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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ACHIM GOTTERBARM, RONALD LUTZ, JEAN EL HAJAL,
and MANFRED KNAB

Appeal 2019-003628
Application 15/103,193
Technology Center 3700

Before JENNIFER BAHR, EDWARD A. BROWN, and
WILLIAM CAPP, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

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

We REVERSE and enter a NEW GROUND OF REJECTION.

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 Wieland-Werke AG. Appeal Br. 1.

CLAIMED SUBJECT MATTER

Claims 1 and 16 are independent. Claim 1 illustrates the claimed subject matter.

1. A metal heat exchanger tube, comprising integral fins which are formed on the outside of the tube and have a fin foot, fin flanks and a fin tip, wherein the fin foot protrudes radially from the tube wall, and a channel in which spaced-apart additional structures are arranged is formed between the fins, said channel having a through flow cross-sectional area perpendicular to the course of the channel, said additional structures extending radially from the fin foot and transversely with respect to the course of the channel from one fin foot to an adjacent fin foot,
characterized
in that the additional structures divide the channel between the fins into segments, and
in that the additional structures reduce the throughflow cross-sectional area of the channel between two fins locally by at least 60% and thereby at least limit a fluid flow along the direction of the course of the channel during operation.

Appeal Br. (Claims App.).

REJECTIONS

1. Claims 1–6, 13, 15, and 16 are rejected under 35 U.S.C. § 102(a)(1) as anticipated by Lu (US 2007/0034361 A1, published Feb. 15, 2007). Final Act. 2.
2. Claims 7–11 are rejected under 35 U.S.C. § 103 as unpatentable over Lu and Chiang (US 5,203,404, issued Apr. 20, 1993). Final Act. 12.
3. Claim 12 is rejected under 35 U.S.C. § 103 as unpatentable over Lu and Cao (US 9,038,710 B2, issued May 26, 2015). Final Act. 16.

4. Claim 14 is rejected under 35 U.S.C. § 103 as unpatentable over Lu and Kastner (US 4,796,693, issued Jan. 10, 1989). Final Act. 17.

ANALYSIS

New Ground of Rejection

Independent claims 1 and 16 both recite “a channel in which spaced-apart additional structures are arranged is formed between the fins,” characterized “in that the additional structures *reduce the throughflow cross-sectional area of the channel between two fins locally by at least 60%.*” Appeal Br. 1 (Claims App.) (emphasis added). After considering the record before us, we find the meaning of claims 1 and 16 unclear for the following reasons.

First, it is unclear in relation to what “the additional structures reduce the throughflow cross-sectional area of the channel between two fins locally by at least 60%.” The words “reduce . . . locally by” necessarily require a comparison between a first condition and a second condition. However, claims 1 and 16 do not specify what other “throughflow cross-sectional area of the channel” “the throughflow cross-sectional area of the channel between two fins” is to be compared to.

Second, the meaning of the term “locally” as recited in this limitation is insufficiently clear. For example, it is unclear if the inclusion of “locally” means that, at some location along “the course of the channel” formed between the fins, the corresponding throughflow cross-sectional area of the channel is reduced by at least 60% as compared to the throughflow cross-sectional area of the same channel *at any other location* of the channel without the additional structures. As another example, it is unclear whether

this comparison may be with respect to the maximum throughflow cross-sectional area of the same channel.

In the Reply Brief, Appellant provides annotated versions of the structures shown in Figures 1 and 5 of Lu, both depicting the “[t]hrough flow cross sectional area at a location *without* lateral fins 4” and the “[t]hrough flow cross sectional area at a location *with* lateral fins 4.” Reply Br. 3 (emphasis added). Appellant states that Lu’s “lateral fins 4 reduce the through flow cross-sectional area of the channel of Lu locally.” *Id.* at 4. However, Appellant contends that “the reduction is significantly less than 60% as can be seen through a comparison of the areas with hatching.” *Id.* Appellant appears to implicitly contend that the limitation “locally by at least 60%” means relative to the “maximum through flow cross-sectional area” along the course of the channel. *Id.* However, claims 1 and 16 do not recite this specific relationship. Additionally, Appellant does not direct us to, nor do we discern, any disclosure in Appellant’s application that clearly supports this being the broadest reasonable construction for claims 1 and 16.

