#### UNITED STATES PATENT AND TRADEMARK OFFICE

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#### BEFORE THE PATENT TRIAL AND APPEAL BOARD

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# SZ DJI TECHNOLOGY CO., LTD Petitioner

v.

# AUTEL ROBOTICS USA LLC Patent Owner

Case IPR2019-00846 Patent 9,260,184

# PETITIONER'S REQUEST FOR REHEARING OF FINAL WRITTEN DECISION

Mail Stop PATENT BOARD Patent Trial and Appeal Board U.S. Patent & Trademark Office P.O. Box 1450 Alexandria, VA 22313–1450

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Petitioner SZ DJI Technology Co. Ltd. ("DJI") requests rehearing of the Board's Final Written Decision granting Patent Owner Autel Robotics USA LLC's ("Autel") non-contingent Motion to Amend in *Inter Partes* Review of U.S. Patent No. 9,260,184 (Paper 33). The substitute claims of the '184 patent describe nothing more than the use of a twist-lock attachment in a directional coupling mechanism. DJI discussed in detail in its Petition that twist-lock or lug-notch attachments had been known for over 140 years before the '184 patent. (See Pet. pp. 13-16 (citing DJI-1012, p. 2; DJI-1013, p. 2.) DJI also established that using keyed connections to "mistake proof" a device, "ensuring that a user couples the components in the correct manner," were known. (See Pet. pp. 16-17; citing DJI-1014, p. 3 ("[E]ach propeller is designed so that it can only fit on the front or the rear, whichever is appropriate for each propeller. This means that it is not possible to incorrectly assemble either prop."); DJI-1016, p. 27 ("To avoid accidental misplacement, both directions of turning use individual distances between these knobs."). DJI used the combination of Sasaki and other art to show that Autel's claimed use of a twistlock attachment with a directional coupling would have been obvious when attaching a propeller to a UAV. Although the proposed combinations disclosed every limitation of the substitute claims, the Board ruled DJI had not shown that a person of ordinary skill in the art ("POSITA") would have been motivated to combine Sasaki with art disclosing a twist-lock mechanism.

The Board failed to consider the entirety of the record. Aqua Prods. Inc. v. Matal, 872 F.3d 1296, 1325 (Fed. Cir. 2017) (the Board "must consider the entirety of the record ... when assessing the patentability of amended claims."). In the Final Written Decision, the Board overlooked the totality of the evidence presented by DJI supporting the numerous motivations to combine Sasaki and Sokn. In doing so, the Board impermissibly introduced in the Final Written Decision hindsight arguments not raised by Autel—and misapprehended DJI's response to the sole hindsight argument Autel did raise. The Board further introduced new arguments, not raised by Autel, regarding the combinations of Sasaki with, respectively, Philistine, Obrist, and EP067. And it overlooked the arguments and evidence presented by DJI to support those combinations. The Board's failure to provide DJI notice and a chance to be heard on these new arguments abrogated the process due DJI and violated the Administrative Procedure Act ("APA"). See Genzyme Therapeutic Prod. L.P. v. Biomarin Pharm. *Inc.*, 825 F.3d 1360, 1366 (Fed. Cir. 2016).

#### I. Standard of Review

The Board reviews its decisions on motions for an abuse of discretion. 37 C.F.R. § 42.71(c). The Board abuses its discretion if its decision "(1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact findings, or (4) involves a record that contains no

evidence on which the Board could rationally base its decision." *Redline Detection*, *LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 442 (Fed. Cir. 2015). A request for rehearing must "identify all matters the party believes the Board misapprehended or overlooked." 37 C.F.R. § 42.71(d).

#### II. Argument

In its Final Written Decision, the Board several times went out of its way to insert new arguments that Patent Owner Autel never raised—and to decide them against Petitioner DJI. By deciding issues based on grounds of which DJI never had notice and an opportunity to respond, the Board's decision did not comport with the Administrative Procedure Act (APA). 5 U.S.C. § 554(b)(3) ("Persons entitled to notice of an agency hearing shall be timing informed of ... (3) *the matters of fact and law asserted.*") (emphasis added)). Even where the Board addressed arguments that Autel had in fact raised, the Board repeatedly overlooked extensive, often undisputed record evidence. And in concluding that Autel's expanded claims did not impermissibly enlarge the scope of the claims of the original patent, the Board relied on the scope of an independent claim it has found *unpatentable*.

