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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/473,329	06/23/2006	Steven R. Frank	FRANK-003	5588
21884	7590	01/28/2013	EXAMINER	
WELSH FLAXMAN & GITLER LLC			CHOI, FRANK I	
2000 DUKE STREET, SUITE 100			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			1616	
			MAIL DATE	DELIVERY MODE
			01/28/2013	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEVEN R. FRANK

Appeal 2011-010587
Application 11/473,329
Technology Center 1600

Before DEMETRA J. MILLS, FRANCISCO C. PRATS, and
MELANIE L. McCOLLUM, *Administrative Patent Judges*.

PRATS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims to a method for enhancing the effectiveness of a silver colloid suspension. The Examiner entered a rejection for obviousness.

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

STATEMENT OF THE CASE

Claims 1 and 19 are the claims on appeal (*see* App. Br. 3), and read as follows:

1. A method for enhancing the antimicrobial effectiveness of a silver colloid suspension containing nanometer sized silver particles suspended in an aqueous carrier against a desired bacteria comprising:

adding an agent to the colloid suspension which functions to modify the cell wall of the bacteria to render the wall more penetrable to the silver in a colloidal suspension while not affecting the silver particles' ability to remain in suspension and enhance the suspension antimicrobial effectiveness; wherein the agent is a combination of both peppermint oil and Polysorbate 20.

19. The method of claim 1, wherein the aqueous carrier is a hydrogel.

The sole rejection before us for review is the Examiner's rejection of claims 1 and 19 under 35 U.S.C. § 103(a) as obvious over Paul,¹ Holladay,² Cherepova,³ Pattnaik,⁴ and Romley⁵ (Ans. 5-7).

OBVIOUSNESS

The Examiner cited Paul as describing a composition that included an aqueous colloidal silver solution as well as surfactants, such as polysorbate 20, and other additives, including preservatives (*see* Ans. 5-6). The Examiner found that Paul differed from Appellant's claims in that Paul did not "expressly disclose the use of nanometer sized silver particles suspended in an aqueous carrier, the addition of peppermint oil, [and] the addition of an agent to the colloid suspension which functions to modify the cell wall of the bacteria to render the wall more penetrable to the silver colloid" (*id.* at 6).

¹ U.S. Patent App. Pub. No. 2006/0122082 A1 (filed January 6, 2006).

² U.S. Patent App. Pub. No. 2006/0182813 A1 (PCT filed June 3, 2004).

³ N. Cherepova and D. Veljanov, *Effect of sorbitan monolaurate polyoxyalkylene (Tween 20) on the ultrastructure of some bacteria*, 80 CYTOBIOS 179-185 (1994).

⁴ S. Pattnaik et al., *Antibacterial and antifungal activity of ten essential oils *in vitro**, 86 MICROBIOS 237-246 (1996).

⁵ U.S. Patent App. Pub. No. 2006/0086048 A1 (filed October 26, 2004).

The Examiner found, however, that the prior art would have amply suggested Appellant's claimed method in view of (a) Holladay's disclosure that silver colloid can be in the form of nanometer sized silver particles and can be combined with surfactants and other antimicrobials, (b) Cherepova's disclosure that polysorbate 20 causes bacterial cell membranes to be thinner, (c) Pattnaik's disclosure that peppermint oil has both antibacterial and antifungal activity, and (d) Romley's disclosure of an aqueous suspension containing silver colloid, peppermint oil, and non-ionic surfactant (*see* Ans. 6-7). Based on these teachings, the Examiner reasoned:

[O]ne of ordinary skill in the art would expect that polysorbate 20 as surface active agent or surfactant would solubilize the lipoproteins of the bacterial cell wall resulting thinner, translucent and partial disintegration and lysing in some surface zones thereby increasing the permeability of the cell wall to the silver colloid similar to hydrogen peroxide, that the peppermint oil would provide added antibacterial effectiveness, that nanosized silver colloids would be effective as an antibacterial and that the use of peppermint oil and non-ionic surfactants would not effect the ability of silver colloid to remain in suspension.

Therefore, the claimed invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention has been collectively taught by the combined teachings of the references.

(*Id.* at 7.)

As stated in *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992):

[T]he examiner bears the initial burden . . . of presenting a *prima facie* case of unpatentability. . . .

After evidence or argument is submitted by the applicant in response, patentability is determined on the totality of the

record, by a preponderance of evidence with due consideration to persuasiveness of argument.

As Appellant has not argued the patentability of the claims separately, the claims stand or fall together. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Appellant's arguments do not persuade us that a preponderance of the evidence does not support the Examiner's conclusion that claim 1 would have been *prima facie* obvious to an ordinary artisan.

Claim 1 recites a method for enhancing the antimicrobial effectiveness of a silver colloid suspension containing nanometer sized silver particles suspended in an aqueous carrier.

The sole step required by claim 1 to enhance the silver colloid suspension's antimicrobial effectiveness is the step of adding, to the suspension, an agent that functions to modify the cell wall of the bacteria to render the wall more penetrable to the silver, while not affecting the silver particles' ability to remain in suspension and enhance the suspension's antimicrobial effectiveness. Claim 1 requires the added agent to contain both peppermint oil and polysorbate 20.

