

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
Petitioner,

v.

TS-OPTICS CORPORATION,
Patent Owner.

IPR2025-00767
Patent No. 7,266,055

**PATENT OWNER PRELIMINARY RESPONSE MERITS BRIEF
REQUESTING DENIAL OF INSTITUTION**

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I. INTRODUCTION

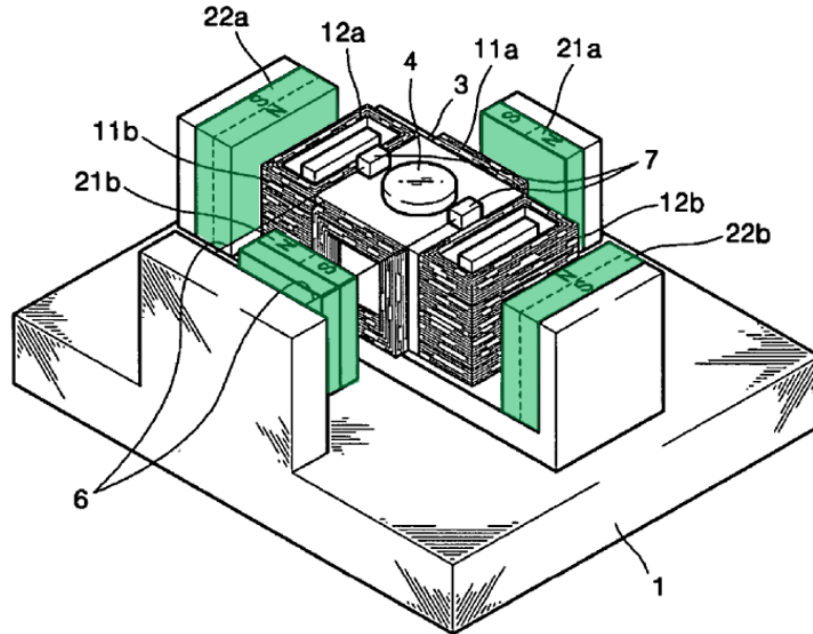
Challenged claims 1-8, 10-15, 17, 19, 21, 23, 24, 26, 28, 36-38, and 40-45 (“Challenged Claims”) of U.S. Patent No. 7,266,055 (the “’055 Patent”) are directed to an optical disk drive including an optical pickup actuator. Petitioner Microsoft Corporation (“Petitioner”) asserts eleven (11) Grounds of unpatentability against the Challenged Claims by relying on Choi, Ogata, Kabasawa, Miura, and Sugiyama as the respective primary references. None of the primary references, however, suggest the specific structural arrangements and components of the claimed optical pickup actuator and optical disc drive as specified by challenged independent claims 1, 10, 17, 24, 36, and 40. Nor are the claimed arrangements and components obvious in view of the Grounds’ secondary, tertiary, and quaternary references.

Accordingly, Patent Owner respectfully requests that the Board deny institution because Petitioner has failed to demonstrate a reasonable likelihood that the challenged claims of the ’055 Patent are unpatentable.

II. SUMMARY OF THE ’055 PATENT

The ’055 Patent relates to an optical disk drive including an optical pickup actuator that utilizes a Lorenz force generated in a coil by electromagnetic induction. Ex. 1001, 1:16-19. Annotated Figure 1 (below) shows a conventional optical pickup actuator, which includes multiple **magnets** positioned around all four sides of a blade. *Id.* at 1:36-52; Figure 1. The blade is supported by wires, which are connected

to hinges formed on the blade, while the coils are positioned on the surfaces of the blade. *Id.*

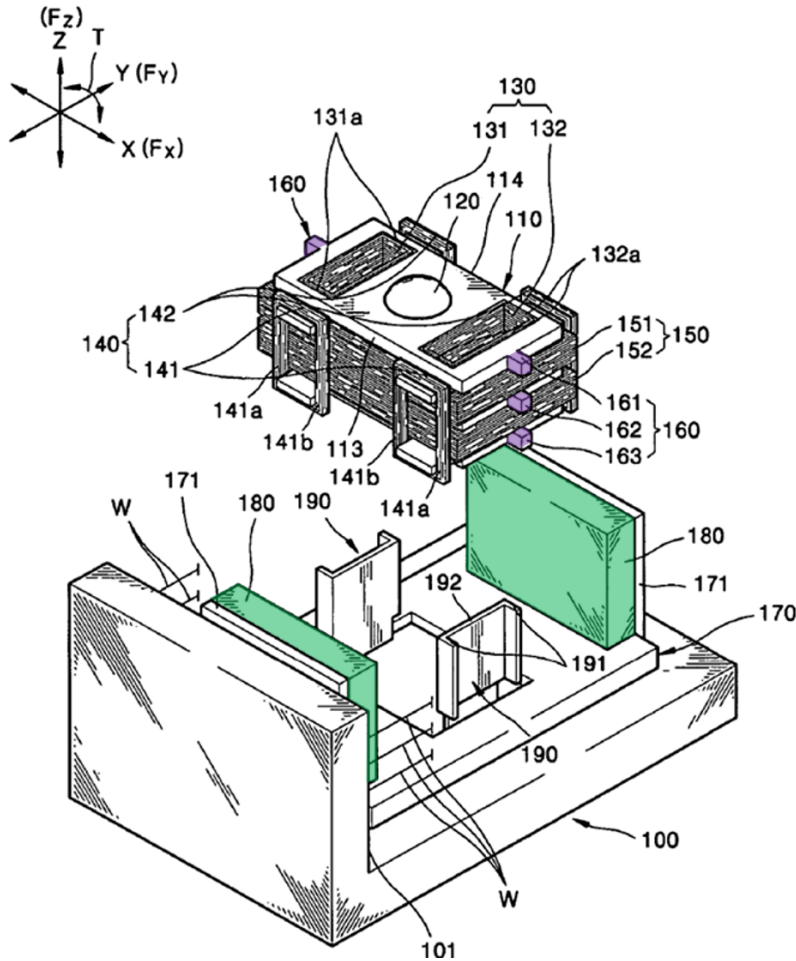


Ex. 1001, Fig. 1 (annotated excerpt).

The conventional optical pickup actuator shown in Figure 1 allows movement only in the focusing and tracking directions. *Id.* at 2:45-46. But precise recording or reproduction by an optical pickup actuator requires dynamic adjustment of the optical pickup in tilting directions. *Id.* at 2:17-22. In the conventional optical pickup actuator, enabling movement in the tilting direction requires the addition of extra wires on the blade. *Id.* at 2:59-61. Consequently, the placement of the hinges on the blade becomes critical, as they serve as connection points to these additional wires. *Id.* at 2:54-65. Providing additional hinges, however, is prohibitively challenging, because in the conventional optical pickup actuator, both the magnets and coils are

positioned around all four sides of the blade. *Id.* Further, the magnets that are positioned around the blade can interfere with the nearby spindle motor responsible for rotating the disc. *Id.* at 2:66-3:8. As a result, the design of the conventional optical pickup actuator made it difficult, if not impossible, to enhance actuation sensitivity in both the tracking and **tilting** directions. *Id.* at 2:66-3:13. Additionally, this design also poses significant challenges in reducing the overall size of the actuator. *Id.* at 3:8-13.

Unlike the conventional actuator, the '055 Patent introduces a novel and non-obvious optical pickup actuator capable of facilitating movement in all three directions: focusing, tracking, and tilting. *Id.* at 6:12-18; 7:4-30; 9:10-15. This innovative design enables precise alignment of light toward a desired location on a disc by moving the optical pickup actuator in these three directions. *Id.* at 6:12-15. To accomplish this, the inventors conceived a unique and inventive solution: positioning **magnets on only two opposite sides** of the actuator's blade and incorporating additional **hinges** and wires to support movement in additional directions, as shown in the annotated figure below. *Id.* at 6:29-38, 59-62; 8:57-64.



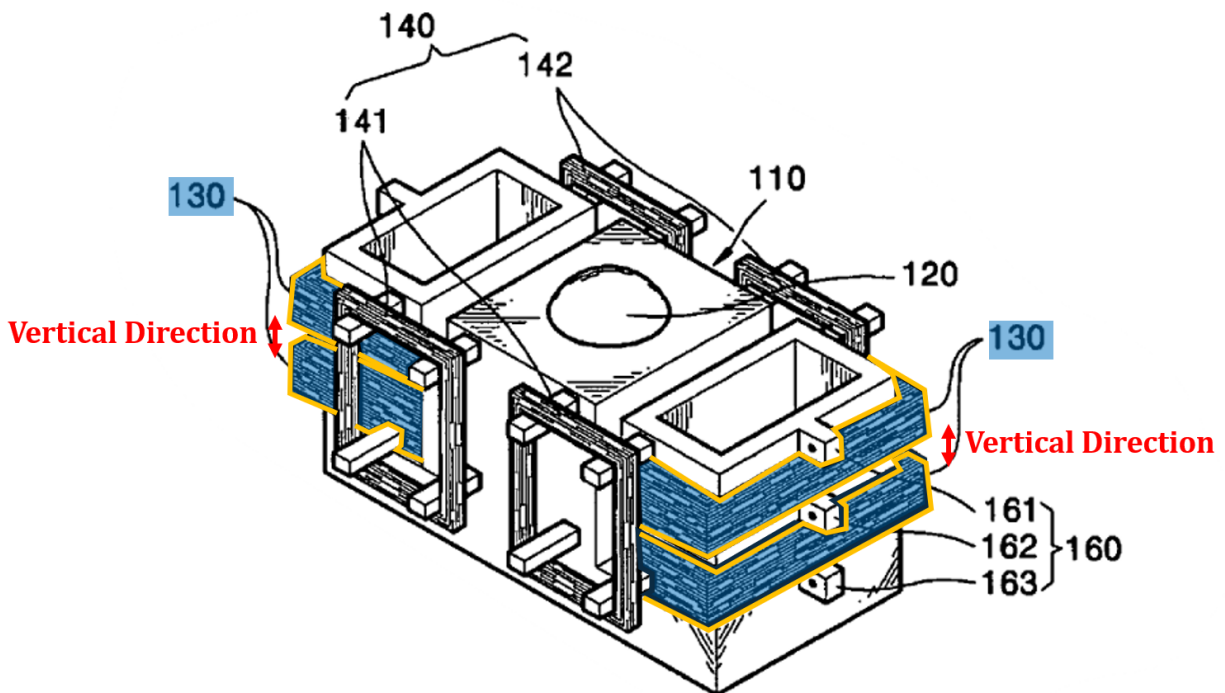
Ex. 1001, Fig. 4 (annotated).

The structural arrangement shown above minimizes the risk of interference with the spindle motor that rotates the disc, while also making it possible to incorporate the additional wires and **hinges**. *Id.* at 10:17-31. These **hinges** facilitate the movement of the optical pickup actuator in the tilting direction, alongside the focusing and tracking directions. *Id.* at 6:59-7:11.

Annotated Figure 8 (below) shows one example of the novel actuator design described in the '055 Patent. *Id.* at Fig. 8. In the annotated figure, the coil 130 is

highlighted in **blue**, while the subcoils are outlined in **yellow**. *Id.* at Fig. 8; 9:41-57.

Additionally, the annotated figure shows the **coil** 130 that is **vertically separated** into a plurality of adjacent **subcoils**. *Id.* The **coil** 130 is **vertically separated** into adjacent **subcoils** to allow for the placement of additional hinges, which facilitate movement of the optical actuator in all three directions: tilting, focusing, and tracking. *Id.* at Fig. 8; 6:59-7:30; 9:41-57.

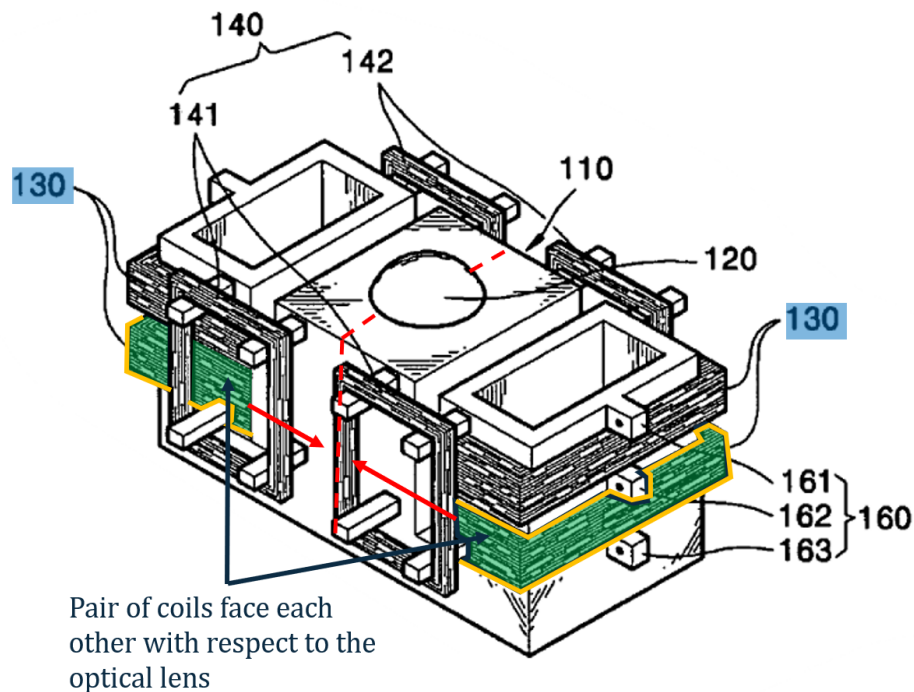


Ex. 1001, Fig. 8 (annotated).

To facilitate movements in all three directions discussed above, the **coil** 130 shown in annotated Figure 8 (above) serves as **both** focusing and tilt coils. *Id.* at Fig. 8; 6:59-7:30; 9:41-57. This feature is achieved by separating the **coil** 130 into a plurality of **subcoils** in a **vertical direction**. *Id.* For movement in the focusing

direction ($\pm Z$ direction), an electromagnetic force is induced in a **subcoil** by controlling the direction of the current flowing through it. *Id.*

Further, as shown in annotated Figure 8 below, to facilitate movement in tilting directions, a **subcoil** is divided into a **pair of coils** to face each other with respect to the objective lens. *Id.* at Fig. 8; 6:59-7:30; 9:41-57.



Ex. 1001, Fig. 8 (annotated).