The Board's abuses of discretion are even more egregious in the context of a motion to amend—a procedure that grants patent owner the same monopoly as a full patent examination but that offers petitioner only a tightly circumscribed space

in which to safeguard its own rights *and those of the public* by showing that patent owner's revised claims are unpatentable. Rehearing is warranted here.

## A. The Board erred in finding that the record failed to establish a motivation to combine Sasaki and Sokn.

Despite Autel having raised only a single hindsight argument related to the use of radial stops in the proposed combination, the Board—on its own motion—concluded that DJI's cited *motivations to combine* were a product of hindsight. (Final Written Decision ("FWD"), p. 35 (emphasis added).) The Board overlooked overwhelming evidence that a POSITA would have been motivated to combine Sasaki with Sokn to maintain mistake-proofing, and to increase usability and flexibility—no hindsight required. (*See* Opp. to Revised Mot. to Amend, Paper 21 ("DJI Opp."), pp. 2–5.) Moreover, although Autel contended that the use of radial stops to prevent overtightening was a "hindsight attempt to reconstruct patent claims," its own expert's testimony belied that argument.

Inter partes review is subject to the procedural requirements of the APA. Genzyme Therapeutic Prod., 825 F.3d at 1366. Under the APA, "an agency may not change theories in mid-stream without giving respondents reasonable notice of the change and the opportunity to present argument under the new theory." Belden v. BerkTek LLC, 805 F.3d 1064, 1080 (Fed. Cir. 2015) (quoting Rodale Press, Inc. v. FTC, 407 F.2d 1252, 1256-57 (D.C. Cir. 1968). Strict adherence to the APA is

particularly critical in deciding a Motion to Amend—which results in Autel obtaining a monopoly on substitute claims *not examined independently* by the Patent Office.

But here, in the Final Written Decision, the Board not only considered new arguments to which DJI never had an opportunity to respond but raised them itself for the first time and then used them as the basis for its decision, violating the requirements of the APA. First, the Board raised the argument that DJI's mistakeproof motivation to combine Sasaki and Sokn was "an impermissible exercise of hindsight with the claims of the '184 patent serving as a guide, which is not appropriate for a conclusion of obviousness." (FWD, p. 35.) Autel never argued that DJI's motivation to combine Sasaki and Sokn to achieve a mistake-proof (keyed) design was based on "impermissible hindsight." (See Autel Revised Motion to Amend, Paper 17 ("RMTA"), pp. 16–21; Autel Reply, Paper 25, pp. 4– 6.) That Autel never raised a hindsight argument regarding DJI's "mistakeproofing" motivation to combine is understandable because Autel's own expert, Dr. Reinholtz, agreed that mis-installation of blades by users was a known problem prior to the '184 patent. (Reinholtz Decl., Ex. 2001, ¶ 70 ("Also, in my experience, it is relatively easy for drone users to mis-install rotor blades."); Reinholtz Dep. Tr., DJI-1027, 37:1-14 (testifying that a POSITA would have known about the possibility and consequences of blade mis-installation by users).)

As detailed in the next section, the Board overlooked the evidence in the record supporting the fact that DJI's motivation to combine based on preventing mis-installation of rotor blades (referred to as "mistake-proofing") was known prior to the filing of the '184 patent and was not based on hindsight. Regardless, the Board's insertion into the proceeding of this new, *sua sponte* hindsight argument without giving DJI a reasonable notice and opportunity to present an argument violated the APA.

Second, the Board raised the argument that relying on DJI's motivations to combine based on "provid[ing] increased design flexibility" and "improv[ing] usability" "would be an impermissible exercise of hindsight with the claims of the '184 patent serving as a guide." (FWD, p. 37.) Again, Autel never contended that these motivations to combine were based on "impermissible hindsight." (See RMTA, p. 15–21; Autel Reply, p. 4–6.)

As detailed below, the Board overlooked the evidence in the record supporting these motivations to combine. The Board's insertion of its own hindsight argument, particularly where Autel never disputed DJI's arguments or evidence, is a textbook violation of the notice requirements of the APA.

1. The Board overlooked evidence showing that mis-installation of UAV blades was a known problem, and "mistake-proofing" and keyed design were known motivations in rotor design.

