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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes details for application 14/707,124 filed 05/08/2015 by Coen Adrianus Verschuren.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte COEN ADRIANUS VERSCHUREN,
DOMINIQUE MARIA BRULS, ALBERT HENDRIK JAN IMMINK,
FEMKE KARINA DE THEIJE E/V WIJGERGANGS,
THEA VAN DER WIJK, ALEXANDER MARC VAN DER LEE, and
JOHANNES JOSEPH HUBERTINA BARBARA SCHLEIPEN

Appeal 2021-000244
Application 14/707,124
Technology Center 1700

Before JEFFREY B. ROBERTSON, JAMES C. HOUSEL, and
DONNA M. PRAISS, *Administrative Patent Judges*.

HOUSEL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–3 and 5. We have jurisdiction under 35 U.S.C. § 6(b).

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Siemens Healthcare Nederland B.V. as the real party in interest. Appeal Brief (“Appeal Br.”) filed May 26, 2020, at 3.

We REVERSE.

CLAIMED SUBJECT MATTER

The invention recited in the claims on appeal relates to a method for detecting target components comprising label particles. Specification (“Spec.”) filed May 8, 2015, at 1:10–12.² Appellant discloses that the method utilizes a light source emitting a light beam into a carrier having a binding surface to collect the target components such that the input beam is totally internally reflected, and a light detector for measuring the amount of light in an output beam. *Id.* at 2:23–3:12. Appellant further discloses that, if any light is scattered or absorbed by label particles present at the binding surface, it will be missing from the output light beam, such that the amount of missing light is an indication of the presence and amount of label particles at the binding surface. *Id.* at 3:20–25. According to Appellant, a high sensitivity is achieved because the reflected output light beam measurement is reduced by all effects (i.e., scattered and absorbed) on the input light beam. *Id.* at 3:28–30.

Claim 1, reproduced below from the Claims Appendix to the Appeal Brief, is illustrative of the claimed subject matter:

1. A method for detection of target components comprising label particles, comprising:

a) collecting the target components comprising label particles at a binding surface of a carrier, said label particles including light scattering and/or light absorbing particles;

b) directing an input light beam into the carrier such that it is totally internally reflected in an investigation region at the

² This Decision also cites to the Examiner’s Answer (“Ans.”) dated August 7, 2020, and the Reply Brief (“Reply Br.”) filed October 7, 2020.

binding surface, wherein at least a portion of the input light beam that is totally internally reflected leaves the binding surface as an output light beam;

c) measuring an amount of light in the output light beam;
and

d) determining a total amount of light of the input light beam that is missing in the output light beam due to scattering and/or absorbing of the input light beam by the label particles based on the measured amount of light in the output light beam to indicate a presence and/or an amount of the target components at the binding surface.

REFERENCES

The Examiner relies on the following prior art:

Name	Reference	Date
Block et al. ("Block")	US 4,582,809	Apr. 15, 1986
Schutt et al. ("Schutt")	US 5,017,009	May 21, 1991
Swope et a. ("Swope")	US 5,350,697	Sept. 27, 1994
Goldberg et al. ("Goldberg")	US 2005/0048599 A1	Mar. 3, 2005

REJECTIONS

The Examiner maintains, and Appellant requests our review of, the following rejections under 35 U.S.C. § 103(a):

1. Claims 1 and 3 as unpatentable over Schutt in view of Block;
2. Claims 2 and 5 as unpatentable over Schutt in view of Block, and further in view of Goldberg;
3. Claims 1 and 3 as unpatentable over Swope in view of Block;
and
4. Claims 2 and 5 as unpatentable over Swope in view of Block, and further in view of Goldberg.

OPINION

The Examiner finds that both Schutt and Swope disclose methods for detecting the presence and amount of target components substantially as recited in claim 1, except for determining an amount of light of the input light beam that is missing in the output light beam due to scattering or absorbing of the input light beam by the label particles to indicate a presence and/or an amount of the target components at the binding surface. Ans. 4–5, 7. In this regard, the Examiner refers to Schutt’s and Swope’s methods as “direct methodology,” in that both methods measure the amount of scattered light as a direct indication of the presence and amount of target components at the binding surface. *Id.* The Examiner further finds that Block discloses a method for detecting target components utilizing total internal reflection, wherein the amount of light in the input light beam is measured and related to the measured amount of light in the output light beam so as to provide signal proportional to the intensity of the target signal corrected for variations in input light beam intensity. *Id.* at 6. The Examiner concludes that it would have been obvious to modify Schutt or Swope to measure the amount of light in the input light beam “so as to provide for an *indirect* measurement methodology, as claimed, that is an obvious to try analog to that of [Schutt’s and Swope’s] *direct* approach.” *Id.* at 6, 8. The Examiner finds the equation, “[Total light input from source] – [scattered/absorbed light detected] = [input light missing in the output light beam due to scattering/absorbing],” describes such an indirect measurement methodology. *Id.* In addition, the Examiner explains that this methodology, which yields the amount of target components at the binding surface based on scattering and/or absorbing similar to Schutt’s and Swope’s direct

methods, “represents an obvious to try analog that would have a reasonable expectation of success.” *Id.* The Examiner further explains that modifying Schutt’s and Swope’s methods to relate the input light beam measurement to an amount of light in the output light beam as taught by Block would have been obvious “in order to provide a reference measurement to give an accurate intensity measurement of the source,” which can be used to correct the final signal for source intensity variations. *Id.* at 7, 8.

