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

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

_____

PETITIONER SZ DJI TECHNOLOGY CO., LTD.'S DEMONSTRATIVE EXHIBITS

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Patent Trial and Appeal
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

August 13, 2020

Petitioner's Demonstratives

SZ DJI Technology Co., Ltd. v. Autel Robotics USA LLC
IPR2019-00846
U.S. Patent No. 9,260,184

Procedural Background

Timeline

9/23/2019: Board Institutes Ground 1: Claims 3-4 are obvious over Sasaki and Sokn

Claims 3-4 depend from Claim 1

1/10/2020: Autel files **noncontingent Motion to Amend**

Claims 3-4 are abandoned

Adds Substitute **Claims 12-13**, which depend on Claim 1

4/28/2020: Board issues preliminary guidance:

Reasonable likelihood **Substitute claims 12-13 invalid**

5/15/2020: Autel files **revised** Motion to Amend (noncontingent)

Revised Substitute Claims 12-13

5/21/2020: Board finds **claims 1**, 2, 5-9, and 11 are **invalid** in IPR2019-00343.

Invalid Independent Claim 1

1. A rotary wing aircraft apparatus comprising:
a body;
a plurality of arms extending laterally from the body, and a rotor assembly attached to an outside end of each arm;
each rotor assembly comprising a rotor blade releasably attached to a driveshaft by a lock mechanism, and a drive rotating the driveshaft;
wherein a first driveshaft rotates in a clockwise direction and a second driveshaft rotates in a counterclockwise direction;
wherein a clockwise rotor blade is releasably attached to the first driveshaft by engagement in a clockwise lock mechanism and generates a vertical lift force when rotated in the clockwise direction, and a counterclockwise rotor blade is releasably attached to the second driveshaft by engagement in a counterclockwise lock mechanism and generates a vertical lift force when rotated in the counterclockwise direction;
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; and
wherein the clockwise lock mechanism comprises a shaft lock portion attached to the first driveshaft and a blade lock portion attached to the clockwise rotor blade, the shaft lock portion defining notches configured to engage corresponding lugs on the blade lock portion.

Evolution of the Challenged Claims 3 and 12

Claim 3 of the ’184 patent (canceled)

3. The apparatus of claim 1 wherein the blade lock portion of the clockwise lock mechanism is rotated counterclockwise with respect to the shaft lock portion thereof to releasably attach the clockwise rotor blade to the first driveshaft.

First Substitute Claim 12 (withdrawn)

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

Revised Substitute Claim 12 (proposed)

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

Evolution of the Challenged Claims 4 and 13

Claim 4 of the ’184 patent (canceled)

4. The apparatus of claim 3 wherein the blade lock portion of the counterclockwise lock mechanism is rotated clockwise with respect to the shaft lock portion thereof to releasably attach the counterclockwise rotor blade to the second driveshaft.

Revised Substitute Claim 13 (proposed)

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.

Overview of Disputed Issues

Disputed Issues

[1] Whether the amendments improperly expand the claim scope

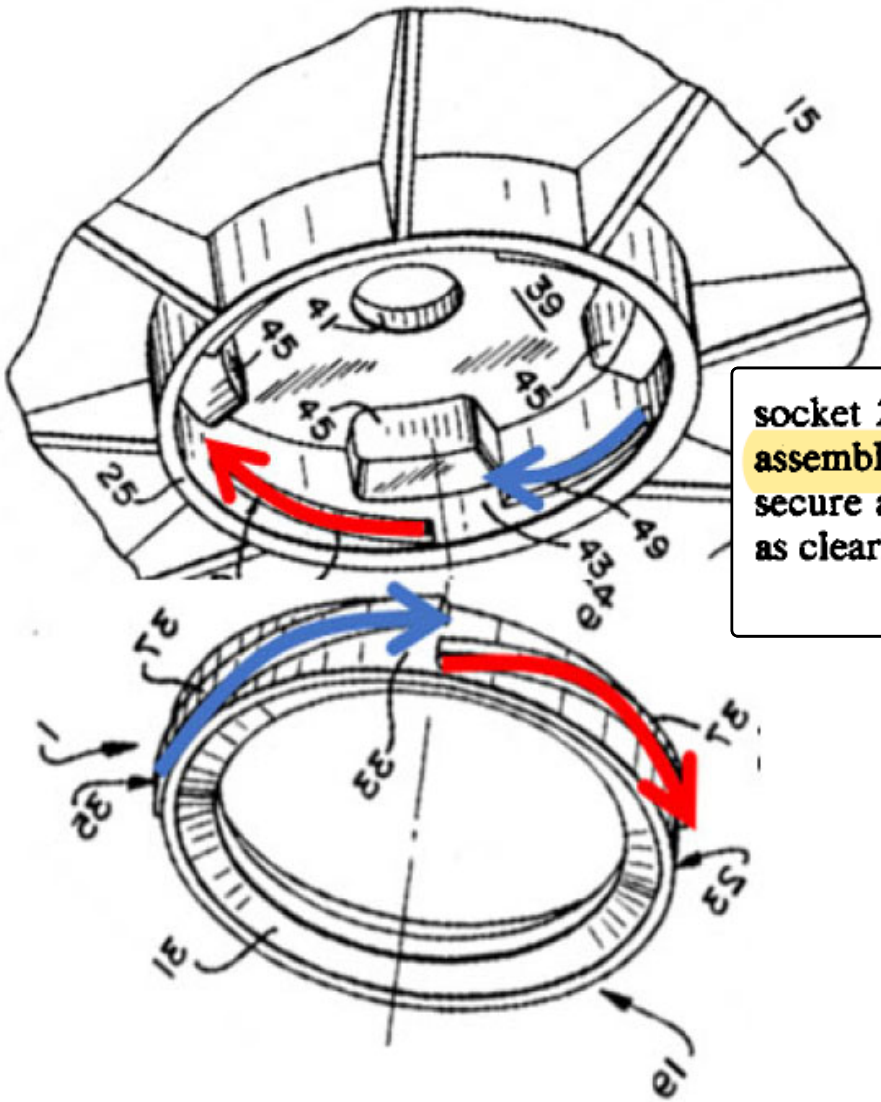
[2] Whether a POSITA would have combined Sasaki with Sokn, Philistine, EP067, or Obrist

[3] Whether there was an long-felt unmet need for the claims

[4] Whether the combination of Sasaki and Sokn discloses the engagement limitation under the Board's final construction of that term