As another example, it is unclear whether the term “locally” recited in claims 1 and 16 means that, at some location along “the course of the channel” that is formed between the fins, the corresponding through flow cross-sectional area of the channel is reduced by at least 60% in a “local region” that includes the additional structures and the portion of the channel defined between the fins by the additional structures, even if the through flow cross-sectional area of the channel at that location is not reduced by at least 60% as compared to the through flow cross-sectional area of the channel at another location of the channel without the additional structures. This situation can be visualized by referring to Appellant’s modified version

of Figure 1 of Lu. *See* Reply Br. 3. This annotated figure shows that at a generally middle region of the channel (in the vertical, radial direction of the channel), the lateral fins significantly reduce the cross-sectional area by forming a necked region of the channel. At the necked region, the lateral dimension of the channel between the lateral fins is substantially reduced as compared to the lateral dimension of the channel either above or below the lateral fins. Appellant asserts that “[t]he reduction of the cross-sectional area in Lu is in the order of 10% and certainly no more than 20%.” Reply Br. 4. Even if this estimation may be reasonable, it, nonetheless, appears to be premised on the term “locally” being construed to mean as compared to a location along the course of the channel at which the depicted lateral fins are not present. As discussed above, however, Appellant does not direct us to any disclosure that clearly supports this construction for claims 1 and 16.

A claim is properly rejected as indefinite under 35 U.S.C. § 112(b), if, after applying the broadest reasonable interpretation in light of the specification, the metes and bounds of a claim are not clear because it “contains words or phrases whose meaning is unclear.” *See In re Packard*, 751 F.3d 1307, 1310 (Fed. Cir. 2014). Here, claims 1 and 16 contain language having an unclear meaning. Particularly, we find that the meaning of the recitation ““the additional structures reduce the throughflow cross-sectional area of the channel between two fins locally by at least 60%” is subject to different plausible interpretations, and thus, is vague and indefinite. *See Ex Parte Miyazaki*, 89 USPQ2d 1207, 1211 (BPAI 2008) (precedential) (“[I]f a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding

the claim unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite.”). Thus, we conclude that claims 1 and 16 and their dependent claims 2–15 fail to comply with the requirements of 35 U.S.C. § 112(b). Therefore, pursuant to 37 C.F.R. § 41.50(b), we enter a new ground of rejection of claims 1–16 under 35 U.S.C. § 112(b).

Rejections 1–4

Because we have determined that claims 1–16 are indefinite, we cannot sustain the rejections of these claims under 35 U.S.C. § 102(a)(1) or 103, because doing so would require speculation on our part as to the scope of the claims. *See In re Aoyama*, 656 F.3d 1293, 1300 (Fed. Cir. 2011) (holding that the Board erred in affirming an anticipation rejection of indefinite claims); *In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962) (holding that the Board erred in affirming an obviousness rejection of indefinite claims because the rejection was based on speculative assumptions as to the meaning of the claims).² Thus, we do not sustain the rejection of: claims 16, 13, 15, and 16 as anticipated by Lu; claims 7–11 as unpatentable over Lu and Chiang; claim 12 as unpatentable over Lu and Cao; or claim 14 as unpatentable over Lu and Kastner.³

² Appellant’s position is that Lu does not disclose or suggest the limitation “the additional structures reduce the throughflow cross-sectional area of the channel between the two fins locally by at least 60%,” as recited in claims 1 and 16. Appeal Br. 3–6.

³ It should be understood, however, that our decision is based solely on the indefiniteness of the claimed subject matter, and does not reflect on the adequacy of the references applied in the rejections.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed	New Ground
1–6, 13, 15, 16	102(a)(1)	Lu		1–6, 13, 15, 16	
7–11	103	Lu, Chiang		7–11	
12	103	Lu, Cao		12	
14	103	Lu, Kastner		14	
1–16	112(b)				1–16
Overall Outcome				1–16	1–16

FINALITY OF DECISION AND RESPONSE

This Decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” 37 C.F.R. § 41.50(b) also provides:

When the Board enters such a non-final decision, [Appellant], within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding upon the Examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the

claims, [Appellant] may again appeal to the Board pursuant to this subpart.

- (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to a new ground of rejection can be found in MPEP § 1214.01.

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

REVERSED; 37 C.F.R. § 41.50(b)