

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LAMBERTUS MEULENBRUGGE, KOEN ANTOON
KORNELIS VANDUFFEL and HANS WESTMIJZE

Appeal 2007-3376
Application 10/497,993
Technology Center 1700

Decided: January 8, 2008

Before CHARLES F. WARREN, PETER F. KRATZ, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the decision of the Examiner rejecting claims 1-15, the only claims pending in the application. Although the action appealed from was a non-final rejection, we have jurisdiction pursuant to 35 U.S.C. §§ 6 and 134 since these claims have been twice presented and rejected. *See Ex parte Lemoine*, 46 USPQ2D 1420, 1423 (BPAI 1994).

An oral hearing was held on December 20, 2007.

We AFFIRM.

The invention relates to an improved process for polymerizing a mixture containing at least one vinyl chloride monomer. According to Appellants, they discovered that by adding additional initiator at a specific point in the polymerization process, they are able to achieve a more efficient use of reactor cooling capacity (App. Br. 13-14). Claim 1 is illustrative of the invention and is reproduced below:

1. Process wherein two or more initiators are used to polymerize a mixture containing one or more monomers of which one is vinyl chloride monomer,

wherein a conventional initiating system is added to the polymerization mixture in the first part of the polymerization reaction and one or more additional initiators are added to the polymerization mixture at the reaction temperature when the pressure in the polymerization reactor is dropping due to the depletion of the vinyl chloride monomer and said additional initiators have a half-life of less than 1 hour at polymerization temperature,

with the proviso that the polymer formed is not subject to radio frequency dielectric heating in the presence of additional organic initiator.

The Examiner relies on the following prior art references to show unpatentability:

Van Swieten et al.	6,384,155	May 7, 2002
Van Swieten et al.	WO 0017245	Mar, 30, 2000

The Examiner made the following rejections:

1. Claims 1-15 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over WO 0017245 (“Van Swieten”).
2. Claims 1-15 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5¹ of U.S. 6,384,155 (hereinafter ‘155 patent).²

The Examiner finds that Van Swieten discloses the invention as claimed with the exception of an explicit teaching of adding additional initiator “when the pressure in the polymerization reactor is dropping due to the depletion of the vinyl chloride monomer.” (Ans. 6). However, the Examiner contends that addition of the additional initiator in the manner claimed is inherent in Van Swieten. (Ans. 6).

Appellants concede that “both Van Swieten and the claimed invention are directed to processes for polymerizing vinyl chloride monomer, and optional further monomers, using one or more initiators such as organic peroxides.” (App. Br. 10). Appellants further concede that Van Swieten “discloses addition of additional peroxide initiator” (App. Br. 11) and that such addition occurs “when the reaction temperature is at the desired value” (App. Br. 12). However, Appellants contend that Van Swieten fails to disclose or suggest adding additional peroxide initiator when the pressure in the reactor is dropping, as claimed. (App. Br. 10). According to Appellants, a pressure drop does not occur as soon as the desired temperature is

¹ The Answer indicates that claims 1-15 are rejected as unpatentable over claims “1-15” of the ‘155 patent. The ‘155 patent only contains claims 1-5. We consider this to be an obvious and, therefore, harmless error.

² The ‘155 Patent is the U.S. equivalent of Van Swieten.

achieved, but only towards the end of the reaction when liquid phase vinyl chloride monomer is no longer present. (App. Br. 13).

Based on the contentions of the Examiner and the Appellants, the first issue raised in this appeal is: Do the facts and reasons relied on by the Examiner provide a reasonable basis to conclude that Van Swieten inherently discloses the addition of one or more additional initiators when the pressure in the polymerization reactor is dropping due to the depletion of the vinyl chloride monomer? We answer this question in the affirmative.

The following enumerated findings of fact were relevant to our consideration of this issue:

- 1) The Specification defines “after the start of the pressure drop and/or during the pressure drop” as “the time during which the pressure in the polymerization reactor drops, including the 30 minutes, preferably 20 minutes, more preferably 10 minutes, and most preferably 5 minutes, before the pressure drop is actually observed.” (Spec. 3:4-7).
- 2) The Specification states that “[m]ost preferably, the addition of initiator takes place when the pressure becomes lower than the pressure that was observed earlier at the same temperature.” (Spec. 3, ll. 7-9).
- 3) Van Swieten discloses “a process to polymerize one or more monomers by means of one or more organic peroxides being dosed to the polymerization mixture at the reaction temperature.” (P. 1, ll. 5-7). More specifically, Van Swieten discloses a process for polymerizing monomer mixtures comprising vinyl chloride monomer (VCM), preferably monomer mixtures comprising at

least 50% by weight (% w/w) of VCM, based on the weight of all monomer. (P. 2, ll. 18-22).