Contrary to Appellant's argument that the polysorbate 20 used in Paul's antimicrobial foam compositions is in no way linked to Paul's use of silver colloid (App. Br. 10-11), Paul explicitly discloses combining the two agents, with polysorbate being presented first in a list of preferred surfactants (*see* Paul [0059] ("In this composition, colloidal silver in water is employed, with the silver content ranging between about 10 parts per million and 32 parts per million in a water solution. In addition, the preferred surfactants comprise one or more selected from the group consisting of polysorbate 20")).

Given this teaching, we agree with the Examiner that Paul would have prompted an ordinary artisan to add polysorbate 20 to a silver colloid suspension, as claim 1 requires. We acknowledge the Examiner's finding that Paul does not describe adding peppermint oil to the composition as claim 1 also requires.

However, as the Examiner pointed out, Holladay discloses that antimicrobial silver colloid compositions may contain "various" antimicrobial ingredients in addition to the silver (*see* Holladay [0284]). As the Examiner also pointed out, peppermint oil was known in the art to have antibacterial and antifungal properties (*see* Pattnaik 237 (abstract) (peppermint oil had antibacterial activity against all 22 bacteria tested and antifungal activity against 11 of 12 fungi tested)).

Given Holladay's teaching of the suitability of including additional antimicrobial ingredients in colloidal silver compositions, and further given Pattnaik's disclosure that peppermint oil was known in the art to possess antibacterial and antifungal activity against a number of different strains, we agree with the Examiner that an ordinary artisan would have been prompted to add to silver colloid compositions such as that taught by Paul, an agent that included peppermint oil as well as polysorbate 20. Moreover, given Holladay's disclosure of the suitability of using nano-sized silver particles in colloidal silver solutions (*see* Holladay [0020]), we further agree with the Examiner that an ordinary artisan would have considered it obvious to include such particles in antimicrobial colloidal silver compositions.

Thus, we are not persuaded that the Examiner failed to advance a sufficiently articulated rationale for combining the teachings of Paul, Holladay, and Pattnaik, as Appellant argues. Rather, as the Supreme Court

reaffirmed in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), “when a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.” *Id.* at 417 (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)).

In *KSR*, the Court also reaffirmed that “[i]n determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls. What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” *Id.* at 419.

Thus, even if it were true that the prior art’s rationale for practicing the claimed process might not be for Appellant’s express purpose of increasing bacterial cell wall permeability to silver, that fact does not demonstrate that Appellant’s claimed process would have been considered unobvious.

We acknowledge that the embodiment in Holladay described as including antimicrobial agents in addition to the silver is described as a hydrogel (*see* Holladay [0281]-[0283]). However, as the Examiner points out (Ans. 10), Paul discloses that, like Holladay, its formulations can suitably contain a number of the same hydrogel-forming thickening agents as described in Holladay, so as to allow its silver gel formulations to be dispensed as gels (*see* Paul [0078]). Thus, we are not persuaded that an ordinary artisan would have viewed Holladay’s teachings as not being directed or relevant to formulations described in Paul.

Moreover, as the Supreme Court further explained in *KSR*, “the [obviousness] analysis need not seek out precise teachings directed to the

specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418. Thus, a “person of ordinary skill is . . . a person of ordinary creativity, not an automaton.” *Id.* at 421.

Here, given Holladay’s teaching of the suitability of including additional antimicrobial ingredients to silver colloid compositions intended for topical application, we agree with the Examiner that an ordinary artisan would have reasonably inferred that it would be similarly suitable to include additional ingredients having known antimicrobial properties, such as peppermint oil, to the antimicrobial polysorbate 20-containing silver colloid foam compositions of Paul (*see, e.g.* Paul [0053]-[0059]).

We also acknowledge the teachings in Cherepova and Romley. As we understand it, the Examiner’s rationale in applying these references was to provide evidence that an ordinary artisan would have reasonably expected polysorbate 20 to modify bacterial cell walls as claim 1 provides (*see Cherepova generally*), and that adding peppermint oil and a surfactant to colloidal silver would allow the silver particles to remain in suspension, as claim 1 also provides (*see Romley* [0017]-[0019]; *see also* Ans. 6-7).

We see no teaching, however, in either Cherepova or Romley undermining the teaching in Holloway of including additional antimicrobial ingredients in colloidal silver compositions. To the contrary, if anything, Romley’s disclosure of including non-ionic surfactants (Romley [0019]-[0020]) would have suggested the desirability of including a non-ionic surfactant such as polysorbate 20 in Romley’s compositions.

In sum, rather than presenting a hodgepodge of unrelated teachings that an ordinary artisan would have only considered together when viewing Appellant's disclosure using impermissible hindsight, for the reasons discussed, we agree with the Examiner that an ordinary artisan preparing a colloidal silver suspension containing nanometer sized silver particles would have considered it obvious to add an agent containing polysorbate 20 and peppermint oil to that suspension. As Appellant's arguments do not, therefore, persuade us that the Examiner failed to make out a prima facie case of obviousness, and as Appellant has not advanced any clear or specific evidence regarding secondary considerations of non-obviousness, we affirm the Examiner's rejection of claim 1 over the cited references. Claim 19 falls with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii).

SUMMARY

We affirm the Examiner's obviousness rejection of claims 1 and 19 over Paul, Holladay, Cherepova, Pattnaik, and Romley.

TIME PERIOD

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

cdc