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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JENNY WEISSBRODT,
ALEXANDER DIRING, ERIC GRUBER,
BURGHARD RABE, CHRISTOPHER SABATER,
and WALTER BRÖCKEL

Appeal 2019-006152
Application 15/163,971
Technology Center 1700

Before MICHAEL P. COLAIANNI, GEORGE C. BEST, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) the final rejections of
claims 14–35.¹ We have jurisdiction over the appeal. 35 U.S.C. § 6(b).

We AFFIRM IN PART.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37
C.F.R. § 1.42. Appellant identifies Symrise AG as the real party in interest
(Appeal Br. 2).

STATEMENT OF THE CASE

Appellant's invention is directed to large agglomerate particles, which are obtained by spray-drying agglomeration (Spec. ¶ 2). The Specification describes that large agglomerate particles are an important product for use in the foodstuff sector (*id.* ¶ 4). The Specification describes that large agglomerate particles may be added to teabags as flavorings to round off the taste profile (*id.*).

Claim 14 is representative of the subject matter on appeal (emphasis added):

14. A method for producing agglomerate particles having a mean size of greater than 200 μm , said method comprising the steps of:

(i) producing pulverulent particles by means of a spray-drying process, wherein a feed liquid is sprayed by a feed liquid atomizer into a spray-drying segment located at an upper region of a spray-drying agglomeration device and dried in the spray-drying segment to obtain pulverulent particles,

(ii) spraying the pulverulent particles with a binder liquid, in an integrated fluidized bed in the spray-drying agglomeration device, which bed is situated in *a lower region of the spray-drying agglomeration device, in which region the pulverulent[]particles of the spray-drying segment from step (i) is sprayed with the binder liquid by means of a nozzle or atomizer construction mounted at a bottom of the fluidized bed, the particles being constantly kept in motion and whirled up during production.*

Appeal Br. 23 (Claims App.).

The Examiner maintains the following rejections:

1. Claims 14, 16, 18–29, and 31–33 are rejected under 35 U.S.C. § 103 as unpatentable over Kai² et al. (US 2005/0158443 A1; published July 21, 2005, “Kai”), in view of Nielsen (WO 2007/124745 A1; published Nov. 8, 2007) (Final Act. 2–4).
2. Claims 15, 17, 34, and 35 are rejected under 35 U.S.C. § 103 as unpatentable over Kai, in view of Nielsen, and further in view of Uhlemann et al. (US 5,213,820; issued May 25, 1993, “Uhlemann”) (Final Act. 4–5).
3. Claim 30 is rejected under 35 U.S.C. § 103 as unpatentable over Kai, in view of Nielsen, and further in view of Seyffert et al. (US 5,955,036; issued Sept. 21, 1999, “Seyffert”) (Final Act. 5).

Appellant offers separate arguments in support of independent claim 14, and dependent claims 15, 28, 30, and 35 (*see generally* Appeal Br. 10–21). Each of these claims will be discussed separately.

FINDINGS OF FACT & ANALYSIS

A. Rejection of claims 14, 16, 18–29, and 31–33 as unpatentable over the combination of Kai and Nielsen.

1. Claim 14

With respect to claim 14, the Examiner’s findings and conclusions regarding Kai and Nielsen are located on pages 2–4 of the Final Office Action. The Examiner finds that Kai’s method for producing agglomerate

² As both Appellant and the Examiner refer to this reference as “Kai,” which is the first name of the first inventor listed in this reference, we do the same.

particles would have rendered obvious each step and limitation of the method recited in independent claim 14, except that Kai does not disclose the structure of the device used to produce the particles (Final Act. 2–3).