- 4) According to Van Swieten, the inventors “have found that by selecting the proper organic peroxide and the proper dosing conditions, it is possible to obtain a polymerization reaction where the heat of polymerization is virtually constant over time, allowing optimum reactor space-time yield, very efficient peroxide usage, resulting in high polymer yields on the initiator, very low residual peroxide levels in the resin after polymerization, low fish-eye levels in the resin, and low reactor fouling.” (P. 2, ll. 2-8).
- 5) Van Swieten’s process “requires that essentially all peroxide be used at a polymerization temperature at which the half-life of the peroxide is from 0.05 hour to 1.0 hour.” (P. 2, ll. 11-13).
- 6) Van Swieten discloses a preferred embodiment “wherein the polymerization mixture is formulated at a temperature below the reaction (polymerization) temperature and subsequently heated to reach said desired reaction temperature.” (P. 4, ll. 6-9).
- 7) According to Van Swieten, “[t]he use of a small amount of peroxide from the start allows a fast heating up and start of the polymerization, since this peroxide will already (partly) decompose during the heating of the polymerization mixture. When the polymerization mixture reaches the polymerization temperature, the remainder of the peroxide can be dosed to the mixture to control the further polymerization rate. Preferably, the dosing is continuous, since this allows the most accurate control

of the polymerization rate and a constant polymerization heat output, ensuring the highest efficiency and resin quality. The dosing time of 1-6 hours allows a very efficient use of the initiator. By using such dosing times, high yields of high-quality polymer were attained.” (P. 4, ll. 16-25).

In order to make a proper comparison between the claimed invention and the prior art, it is necessary to first construe the language of the claims.

In re Paulsen, 30 F.3d 1475, 1479 (Fed. Cir. 1994). See *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567-68, (Fed. Cir. 1987) (In making a patentability determination, analysis must begin with the question, "what is the invention claimed?" since "[c]laim interpretation, . . . will normally control the remainder of the decisional process."). During prosecution claims are given their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.”

In re Am. Acad. Of Sci. Tech. Ctr., 367 F.3d 1359, 1364 (Fed. Cir. 2004).

Considering the language of claim 1 in light of the Specification, we interpret the phrase “when the pressure in the polymerization reactor is dropping due to the depletion of the vinyl chloride monomer” as referring to a time period beginning 30 minutes before a pressure drop is actually observed due to the depletion of the vinyl chloride monomer and ending at a time when pressure drop due to the depletion of the vinyl chloride monomer is no longer occurring or is no longer observed. (Finding of Fact 1). We interpret the claim recitation “one or more additional initiators are added . . . when the pressure in the polymerization reactor is dropping,” as requiring addition of initiator at some point during this time period. Moreover, we

note that the claim language does not preclude initiating addition prior to the start of the time period.

A reference is anticipatory within the meaning of § 102 if it discloses each and every claim limitation either expressly or inherently. *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999); *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). In our view, the Examiner provided sufficient findings and reasons to support a determination that Van Swieten reasonably appears to inherently disclose the addition of one or more additional initiators when the pressure in the polymerization reactor is dropping due to the depletion of the vinyl chloride monomer. Because the Examiner established that the claimed process appears to be identical to Van Swieten's process (Ans. 5-6), the burden was properly shifted to Appellants to establish that Van Swieten's process does not necessarily or inherently possess the characteristics of the claimed process. See *In re Best*, 562 F.2d 1252, 1255-56 (CCPA 1977); *In re Spada*, 911 F.2d 705, 708-09 (Fed. Cir. 1990).

Thus, a second issue raised in this Appeal is: Have Appellants presented persuasive arguments or evidence establishing that Van Swieten does not inherently disclose the addition of one or more additional initiators when the pressure in the polymerization reactor is dropping due to the depletion of the vinyl chloride monomer? We answer this question in the negative.