Engagement by Partial Rotation in the Prior Art

Sokn

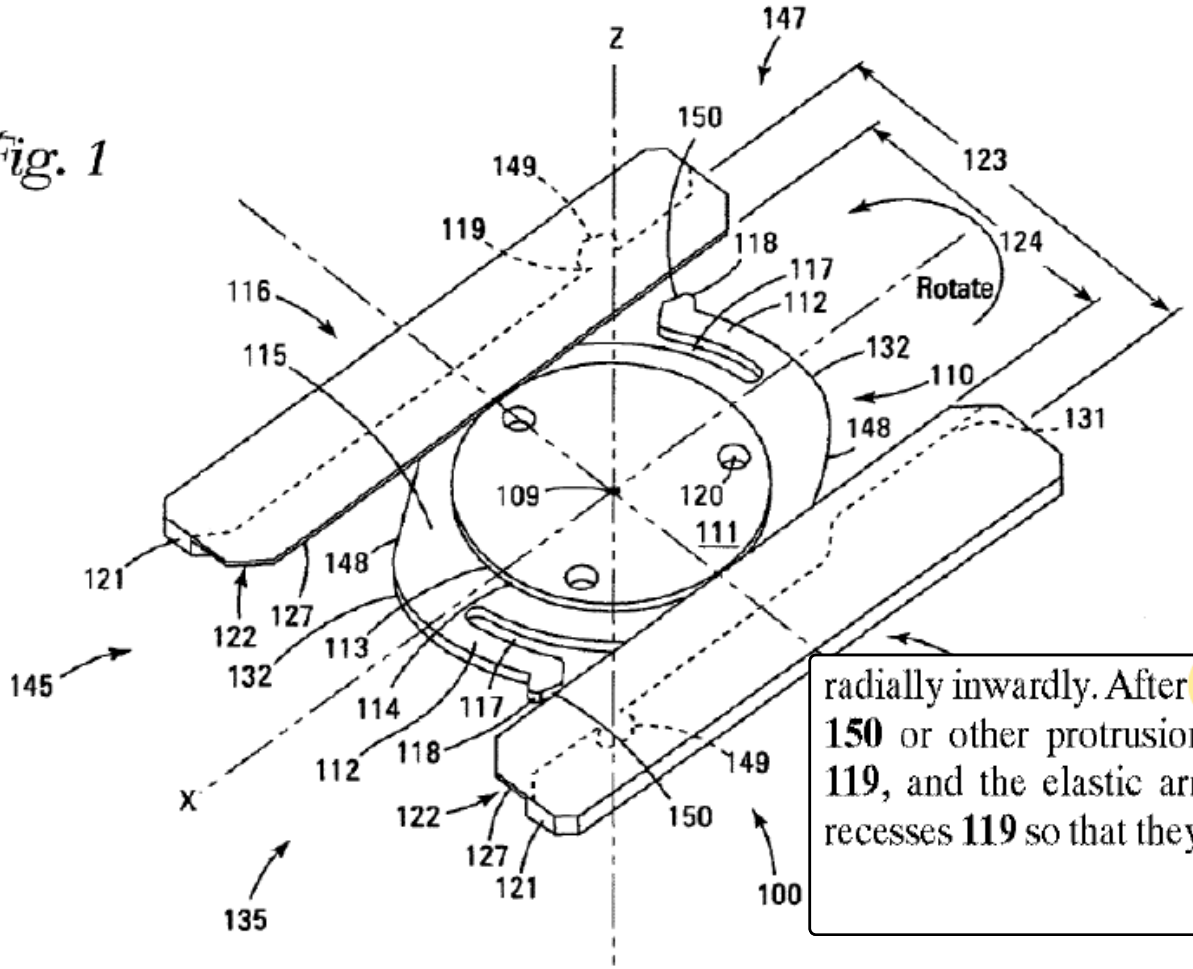


socket **25**. When this is accomplished, rotation of ring assembly **19** 90° with respect to socket **25** results in a secure and aligned interlock connection therebetween, as clearly shown in FIG. **4**. In this position, ring assem-

Exhibit 1007, 3:57-60

Philistine

Fig. 1



radially inwardly. After approximately one-quarter turn, lugs **150** or other protrusions will be positioned over recesses **119**, and the elastic arms **112** will urge the lugs **150** into recesses **119** so that they are seated securely. At this point the

Exhibit 1026, 4:24-27

EP067

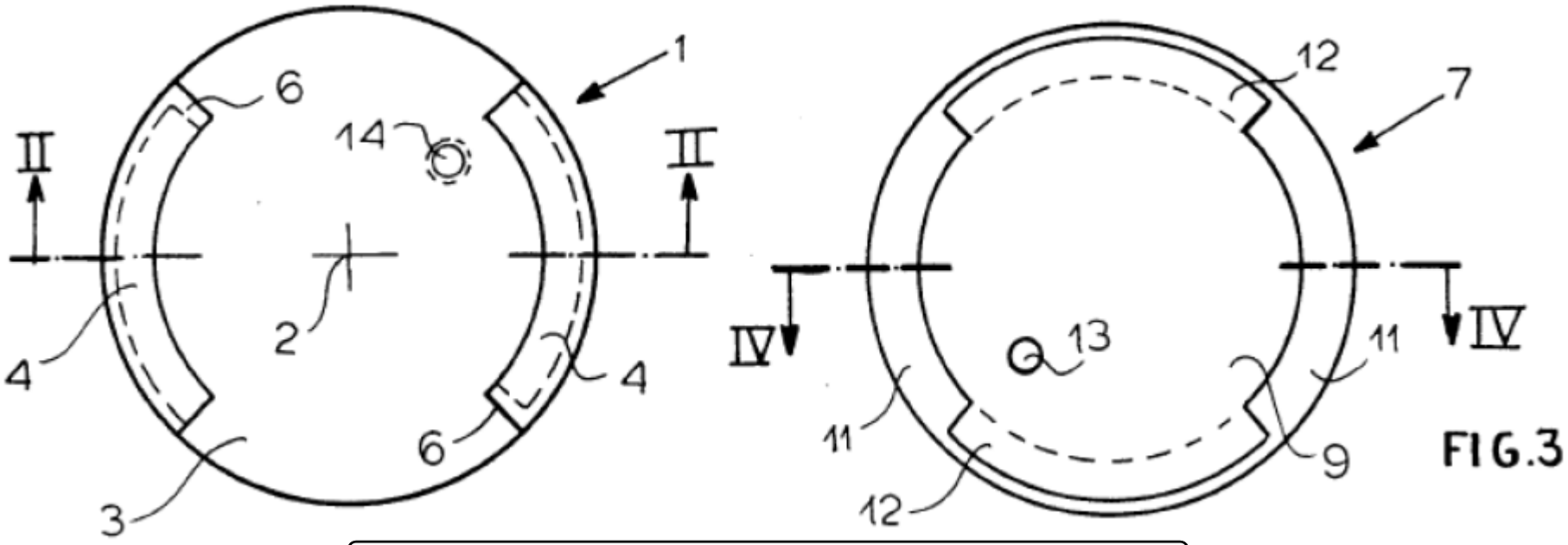
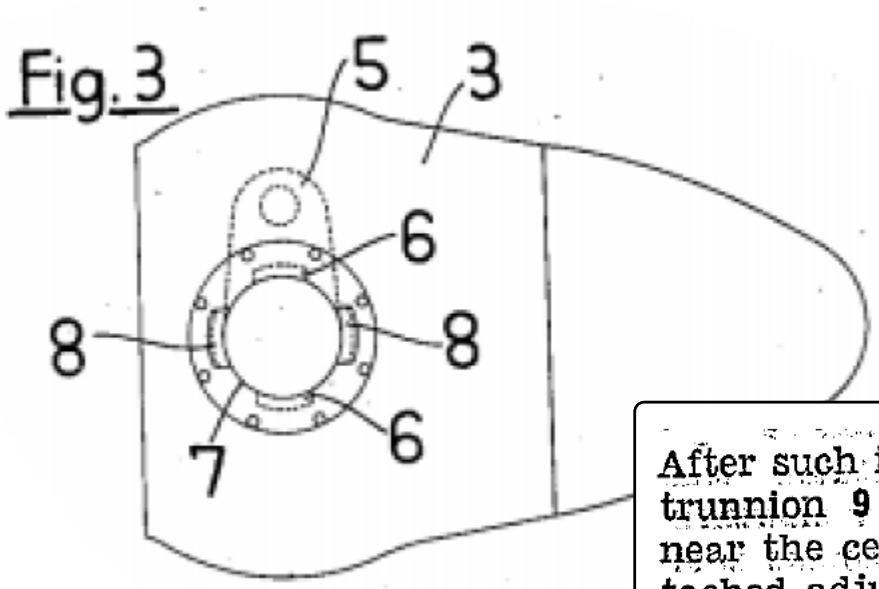


FIG.3

[0008] For the mounting of a new blade, the base of the new blade is fitted onto the plate so that the claws engage in the cutouts and the blade is then rotated through a fraction of a full revolution about its radial axis until the claws engage in the groove and the projections engage beneath the claws. Dismounting of the blade

Exhibit 1018, ¶ 8

Obrist



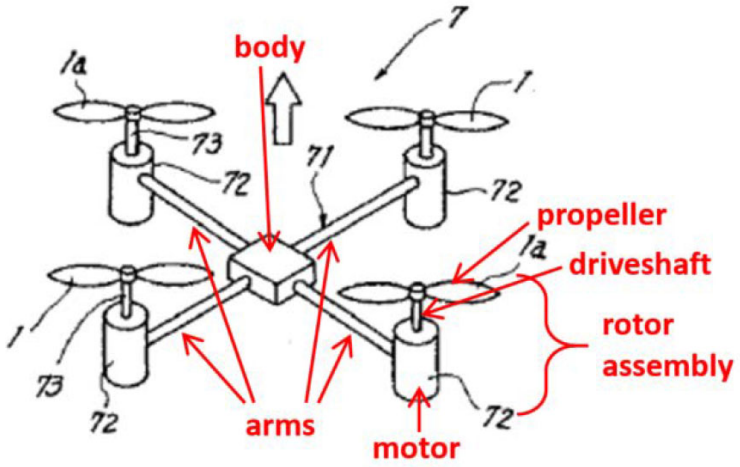
After such introduction and the insertion of the trunnion **9** into the bearing provided therefor near the center of the hub the root and its attached adjusting crank are turned about 90° so that the lugs **6** are displaced from the recesses **8** through which they entered, and engage an arcuate seat formed therefor on the internal face of the hub. The position which results is illus-