The Examiner finds Nielsen discloses a device for spray-drying agglomeration of particles (*id.* at 3). Figure 1 of Nielsen, as reproduced below, illustrates an agglomeration apparatus in which a fluid bed is positioned in a lower part of a spray drying chamber:

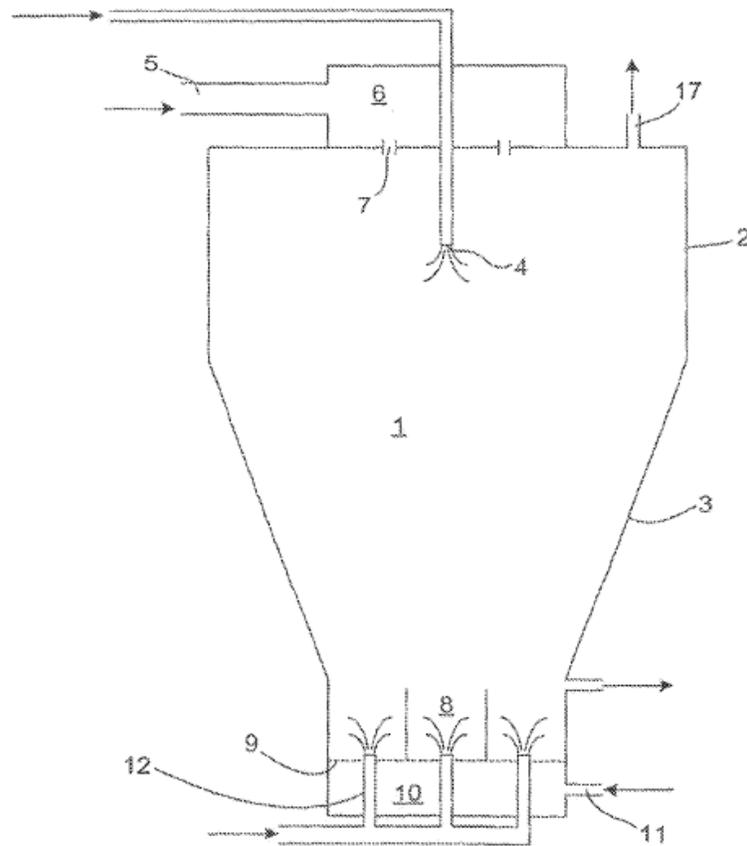


Fig. 1

Nielsen's figure 1 illustrates an agglomeration apparatus, including drying chamber 1, upper cylindrical part 2, lower downward tapering frusto-conical part 3, atomizer 4, drying gas inlet 5, perforated plate 9, plenum 10,

fluidization gas inlet 11, and nozzles 12 (Nielsen 10:1–11:11). According to the Examiner, Nielsen’s figure 1 depicts the claimed device comprising:

a chamber (drying chamber 1 . . .) contain[ed] in an upper region[,] a spray drying segment (. . . upper cylindrical part 2 with dry air introduction 5) in which a feed liquid atomizer (. . . atomizer 4) is placed . . . and []in a lower region (. . . directly below frusto-conical part 3) an integrated fluidized bed (. . . bed 8 including perforated plate 9 and plenum 10), the fluidized bed further containing []a nozzle or atomizer construction for spraying a binder liquid (. . . nozzles 12 . . .).

Final Act. 3 (citing Nielsen 10:5–15; 11:11–18; Fig. 1).

The Examiner finds “Kai discloses that the most favorable technique is the use of a combined spray-drier/fluidized bed system, where the powder from the spray drier is directly granulated” (Final Act. 3). The Examiner determines that it would have been obvious for one of ordinary skill in the art at the time of the invention to have used Nielsen’s known agglomeration apparatus to carry out Kai’s method (*id.*).

Appellant argues that Nielsen’s agglomeration apparatus does not teach or suggest that nozzles 12 are “mounted at a bottom of the fluidized bed,” as recited in claim 14 (Appeal Br. 11). In particular, Appellant argues the Specification’s figure 4 depicts “that the nozzles Z2 are . . . located above the dashed line[,] which is the lower plenum of the device” (*id.* at 12). Appellant distinguishes the Specification’s nozzles placement with Nielsen’s figure 7, which purportedly shows that nozzles 12 “are mounted **significantly below** the surface of the plenum (9) . . . and thus, not at the bottom of the fluidized bed” (*id.* at 13; *see also* Reply Br. 2). Appellant

concludes that the Examiner has not established a prima facie case of obviousness (Appeal Br. 15).