This division of the **subcoil** enables actuator movement in tilting directions by controlling the direction of the current flowing through the **pair of coils**. *Id.* at Fig. 8; 6:59-7:30; 9:41-57.

Accordingly, the invention of the '055 Patent achieves miniaturization, reduction in the actuator's overall weight, and improvement in movement sensitivity

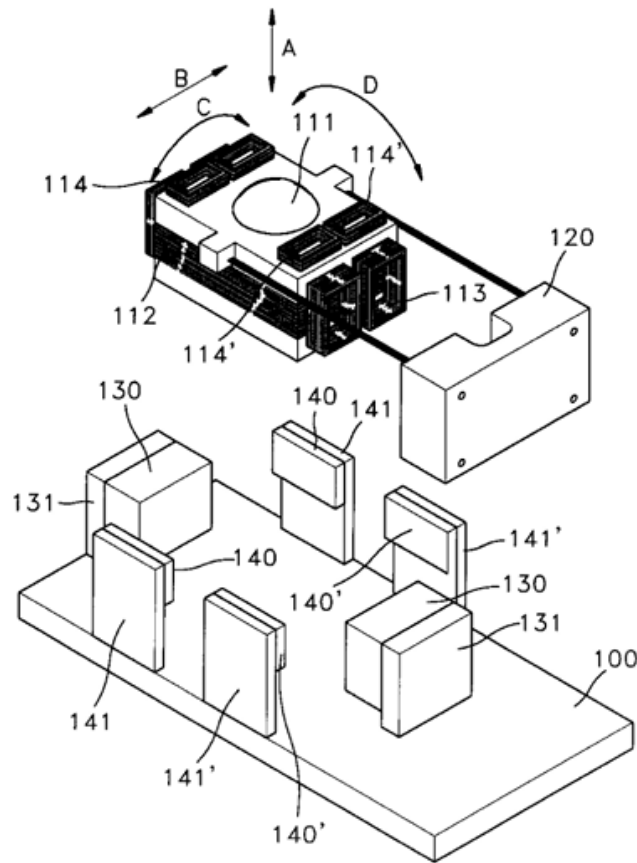
through the unique configuration of the magnets and additional hinges discussed above. *Id.* at 3:17-20; 10:17-31.

III. THE ALLEGED PRIOR ART

A. Overview of Choi

Korean Patent Appl. Pub. No. 2001-0038068A to Choi (“Choi”) is titled “Optical pickup assembly” and describes “an optical pickup assembly that ... perform tilt control of the objective lens.” Ex. 1003, 22, 88, 89. Figure 9 of Choi shows an optical pickup assembly comprising a bobbin 110 and a holder 120 that elastically supports the bobbin 110. *Id.* at Fig. 9; 162-163. The optical pickup assembly also includes tilt coils 114 and 114’ located on the upper surface of the bobbin 110. *Id.* Choi positions the tilt coils 114 and 114’ on the upper surface of the bobbin 110 to suppress the shift phenomenon of the light beam. *Id.* at Fig. 9; 162-171. The optical pickup assembly also includes a focusing coil 112 and a tracking coil 113, as well as a first pair of magnets 130 and two pairs of second magnets 140 and 140’ positioned around all four sides of the bobbin 110. *Id.*

FIG. 9



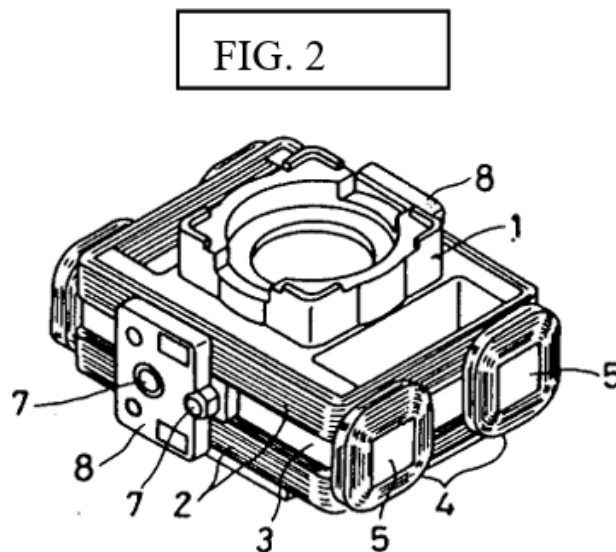
Ex. 1003, Fig. 9.

The interaction between the current flowing in the focusing coil 112, the tracking coil 113, and tilt coils 114, 114', along with the magnetic forces generated by the magnets 130, 140 and 140' positioned around on all sides of the bobbin 110, enables implementation of focusing, tracking, and tilt operations. *Id.*

B. Overview of Ogata

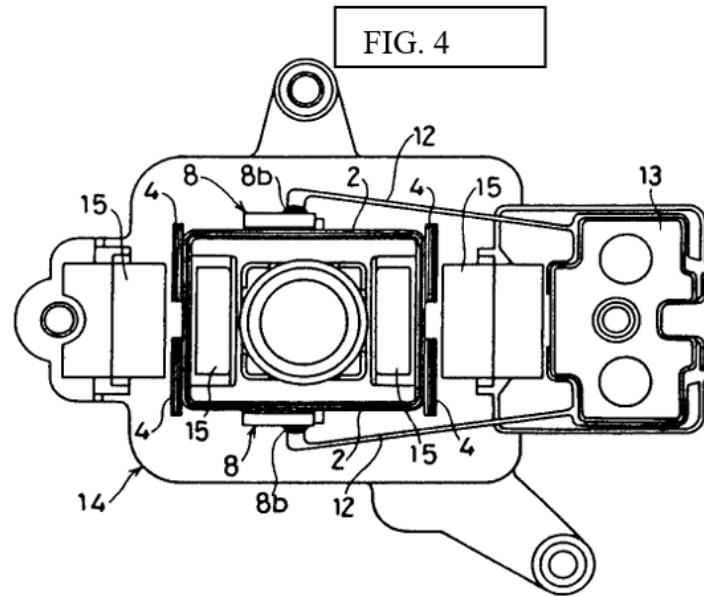
Japanese Patent Appl. Pub. No. H4-113524A to Ogata ("Ogata") is titled "Lens drive support" and describes "a lens drive support for supporting an objective

lens used in an optical pickup device” that is movable in two axes. Ex. 1004, 16, 30-31, 35. Fig. 2 of Ogata shows a lens drive support that includes a rectangular drum (objective lens holder) 1, focus drive coils 2, and radial directive coils 4, which enable movement of the lens drive support along **two axes** (*i.e.*, focusing and radial directions). *Id.* at Fig. 2; 157-58.



Ex. 1004, Fig. 2.

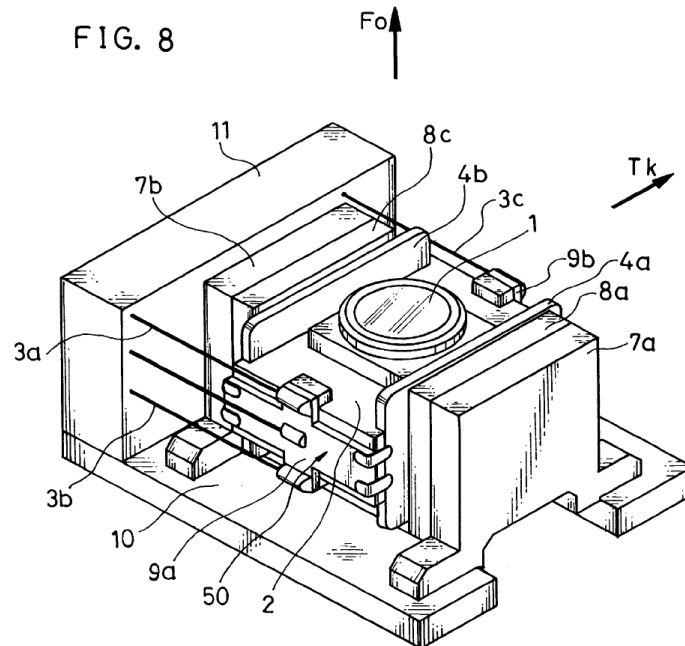
Notably, as shown in Figure 4 below, the lens drive support of Ogata employs relay boards 8 mounted on the drum 1 to secure outwardly protruding leaf springs 12 using locking portions 8b. *Id.* at Fig. 4; 155-163. The mechanical arrangement of the relay boards 8 and the leaf springs 12 is essential in Ogata's advancement over the prior art. *Id.* at 82-87.



Ex. 1004, Fig. 4.

C. Overview of Santo

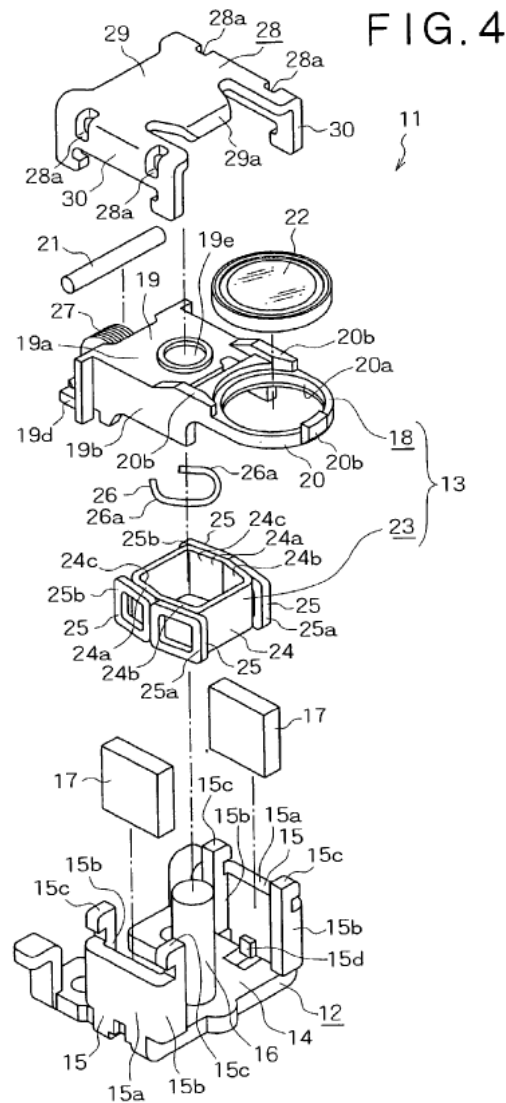
U.S. Patent No. 6,344,936 to Santo et al. (“Santo”) is titled “Objective Lens Driving Apparatus” and describes “an objective lens driving apparatus provided in an apparatus for optically reproducing information.” Ex. 1007, 1:4-7. Figure 8 of Santo shows an objective lens 1 with two printed coil boards 4a and 4b that interact with magnets 8a and 8c to move the objective lens 1 only **two directions** (Focusing direction Fo and Tracking direction). *Id.* at Fig. 8; 14:26-54. Santo also includes interconnecting printed boards 9a and 9b, to which the suspension wires 3a, 3b, and 3c are attached. *Id.*



Ex. 1007, Fig. 8.

D. Overview of Ikeda

U.S. Patent Application Publication No. 2003/0007430A1 to Ikeda et al. (“Ikeda”) is titled “Objective Lens Driver and Disk Drive Device Comprising the Same” and describes “an objective lens driver in which a movable portion is turnably and slidably supported on a support shaft.” Ex. 1005, ¶1. Figure 4 of Ikeda shows an objective lens driver 11 that includes a support base 12 and a movable portion 13. *Id.* at ¶42. The movable portion 13 includes magnets 17 and a coil body 23, which includes a pair of tracking coils 25 and a focusing coil 24. *Id.* at ¶¶45, 54.

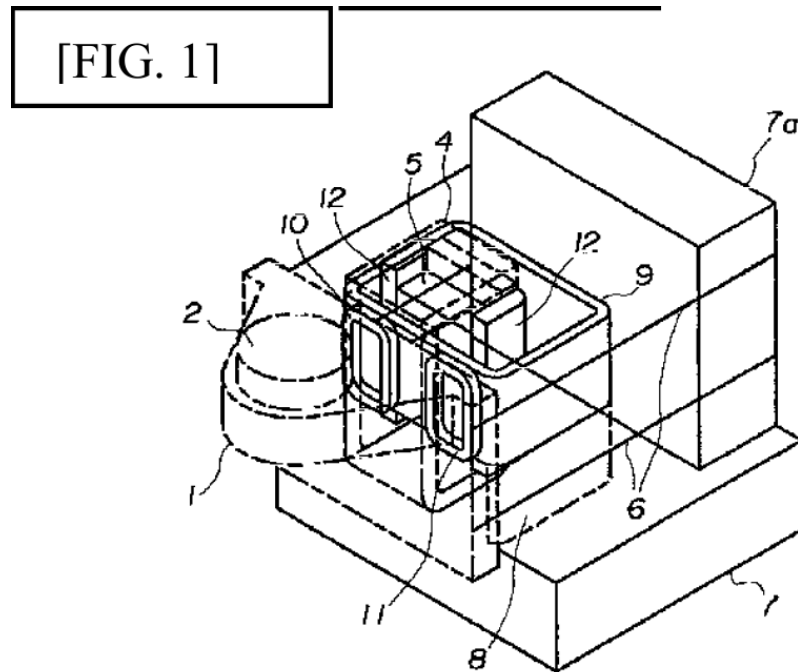


Ex. 1005, Fig. 4.

