipated. However, the *Federal Circuit reversed*, holding there was no anticipation. The Federal Circuit also decided to “take this opportunity to clarify what a reference must show in order to anticipate a claimed invention.” *Net MoneyIN* at 1369.

Per the Federal Circuit in *Net MoneyIN*, “[I]t is not enough that the prior art reference . . . includes *multiple, distinct teachings* that the artisan might somehow combine to achieve the claimed invention.” *Net MoneyIN* at 1371 (emphasis added) (citing *In re Arkley*, 455 F.2d 586, 587 (CCPA 1976) (“[T]he [prior art] reference must clearly and unequivocally disclose the claimed [invention] or direct those skilled in the art to the [invention] without **any** need for picking, choosing,

and combining various disclosure not directly related to each other by the teachings of the cited reference.”) (emphasis as cited)). Notably, the *Arkley* case supported this longstanding standard: “rejections under 35 USC 102 are proper only when the claimed subject matter is identically disclosed or described in ‘the prior art.’” *Arkley* at 587 (emphasis added).

Thus, in *Net MoneyIN*, the Federal Circuit held that the district court was “wrong to combine parts of the separate protocols shown in the [prior art] reference in concluding that [the claim] was anticipated.” *Net MoneyIN* at 1371 (emphasis added). More specifically, the Federal Circuit stated, “Neither of these protocols contains all five links arranged or combined in the same way as claimed in the [challenged] patent. Thus, although the [prior art] reference might anticipate a claim directed to either of the two protocols disclosed, **it cannot anticipate the system** of claim 23.” *Net MoneyIN* at 1371 (emphasis added).

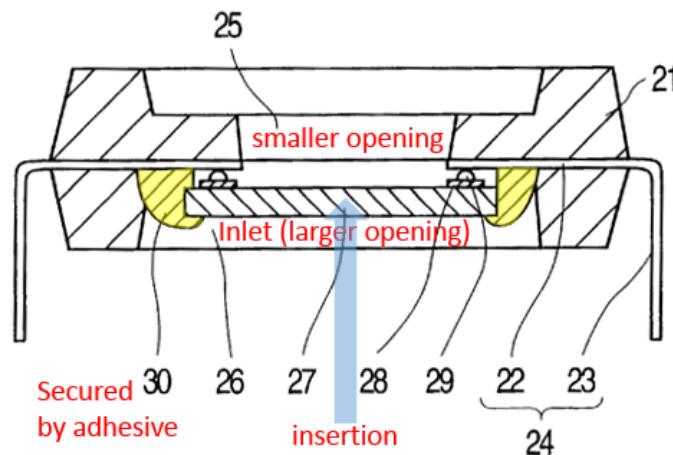
As will be discussed in further detail below, the claimed subject matter is not “identically disclosed” anywhere in Yoshino. More specifically, no embodiment of Yoshino shows “all of the limitations **arranged or combined in the same way** as recited in the claim.” As such, Yoshino cannot anticipate claim 1 of the ’714 Patent.

2. Yoshino Does not Explicitly Disclose Being Mounted by Being Inserted from the Opening Having a Wider Area.

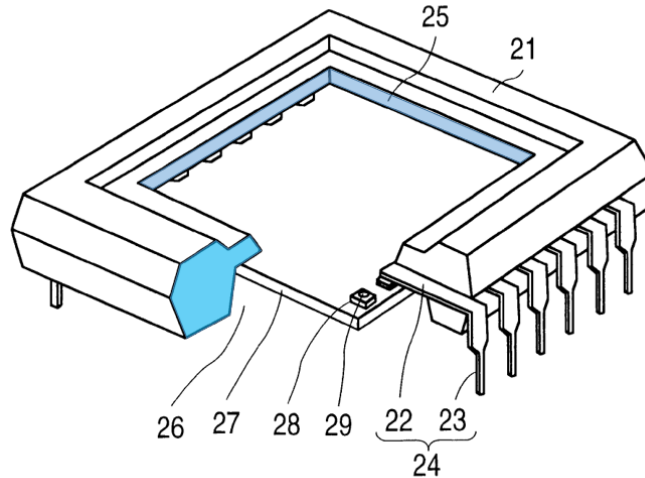
Claim 1 of the ’714 Patent recites:

1. A solid-state image sensing apparatus comprising:
 - a package having a through hole therein, openings on both end faces thereof, and *different opening areas of said openings*,
 - a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package, and
 - a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a wider area, and thereby sealing said through hole, said solid-state image sensing device being secured to said package via an adhesive.

'714 Patent at 9:20-30 (emphasis added). Claim 1 is embodied in at least Figure 2 of the '714 Patent annotated below:



The relative areas of the openings can be seen with respect to Figure 1 of the '714 Patent:



'714 Patent, Fig. 1 (annotated). As can be readily seen, and as described in the specification, opening 26 has the wider opening area and opening 25 has the smaller opening area.

As FIG. 1 depicts, a through hole is provided at the center of the package 21, and in front side of the package 21, an opening 25 which has a smaller opening area is situated, and another opening 26 (hereinafter called "inlet" which has a wider opening area is situated at the back side thereof.

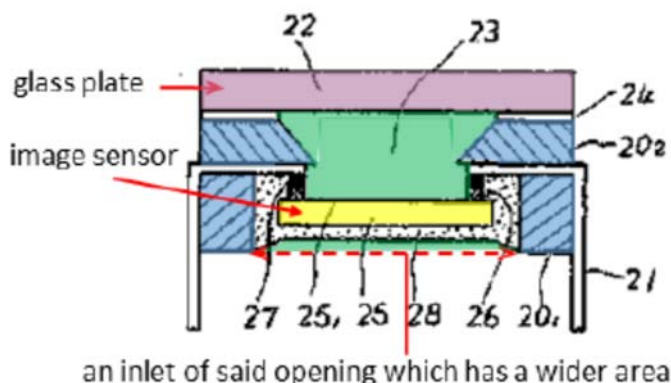
'714 Patent at 4:53-58.

Petitioner refers to these elements as belonging to limitations [1b] and [1d]. Pet. at 15-17. Petitioner, however, provides no argument or evidence about the relative area of the openings of its through hole. In fact, Petitioner's entire

treatment of element [1d] requiring “being inserted from an inlet of said opening which has a wider area” is a single conclusory sentence citing only the declaration of Mr. Guidash, and an annotated figure 1 from Yoshino pointing to “an inlet of said opening which has a wider area.” Pet. at 17-18 (“Yoshino discloses a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a wider area. (Ex. 1002, ¶106).”).

As discussed previously in the Incorporation by Reference section above, argument that is wholly incorporated by reference from an expert declaration is expressly prohibited by the rules, is improper, and should be entitled to no weight.

From the annotated figure (reproduced below), it appears that Petitioner addresses the width of the opening in one dimension at the specific cross-section of the device provided by Yoshino, and does not address the opening’s area at all. Afromowitz Decl. at ¶34.