Appellants rely on the Declarations of Van Swieten and Vanduffel to establish that Van Swieten neither explicitly nor inherently discloses the claimed "timing of adding the additional initiator(s) – that is, during the pressure drop" (Reply Br. 5; see App. Br. 12-14). Appellants contend that

Van Swieten discloses only one example, Comparative Example F, in which two or more initiators were used, with addition of the first initiator occurring in the first part of the polymerization reaction and the additional initiator being added at reaction temperature. (Reply Br. 4). Van Swieten testified that addition of peroxide in Comparative Example F was completed before pressure started to drop. (Reply Br. 5 (citing Van Swieten Declaration, ¶ 10)).

However, as correctly pointed out by the Examiner, Appellants' arguments and evidence presented in support thereof are not persuasive because they are based on limitations which do not appear in the claims. (Ans. 7-9). More specifically, Appellants' arguments are based on their contention that the claims require addition of a second initiator at "the moment at which the pressure drop occurs." (App. Br. 12). This is not the case. As noted above, the claims, as broadly drafted, require only that additional initiator is added during a portion of the time when pressure is dropping due to the depletion of vinyl chloride monomer. Thus, the claim limitation requiring "addition of one or more additional initiators when the pressure in the polymerization reactor is dropping" is met, for example, by a process step in which the addition of an additional initiator commences at the time polymerization temperature is reached and continues past a time when pressure in the reactor has begun dropping due to the depletion of the vinyl chloride monomer. In other words, absent evidence to the contrary, we are in agreement with the Examiner's determination that Van Sweiten's process, which requires continuous dosing of peroxide for a period of 1-6 hours upon reaching polymerization temperature, would inherently result in the addition of initiator "when pressure in the reactor has begun dropping

due to the depletion of the vinyl chloride monomer.”³ (Finding of Fact 6). *See In re Bozek*, 416 F.2d 1385, 1390 (CCPA 1969) (A reference disclosure must be evaluated for all that it fairly teaches and not only for what is indicated as preferred)

For the foregoing reasons, we conclude that the preponderance of the evidence weighs in favor of a finding of anticipation as to claims 1-15. Accordingly, we also conclude that claims 1-15 are obvious over VanSwieten. *See Connell v. Sears Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (quoting *In re Fracalossi*, 681 F.2d 792, 794 (CCPA 1982)) (“[A]nticipation is the epitome of obviousness.”).

II. The Examiner contends that appealed claims 1-15 and claims 1-5 of U.S. 6,384,155 are “not patentably distinct from each other because the two inventions are substantial [sic] similar species inventions under the same genus invention of polymerizing vinyl chloride monomer.” (Ans. 4).

Appellants’ arguments are limited to their contention that the ‘155 patent claims do not teach or suggest adding initiator when the pressure in the polymerization reactor is dropping as claimed. Appellants’ arguments are not persuasive because they do not address the basis for the Examiner’s

³ Appellants rely on the evidence presented in the Vanduffel Declaration to establish unexpected results. Having concluded that the claims are anticipated by Van Swieten, we need not consider this evidence. However, we note that, in any event, this evidence would not be persuasive in establishing unexpected results because the difference between the pressure drop rates for Experiments 2 and 3 is insignificant. Although Appellant relies on Experiment 2 as exemplary of a process outside the scope of the claims, we note that Experiment 2, in which additional peroxide is added 30 minutes directly prior to pressure drop, actually falls within the scope of the claims as we have interpreted them.

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obviousness determination, namely, that it would have been a matter of routine optimization to adjust the timing of the addition of peroxide (i.e., within the range of “over a period of 0.17 hours or longer”) such that it would occur “when the pressure in the polymerization reactor is dropping due to the depletion of the vinyl chloride monomer” as recited in the appealed claims (Ans. 7). *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1168 (Fed. Cir. 2006)(“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.”). Accordingly, the rejection is affirmed.

ORDER

The rejection of claims 1-15 under 35 U.S.C. § 102(b) as anticipated by Van Swieten is affirmed.

The rejection of claims 1-15 under 35 U.S.C. § 103 as obvious over VanSwieten is affirmed.

The rejection of claims 1-15 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. 6,384,155 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)(i)(iv).

AFFIRMED

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