

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JERRY D. BLUE,
WILLIAM DOWNS, TIMOTHY A. FULLER,
CHRISTOPHER L. VERRILL, PAUL S. WEITZEL, and
PHUNG H.M. CHAN

Appeal 2008-5802
Application 09/945,927¹
Technology Center 1700

Decided: January 8, 2009

Before ADRIENE LEPIANE HANLON, CATHERINE Q. TIMM, and
MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Application 09/945,927, *Sulfur Recovery Gasification Process for Spent Liquor at High Temperature and High Pressure*, filed 4 September 2001. The specification is referred to as the “927 Specification,” and is cited as “Spec.” The real party in interest is listed as The Babcock & Wilcox Company. (Replacement Appeal Brief, filed 10 July 2007 (“Br.”), 4.)

Introduction

Jerry D. Blue, William Downs, Timothy A. Fuller, Christopher L. Verrill, Paul S. Weitzel, and Phung H.M. Chan (“Appellants”) timely appeal under 35 U.S.C. § 134(a) from the Final Rejection² of claims 2-7, 25-41, and 59-61, which are all of the pending claims, as indefinite (one rejection) and as obvious over prior art (two rejections). We have jurisdiction pursuant to 35 U.S.C. § 6(b).

We REVERSE the rejection for indefiniteness but we AFFIRM the rejections for obviousness.

The subject matter on appeal relates to processes for treating waste streams from pulp and paper manufacture, principally the kraft pulping process of wood. (Spec 6:[030].) A major waste product of kraft pulping is called “black liquor.” The processing and recycling of black liquor has been an important part of the paper-making art for decades. (Spec. 3:[010]-[011].) As the 927 Specification makes clear, it is highly desirable to make optimal use of each component of each product and byproduct resulting from the process.

The claimed process is said to focus on the recovery and re-use of H₂S resulting from black liquor gasification (“BLG”). (Spec. 4:[016]-[017].) According to the 927 Specification, the BLG process has not been implemented as a full scale, high pressure, high temperature process. (Spec. 4:[013].) A problem is that, in the BLG process, a substantial amount of H₂S is generated and partitioned into the raw fuel gas phase (Spec. 4:[014]), compared to the conventional process, which is described in

² Office Action mailed 10 January 2006 (“Final Rejection,” cited as “FR”).

the Specification at page 3, paragraphs [010]-[012]. Subsequent reactions of CO₂ with wash solutions of the raw fuel gas are said to result in an increased burden on the causticizing plant (which produces calcium carbonate, CaCO₃) and the lime kiln (which converts calcium carbonate to lime, CaO, which is re-used in causticizing steps in the BLG process). (Spec. 4:[014] and 3:[011].) This results in a significant thermal penalty to the BLG process. (Spec 4:[014].) Moreover, a significant quantity of corrosive alkali fume and soot are produced by the BLG process, and their removal adds to the energy penalty. (Spec. 4:[015].)

The claimed process is said to overcome these problems by using an H₂S removal process that is said to be more selective for H₂S than for CO₂. (Spec. 5:[017]-[018].) In another aspect, the raw fuel gas is also subjected to a fume reduction process. The result is said to be a “clean, sweet, fuel gas” that can be used for combustion. (Spec. 5:[017]- [018].) Acid gases can be used for further processing of the “white liquor,” (Spec. 4-5:[017]) which in turn is useful in the original wood digestion process (*id.* at 3:[011]).

Independent Claim 2 is representative:

A method for processing a waste stream from digestion of lignocellulosic material to form useful products, comprising:

- (a) partially oxidizing the waste stream to form hot gases and molten salts;
- (b) cooling the hot gases and molten salts using a quench liquor to form quenched gas and carbonate liquor;
- (c) removing particles from the quenched gas to form a raw fuel gas;
- (d) removing H₂S from the raw fuel gas using an H₂S removal process which is more selective for H₂S than it

is for CO₂, the removing step forming a usable fuel gas and acid gases;

- (e) further processing the acid gases to form additional useful products without reusing the acid gases in any of the aforementioned steps;
- (f) subjecting the carbonate liquor to a causticizer to form a caustic liquor and lime mud, the lime mud comprising a suspension of calcium carbonate; and
- (g) further processing the acid gases by combining the caustic liquor with the acid gases in a caustic liquor scrubber to form a tail gas and a sulfur-rich caustic liquor.

(Claims App., Br. 37-38; indentation added.)

Indefiniteness

Did the Examiner err in holding that the claims are indefinite in the term “useful products”?

In the Final Rejection, the Examiner rejected claims 2-7, 25-41, and 59-61 as indefinite for the reasons set forth in the Office Action mailed 21 April 2005. (Ans. 3; FR 2.) In the Office Action mailed 21 April 2005, the Examiner “explained” the basis of the rejection under 35 U.S.C. § 112(2) in the following words: “Aren’t all products useful? What are the products useful for?” (Office Action mailed 21 April 2005, at 2.) In the Final Rejection, the Examiner responded to Blue’s arguments in the following words:

With regard to the § 112 rejection, applicants argue that the claims are definite, because of the wide variety of products that can be made by the process. This is unconvincing for two reasons: 1) useful is a relative term and the metes and bounds of patent protection desired cannot be ascertained; 2) the

specification does not teach what are the useful products that are claimed, nor explain their utility, i.e. for what purpose?

(FR 3.)

Blue responds that “the term ‘useful’ as used in the claims is, at worst, redundant rather than indefinite.” (Br. 16.) Blue does not argue any of the claims separately. Accordingly, all claims stand or fall as against this rejection with claim 2.

Discussion

Blue, as the Appellant, bears the burden of showing reversible error in the Examiner’s rejections. Claims are definite if they “set out and circumscribe a particular area with a reasonable degree of precision and particularity.” *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971). Our reviewing court has repeatedly cautioned, however, that “[b]readth is not to be equated with indefiniteness.” *In re Miller*, 441 F.2d 689, 693 (CCPA 1971). Normally a claim which fails to comply with the second paragraph of § 112 will not be analyzed as to whether it is patentable over the prior art since to do so would of necessity require speculation with regard to the metes and bounds of the claimed subject matter. *See In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962) and *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

In claim 2, the term “useful products” occurs twice, once in the preamble, and a second time in step (e), which recites that “additional useful products” are formed “without using the acid gases in any of the aforementioned steps.” The term “useful product” is not given a special definition in the 927 Specification. The ordinary meaning is therefore

presumed. Any product that is used in the process to treat some material is indisputably “useful.”

The appearance of the term “useful products” in the preamble is harmless because the body of the claim recites products that are useful, such as the “usable fuel gas” recited in step (d). *See, e.g., Bristol-Myers Squibb Co. v. Ben Venue Labs. Inc.*, 246 F.3d 1368, 1373–74 (Fed. Cir. 2001) (“[i]f the body of the claim sets out the complete invention, and the preamble is not necessary to give ‘life, meaning and vitality’ to the claim, ‘then the preamble is of no significance to claim construction because it cannot be said to constitute or explain a claim limitation.’”) (internal quotes and citation omitted).

The term also appears in step (e), which specifies “further processing the acid gases to form additional useful products without reusing the acid gases in any of the aforementioned steps.” The 927 Specification teaches that the acid gases may be used for further treatment of white liquor, which in turn is used in the initial digestion of the wood pulp. (Spec. 3:[011].) Thus, a person having ordinary skill in the art would understand that the acid gases can be used to make a “useful product,” namely, white liquor.

The term “useful products” is broad, as the Examiner observes. But the Examiner has not explained why that breadth leads to some ambiguity or issue of speculation as to the metes and bounds of the claimed subject matter that prevents examination of the claims. Moreover, the Examiner has not indicated how the application of prior art was made problematic by the alleged indefiniteness of this term. Indeed, had that been the case, no fruitful rejection over prior art should have been possible.

The rejection for indefiniteness of all pending claims is REVERSED.

Obviousness

Did Blue establish reversible error in the Examiner's rejections for obviousness?

In the Final Rejection the Examiner maintained the following two grounds of rejection, which Blue (Br. 14) refers to as rejections (b) and (c):

- (b) "Claims 2-7, 25-41, and 59-61 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Admitted Prior Art in view of Marten^[3] . . . with or without Ryham^[4] This rejection is set forth in the prior Office action mailed on April 21, 2005." [FR 2.]

(In the 21 April 2005, Office Action, the Examiner stated that "[c]laims 2-7 and 25-41 are rejected under 35 U.S.C. § 103(a) . . . for the reasons set forth in 09/278,974,⁵ pages 4-6 of the Final Rejection.")

³ Jerome H. Marten and G. Michael Lloyd, *Coal Fired Power Plant with Pollution Control and Useful Byproducts*, U.S. Patent 4,917,024 (1990).

⁴ Rolf Ryham et al., *Multi-Level Sulfide Content White Liquor Production and Utilization in Cellulose Pulping*, U.S. Patent 5,236,433 (1994).