Appellant argues, *inter alia*, that the Examiner’s proposed combinations of Schutt with Block and Swope with Block fail to result in a step of “determining a total amount of light of the input light beam that is missing in the output light beam due to scattering and/or absorbing of the input light beam by the label particles based on the measured amount of light in the output light beam,” as recited in claim 1. Appeal Br. 16–17. In this regard, Appellant contends that Block relies on a ratio of signals to generate a proportional intensity signal, but fails to determine the total amount of light of the input light beam that is missing in the output light beam due to scattering and/or absorbing of the input light beam by the label particle based on the measured amount of light in the output light beam. *Id.* In addition, Appellant contends that solving the Examiner’s equation would result in a determination of the amount of light in the output light beam, assuming Schutt and Swope measure all the scattered and/or absorbed light, rather than the total amount of light that is missing in the output light beam due to scattering and/or absorbing. *Id.* at 12–13. Appellant also contends that neither Schutt nor Swope measures all the scattered and/or absorbed light. *Id.*

Appellant's arguments are persuasive of reversible error. The Examiner states that Block has not been set forth as explicitly disclosing identification of a missing amount of light. Ans. 14, 18. However, the Examiner responds that the modification of Schutt's or Swope's methods in view of Block is based on an obvious to try rationale. *Id.* A "combination is only obvious to try if a person of ordinary skill has 'a good reason to pursue the known options.'" *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1361 (Fed. Cir. 2011), citing *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 421 (2007). "When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp." *KSR*, 550 U.S. at 421. "If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *Id.*

Here, based on the applied prior art, the Examiner has not identified a finite number of identified, predictable solutions, including the one recited in claim 1, for detecting target components at a binding surface. In other words, none of Schutt, Swope, or Block teach measuring the output light beam to determine the total amount of light of the input light beam that is missing due to scattering and/or absorbing. Both Schutt and Swope teach measuring either back or forward scattered light directly, but neither teach that this measured light represents the total amount of light that would be missing from the input light beam due to scattering and/or absorbing. Further, although measuring the amount of light in both the input light beam and the output light beam, Block uses a ratio of these measurements rather than a

difference of these measurements to indicate the presence and/or amount of target components at the binding surface.

The Examiner fails to direct our attention to any teaching in the prior art that the difference between the amount of light in the input and output light beams is used for this purpose. Nor does the Examiner provide any basis in the record that an ordinary artisan would have either at once envisaged or would have found by common sense that using the difference between these two measurements, rather than Block's ratio, would have provided an indication of the presence and/or amount of target components at a binding surface with a reasonable expectation of success. *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016) (“[R]eferences to ‘common sense’—whether to supply a motivation to combine or a missing limitation—cannot be used as a wholesale substitute for reasoned analysis and evidentiary support, especially when dealing with a limitation missing from the prior art references specified.”).

Absent some reasoned analysis and evidentiary support, only using impermissible hindsight as a guide would an ordinary artisan have determined the difference between the amount of light in the input and output light beams to indicate the presence and/or amount of target components at the binding surface. *See In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”); *In re Rouffet*, 149 F.3d 1350, 1358 (Fed. Cir. 1998) (“hindsight” is inferred when the specific understanding or principal within the knowledge of one of ordinary skill in the art leading to the modification of the prior art in order to arrive at Appellant's claimed invention has not been explained). “[W]e cannot allow

hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention.” *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017).

We note that the Examiner does not rely on Goldberg to remedy this deficiency in the obviousness rejections based on Schutt or Swope in view of Block. Accordingly, we do not sustain the Examiner’s obviousness rejections of claims 1–3 and 5 over Schutt or Swope in view of Block, alone or further in view of Goldberg.

CONCLUSION

Upon consideration of the record and for the reasons set forth above and in the Appeal and Reply Briefs, the Examiner’s decision to reject claims 1–3 and 5 under 35 U.S.C. § 103(a) as unpatentable over Schutt or Swope, either of which in view of Block, alone or further in view of Goldberg, is *reversed*.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3	103(a)	Schutt, Block		1, 3
2, 5	103(a)	Schutt, Block, Goldberg		2, 5
1, 3	103(a)	Swope, Block		1, 3
2, 5	103(a)	Swope, Block, Goldberg		2, 5
Overall Outcome				1–3, 5

REVERSED