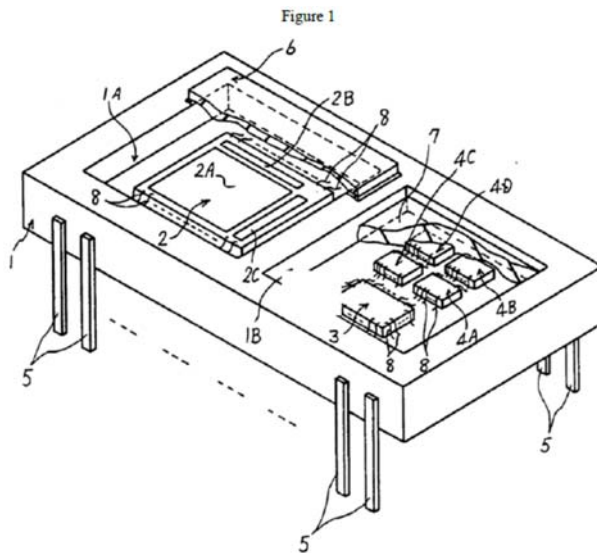


Moreover, a review of Yoshino shows that it provides no information about its “length” dimension or what other structures or openings the Yoshino’s package

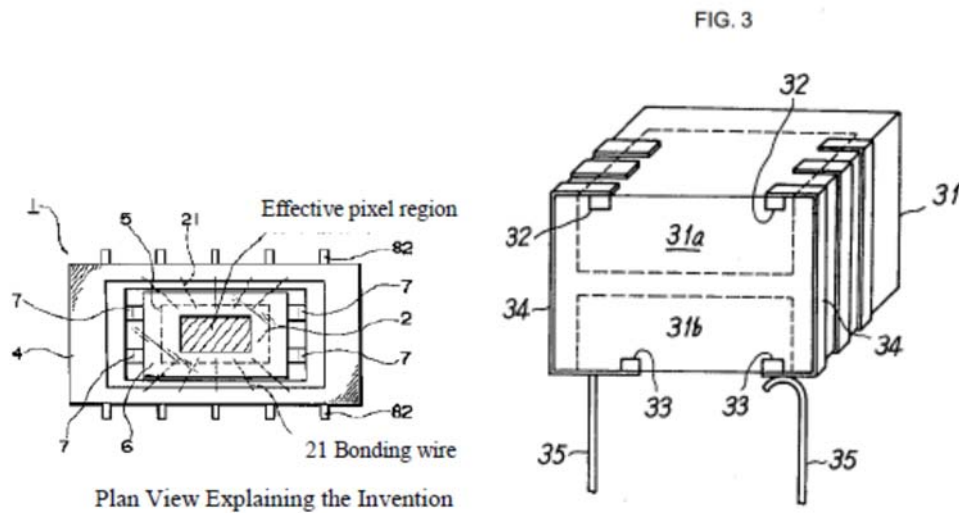
includes. Afromowitz Decl. at ¶34. Yoshino is silent as to the relative size of the through hole. Afromowitz Decl. at ¶34. Petitioner appears to argue that one having ordinary skill in the art may be able to speculate, or may be able to provide arguments for why disclosure of the element is obvious in view of Yoshino. “If this is not inherent in Yoshino, it is also at least obvious. (*Id.*)” Pet. at 19. But obviousness of an element is not sufficient to find anticipation. Moreover, Petitioner does not provide an obvious analysis, but rather merely supplies the conclusory statement that it would have been obvious.

Even if Mr. Guidash’s declaration were to be considered for this element, he provides no analysis of the areas of the openings. Afromowitz Decl. at ¶ 35. Instead, he appears only to argue where he believes insertion should take place without regard to the relative areas of the openings. Guidash Decl. at ¶ 106. To this he makes the conclusory statement “Yoshino teaches that the image sensor is mounted in the package by being inserted from an inlet of said opening which has a wider area” without any analysis or explanation. Afromowitz Decl. ¶ 35 (discussing various known configurations). Moreover, one having ordinary skill in the art would not have found the limitation [1d] inherent, because solid-state image sensor packages are produced in a variety of shapes and configurations, several examples of which are in the petitioner’s own references where a cross-section would not necessarily provide information about the area of an opening. *See, e.g.,*

Izumi (Ex. 1016 at 005) (Fig. 1); Fuji (Ex. 1024, 004-005)(Figs. 2-3); Hirosawa (Ex. 1020) (Figs. 3 and 5).



Izumi, Fig. 1 (blank area in exhibit).



Fuji, Fig.3; Hirosawa, Fig. 4.

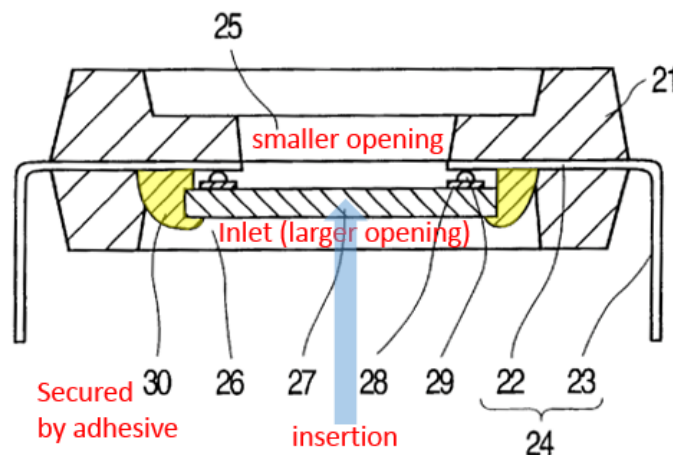
Since Yoshino's Figure 1 does not show "all of the limitations arranged or combined in the same way as recited in the claim" (*Net MoneyIN* at 1371), Yoshino Figure 1 cannot anticipate claim 1 of the '714 patent.

3. Yoshino Does not Explicitly Disclose Image Sensing Device Being Secured to Said Package via an Adhesive.

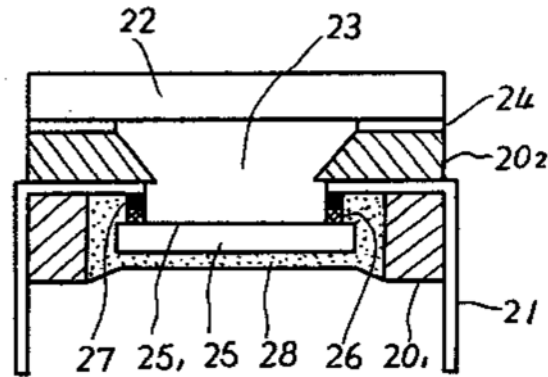
Claim 1 of the '714 Patent recites:

1. A solid-state image sensing apparatus comprising:
 - a package having a through hole therein, openings on both end faces thereof, and different opening areas of said openings,
 - a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package, and
 - a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a wider area, and thereby sealing said through hole, said solid-state image sensing device being secured to said package via an adhesive.