Exhibit 1017, 2:47-54

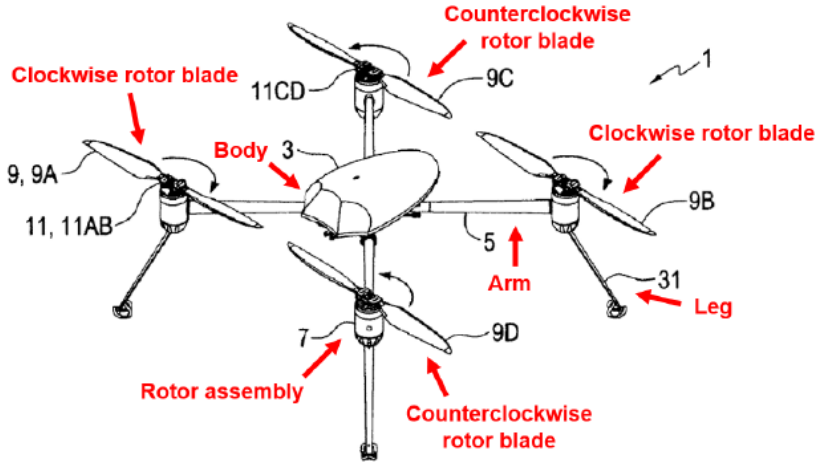
Sasaki

Overview of Sasaki

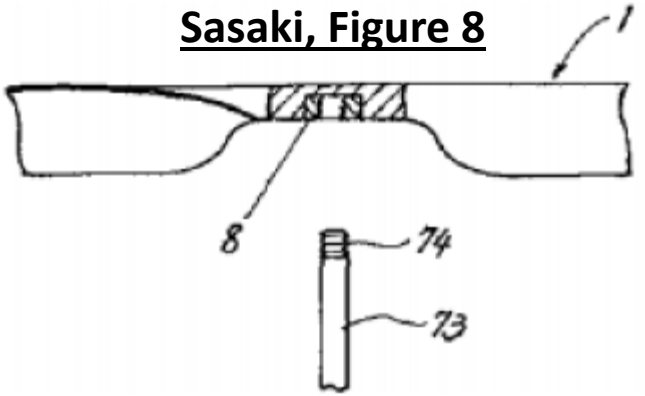
Sasaki, Figure 7



'184 patent, Figure 1



Sasaki, Figure 8



Sasaki's Clockwise & Counterclockwise Lock Mechanisms

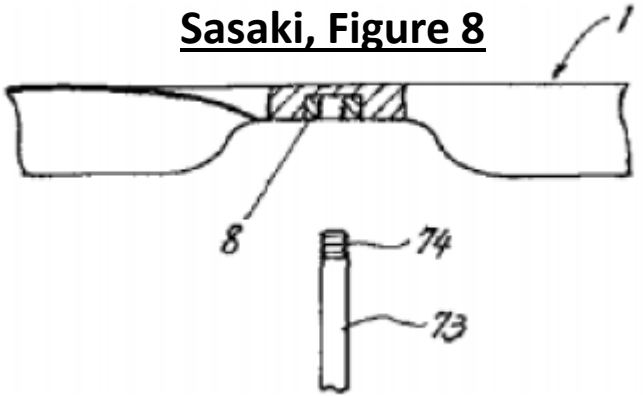
> For this reason, it is necessary to manufacture a propeller which rotates right with a left screw, and a propeller which rotates left with a right nut (8) and a rotating shaft (73).

Exhibit 1006, 2:5-8

Sasaki solves overtightening without mistake-proofing

PRIOR ART

Sasaki, Figure 8



Problem with overtightening

Furthermore, since the nut (8) and the rotating shaft (73) receive a force in the tightening direction due to the rotation of the propeller, when the nut (8) and the rotating shaft of the propeller (73) are tightened more than necessary, the problem that it is difficult to remove the propeller when it is necessary to be replaced, occurs.

Exhibit 1006, 2:9-16

SASAKI'S SOLUTION

Sasaki, Figure 1

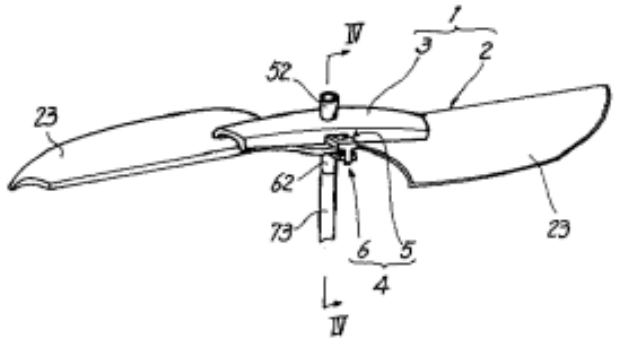


Fig. 1

Problems:

- Not directional
- Not mistake-proof
- Complicated

Knowledge of a POSITA

The benefits of quick and easy blade attachment

Patent Owner's Expert:

I think so. Certainly a person of ordinary skill in the art would have appreciated the ability to remove and attach blades quickly and easily.

Exhibit 1027, 36:2-4

The dangers of misinstallation

Patent Owner's Expert:

Q. Oh, sure. Absolutely. Prior to 2013, would a POSITA have known about the possibility of blade misinstallation by users?

A. I believe so, yes.

Q. And a POSITA would have known prior to 2013 about the consequences of a misinstalled blade in a UAV?

A. I think so, generally, yes. I mean, we have to distinguish fixed-wing and rotary-wing here a little bit, but I think in either case, the consequences may be different, but a person of ordinary skill in the art would understand that there are consequences and would know what they are.

Exhibit 1027, 37:1-14

Keyed & directional approaches for mistake-proofing

Keyed Approaches

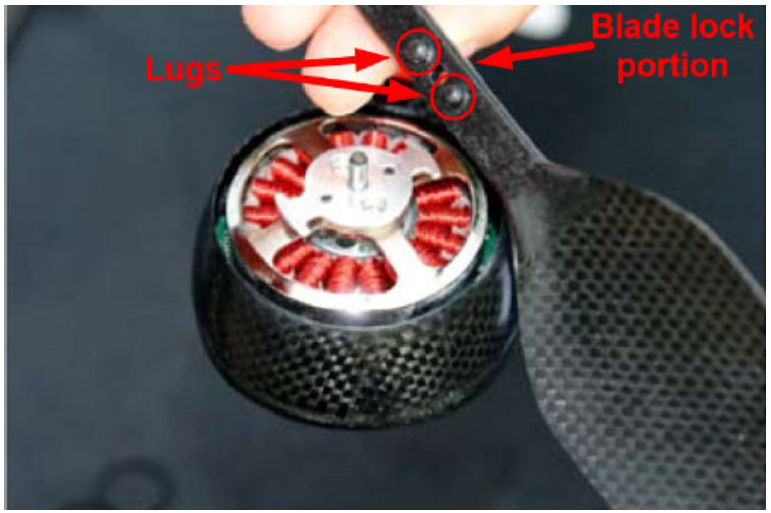
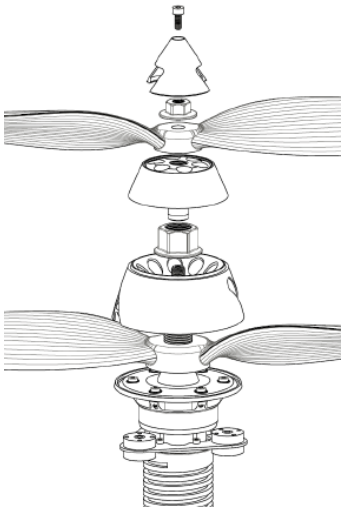
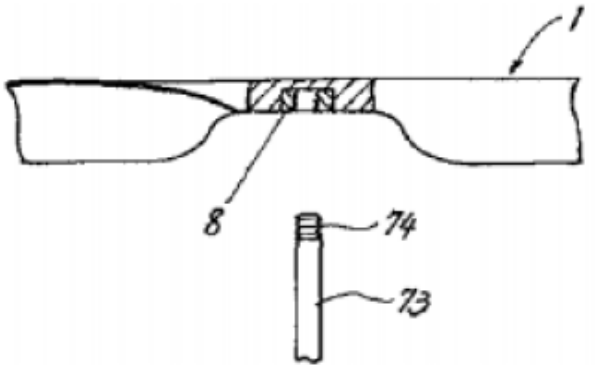


