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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL THOLIN, FREDRIK WESTBERG,
STEFAN BERGH, and IDA JOHANSSON

Appeal 2018-006970
Application 14/233,932
Technology Center 3700

Before BENJAMIN D. M. WOOD, BRETT C. MARTIN, and
ANNETTE R. REIMERS, *Administrative Patent Judges*.

MARTIN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–11, 13, 14, and 16–22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Slipnaxos Aktiebolag. Appeal Br. 4.

CLAIMED SUBJECT MATTER

The claims are directed to “a grinding tool for grinding hard and/or brittle materials such as tungsten carbide.” Spec. ¶ 1. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A grinding tool for machining hard and/or brittle materials, comprising:
 - a core having a core composition; and
 - an abrasive rim having a rim composition differing from the core composition,
 - wherein the abrasive rim comprises abrasive particles embedded in a matrix,
 - wherein the matrix comprises a metallic bonding agent comprising a sintered bronze alloy sintered together with a polymeric bonding agent to form a connected network,
 - wherein the metallic bonding agent further comprises silicon nitride,
 - wherein the polymeric bonding agent comprises up to 50% by volume of the matrix,
 - wherein the metallic bonding agent comprises 50% - 100% by volume of the matrix,
 - wherein the silicon nitride comprises 0.02% - 3.0% by volume of the metallic bonding agent, and
 - wherein the silicon nitride is present in the shape of grains having a mean grain size in a range of 1µm – 10µm.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Fischbacher	US 6,063,148	May 16, 2000
Andrews	US 6,485,532 B2	Nov. 26, 2002
Tanaka	JP 2003-094341A	Apr. 3, 2003
Akaike	JP 2009-241157A	Oct. 22, 2009

REJECTIONS

Claims 1–8, 10, 11, 14, 16–18, 20, and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanaka, Fischbacher, and Andrews. Ans. 3.

Claims 9, 13, 19, and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanaka, Fischbacher, Andrews, and Akaike. Ans. 18–19.

OPINION

Obviousness

Appellant argues the claims as a group. Accordingly, we select claim 1 as representative and all claims stand or fall with claim 1. We note that although Appellant argues claims 9, 13, 19, and 21 under a separate heading, Appellant merely states that Akaike “does not cure the deficiencies noted above with respect to the other references applied against the claims,” thus no separate argument is actually presented. Appeal Br. 24.

Appellant first argues “that the absence of any discussion of a polymeric bonding agent in the material described by Tanaka is fatal to the rejections.” Appeal Br. 17. This argument essentially vitiates obviousness as a valid basis for rejection because it would require a single reference to teach all of the aspects of the claim to be valid. There is no requirement that motivation or discussion of a missing element be contained within a reference in order for an Examiner to combine a secondary reference to supply that missing element. Here, the Examiner acknowledges that Tanaka fails to teach the claimed polymeric bonding agent, but looks to Fischbacher to supply that missing element. All that is required of the Examiner is to

Appeal 2018-006970
Application 14/233,932

provide a reasonable basis with rational underpinnings for making the combination.

Appellant also asserts that Tanaka teaches away from the silicon nitride content because Tanaka allegedly “discourages the addition of less than 5 vol. % of silicon nitride to avoid embrittlement of the abrasive material.” Appeal Br. 18 (citing Tanaka ¶ 8). As the Examiner correctly points out, however, Tanaka teaches only that a volumetric ratio of a *hard grain* should not be below 5%, not specifically silicon nitride. Ans. 28 (citing Tanaka ¶ 9). The Examiner is correct that Tanaka teaches that the hard grain may be a mixture of one, two, or three kinds of hard grains, of which silicon nitride could be one. In a combination of two or three different hard grains totaling 5%, Tanaka clearly allows for silicon nitride in a percentage less than 5%.

Appellant next argues that Fischbacher is not combinable with Tanaka because Fischbacher fails to teach the inclusion of silicon nitride as an abrasive. Again, Appellant argues the references individually. Appellant asserts “that there is nothing in either Tanaka or Fischbacher to suggest that a resinoid bonding agent should be added to the combination of materials described by Tanaka.” Appeal Br. 19. This is not the requirement for obviousness. The Examiner’s rejection is based upon the finding that both Tanaka and Fischbacher teach “similar superabrasive grinding wheels.” Ans. 27. Tanaka teaches the claimed abrasive particles and Fischbacher teaches the use of polymeric bonding for use in grinding wheels having abrasive particles. Appellant points to no reason why silicon nitride in particular would be incompatible with the polymeric bonding agent of Fischbacher and nothing in Fischbacher limits the use of a polymeric binding agent to any specific kind of abrasives. Fischbacher teaches the

Appeal 2018-006970
Application 14/233,932

general knowledge that polymeric bonding provides superior performance for holding abrasive particles when grinding brittle materials. Ans. 31. Contrary to Appellant's assertion, this is not hindsight reasoning, but reasoning taken directly from Fischbacher itself.

Appellant also asserts that the claimed invention achieved unexpected results that the Examiner has failed to address. Reply Br. 4. Appellant suggests that the Examiner's combination is invalid because Tanaka fails to teach a polymeric bonding agent. *Id.* Appellant's unexpected results, however, deal only with the percentage of silicon nitride present, which the Examiner has correctly noted is found in Tanaka. Appellant again argues the references individually and fails to tie the unexpected results to the presence of the bonding agent missing from Tanaka. As such, the Examiner's combination of Tanaka and Fischbacher is valid.

Lastly, Appellant argues that Andrews fails to support a rejection for obviousness. Appeal Br. 22. Appellant repeats the same arguments that Andrews, like Tanaka, fails to teach any polymeric bonding agent and that Tanaka teaches away from the claimed percentages found in Andrews. *Id.* We first note that the Examiner is correct that Andrews is not even needed for this rejection to be valid. Ans. 38. Even so, the Examiner uses Andrews to specifically disclose the claimed percentage of silicon nitride. As noted above, Andrews need not teach the polymeric bonding agent, as Fischbacher is used in the rejection for this element, and we already found Appellant's teaching away argument to be unpersuasive. Accordingly, we sustain the Examiner's rejection.

CONCLUSION

The Examiner's rejections are AFFIRMED.

Appeal 2018-006970
Application 14/233,932
More specifically,

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–8, 10, 11, 14, 16–18, 20, 22	103	Tanaka, Fischbacher, Andrews	1–8, 10, 11, 14, 16–18, 20, 22	
9, 13, 19, 21	103	Tanaka, Fischbacher, Andrews, Akaike	9, 13, 19, 21	
Overall Outcome:			1–11, 13, 14, 16–22	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED