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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 74

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SEPPO RUOTTU

Appeal No. 96-1003
Application No. 08/115,791[1]

ON BRIEF

Before WINTERS, KIMLIN and OWENS, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

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[1] Application for patent filed September 3, 1993. According to appellant, this application is a continuation of Application No. 07/844,915, filed March 5, 1992; which is a continuation of Application No. 07/536,931, filed June 12, 1990; which is a continuation of Application No. 06/640,526, filed August 14, 1984; which is a continuation of Application No. 06/371,796, filed April 26, 1982; all which have been abandoned.

This is an appeal from the final rejection of claims 12-31. Claim 7, the other claim remaining in the present application, stands withdrawn from consideration. Claim 12 is illustrative:

12. A method of gasifying carbonaceous material in a single fluidized bed reactor having: a lower part defining an oxidation zone, and including a distribution plate; and an upper part defining a reducing zone and including a gas discharge opening; said method comprising the steps of substantially continuously:

(a) introducing oxygen containing gas into the lower part of the reactor through the distribution plate;

(b) introducing carbonaceous material to be gasified into the reducing zone in the upper part of the reactor at a point substantially free of oxygen, so that the carbonaceous material is pyrolyzed to produce gases which flow through the gas discharge opening;

(c) separating unreacted carbonaceous material from the gas flowing through the gas discharge opening;

(d) returning the separated unreacted carbonaceous material from step (c) to the oxidation zone below the point of introduction of the carbonaceous material in step (b) so that the unreacted carbonaceous material reacts with oxygen introduced in step (a) to generate heat, CO_2 and H_2O and to maintain a temperature of between 970-1200 degrees C in the oxidizing zone;

(e) circulating a sufficient volume of inert particulate material, entrained in gas within the reactor so as to carry sufficient heat from the oxidizing zone into the reducing zone to maintain the temperature in the reducing zone greater than or equal to 900 degrees C to provide a high enough temperature to effect the pyrolyzation of step (b), generated CO_2 and H_2O and other gases passing upwardly with the circulating

particles into the reducing zone from the oxidizing zone to heat the reducing zone; and

(f) separating inert particles which pass out of the gas discharge opening with the gas from the gas, and returning the separated inert particles to the oxidizing zone.

The examiner relies upon the following references as evidence of obviousness:

Anwer et al. (Anwer)	4,017,272	Apr. 12, 1977
Patel et al. (Patel)	4,057,402	Nov. 8, 1977
Nack et al. (Nack)	4,154,581	May 15, 1979
Patel et al. (Patel '758)	4,315,758	Feb. 16, 1982
Reh et al. (Reh)	4,347,064	Aug. 31, 1982

Appellant's claimed invention is directed to a method of gasifying carbonaceous material in a single fluidized bed reactor. The method entails, inter alia, returning separated unreacted carbonaceous material to an oxidation zone that is below the point of introduction of the carbonaceous feed material, and recycling separated inert particles to the oxidation zone of the reactor in order to carry sufficient heat from the oxidation zone into the reduction zone where the carbonaceous material is pyrolyzed into gaseous material.

Appealed claims 12-31 stand rejected under 35 U.S.C. § 112, first and second paragraphs. The appealed claims also stand rejected under 35 U.S.C. § 103 as being unpatentable over Patel in view of Anwer, Reh, Nack and Patel '758.

We consider first the rejection of the appealed claims under 35 U.S.C. § 112, first and second paragraphs.

According to the examiner, claims 12 and 21 do not find descriptive support in the original specification since they encompass a process wherein the carbonaceous material and inert particles are separately returned to the reactor. We will not sustain this rejection because all that is required by § 112, first paragraph, is that the claimed subject matter be described in the original specification, and appellant's specification adequately describes the claimed return of the separated unreacted carbonaceous material and the separated inert particles. The claims do not require that the carbonaceous and inert materials are separately returned.

We will sustain the examiner's rejection of claims 24 and 26 under § 112, second paragraph. We agree with the examiner that claim 24 is indefinite with respect to whether the carbonaceous material or inert material has the recited flow rate of 7.8 6g/second. While appellant states at page 12 of the principal brief that claim 24 has a typographical error "in referencing step (c) rather than step (f)," the examiner correctly points out that claim 21, upon which claim 24 depends, does not include a step (f).

Regarding claim 26, we concur with the examiner that the language "the total material" lacks proper antecedent basis. Likewise, the claim 26 language of step (b) "the recirculated particles" lacks antecedent basis. Also, we agree with the examiner that the language of step (a), "circulating inert granular material of the fluidized bed in such a way that a portion of the total material is in pneumatic movement" is indefinite since it is not clear what "portion" of the total material is not in pneumatic movement. For example, does "the total material" include a combination of inert material and carbonaceous material or just inert material. While appellant contends at page 2 of the Reply Brief that "[t]here is no commonly accepted interpretation of the language 'a portion' that specifically and unequivocally excludes 100%," we note that Webster's New Collegiate Dictionary 896 (G & C Merriam Co. 1976) defines "portion" as "an often limited part set off or abstracted from a whole." Moreover, we are convinced that one of ordinary skill in the art would reasonably interpret "a portion of the total material" as something less than 100% of the total material.

Accordingly, we will sustain the examiner's rejection of claims 24 and 26-31 under 35 U.S.C. § 112, second paragraph.

We now turn to the examiner's rejection of the appealed claims under 35 U.S.C. § 103. Upon careful consideration of the opposing arguments presented on appeal, we find ourselves in agreement with appellant that the applied prior art fails to establish a prima facie case of obviousness for the claimed subject matter. Accordingly, we will not sustain the examiner's § 103 rejection.

Patel, the primary reference, discloses a gasification process that does not include three of the presently claimed features. In particular, Patel fails to disclose (1) returning separated carbonaceous material to the oxidation zone below the point of introduction of the feed carbonaceous material, (2) the presence of inert material in the fluidized bed reactor, and (3) recycling the separated inert material to the oxidation zone of the reactor. Although Patel discloses a recycle of carbonaceous fines in line 84, the examiner is mistaken in stating that the recycled fines are introduced into the oxidation zone of the reactor. Patel discloses that

the fines are directed to section 62 below the venturi 60 (column 7, lines 7-10).

Although the secondary references applied by the examiner individually provide separate disclosures of the three claimed features lacking in Patel, we do not find that the processes of Anwer, Reh, Nack and Patel '758 are sufficiently like the process of Patel that one of ordinary skill in the art would have been motivated to modify Patel so that (1) the unreacted carbonaceous material is returned to the oxidation zone below the point of introduction of the feed carbonaceous material, (2) inert material is circulated and (3) separated inert material is returned to the oxidation zone. For instance, whereas Nack recycles inert material, there is no disclosure of returning unreacted carbonaceous material. Also, while Reh recycles carbonaceous material, the reference does not teach the claimed step of returning the unreacted carbonaceous material to the oxidation zone below the point of introduction of the feed carbonaceous material. Furthermore, as argued by appellant, Reh discloses a two reactor system, not the claimed single fluidized bed reactor. While Anwer discloses the recycle of carbonaceous material through line 40, it is clear

from reference Figure 1 that the recycle is introduced at a point above, not below, the point of introduction of the feed carbonaceous material. Also, unlike the process of Patel, Anwer discloses entry of oxygen both above and below the point of introduction of the carbonaceous material. Patel '758, the final secondary reference, fails to teach the employment of circulating inert material in the gasification method.

Accordingly, it is our view that impermissible hindsight is necessary to pick and choose from among the disclosures of the secondary references in order to modify the gasification process of Patel so that it meets the requirements of the claimed gasification method.

We recognize that appellant took an appeal in the great grandparent application of the present application (U.S. Application No. 06/640,526, filed August 14, 1984). In a decision dated November 29, 1989 (Appeal No. 88-0003), the Board affirmed the examiner's rejection of the appealed claims over the same prior art presently applied, with the exception of Patel '758. However, the present claims on appeal are substantially different than the appealed claims in the prior appeal, e.g., the appealed claims in the great grandparent

application did not require that the separated unreacted carbonaceous material be returned to the oxidation zone below the point of introduction of the carbonaceous material. Consequently, the instant appeal presents different issues than those before the prior merits panel.

In conclusion, based on the foregoing, we will sustain the examiner's § 112, second paragraph, rejection of claims 24 and 26-31. We will not sustain the examiner's § 112, first and second paragraph, rejections of claims 12-23 and 25 or the rejection of all the appealed claims under 35 U.S.C. § 103. Accordingly, the examiner's decision rejecting the appealed claims is affirmed-in-part.

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

AFFIRMED-IN-PART

SHERMAN D. WINTERS Administrative Patent Judge	)	
EDWARD C. KIMLIN	)	BOARD OF PATENT

Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
	)	
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