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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TOBIAS RICHTER

Appeal 2018-003383
Application 14/278,695
Technology Center 1700

Before JEFFREY T. SMITH, LINDA M. GAUDETTE, and
MONTÉ T. SQUIRE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL¹

The Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner’s decision finally rejecting claims 23–41.³ A hearing was held on September 24, 2019.

¹ This Decision includes citations to the following documents: Specification filed May 15, 2014 (“Spec.”); Final Office Action dated December 13, 2016 (“Final”); Appeal Brief filed July 10, 2017 (“Appeal Br.”); Examiner’s Answer dated December 8, 2017 (“Ans.”); and Reply Brief filed February 8, 2018 (“Reply Br.”).

² We use the word “Appellant” to refer to the “Applicant” as defined in 37 C.F.R. § 1.42(a). The Appellant and real party in interest is Multivac Sepp Haggemueller SE & Co. KG. Application Data Sheet filed April 26, 2016; Appeal Br. 1.

³ We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

CLAIMED SUBJECT MATTER

The claims are directed to a method for the high-pressure treatment of packaged food products. Spec. 1:13–14. Claim 23, reproduced below, is illustrative of the claimed subject matter:

23. A method for processing a food product, comprising:
- loading the food product into a packaging,
 - replacing air inside the packaging with a protective gas or a protective gas-mixture,
 - subsequent to replacing air inside the packaging by a protective gas or a protective gas mixture:
 - gas-tight closing the packaging to form a packaged food product,
 - loading the packaged food product into a high-pressure chamber, subjecting the packaged food product in the high-pressure chamber to a high-pressure treatment, during which a high-pressure medium acts upon the packaged food product, and
 - decreasing the pressure within the high-pressure chamber in a first phase and in a second phase, wherein a mean pressure decrease rate in the first phase is higher than in the second phase.

Appeal Br., Claims Appendix 1.

REFERENCES

The Examiner relies on the following references as evidence of unpatentability:

Carter	US 5,288,462	Feb. 22, 1994
Sato	US 6,136,609	Oct. 24, 2000
Yuan	US 2003/0170356 A1	Sept. 11, 2003
Meyer	US 2003/0228239 A1	Dec. 11, 2003
Ting	US 2006/0272709 A1	Dec. 7, 2006
Bergman	US 2007/0144587 A1	June 28, 2007

REJECTIONS

1. Claims 23, 25–27, 30, 31, 36, and 41 are rejected under 35 U.S.C. § 103(a) as unpatentable over Yuan in view of Carter.
2. Claims 28, 29, and 37–40 are rejected under 35 U.S.C. § 103(a) as unpatentable over Yuan in view of Carter and Meyer.
3. Claims 24 and 32 are rejected under 35 U.S.C. § 103(a) as unpatentable over Yuan in view of Carter and Ting.
4. Claim 33 is rejected under 35 U.S.C. § 103(a) as unpatentable over Yuan in view of Carter, Ting, and Sato.
5. Claims 34 and 35 are rejected under 35 U.S.C. § 103(a) as unpatentable over Yuan in view of Carter, Ting, and Bergman.

OPINION

The Examiner relied on the combined teachings of Yuan and Carter in rejecting claims 23–41. *See generally* Final 2–7.

Yuan discloses “[a] method of processing a substance, such as a food item, utilizing high pressure processing [(HPP)]” Yuan, at [57]. Yuan’s method includes steps of inserting food items within a pouch container, flushing a process gas mixture into the container, sealing the container (*id.* ¶ 25), placing the sealed container in a pressurization chamber, and applying pressure to a transmitting fluid in the chamber that, in turn, applies pressure

externally to the container (*id.* ¶ 27). Yuan discloses that “[e]xemplary pressures suitable for achieving a selected biocidal efficacy and desirable sensory qualities for food items processed utilizing HPP treatment are in the range of about 50 megaPascals (MPa) to about 10,000 MPa.” *Id.* ¶ 22.

Carter discloses a method of pressure sterilization comprising “subjecting devices or materials to high pressure and rapid decompression.” Carter 1:5–9. Carter discloses that the method is “of special utility in the sterilization of medical and dental tools, although not limited to such uses.” *Id.* at 2:17–19. Carter describes placing “loose dental tools or tools contained or sealed in bags or packages” in a first chamber (13), sealing the first chamber, and delivering fluid, e.g., water, at a pressure of 60 Kpsi to the first chamber. *Id.* at 5:13–22. When a critical buckling load threshold is reached—55–60 Kpsi (*id.* at 7:5–7)—a column (82) in a second chamber (62) buckles, allowing the fluid to pass out of the first chamber into a bore (68), thereby substantially instantaneously reducing the pressure in the first chamber, e.g., pressure in the first chamber “can be reduced from 55 Kpsi to approximately 10 Kpsi in from one to ten milliseconds.” *Id.* at 7:62–8:6. Fluid flows from the bore into the second chamber until the pressure in the first chamber becomes less than the restoring threshold for the column. *Id.* at 8:7–16. When the restoring threshold for the column is reached by the pressure of the fluid in the second chamber, the column snaps back into a straight alignment, thereby closing the passage for fluid flow between the first and second chambers. *Id.* at 8:16–19. Carter discloses that “the pressure build-up and the decompression may be performed over several cycles.” *Id.* at 8:33–34.