The Board misapprehended the legal requirements for establishing a

motivation to combine and overlooked evidence in the record supporting DJI's rationales. A motivation to combine need not be found only in the teachings of the applied prior art. Instead, a motivation to combine can be found "explicitly or implicitly in market forces; design incentives; the 'interrelated teachings of multiple patents'; 'any need or problem known in the field of endeavor at the time of invention and addressed by the patent'; and the background knowledge, creativity, and common sense of the person of ordinary skill." *ZUP*, *LLC* v. *Nash Mfg.*, *Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018). The Board looked only at Sasaki and Sokn for a rationale to combine (*see* FWD, p. 35), and in doing so it erred.

DJI established that mis-installation of rotor blades was a known problem in UAV design before the '184 patent. (Pet., pp. 16–17.) DJI cited evidence that mistake-proofing by means of a "keyed" connection was not novel and was a motivating concern to those skilled in the art at the time of the purported invention. (Pet., pp. 16–17.) As DJI pointed out, "[k]eyed connections are ... commonly used to ensure that UAV propellers are coupled to the proper driveshafts." (*Id.*, pp. 16-17.) The example cited in the Petition—Microdrones (DJI-1016), which the Board concluded anticipated claim 1 of the '184 patent (DJI-1031, p. 62)—makes use of a keyed mechanism to avoid mis-installation of the wrong blade on the wrong shaft. (Pet., pp. 17–18.) DJI also presented prior art UAV references that provided techniques for preventing mis-installation of a blade. (DJI-1016, p. 27.)

Again, Autel offered no contrary evidence. In fact, Autel's expert agreed in both his declaration and deposition testimony that mis-installation was a known problem. (DJI-1027, 35:16–19; 37:1–8; Ex. 2001, ¶70) As a result, DJI was correct to point out that "there is no dispute that a POSITA would have been motivated to modify Sasaki in a way that was mistake-proof." (DJI Sur-Reply, Paper, 29, p. 3.)

The Board nevertheless overlooked this evidence and discounted this motivation, attributing it to an "impermissible exercise of hindsight with the claims of the '184 patent serving as a guide." (FWD, p. 35.) This was an abuse of discretion for several reasons. At a minimum, the record evidence shows that the Board's decision "rests on clearly erroneous fact findings." See Redline Detection, 811 F.3d at 442. Indeed, because the evidence here was *undisputed*, the "record" before the Board "contains no evidence on which the Board could rationally base" its conclusion that this was hindsight. See id. Not only that, the Board wrongly concluded that it could, sua sponte, "change theories in mid-stream without giving [DJI] reasonable notice of the change and the opportunity to present argument under the new theory." Belden, 805 F.3d at 1080; see Redline Detection, 811 F.3d at 442 (Board abuses its discretion when its decision "is based on an erroneous conclusion of law").

# 2. The Board overlooked evidence in the record that skilled artisans would have been motivated to increase flexibility and usability.

The Board similarly ruled that DJI's "providing increased design flexibility" and "improved usability" rationales to combine Sasaki and Sokn "are not grounded in what a person of ordinary skill in the art would have gleaned from the teachings of the prior art" and "would be an impermissible exercise of hindsight with the claims of the '184 patent serving as a guide." (FWD, p. 37.) In doing so, the Board again overlooked undisputed record evidence.

As with the Board's rejection of the mistake-proofing motivation to combine, this conclusion is therefore an abuse of discretion. *See Redline Detection*, 811 F.3d at 442. As DJI's expert explained, using Sokn's locking connection mechanism—which requires only a quarter-turn—with Sasaki's threaded connection would "provide increased design flexibility" and would "improve usability." (DJI-1003 ¶, 112–13; *see also* Pet., pp. 36–38, DJI Opp., p. 2.) Again, Autel's expert did not contradict this evidence. To the contrary, Dr. Reinholtz testified that "it's commonsense that these twistlock mechanisms are very quick," which allows for "convenient[]" installation of rotor blades. (DJI-1027, 91:16–17; 95:8–9). And again, Autel did not dispute this argument. (*See* RMTA, pp 15–21, Autel Reply, pp. 4–5.) The Board's conclusion disregarded this undisputed evidence and was an abuse of discretion.

