

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.

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IPR2019-00846

U.S. Patent No. 9,260,184

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**DECLARATION OF DR. ALFRED DUCHARME  
IN SUPPORT OF PETITIONER'S OPPOSITION TO  
PATENT OWNER'S REVISED MOTION TO AMEND**

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## **I. Introduction**

I, Alfred Ducharme, declare as follows:

1. I submit this declaration in support of SZ DJI Technology Co., Ltd.’s (“Petitioner’s”) Opposition to Autel’s (“Patent Owner’s”) Revised Motion to Amend U.S. Patent No. 9,260,184 (“the ’184 patent”).

2. I understand that the Patent Trial and Appeal Board instituted a trial against claims 3 and 4 of the ’184 patent based on the combination of Sasaki and Sokn. I further understand that Patent Owner filed a Motion to Amend that is not contingent on the patentability of claims 3 and 4. Consequently, I understand that the patentability of claims 3 and 4 is no longer in dispute. Patent Owner’s Motion to Amend proposed substitute claims 12 and 13 to replace claims 3 and 4, respectively.

3. I further understand that the Board issued Preliminary Guidance finding a reasonable likelihood that substitute claims 12 and 13 are obvious. I understand that Patent Owner filed a Revised Motion to Amend, with revised substitute claims 12 and 13.

4. This declaration supplements my March 19, 2019, declaration submitted as DJI-1003, and my April 6, 2020, declaration submitted as DJI-1028 in the above-referenced proceeding. This declaration is in response to Patent Owner’s Revised Motion to Amend (“Revised Motion”) dated May 15, 2020, and the Second

Declaration of Charles F. Reinholtz, submitted as Exhibit 2007 and dated May 15, 2020. I understand that my curriculum vitae has been submitted into the record of this proceeding as DJI-1004.

5. In preparing this declaration, in addition to my knowledge and experience, I have reviewed and am familiar with the following references:

- The '184 patent (DJI-1001)
- File History of the '184 patent (DJI-1002)
- Declaration of Alfred Ducharme in support of Petition for Inter Partes Review of claims 3 and 4 of the '184 patent (DJI-1003)
- Second Declaration of Alfred Ducharme in support of Petitioner's Opposition to Motion to Amend (DJI-1028)
- English translation of Japanese Unexamined Utility Model Application Publication H06-17511 to Sasaki ("Sasaki") (DJI-1006)
- U.S. Patent 5,133,617 to Sokn ("Sokn") (DJI-1007)
- U.S. Patent 2,470,517 to Obrist ("Obrist") (DJI-1017)
- European Patent Application EP 0921067 ("EP067") (DJI-1018)
- U.S. Patent 6,929,226 to Philistine ("Philistine") (DJI-1026)
- Board's Decision to Institute Trial (Paper 6)
- Board's Preliminary Guidance on Patent Owner's Motion to Amend (Paper 16)
- Patent Owner's Motion to Amend (Paper 10)
- Patent Owner's Revised Motion to Amend (Paper 17)
- Declaration of Dr. Reinholtz (Exhibit 2001)

- Second Declaration of Dr. Reinholtz (Exhibit 2007)
- Deposition Transcript of Dr. Reinholtz (Exhibit 1027)
- Second Deposition Transcript of Dr. Reinholtz (Exhibit 1029)
- Final Written Decision in IPR2019-00343 against U.S. Patent 9,260,184 (Exhibit 1031)

I have also considered all other materials cited herein.

## **II. Qualifications**

6. My qualifications and professional experience are described in my *Curriculum Vitae*, which I understand has been provided as DJI-1004. My first declaration, which I understand has been provided as DJI-1003, provides a brief summary of my relevant qualifications and professional experience.

## **III. Relevant legal standards**

7. I have been asked to provide my opinions regarding the patentability of revised substitute claims 12 and 13 of the '184 patent based on the references discussed herein.

8. I am not an attorney. In preparing and expressing my opinions and considering the subject matter of the '184 patent, I am relying on certain legal principles that counsel has explained to me.

### **A. Anticipation**

9. I have been instructed as to the definition of “anticipation” in the context of the patent laws. I understand that for a claim to be invalid as anticipated,

all of the requirements of that claim must be present in a single previous device or method that was known of, used, or described in a single previous printed publication or patent. To anticipate the invention, the prior art does not have to use the same words as the claim, but all of the requirements of the claim must have been disclosed, either stated expressly or implied to a person having ordinary skill in the art in the technology of the invention, so that looking at that one reference, that person could make and use the claimed invention.

