Applicant(s)	Geert DEVISCH	**AMENDMENT AND RESPONSE UNDER 37 C.F.R. § 1.111-1.112**
Serial No.	14/399,752	
Filing Date	November 7, 2014	
Group Art Unit	3745	
Examiner Name	HUNTER, John S.	
Confirmation No.	7315	
Attorney Docket No.	7020-261	
Title: WINDTURBINE AND BUILDING HAVING SUCH A WIND TURBINE		

Commissioner for Patents
P.O. Box 1450
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In response to the Non-Final Office Action mailed on December 14, 2016, kindly consider the following remarks.

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims begin on page 3 of this paper.

Remarks begin on page 7 of this paper.

It is believed that all necessary fees have been submitted herewith. Please charge any underpayments and credit any overpayments to deposit account 504882.

In the Specification:

Kindly amend the first paragraph on the first page of the Specification as follow:

--The present invention relates to a wind turbine ~~according to the preamble of the first claim~~.--

Kindly amend the first paragraph on the first page of the Specification as follow:

--This is achieved by ~~such~~ a wind turbine of the present invention~~which additionally has the technical features of the characterizing part of the first claim~~.--

Kindly amend the first full paragraph on page seven of the Specification as follow:

--Figs. 1, 2, 6 and 7 illustrate a wind turbine (1) according to the invention with a rotor (2), rotatably arranged around the shaft (3) of the wind turbine (1). The wind turbine (1) is preferably arranged in a location where there are strong winds, such as for example on the roof (17) of a building having a rood edge (18), for example a cooling tower, as illustrated in Fig. 3, on the top of a pillar or an aerial mast and other locations where the force of the wind is not reduced by surrounding structures and the presence of the wind turbine 1 is not regarded as aesthetically unpleasant.--

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1. (Currently Amended) Wind turbine comprising:

- a rotor, rotatably arranged around a rotation shaft of the wind turbine according to a rotating movement around the rotation shaft, having a plurality of blades which are fitted point-symmetrically around the rotation shaft, in which the blades delimit air flow ducts and are arranged such that they can drive the rotor according to the rotating movement around the rotation shaft under ~~the~~ an effect of the wind, and in which each of the blades extends between a first blade end and a second blade end, in which the first blade ends are ~~is~~ arranged only a distance from the rotation shaft and the second blade ends are ~~is~~ arranged further away from the rotation shaft than said first blade ends;

- a cavity which extends between the first blade ends of the blades, in which the air flow ducts between the blades' ends; and

- a plurality of vanes, arranged around the rotor which delimit air flow ducts in order to guide wind to the blades of the rotor and thereby to drive the rotor according to the rotating movement, in which each of the vanes extends between a first vane end and a second vane end, in which the first vane ends are ~~is~~ arranged ~~virtually~~ approximately at the location of the second blade ends of the blades and the second vane ends are ~~is~~ arranged further away from the rotation shaft than the first vane ends;

wherein, when the vanes and the blades are in line with one another, they merge into each other at the second blade ends of the blades and the first vane ends of the vanes at approximately ~~virtually~~ the same curvature approximately ~~virtually~~ mathematically tangentially in a plane approximately ~~virtually~~ at right angles to the rotation shaft, and wherein there are approximately twice as many vanes as blades;

~~in that~~wherein the curvature of the blades, at the location of their first blade ends, extends radially to the rotation shaft in this plane, and ~~in that~~wherein the curvature of the vanes in this plane, is described by a part of an approximately ~~virtually~~ logarithmic spiral;

wherein the ratio of the distance between the second vane ends of two consecutive vanes and the distance between the second blade ends of two consecutive blades of the rotor is given by a factor A which can assume values from 2.6 on; and

wherein the cavity is cylindrical with a diameter, the diameter of the rotor being approximately 2.875 multiplied by the diameter of the cavity.

2. (Previously presented) Wind turbine according to Claim 1, characterized in that the rotation shaft is a vertical shaft.

