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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GIANNI MEDORO, ALEX CALANCA,
and NICOLÒ MANARESI

Appeal 2019-006548
Application 14/353,303
Technology Center 1700

Before CATHERINE Q. TIMM, JEFFREY R. SNAY, and
MICHAEL G. McMANUS, *Administrative Patent Judges*.

McMANUS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ seeks review of the Examiner's decision to reject claims 9–24. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Menarini Silicon Biosystems S.p.A. Appeal Brief dated May 31, 2019 (“Appeal Br.”) 1.

CLAIMED SUBJECT MATTER

The present application generally relates to a device for optical analysis of particles suspended in a fluid at low temperatures. Specification filed April 22, 2014 (“Spec.”) 2–3. The Specification teaches that certain optical analyses are performed at temperatures below ambient temperature. *Id.* at 2. Such temperatures may “trigger phenomena of condensation on the outer surface” of a device. *Id.* at 2–3. Condensation is undesirable as it may impair the optical analysis. *Id.* at 2, 3. This may be remedied by including means to heat the optical inspection surface (i.e., the top surface) to a temperature above the dew point (T_d) of the ambient air. *Id.* at 9.

Claim 9 is illustrative of the subject matter on appeal and is reproduced below with certain limitations bolded for emphasis:

9. An apparatus for optical analysis of particles contained in suspension in a fluid, at temperatures lower than dew point temperature relative to ambient conditions, comprising:
- at least one microchamber containing said fluid and delimited between a first and a second surface;
 - a first cooling device thermally coupled with the first surface by a first thermal resistance and adapted to subtract heat from the microchamber by an amount such as to maintain said fluid at a first temperature that is lower than the dew point temperature relative to ambient conditions; and
 - an optical inspection surface thermally coupled to the second surface by a second thermal resistance; characterized in that, in combination:
 - the second thermal resistance has a thermal conductivity value equal to or less than half the thermal conductivity of the first thermal resistance; and

- the apparatus further comprises a thermal flow generator for establishing a thermal flow at the optical inspection surface while the apparatus is operative and optical analysis of the particles is being performed through the optical inspection surface, wherein the thermal flow is such that the optical inspection surface is constantly maintained at a second temperature higher than the dew point temperature relative to ambient conditions of the air which laps the optical inspection surface in use.

Appeal Br. 10–11 (Claims App.) (reformatted for clarity).

REFERENCES

The Examiner relies upon the following prior art:

Name	Reference	Date
Hollander	US 4,682,007	July 21, 1987
Manaresi et al. ("Manaresi")	US 2009/0218223 A1	Sept. 3, 2009
Nielsen et al. ("Nielsen")	WO 02/41999 A1	May 30, 2002

REJECTIONS

The Examiner maintains the following rejections:

1. Claims 9, 10, 13–17, 20, 21, and 24 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Nielsen in view of Manaresi. Final Action dated Sept. 10, 2018 ("Final Act.") 3–7.
2. Claims 11, 12, 18, 19, 22, and 23 are rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Nielsen in view of Manaresi and Hollander. *Id.* at 7–8.

DISCUSSION

Rejection 1. The Examiner rejects claims 9, 10, 13–17, 20, 21, and 24 as obvious over Nielsen in view of Manaresi. *Id.* at 3–7.

Nielsen is titled “Decondenser Unit.” Nielsen, code (54). Nielsen teaches a method and apparatus for counteracting condensed dew on the cover of a test plate used in optical analysis. *Id.* at 2. Figure 3 of Nielsen is reproduced below.

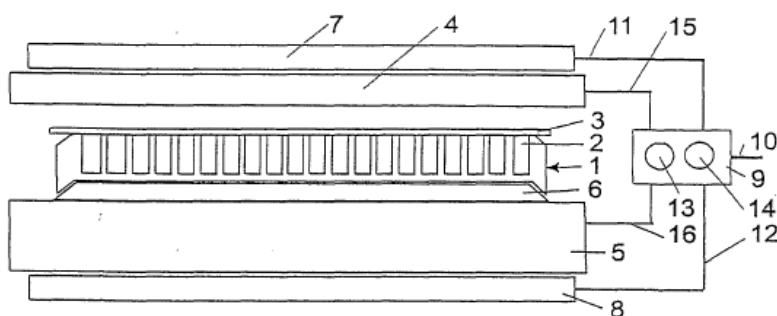


Fig. 3

Figure 3 of Nielsen depicts “an apparatus for treating a test plate in advance of inspection of the wells.” *Id.* at 5. Figure 3 shows test plate 1 with an array of wells 2 (microchambers) positioned between cooling plate 5 and heating plate 4. *Id.* The wells 2 are covered and sealed by cover film 3. *Id.*