**B. Obviousness**

10. I have been instructed as to the definition of “obviousness” in the context of the patent laws.

11. It is my understanding that even though an invention may not have been identically disclosed or described before it was made by an inventor, in order to be patentable, the invention must also not have been obvious to a person having ordinary skill in the art (“POSITA”) before the effective filing date of the patent (which in these proceedings I am assuming to be May 15, 2013).

12. I understand that obviousness is a question of law based on underlying factual issues including the level of ordinary skill in the art at the time of the patent’s effective filing date, the scope and content of the prior art, and any differences between the prior art and the claimed invention.

13. I understand that the scope and content of prior art for deciding whether the invention was obvious includes at least prior art in the same field as the claimed invention. It also includes prior art from different fields that a POSITA would have considered when trying to solve the problem that is addressed by the invention.

14. I understand that the existence of each and every element of the claimed invention in the prior art does not necessarily prove obviousness. Most, if not all, inventions rely on building blocks of prior art. But, in considering whether a claimed invention is obvious, I understand that one may find obviousness if, at the time of the patent's effective filing date, there was a reason that would have prompted a POSITA to combine the known elements in a way the claimed invention does, taking into account such factors as (1) whether the claimed invention was merely the predictable result of using prior art elements according to their known function(s); (2) whether the claimed invention provides an obvious solution to a known problem in the relevant field; (3) whether the prior art teaches or suggests the desirability of combining elements claimed in the invention; (4) whether the prior art teaches away from combining elements in the claimed invention; (5) whether it would have been obvious to try the combinations of elements, such as when there is a design need or market pressure to solve a problem

and there are a finite number of identified, predictable solutions; and (6) whether the change resulted more from design incentives or other market forces.

15. To find that the prior art renders the invention obvious, I understand that one must find that the prior art provided a reasonable expectation of success. I also understand that it is impermissible to find obviousness based on hindsight reasoning, and obviousness must be found only by considering what was known at the time of the patent's effective filing date.

**C. Claim construction**

16. I understand that the Patent Office applies the claim construction standard used in district courts which seeks to give claim terms their plain and ordinary meaning to a POSITA at the time of the claimed invention. I also understand that if the patent applicant gave a term a special meaning in the specification or during prosecution, then that special meaning should be used. My analysis uses the plain and ordinary meaning of the claim terms. The plain and ordinary meaning is consistent with the specification of the '184 patent. I further understand that intrinsic evidence includes the prosecution history of a patent, prior art cited patents, and related patents for guidance in claim construction.

17. It is also my understanding that the Board may also look to extrinsic evidence for a variety of purposes, including for providing background on the technology at issue, explaining how an invention works, ensuring that the court's



understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or establishing that a particular term in the patent or the prior art has a particular meaning in the pertinent/technical field. I understand that some examples of extrinsic evidence are things such as inventor testimony, dictionaries, treatises, and expert testimony.

18. I have followed these principles in my analysis throughout this declaration.

#### **IV. The '184 Patent & Technological Background**

19. In my first declaration in this case (DJI-1003), I discussed the '184 patent and relevant technological background. For efficiency I will not repeat that background but will cite to it when relevant.

#### **V. Level of ordinary skill in the art**

20. For this declaration I have applied the same standard for a POSITA that I applied in my first declaration. Specifically, a person of ordinary skill in the field of the '184 patent would have had at least an undergraduate degree in mechanical engineering, or equivalent education, training, or experience, with at least two years of experience with UAVs. (DJI-1003, ¶72.) Unless noted otherwise, when I state that something would be known or understood by one skilled in the art, or a skilled artisan, or a POSITA, I am referring to a person with this level of education and experience in or around May 2013.

21. I have reviewed the definition of a POSITA used by the International Trade Commission (ITC). (Ex. 2004, p. 6.) Specifically, the ITC found that a POSITA “would have at least (1) a Bachelor’s degree in mechanical engineering, or equivalent education, training, or experience, and (2) at least two years of experience with rotary apparatuses, including rotary aircraft apparatus and UAVs, or equivalent experience.” (*Id.*) My opinions would be unchanged under the ITC’s definition of a POSITA.

