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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SEBASTIAN KAEFER

Appeal 2014-009291
Application 13/000,941
Technology Center 3700

Before JOHN C. KERINS, WILLIAM A. CAPP,
and GEORGE R. HOSKINS, *Administrative Patent Judges*.

CAPP, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant seeks our review under 35 U.S.C. § 134 of the final rejection of claims 33–35 under 35 U.S.C. § 112(d) or pre-AIA § 112, fourth paragraph, as being of improper dependent form; claims 14–16, 22–30, and 33–35 under 35 U.S.C. § 102(b) as anticipated by Hofmann (US 5,884,475, iss. Mar. 23, 1999); and claims 17–21 as unpatentable under 35 U.S.C. § 103(a) over Hofmann and Marko (US 6,387,336 B2, iss. May 14, 2002). We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

THE INVENTION

Appellant's invention is an exhaust gas posttreatment device for an internal combustion engine. Spec. ¶ 10. Claim 14, reproduced below with paragraph indentation added, is illustrative of the subject matter on appeal.

14. An exhaust gas posttreatment device for an internal combustion engine, comprising:

an exhaust gas tube; an SCR catalytic converter;

a metering valve for injecting a gaseous reducing agent into the exhaust gas tube;

a heatable storage container containing at least one storage substance for the reducing agent; and

a buffer reservoir wherein the buffer reservoir is heatable, the storage substance is embodied such that the reducing agent can be released in gaseous form from the storage substance by the action of temperature in a releasing process which is reversible, and wherein an overpressure valve is provided between the buffer reservoir and the metering valve.

OPINION

Section 112 – Proper Dependent Form

Claim 33 recites: “A control unit for an internal combustion engine, which operates by the method of claim 24.” Claims App. Claim 24, in turn, is directed to a method for operating an exhaust gas posttreatment device.

Id. Claim 34 reads as follows:

34. A non-transitory computer readable medium storing computer program instructions for a control unit of an internal combustion engine, wherein when the instructions are executed, *the control unit* performs a method as defined by claim 24.

Claims App. (emphasis added). Similarly, claim 35 reads as follows:

35. A non-transitory computer readable medium storing computer program instructions for a control unit of an internal

combustion engine, wherein when the instructions are executed,
the control unit performs a method as defined by claim 30.

Claims App. (emphasis added).

The Examiner rejects claims 33–35 under 35 U.S.C. § 112 as being of improper dependent form for failing to further limit the subject matter of the claim upon which they respectively depend, or for failing to include all of the limitations of the claim upon which they respectively depend. Final Action 2. The Examiner recites the limitations from claims 33–35, but does not otherwise elaborate on why the claims are deemed deficient. *Id.* In response to Appellants’ traverse (Appeal Br. 5), the Examiner does not defend or otherwise address the Section 112 rejection in the Examiner’s Answer. *See generally* Ans.

The Examiner carries a procedural burden of establishing a prima facie case by notifying the applicant of the reasons for a rejection, together with “useful” information for judging of the propriety of continuing prosecution of an application. *See* 35 U.S.C. § 132. Section 132 “is violated when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection.” *In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011) (quoting *Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990)).

Here, the Examiner’s rejection lacks sufficient detail to make out a prima facie case. Accordingly, we do not sustain the section 112 rejection of claims 33–35.

Anticipation by Hofmann

Claims 14–16, 22, and 23

The Examiner finds that Hofmann discloses all of the limitations of claim 14. Final Action 3–4. In particular, the Examiner finds that Hofmann’s reducing agent can be released in gaseous form from the storage substance by the action of temperature in a releasing process that is reversible. *Id.* at 4.

Appellant traverses the rejection by arguing that Hofmann fails to disclose a reducing agent in “gaseous form.” Appeal Br. 7. Appellant contends that Hofmann discloses an aqueous urea solution that is sprayed into an exhaust gas line. *Id.* Appellant also argues that Hofmann fails to disclose a reversible releasing process as claimed. *Id.* Appellant contends that Hofmann changes between frozen and liquid states. *Id.*

In response, the Examiner states that Hofmann discloses that ammonia is produced from the aqueous urea solution. Ans. 2. The Examiner also relies on a passage of Hofmann as teaching that the aqueous urea solution may freeze. *Id.* The Examiner finds that Hofmann teaches that the urea solution in intermediate container 14 can be thawed by electric heater 38. *Id.* (citing Hofmann, col. 8, ll. 1–50).

In reply, Appellant reiterates that Hofmann does not teach releasing a urea solution to a gaseous form. Reply Br. 3. Appellant directs our attention to col. 8, lines 40 through 44, of Hofmann as teaching that overheating of the urea solution is avoided in tank 6 and intermediate container 14 to avoid hydrolysis of the urea solution to form ammonia in such containers. Reply Br. 3, Hofmann, col. 8, l. 44 (“hydrolysis is undesirable”).