Exhibit 1016, Figure 25



Ex. 1014, p. 10

Directional Approaches



Sasaki, Figure 1

A POSITA would have been motivated to improve Sasaki

Patent Owner's Expert Declaration

prior expert report). DJI has recognized 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. *Id.* Dr. Ducharme agrees. Ex. 1003 ¶ 100. By

Ex. 2007, ¶44

Patent Owner's Expert in Deposition

The same -- a person of ordinary skill in the art -- I'm sure Dr. Ducharme, reading the Sasaki patent, would have seen that there's still problems with the design, the not being mistake-proof.

Ex. 1029, 103:15-19

A POSITA would have been motivated to improve Sasaki

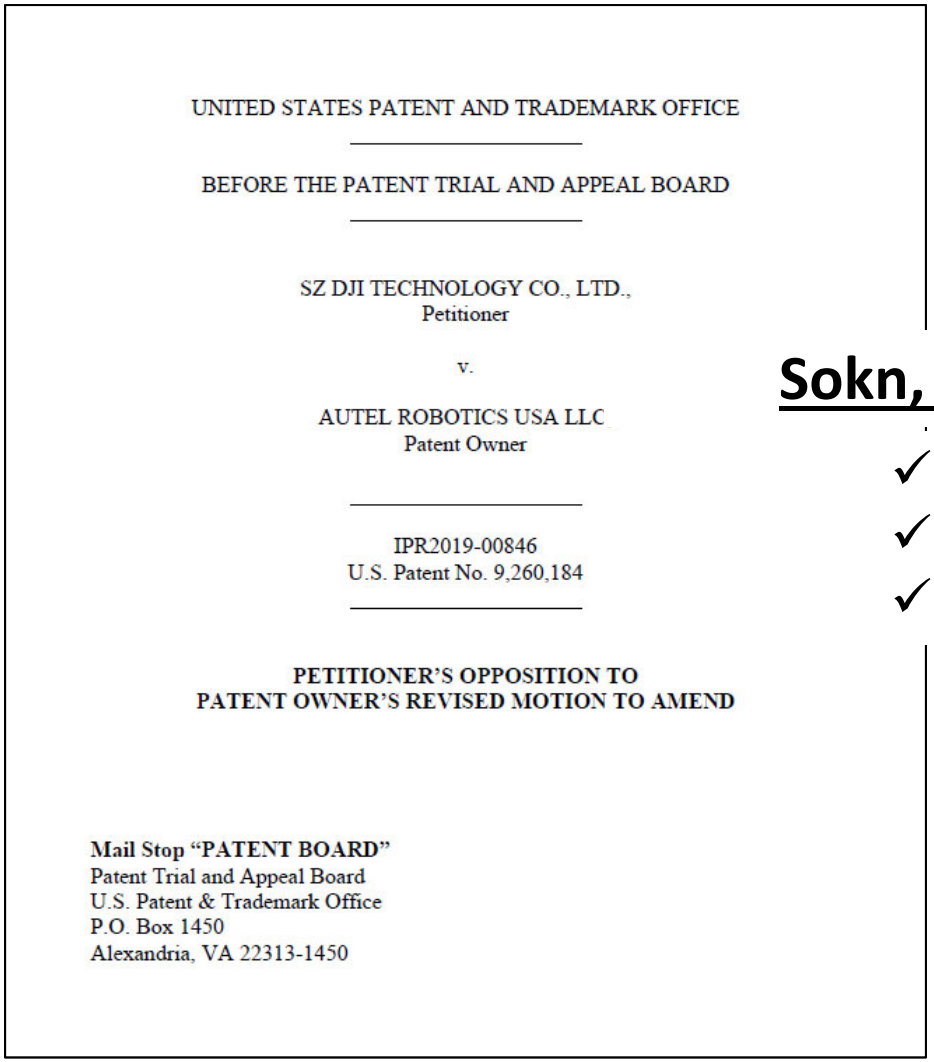
Patent Owner

But that testimony illustrates precisely why a need for a fast and mistake-proof rotor attachment mechanism existed for several decades prior to 2013. As Dr.

PO's Reply, p .9

Improving Sasaki

A POSITA would have been motivated to improve Sasaki



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Patent Owner

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

PETITIONER'S OPPOSITION TO PATENT OWNER'S REVISED MOTION TO AMEND

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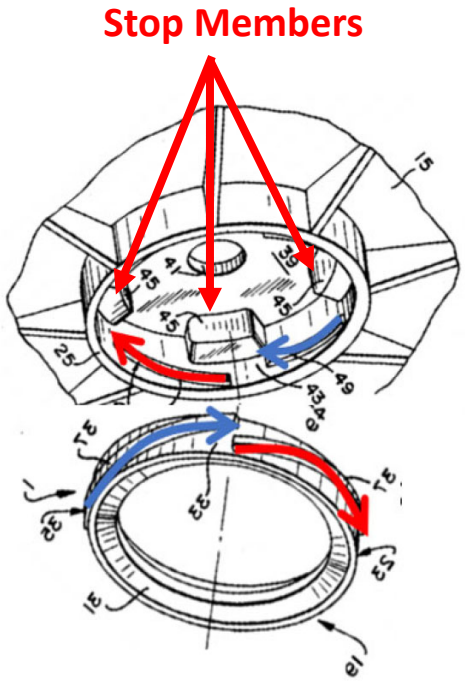
Alexandria, VA 22313-1450

Sokn, Philistine, EP067, and Obrist:

- ✓ **Prevent overtightening**
- ✓ **Quick and easy attachment/detachment**
- ✓ **Directional or keyed mechanism**

Sokn improves Sasaki



✓ **Directional mechanism**

✓ **Prevent overtightening**

as clearly shown in FIG. **4**. In this position, ring assembly **19** is disposed in abutting engagement against stop members **45**, thus assuring a secure attachment between ring assembly **19** and socket **25** which will not become accidentally loosened or disconnected during operation of motor **3**.

Exhibit 1007, 3:60-65

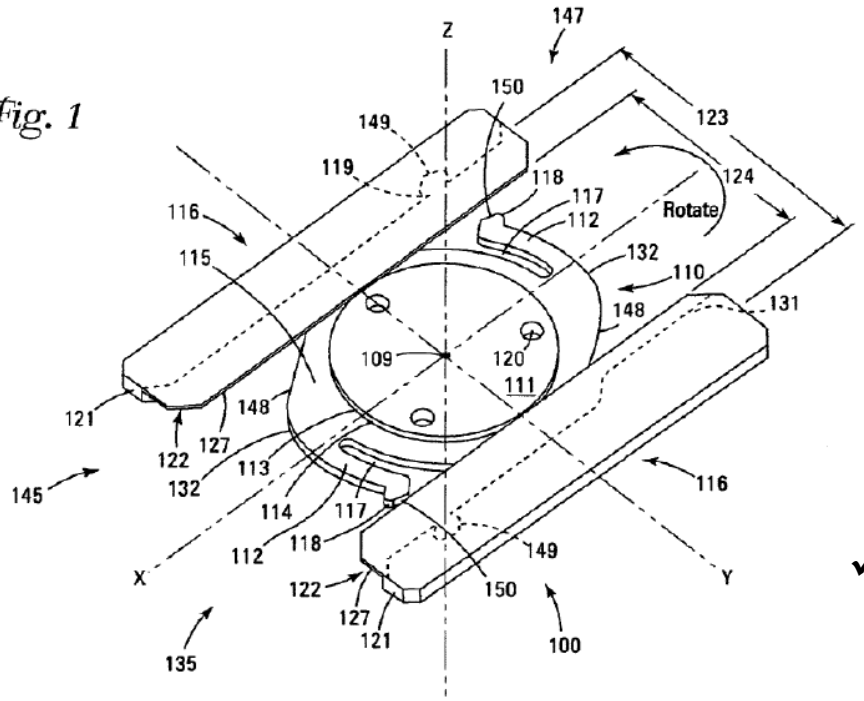
✓ **Quick and easy attachment and detachment**

socket **25**. When this is accomplished, rotation of ring assembly **19** 90° with respect to socket **25** results in a secure and aligned interlock connection therebetween, as clearly shown in FIG. **4**. In this position, ring assem-