22. I have reviewed Dr. Reinholtz’s definition of a POSITA. (Ex. 2001, ¶28.) Specifically, Dr. Reinholtz states that a POSITA “would have had a bachelor’s degree in mechanical engineering and at least two years of experience designing mechanisms and mechanical structures of the type used in releasable couplings and locking devices.” (*Id.*) My opinions would be unchanged under Dr. Reinholtz’s definition of a POSITA.

## **VI. Claim construction**

### **A. Engagement limitation (Claim 1)**

23. Claim 1 recites “wherein the clockwise rotor blade is engageable only with the clockwise lock mechanism and cannot be engaged in the counterclockwise lock mechanism, and the counterclockwise rotor blade is engageable only with the counterclockwise lock mechanism and cannot be engaged in the clockwise lock mechanism.”

24. Dr. Reinholtz refers to this portion of claim 1 as “the engagement limitation” and states that it “means that a clockwise rotor blade cannot be attached to a counterclockwise driveshaft and vice versa.” (Ex. 2001, ¶¶42-43; *see also* DJI-1029, 40:8-22.) In my second declaration I discussed why Dr. Reinholtz’s interpretation of the engagement limitation is incorrect and that the engagement limitation does not need to be construed beyond its plain language. (DJI-1028, ¶¶24-31.)

25. I understand that, since my second declaration, the Board issued a Final Written Decision in IPR2019-00343, finding claims 1, 2, 5-9, and 11 obvious. I understand that this Final Written Decision has been submitted to this proceeding as Exhibit 1031. I further understand that in this decision, the Board found that “[t]he plain language of the claim, however, requires that ‘counterclockwise rotor blade is *engageable* only with the counterclockwise lock mechanism and cannot be engaged in the clockwise lock mechanism.’” (DJI-1031, p. 18.) The Board also “disagree[d] with Patent Owner that the Engagement Limitation requires prevention of the counterclockwise rotor blade being attached by some other means, such as mounting to the clockwise driveshaft.” (DJI-1031, p. 18.)

26. It is my opinion that the Board’s construction of the engagement limitation in Exhibit 1031 is consistent with my understanding of that limitation and with my previous declarations. (*See* DJI-1028, ¶¶24-31.)

## VII. Substitute claims 12 and 13 in view of the combination of Sasaki and Sokn

27. I previously discussed how the combination of Sasaki and Sokn discloses the limitations of claim 1, from which substitute claims 12 and 13 depend. (DJI-1003, ¶¶115-131.) I also discussed how the combination of Sasaki and Sokn discloses the limitations of claims 3 and 4. (DJI-1003, ¶¶132-133.) I note that in the discussions in my first declaration, I described that the combined system discloses “partial rotation” of the coupling mechanism. I do not repeat these discussions here. Below, I address the new limitations added to claims 12 and 13 and explain that the same combination also discloses the limitations of claims 12 and 13.

### A. Revised substitute claim 12

28. Revised substitute claim 12 recites:<sup>1</sup>

12. The apparatus of claim 1 wherein the blade lock portion of the clockwise lock mechanism is configured to engage with the shaft lock portion of the clockwise lock mechanism by partial ~~is rotated~~ counterclockwise rotation with respect to the shaft lock portion ~~thereof~~ of the

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<sup>1</sup> Relative to original claim 3, added language is shown as underlined, and removed language is shown as crossed out. Relative to original substitute claim 12, added language is shown as bold.

**clockwise lock mechanism** to releasably attach the clockwise rotor blade to the first driveshaft.

29. In my first declaration I explained that the blade lock portion of the combined coupling mechanism is configured to engage and disengage by 90° rotation because of its multi-thread and stop member design. (DJI-1003, ¶¶105, 110, 132-133.) In my second declaration I explained that Sokn's mechanism allows for faster installation and deinstallation than a conventionally-threaded mechanism because a user can make a quarter-turn with a single motion of the user's hand, whereas making multiple turns for a conventionally-threaded mechanism requires multiple repetitive motions by a user's hand. (DJI-1028, ¶37.) I also explained that the combination of Sasaki and Sokn discloses a blade lock portion of a clockwise lock mechanism that is configured to engage the shaft lock portion with partial rotation. (DJI-1028, ¶¶34-35, 37.)