Appellant’s Specification provides that:

If now, in the n^{th} cycle, the buffer reservoir 15 has emptied enough that it reaches the limit charge 31, recharging of the buffer reservoir 15 with ammonia from the storage container 23 is necessary. This is done in that when the limit charge 31 is reached, the heater 17 of the buffer reservoir is shut off. A short time before that, the heater 27 of the storage container 23 is activated, since the storage container 23 requires a certain amount of time until it is ready for operation. As a result of the shutoff of the heater 17 of the buffer reservoir 15 after the limit charge is reached, the buffer reservoir 15 cools down, while at the same time the temperature of the storage container 23 rises. *The result is an overpressure of the ammonia in the storage container 23, as a result of which gaseous ammonia flows from the storage container 23 through the check valve 29 into the buffer reservoir 15. There, because of the reversibility of the storage operation and the decrease in temperature of the buffer reservoir 15, it is stored in the storage material.* This process can also continue after the shutoff of the vehicle, that is, after the end of the n^{th} cycle, until the buffer reservoir 15 has again reached the initial charge of 1.0. After that, in the $n+1^{\text{th}}$ cycle, the method already described in conjunction with the first cycle begins all over again.

Spec. ¶ 39 (emphasis added). The foregoing disclosure informs our understanding of the language in claim 14 directed to the reducing agent being released in *gaseous form* from the storage substance by the action of temperature in a releasing process that is *reversible*. Claims App.

Hofmann is directed to an SCR method where liquid urea is introduced into an exhaust gas. Hofmann, col. 2, ll. 33–51.

The urea solution 4 is contained initially in a container 6 having a venting device 8. The urea solution 4 can be fed through the use of a feed pump 18 through a supply line 12 to an outlet opening 22 leading into the exhaust-gas line 42.

Id. col. 6, ll. 4–8; *see also* col. 8, ll. 9–11 (“There the aqueous urea solution 4 is finely sprayed into the exhaust gas 5 which flows into the

exhaust-gas line **42** of the internal-combustion engine”). Hofmann is concerned with preventing damage from temperatures below the freezing point of the liquid. *Id.* col. 2, ll. 3–10. Hofmann alleviates the problem of frozen liquid in the supply line between reservoir and the exhaust pipe by using pressurized gas to drain the supply line. *Id.* col. 2, ll. 33–63; col. 3, ll. 8–50. Hofmann also uses a heater to liquefy a starting volume of the liquid from a solid state. *Id.* col. 4, ll. 15–29.

[T]he device, which is preferably a component of an exhaust-gas purification system of a utility motor vehicle having an internal-combustion engine, in particular an internal-combustion engine operated with an excess of air, can be particularly rapidly put into operation again even after prolonged shutdown times of the utility motor vehicle at outside temperatures below the freezing point of the liquid, because only a small heating power is needed to liquefy the starting volume even in the case of frozen liquid.

Hofmann, col. 4, ll. 40–49; *see also*. col. 7, l. 63 – col. 8, l. 23. Hofmann uses temperature sensors to avoid overheating, and thereby vaporizing, the liquid contained in the reservoir. *Id.* col. 5, ll. 7–21.

[O]verheating of the urea solution **4** is avoided both in the tank **6** and in the intermediate container **14**, which would otherwise already result in hydrolysis of the urea solution to form ammonia in the containers. However, the hydrolysis is undesirable.

Id. col. 8, ll. 40–44.

To anticipate a claim, a single prior art reference must expressly or inherently disclose each claim limitation. *Celeritas Techs., Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). Anticipation also requires the presence in a single prior art disclosure of all the elements “arranged as in the claim.” *Finisar Corp. v. Direct Group, Inc.*, 523 F.3d

1323, 1334 (Fed. Cir. 2008). Here, claim 14 requires that the reversible releasing process takes place with regard to a reducing agent that is released in “gaseous form” from the storage substance. Claims App. The Examiner’s finding that this requirement is met by urea that is thawed into a liquid state from a frozen state constitutes reversible error.

We do not sustain the anticipation rejection of claim 14, neither do we sustain the rejection of claims 15, 16, 22, and 23 that depend therefrom.

Claims 24–30 and 33–35

Claim 24 is a method claim that is substantially similar in scope to claim 1. Claims App. As with claim 14, claim 24 contains a limitation directed to releasing a reducing agent from the storage substance in gaseous form in a process that is reversible. *Id.*

The issue raised by the Examiner’s rejection and Appellant’s traverse thereof is essentially the same as that discussed above with regard to the rejection of claim 14. Final Action 3–4, Appeal Br. 8, Ans. 3. For essentially the same reasons discussed above with respect to claim 14, we do not sustain the anticipation rejection of claim 24, neither do we sustain the rejection of claims 25–30 and 33–35 that depend therefrom.

*Unpatentability of Claims 17–21
over Hofmann and Marko*

Claims 17–21 depend, directly or indirectly, from independent claim 14. Claims App. The rejection of these claims suffers from the same infirmity that we identified with respect to the rejection of claim 14, which infirmity is not cured by reliance on Marko as a secondary reference.

Accordingly, we do not sustain the unpatentability rejection of claims 17–21.

Appeal 2014-009291
Application 13/000,941

DECISION

The decision of the Examiner to reject claims 14–30 and 33–35 is reversed.

REVERSED