We are not persuaded by these arguments.

The Examiner reasonably interprets the “mounted at a bottom of the fluidized bed” language recited in claim 14 as encompassing the placement of nozzle 12 in Nielsen’s figures (Ans. 7 (explaining that a “bottom is interpreted as a bottom region” generally)). Appellant’s assertion that “the plenum sets the ‘bottom’ of a fluidized bed” is based only on two figures in the Specification (Appeal Br. 12). *See In re Van Guens*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (“[L]imitations are not to be read into the claims from the specification.”). Therefore, we agree with the Examiner that Nielsen teaches or suggests that nozzles 12 are “mounted at a bottom of the fluidized bed” within the meaning of claim 14.

Therefore, Appellant’s arguments are insufficient to convince us of reversible error in the Examiner’s rejection of claim 14. Appellant argues claims 14, 16, 18–27, 29, and 31–33 as a group (Appeal Br. 9–15; 22).

On this record, we sustain the Examiner’s § 103 rejection as to claims 14, 16, 18–27, 29, and 31–33.

2. Claim 28

With respect to claim 28, the Examiner’s findings and conclusions regarding Kai and Nielsen are located on pages 3–4 of the Final Office Action.

Claim 28 is set forth below (emphasis added):

28. The method of Claim 14, wherein the agglomerate particles are *between 700 μm and 1000 μm in size*.

Appeal Br. 24 (Claims App.).

The Examiner finds that Kai's method for producing agglomerate particles results in particles having an average size of 50–600 μm (Final Act. 2). The Examiner finds that Kai does not teach or suggest the requisite size range for agglomerate particles as recited in claim 28 (*id.* at 3). The Examiner, however, determines that

[c]haracteristics such as flowability, dusting and bulk weight are optimizing parameters in the production of agglomerated particles and such variable are result-effective and can readily be determined by one skilled in the art through routine experimentation to obtain the most optimum properties. It would have been obvious to one skilled in the art to form large sizes as an obvious matter of choice.

Id. at 3–4.

Appellant argues that the Examiner has failed to demonstrate that either Kai or Nielsen discloses the agglomerate particle size range of 700–1000 μm (Appeal Br. 15–16).

In response, the Examiner finds that because Nielsen discloses the desire for “larger” particles, a person of ordinary skill in the art would have been led to increase the size of Kai's particles to a larger size (Ans. 8 (citing Nielsen 6:5–7)). The Examiner finds Nielsen teaches that larger particles avoid problems associated with dust during the handling of agglomerate particles (Ans. 8–9).

Appellant, however, asserts that Nielsen's “reference to ‘larger’ particles . . . is a completely relative term, that has no objective, much less numerical significance” (Reply Br. 2). Appellant, moreover, argues that Nielsen's desire for such particles is satisfied by agglomerate “particle

sizes[,] which are larger than fine particles [and] . . . are not identified in size” (*id.* at 2–3).

Appellant’s arguments are persuasive.

It is well understood that “[r]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). To establish a prima facie case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

In this instance, the Examiner has not shown that Nielsen’s desire for particle sizes larger than fine particles, in view of Kai’s 50–600 μm particles, teaches or suggests “agglomerate particles [between 700 μm and 1000 μm in size” (claim 28) (emphasis added). We agree with Appellant that Nielsen’s teachings lack sufficient direction to reasonably suggest increasing Kai’s agglomerate particle size to a range that renders the claimed range obvious (Reply Br. 2–3). Moreover, Kai prefers smaller particles (i.e., between 50 and 600 μm , more preferably between 150 to 400 μm) than those recited in the claim (Kai ¶ 38). Given Nielsen’s amorphous size increase suggestion and Kai’s teaching for smaller particles outside the claimed range, the Examiner’s conclusion that the disputed particle size range limitation is met by the applied prior art is reversibly erroneous (*see*

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Ans. 8–9). Thus, the Examiner has not established a prima facie case of obviousness based upon articulated reasoning with rational underpinnings.