30. In relation to the combination of Sasaki and Sokn, the amendments in revised substitute claim 12 do not change my opinions. Dr. Reinholtz does not appear to rely on any of these amendments to distinguish the claims from the combination of Sasaki and Sokn, and in deposition stated that the most recent amendments were for "clarification" and not to change the "general context of the claim." (DJI-1029, 45:24-46:7.) Accordingly, revised substitute claim 12 is

obvious for the same reasons that I have previously discussed in my first two declarations.

**B. Substitute claim 13**

31. Substitute claim 13 recites:<sup>2</sup>

13. The apparatus of claim 12 wherein the counterclockwise lock mechanism comprises a shaft lock portion attached to the second driveshaft and a blade lock portion attached to the counterclockwise rotor blade, and wherein the blade lock portion of the counterclockwise lock mechanism is configured to engage **with the shaft lock portion of the counterclockwise lock mechanism** by partial ~~is rotated~~ clockwise rotation with respect to the shaft lock portion **of the counterclockwise lock mechanism** thereof to releasably attach the counterclockwise rotor blade to the second driveshaft.

32. I previously discussed how the combination of Sasaki and Sokn discloses a blade lock portion and shaft lock portion of the counterclockwise lock mechanism. (DJI-1003, ¶¶109-110, 129-133.)

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<sup>2</sup> Relative to original claim 4, added language is shown as underlined, and removed language is shown as crossed out. Relative to original substitute claim 13, added language is shown as bold.

33. I previously discussed how the combination of Sasaki and Sokn discloses a counterclockwise lock mechanism where the blade lock portion is rotated clockwise to releasably attach the counterclockwise blade to the second driveshaft. (DJI-1003, ¶¶132-133.) I also discussed in my second declaration that the combination of Sasaki and Sokn results in a blade lock portion that is configured to engage by partial clockwise rotation. (DJI-1028, ¶37; *see also* DJI-1003, ¶105.)

34. In relation to the combination of Sasaki and Sokn, the amendments in revised substitute claim 13 do not change my opinions for the same reasons as the amendments in revised substitute claim 13. Dr. Reinholtz does not appear to rely on any of these amendments to distinguish the claims from the combination of Sasaki and Sokn. Accordingly, revised substitute claim 13 is obvious for the same reasons that I have previously discussed in my first two declarations.

### **C. Motivation to combine**

35. I previously discussed why a POSITA would have combined Sasaki and Sokn, resulting in a system that renders claims 3 and 4 obvious (DJI-1003, ¶¶106-114), and that renders original substitute claims 12 and 13 obvious (DJI-1028, ¶¶32-47). My opinion has not changed since my first two declarations that a POSITA would have combined Sasaki and Sokn for a variety of reasons. My

opinion that a POSITA would have considered Sokn to be relevant prior art is also unchanged. (DJI-1003, ¶114.)

36. Dr. Reinholtz states that a POSITA would not have combined Sasaki and Sokn. In my opinion, Dr. Reinholtz's view of a POSITA's motivations are overly narrow and ignore the knowledge of a POSITA at the time of the alleged invention.

37. For clarity, I list below several items that a POSITA would have known at the time of the alleged invention. To the best of my knowledge, these items are not contested.

- A POSITA would have understood the benefits of removable blades on a UAV. (DJI-1027, 33:10-24.)
- A POSITA would have understood the benefits of a quick and secure blade attachment mechanism. (DJI-1027, 35:12-36:4.)
- A POSITA would have known the dangers of installing a blade on the wrong driveshaft. (DJI-1027, 36:5-37:14; DJI-1003, ¶45.) Specifically, a POSITA would have understood that installing a blade on the wrong driveshaft could prevent the aircraft from flying. (DJI-1003, ¶45.)
- A POSITA would have known of prior art approaches that keyed the blade to the proper driveshaft. (DJI-1003, ¶¶54-57.)



- A POSITA would have known of prior art approaches that used directional rotation to ensure proper installation. (DJI-1003, ¶¶58-66.)
- A POSITA, looking at Sasaki, would have been motivated to improve the prior art threaded design while maintaining its mistake-proofing feature. (DJI-1029, 103:15-19.)
- A POSITA would have known of the use of radial stops to prevent overtightening. (DJI-1029, 67:7-25.) One example of radial stops in the prior art is EP067. (DJI-1018, 5:7-9, Figure 1; DJI-1029, 82:16-22.)

38. When looking to improve Sasaki's prior art threaded design while maintaining its mistake-proofing feature, a POSITA would have looked outside of the field of UAVs for ways of quickly and easily attaching and detaching two objects by hand. To maintain the mistake-proofing feature, the POSITA would have looked for mechanisms having a directional or keyed aspect that would help prevent installation of the blade on the wrong driveshaft, and that would remain installed while the motor spins. In other words, a POSITA would have searched out twist-lock mechanisms because they were well-known (DJI-1003, ¶¶50-53), easy to use (DJI-1003, ¶106), prevent inadvertent disassembly when rotating (when installed on a motor that rotates in the direction opposite the direction of installation) (DJI-1003, ¶¶47, 58), and can be mirrored to attach to motors that spin in different directions

(DJI-1003, ¶¶58, 64-66). In other words, a POSITA would not need to limit this search to prior art that explicitly disclosed both clockwise and counterclockwise rotating mechanisms because a POSITA can easily design one from the other using a mirrored design. (DJI-1029, 53:19-22.) A POSITA also would not limit its search to prior art mechanisms that have already been deployed in rotating systems because, as I have previously discussed with respect to Sokn, a POSITA would have been able to make simple design choices, such as materials, size adjustments, and surface area adjustments, to apply previous designs to a rotating system. (DJI-1003, ¶108.)

39. I have been informed that the USPTO classifies its patents under certain numbered classifications and subclasses. I have also been informed that one of these classifications is numbered 403 and titled “Joints and Connections.” A For this search, a POSITA would certainly have searched for prior art that is categorized under “Joints and Connections” because the problem of attaching a blade to a driveshaft generally requires a type of connection. I have been informed that one subclass of the “Joints and Connections” class is called “Interfitted members/Bayonet joint,” and another is called “Interfitted members/Lugged member, rotary engagement.” I have previously discussed the relevance of bayonet joints, lugs, and rotary engagement to the problem of attaching a blade to a

driveshaft. (DJI-1003, ¶¶49-53.) A POSITA would have certainly looked for prior art in these sub-classes.

40. In my first declaration I showed that a POSITA would have been motivated to apply Sokn's mechanism to Sasaki such that a clockwise blade would be mounted with counterclockwise rotation, and a counterclockwise blade would be mounted with clockwise rotation. (DJI-1003, ¶109.) This motivation is based on the prior art threaded design in Sasaki, where a blade for a clockwise-rotating rotor is attached using counterclockwise rotation, and vice versa. It is also based on the POSITA's knowledge that such a design would prevent inadvertent disassembly during operation. (DJI-1003, ¶109.) A POSITA would have easily been able to design such directional mechanisms by mirroring the threads on both the socket and the ring assembly—taking into account the error in Sokn that I previously discussed. (DJI-1028, ¶¶34-35; DJI-1003, ¶¶109-10; Ex. 2007, ¶39; DJI-1027, 166:22-167:16.)

41. Dr. Reinholtz states that Sokn would not solve the overtightening problem noted in Sasaki. (Ex. 2007, ¶30.) I have previously discussed this issue in my first and second declarations. (DJI-1003, ¶111; DJI-1028, ¶48.) Dr. Reinholtz compares Sokn's mechanism to a jar lid. (Ex. 2007, ¶30; Ex. 2001, ¶¶68-69.) Dr. Reinholtz does not cite to any particular jar lid, but apparently likens Sokn to either a hypothetical jar lid or to all jar lids. But all jar lids are not the same. Some jar lids

are more susceptible to overtightening. Some jar lids do not have any threading, but instead engage the jar's threading with a lip that pulls the lid down as the lid is rotated. Other jar lids have continuous (not segmented) threading on both the jar and the lid. I am not aware of any jar lid design with four stops and segmented threading on both the jar and the lid, like Sokn has on both its socket and ring assembly. I also note that overtightening depends significantly on the materials used for the components, and not just on the geometry of the components or the motion used for interlocking them.

42. Nevertheless, even if Sokn's mechanism did not itself solve the overtightening issue, a POSITA would have combined it with Sasaki for the other reasons I've already discussed. (DJI-1003, ¶¶112-14; DJI-1028, ¶¶42-47.) Furthermore, as I discussed above, radial stops were a well-known way of preventing overtightening, including those used in EP067. (DJI-1029, 67:7-25.)