Exhibit 1007, 3:57-60

Philistine Improves Sasaki

Fig. 1



✓ **Directional mechanism**

✓ **Prevent overtightening**

radially inwardly. After approximately one-quarter turn, lugs **150** or other protrusions will be positioned over recesses **119**, and the elastic arms **112** will urge the lugs **150** into recesses **119** so that they are seated securely. At this point the mounting member **110** is locked into position and will resist further rotation in the counterclockwise direction. Addition-

Exhibit 1026, 4:24-27

✓ **Quick and easy attachment and detachment**

radially inwardly. After approximately one-quarter turn, lugs **150** or other protrusions will be positioned over recesses **119**, and the elastic arms **112** will urge the lugs **150** into recesses **119** so that they are seated securely. At this point the

Exhibit 1026, 4:24-27

EP067 Improves Sasaki

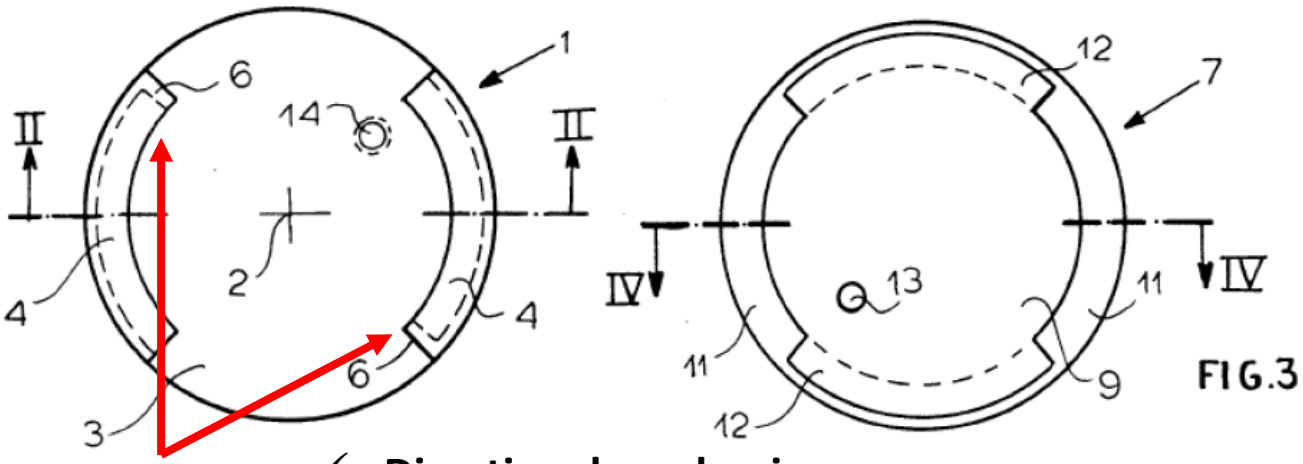


FIG.3

Radial Stops

✓ **Directional mechanism**

✓ **Prevent overtightening**

tions 12 underlie the claws 4. The blade 8 is so rotated until one or both of its projections 12 come to abut a stop 6 both of or the stops 6. In this positior

Exhibit 1018, ¶ 21

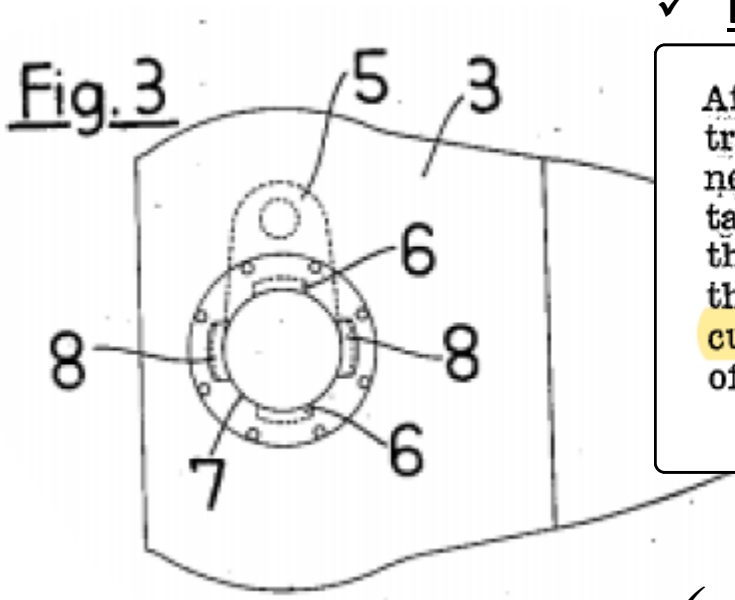
✓ **Quick and easy attachment**

[0008] For the mounting of a new blade, the base of the new blade is fitted onto the plate so that the claws engage in the cutouts and the blade is then rotated through a fraction of a full revolution about its radial axis until the claws engage in the groove and the projections engage beneath the claws. Dismounting of the blade

Exhibit 1018, ¶ 8

Obrist Improves Sasaki

Obrist



✓ **Directional mechanism**

✓ **Prevent overtightening**

After such introduction and the insertion of the trunnion **9** into the bearing provided therefor near the center of the hub the root and its attached adjusting crank are turned about 90° so that the lugs **6** are displaced from the recesses **8** through which they entered, and engage an arcuate seat formed therefor on the internal face of the hub. The position which results is illus-

Exhibit 1017, 2:47-54

✓ **Quick and easy attachment**

After such introduction and the insertion of the trunnion **9** into the bearing provided therefor near the center of the hub the root and its attached adjusting crank are turned about 90° so that the lugs **6** are displaced from the recesses **8** through which they entered, and engage an arcuate seat formed therefor on the internal face of the hub. The position which results is illus-

Exhibit 1017, 2:47-54

Sokn, Philistine, EP067, and Obrist are Analogous Art

Definition of a POSITA

Patent Owner's Expert:

28. It is my opinion that a person of ordinary skill in the art "POSA" at the time of the invention of the '184 patent 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. Additional education could substitute for professional experience and significant work experience could substitute for formal education.

* * *

UAVs, or equivalent experience.") I do not view this definition or Dr. Ducharme's proposed definition as substantially different from mine, and my opinions stated herein would remain the same regardless of whether my, Dr. Ducharme's, or the ITC's POSA definition were applied.

Exhibit 2001, ¶¶ 28, 30

A POSITA Would Not Limit the Prior Art to UAVs

United States Patent [19]
Sokn et al.

[52] U.S. Cl. **403/349**; 403/348; 403/343

403: Joints and connections
403/349: Interfitted members/Bayonet joint
403/348: Interfitted members/Lugged members
403/343: Screw or cam

(12) **United States Patent**
Philistine

(52) U.S. Cl. **248/222.52**; 248/222.12; 248/224.61

248/222.52: Supports/Bracket and mount interlocked by rotational motion

(12) **United States Patent**
Olm et al.