Each of independent claims 23, 37, and 41 recites a step of decreasing the pressure in the high-pressure chamber in two phases, wherein the mean pressure decrease rate in the first phase is higher than the mean pressure decrease rate in the second phase. *See* Appeal Br., Claims Appendix 1, 3. The inventors are said to have discovered that by decreasing pressure in the claimed manner, the adverse effects that occur to the product or packaging in the prior art fast pressure reduction methods can be avoided. Spec. 4:25–30.

The Examiner found Yuan discloses a method for processing food products that includes conducting an HPP treatment in the range of about 50–10,000 MPa, followed by a rapid depressurization step, but fails to teach explicitly a multi-phase depressurization process as claimed. Final 2–3 (citing Yuan ¶¶ 21, 22). The Examiner found that Carter discloses a method for sterilizing objects in a chamber using a high pressure medium such as water at 60,000 psi. *Id.* at 3 (citing Carter 5:13–16). The Examiner found that Carter discloses a two-stage depressurization process comprising decreasing the pressure in a first stage from 60,000 psi (414 Mpa) to about 10,000 psi (69 MPa) within 1–10 ms, and further decreasing the pressure in a second stage at a lesser pressure rate to approximately 5,000 psi (35 MPa). *Id.* (citing Carter Fig. 3). The Examiner found one of ordinary skill in the art would have used Carter’s two-stage depressurization process in Yuan’s method based on Carter’s disclosure that the two-stage depressurization process provides a greater lethality to the microorganisms. *Id.* (citing Carter 2:42–57).

For the reasons discussed below, the Appellant has argued persuasively that the evidence of record fails to support the Examiner’s finding that one of ordinary skill in the art would have had a reason to

modify Yuan based on the teachings of Carter. *See generally*, Appeal Br. 6–9.

Each of independent claims 23, 37, and 41 recites steps involving the treatment of a food product. *See* Appeal Br., Claims Appendix 1–3. The Appellant argues that Carter discloses a process that is of “special utility . . . [to] medical and dental tools . . . [and] any other device or instrument which itself would not be structurally, adversely affected [by] the method of . . . [Carter’s] invention,” but fails to disclose or suggest that the process can be used for treating food products. Appeal Br. 7 (quoting Carter 2:16–22). The Appellant further notes that Carter’s disclosure in column 2, lines 42–57, does not support the Examiner’s finding (Final 3) that Carter teaches that a two-stage depressurization process provides a greater lethality to microorganisms. Appeal Br. 7.

Having reviewed the disclosure in Carter relied-upon by the Examiner, as well as the reference in its entirety, we determine that even if one of ordinary skill in the art would have understood Carter’s process as being applicable to the treatment of food products, the Examiner has not explained sufficiently why one of ordinary skill in the art would have replaced Yuan’s depressurization step with Carter’s depressurization process. As argued by the Appellant (*see* Appeal Br. 7), Carter discloses that microorganisms are deactivated by subjecting them to two destructive phases: “[t]hey are first subjected to high pressure deactivation, and then to an explosive decompression deactivation” (Carter 2:49–53). Carter defines the explosive decompression phase as “the rapid removal of pressure from the pressure chamber within an elapsed time measured in milliseconds, such as, for example, one to ten milliseconds.” *Id.* at 2:53–57. The Examiner has

not directed us to, nor do we find, any indication in Carter that the alleged, second decompression phase, i.e., the further reduction in pressure that occurs when fluid flows from the bore into the second chamber after the substantially instantaneous pressure reduction (*see* Carter 7:62–8:16, Fig. 3 (illustrating the further reduction in pressure after the pressure in the first chamber reaches the restoring threshold of 10K psi)), has any effect on the microorganisms.

Yuan’s “HPP treatment includes the application of the external pressure to the controlled atmospheric environment for a selected time period so as to effect compression of the substance within the environment, followed by rapid depressurization of the controlled atmospheric environment.” Yuan ¶ 21. Yuan discloses that “[t]he combination of the HPP treatment with the controlled atmospheric environment in the package results in an acceleration of the destruction and inactivation of microorganisms . . . [and that] [t]he controlled atmospheric environment further retards the growth rate of any microorganisms that may have survived the HPP treatment.” Yuan ¶ 28. The Examiner has not explained why one of ordinary skill in the art would have modified Yuan’s rapid depressurization step by adding a second pressure reduction phase given Yuan’s disclosure that its process already destroys and inactivates microorganisms and Carter’s absence of any disclosure that the alleged, second decompression phase contributes to the destruction and inactivation of microorganisms.

Accordingly, we do not sustain the rejections of independent claims 23, 37, and 41, or the claims dependent therefrom.

CONCLUSION

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
23, 25–27, 30, 31, 36, 41	103(a)	Yuan, Carter		23, 25–27, 30, 31, 36, 41
28, 29, 37–40	103(a)	Yuan, Carter, Meyer		28, 29, 37–40
24, 32	103(a)	Yuan, Carter, Ting		24, 32
33	103(a)	Yuan, Carter, Ting, Sato		33
34, 35	103(a)	Yuan, Carter, Ting, Bergman		34, 35
Overall Outcome				23–41

REVERSED