On this record, we do not sustain the Examiner’s § 103 rejection as to claim 28.

B. Rejection of claims 14, 16, 18–29, and 31–33 as unpatentable over the combination of Kai and Nielsen.

a. Claim 15

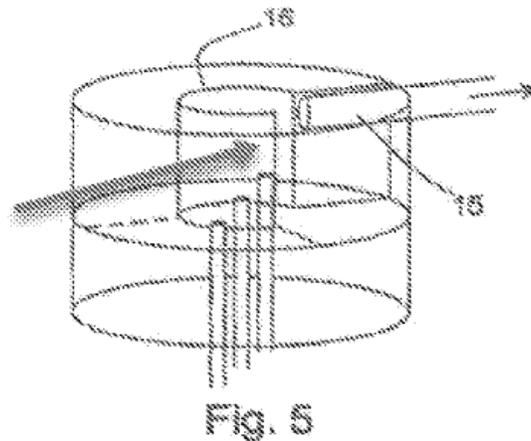
With respect to claim 15, the Examiner’s findings and conclusions regarding Kai, Nielsen, and Uhlemann are located on pages 4–5 of the Final Office Action.

Claim 15 is set forth below (emphasis added):

15. The method of Claim 14, wherein the spray-drying agglomeration device comprises *a dam construction* which is integrated in the fluidized bed and *which is placed in front of an escape opening* to a zigzag classifier or an external fluidized bed.

Appeal Br. 23 (Claims App.).

The Examiner finds that “Nielsen discloses a dam construction (Figs. 4 and 5; partition walls 14 and 16) for regulating the product amount” (Final Act. 3). The Examiner’s annotated Figure 5 is reproduced below:



The Examiner’s annotated Figure 5 illustrates a partially transparent view of Nielsen’s fluid bed, including partition wall 16 and radial outlet 15, positioned in the lower part of a spray drying chamber (Ans. 9; *see also* Nielsen 9:16–17; 9:22–25). The Examiner finds that because wall 16’s distal side “is in front of []outlet 15” (Ans. 10), Nielsen discloses or suggests “*a dam construction which is integrated in the fluidized bed and which is placed in front of an escape opening to a zigzag classifier or an external fluidized bed,*” as recited in claim 15 (emphasis added).

Appellant contends that Nielsen’s wall 16 is not a dam and would have been ineffective at keeping particles constantly in motion and whirled up during production, as required by parent independent claim 14 (Appeal Br. 19). Appellant, however, has not presented evidence other than attorney

argument that Nielsen's wall 16 would have been incapable of such function (*id.*).

Appellant argues that Nielsen's wall 16 is not "in front of" outlet 15 within the meaning of the term because figure 4 depicts that wall 16 is "at some significant distance from the opening" 15 (*id.* at 18 (citing Nielsen Fig. 4; <https://www.definitions.net/definition/in%20front%20of>)). Appellant argues that Nielsen's wall 16 is not a dam (Appeal Br. 19), but would have actually guided particles to outlet 15 (Reply Br. 3). Appellant distinguishes Nielsen's wall 16 from the instant dam, which prevents articles from escaping (*id.*).

We are not persuaded by these arguments because the Specification provides that "[t]he dam serves to adjust the fill level of the fluidized bed and to regularly discharge the particles and to adjust the residence time of the particles in the fluidized bed" (Spec. 7:19–21). In our view, the ordinarily skilled artisan would have viewed Nielsen's wall 16 as amenable to these functions. Moreover, Appellant's proffered definition for "in front of" (*see* Appeal Br. 18 (defining the disputed term as meaning "[a]t or near the front part of (something)")) does not require that the dam construction is "directly in front and not at some distance" from an escape opening (Reply Br. 3). Therefore, we agree with the Examiner that Nielsen's figures 4 and 5 reasonably teach or suggest "a dam construction . . . which is placed in front of an escape opening" within the meaning of claim 15.