Nielsen teaches that “[t]he time the test plate stays between the cooling plate and the heating plate may be 1–10 minutes which has appeared to keep the covering film free from harmful condense for 30 minutes which is sufficient for a careful optical reading of the reactions in the individual wells.” *Id.* at 2.

In support of the rejection, the Examiner finds that one of ordinary skill in the art would have had reason to modify Nielsen to establish a thermal flow at the optical inspection surface while the apparatus is operative. Final Act. 5–6. The Examiner notes that Nielsen teaches that

blowing hot air over the covered wells of the test plate “may make the condense water evaporate to make the film transparent but the effect will only last for a time which is too short to allow the wanted inspection of the wells.” *Id.* at 5. The Examiner further finds that “[o]ne of ordinary skill in the art would have recognized that the condense water starts to form on the transparent cover film as soon as the test plate leaves the decondenser” and as a result would have been led to analysis of the samples while the test plate is still in the decondenser. *Id.* at 6.

Appellant argues that the rejection is in error. Appeal Br. 4–6. Appellant asserts that Nielsen teaches only a decondenser and lacks any guidance to perform optical analysis contemporaneously with “a decondensing function.” *Id.* at 4–5. Appellant directs us to Nielsen’s teaching that, “[w]hen a sufficient temperature difference is provided it will last some time before condensation of the film takes place” and that such “time is sufficient to perform the wanted inspection.” *Id.* at 5 (emphasis omitted) (citing Nielsen 4:35–5:2). Appellant further directs us to Nielsen’s teaching that, when the temperature of the top film is raised and the temperature of the bottoms of the wells is lowered, any condensation is “shifted from the top film . . . to the bottom of the wells.” *Id.* (citing Nielsen 4:31–34).

In view of such teachings, Appellant reasons that a person of ordinary skill in the art would not have had reason to modify Nielsen. *Id.* at 5–6. Appellant argues that the proposed modification would have been viewed “as unnecessary and contrary to the purpose of Nielsen in providing a rapid automated scanning process that can allow for processing of piles of test plates with simultaneous decondensing of one test plate while another is

optically analyzed.” *Id.* Appellant further argues that one of skill in the art would perceive no value in increasing the time prior to formation of condensate because “Nielsen expressly teaches that the disclosed apparatus allows for sufficient condensation free time to perform the necessary optical analysis.” *Id.* at 6.

In the Answer, the Examiner determines that “[t]he motivation [for the proposed modification] is to keep the least condensed water on the transparent cover film, because Nielsen teaches that the defogging effect will only last for a time.” Examiner’s Answer dated July 12, 2019 (“Ans.”) 10.

Thus, the Examiner determines that a person of ordinary skill in the art would have had reason to make the proposed modification so as to extend the period of time during which one may perform optical analysis unimpeded by condensation. Appellant argues that this is in error because Nielsen’s decondenser allows for sufficient time for analysis prior to formation of condensation.

In its Reply Brief, Appellant reiterates its view that condensation does not begin until the inspection surface drops to a certain temperature. Reply Brief dated Sept. 3, 2019 (“Reply Br.”) 2–4. Appellant further directs us to Nielsen’s teaching that the separate decondenser provides adequate time for analysis. *Id.* at 3. Appellant argues that this would have weighed against one of ordinary skill in the art perceiving a need for increasing the time during which the optical surface remains free of condensate. *Id.* at 4.