(10) **Patent No.: US 9,260,184 B2**
(45) **Date of Patent: Feb. 16, 2016**

(54) **COMPACT UNMANNED ROTARY AIRCRAFT**

U.S. PATENT DOCUMENTS

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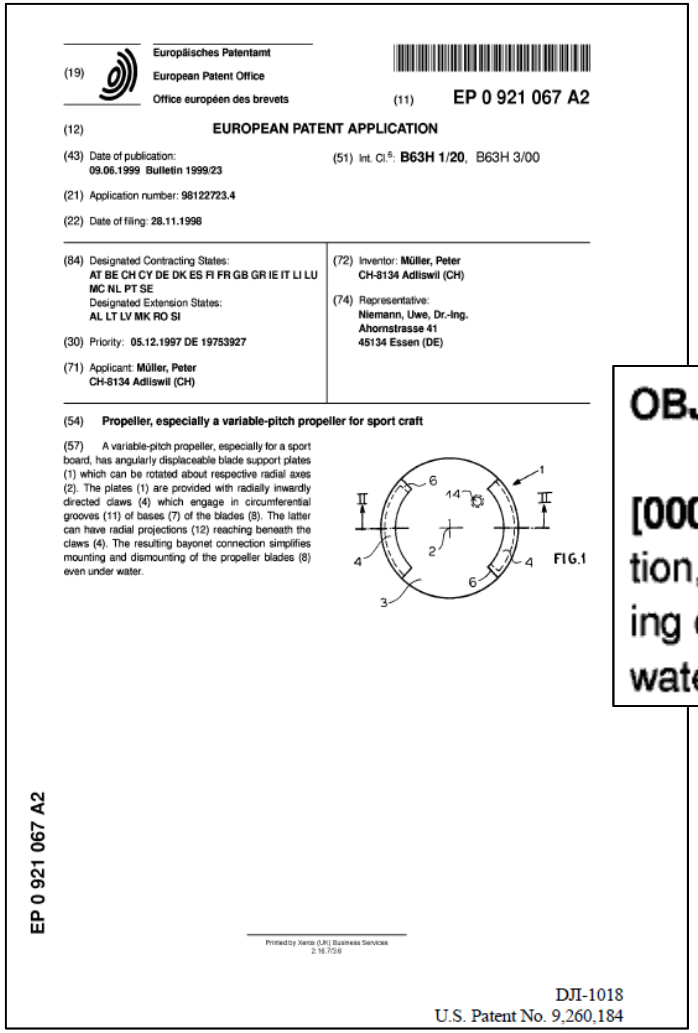
4,161,843	A *	7/1979	Hui	.....	446/37
4,477,228	A *	10/1984	Duffy et al.	.....	416/241 A

EP067 simplifies mounting and dismounting of propellers



(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 921 067 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
09.06.1999 Bulletin 1999/23

(51) Int. Cl.[6]: B63H 1/20, B63H 3/00

(21) Application number: 98122723.4

(22) Date of filing: 28.11.1998

(84) Designated Contracting States:
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Designated Extension States:
AL LT LV MK RO SI

(30) Priority: 05.12.1997 DE 19753927

(71) Applicant: Müller, Peter
CH-8134 Adliswil (CH)

(72) Inventor: Müller, Peter
CH-8134 Adliswil (CH)

(74) Representative:
Niemann, Uwe, Dr.-Ing.
Ahornstrasse 41
45134 Essen (DE)

(54) Propeller, especially a variable-pitch propeller for sport craft

(57) A variable-pitch propeller, especially for a sport board, has angularly displaceable blade support plates (1) which can be rotated about respective radial axes (2). The plates (1) are provided with radially inwardly directed claws (4) which engage in circumferential grooves (11) of bases (7) of the blades (8). The latter can have radial projections (12) reaching beneath the claws (4). The resulting bayonet connection simplifies mounting and dismounting of the propeller blades (8) even under water.

FIG.1

EP 0 921 067 A2

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2.16.7/3.6

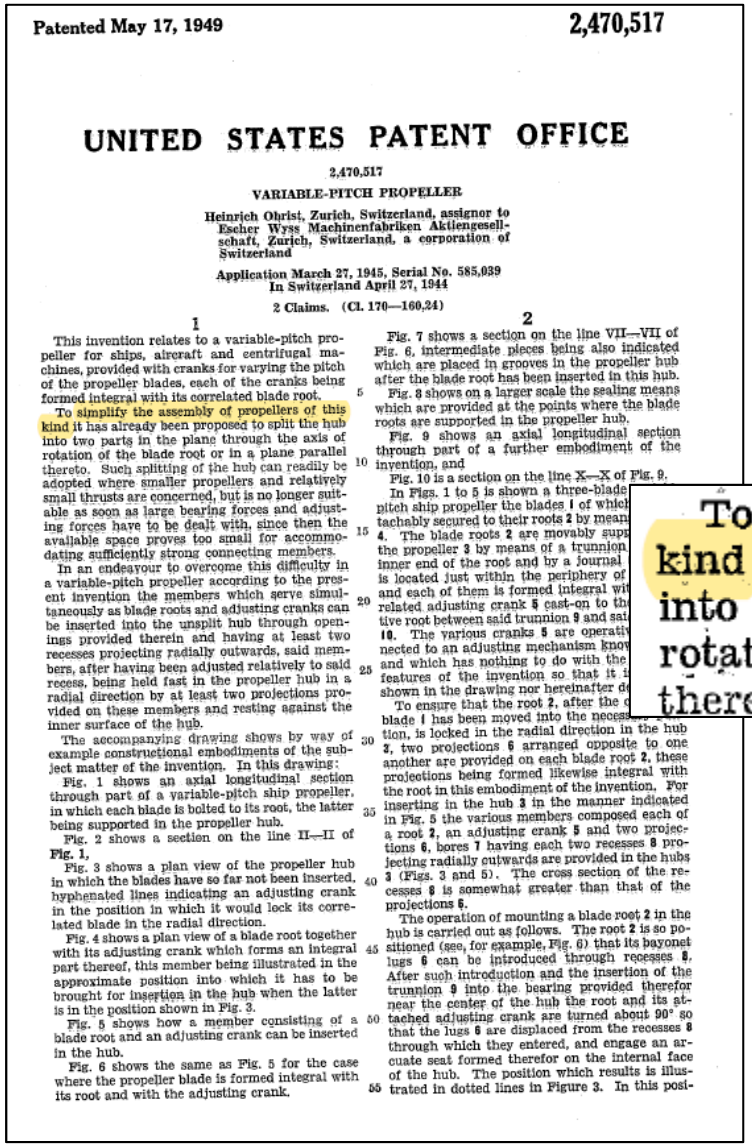
DJI-1018
U.S. Patent No. 9,260,184

OBJECTS OF THE INVENTION

[0004] It is the principal object of the present invention, therefore, to simplify the mounting and dismounting of the blades of a propeller for a sport boat or other watercraft

Exhibit 1018, ¶ 4

Obrist simplifies assembly of propellers



Patented May 17, 1949 2,470,517

UNITED STATES PATENT OFFICE

2,470,517

VARIABLE-PITCH PROPELLER

Heinrich Obrist, Zurich, Switzerland, assignor to Escher Wyss Maschinenfabriken Aktiengesellschaft, Zurich, Switzerland, a corporation of Switzerland

Application March 27, 1945, Serial No. 585,039
In Switzerland April 27, 1944

2 Claims. (Cl. 170—160,24)

1

This invention relates to a variable-pitch propeller for ships, aircraft and centrifugal machines, provided with cranks for varying the pitch of the propeller blades, each of the cranks being formed integral with its correlated blade root.

To simplify the assembly of propellers of this kind it has already been proposed to split the hub into two parts in the plane through the axis of rotation of the blade root or in a plane parallel thereto. Such splitting of the hub can readily be adopted where smaller propellers and relatively small thrusts are concerned, but is no longer suitable as soon as large bearing forces and adjusting forces have to be dealt with, since then the available space proves too small for accommodating sufficiently strong connecting members.

In an endeavour to overcome this difficulty in a variable-pitch propeller according to the present invention the members which serve simultaneously as blade roots and adjusting cranks can be inserted into the unsplit hub through openings provided therein and having at least two recesses projecting radially outwards, said members, after having been adjusted relatively to said recess, being held fast in the propeller hub in a radial direction by at least two projections provided on these members and resting against the inner surface of the hub.