E. Overview of Kamata

Japanese Patent Application Publication No. 11-203697A to Kamata (“Kamata”) is titled “Optical pickup actuator device” and describes “an actuator device for an optical pickup that records or reproduces information on a medium such as a compact disc or mini disc.” Ex. 1006, 15, 45-46. Figure 1 of Kamata’s

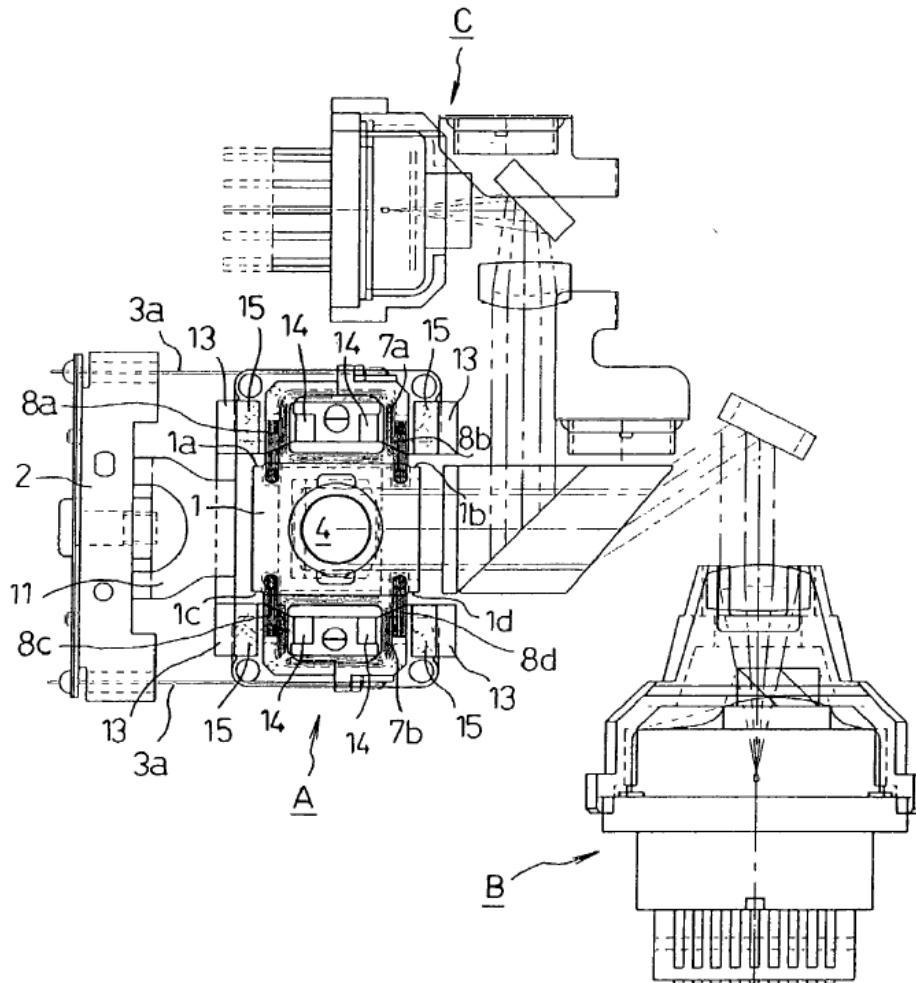
optical pickup actuator device includes a lens holder 1, an objective lens 2, and a single yoke 12 inside of a single focus coil 9 attached to a magnet 5. *Id.* at Fig. 1; 116-131.



Ex. 1006, Fig. 1.

F. Overview of Kabasawa

U.S. Patent Application Publication No. 2003/0067848A1 to Kabasawa et al. (“Kabasawa”) is titled “Optical Pickup Apparatus” and describes “an optical pickup apparatus for an optical disk apparatus.” Ex. 1008, Title, ¶2. Figure 1 of Kabasawa shows an optical pickup apparatus A including a lens holder 1 and coil reception section 5, 6. *Id.* at ¶42. The coil reception section 5, 6 includes focus coil 7a, 7b and tracking coils 8a, 8b, 8c, and 8d. *Id.* at ¶44.

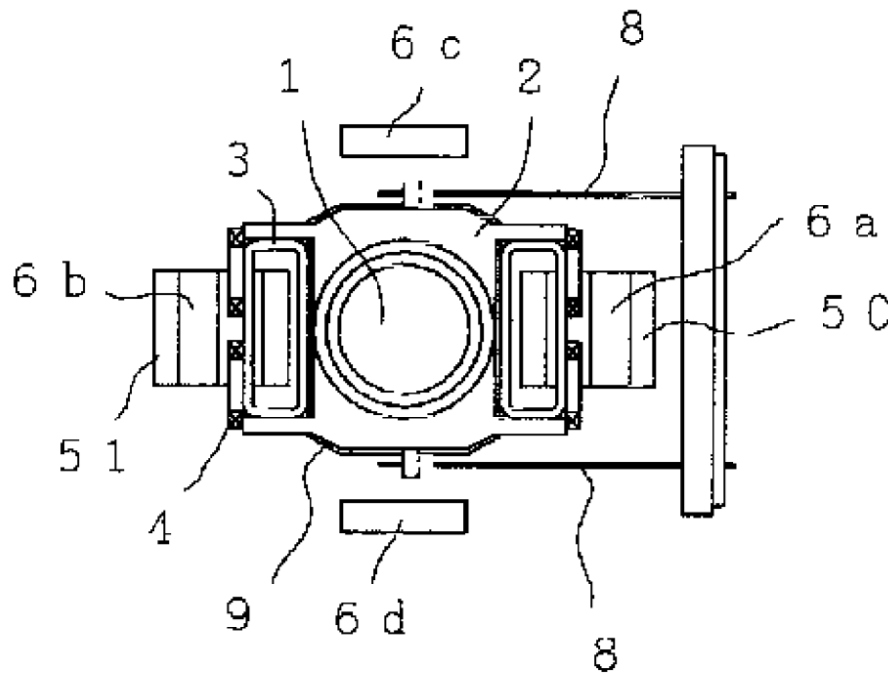


Ex. 1008, Fig. 1.

G. Overview of Miura

Japanese Patent Application Publication No. JP2000123386A to Miura (“Miura”) is titled “Objective Lens Drive Apparatus” and describes “an objective lens drive apparatus used in an optical disc apparatus.” Ex. 1009, 13; 93-94. Figure 5 of Miura shows an objective lens drive apparatus including an objective lens 1, magnets 6c, 6c, focusing coil 3, tracking coil 4, tilting coil 9, and yokes 50, 51 inside of the focusing coil 3. *Id.* at 301-305.

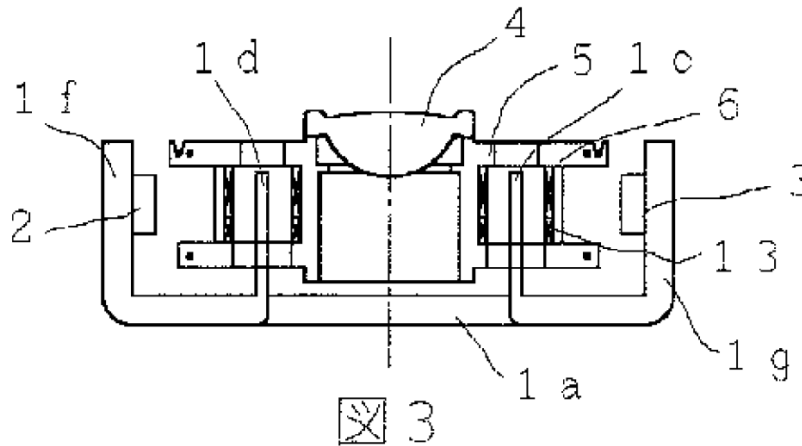
【図 5】



Ex. 1009, Fig. 5.

H. Overview of Sugiyama

Japanese Patent Application Publication No. JP200118269A to Sugiyama (“Sugiyama”) is titled “Objective Lens Drive Apparatus” and describes “an objective lens drive apparatus used in an optical disc apparatus.” Ex. 1010, 12; 64-65. Figure 3 of Sugiyama shows an objective lens drive apparatus that includes an objective lens 1, focusing coil 6, a set of tracking coils 7, tilting coil 13. *Id.*, at Fig. 3; 190-195. The focusing coil 6 and tilting coil 13 are integrated and then installed in the lens holder, which improves workability compared to installing the two coils separately into the lens holder 2. *Id.* at 196-200.



Ex. 1010, Fig. 3.

IV. APPLICANT'S ADMITTED PRIOR ART AND CLAIM CONSTRUCTION

A. Applicant's Admitted Prior Art

Applicant's admitted prior art, or "AAPA," forms the basis of five of Petitioner's Grounds (1, 8, 9, 10, and 11) in violation of § 311(b). *See Qualcomm Inc. v. Apple Inc.*, 134 F.4th 1355, 1368 (Fed. Cir. 2025). § 311(b) states that IPR grounds are raised "only on the basis of prior art consisting of patents or printed publications." 35 U.S.C.A. § 311 (West). "AAPA is not a prior art patent or printed publication." *Id.* at 1364. While AAPA may be used to show background or general knowledge, using AAPA in combination with other art does not necessarily resolve § 311(b) compliance. A petition that "rel[ies] on AAPA in combination with prior art patents and printed publications but also include[] the same AAPA as the basis or part of the basis" fails to comply with § 311(b). *Id.* at 1360, 1365.

Here, as in *Qualcomm*, Petitioner explicitly cites AAPA for several Grounds in its Grounds Table. Pet. 3. Rather than being used solely as only background or in a passing manner, Petitioner relies on AAPA as a basis in Grounds 1 and 8-11 to argue obviousness for limitations 1[b], 10[a], 10[b], 24[a], and 24[b]. *Id.* at 11, 16-17, 79-80. The use of AAPA in combination with other art does not resolve compliance issues. *Qualcomm*, 134 F.4th at 1365. Since AAPA is explicitly used to address missing limitations, AAPA substantively forms the basis of the Grounds. As a result, these Grounds therefore fail to comply with § 311(b). *Qualcomm*, 134 F.4th at 1368.

B. Claim Construction

“Petitioner does not believe construction of any term is necessary to resolve the invalidity challenges.” Pet. 6. Thus, for purposes of this Preliminary Response, Patent Owner also does not believe any specific construction is required at this stage of the proceeding but reserves the right to propose constructions in any future papers, such as in a Patent Owner Response or in papers submitted in the district court litigation.

C. Petitioner's Inconsistent Claim Construction Positions Are A Basis For Denial Of Institution

While Petitioner has informed the Board that no construction is necessary, Petitioner has proposed two constructions in parallel district court litigation that are relevant to whether the Board should institute. With respect to unipolar magnets (in

claims 7, 8, 15, 21, 28, 36-38, 40-45), Petitioner has argued that the term is indefinite. Ex. 2005 at 2. Though Petitioner argued that a person having ordinary skill in the art (“POSITA”) would understand the meaning of unipolar magnet in the claims (*e.g.*, Pet. 21-22; Ex. 1002 ¶¶ 66-67), Petitioner intends to argue the opposite in the underlying litigation. Petitioner’s inconsistency is sufficient reason alone to deny institution, at least as to claims 7, 8, 15, 21, 28, 36-38, 40-45).

**V. THE PETITION FAILS TO SHOW A “REASONABLE
LIKELIHOOD” THAT THE PETITIONER WILL PREVAIL ON A
SINGLE CLAIM**

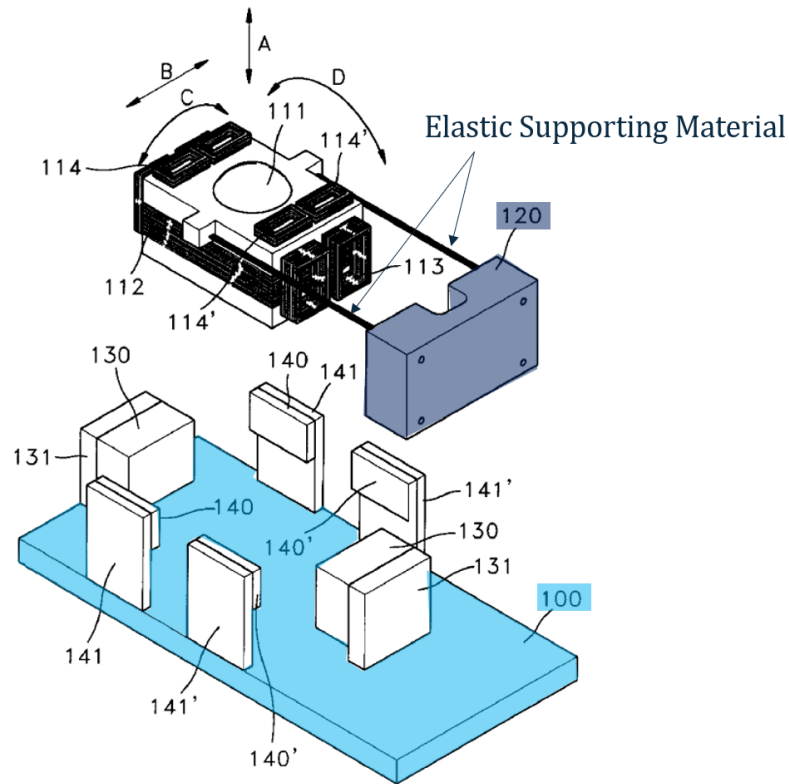
A. Ground 1 Fails to Render Obvious the Challenged Claims

**1. Choi Alone or in view of AAPA Fails to Render Obvious Claims
1-4, 7-8, 10-13, 15, and 40**

**a. 1[b]/10[e]: Choi Alone or in view of AAPA fails to suggest or
render obvious a plurality of suspension wires supporting the
blade on the base so that the blade is elastically movable**

Claim limitation 1[b] recites “a plurality of suspension wires supporting the blade on the base so that the blade is elastically movable,” and claim limitation 10[e] recites substantially similar language. Ex. 1001, Cl. 1, 10. Choi, however, does not disclose a plurality of suspension wires supporting the blade on the base. Petitioner acknowledges that Choi’s two elastic support material 121 support a bobbin 110 on a *holder* 120. Pet. 11, 18; Ex. 1002, ¶¶ 51, 90. For clarity, the configuration of the

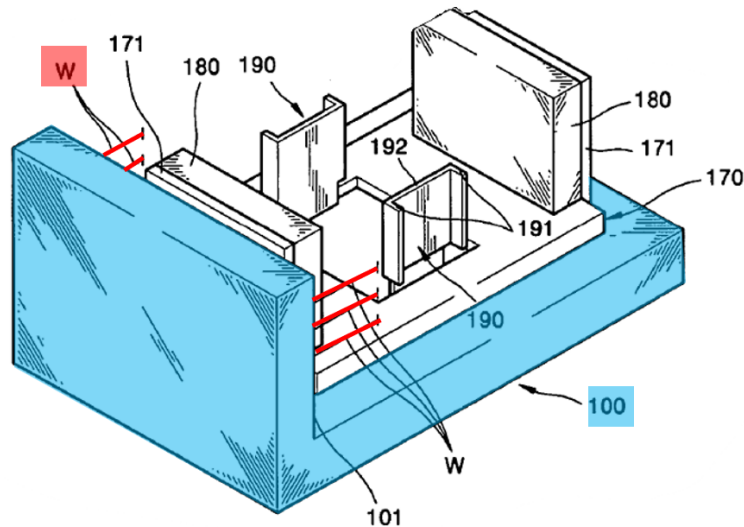
elastic supporting material 121 being coupled to the **holder** 120 is shown below in annotated Figure 9 of Choi.