# 3. The Board overlooked evidence that the use of radial stops to address overtightening was known.

The sole hindsight argument Autel *itself* raised regarding motivation to combine was that the use of radial stops to prevent overtightening "is a hindsight attempt to reconstruct the patent claims." (Autel Reply, p. 5.) First, Autel contends that Sokn does not disclose radial stops (*id.*)—but, as the Board correctly concluded, Autel is wrong. (FWD, p 37.) Sokn plainly discloses radial stops in its second preferred embodiment. (DJI-1007, Fig. 5.) Nevertheless, as with the two hindsight arguments it introduced itself, the Board overlooked other significant record evidence here as well—in particular that *Dr. Reinholtz*, Autel's expert, testified that the use of radial stops to prevent overtightening was not just "common knowledge" but "common sense," well known to a 2013 POSITA. (DJI-1029 p. 67:20–25.) Thus, though Autel sought to put this question of hindsight into dispute, the evidence supporting DJI's position was undisputed.

# B. The Board erred in finding that the record failed to establish a motivation to combine Sasaki and Philistine.

The Board acknowledged DJI explained that "Philistine's mounting plate is attached or integrated onto the blade, forming the 'blade lock portion,' and Philistine's receiving member is attached or integrated onto the shaft, forming the 'shaft lock portion.'" (See FWD, p. 40; citing DJI Opp. p. 21.) The Board reasoned that "[DJI] d[id] not describe how receiving member 116 of Philistine—which

includes 'channel 123 that is defined by a pair of opposing, parallel guide rails 121 ...'—would be 'attached or integrated onto the shaft' ... of Sasaki." (FWD, p. 41.) Autel never raised this argument. (*See* RMTA, pp. 21–23; Autel Reply, pp. 7–9.) The Board's insertion of this new argument in the Final Written Decision deprived DJI of notice and opportunity to respond—another APA violation.

Worse, the Board's reasoning requires DJI to assert that Sasaki and Philistine could be physically combined—a requirement the Federal Circuit has long rejected as "basically irrelevant." *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc). The appropriate question is "not whether the references could be physically combined *but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole." Id.* (emphasis added). DJI explained how a POSITA would combine *the teachings* of Sasaki and Philistine. No more was required. *Etter*, 756 F.2d at 859.

The Board also disregarded DJI's mirror-image arguments "for the same reasons discussed above regarding the combination of Sasaki and Sokn," namely that "[DJI]'s ... assertions on motivation are based on the false premise that Sasaki is mistake-proof." (FWD, p. 41.) But, again, that position overlooked undisputed record evidence that UAV designers addressed mis-installation by using different techniques for "mistake-proofing." Just because Autel's expert could destroy a blade and rotor by jamming the wrong blade onto the wrong shaft, it does not

follow that Sasaki failed to teach directional connections or that there was no recognized motivation to key or "mistake-proof" blades to avoid mis-installation by the user.

## C. The Board erred in finding that the record failed to establish a motivation to combine Sasaki and Obrist or EP067.

The Board erred in finding that DJI failed to show that combining Sasaki with Obrist or EP067 renders the substitute claims obvious. First, the Board overlooked the combination proposed by DJI. The Board found "nowhere does DJI describe *how* this combination is implemented." (FWD, p. 45.) But DJI explained how the combination is implemented by integrating the attachment mechanism (and *only* the attachment mechanism) of Obrist or EP067 into the propeller and shaft of Sasaki:

When applied to blade attachments of a UAV such as Sasaki's, Obrist and EP067 would also form a "clockwise" and "counterclockwise lock mechanism" for similar reasons, each locking with rotation in the opposite direction. (DJI-1028, ¶¶59-62.) For example, the portion of the blade foot integrated into the propeller in the combined UAV of Sasaki and EP067 that has cutouts 11 and projections is the "blade lock portion." Projections 12 are "lugs on the blade lock portion." Support plate 1 integrated into the driveshaft in the combined UAV of Sasaki and EP067 is the recited "shaft lock portion" and gaps 5 are the recited "notches." (Id., ¶62.)

(DJI Opp. pp. 22-23.) Though the Board implied that this combination relies on the

propellers or hub disclosed in Obrist and EP067 (FWD, pp. 44-46), it plainly does not.