The accompanying drawing shows by way of example constructional embodiments of the subject matter of the invention. In this drawing:

Fig. 1 shows an axial longitudinal section through part of a variable-pitch ship propeller, in which each blade is bolted to its root, the latter being supported in the propeller hub.

Fig. 2 shows a section on the line II—II of Fig. 1,

Fig. 3 shows a plan view of the propeller hub in which the blades have so far not been inserted, hyphenated lines indicating an adjusting crank in the position in which it would lock its correlated blade in the radial direction.

Fig. 4 shows a plan view of a blade root together with its adjusting crank which forms an integral part thereof, this member being illustrated in the approximate position into which it has to be brought for insertion in the hub when the latter is in the position shown in Fig. 3.

Fig. 5 shows how a member consisting of a blade root and an adjusting crank can be inserted in the hub.

Fig. 6 shows the same as Fig. 5 for the case where the propeller blade is formed integral with its root and with the adjusting crank.

2

Fig. 7 shows a section on the line VII—VII of Fig. 6, intermediate pieces being also indicated which are placed in grooves in the propeller hub after the blade root has been inserted in this hub.

Fig. 8 shows on a larger scale the sealing means which are provided at the points where the blade roots are supported in the propeller hub.

Fig. 9 shows an axial longitudinal section through part of a further embodiment of the invention, and

Fig. 10 is a section on the line X—X of Fig. 9.

In Figs. 1 to 5 is shown a three-blade pitch ship propeller the blades 1 of which tachably secured to their roots 2 by mean 4. The blade roots 2 are movably supp the propeller 3 by means of a trunnion inner end of the root and by a journal is located just within the periphery of and each of them is formed integral wit related adjusting crank 5 cast-on to th tive root between said trunnion 9 and sai 10. The various cranks 5 are operati nected to an adjusting mechanism kno and which has nothing to do with the features of the invention so that it i shown in the drawing nor hereinafter d

To ensure that the root 2, after the blade 1 has been moved into the necess tion, is locked in the radial direction in the hub 3, two projections 6 arranged opposite to one another are provided on each blade root 2, these projections being formed likewise integral with the root in this embodiment of the invention. For inserting in the hub 3 in the manner indicated in Fig. 5 the various members composed each of a root 2, an adjusting crank 5 and two projections 6, bores 7 having each two recesses 8 projecting radially outwards are provided in the hubs 3 (Figs. 3 and 5). The cross section of the recesses 8 is somewhat greater than that of the projections 6.

The operation of mounting a blade root 2 in the hub is carried out as follows. The root 2 is so positioned (see, for example, Fig. 6) that its bayonet lugs 6 can be introduced through recesses 8. After such introduction and the insertion of the trunnion 9 into the bearing provided therefor near the center of the hub the root and its attached adjusting crank are turned about 90° so that the lugs 6 are displaced from the recesses 8 through which they entered, and engage an arcuate seat formed therefor on the internal face of the hub. The position which results is illustrated in dotted lines in Figure 3. In this posi-

To simplify the assembly of propellers of this kind it has already been proposed to split the hub into two parts in the plane through the axis of rotation of the blade root or in a plane parallel thereto. Such splitting of the hub can readily be

Exhibit 1017, 1:6-10

Disclosure of the Engagement Limitation

Misthreading of propellers is not engagement

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;

'184 patent, Claim 1

Patent Owner's Expert:

22. Dr. Ducharme stated in his second declaration that when a blade is screwed onto the wrong driveshaft, the "metal threads on the shaft lock portion are likely carving out new notches in the blade lock portion." (Ex. 1028 at ¶ 49). I agree that this is one possible result when a blade is screwed onto the wrong driveshaft, but other results are possible depending on the shaft and blade material properties, the interface diameter, the size and style of the threads and the particular forces and torques being applied. For example, the threads on most carbonated drink bottles

A soft bottle cap (not Sokn)

Ex. 2016, ¶ 22

Dr. Reinholtz does not dispute that propeller threads would be destroyed by cross-threading.

There was no long-felt unmet need for the claimed system

There was no long-felt need in this young industry

Alfred Ducharme
July 13, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SZ DJI TECHNOLOGY CO., LTD.,

Petitioner,

v.

AUTEL ROBOTICS USA LLC,

Patent Owner.

Case IPR2019-00846

Patent 9,260,184

The discovery teleconference

deposition of ALFRED DUCHARME, called by the

U.S. LEGAL SUPPORT
www.uslegalsupport.com

DJI v. Autel
IPR2019-00846

Autel Ex. 2012, p.1

Dr. Ducharme:

available to build these crafts. So I really think of the start of multi-rotor aircraft as being, you know, the prevalence, I'll say, 2010.

Exhibit 2012, 35:2-4

Smithsonian Air & Space Magazine:

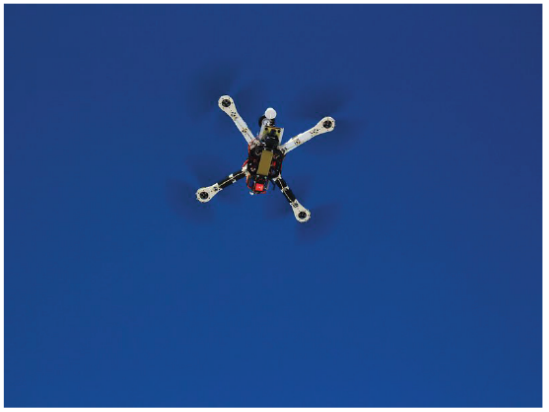
During the mid-to-late 2000s, quads continued to grow in popularity among hobbyists. In 2010, the French company Parrot released their "AR.Drone," the first commercially successful ready-to-fly consumer drone, and the first able to be controlled solely by a Wi-Fi connection. The drone immediately made a splash, and Parrot's successor quads remain in demand.

Exhibit 2015, p. 2

A Brief History of Quadrotors

airspacemag.com/daily-planet/brief-history-quadrotors-180963372

Follow @eddarack



Today you can buy quadrotor drones—also known as quadcopters—of just about any kind, for just about any price. The extremely wealthy can buy gold-plated quads, and the rest of us can buy tiny plastic ones.

DJI v. Autel
IPR2019-00846

Autel Ex. 2015, p.1

1/2

Need for simple, mistake-proof mechanism was not unmet

USER MANUAL

md4-200

Version 2.2

microdrones GmbH
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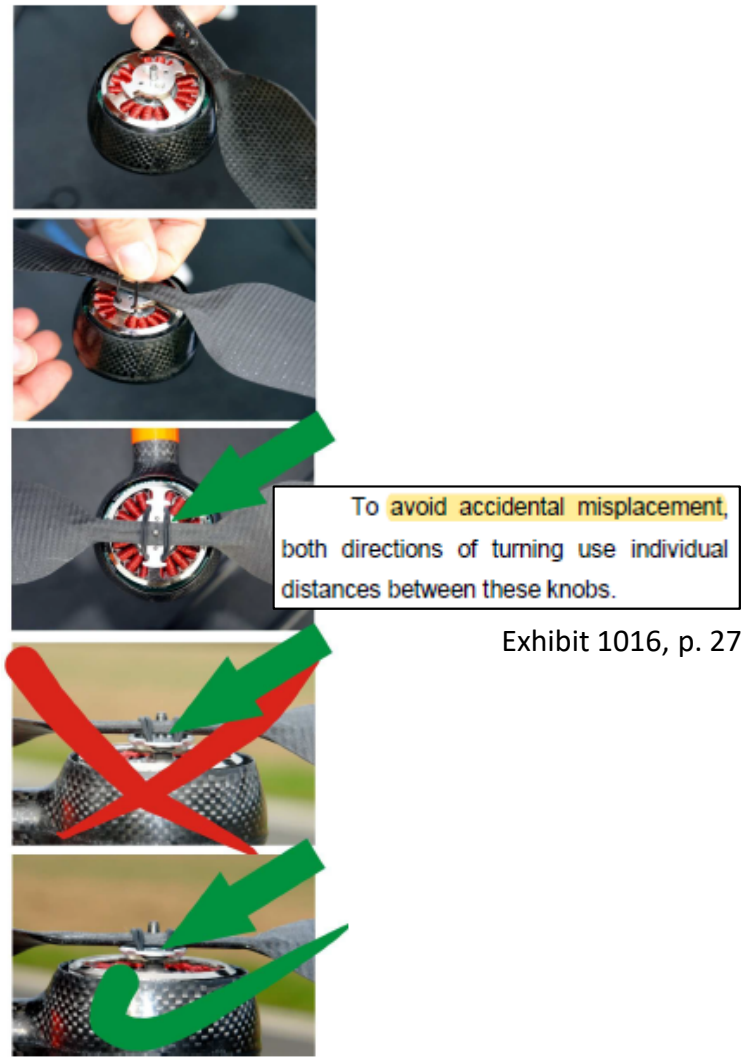
Fax: +49 (0)2732 762 150
E-mail: info@microdrones.com