3. (Currently amended) Wind turbine according to Claim 1, characterized in that the approximately ~~virtually~~ logarithmic spiral is an approximately ~~virtually~~ golden spiral with a growth factor of approximately the golden ratio.

4. (Currently amended) Wind turbine according to Claim 3, characterized in that the approximately ~~virtually~~ logarithmic spiral is approximated by the fact that the curvature radius of the vanes increases at each quarter turn, starting at the second blade ends of the blades, in a stepped manner by a factor a, with a being calculated as 1.618 ± 3% and with the curvature radius over the first quarter turn being equal to the factor a multiplied by the curvature radius of the blades.

5. (Previously presented) Wind turbine according to Claim 1, characterized in that the vanes are arranged point-symmetrically around the rotor.

6. (Currently amended) Wind turbine according to Claim 1, characterized in that the curvature of the blades is ~~virtually~~ substantially crescent-shaped in a plane approximately ~~virtually~~ at right angles to the rotation shaft.

7. (Canceled)

8. (Currently Amended) Wind turbine according to Claim 1, characterized in that the ~~ratio~~

~~of the distance between the second ends of two consecutive vanes and the distance between the second ends of two consecutive blades of the rotor is given by a~~ factor A ~~which~~ can assume values from ~~2.6, preferably~~ 5.2 or greater.

9. (Previously presented) Wind turbine according to Claim 1, characterized in that the height of the rotor is substantially equal to the golden ratio multiplied by the diameter of the rotor.

10. (Canceled)

11. (Currently amended) Wind turbine according to Claim 1, characterized in that the wind turbine comprises ~~limiting elements which at least partly delimit the~~ air flow duct delimiters between the blades, approximately ~~virtually~~ at right angles to the rotation shaft.

12. (Currently amended) Wind turbine according to Claim 1, characterized in that the wind turbine comprises ~~limiting elements which at least partly delimit the~~ air flow duct delimiters between the vanes, approximately ~~virtually~~ at right angles to the rotation shaft.

13. (Currently amended) Wind turbine according to Claim 11, characterized in that at least a part of the ~~limiting elements~~air flow duct delimiters in a plane through the rotation shaft has described a curvature through a part of an approximately ~~virtually~~ logarithmic spiral.

14. (Currently amended) Wind turbine according to Claim 1, characterized in that ~~the~~ an air displacement of a condenser is directed towards the wind turbine.

15. (Previously presented) Wind turbine according to Claim 1, characterized in that a supply hose is connected to the rotor in order to supply fluids to the rotor.

16. (Currently amended) Building comprising a roof which at least partly covers the building, in which said roof comprises a roof edge, characterized in that the building comprises a

wind turbine according to Claim 1 on the roof of the building, in which the rotation shaft of the wind turbine is arranged substantially ~~virtually~~ parallel to the roof edge.

17. (Previously presented) Building according to Claim 16, characterized in that the rotation shaft of the wind turbine is a horizontal shaft.

REMARKS

Applicant appreciates the Examiner's thorough review of the application. Reconsideration and allowance of all claims as amended are respectfully requested. No new matter has been added by the amendments.

By this amendment, claims 7 and 10 are canceled without prejudice and without disclaimer, and claims 1, 3 – 4, 6, 8, 11 – 14, and 16 are amended. Claim 1 has been amended to incorporate the subject matter of canceled claims 7 and 10, as well as the subject matter canceled from claim 8. The remaining claims have been amended as suggested by the Examiner to overcome the formal issues noted thereby. Claims 1 – 6, 8 – 9, and 11 – 17 are now pending in the application, including independent claim 1.

Claims 1 – 6, 8 – 9, and 11 - 13 as amended are patentable under 35 U.S.C. 103(a) as being non-obvious over Roberts (U.S. Patent No. 6,465,899) in view of Giorgini (U.S. Patent No. 5,852,331).