'714 Patent at 9:20-30. Claim 1 is embodied in at least Figure 2 of the '714 Patent annotated below:

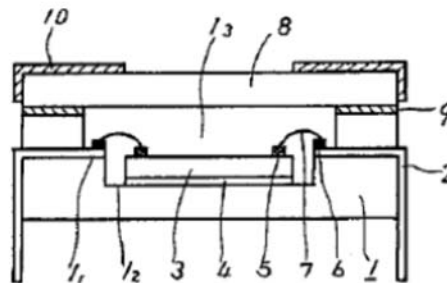


The securing of the solid state image sensing device via an adhesive 30 can be seen with respect to Figure 2. As indicated by the adhesive 30 highlighted in Figure 1, the image sensing device is glued into place inside the inlet cavity 26. In contrast, Yoshino, does not glue or “secure” the imaging device to the package except in perhaps an unreasonably broad sense. Yoshino is silent as to how the imaging device is secured. Afromowitz Decl. ¶ 36. One having ordinary skill in the art would understand that the molded resin 28 would require a molding technology such as injection molding, reaction-injection molding, compression molding, or, likely transfer molding to fill in the area between Yoshino’s ceramic package and the mold. A person having ordinary skill in the art would not have understood a molded resin used in this way to constitute an “adhesive.” Afromowitz Decl. ¶36. (“In the 42 years that I have been involved in the semiconductor field, I have never heard of molded resin as an adhesive.”). According to Dr. Afromowitz, substrate adhesives (commonly called “adhesive attach” or “die attach”) was and is a relative term of art. Afromowitz Decl. ¶ 32. This material is generally conductive. Afromowitz Decl. ¶ 32.



Consistent with this construction, Yoshino itself uses the term “secured . . . via a conductive adhesive” when referring to the background art. Yoshino at 002 (“A solid-state image sensor (3) having a photoelectric conversion function is secured on the bottom section (12) via a conductive adhesive (4)”).

FIG. 2



Yoshino, Fig. 2. Showing how an imaging device 3 is “secured” via an “adhesive 4” in the prior art.

According to Patent Owner’s proposed claim construction for “securing to said package via an adhesive” is “gluing with an adhesive.” Patent Owner notes that Yoshino does not glue the imaging device to the package as Yoshino simply fills the molded cavity with resin. Afromowitz Decl. ¶ 32. Moreover, one having

ordinary skill in the art would not understand Yoshino's molded resin to disclose the claimed "adhesive." Afromowitz Decl. ¶ 32. For these reasons, Yoshino's Figure 1 does not show "all of the limitations arranged or combined in the same way as recited in the claim" (*Net MoneyIN* at 1371), and Yoshino Figure 1 does not anticipate claim 1 of the '714 patent.

B. Claim 6 Is Not Obvious over Yoshino and Izumi (Ground 2)

Claim 6 recites:

6. A solid-state image sensing apparatus comprising:

a package having a through hole therein, openings on both end faces thereof, and *different opening areas of said openings,*

a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package,

a substrate on which a solid-state image sensing device and a peripheral circuit chip are mounted being inserted into the package from a wider opening thereof, and

an electrode pad of said substrate being connected to said inner lead exposed from around a smaller opening of said package,

said substrate being secured to said package via an adhesive.

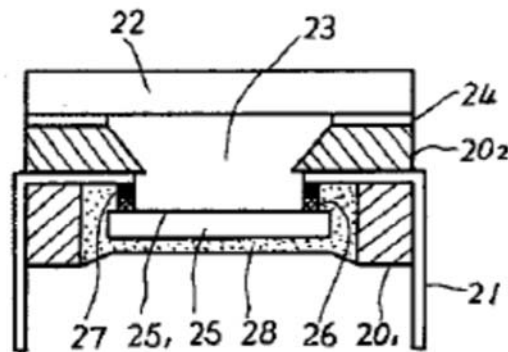
'714 Patent at 9:59-10:5 (emphasis added).

Petitioner relies on its analysis of Yoshino with respect to claim limitation [1b] and [1d] in order to show disclosure of limitations [6b] and [6d]. Therefore, for at least the reasons provided with respect to having "different opening areas of said openings" in claim [6b] and "said substrate being secured to said package via

an adhesive” in claim [6d], Patent Owner has demonstrated that these limitations have not been shown in section V(A)(2) *supra*.

Figure 1 of Yoshino is shown below:

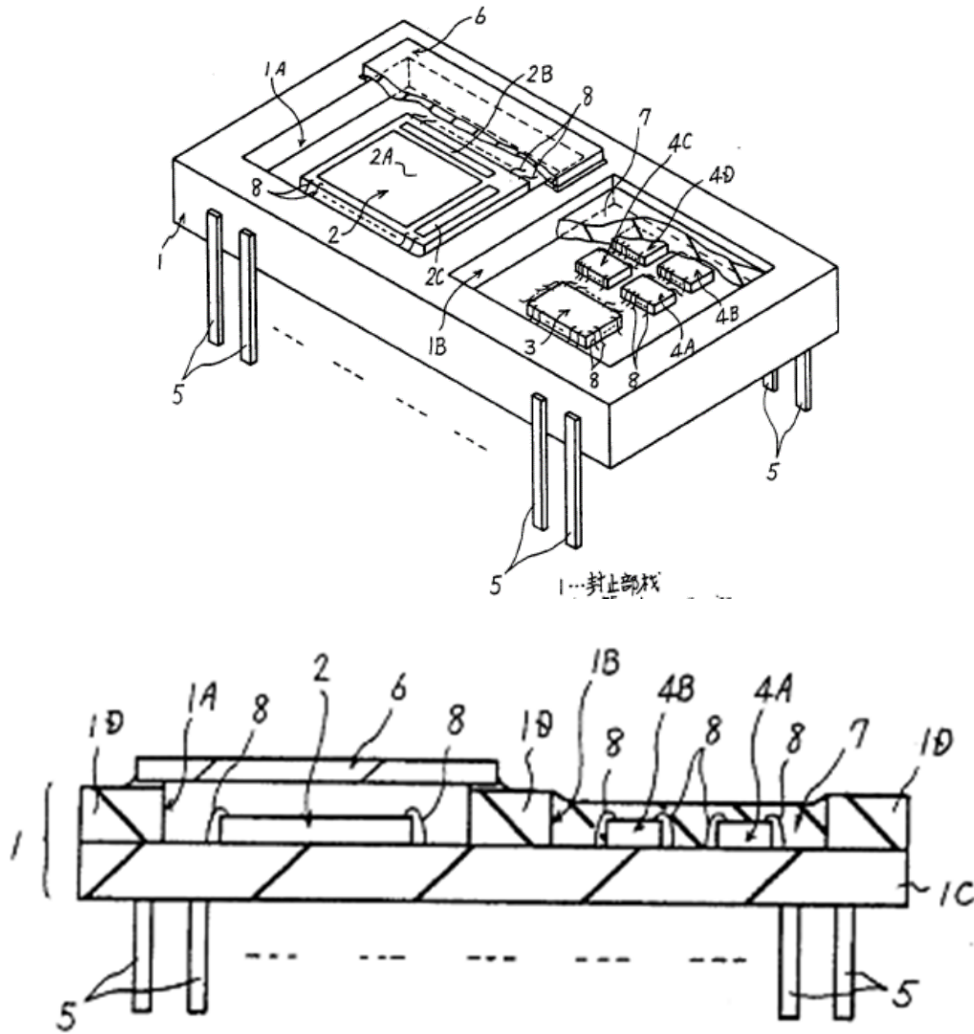
FIG. 1



Yoshino, Fig. 1.

Yoshino, however, does not disclose “a substrate on which a solid-state image sensing device and a peripheral circuit chip are mounted being inserted into the package from a wider opening thereof.” Yoshino teaches that element 25, single image sensor is surrounded by molded resin 28.