As persons of scientific competence in the fields in which they work, examiners are responsible for making findings, informed by their scientific knowledge, as to the meaning of prior art references to persons of ordinary skill in the art. Absent legal error or contrary factual evidence, those

findings can establish a prima facie case of obviousness. *In re Berg*, 320 F.3d 1310, 1315 (Fed. Cir. 2003). The Examiner’s determination that the prevention of condensation for an extended time would have been desirable is reasonable on its face. This is so regardless of whether there is an interval after removal from a decondenser unit during which condensation does not occur. “[C]ase law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide [the] motivation for the current invention.” *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004); *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007) (“a combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”). Accordingly, Appellant has not persuaded us of harmful error in this regard.

Appellant presents additional argument regarding the rejection of claim 21. Appeal Br. 6–8. Claim 21 is an independent claim generally similar to claim 9 but which requires “a thermal flow generator attached to the optical inspection surface for establishing a thermal flow at the optical inspection surface while the apparatus is operative.” *Id.* at 13 (Claims App.). In the Final Office Action, the Examiner finds that one of ordinary skill in the art would have had reason to attach a “thermal flow generator” (heating mechanism) to the inspection surface (top surface of the wells of the test plate) “because attaching the thermal flow generator to the optical inspection surface would simply increase the efficiency of the heating.” Final Act. 6. The Examiner further posits that the thermal flow generator could be configured to be removably attached to the inspection surface for ease of use. *Id.*

Appellant argues that the rejection of claim 21 is in error. Appeal Br. 6–8. Appellant argues as follows: that there is no indication that a faster, more efficient heating process would decrease overall efficiency as the cooling function still needs to take place (*id.* at 6–7); that the use of a heating attachment would add an additional, unnecessary, step to the overall process (*id.* at 7); that one of skill in the art would not attach the heat plate to the inspection surface because Nielsen employs the space between the heat plate and the test plate to ensure proper ventilation (*id.*); and that the proposed configuration may lead to overheating (*id.*).

Appellant’s first argument, that there is no indication in Nielsen that more rapid heating would reduce overall time in the decondenser unit, is not persuasive of error. The Examiner’s stated rationale, to increase the efficiency of the heating, is reasonable and has not been shown to be in error. Further, one may infer that the times needed for heating and cooling will vary depending on the temperature of the heating and cooling plates. Thus, at certain temperature settings, an attached heating unit may lead to increased efficiency.

Appellant’s second argument, that the use of a heating attachment would add an additional, unnecessary, step is also unpersuasive of error. “[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006). Here, there may be a tradeoff between an additional step and more efficient heating. Such design tradeoffs do not necessarily obviate a reason to combine. *Id.*

Appellant's third argument, that a heating attachment would prevent Nielsen from using the space between the heat plate and the test plate to ensure proper ventilation, is not persuasive of error. Nielsen's teaching concerns the space between the heat plate and the *cooling* plate. *See* Nielsen 3. This differs from the space between the heat plate and the test plate.

Appellant's fourth argument, that the proposed configuration may lead to overheating, is also unpersuasive. Appellant asserts that "[t]he skilled person would expect attachment of the heater to the optical inspection surface to be potentially detrimental as it brings more direct heating to the contents of the test plates." Appeal Br. 7. This statement, however, is not supported by citation to factual evidence of record. *See Estee Lauder, Inc. v. L'Oréal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997) (Argument made by counsel in a brief does not substitute for evidence lacking in the record.). Further, one of skill in the art would be expected to make appropriate adjustments to prevent undesirable effects such as overheating. *See KSR Int'l Co.*, 550 U.S. at 418 ("a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.").

In view of the foregoing, Appellant has not shown error in the rejection of any claim.

Rejection 2. The Examiner rejects claims 11, 12, 18, 19, 22, and 23 as obvious over Nielsen in view of Manaresi and further in view of Hollander. Final Act. 7–8. Appellant relies upon the arguments described above in support of its appeal of these claims. Appeal Br. 4. As we have not found such arguments to be persuasive, we determine that Appellant has

not shown error with regard to the rejection of claims 11, 12, 18, 19, 22, and 23.

CONCLUSION

The Examiner's rejections are affirmed.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
9, 10, 13–17, 20, 21, 24	103(a)	Nielsen, Manaresi	9, 10, 13–17, 20, 21, 24	
11, 12, 18, 19, 22, 23	103(a)	Nielsen, Manaresi, Hollander	11, 12, 18, 19, 22, 23	
Overall Outcome			9–24	

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