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VOLPE AND KOENIG, P.C. UNITED PLAZA 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			RUFO, RYAN C	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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eoffice@volpe-koenig.com

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1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Claim Rejections - 35 USC § 112

2. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-17 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

- a. Claim 1 recites the phrase "in order" in lines 5, 12-13 and 16. The phrase is ambiguous as it is not clear whether it means "any order" or "in the order described." Moreover, does it mean that the limitations described are sequentially connected or merely one after another without having to be connected/adjacent to each other?
Applicant must amend to clarify without adding new matter.

- b. Claim 10 recites the limitation that "an auxiliary major cutting edge . . . located between the first major cutting edge and the second flat cutting edge" in Lines 2-3. However, it appears from the specification and the drawings that the auxiliary major (or primary) cutting edge is part of the second flat cutting edge. Applicant must amend without adding new matter.

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c. Claim 16 recites the limitation that “the second flat cutting edge has a convex curve toward a front end of the holder” in Lines 3-4. It is not clear what is meant by this limitation. Where is the front of the holder? The front of the holder in relation to the insert pocket (in the rotation direction)? Applicant must amend so that the metes and bounds of this limitation can be understood by a person of ordinary skill in the art.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 7, 8, 10, 11, 13 and 17 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Choi et al. (2010/0239379 A1).

5. (Claim 1) Choi et al. (“Choi”) discloses a cutting insert (Figs. 7-14) with an upper surface, a lower surface and a side surface connected to both the upper and lower surfaces. The side surface includes a first side surface and a second side surface (Fig. 13) in order of one after the other. The insert also includes a cutting edge (22, 34, 38). The cutting edge comprises a first flat cutting edge (34, 38) and a first major cutting edge (22) in an order of one after the other and in an intersection region of the first side surface and the upper surface. The cutting edge also includes a second flat cutting edge (34, 38) and a second major cutting edge (22) in an order of one after the other and in an intersection region of the second side surface and the upper surface. The first side surface comprises a first chamfered side surface with a curved shape (Fig. 13), a first corner side surface with a planar shape (Fig. 13), and a first major side surface (Fig. 13) in order of one after the other. The second side surface comprises a second chamfered side surface

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with a curved shape (Fig. 13), a second corner side surface with a planar shape (Fig. 13), and a second major side surface (Fig. 13) in order of one after the other. The intersection region of the second side surface and the upper surface comprise a first intersection region of the second chamfered side surface and the upper surface, and a second intersection region of the second corner side surface and the upper surface (Figs. 11-13). The second flat cutting edge is located from the first intersection region to the second intersection region. The second flat cutting edge has a lowermost portion in the first intersection region in a side view (Fig. 11).

6. (Claim 2) The second flat cutting edge has a downward convex curve (Figs 11-13) with respect to a reference plane perpendicular to a central axis of the cutting insert in a side view (Fig. 11).

7. (Claim 7) The second side surface further comprises a second intermediate side surface located between the second corner side surface and the second major side surface (Figs. 11, 13). The intersection region of the second side surface and the upper surface further comprises a third intersection region of the second intermediate side surface and the upper surface (Figs. 11, 13). The cutting edge further includes an intermediate cutting edge which is located in the third intersection region and has an upward convex curve (Fig. 11) with respect to the reference plane in a side view.

8. (Claim 8) The first major cutting edge is located in an intersection region of the first major side surface and the upper surface (Figs. 11, 13). The first major cutting edge is inclined downward with respect to the reference plane as the first major cutting edge approaches the second corner side surface in a side view (Figs. 11, 13).

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9. (Claim 10) The cutting edge includes an auxiliary major cutting edge located between the first major cutting edge and the second flat cutting edge (Figs. 11, 13). The auxiliary cutting edge is inclined downward with respect the reference plane as the auxiliary cutting edge approaches from the major cutting edge to the second flat cutting edge in a side view (Fig. 11).

10. (Claim 11) The auxiliary cutting edge is continuously inclined downward with respect to the reference plane as the auxiliary major cutting edge approaches from the first major cutting edge to the second flat cutting edge in a side view (Figs. 11, 13).

11. (Claim 13) Choi also discloses a cutting tool (Fig. 9) that includes a holder and a cutting insert as described above.

12. (Claim 17) Choi also discloses (Fig. 9 and inherently) a method of manufacturing a machined product (intended use of Choi), which includes rotating a cutting tool (Fig. 9), bringing the cutting edge of the rotating cutting tool into contact with a workpiece, and the separating the cutting tool from the workpiece.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 13, 15 and 17 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Smilovici et al. (US Pub. No. 2007/0003384 A1).

14. (Claim 1) Smilovici_et al. (“Smilovici”) discloses a cutting insert (Figs. 1-14) with an upper surface, a lower surface and a side surface connected to both the upper and lower surfaces. The side surface includes a first side surface and a second side surface (Fig. 3) in order of one after the other. The insert also includes a cutting edge (Figs. 1-4). The cutting edge comprises a first flat cutting edge and a first major cutting edge in an order of one after the other and in an

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intersection region of the first side surface and the upper surface (Figs. 2-4). The cutting edge also includes a second flat cutting edge and a second major cutting edge in an order of one after the other and in an intersection region of the second side surface and the upper surface (Figs. 2-4). The first side surface comprises a first chamfered side surface with a curved shape (Fig. 3), a first corner side surface with a planar shape (Fig. 3), and a first major side surface (Fig. 3) in order of one after the other. The second side surface comprises a second chamfered side surface with a curved shape (Fig. 3), a second corner side surface with a planar shape (Fig. 3), and a second major side surface (Fig. 3) in order of one after the other. The intersection region of the second side surface and the upper surface comprise a first intersection region of the second chamfered side surface and the upper surface, and a second intersection region of the second corner side surface and the upper surface (Figs. 1-4). The second flat cutting edge is located from the first intersection region to the second intersection region. The second flat cutting edge has a lowermost portion in the first intersection region in a side view (Fig. 4).

15. (Claim 13) Smilovici also discloses a cutting tool (Figs. 1, 11) that includes a holder and a cutting insert as described above.

16. (Claim 15) Smilovici also discloses the second flat cutting edge is perpendicular to the rotation axis of the holder (Figs. 1, 11).

17. (Claim 17) Smilovici also discloses (Figs. 1, 11-14 and inherently) a method of manufacturing a machined product (intended use of Smilovici), which includes rotating a cutting tool (Figs. 13, 14), bringing the cutting edge of the rotating cutting tool into contact with a workpiece, and the separating the cutting tool from the workpiece.

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Claim Rejections - 35 USC § 103

18. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claim 14 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Smilovici et al. (US Pub. No. 2007/0003384 A1).

20. (Claim 14) Smilovici does not explicitly disclose positioning the insert to have a negative axial rake angle. However, at the time of invention it would have been obvious to a person having ordinary skill in the art to provide the insert with a negative axial rake angle as a function of the material to be cut, rotation speed and feed rate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN RUFO whose telephone number is (571)272-4604. The examiner can normally be reached on Mon - Fri 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/RYAN RUFO/
Examiner, Art Unit 3722

/DANIEL HOWELL/
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