When determining whether a claim is obvious, an examiner must make "a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art." *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Thus, "obviousness requires a suggestion of all limitations in a claim." *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (*citing In re Royka*, 490 F.2d 981, 985 (CCPA 1974))(emphasis added). Moreover, as the Supreme Court recently stated, "*there must be some articulated reasoning* with some rational underpinning to support the legal conclusion of

obviousness." *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006) (emphasis added)).

Independent claim 1 as amended is distinguished from Roberts and Giorgini at least in that it recites a cavity which extends between the first blade ends of the blades, in which the air flow ducts between the blades' ends, the cavity being cylindrical with a diameter, the diameter of the rotor being approximately 2.875 multiplied by the diameter of the cavity and that the ratio of the distance between the second vane ends of two consecutive vanes and the distance between the second blade ends of two consecutive blades of the rotor is 2.6 or greater. The cited references do not teach or suggest such limitations, taken alone or in combination.

The Examiner concedes that neither of these limitations is taught or suggested by the cited prior art (*Office Action*, page 12, discussing claims 8 and 10), instead arguing that these limitations are mere design choice. The Examiner thus relies on *In re Boesch* for the proposition that "discovering an optimum value of a result effective variable involves only routine skill in the art" and that it would therefore have been obvious to "make the above stated design choices to the geometry in order to optimize working fluid flow."

MPEP §2144.04 states: "If the facts in the prior art legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court." MPEP §2144.04 further states "If the Applicant has demonstrated the criticality of a specific limitation, it would not be appropriate to rely solely on case law as the rationale to support an obviousness rejection." (emphasis added)

In re Boesch involved claims to a nickel alloy having percentages of constituent metals within certain ranges. All of these percentages overlapped with the percentages taught by the prior art, and these percentages were described in the prior art as affecting the problem addressed

by the applicant and "expressly suggesting" the changes to these material levels taught by the claims. Thus, the claimed parameters were known to be variables that affected the applicant's desired result, and the process aside from those parameters was known, and as such the claims were found to be obvious.

It is respectfully submitted that the facts of the In re Boesch case are not sufficiently similar to those in the instant application to support Examiner's use of the precedent as a source of supporting rationale for a determination of obviousness. The prior art relied upon by the Examiner in this case does not discuss the claimed ratios at all, does not identify them as effective in addressing the problem solved by the claimed invention, and certainly does not expressly suggest modifying them as taught by the present claims. Accordingly, the Examiner's reliance on the precedent as the sole rationale to support the obviousness determination is improper under MPEP § 2144.04.

Applicant would further note MPEP § 2144.05(II)(B), which states that "a parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routing experimentation." (emphasis added). There is no evidence in the record suggesting that the claimed ranges were recognized as result-effective variable. Optimization is not a *per se* rule, and the cited prior art needs to evidence that the variable was recognized to be a result-effective variable for the claimed purpose for a finding of obviousness. E.g. Ex parte Collison, (Appeal 2010-002734).

Furthermore, the specific claimed limitations are critical, such that "it would not be appropriate to rely solely on case law as the rationale to support an obviousness rejection." By using the vanes and the blades as claimed, shaped and positioned according to the differing

features, it is possible to increase the velocity of the wind present around the wind turbine without significantly disturbing the laminarity of the air flow, so that it becomes possible to increase the rotary velocity of the rotor at naturally occurring wind velocities. Above a certain wind velocity, it has been discovered that the rotary velocity of the rotor of the claimed invention suddenly increases at an otherwise steady increase in wind velocity.

It is believed that from a certain critical, rotary-dependent rotary velocity of the hollow rotor, which is caused by the wind which is supplied, an underpressure is created in the cavity of the hollow rotor that causes the rotary velocity of the hollow rotor to increase to a greater degree at an increased wind velocity than before the critical rotary velocity is reached. This critical rotary velocity has not previously been described for wind turbines.