Petitioner asserts that claim 6 is rendered obvious by combining Izumi with Yoshino. Pet. at 20. Specifically, Petitioner concludes that one of ordinary skill “would have been motivated to use the substrate (and package divider) disclosed in Izumi with Yoshino’s package.” Pet 21-22. Figures 1-2 of Izumi are reproduced below.



From Petitioner's context, Petitioner argues that a person having ordinary skill in the art would have been motivated to modify Izumi's device set-up including its separate device substrates and package divider by placing it in Yoshino's package. Pet. at 22. A person having ordinary skill in the art would not be motivated to do this. Afromowitz Decl. ¶ 40.

Izumi's substrate, 1C consists of solid state imaging element chip 2, positioned so as to be located in the left-hand cavity of the package, and peripheral

circuit chips 4A and 4B, positioned so as to be located in the right-hand cavity of the package. Afromowitz Decl. ¶42. The package divider, however, is not part of the substrate. Afromowitz Decl. ¶ 42. For example, the diagonal shading in that element 1B matches the shading of the package 1D. Afromowitz Decl. ¶ 42. The chips are wire-bonded to the top of the substrate. Afromowitz Decl. ¶ 43. Patent Owner also notes that leads 5 extend from the underside of the substrate 1C and are fixed to the substrate. Afromowitz Decl. ¶ 43. Izumi's substrate includes all these elements. Afromowitz Decl. ¶ 43. But Izumi's substrate is not "inserted into the package from a wider opening thereof" but is attached under the package, and Izumi's numerous peripheral chips, located in a separate cavity (for which Izumi has several good reasons) provide serious complications. Afromowitz Decl. ¶ 42.

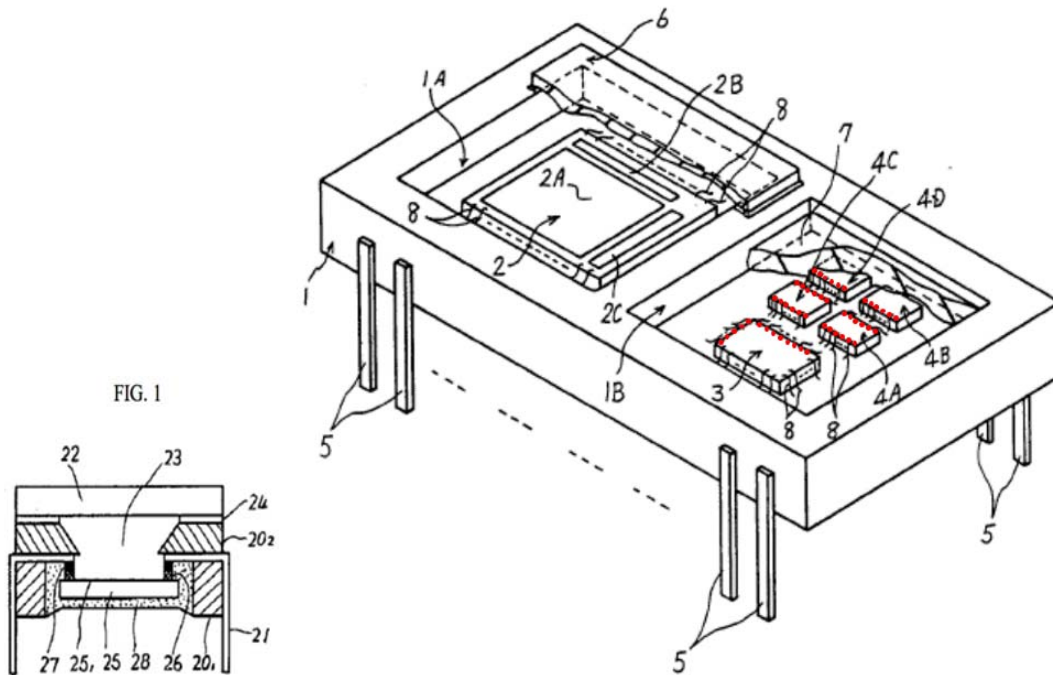
A person of ordinary skill would **not** have been motivated to use Izumi's substrate with Yoshino. Afromowitz Decl. ¶ 43. A major difficulty with Izumi is that the image sensing device must be bonded to the substrate prior to wire-bonding the contacts to the chip. Afromowitz Decl. ¶ 43. The position of the image sensor chip is fixed with respect to the position of the pins before one could establish whether its optical position is correct. Afromowitz Decl. ¶ 43. Izumi's pins locate the package on a circuit board, so the location of the image sensor chip, mounted in this way on a substrate, is fixed with respect to the circuit board. Afromowitz Decl. ¶ 43. This design goes against a principal advantage of the '714

invention, that is, the image sensor chip can be moved about in its package, while it is actively operating, to secure proper alignment of the chip with respect to its pins, prior to being locked in place with an adhesive. Afromowitz Decl. ¶ 43.

To counter this critical defect in the combination of Yoshino and Izumi, Petitioner also suggests that Izumi's substrate could be further modified in the extreme so that the electrical wiring on the top surface of the substrate would connect the chips to electrode pads instead of to the pins so that the chips could then connect to the inner leads of the lead frame in Yoshino. Pet. at 24.

However, Izumi's substrate and package structure are **so different** from the structure of Yoshino, an extreme modification of one of the other devices would have to be made. Afromowitz Decl. ¶ 45. Moreover, Petitioner fails to even describe the proposed modifications with any reasonable detail that Petitioner is skeptical that such a modification is possible much less obvious to a person having ordinary skill in the art. Afromowitz Decl. ¶ 45. For instance, referring to Figure 1 below, how would the inner most bond pads connect to the inner leads of Yoshino? Yoshino's inner leads overhang the substrate from the edge of the package. Even if Yoshino's metal inner leads could be formed with a pitch to match the bond pads from Izumi's peripheral circuit chips 3, 4A-4D, which a person having ordinary skill in the art would know is not feasible (especially at the time of the '714 patent's priority), how would Yoshino's inner leads reach Izumi's bond pads

(general positions highlighted in red) that are not facing the exterior of the package? Afromowitz Decl. ¶ 45.



Petitioner apparently only considered Izumi's cross-section in Figure 2 in coming to its analysis. The reasons to modify Izumi simply do not exist for the device when considering the actual device. Afromowitz Decl. ¶ 46. If the proposed modification or combination of the prior art would change the basic principles under which the prior art was designed to operate, or render the prior art inoperable for its intended purpose, it does not serve to render the challenged claim obvious. *Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 F. App'x 755, 758 (Fed. Cir. 2015) (non-precedential) (affirming PTAB holding that the challenged claim was not obvious). As such, Patent Owner submits that the modifications required of

Izumi's substrate, and the combination of such a modified substrate with the teachings of Yoshino were not obvious to a person of ordinary skill. Therefore, a person having ordinary skill in the art would have understood that claim 6 is not obvious over Yoshino and Izumi.

C. Claim 7 is not obvious over Yoshino, Nagano, and Wakabayashi (Ground 3)

Claim 7 provides:

7. A solid-state image sensing apparatus comprising:

a package having a through hole therein, openings on both end faces thereof, and different opening areas of said openings,

a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package,

a semiconductor substrate having a solid-state image sensing device and a peripheral circuit chip disposed on an upper surface thereof, said semiconductor substrate being inserted into a plastic package via the larger of two openings formed in said package, and

an electrode pad of said semiconductor substrate being connected to the inner lead exposed from around the smaller opening of said package,

said semiconductor substrate being secured to said package via an adhesive.