The Board also found DJI had failed to show how combining Sasaki with Obrist or EP067 would address the forces present in a UAV connection. Not so. DJI argued—supported by Dr. Ducharme's declaration—that "a POSITA would have been motivated to modify Sasaki to include two radially-opposite cutouts between which radial projections are disposed and to locate stops 6 at different positions based on the rotation of the propeller." (Pet., p. 20 *citing* DJI-1028, ¶62.) And DJI explained that if the shaft-rotation direction were reversed, the lock mechanisms would need to be too:

Sasaki ... explicitly discloses the motivations for [clockwise] and [counterclockwise] lock mechanisms, and the knowledge and creativity of a POSITA, who would understand that these rotational lock mechanisms would inadvertently disengage if used on a motor rotating the wrong direction. ... The record shows that a POSITA had motivation and the capability to mirror the prior art designs when combining them with Sasaki to create [clockwise] and [counterclockwise] lock mechanisms.

### (DJI's Sur-Reply, p. 9.)

Second, Autel never argued that DJI had failed to show how to combine Sasaki with Obrist or EP067. (RMTA, pp. 21–23, Autel Reply pp. 7–9.) At most, Autel argued that neither Obrist nor EP067 "disclose more than one configuration

for their connection mechanism." (RMTA, p. 22.) As discussed above, DJI *also* explained why mirroring a prior-art clockwise design to a counterclockwise design would be obvious. (*See* DJI Sur-Reply p. 9.) As with the other *sua sponte* Board arguments, this is an APA violation.

#### D. Autel's amendments enlarge the scope of the claims of the patent

Autel's amendments improperly enlarge the scope of claims 3 and 4 of the '184 Patent. (DJI Opp., pp. 24-25.) In its Final Written Decision, though, the Board ruled otherwise. The Board noted that the text of 35 U.S.C. § 316(d)(3) precludes Autel's IPR amendment from broadening "the scope of the claims of the challenged patent." (FWD, p. 20, emphasis in original.) Because the proposed substitute claims are dependent claims and "include all of the limitations of independent claim 1" of the '184 patent, the Board reasoned that "they do not enlarge the scope of the claims of the patent such that the proposed substitute claims would encompass apparatuses outside the scope of the original claims." *Id.* It therefore declined to reach the merits of DJI's enlargement argument.

But the Board overlooked that it had *already ruled* that claim 1 of the '184 patent is unpatentable. (DJI-1031, p. 62; DJI Opp., p. 10 (describing the Board's "Final Written Decision finding [unpatentable] claims 1, 2, 5–9, and 11 of the '184 patent"); *cf. Ex Parte Fong Pong*, 2017 WL 5714381, at \*3 (P.T.A.B. Nov. 6, 2017) (law of the case doctrine precludes relitigating issues "when a Board panel is

reviewing the same previously decided issue during a subsequent appeal from the same patent application"). In other words, the Board overlooked that the two dependent claims no longer depended from a patentable claim. Thus, the enlargement of those claims would encompass matter that no longer fell within "the scope of the claims of the challenged patent."

To be sure, Autel's appeal of the decision in the '343 IPR is still pending, with the result that a certificate of cancellation has not yet issued stripping the unpatentable claim 1 from the '184 patent. *See* 35 U.S.C. § 318(b). But if the Board fails to give *some* preclusive effect to *its own* decision in the '343 IPR, that would mean that claim 1 of the '184 patent is alive for purposes of this action but dead for purposes of other actions before the Board. *See Fong Pong*, 2017 WL 5714381, at \*3. Neither the law nor basic fairness can countenance this kind of Schrödinger's Cat claim. *See id.* (noting that the law-of-the-case doctrine is "elementary logic ... matched by elementary fairness").

At a minimum, therefore, the Board should rehear Autel's motion and rule on the merits whether the proposed substitute claims impermissibly "enlarge the scope of the claims of the patent." *See* 35 U.S.C. § 316(d)(3).

#### III. Conclusion.

For the reasons specified above, DJI respectfully requests the Board reconsider its decision and find the substitute claims unpatentable.

IPR2019-00846 U.S. Patent No. 9,260,184

Respectfully submitted,

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Date: October 21, 2020

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#### CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing REQUEST FOR RE-

#### **HEARING OF INSTITUTION DECISION** was served via electronic mail on

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