⁵ Unpublished Application 09/298,974, filed 25 April 1999, now abandoned, by Jerry D. Blue, William Downs, Timothy A. Fuller, and Christopher L. Verrill (who are all co-inventors of the 927 Application on appeal), titled *Sulfur Recovery from Spent Liquor Gasification Process*. Blue states that the 974 Application is incorporated by reference into application 09/298,533, which is the parent of the 927 Application on appeal. (Br. 31.) We note, however, that if this is the case, the cross reference to related application in the 927 Specification at page 1, paragraph [002], line 2, mis-cites the parent application: Application "09/284,973" should be Application —9/298,533—. Also, the incorporated application is mis-cited at line 4: Application "09/284,533" should be Application —09/298,974—.

- (c) “Claims 25-41 and 59-61 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Marten . . . with or without Ryham . . . and further in view of Kohl^[6] . . . and Kolb^[7] . . . with or without Ewen [sic: Ewan]^[8] This rejection is set forth in the prior Office Action mailed on April 21, 2005. Note that the rejection still applies to new claims 59-61, for the same reasons as explained in the final rejection, mailed on April 21, 2005.” [FR. 2-3; patent numbers omitted.]

(In the 21 April 2005, Office Action, the Examiner stated that “[c]laims 25-41 are rejected under 35 U.S.C. § 103(a) . . . for the reasons set forth in 09/298,533,⁹ pages 4-6 of the Final Rejection.”)

In the Examiner’s Answer mailed 30 January 2008, the Examiner states that the rejections set forth in the prior Office Action mailed on April 21, 2005 are “included below for convenience.” (Ans. 4, ll. 1-2 (Rejection (b)); and Ans. 6, ll. 1-4, (Rejection (c)).)¹⁰

⁶ Arthur L. Kohl, *Black Liquor Gasification Process*, U.S. Patent 4,773,918 (1988).

⁷ Alan C. Kolb and James E. Drummond, *Method and Apparatus for Electrostatic Precipitating Particles from a Gaseous Effluent*, U.S. Patent 4,070,163 (1978).

⁸ Thomas K. Ewan et al., *Apparatus and Process for the Removal of Pollutant Material from Gas Streams*, U.S. Patent 4,141,701 (1979).

⁹ Application 09/298,533, filed 23 April 1999, is the parent of the 927 Application on appeal.

¹⁰ It has not escaped our notice that the formal statement of Rejection (c) in the Final Rejection is not identical to the formal statement of Rejection (c) in the Answer, in that the former only refers to patent references, while the latter refers to admitted prior art. However, the restatement of the rejection provided by the Examiner (Ans. 6-8) refers to admitted prior art. Moreover, Blue’s summary (Br. 32) of Rejection (c) refers to the Examiner’s discussion of “admitted prior art.” Thus, the Examiner and Blue agree that both

Blue does not distinguish Rejections (b) and (c) in its arguments for patentability. Blue presents a general discussion of the invention (Br. 17-32), including brief discussions of the Kraft pulping process (*id.* at 17-19), which is said to be illustrated by Figure A,¹¹ and prior art black liquor gasification processes illustrated in Figure B.¹² The discussion

Rejections (b) and (c) rely on “admitted prior art.” Blue therefore had actual notice of the grounds of the Examiner’s rejections, and any defect in the formal statement of Rejection (c) at any stage of prosecution was harmless.

We are also aware that the Examiner has set out what appear, formally, to be new grounds of rejection in the Answer. (Ans. 8-9.) The Examiner has not, however, indicated that any of the rejections set out in the Answer constitute new grounds of rejection. We further note that Appellants did not file a Reply Brief; nor did they complain about any procedural irregularities within the two month period from the Examiner’s action set for petitions to the Director in 37 C.F.R. § 181(f) (2008). These issues, as well as all arguments not raised in their principal Brief on Appeal have been waived. 37 C.F.R. § 41.37(c)(1)(vii). Therefore, it would serve no useful purpose to remand the case for clarification of these procedural irregularities.

Under these circumstances, we shall *assume* that the Examiner’s Answer merely restates, albeit unconventionally, the Final Rejection from which the appeal is taken. This assumption is further justified because, as explained *post*, we have not found it necessary to consider the details of the rejections or the Examiner’s responses to the Appellant’s Brief as set out in the Examiner’s Answer.

We caution, however, that only rarely will a case in which a rejection is incorporated by reference from files of other applications result in a record amenable to review on appeal.

¹¹ Figure A, attached to the Brief, is said to be a “simplified version” of Figure 1 of the 927 Specification. (Br. 18, last paragraph.) Figure A, however, has more detail than Figure 1.