Ex. 1001, Fig. 9 (annotated).

As shown above, the **holder** 120 is separate from the **base** 100, and the elastic supporting material 121 is not coupled to the **base** 100. In other words, the elastic supporting material 121 does not support the bobbin 110 on the **base** 100, as required by the claim. Instead, in Choi, the elastic supporting material 121 supports the bobbin 110 on the **holder** 120.

In contrast, as shown in the annotated excerpt of Figure 4 from the '055 Patent below, the suspension **wires W** are coupled to the **base 100** to support the blade on the **base 100**. Ex. 1001, Fig. 4; 6:63-7:3.



Ex. 1001, Fig. 4 (annotated excerpt).

Because Choi's elastic supporting materials 121 are coupled to the **holder 120** and **not the base 100**, Choi fails to show or suggest this claim limitation and thus fails to suggest or render obvious claims 1 and 10.

Recognizing Choi's deficiency, Petitioner additionally introduces AAPA to combine with Choi and incorrectly asserts that the combination renders this claim limitation obvious. As discussed in §V.A, however, AAPA cannot be used as a basis in any Grounds. Petitioner thus fails to establish that the proposed combination renders obvious claims 1 and 10 and also fails to comply with the statutory requirement outlined in § 311(b).

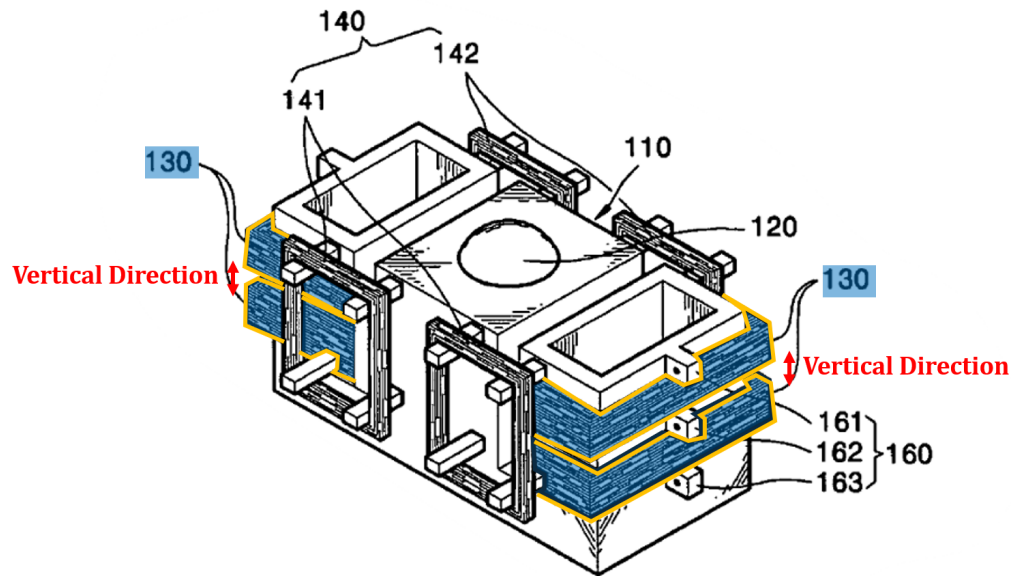
Moreover, the Petition fails to provide any motivation for combining the teachings of AAPA with Choi, and fails to establish a reasonable expectation of success in doing so. Pet. 11, 8; Ex. 1002, ¶¶51, 90. Petitioner's failure to meet its "burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so" is fatal to Petitioner's obviousness arguments and the Petition. *Apple Inc. v. Uniloc USA, Inc.*, 2017 WL 2304694, at *5 (P.T.A.B. May 25, 2017) (quoting *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016)).

Therefore, Petitioner fails to show that Choi, alone or in view of AAPA, suggests or renders obvious limitation 1[b] of claim 1 and 10[e] of claim 10, and consequently, claims 1 and 10 in Ground 1.

b. 1[e]/10[h]: Choi fails to show a coil that is divided into a plurality of subcoils, wherein each subcoil is separated from an adjacent subcoil in a vertical direction

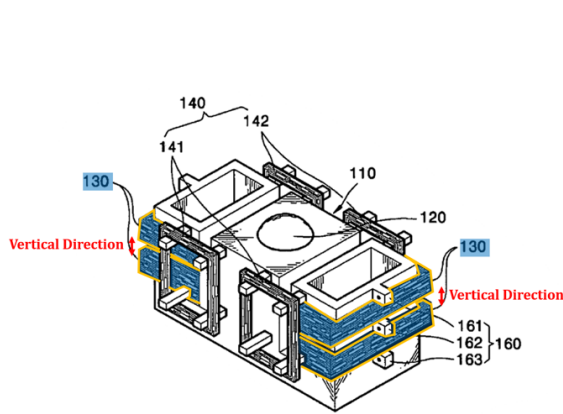
Claim limitation 1[e] recites "the coil that is divided into a plurality of subcoils, wherein each subcoil is separated from an adjacent subcoil in a vertical direction," and claim limitation 10[h] recites substantially similar language. Ex. 1001, Cl. 1, 10. As shown below, annotated Figure 8 of the '055 Patent discloses a preferred embodiment where a **coil** 130 includes a plurality of **subcoils**, with each

subcoil separated from an adjacent **subcoil** in a **vertical direction**. Ex. 1001, Fig. 8; 6:59-7:30; 9:41-57.

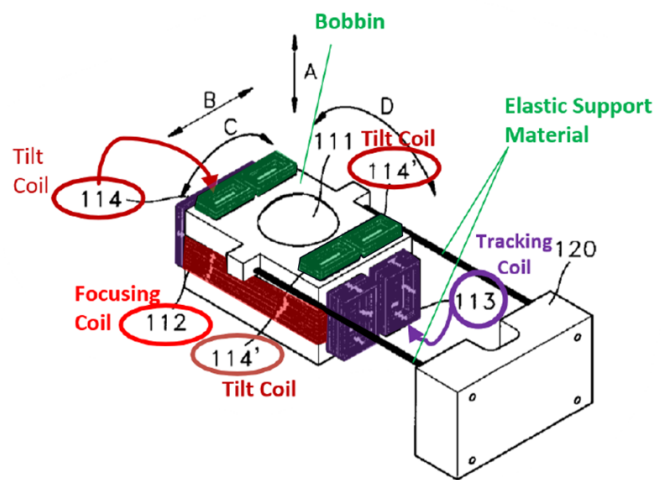


Ex. 1001, Fig. 8 (annotated).

Petitioner asserts that Choi's tilt coil 114, 114' and the focusing coil 112 shown in Figure 9 correspond to the claimed **subcoils**. Pet. 14-15, 18; Ex. 1002, ¶¶58, 92. However, Petitioner has not shown how Choi's tilt coil 114, 114' and the focusing coil 112 are **adjacent** to each other as claimed in claims 1 and 10. Choi's **tilt coil** 114, 114' and the **focusing coil** 112 are positioned on different surfaces of the bobbin 110, as shown in annotated Figure 9 (bottom right). This structural arrangement is entirely different from the **subcoils** that surround on the side surface of the blade 110 in Figure 8 of the '055 Patent (below left).



'055 Patent



Choi

Ex. 1001, Fig. 8 (annotated); Ex. 1003, Fig. 9 (annotated excerpt).

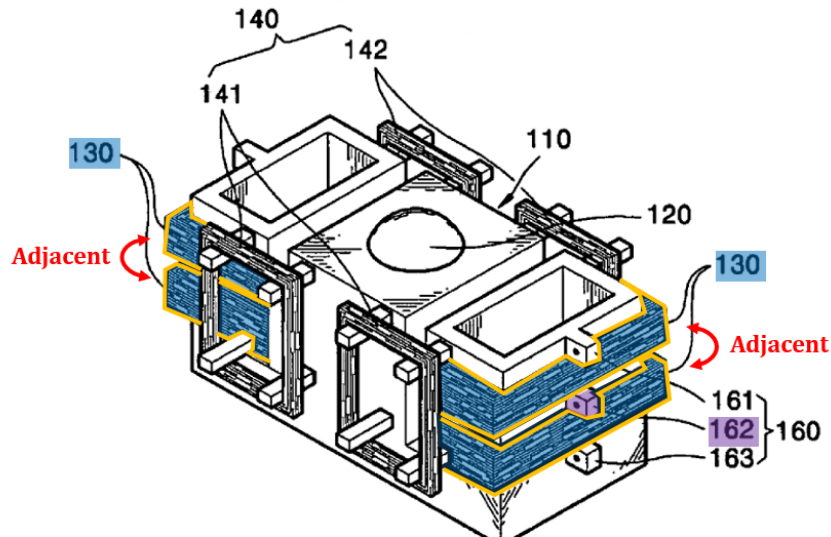
Specifically, the **tilt coils** 114, 114' of Choi are positioned on the upper surface of the bobbin 110 and do not have subcoils separated from an adjacent subcoil in a vertical direction, as is required in claim limitation 1[e] of the '055 Patent. Petitioner does not explain how Choi discloses subcoils adjacent to each other in the vertical direction and instead just asserts the conclusion. Pet. 14-15, 18; Ex. 1002 ¶58, 92. Moreover, Choi's placement of its **tilt coils** 114, 114' on the upper surface of the bobbin 110, separate from the **focusing coil** 112, is an intentional choice to suppress the shift phenomenon of the light beam. Ex. 1003, Fig. 9; 162-171. Petitioner does not assert that **focusing coil** 112, located on the side surface of bobbin 110, is separated into subcoils in any direction. Accordingly, neither Choi's

tilt coils 114, 114' nor its **focusing coil** 112 include the claimed adjacent subcoils separated in a vertical direction.

Accordingly, Choi's **tilt coil** 114, 114' and the **focusing coil** 120 cannot be the claimed plurality of **subcoils** that are separated from an adjacent subcoil in a vertical direction. Therefore, Petitioner fails to show or render obvious limitation 1[e] of claim 1 and 10[h] of claim 10, and consequently, claims 1 and 10 in Ground 1.

c. 40[f]: Choi fails to show at least one of the plurality of coils divided into subcoils and a hinge coupled to each of the plurality of suspension wires between an adjacent pair of subcoils

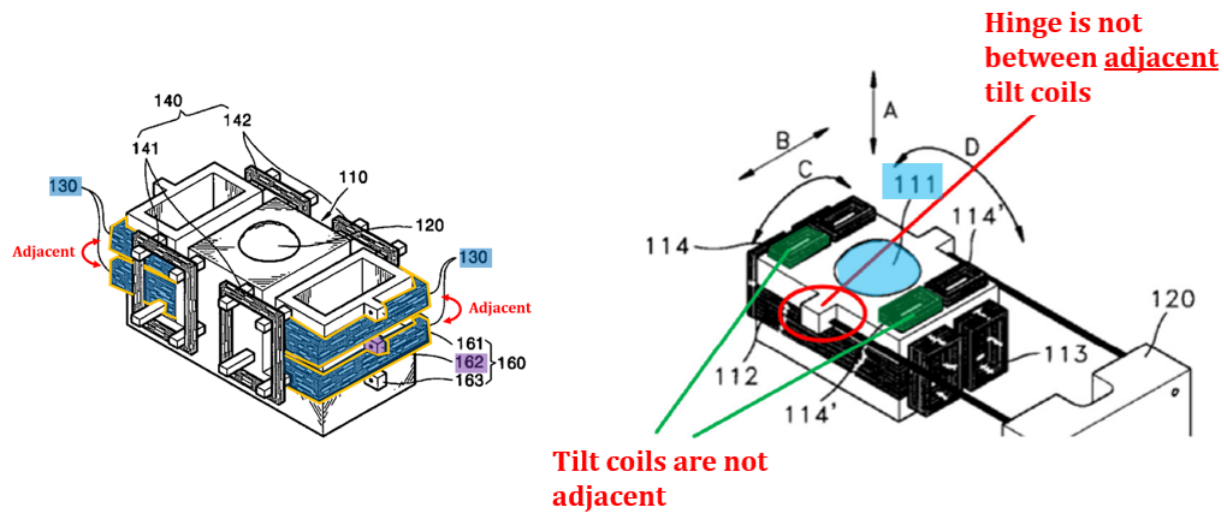
Claim limitation 40[f] recites, "wherein at least one of the plurality of coils is divided into subcoils and a hinge coupled to each of the plurality of suspension wires is between an adjacent pair of subcoils." Ex. 1001, Cl. 40. As shown below, annotated Figure 8 of the '055 Patent clearly depicts the **coil** 130 divided into **subcoils** with a **hinge** 162 positioned between an **adjacent** pair of **subcoils**.



Ex. 1001, Fig. 8 (annotated).

Petitioner contends that that Choi's **tilt coils** 114 and 114' shown in Figure 9 correspond to the claimed **adjacent** pair of **subcoils**. Pet. 31, 32; Ex. 1002, ¶106. However, Choi's **tilt coils** 114, 114' cannot meet the requirement of the claimed adjacent pair of **subcoils** as discussed below.

Annotated Figure 9 of Choi (below right) shows an **objective lens** 111 that is positioned between the **tilt coils** 114 and 114'.



'055 Patent

Choi

Ex. 1001, Fig. 8 (annotated); Ex. 1003, Fig. 9 (annotated excerpt).

Choi **tilt coils** 114 and 114' are positioned on the upper surface of the bobbin with the **objective lens** 111 in between the **tilt coils** 114 and 114'. The '055 Patent explicitly discloses that the "coil 130 is vertically divided into a plurality of subcoils to facilitate installation of the hinges." Ex. 1001, 9:48-51. As shown in annotated Figure 9 of Choi (above fight), however, the **tilt coils** 114 and 114' in Choi are not adjacent and are entirely unrelated to the placement of the hinges.