DJI-1016
U.S. Patent No. 9,260,184

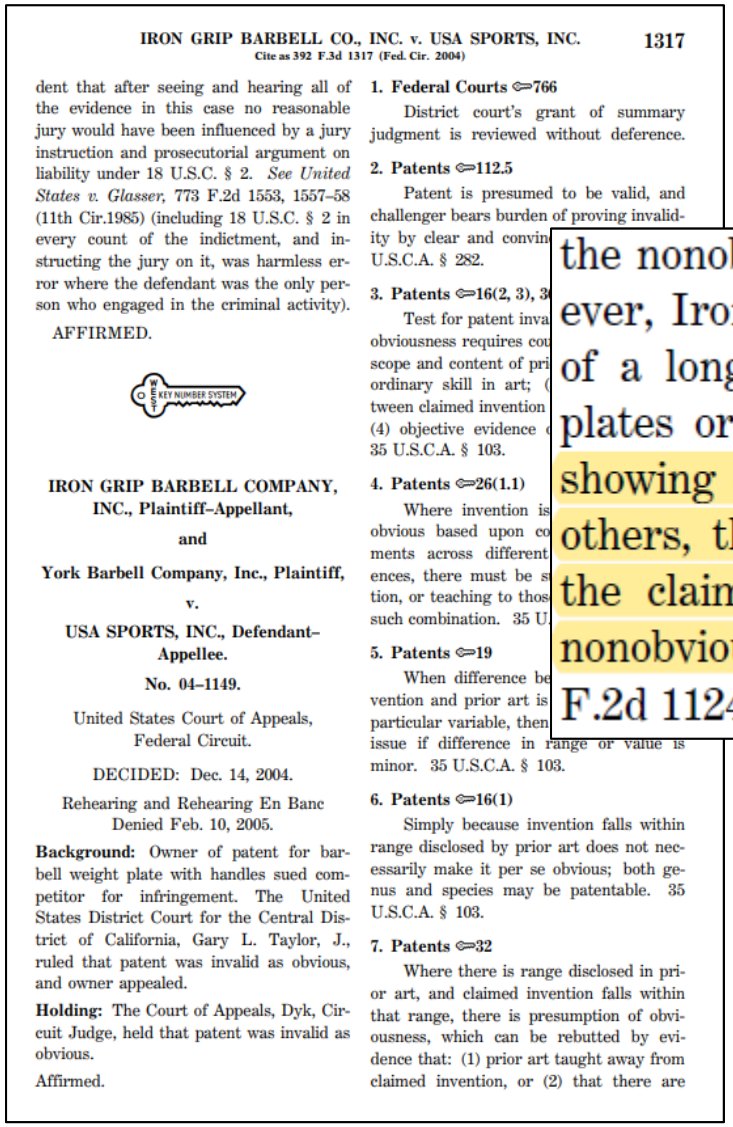
2.1.2.2 Assembling the Rotors



To avoid accidental misplacement, both directions of turning use individual distances between these knobs.

Exhibit 1016, p. 27

There is no evidence of long-felt need



IRON GRIP BARBELL CO., INC. v. USA SPORTS, INC. 1317
Cite as 392 F.3d 1317 (Fed. Cir. 2004)

dent that after seeing and hearing all of the evidence in this case no reasonable jury would have been influenced by a jury instruction and prosecutorial argument on liability under 18 U.S.C. § 2. *See United States v. Glasser*, 773 F.2d 1553, 1557–58 (11th Cir.1985) (including 18 U.S.C. § 2 in every count of the indictment, and instructing the jury on it, was harmless error where the defendant was the only person who engaged in the criminal activity).

AFFIRMED.

KEY NUMBER SYSTEM

IRON GRIP BARBELL COMPANY, INC., Plaintiff–Appellant,

and

York Barbell Company, Inc., Plaintiff,

v.

USA SPORTS, INC., Defendant–Appellee.

No. 04–1149.

United States Court of Appeals, Federal Circuit.

DECIDED: Dec. 14, 2004.

Rehearing and Rehearing En Banc Denied Feb. 10, 2005.

Background: Owner of patent for barbell weight plate with handles sued competitor for infringement. The United States District Court for the Central District of California, Gary L. Taylor, J., ruled that patent was invalid as obvious, and owner appealed.

Holding: The Court of Appeals, Dyk, Circuit Judge, held that patent was invalid as obvious.

Affirmed.

1. Federal Courts ⇐766

District court's grant of summary judgment is reviewed without deference.

2. Patents ⇐112.5

Patent is presumed to be valid, and challenger bears burden of proving invalidity by clear and convin
U.S.C.A. § 282.

3. Patents ⇐16(2, 3), 3

Test for patent inva
obviousness requires cou
scope and content of pri
ordinary skill in art; (
tween claimed invention
(4) objective evidence
35 U.S.C.A. § 103.

4. Patents ⇐26(1.1)

Where invention is
obvious based upon co
ments across different
ences, there must be s
tion, or teaching to thos
such combination. 35 U.

5. Patents ⇐19

When difference be
vention and prior art is
particular variable, then
issue if difference in range or value is minor. 35 U.S.C.A. § 103.

6. Patents ⇐16(1)

Simply because invention falls within range disclosed by prior art does not necessarily make it per se obvious; both genus and species may be patentable. 35 U.S.C.A. § 103.

7. Patents ⇐32

Where there is range disclosed in prior art, and claimed invention falls within that range, there is presumption of obviousness, which can be rebutted by evidence that: (1) prior art taught away from claimed invention, or (2) that there are

the nonobviousness of its invention. However, Iron Grip has presented no evidence of a long-felt need for three-grip weight plates or the failure of others. Absent a showing of long-felt need or the failure of others, the mere passage of time without the claimed invention is not evidence of nonobviousness. *See In re Wright*, 569 F.2d 1124, 1127 (C.C.P.A.1977).

Iron Grip Barbell Co., Inc. v. USA Sports, Inc., 392 F.3d 1317, 1325 (Fed. Cir. 2004)

Scope of the Revised Amended Claims

Claim 12 improperly expands the scope of Claim 3

Claim 3 of the ’184 patent (canceled)

3. The apparatus of claim 1 wherein the blade lock portion of the clockwise lock mechanism **is rotated** counterclockwise with respect to the shaft lock portion thereof to releasably attach the clockwise rotor blade to the first driveshaft.

Requires rotation

Revised Substitute Claim 12 (proposed)

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 counterclockwise rotation** with respect to the shaft lock portion of the clockwise lock mechanism to releasably attach the clockwise rotor blade to the first driveshaft.

Does not require rotation

Claim 12 improperly expands the scope of Claim 3

Claim 4 of the ’184 patent (canceled)

4. The apparatus of claim 3 wherein the blade lock portion of the counterclockwise lock mechanism **is rotated** clockwise with respect to the shaft lock portion thereof to releasably attach the counterclockwise rotor blade to the second driveshaft.

Requires rotation

Revised Substitute Claim 13 (proposed)

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 clockwise rotation** with respect to the shaft lock portion of the counterclockwise lock mechanism to releasably attach the counterclockwise rotor blade to the second driveshaft.

Does not require rotation

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing **PETITIONER'S DEMONSTRATIVE EXHIBITS** was served via electronic mail on August 11, 2020, in its entirety on the following:

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August 11, 2020