Therefore, Appellant's arguments are insufficient to convince us of reversible error in the Examiner's rejection of claim 15. Appellant argues claims 15, 17, and 34 as a group (Appeal Br. 16–20).

On this record, we sustain the Examiner's § 103 rejection as to claims 15, 17, and 34.

b. Claim 35

With respect to claim 35, the Examiner's findings and conclusions regarding Kai, Nielsen, and Uhlemann are located on pages 4–5 of the Final Office Action.

Claim 35 is set forth below (emphasis added):

35. The method of claim 15, wherein *the dam construction is such that a fine dust generated during spray drying and agglomeration is returned to the headspace by means of a zig zag classifier.*

Appeal Br. 25 (Claims App.).

Appellant contends that Nielsen's wall 16 would not have provided the requisite function "due to the multiple walls set out" in wall 16, "which . . . do not permit a recycling of the particles back up into the headspace of the device" (Appeal Br. 19). Appellant, however, has not presented evidence other than attorney argument that Nielsen's wall 16 would have been incapable of providing claim 35's recycling function (*id.*). As the Examiner notes, the presently claimed recycling feature is accomplished by the zigzag classifier (Ans. 11; *see also* Spec. 7 (describing that "the zigzag classifier . . . in the device according to the invention assumes the role of an air classifier," i.e., "a mechanical separation method" of particles.)). There is no dispute that Uhlemann discloses or suggests returning fine dust "to the headspace by means of a zig zag classifier," as recited in claim 35 (Ans. 11; Appeal Br. 20).

On this record, we sustain the Examiner's § 103 rejection of claim 35.

- C. Rejection of claim 30 as unpatentable over the combination of Kai, Nielsen, and Seyffert.

With regard to claim 30, the Examiner's findings and conclusions regarding Kai, Nielsen, and Seyffert are located on page 5 of the Final Office Action.

Claim 30 is set forth below (emphasis added):

30. The method of claim 14, wherein *the fluidized bed has a temperature in the range of from 5°C to 90°C.*

Appeal Br. 25 (Claims App.).

The Examiner finds that Kai in view of Nielsen does not disclose the temperature recited in claim 30 (Final Act. 5). The Examiner, however, finds that Seyffert's process for agglomeration of sensitive substances utilizes a fluidized bed temperature of 20–80 °C (*id.*). The Examiner determines that it would have been obvious for one of ordinary skill in the art at the time of the invention to have “follow[ed Seyffert's] guideline . . . for the temperature in the fluidized bed since both Kai and Seyffert are directed to agglomeration of substances using [a] fluidized bed” (*id.*).

Appellant speculates that “what might work in” Seyffert's agglomeration device “would not [have] necessarily be[en] expected to work in” Niensens' spray-drying agglomeration device (Appeal Br. 20–21) (emphasis added). Appellant argues that the Examiner's proposed modification “*may very likely* make the particles excessively dry and defeat the desire of moist particles in the invention of Nielsen” (*id.* at 21) (emphasis added).

Because Appellant has not presented evidence other than speculative attorney argument that implementing Seyffert's fluidized bed temperatures

would have defeated Nielsen’s desire for moist particles (*id.* at 20–21), we determine that Appellant’s arguments to be without persuasive merit.

On this record, we sustain the Examiner’s § 103 rejection of claim 30.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
14, 16, 18–29, 31–33	103	Kai, Nielsen	14, 16, 18–27, 29, 31–33	28
15, 17, 34, 35	103	Kai, Nielsen, Uhlemann	15, 17, 34, 35	
30	103	Kai, Nielsen, Seyffert	30	
Overall Outcome			14–27, 29–35	28

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART