THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte S. JOHN PIEN,
ALBERT C. WANG,
MEN G. CHU, and
RICHARD C. STIFFLER

Appeal No. 1998-3307
Application 08/758,982

ON BRIEF[1]

Before COHEN, NASE, and BAHR, Administrative Patent Judges.

COHEN, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims 1, 3 through 7, 9, 12, 14, 15, 17 through 21, 23, and 26 through 31, all of the claims

[1] A hearing set for March 6, 2000 was waived by appellants (Paper No. 24).

remaining in the application.

Appellants' invention pertains to a caster defining a mold for solidifying molten metal into a metal product and to a method of increasing and controlling the heat transfer of a coolant that is delivered adjacent to a solidifying metal product. A basic understanding of the invention can be derived from a reading of exemplary claims 1 and 12, copies of which appear in the APPENDIX to the brief (Paper No. 21).

As evidence of obviousness, the examiner has applied the documents listed below:

Yu	4,474,225	Oct. 2, 1984
Tsunoda[2] (Japan)	2,101,111	Apr. 12, 1990

The following rejection is before us for review.

[2] Our understanding of this document is derived from a reading of a translation thereof prepared in the United States Patent and Trademark Office. A copy of the translation is appended to this opinion.

Claims 1, 3 through 7, 9, 12, 14, 15, 17 through 21, 23, and 26 through 31 stand rejected under 35 U.S.C. § 103 as being unpatentable over Yu in view of Tsunoda (Japan).

The full text of the examiner's rejection and response to the argument presented by appellants appears in the office action dated Dec. 17, 1997 and the answer (Paper Nos. 17 and 22), while the complete statement of appellants' argument can be found in the brief (Paper No. 21).

From the brief (page 4), we understand that appellants intend that the dependent caster claims, i.e., claims 3 through 7, and 9, stand or fall with claim 1, and that method claims 14, 15, 17 through 21, 23, and 26 through 31 stand or fall with method claim 12. Therefore, we focus our attention, infra, exclusively upon claims 1 and 12.

OPINION

In reaching our conclusion on the obviousness issue raised in this appeal, this panel of the board has carefully

considered appellants' specification[3] and claims 1 and 12, the applied references,[4] and the respective viewpoints of appellants and the examiner. As a consequence of our review, we make the determinations which follow.

We affirm the rejection of claims 1 and 12 under 35 U.S.C. § 103. It follows that the rejection of claims 3 through 7, 9, 14, 15, 17 through 21, 23, and 26 through 31 is likewise affirmed since these claims respectively stand or fall with claims 1 and 12 as earlier indicated.

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[3] As disclosed (page 4), appellants indicate that the invention resides in providing a means for agitating cascading coolant. As an alternative to acoustic wave generating devices, appellants teach (Fig. 6) "using mechanical devices disposed in the coolant stream." (page 9)

[4] In our evaluation of the applied documents, we have considered all of the disclosure of each reference for what it would have fairly taught one of ordinary skill in the art. See In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966). Additionally, this panel of the board has taken into account not only the specific teachings, but also the inferences which one skilled in the art would reasonably have been expected to draw from the disclosure. See In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

Claim 1 addresses a caster comprising, inter alia, an acoustic wave generating device producing waves directed substantially towards coolant disposed adjacent to a mushy region of solidifying molten metal, whereby heat transfer from the solidifying molten metal to the coolant can be increased or controlled. Claim 12 relates to a method providing an acoustic wave generating device producing acoustic waves and applying the acoustic waves substantially towards coolant disposed adjacent a mushy region of a solidifying metal product.[5]

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[5] Subsequent to the filing of this application, appellants amended the specification (Paper No. 6) to specify that the acoustic wave generating devices seen in Figs. 1, 7, and 8 are disposed in an "adjacent" non-contacting position with respect to cascading coolant. The term adjacent broadly denotes a nearby relationship. Webster's New Collegiate Dictionary, G. & C. Merriam Company, Springfield, Massachusetts, 1979. Later on in the prosecution, appellants filed a further amendment (Paper No. 10) to the specification specifying that the acoustic waves seen in Figs. 1 and 7 are applied to the coolant that is disposed "adjacent" to the mushy region. As we see it, this latter "adjacent" relationship is somewhat of a stretch of the meaning of adjacent since the coolant appears to be adjacent the solid region 36, with the mushy region beyond the solid region. This matter would appear to be appropriate for consideration by the examiner during any further prosecution in this application.

In applying the test for obviousness,[6] this panel of the board concludes that it would have been obvious to one having ordinary skill in the art, from a combined assessment of the Yu and Tsunoda documents, to use an acoustic wave generating device means in Yu (Fig. 1) in place of a spray device (acting upon coolant and an insulating gas or vapor film, in the vicinity of a mushy region, to disturb the film and effect a higher rate of heat extraction; col. 3, lines 1 through 16), based upon the Tsunoda teaching (Paper No. 17). As we see it, one having ordinary skill in the art would have clearly been amply motivated to make the proposed modification to gain the expected benefit of the alternative of a acoustic wave generating device means, pursuant to the explicit teaching of Tsunoda. More specifically, it is quite apparent to us that the Tsunoda reference would have fairly instructed those versed in the art as to the alternatives of a spray jet for destroying a vapor membrane beneath a coolant to raise cooling

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[6] The test for obviousness is what the combined teachings of references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

capability (translation, page 3) and a supersonic wave irradiation device to destroy the vapor membrane to achieve an expected marked improvement in cooling capability (translation, page 7). Based upon the above analysis, we determine that the caster of claim 1 and the method of claim 12 would have been obvious under 35 U.S.C. § 103.

The arguments advanced by appellants in the brief (pages 4 through 8) fail to persuade us of error on the part of the examiner in rejecting caster claim 1 and method claim 12 as being obvious. As perceived by appellants (brief, pages 5 and 6), the Yu reference teaches simply mechanically or physically disturbing or interrupting a stable insulating film by providing a device such as a “spray device” or a comb or rake, and not an acoustic wave generating device. We, of course, must point out that the rejection is founded upon the combined disclosures of the applied references, and not the Yu patent alone. Additionally, appellants fault the Tsunoda reference for teaching the application of acoustic waves to a solidified, not a solidifying metal product (brief, pages 6 and 7). First, we note that, as can readily be seen in

appellants' Fig. 1, acoustic waves are applied to coolant that is adjacent a solid region 36. Second, the circumstance that acoustic waves of Tsunoda operate upon coolant adjacent a solidified member does not, in our view, detract from the relevance of Tsunoda when collectively assessed with the Yu teaching. Appellants also are of the view that there would have been no motivation to substitute an acoustic wave generating device for the mechanical means disclosed by Yu (brief, pages 6 and 7). We disagree with appellants' point of view in this matter, and refer to our earlier discussion of the ample motivation that was present for undertaking the proposed modification. For the above reasons, and contrary to the view advocated by appellants, claim 1 is properly determined to be unpatentable. The argument addressed to method claim 12 (brief, pages 7 and 8) likewise does not convince us that this claim is patentable. It was earlier pointed out that the evidence of obviousness addresses the application of acoustic waves in order to increase cooling capability (increase heat transfer of coolant).

In summary, this panel of the board has affirmed the

rejection of claims 1, 3 through 7, 9, 12, 14, 15, 17 through 21, 23, and 26 through 31 under 35 U.S.C. § 103 as being unpatentable over Yu in view of Tsunoda.

The decision of the examiner is affirmed.

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

AFFIRMED

IRWIN CHARLES COHEN Administrative Patent Judge	)	
JEFFREY V. NASE Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JENNIFER D. BAHR Administrative Patent Judge	)	

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