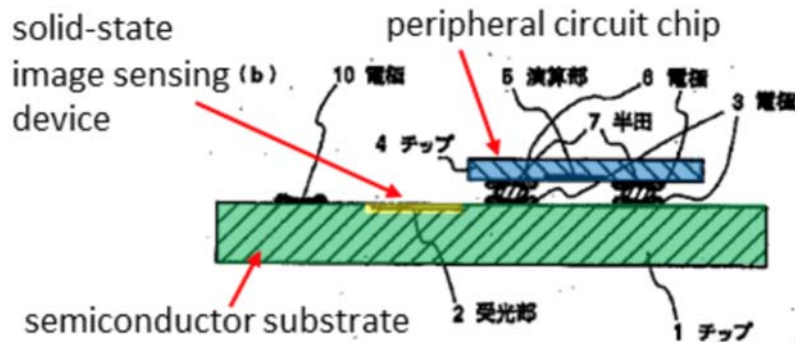
Petitioner relies on its analysis of Yoshino with respect to claim 1 with respect to claim limitations [1b] and [1d] in order to show disclosure of limitations [7b] and [7f]. Therefore, for at least the reasons provided with respect to claims

[1b] and [1d], Patent Owner has demonstrated that these limitations have not been shown and are non-obvious.

Additionally, Petitioner admits that Yoshino does not disclose the semiconductor substrate with all its required elements. Pet. at 25-27. In particular, a person of ordinary skill would have not have reason to combine Nagano with Yoshino and Wakabayashi. Afromowitz Decl. ¶ 48. First, Nagano does not pertain to an image sensor as Petitioner, and its expert Mr. Guidash, have asserted. In particular, Petitioner states that Nagano discloses a solid-state image sensing device (Pet. p. 26, and Ex. 1002 ¶147) when the fact is that Nagano does nothing of the sort. Afromowitz Decl. ¶ 50. As Dr. Afromowitz notes, there are a number of reasons that Nagano's device would not serve as the claimed "semiconductor substrate having a solid-state image sensing device and a peripheral circuit chip disposed on an upper surface thereof." In particular, Nagano is drawn to a single photodiode device – not an "image" sensor. Afromowitz Decl. ¶ 52. Moreover, as Nagano is not related to image sensor technology, a person of ordinary skill in the art of image sensor design and manufacture would simply not look to Nagano for prior art teachings.

Whether or not a person of ordinary skill in the art would consider Nagano analogous, Petitioner asserts that a person of ordinary skill would have been

motivated to use the semiconductor substrate disclosed in Nagano with Yoshino's package (Pet p.27).

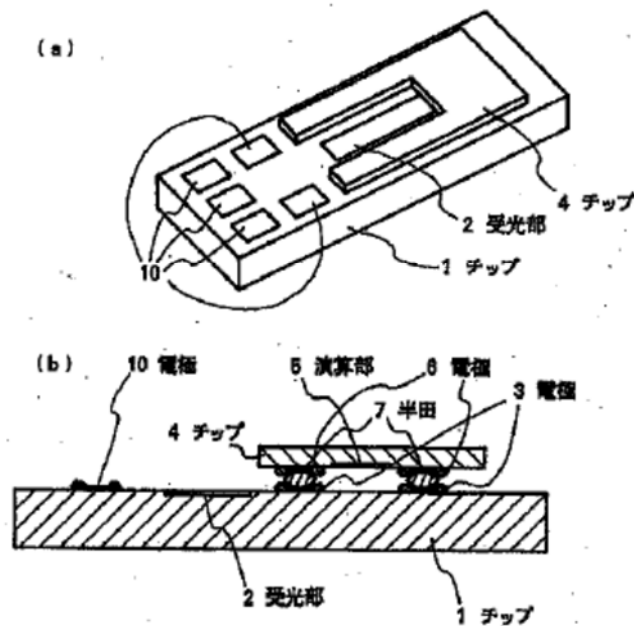


Petitioner selects the following figure from Nagano (to which highlights, red arrows and associated annotations have been added by Petitioner) and quotes Nagano describing this device:

A photodiode with a computing function according to this embodiment example has electrodes 3 of a chip 1 having a light-receiving part 2 and electrodes 6 of a chip 4 having a computing part 5 fixed together with solder 7 with the electrodes facing each other. An optical signal picked up by the light-receiving part 2 of the chip 1 is converted into an electrical signal, passes through the solder 7, is operated upon in the computing part 5 of the chip 4, and passes through the solder 7 again and returns to the chip 1. And, a photodiode with a computing function according to this embodiment example is connected to another circuit by electrodes 10.

Ex. 1018, ¶ 0008.

【図1】



Nagano, Figs. 1a, 1b.

Clearly, Nagano has not identified the photodiode (also identified by Nagano as the light-receiving part 2) as the claimed image sensor. Afromowitz Decl. ¶ 62. This would be an unreasonably broad read on the claim limitation. Even if the claims of the '714 patent were amenable to the Broadest Reasonable Interpretation, a person having ordinary skill in the art would not have found the disclosure of a device having a single photodetecting element to serve as disclosure of an “image” sensor. Afromowitz Decl. ¶ 62.

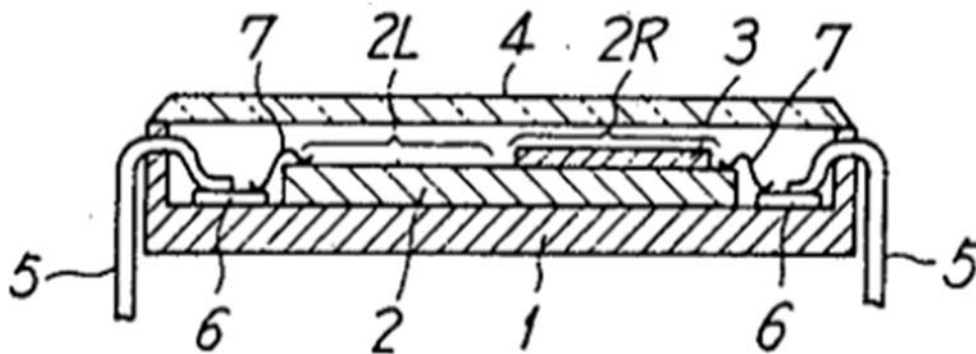
Additionally, Petitioner claims its motivation to combine Nagano with Yoshino are identical to the reasons Petitioner had for combining Izumi. “One of ordinary skill would have been motivated to use the semiconductor substrate

disclosed in Nagano with Yoshino's package for the same reasons and with the same results as described for Ground 2, element [6d] with regard to Izumi (namely, to reduce the length of electrical connections, reduce noise, and reduce size)." Pet. at 27. This motivation is nonsensical. Afromowitz Decl. ¶ 64. Nagano discloses no wire bonds that would make use of Yoshino's package device advantageous. Afromowitz Decl. ¶ 64. Furthermore, Petitioner fails to explain why Yoshino would benefit from the simple "computing part" of Nagano which processes the signal from a single photodiode. Afromowitz Decl. ¶ 64. In short, Nagano does not disclose the claimed "semiconductor substrate having a solid-state image sensing device." Moreover, even if the single photodiode of Nagano and its rudimentary "computing part" were to be construed as disclosing the claimed "solid-state image sensing device and a peripheral circuit chip," a person having ordinary skill in the art would have had no motivation to combine these disparate references. Therefore, Petitioner fails to show that claim 7 has not been shown to be obvious.