**VIII. Substitute claims 12 and 13 in view of the combination of Sasaki with Philistine, EP067, or Obrist.**

43. In my second declaration I explained that the combination of Sasaki and Philistine, EP067, or Obrist renders the original substitute claims 12 and 13 obvious, and in particular discloses lock mechanisms (clockwise and counterclockwise) that are configured to engage with partial rotation. (DJI-1028, ¶¶57-62.)

44. In relation to the combinations of Sasaki and Philistine, EP067, or Obrist, the amendments in revised substitute claim 12 do not change my opinions for the same reasons I listed above in relation to Sasaki and Sokn.

45. Dr. Reinholtz states that a POSITA would not have combined Sasaki with Philistine. (Ex. 2007, ¶35.) I disagree. Dr. Reinholtz states that “Philistine relates to a slide and twist-lock mount for a blower motor for a system that provides filtered air.” (Ex. 2007, ¶35.) As I have previously explained, Philistine explicitly discloses that its lock mechanism can be used for a variety of purposes. (DJI-1028, ¶51; DJI-1026, 1:10-14.) Philistine discloses that it was originally developed to mount a blower motor to a helicopter (DJI-1026, 1:17-20), but it is by no means limited to that purpose. (*See, e.g.*, DJI-1026, 2:44-49.)

46. I discussed above in relation to Sokn that I have been informed that the USPTO classifies its patents under certain numbered classifications and subclasses. I have also been informed that one of these classifications is numbered 248 and titled “Brackets.” I understand that Philistine has been classified in a subclass of “Brackets” titled “Bracket and mount interlocked by rotational motion” and given the number 248/222.52. I have previously discussed the relevance of rotary engagement to the problem of attaching a blade to a driveshaft. (DJI-1003, ¶¶50-53, 58-66.) A POSITA would have certainly looked for prior art in this sub-class.

## **IX. Long-felt need**

47. Dr. Reinholtz states that “there has been a need in the UAV industry for many years for UAV rotor blade attachment mechanisms, like the invention of the ‘184 patent, that can be quickly and easily detached and that prevent the misplacement of rotor blades.” (Ex. 2007, ¶44.) The evidence he cites in support of this long-felt and unmet need does not actually show a long-felt and unmet need. In fact, he only cites expert testimony, including my first declaration. (Ex. 2007, ¶44.) In particular, Dr. Reinholtz states that I “agree[]” that “a POSA would have understood the need, since as early as the Sasaki reference, for simpler, faster, and mistake proof rotor blade attachment mechanisms.” (Ex. 2007, ¶44 (citing DJI-1003, ¶100).) My statements about a POSITA’s motivation to modify Sasaki, however, refer to a POSITA around 2013 looking at Sasaki. (DJI-1003, ¶73.) A POSITA’s motivations in 2013 do not demonstrate a long-felt need.

48. Furthermore, a POSITA’s motivation to modify a reference does not mean that the deficiencies of that reference are a long-felt and unmet need in the entire industry. For example, Dr. Reinholtz states that the long-felt need was for “(1) simpler and faster and (2) mistake-proof blade attachment mechanisms.” But simple, fast, and mistake-proof blade attachment mechanisms were already disclosed years before the ‘184 patent, including in Microdrones (DJI-1016). This

mechanism is illustrated below and discussed in my first declaration. (DJI-1003, ¶57; DJI-1016, p. 27.)



49. Thus, my stated motivations to modify Sasaki do not indicate a long-felt and unmet need.

50. Dr. Reinholtz states that “there is a direct connection between elements of revised claims 12 and 13, and the solutions to the long-felt needs,” stating that the partial rotation is “simple and fast” and that the directional lock mechanisms “prevent the attachment of a blade on the wrong drive shaft.” (Ex. 2007, ¶45.) But the Microdrones mechanism is simple, fast, and prevents the *engagement* of a blade on the wrong driveshaft as required by claim 1. And Microdrones accomplishes these features without requiring *any* rotation. Furthermore, even if the ’184 patent solved the long-felt and unmet need for preventing attachment of a blade on the wrong driveshaft, there is nothing in the revised claims that meets this need. The need would only be met through dependence on claim 1 (which the Board has


found to be invalid) and only with a claim construction that the Board has already rejected.

51. It is therefore my opinion that Dr. Reinholtz has not shown any long-felt unmet need; that the '184 patent satisfies any long-felt unmet need; or that there is a nexus between the claims and the solution to the long-felt unmet need.



I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code.

Dated: June ~~24~~ 2020

  
Alfred Ducharme