Therefore, Petitioner fails to show that the proposed combination discloses or renders obvious limitation 40[f] of claim 40, and consequently, claim 40 in Ground 1.

d. Claims 3, 4, 7-9, 11-13, 15

Claims 3, 4, and 7-9 depend from independent claim 1 and claims 11, 13, and 15 depend from independent claim 10. As described above, the Petition fails to suggest or render obvious claims 1 and 10. Accordingly, the Petition also fails to suggest or render obvious claims 3, 4, 7-9, 11, 13, and 15 due to their respective dependency from independent claims 1 and 10.

Therefore, the Petition fails to suggest or render obvious claims 1, 3, 4, 7-11, 13, and 15 in Ground 1.

B. Ground 2 Fails to Render Obvious the Challenged Claims

1. The Choi-Ogata Combination Fails to Render Obvious Claims 1-4, 7-8, 10-13, 15, and 40

a. Petitioner Fails to Establish Motivation to Combine

Failure to meet the “petitioner’s ‘burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so’” is fatal to Petitioner’s obviousness arguments and the Petition. *Apple Inc. v. Uniloc USA, Inc.*, 2017 WL 2304694, at *5 (P.T.A.B. May 25, 2017) (quoting *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016)).

As discussed in §VI.A.1, above, Choi fails to suggest or render obvious claims 1-4, 7-8, 10-13, 15, and 40. To address Choi's numerous deficiencies in Ground 1, Petitioner introduces Ogata and asserts that a POSITA would have been motivated to combine Ogata's teachings with Choi, outlining several insufficient reasons. Pet. 34, 35; Ex. 1002, ¶¶114-117. Each of these lacks merit.

First, Petitioner merely suggests that both Choi and Ogata relate to optical pickup devices that use an objective lens for focusing light onto an optical device. Pet. 34, 35; Ex. 1002, ¶¶114-115. Petitioner, however, fails to provide sufficient rationale explaining why a POSITA would have been motivated to modify Choi in view of Ogata. Instead, Petitioner relies on conclusory, hindsight-driven testimony. *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1329 (Fed. Cir. 2001) (holding that conclusory statements offered by experts are not evidence). Petitioner generically references Choi's and Ogata's use of an "objective lens" and vaguely notes that both references address certain issues pertaining to "improv[ing] the operations of optical disc drives." *Id.* These generic motivations "bear[] no relation to any specific combination of prior art elements" described in the petition and are insufficient as a matter of law. *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327-28 (Fed. Cir. 2012).

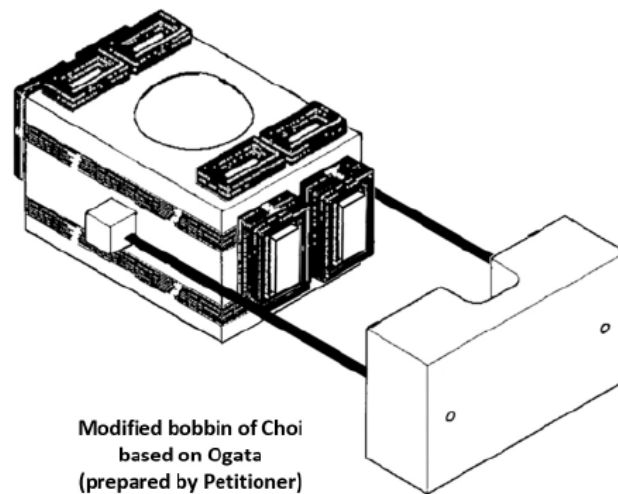
Second, Petitioner makes the conclusory statement that a "POSITA would have been motivated to improve Choi's device by modifying its focus coil to allow

placement of dowel.” Pet. 35; 1002, ¶116. Indeed, Petitioner does not sufficiently “explain why a person of ordinary skill in the art would have combined elements from specific references in the way the claimed invention does.” *ActiveVideo*, 694 F.3d at 1328 (citing *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)).

The conclusory statements in the Petition are “entitled to little weight” and are “particularly problematic” where it attempts to “supply a limitation missing from the prior art,” and is alone a reason to deny institution. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 2022 WL 3648989, at *6 (P.T.A.B. Aug. 24, 2022) (designated precedential Feb. 10, 2023) (citing *KSR*, 550 U.S. at 421); *Magnum Oil*, 829 F.3d at 1380 (Petitioner cannot satisfy burden by “employ[ing] mere conclusory statements” and “must articulate specific reasoning, based on evidence of record”). This reinforces that institution must be denied. *See, e.g., Avail Medsystems, Inc. v. Teladoc Health, Inc.*, 2022 WL 2903454, at *11, *13 (P.T.A.B. July 21, 2022) (denying institution based on “conclusory statements” and noting that such statements, “even from a qualified expert, provide little, if any, evidentiary support”); *Triller, Inc. v. TikTok Pte. Ltd.*, IPR2022-00181, 2022 WL 1618056, at *11, *13 (P.T.A.B. May 16, 2022) (denying institution where “Petitioner provide[d] no evidence that an ordinary artisan would have had a reasonable expectation of success, and Petitioner’s assertions that the proposed combination would have been ‘desirable’ and ‘predictable’ are conclusory and entitled to little weight”); *Initiative*

for Medicines v. Gilead Pharmasset LLC, IPR2018-00211, 2018 WL 3078715, at *6, *9 (P.T.A.B. June 20, 2018) (denying Petition where “Petitioner provides no analysis of the reasonable expectation requirement”). At most, the Petition articulates generic motivations that a POSITA could make that are untethered from a clearly articulated modification of Choi. Pet. 35; Ex. 1002, ¶116.

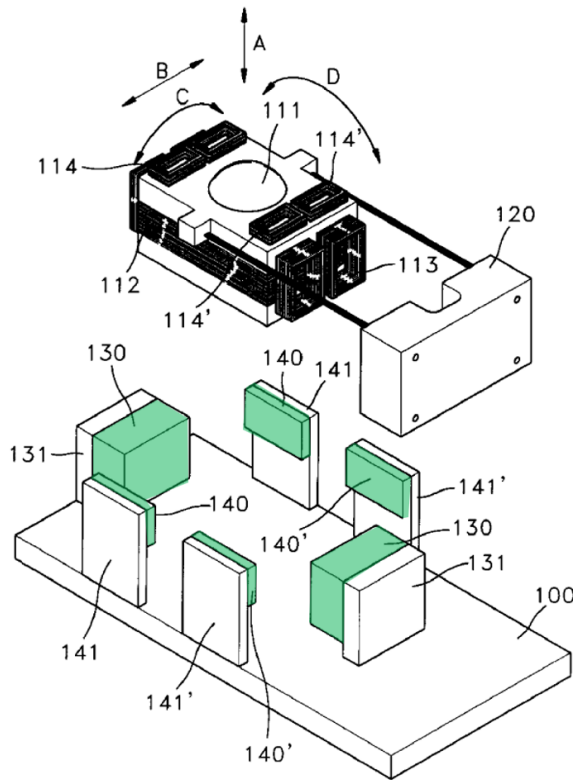
Third, Petitioner once again fails to explain how the proposed combination would satisfy the requirements of the claim limitations. As noted above, Petitioner makes a generic statement that Choi's configuration is improved by “using Ogata's dowels for installation of tracking coils.” Pet. 35; Ex. 1002, ¶117. However, this does not demonstrate that the proposed combination satisfies the claim limitations, which require that “the coil is divided into a plurality of subcoils” **and** “the coil comprises a pair of first coils ... facing each other with respect to the objective lens.” Ex. 1001, Cl. 1, 10. In a forced attempt to align the combination of Choi and Ogata with the claim limitations, Petitioner incorporates various features of Ogata into Choi's optical pickup assembly in a piecemeal manner without adequately explaining why Ogata's features are combined with Choi. Pet. 35; Ex. 1002, ¶117. Petitioner simply provides a hypothetical modified version Choi's bobbin 110, as shown below, and asserts without sufficient reasoning that “Choi's focus coil (112) is separated into two vertically separated subcoils based on Ogata's teaching.” Pet. 35, 36; Ex. 1002, ¶117.



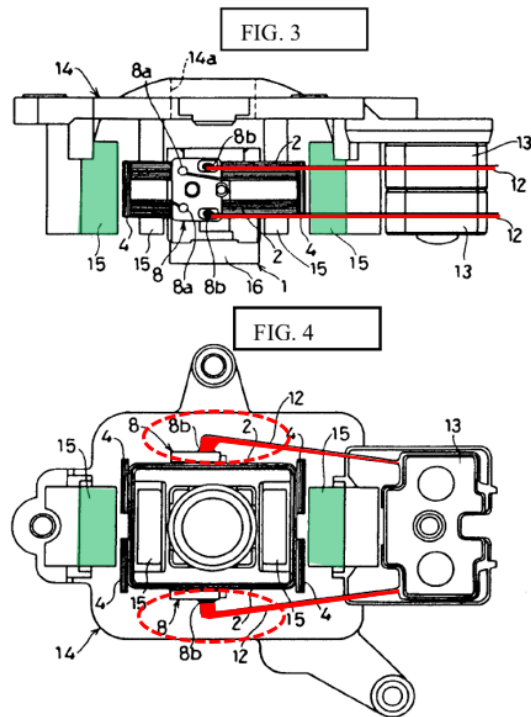
Pet. 36, (figure prepared by Petitioner).

Further, this strained combination undermines the functionality of both Choi and Ogata. For example, Petitioner claims, in reference to Element 40[c], that “POSITA would have found this modification obvious because Ogata shows similarly situated connection points (8) for attaching leaf springs (12).” Pet. 36; Ex. 1002, ¶117. A POSITA, however, would not have been motivated to relocate Choi’s hinges simply because Ogata shows connection points 8 for attaching leaf springs 12, as such a modification would alter the functionality of Choi’s optical assembly.

Furthermore, as shown below on the left, Choi’s optical pickup assembly requires multiple **magnets** that are positioned around the bobbin 110 (bottom left), whereas Ogata’s lens drive support (bottom right) requires **magnets** to be positioned only on two sides of the drum 1.



Choi



Ogata

Ex. 1003, Fig. 9 (annotated); Ex. 1004, Figs. 3, 4 (annotated).

The structural differences between Choi and Ogata are evident, as highlighted by the **red dotted circles** shown in annotated Figure 4 of Ogata (above right). In Ogata, the remaining two sides of the drum 1 must remain clear to allow the relay board 8 to be installed on a dowel 7 attached to the drum 1, enabling connection to the **four leaf spring** 12 and allowing the drum 1 to move in the focus and radial directions. Ex. 1004, 151-159. In contrast, the placement of **magnets** around all four sides of the bobbin in Choi is essential to the functionality of its optical pickup assembly. Ex. 1003, 162-171. Accordingly, a POSITA would not be motivated to

incorporate Ogata's connection points 8 (i.e., relay board 8) for attaching the leaf spring 12 into Choi's optical pickup assembly, as such modification may require repositioning Choi's **magnets** to create additional space for Ogata's dowels 7, relay board 8, and leaf springs 12. These changes could negatively impact Choi's focus coil.

Therefore, a POSITA would not have been motivated to combine Ogata's teachings with Choi's focus coil, as doing so would undermine Choi's actuator's core functionality and make its mechanical structure "inoperable for its intended purpose." *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

b. Petitioner Fails to Establish a Reasonable Expectation of Success

Obviousness requires a reasonable expectation of success, which is separate and distinct from a motivation to modify. *Eli Lilly & Co. v. Teva Pharms. Int'l GmbH*, 8 F.4th 1341, 1344 (Fed. Cir. 2021).. Petitioner merely presents a generic statement that a POSITA would have had a reasonable expectation of success in modifying Choi's optical pickup because the "same modifications were described in Ogata" and "[m]aking the combination involved routine mechanical and electrical modifications that were well within the capabilities of a POSITA." Petition 36, 37, Ex. 1002, ¶117. This assertion lacks merit, as it ignores the specific teachings of Choi and Ogata, which reveal different structural arrangements of the coils. These differences undermine the argument that a POSITA would have had a reasonable

expectation of success in making the proposed combination. *See Samsung Elecs. Co. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1380-81 (Fed. Cir. 2019) (upholding determination of nonobviousness where Petitioner failed to show reasonable expectation of success). Moreover, there is no reasonable expectation of success because Choi's actuator is incompatible with Ogata's leaf springs as described in §VI.B.1.a. Accordingly, Petitioner and its expert failed to put forward sufficient evidence to demonstrate how the proposed combination of the references would work together with a reasonable expectation of success. *See, e.g., Samsung*, 925 F.3d at 1380-81. This is yet another reason that Ground 2, and the Petition, fail.

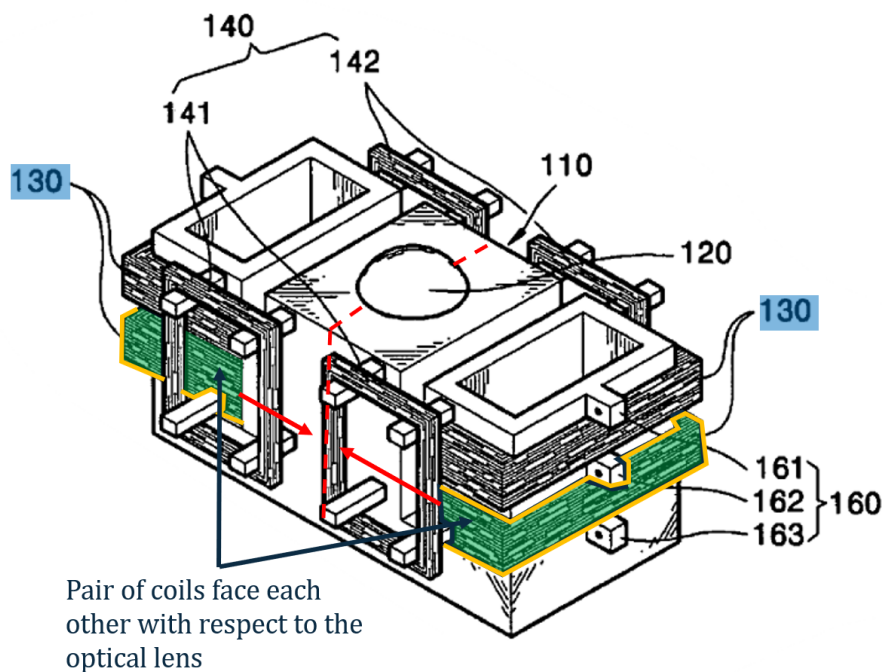
c. Claims 1 and 10

i. 1[e]/10[h]: Choi and Ogata fail to show or render obvious the coil is divided into a plurality of subcoils, where each subcoil is separated from an adjacent subcoil in a vertical direction

Claim limitation 10[e] recites, “the coil is divided into a plurality of subcoils, where each subcoil is separated from an adjacent subcoil in a vertical direction,” and claim limitation 10[h] recites substantially similar language. Ex. 1001, Cls. 1, 10. Petitioner merely asserts that the “Choi-Ogata combination teaches or suggest this limitation because the focus coil is divided into two vertically separated subcoils,” without offering any explanation. Pet. 37; Ex. 1002, ¶120-121. As discussed in §VI.B.1., there is no motivation to combine Ogata with Choi, nor would a POSITA have a reasonable expectation in making the proposed combination.