This is illustrated in the following flow chart of a wind turbine according to the invention:

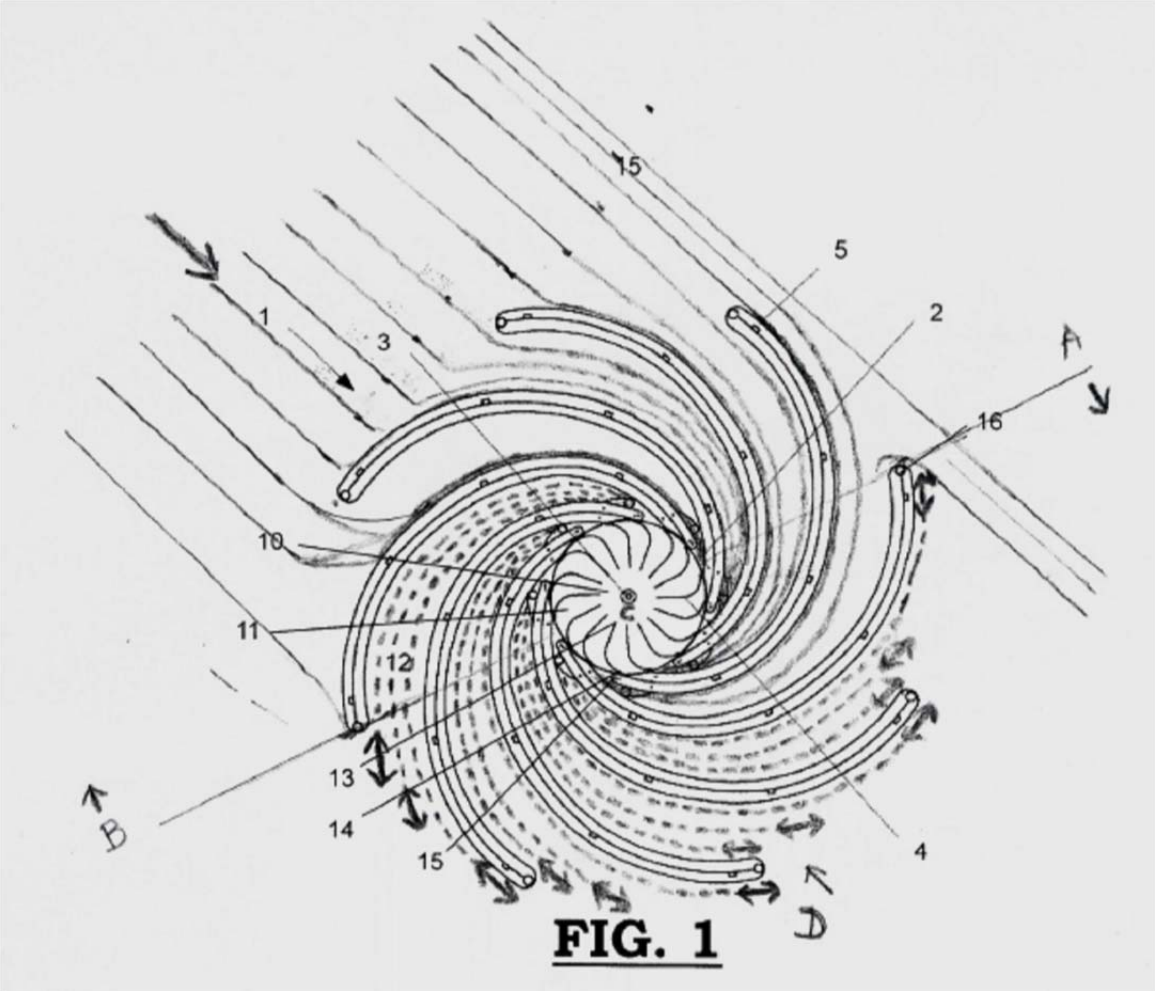

FIG. 1

At the back of the wind turbine, velocity is decreased. At point A the rotor is boosted with a high pressure, while at point B it is pulled due to the presence of the lower pressure. In the cavity the pressure remains rather constant, such that the rotor keeps turning, even at lower wind velocities such as e.g. 0.8 m/s.