D. Claim 8 Is not Obvious over Yoshino, Izumi/Nagano, Hirose, and Nita (Ground 4)

None of the cited art, individually or in combination, discloses "wherein a shading film covers an entire upper surface of said substrate except an upper surface of the solid-state image sensing device" as recited in claim 8.

Petitioner asserts that Hirosawa and Nita have light shielding films as described in claim 8. Pet. at 29. Patent Owner disagrees. Hirosawa teaches that a light detection semiconductor element and a signal processing circuit element can be configured either on a single chip or on a plurality of chips. Afromowitz Decl. ¶ 69. The case of a single chip is relevant here. Hirosawa shows this case in its figure 1, below.



In this figure, the region 2L denotes a light detection element, and region 2R denotes a signal processing circuit element. Hirosawa, Ex 1020, at 003. Hirosawa states that its “light-shielding film or a light-shielding plate 8 is provided to the section 2R where the signal processing circuit element is formed.” Note, Petitioner relies on what it purports to be an error in Hirosawa’s figure 1 claiming that the structure marked as 3 is in actuality the light-shielding plate 8. Pet. at 29. Further on, Hirosawa states, “[t]ransmission and reception of signals between the light detection semiconductor element and the signal processing circuit element is done

via semiconductor regions or conductor patterns.” Hirosawa at 003. Since the transmission means must extend to the light detection element, they are not part of the signal processing element. Afromowitz Decl. ¶ 70. They would be in between those two elements. Afromowitz Decl. ¶ 70. Hirosawa does not indicate that these signal transmission means are also covered by the light shield. Afromowitz Decl. ¶ 70. In fact, if they were semiconductor regions, it would be especially important that they be covered. Afromowitz Decl. ¶ 70. Mr. Guidash confirms this in his deposition:

Q: What kind of circuits would be sensitive to light?

A: So in general, all circuits will be -- that are built in silicon . . .

Guidash Depo. 38:7-10

Hirosawa also does not indicate that the contact pads around the edges of the device are covered with a light shield. Afromowitz Decl. ¶ 72. They are not part of the signal processing element either. Afromowitz Decl. ¶ 72. One can see from the figure above that the contact areas are highly reflective. Afromowitz Decl. ¶ 71. Even Mr. Guidash specifically notes that it is important to cover these areas with a light shield:

Q: Is this a reason to have shielding over those areas?

MS. GU: Objection, form.

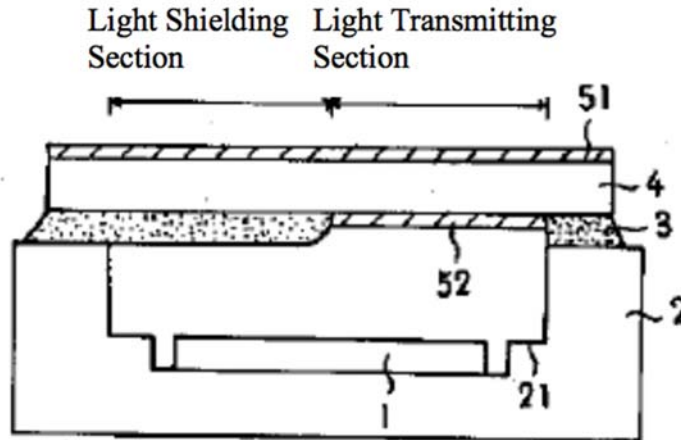
THE WITNESS: Those areas -- it's important to have shielding over areas that are sensitive to photons. It's important to have shielding over areas that may reflect light that was not intended for being incident on the image array are two examples of the regions that are desired to be shielded.

Guidash Depo. at 42:1-9.

Thus, Hirosawa does not teach that “a shading film covers an entire upper surface of said substrate except an upper surface of the solid-state image sensing device.” Hirosawa’s covered region would not include enough. Afromowitz Decl. ¶ 72.

Nita teaches an image sensor in a package. “The solid-state image sensor comprises, for example, a silicon semiconductor substrate in which a CCD, including a drive circuit, (chip) is formed” Nita, Ex. 1011, ¶ 0009. Nita refers to an example image sensor as a frame transfer CCD. “Light enters the light receiving section, and the signal charges are accumulated. The charges are then transferred to the light shielded storage section. Nita at ¶ 0016. The light shielding of the storage section is accomplished by spreading an adhesive over part of the underside of a cover glass, as shown below:

FIG. 3



The adhesive layer (3) on the glass lid is also meant to extend over the lower surface of the cover glass 4 in the stippled area. This light shield does not cover “an entire upper surface of said substrate except an upper surface of the solid-state image sensing device.” Afromowitz Decl. ¶ 74. Because of the open space between the chip and the adhesive layer, light entering at a slight angle away from the vertical can impinge on many parts of the chip that the inventor would have liked to shield from the light. Afromowitz Decl. ¶ 74. This is a very crude attempt to keep light away from the parts of the chip other than the surface of the image sensing region.

Guidash describes a similar problem in his deposition:

Q: When you said stray reflections from pieces of the package onto the image sensing area, what is that?

A: A specific example would be light enters the -- or transmits through the cover glass and the opening in the package. The image sensor in that particular package had -- has -- and wire bonds disposed in a part of the package that typically sensors of this type were not disposed in. Light would hit the portions of the wire bonds would be reflected up to the cover glass, reflected back down, reflected off of the wire bond or ball bond in many directions, and end up being incident on the imaging array.

Guidash Depo. 43:18-44:6.

These problems would have been eliminated by the teaching of claim 8, whose light shield covers “an entire upper surface of said substrate except an upper surface of the solid-state image sensing device.” Afromowitz Decl. ¶ 76. Neither Hirosawa nor Nita provide the light-shielding solution provided by claim 8. Afromowitz Decl. ¶ 76. Thus, for these reasons, one having ordinary skill in the art would have understood claim 8 is not obvious over Hirosawa and Nita.

E. Claims 9-13 and 15-16 are Not Obvious over Yoshino. (Grounds 5-11)

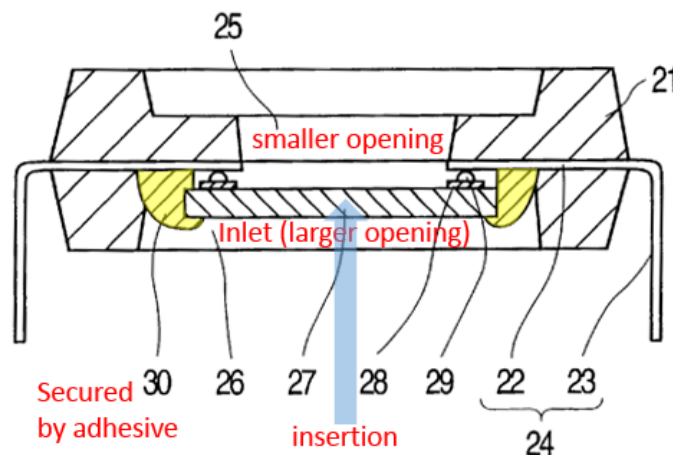
Petitioner relies on its analysis of Yoshino with respect to claim 1 with respect to claim limitations [1d] in order to show disclosure of the same limitations in claims 9-13 and 15-16. Therefore, for at least the reasons provided with respect

to claim limitation [1d], Patent Owner has demonstrated that this limitation has not been shown and are therefore non-obvious.