- ii. **1[f]/10[h]: Choi and Ogata fail to show or render obvious the coil comprises a pair of first coils positioned on the blade in a first direction and facing each other with respect to the object**

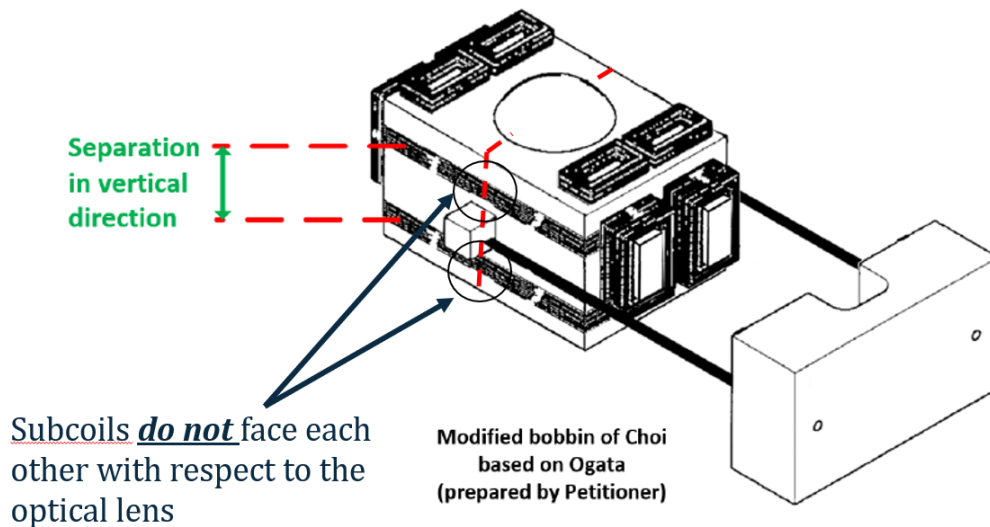
Claim limitation 1[f] recites, “coil comprises a pair of first coils positioned on the blade in a first direction and facing each other with respect to the object lens, and claim limitation 10[h] recites substantially similar language. Ex. 1001, Cls. 1, 10. Annotated Figure 8 of the '055 Patent, below, shows a **subcoil** that is divided into a **pair of coils**, positioned to face each other with respect to the objective lens.



Ex. 1001, Fig. 8 (annotated).

Petitioner fails to suggest or show how the combination of Choi and Ogata discloses “a coil that is divided into a plurality of subcoils” **and** “the coil comprising a pair of first coils positioned on the blade in a first direction and facing each other

with respect to the objective lens.” As shown in the modified image below, the alleged combination of Choi and Ogata does not show the coil that comprises a plurality subcoils and a pair of first coils that face each other with respect to the objective lens. Pet. 37.



Pet. 37, (figure prepared by Petitioner (red dotted line through the lens and the description of the subcoils annotated by Patent Owner)).

Accordingly, Choi and Ogata fail to show or suggest all the limitations of claims 1 and 10 because they do not teach “the coil comprising a pair of first coils ... facing each other with respect to the objective lens.”

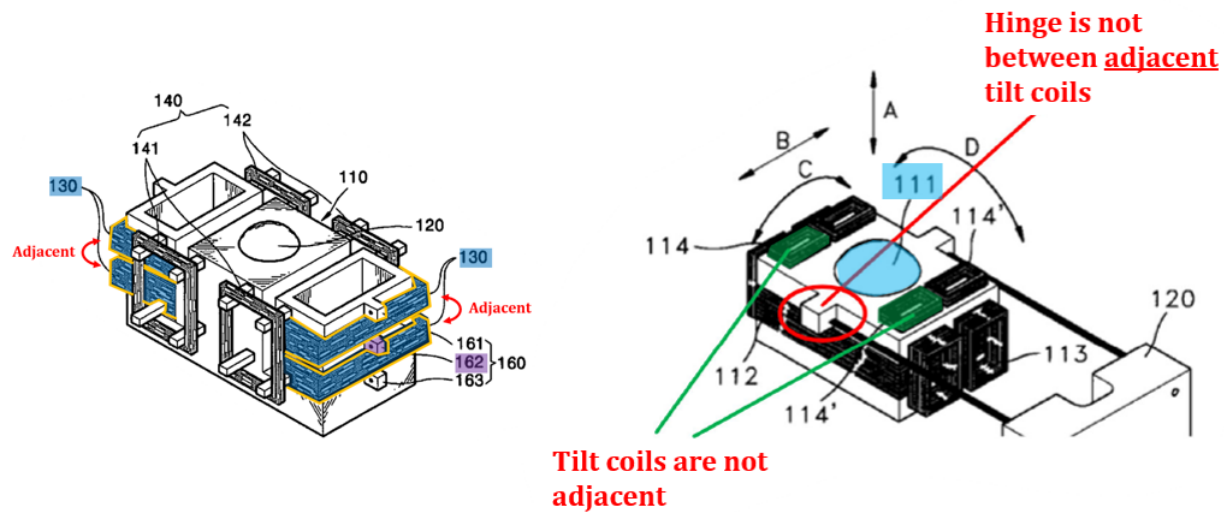
Therefore, the Petition fails to show that Choi and Ogata disclose or render obvious independent claims 1 and 10, and dependent claims 3, 4, 7-9, 11, 13, and 15 by virtue of their dependency to claims 1 and 10, in Ground 2.

iii. Choi and Ogata fail to show the remaining limitations of claims 1 and 10

For the remaining limitations of claims 1 and 10, Petitioner relies on the teachings of Choi from Ground 1. Pet. 37; Ex. 1002, ¶¶120-121. In doing so, Petitioner has failed perform a limitation-by-limitation analysis of the alleged Choi and Ogata combination, explain how or why the two references would have been combined, address the fact that Ogata is directed toward a different problem, or explain how there would have been a reasonable expectation of success to combine the two references in the unexplained manner. The cursory and conclusory nature of Petitioner's Ground 2 simply reinforces the fatal flaw of its Petition.

d. 40[f]: The Choi-Ogata combination fails to show at least one of the plurality of coils that is divided into subcoils and a hinge coupled to each of the plurality of suspension wires between an adjacent pair of subcoils.

As discussed in §VI.A.1d and shown in the annotated figures below, Choi fails to suggest or render obvious “at least one of the plurality of coils divided into subcoils and a hinge coupled to each of the plurality of suspension wires between an adjacent pair of subcoils.”



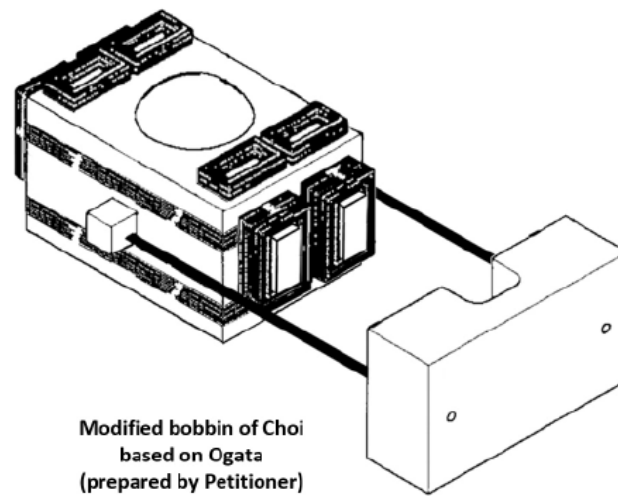
'055 Patent

Choi

Ex. 1001, Fig. 8 (annotated); Ex. 1003, Fig. 9 (annotated excerpt).

Petitioner attempts to address Choi's deficiencies by incorporating Ogata's features in a piecemeal manner without providing any explanation of why or how the features of Ogata would be combined with Choi. Pet. 41-42, Ex. 1002, ¶135. As discussed above in §VI.B.1, Petitioner proposes a strained combination that would undermine the functionality of both Choi and Ogata.

For example, as shown below, Petitioner has arbitrarily repositioned the hinge to be located between the alleged coils despite there being no justification or rationale for such a modification in Choi. Pet. 41, 42.



Pet. 42, Figure prepared by Petitioner.

The relocation of the hinges in this combination appears to be driven purely by hindsight derived from the disclosure of the '055 Patent in an attempt to artificially align the combination with the elements of independent claim 40. That is, a POSITA would not have been motivated to take an already properly functioning hinge from the upper surface of the bobbin in Choi and relocate to another location on the side surface of the bobbin, as shown in the hypothetically modified bobbin above. Accordingly, a POSITA would not have been motivated to relocate the hinges within the modified bobbin 110 disclosed in Choi, as such a change would disrupt the functionality of the optical assembly.

Therefore, the Petition fails to show that the combination of Choi and Ogata suggests or renders obvious claim 40 based on Ground 2.

C. Ground 3 Fails to Render Obvious the Challenged Claims**1. The Choi-Ogata-Santo Combination Fails to Render Obvious Claims 41-42.**

The Choi-Ogata-Santo combination fails to render obvious claims 41–42 for similar reasons as discussed with respect to the independent claim 40 in Ground 2. As outlined in §VI.B.1, the asserted combination lacks sufficient motivation to combine the references in the manner proposed by Petitioner and fails to disclose or suggest the limitations of independent claim 40 upon which claims 41–42 depend. Furthermore, Petitioner has not established that a person of ordinary skill in the art would have had a reasonable expectation of success in making the proposed combination. Santo does nothing to overcome the deficiencies of Choi and Ogata identified in Ground 2.

Accordingly, Petitioner has failed to show that the combination of Choi, Ogata, and Santo discloses or renders obvious claims 41 and 42.

D. Ground 4 Fails to Render Obvious the Challenged Claims**1. The Choi and Ikeda Combination Fails to Render Obvious Claims 7-8.**

The Choi and Ikeda combination fails to render obvious claims 7-8 for similar reasons as discussed with respect to Independent Claim 1 in Ground 1. As outlined in §VI.A.1, Choi fails to disclose or suggest the limitations 1[b] and 1[e] of

independent claim 1 upon which claims 7-8 depend. Ikeda does nothing to overcome the deficiencies of Choi identified in Ground 1.

Accordingly, Petitioner has failed to show that the combination of Choi and Ikeda discloses or renders obvious claims 7 and 8.

E. Ground 5 Fails to Render Obvious the Challenged Claims

1. The Choi-Ogata-Ikeda Combination Fails to Render Obvious Claims 40 and 43-45.

The Choi-Ogata-Ikeda combination fails to render obvious claim 40 for the similar reasons discussed with respect to the independent claim 40 in Grounds 1 and 2. As outlined in §VI.B.1, the combination of Choi and Ogata lacks sufficient motivation to combine the references in the manner proposed by Petitioner and fails to disclose or suggest the limitations of independent claim 40. Further, Petitioner has not established that a POSITA would have had a reasonable expectation of success in making the proposed combination. Ikeda does nothing to overcome the deficiencies of Choi and Ogata identified in Ground 2.

Because the dependent claims 43-45 incorporate the limitations of the independent claim 40, the deficiencies of Choi and Ogata with respect to claim 40 in Ground 2 equally apply to claims 43-45, rendering Ground 5 insufficient to establish obviousness.

Accordingly, Petitioner has failed to show that the combination of Choi, Ogata, and Ikeda discloses or renders obvious claims 40, 43, and 45.

F. Ground 6 Fails to Render Obvious the Challenged Claims**1. The Choi-Ogata-Santo-Ikeda Combination Fails to Render Obvious Claims 41-42.**

The Choi-Ogata-Santo-Ikeda combination fails to render obvious claims 41-42 for the similar reasons discussed with respect to independent claim 40 in Ground 2. As outlined in Sections §VI.B.1, the combination of Choi and Ogata fail to suggest or render obvious the limitations of independent claim 40 upon which claims 41-42 depend. Santo and Ikeda do nothing to overcome the deficiencies of Choi and Ogata identified in Ground 2.

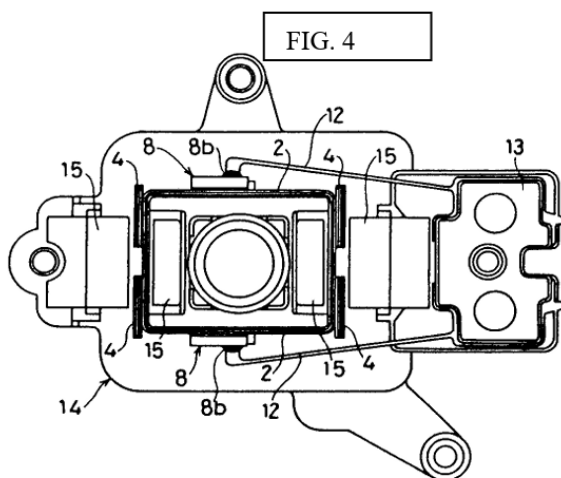
Accordingly, Petitioner has failed to show that the combination of Choi, Ogata, Santo, and Ikeda discloses or renders obvious claims 41 and 42.

G. Ground 7 Fails to Render Obvious the Challenged Claims**1. Ogata and Kamata Fail to Render Obvious Claims 36-38.****a. Petitioner Fails to Establish Motivation to Combine**

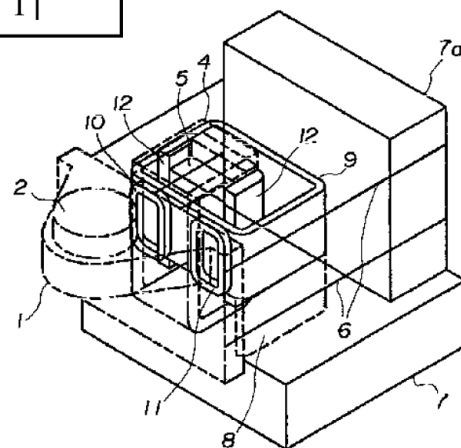
First, Petitioner simply asserts that both Ogata and Kamata “relate to optical devices for reading/recording information on optical discs and both sought to improve the operation of the optical drives.” Pet. 57; Ex. 1002, ¶¶174-175. Petitioner, however, fails to provide sufficient rationale explaining why a POSITA would have been motivated to modify Ogata in view of Kamata. Instead, Petitioner relies solely on conclusory, hindsight-driven testimony, which is insufficient.

Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1329 (Fed. Cir. 2001)

(holding that conclusory statements offered by experts are not evidence). Petitioner broadly asserts that a POSITA would have been motivated to augment Ogata's optical drive support by incorporating the inner yoke taught by Kamata. Pet. 57-58; Ex. 1002, ¶¶175-177. Petitioner, however, fails to explain why incorporating Kamata's yoke would improve Ogata's optical drive support, especially when Ogata's optical drive support relies on magnets 15 in the very locations where Petitioner proposes placing Kamata's yoke. Ex. 1004, Fig. 4c; 155, 156. Indeed, Ogata's optical drive support does not require any yokes. *Id.* The Petition also fails to address the effects of replacing Ogata's magnets 15 with Kamata's yoke 12 and significantly smaller magnet 5 on Ogata's optical drive support functionality. As shown below, Ogata and Kamata have entirely different structural arrangements, requiring distinct physical and functional characteristics for use of the magnets in Ogata and the yoke in Kamata.



[FIG. 1]



Ogata

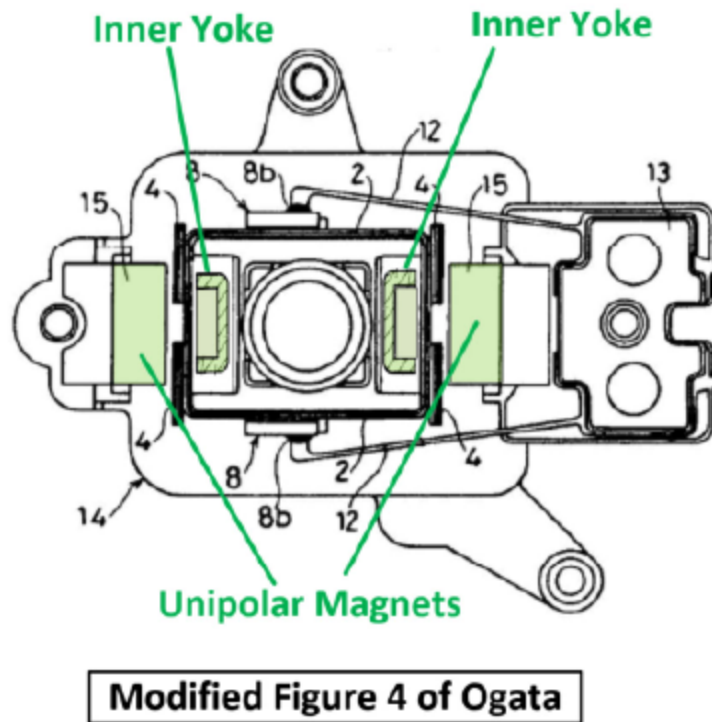
Kamata

Ex. 1004, Fig. 4; Ex. 1006, Fig. 1.

Indeed, Kamata's optical pickup device includes a different number of tracking coils and a completely distinct structural arrangement of the objective lens 2 compared to Ogata, whose tracking coils are arranged on two opposite sides of the objective lens, as shown above. This failure to meet the "petitioner's 'burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so'" is fatal to Petitioner's obviousness arguments and the Petition. *Apple Inc. v. Uniloc USA, Inc.*, 2017 WL 2304694, at *5 (P.T.A.B. May 25, 2017) (*quoting In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016)). See §VI.B.1. At most, the Petition articulates generic motivations of the POSITA that are untethered from a clearly articulated modification of Ogata. Pet. 57-58; Ex. 1002, ¶¶174-177.

Second, Petitioner attempts to incorporate Kamata's yoke into Ogata's optical drive support in a piecemeal manner, without adequately explaining why or how the Kamata's features would be combined with Ogata. Petitioner merely states that "Ogata's optical drive support modified to include Kamata's yoke" without offering any further explanation. Pet. 58; Ex. 1002, ¶¶179. For instance, the Petition presents a hypothetical version of "The Combined System," based on the modified

Figure 4 of Ogata, as shown below. *Id.* In this hypothetical figure, Petitioner arbitrarily replaces Ogata's magnets with Kamata's yoke features, providing no justification or explanation whatsoever for this modification.



Pet. 58, (figure prepared by Petitioner).

Because Petitioner does not sufficiently explain why a POSITA would have combined elements from specific references in the way the claimed invention does, Petitioner has failed to meet its burden to demonstrate that a skilled artisan would have been motivated to combine Ogata and Kamata in Ground 7.

b. Petitioner Fails to Establish a Reasonable Expectation of Success

Obviousness requires a reasonable expectation of success, separate and distinct from a motivation to modify. *Eli Lilly*, 8 F.4th at 1344. Petitioner provides only a generic statement that a POSITA would have had a reasonable expectation of success because “a very similar modification was described ... would have improved the operations of Ogata’s device ... involved routine mechanical modifications.” Pet. at 36, 37. These statements cannot be credited, as they ignore the specific teachings of Ogata and Kamata, which reveal fundamentally different structural arrangement of the magnets and yokes. These differences undermine the claim that a POSITA would have had a reasonable expectation of success in making the proposed combination. *See Samsung Elecs. Co. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1380–81 (Fed. Cir. 2019) (upholding determination of nonobviousness where Petitioner failed to show reasonable expectation of success).

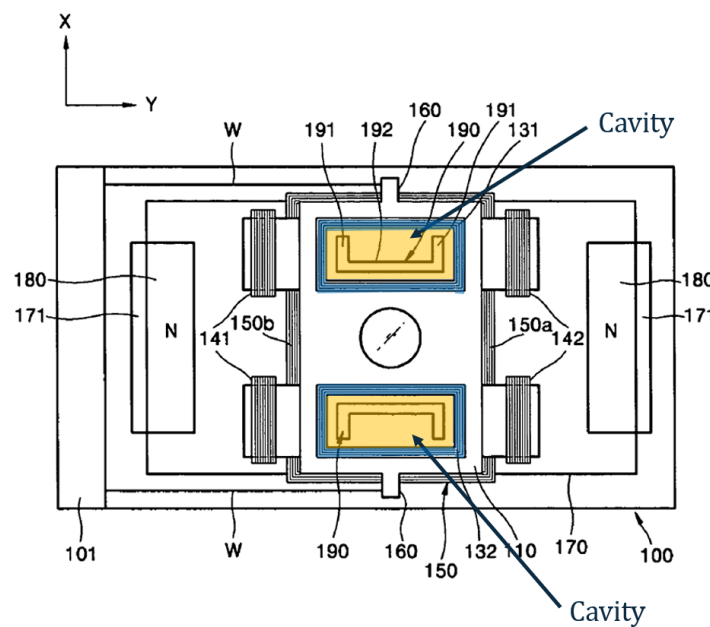
c. 36[e]: Ogata and Kamata fail to show an inner yoke positioned inside a cavity defined by the walls of a coil, wherein the yoke comprises three sections with each of the three sections of the yoke being parallel to a different wall of the cavity to increase an effective area facing the magnets.

As discussed in Section §VI.G.1.a, Ogata does not require an inner yoke. Thus, Ogata fails to teach limitation 36[e] reciting, “an inner yoke positioned inside a cavity defined by the walls of a coil, wherein the yoke comprises three sections

with each of the three sections of the yoke being parallel to a different wall of the cavity to increase an effective area facing the magnets.”

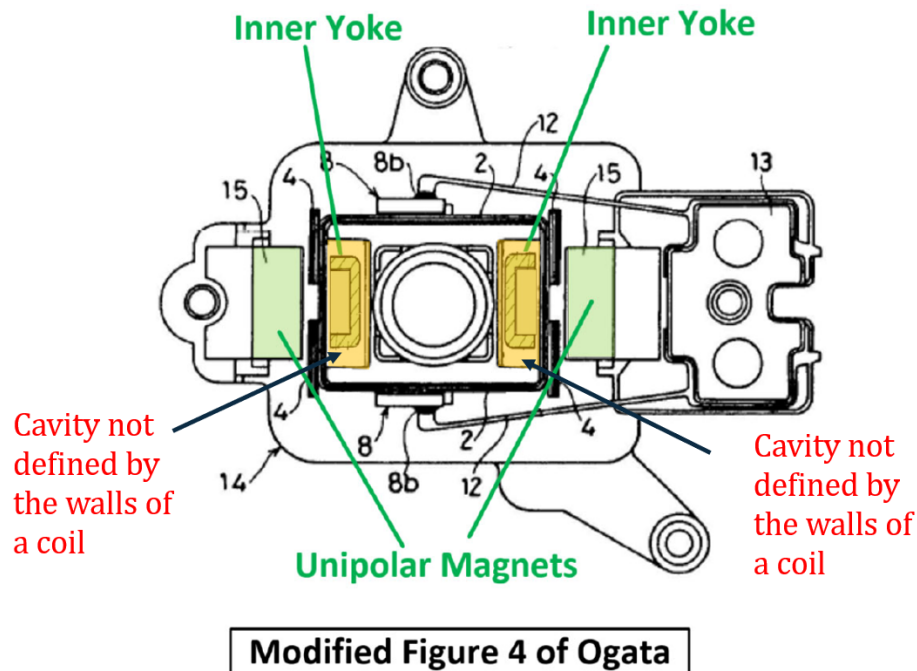
Petitioner attempts to address the deficiency of Ogata by incorporating Kamata's features in a piecemeal manner, without adequately explaining why or how Ogata's features would be combined with Kamata. As discussed above in §VI.G.1.a, Petitioner proposes a strained combination that would undermine the functionality of both Ogata and Kamata.

Moreover, the hypothetical combined system of Ogata and Kamata presented by Petitioner fails to suggest or render obvious an inner yoke positioned inside a cavity defined by the walls of a coil. For example, as shown in annotated Figure 5 of the '055 Patent below, the optical pickup actuator 100 requires a **cavity** defined by walls of a **coil** 131, 132.



Ex. 1001, Fig. 5 (annotated).

In contrast, as shown in the annotated hypothetically modified Figure 4 of Ogata, the alleged inner yoke is not positioned inside a *cavity defined by the walls of a coil*.



Pet. 66, (figure prepared by Petitioner (yellow shading and text in red annotated by Patent Owner)).

Accordingly, Ogata and Kamata fail to suggest or render obvious all of the limitations of claim 36 because they do not teach “inner yoke is not positioned inside a cavity defined by the walls of a coil.”

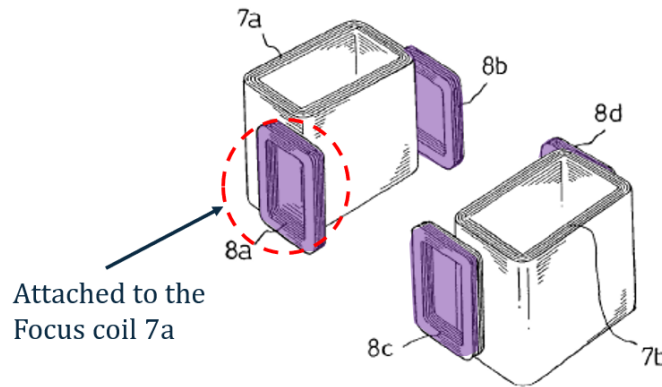
Therefore, the Petition fails to show that Ogata and Kamata disclose or render obvious independent claims 36, as well as claims 37-38, which depend on independent claim 36 in Ground 7.

H. Ground 8 Fails to Render Obvious the Challenged Claims

1. Kabasawa Alone or in view of AAPA Fail to Render Obvious Claims 17, 21, 23-24, and 28.

a. 17[d]/24[f]: Kabasawa Alone or in view of AAPA fail to show a second coil positioned vertically on a side of the blade

Claim limitation 17[d] recites “a second coil positioned vertically on a side of the blade,” and claim limitation 24[f] includes substantially similar language. Ex. 1001, Cl. 17, 24. Kabasawa does not disclose a second coil positioned vertically on a side of the blade. Petitioner incorrectly identifies Kabasawa's tracking coils 8a–d as corresponding to the claimed “second coil.” Pet. 74; Ex. 1002, ¶203. However, as clearly described by Kabasawa and shown in annotated Figure 6 below, the tracking coils 8a–d are positioned on and “attached” (highlighted in **red circle**) to the focus coils 7a, 7b, which Petitioner correlates to the claimed “first coil.” Ex. 1008, Fig. 6, ¶49.



Ex. 1008, Fig. 6 (annotated).

This configuration does not satisfy the requirement that the second coil be positioned “on a side of the blade” as required by the claims. *Id.*

Moreover, contrary to Petitioner’s assertions, tracking coils 8a–d are not positioned on a side of the lens holder. Instead, Kabasawa explicitly discloses that these coils are provided within coil reception sections 5 and 6. Ex. 1008, ¶44. This placement of the coils does not align with the claimed configuration, which requires the second coil to be vertically positioned on a side of the blade. Petitioner’s reliance on Kabasawa’s structure mischaracterizes the disclosures of the reference and fails to adequately address the limitations of claim 17[d] and 24[f]. Therefore, the Petition fails to show that Kabasawa, alone or in view of AAPA, discloses or renders obvious independent claims 17 and 24, as well as dependent claims 21, 23, and 28, which rely on claims by virtue of their dependency to claims 17 and 24 in Ground 8.

b. 24[a]/[b]: Petition fails to provide any motivation for combining the teachings of AAPA with Kabasawa

Petitioner introduces AAPA in combination with Kabasawa and asserts that the combination renders obvious this claim limitation. As discussed in §V.A., however, AAPA cannot be used as a basis in any Grounds. Petitioner thus fails to establish that the proposed combination renders obvious claim 24 and fails to comply with the statutory requirement outlined in § 311(b).