With a wind turbine according to Roberts, the wind rather flows through the wind turbine, without such increased velocity. This is illustrated in the following flow chart of the wind turbine according to Roberts:

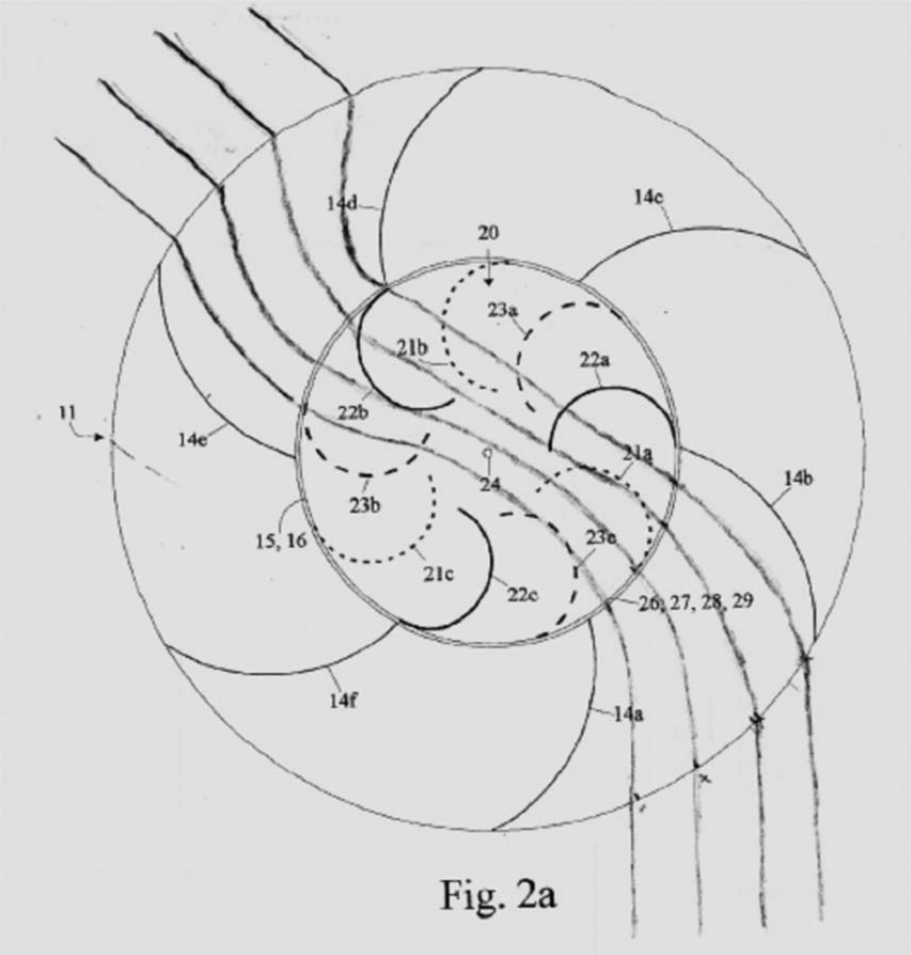

Fig. 2a

There is no similar boost as in the wind turbine according to the claimed invention. At higher speed (>80 rpm), the system even slows itself down, when turbulence is created in the cavity and the back pressure becomes too high.

It has been found that, under common wind conditions on earth, said critical rotary velocity can only be achieved with difficulty, if at all, by wind turbines with a hollow rotor without increasing the natural wind velocity present by means of vanes having a curvature according to the claimed invention, thus limiting the efficiency of wind turbines.

By making use of the vanes and blades according to the claimed invention, the vanes make it possible to increase the velocity of the wind which is present around the wind turbine to just above the critical rotary velocity.