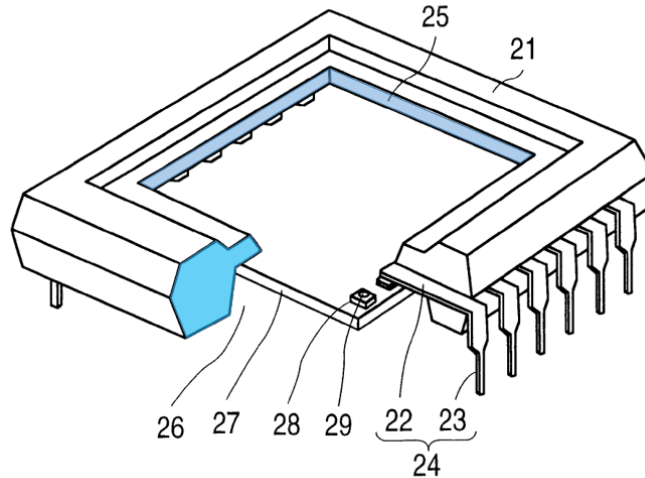
F. Claim 1 Is Not Obvious over Wakabayashi (Ground 12)

Petitioner states that this ground “is presented under § 103 because Wakabayashi does not expressly recite that the image sensor is inserted into package’s wider opening.” Pet. at 49-50. However, like Yoshino this ground under Wakabayashi fails for the same reasons as Ground 1 with respect to claim 1.

Specifically, Wakabayashi does not disclose “a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a **wider area**, and thereby sealing said through hole, said solid-state image sensing device being secured to said package via an adhesive.” ’714 Patent at 9:20-30. Claim 1 addresses specifically, that the **area** of the smaller opening is smaller than the **area** of the wider opening. Claim 1 is embodied in at least Figure 2 of the ’714 Patent annotated below:



The relative areas of the openings can be seen with respect to Figure 1 of the '714 Patent:



'714 Patent, Fig. 1 (annotated). As can be readily seen, and as described in the specification, opening 26 has the wider opening area and opening 25 has the smaller opening area.

As FIG. 1 depicts, a through hole is provided at the center of the package 21, and in front side of the package 21, an opening 25 which has a smaller opening area is situated, and another opening 26 (hereinafter called "inlet" which has a wider opening area is situated at the back side thereof.

'714 Patent at 4:53-58.

Petitioner refers to this element as belonging to limitation [1d]. Pet. at 51-52. Again, Petitioner provides no argument or evidence about the relative area of the openings of its through hole. Again, Petitioner reads too much into the package

cross sections provided by the reference. Wakabayashi provides no information about its ends, the structure of its leadframe, e.g., are the leads provided on two sides of the die or all four sides, the pitch between leads, whether the package is designed for multiple substrates, etc. Wakabayashi also indicates that the shape of the openings can change. Wakabayashi at ¶0012 (“In the package 4, the resin thicknesses of the light-receiving section and the side wall sections can be selected to form desirable shapes from the perspective of the optical characteristics and mechanical strength.”). In short, without another view of the device or more information, Wakabayashi provides no information regarding the relative areas of the package through holes.

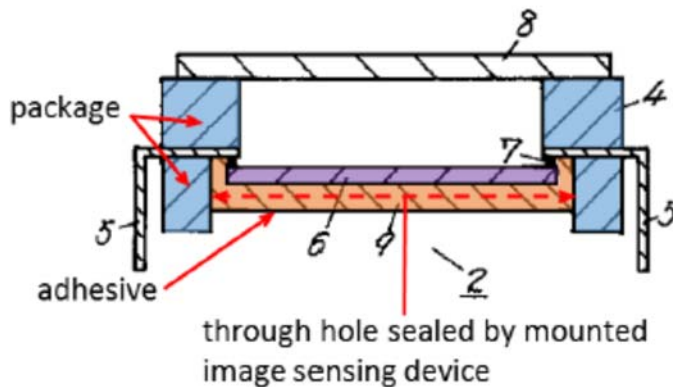
Petitioner’s entire treatment of the relative areas of the through-hole openings is the following:

Wakabayashi does not expressly disclose that the image sensor is mounted by being inserted from an inlet of said opening which has a wider area. (Ex. 1002, ¶259). However, this would have been obvious. (Id.). First, Wakabayashi teaches that the image sensor is bonded to the inner leads. (Ex. 1004, ¶0010). (Ex. 1002, ¶259). As shown in Fig. 1 (annotated below), the inner lead connection is from the (bottom) side of the package with the wider opening, making this the natural opening to use. (Ex. 1002, ¶260). Second, as shown in Fig. 1, the sensor (6) fits into the wider opening, but would not fit (or at best would fit only with difficulty) in the top. (Id.). Third, there were only two possibilities for placing the sensor in the package, and one of

ordinary skill would have immediately been able to visualize both.
(Id.). There were no unpredictable results. (Id.).

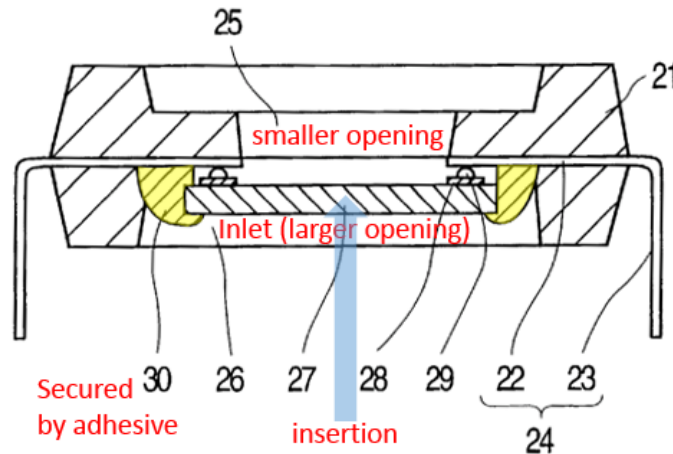
Pet. at 52.

From the arguments above and the annotated figure (reproduced below), it appears that Petitioner addresses only the length of one side of the opening at the specific cross-section of the device provided by Wakabayashi, and does not address the opening's *area* at all. Afromowitz Decl. at ¶ 85.



a solid-state image sensing device mounted in said package by being inserted from an inlet of said opening which has a wider area, and thereby sealing said through hole, said solid-state image sensing device being secured to said package via an adhesive.

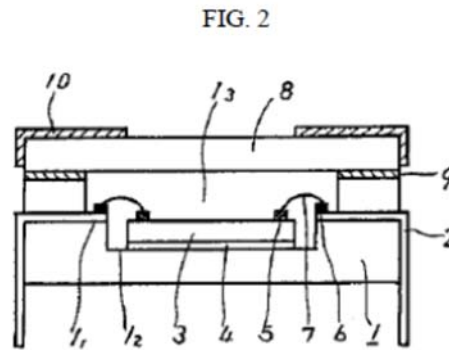
'714 Patent at 9:20-30. Claim 1 is embodied in at least Figure 2 of the '714 Patent annotated below:



The securing of the solid state image sensing device via an adhesive 30 can be seen with respect to Figure 2. As indicated by the adhesive 30 highlighted in Figure 1, the image sensing device is glued into place inside the inlet cavity 26.

In contrast, Wakabayashi, does not glue or “secure” the imaging device to the package except in perhaps an unreasonably broad sense. *See* Pet. at 53 (identifying element 9 as the adhesive). One having ordinary skill in the art would understand that the adhesive resin used to fill in the bottom opening e.g., in Wakabayashi’s claim 2 is simply a sealant for the back side of the device. Afromowitz Decl. ¶ 88. However this material is not used to glue or secure the CCD to the package. As Wakabayashi states, it is used to “reinforce” the bump joints and prevent “the penetration of dust from the outside.” Wakabayashi at ¶0015. A person having ordinary skill in the art would not have understood the sealant used in this way to constitute “gluing an adhesive.” Afromowitz Decl. ¶ 88.

Consistent with this construction, Yoshino (shown below) uses the term “secured . . . via a conductive adhesive” when referring to its background art. Yoshino at 002 (“A solid-state image sensor (3) having a photoelectric conversion function is *secured on the bottom section (12) via a conductive adhesive (4)*” (emphasis added)).



Yoshino, Fig. 2. Showing how its imaging device 3 is “secured” via an “adhesive 4” in the prior art.

Accordingly, Patent Owner’s proposed claim construction for “securing to said package via an adhesive” is “gluing with an adhesive.” See section III(A) *supra*. Patent Owner notes that Wakabayashi’s “adhesive resin” simply fills the molded cavity with resin.

G. Claim 2 Is Not Obvious over Wakabayashi and Fujii (Ground 13)

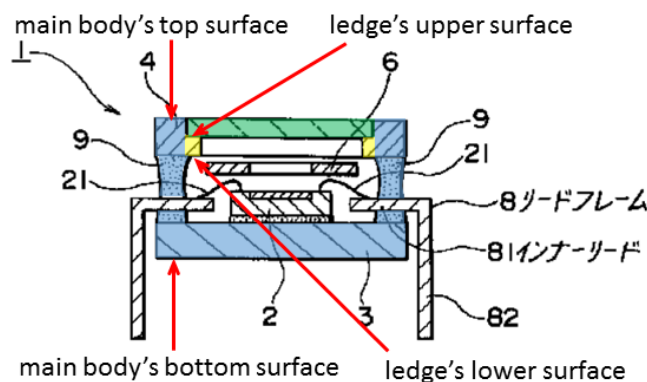
Claim 2 is reproduced below:

2. A solid-state image apparatus comprising:

a package comprising a main body having a through hole therein, said main body having a top surface and a bottom surface, said package

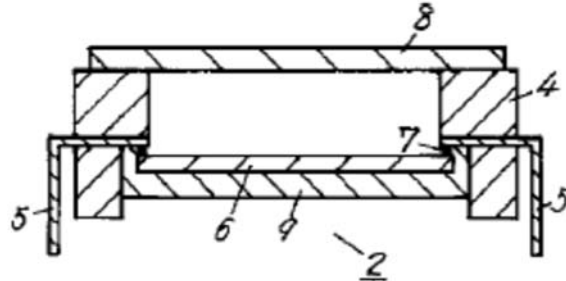
- further comprising a ledge formed on said main body so as to extend inwardly toward the center of said through hole, said ledge comprising an upper surface and a lower surface;
- a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package such that said inner leads extend inwardly from said main body so as to be adjacent said lower surface of said ledge; and
- a solid-state image sensing device having an upper surface and a lower surface and a plurality of electrode pads disposed on said upper surface, each of said plurality of electrode pads coupled to one of said inner leads;
- said solid-state image sensing device being secured to said main body of said package via an adhesive.

Petitioner cites the following figure from Fujii in support of this ground.



Petitioner has modified this figure with annotation and shading. A key element of this figure is the ledge, shaded yellow, having the indicated upper and lower surfaces. Petitioner asserts that this single element could be used in a

modified package taught by Wakabayashi, whose original figure is displayed



below:

Pet. at 55.

We see that Wakabayashi places a sealing glass 8 on the top surface of the package, whereas Fujii's ledge permits the sealing glass in that design to rest on the upper surface of the ledge. Afromowitz Decl. ¶ 95. Petitioner gives no reason to combine Fujii's ledge with Wakabayashi's package in this manner. Afromowitz Decl. ¶ 95. Fujii makes no claim as to an improvement offered by his ledge design, so even if Petitioner were to show it was possible, petitioner fails to provide a reason with rational underpinning, why a person having ordinary skill in the art would have been motivated to combine Fujii and Wakabayashi. Indeed, a person of ordinary skill would not have been motivated to combine the ledge element from Fujii with the package of Wakabayashi. Afromowitz Decl. ¶ 95. The result would provide no advantage. Afromowitz Decl. ¶ 95.

H. Claim 13 Is Not Obvious over Wakabayashi and Hikosaka. (Ground 15)

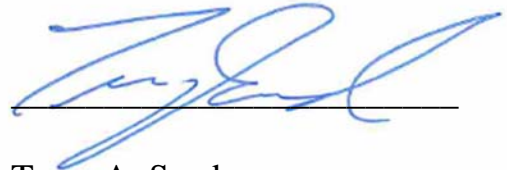
Petitioner relies on its analysis of Wakabayashi with respect to claim 1 with respect to claim limitations [1d] in order to show disclosure of limitations [13d]. Therefore, for at least the reasons provided with respect to claim limitation [1d], Patent Owner has demonstrated that this limitation has not been shown and is therefore non-obvious.

VI. CONCLUSION

Each of the challenged claims of the '714 patent require, according to the proposed claim construction, that the image sensor is glued with an adhesive to the package. None of the prior art references disclose this element. Accordingly, the Board should find that Petitioner has failed to meet its burden for all claims of the '714 Patent.

Dated: January 27, 2017

Respectfully submitted,

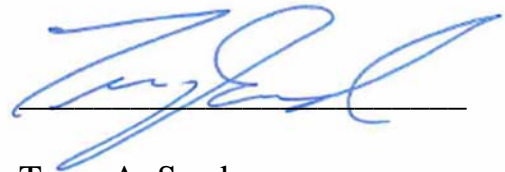


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CERTIFICATE OF SERVICE

The undersigned hereby certifies that document has been served via electronic mail on January 27, 2017, to Petitioner at following email addresses pursuant to its consent in its Petition at p. 1: smith@turnerboyd.com, docketing@turnerboyd.com, gu@turnerboyd.com, and zweig@turnerboyd.com.



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CERTIFICATE OF COMPLIANCE

As required by 37 C.F.R. §42.24(a), the undersigned hereby certifies that the foregoing Patent Owner's Response contains 9775 words, excluding those portions identified in 37 C.F.R. § 42.24(a)(1), as measured by the word-processing system used to prepare this paper.



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