¹² Figure B, attached to the Brief, is said to be a “simplified version” of Figure 6 (Br. 18, last paragraph) or of Figure 2 (*id.* at 19, first full paragraph) of the 927 Specification. Figure B, although it does not show turbine couple **50**, has more detail than either Figure 2 or Figure 6.

includes mass transfer rate equations (*id.* at 21) and ratios (*id.* at 22). These discussions are not supported by citation to authorities of record, nor do they appear to have been presented previously during prosecution of the 927 Application. Blue alleges various advantages of its process over the prior art, (*id.* at 25-29) and alleges deficiencies of the prior art processes (*id.* at 29-31), but does not refer to specific limitations that produce the advantages in any particular claim. Blue then summarizes the Examiner's arguments. (*Id.* at 31-32.)

Finally, Blue argues that, “[u]sing the discussion provided above, it is respectfully submitted that both of these rejections (b) and (c) are improper and should be reversed because the cited references do not teach or suggest the claimed method steps as identified below and which achieve the following particularized non-obvious benefits:” (Br. 33.) Blue then presents arguments against the Examiner's rejections in five distinct groups of claims: Group B, claims 2-4, 6, and 7; Group C, claim 5; Group D, claims 25-40; Group E, claim 41;¹³ and Group F, claims 69-61. Blue's argument for Group B is representative:

None of the cited references teach or suggest the particular combination of steps recited in claim 2 which, together, achieve the ability to form the useful products of a tail gas and a sulfur-rich caustic liquor which does not reuse the acid gases in any of the steps as claimed. As indicated above, this result is achieved

¹³ We observe that claim 41 depends from now-canceled claim 1, a fact that both the Examiner and Blue appear to have overlooked. As claim 25 is the only independent claim that refers to a “clean sweet fuel gas,” and that covers a process characterized (in claims 26 and 30, which depend from claim 25) as a “multi-step fume reduction process,” we shall assume that claim 41 is intended to depend from claim 25, and that the dependency will be formally corrected in any future prosecution or continuing application.

without placing any extra capacity burden on the causticizing plant.

(Br. 33.) Blue also asserts, without elaboration, that the Examiner has failed to show evidence “of a motivation, suggestion or teaching to combine the cited art in the manner suggested by the Examiner.” (*Id.* at 34.)

Discussion

Blue, as the Appellant, bears the procedural burden of demonstrating harmful error in the Examiner’s rejections. *See, e.g., In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) (“On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.”) (citation omitted).

The regulations governing appeals to the Board of Patent Appeals and Interferences (“Board”) provide, in most relevant part, that:

The contentions of appellant with respect to each ground of rejection presented for review in paragraph (c)(1)(vi) of this section, and the basis therefor, *with citations of the statutes, regulations, authorities, and parts of the record relied on*. Any arguments or authorities not included in the brief or a reply brief filed pursuant to § 41.41 will be refused consideration by the Board, unless good cause is shown. . . . *A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim.*

37 C.F.R. § 41.37(c)(1)(vii) (emphasis added).

Blue’s arguments merely invite the Board to assemble an argument for patentability from the general description of the invention without even pointing out what a representative claim specifically recites. Blue’s failure to tie its arguments for patentability to the particular limitations of the claims

frustrates review. *Cf. In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991) ("It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for nonobvious distinctions over the prior art.")

Moreover, Blue has failed to show good cause why we should consider, for the first time, arguments presented without supporting evidence, as to process steps and conditions that Blue has failed to show are recited in the claims. The absence of reliable authority reduces these factual arguments to mere attorney argument that we would be unable to credit were we to address the merits of Blue's argument. Efficient prosecution requires that the best evidence and arguments be presented first to the Examiners. Attempts to advance substantive arguments or to explain the invention for the first time on appeal are misguided, as the primary role of the Board is review, not examination in the first instance.

Finally, Blue's arguments that the Examiner failed to establish an evidentiary basis for finding motivation to combine the references amounts to mere pleading. Blue has not directed our attention to specific errors in the Examiner's findings of fact or reasoning that show, in its view, why the references are not directed to common issues that would have led a person having ordinary skill in the art to consult them. Nor has Blue directed our attention to specific instances of conflicting teachings that might have dissuaded a person having ordinary skill in the art from combining their teachings. We decline to take up Appellants' burden of persuasion.

Because Blue has not presented substantive arguments for patentability as required by USPTO Regulations governing appeals, Blue

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has failed to carry its burden of persuasion that the Examiner erred reversibly. Accordingly, we AFFIRM Rejections (b) and(c).

D. Order

We REVERSE the rejection of claims 2-7, 25-41, and 59-61 under 35 U.S.C. § 112(2).

We AFFIRM the rejection of claims 2-7, 25-41, and 59-61 under 35 U.S.C. § 103(a) in view of the combined teachings of the Admitted Prior Art, Marten, and optionally Ryham.

We AFFIRM the rejection of claims 25-41 and 59-61 under 35 U.S.C. § 103(a) in view of Marten, Kohl, and Kolb, and optionally either Ryham or Ewen.

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

tc

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