Thanks to the vanes and blades as claimed, shaped and positioned according to the differing features, efficiency of such a wind turbine is thus increased. The claimed ranges are thus critical and not obvious design changes.

Furthermore, the claimed ranges are in no way suggested by Roberts or Giorgini, which if anything teach away from the claimed limitations.

A man skilled in the art, when consulting Roberts in order to find a solution to the objective technical problem, would believe that he has to provide the rotor of his wind turbine with two horizontal conical sails and that he should provide a therein described stator with unique curvature and angle of the vertical blades ([0014]), which would lead him away from the solution of claim 1. He would not find any incentive in Roberts to adopt the differing features of claim 1.

A man skilled in the art would not consult Giorgini in order to find a solution to the objective technical problem, as the wind turbine described therein does not have a central cavity and therefore works completely differently, as wind entering between the rotor blades will exit the wind turbine in a different way. Even if he would consult Giorgini, he would not find any incentive therein to adopt the differing features of claim 1.

Nothing in these references would suggest to a person of skill in the art that the claimed range limitations would be important in any way.

At least because Roberts and Giorgini do not teach or suggest all the claimed limitations, as conceded by the Examiner, and because the claimed ranges are not recognized as result

effective variables and are critical, independent claim 1 is nonobvious and patentable in view of the prior art.

Dependent claims 2 – 6, 8 – 9, and 11 – 13 depend from and share the patentable limitations of claim 1 and add further patentable limitations.

Therefore, the cited references do not teach or suggest all the limitations of claims 1 – 6, 8 – 9, and 11 – 13 as amended. For at least the above reasons, the rejection under 35 U.S.C. 103(a) of these claims over Roberts in view of Giorgini is improper and should be withdrawn.

Claim 14 is patentable under 35 U.S.C. 103(a) as being non-obvious over Roberts (U.S. Patent No. 6,465,899) in view of Giorgini (U.S. Patent No. 5,852,331) and further in view of T'000 (*Parasitic Wind Turbine*, by "Tool Using Animal").

Claim 14 depends from and shares the patentable limitations of claim 1, and adds further patentable subject matter. T'000 does nothing to supply the limitations lacking in Roberts and Giorgini. Claim 14 is therefore patentable at least based on its dependency from independent claim 1, and the rejection thereof should therefore be withdrawn.

Claim 15 is patentable under 35 U.S.C. 103(a) as being non-obvious over Roberts (U.S. Patent No. 6,465,899) in view of Giorgini (U.S. Patent No. 5,852,331) and further in view of S'000 (*Build a 15,000 rpm Tesla Turbine using hard drive platters*, by "sbtroy").

Claim 15 depends from and shares the patentable limitations of claim 1, and adds further patentable subject matter. S'000 does nothing to supply the limitations lacking in Roberts and Giorgini. Claim 15 is therefore patentable at least based on its dependency from independent claim 1, and the rejection thereof should therefore be withdrawn.

Claims 16 – 17 are patentable under 35 U.S.C. 103(a) as being non-obvious over Roberts (U.S. Patent No. 6,465,899) in view of Giorgini (U.S. Patent No. 5,852,331) and further in view of Attey (U.S. Pub. No. 2009/0304512).

Claims 16 and 17 depend from and share the patentable limitations of claim 1, and add further patentable subject matter. Attey does nothing to supply the limitations lacking in Roberts and Giorgini. Claims 16 and 17 are therefore patentable at least based on their dependency from independent claim 1, and the rejections thereof should therefore be withdrawn.

CONCLUSION

Applicant respectfully requests reconsideration and allowance of all claims as amended.

It is believed that all the pending claims have been addressed in this paper. However, failure to address a specific rejection, issue or comment, does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above are not intended to be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claims does not necessarily signify concession of unpatentability of the claim prior to its amendment or prior claims.

If the Examiner has any questions or concerns regarding this application, please contact the undersigned at the telephone number listed below.

Respectfully submitted,

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