Moreover, the Petition fails to provide any motivation for combining the teachings of AAPA with Kabasawa, nor does it establish reasonable expectation of success in doing so. The failure to meet “petitioner’s ‘burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so,’” is fatal to Petitioner’s obviousness arguments and the Petition. *Apple Inc. v. Uniloc USA, Inc.*, 2017 WL 2304694, at *5 (P.T.A.B. May 25, 2017) (quoting *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016)).

Therefore, the Petition fails to show that Kabasawa, alone or in view of AAPA, suggests or renders obvious independent claim 24 at least based on Ground 8.

I. Ground 9 Fails to Render Obvious the Challenged Claims**1. Miura Alone or in view of AAPA, combined with Kamata Fail to Render Obvious Claims 17, 19, 23-24 and 26.**

- a. 17[e]/24[g]: Miura Alone or in view of AAPA fail to show an inner yoke positioned on the base, the inner yoke positioned inside a cavity defined by each of the first coils, wherein the inner yoke has a pair of first walls disposed opposite the second coil and separated from each other in the second direction**

Claim limitation 17[e] recites: “an inner yoke positioned on the base, the inner yoke positioned inside a cavity defined by each of the first coils, wherein the inner yoke has a pair of first walls disposed opposite the second coil and separated from each other in the second direction,” and claim limitation 24[g] includes substantially similar language. Ex. 1001, Cl. 17, 24. Miura fails to disclose or suggest these limitations, and Petitioner's arguments fail to meet the burden of establishing obviousness for the following reasons.

First, the yokes 50, 51 identified in Miura are only partially inserted between the focusing coils 3, which Petitioner corresponds to the claimed “first coils.” Pet. 87; Ex. 1009, Fig. 6. Rather than being “positioned inside a cavity,” these yokes actually surround a side of the focusing coils, contrary to the claimed configuration. For example, as shown in the annotated Figure 6 below, the inner yoke 51b is merely a section of the yoke 51. Specifically, the inner yoke 51b is attached to the inclined section 51d, forming part of the larger yoke 51. Thus, the inner yoke 51b cannot be

located on the lens holder 2, which Petitioner corresponds to the claimed blade. *Id.*

Therefore, Miura fails to show or suggest “an inner yoke positioned on the base.”

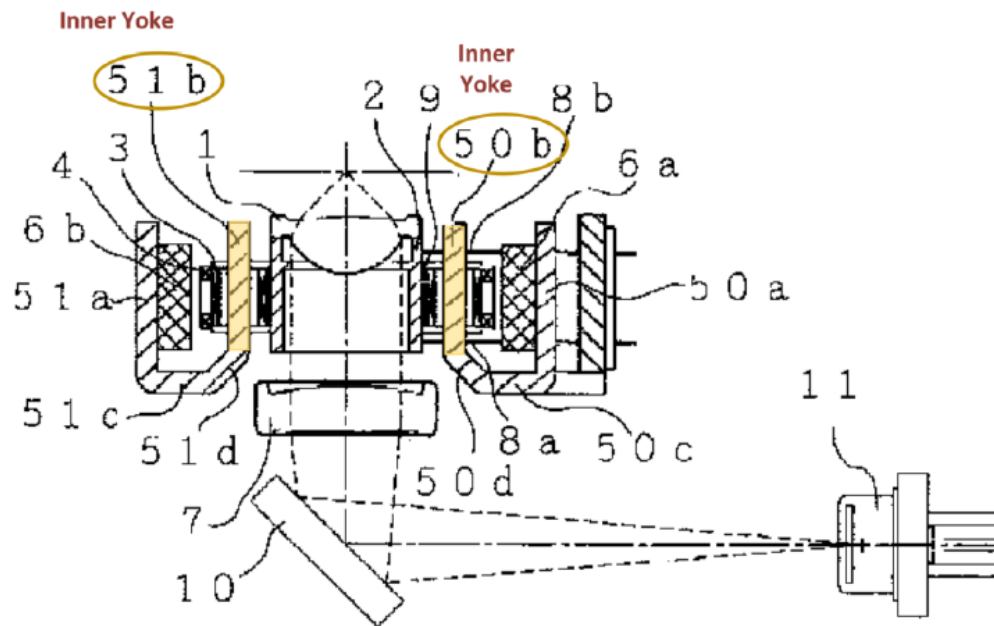


Figure 6 of Miura
(annotated)

Pet. 88, (figure prepared by Petitioner).

Second, with respect to the limitation “wherein the inner yoke has a pair of first walls disposed opposite the second coil and separated from each other in the second direction,” Petitioner attempts to address the deficiency of Miura by incorporating Kamata’s features in a piecemeal manner, without adequately explaining why or how Miura’s features would be combined with Kamata’s. Pet. 91; Ex. 1002, ¶¶227-231. Similar to the reasoning discussed above in §VI.G.1 regarding the combination of Ogata and Kamata, Petitioner proposes a strained combination that would undermine the functionality of both Miura and Kamata. Accordingly, the

Petition fails to provide sufficient rationale for motivation to combine or demonstrate a reasonable expectation of success.

Therefore, the Petition fails to suggest or render obvious independent claims 7 and 24, as well as dependent claims 21, 23, and 28, which depend on claims 7 and 24, in Ground 9.

b. 24[a]/[b]: Petition fails to provide any motivation for combining the teachings of AAPA with Miura

Petitioner introduces AAPA in combination with Miura and asserts that the combination renders obvious this claim limitation. As discussed in §V.A, AAPA cannot be used as a basis in any Ground. Petitioner thus fails to establish that the proposed combination renders obvious claim 24 and also fails to comply with the statutory requirement outlined in § 311(b).

Moreover, the Petition fails to provide any motivation for combining the teachings of AAPA with Miura, nor does it establish reasonable expectation of success in doing so. The failure to meet “petitioner’s ‘burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so’” is fatal to Petitioner’s obviousness arguments and the Petition. *Apple Inc. v. Uniloc USA, Inc.*, 2017 WL 2304694, at *5 (P.T.A.B. May 25, 2017) (quoting *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016)).

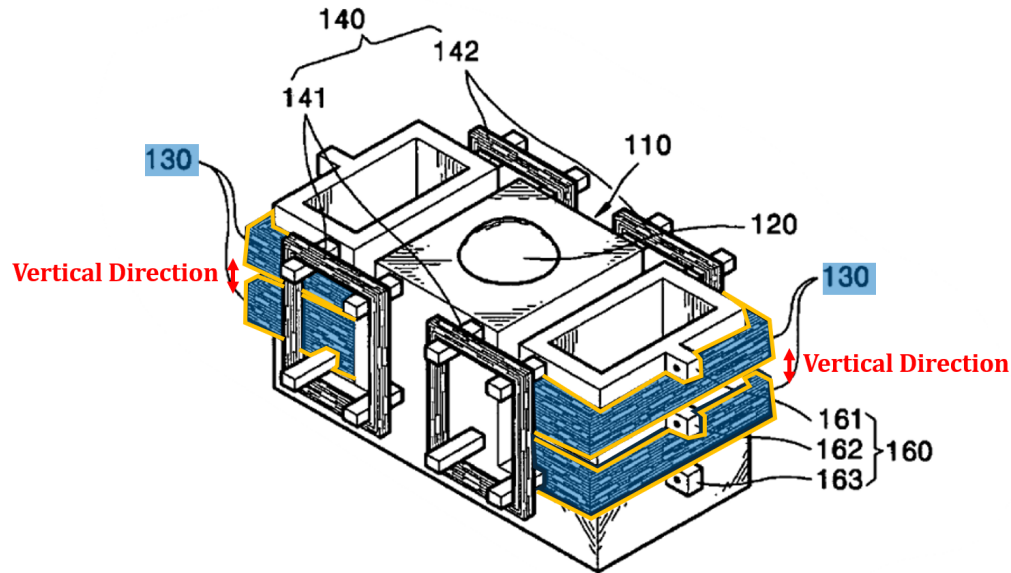
Therefore, the Petition fails to show that Miura, alone or in view of AAPA, combined with Kamata, renders obvious independent claim 24 in Ground 9.

J. Ground 10 Fails to Render Obvious the Challenged Claims

1. Sugiyama Alone or in view of AAPA Fail to Render Obvious Claims 1, 3-4, 10, and 12-13.

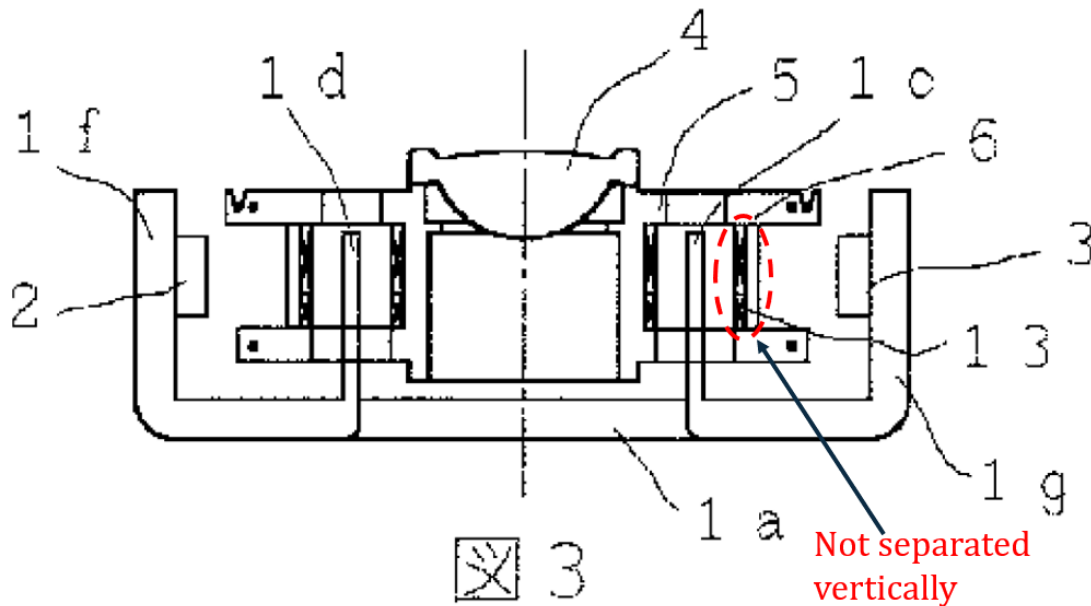
a. 1[e]/10[h]: Choi fails to show a coil that is divided into a plurality of subcoils, wherein each subcoil is separated from an adjacent subcoil in a vertical direction.

Claim limitation 1[e] recites “the coil that is divided into a plurality of subcoils, wherein each subcoil is separated from an adjacent subcoil in a vertical direction,” and claim limitation 10[h] recites substantially similar language. Ex. 1001, Cl. 1, 10. As shown below, annotated Figure 8 of the '055 Patent discloses **coil** 130 that is divided into a plurality of **subcoils**, with each subcoil separated from an adjacent **subcoil** in a **vertical direction**.



Ex. 1001, Fig. 8 (annotated).

First, Sugiyama does not disclose or suggest a coil divided into subcoils. Instead, Petitioner improperly asserts that Sugiyama's focusing coil 6 and tilting coil 13 to correspond to the claimed **subcoils** that are **vertically separated**. Pet. 102; Ex. 1002, ¶254. However, as clearly shown in the annotated Figure 3 below, Sugiyama does not disclose any subcoils that are vertically separated.



Ex. 1010, Fig. 3 (annotated).

Sugiyama integrates and installs a single coil (without subcoils) in lens holder 5. This approach improves workability compared to the process of separately installing each coil. Ex. 1010, 196-200.

Therefore, the Petition fails to suggest or render obvious independent claims 1 and 10, as well as dependent claims 3, 4, 12, and 13, which depend on claims 1 and 10, in Ground 10.

b. 10[a]/[b]: Petition fails to provide any motivation for combining the teachings of AAPA with Sugiyama

Petitioner introduces AAPA in combination with Sugiyama and asserts that the combination renders obvious this claim limitation. As discussed in §V.A, however, AAPA cannot be used as a basis in any Grounds. Petitioner thus fails to

establish that the proposed combination renders obvious claim 10 and also fails to comply with the statutory requirement outlined in § 311(b).

Moreover, the Petition fails to provide any motivation for combining the teachings of AAPA with Sugiyama, nor does it establish reasonable expectation of success in doing so. The failure to meet “petitioner’s ‘burden to demonstrate both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so’” is fatal to Petitioner’s obviousness arguments and the Petition. *Apple Inc. v. Uniloc USA, Inc.*, 2017 WL 2304694, at *5 (P.T.A.B. May 25, 2017) (quoting *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016)).

Therefore, the Petition fails to show that Sugiyama, alone or in view of AAPA, discloses or renders obvious independent claim 10 in Ground 10.

K. Ground 11 Fails to Render Obvious the Challenged Claims

1. Sugiyama Alone or in view of AAPA, Combined with Kabasawa Fail to Render Obvious Claims 5, 6, and 14.

The combination of Sugiyama, AAPA, and Kabasawa fails to render obvious claims 5, 6, and 14 for the same reasons discussed with respect to independent claims 1 and 10 in Ground 10. As outlined in §VI.J.1., Sugiyama fails to disclose or suggest the limitations 1[e], 10[a], 10[b], and 10[h] of independent claims 1 and 10 upon

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which claims 5, 6, and 14 depend. Kabasawa does nothing to overcome the deficiencies of Sugiyama identified in Ground 10.

Therefore, the Petition fails to show that Sugiyama, alone or in view of AAPA, combined with Kabasawa, discloses or renders obvious claims 5, 6, and 14.

VI. CONCLUSION

For the reasons set forth above, the Petition fails to demonstrate a reasonable likelihood that any of challenged claims 1-8, 10-15, 17, 19, 21, 23, 24, 26, 28, 36-38, and 40-45 of the '055 Patent are unpatentable.

Date: July 18, 2025

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WORD COUNT CERTIFICATE

The undersigned certifies that the foregoing PATENT OWNER'S PRELIMINARY RESPONSE contains 9,537 words excluding those portions exempted by the rule, including 832 words in diagrams created or as annotations added by TS-Optics to images in this document. TS-Optics has relied on the word count feature of the word processing system used to create this paper in making this certification.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing PATENT OWNER'S PRELIMINARY RESPONSE was served on July 18, 2025 by filing this document through the P-TACTS platform as well as by delivering a copy via the delivery method indicated to the attorneys of record for the Petitioner as follows:

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