This Opinion is a
Precedent of the TTAB

Hearing: October 24, 2019 Mailed: December 19, 2019

UNITED STATES PATENT AND TRADEMARK OFFICE

Trademark Trial and Appeal Board

*In re Omniome, Inc.*

Serial No. 87661190

Jared M. Barrett and Marc C. Levy of SEED Intellectual Property Law Group LLP, for Omniome, Inc.

John M. Wilke, Trademark Examining Attorney, Law Office 104,
Drew M. Sander, Trademark Examining Attorney, Law Office 104,[1]
Zachary Cromer, Managing Attorney.

Before Thurmon, Deputy Chief Administrative Trademark Judge, and Ritchie and Hudis, Administrative Trademark Judges.

Opinion by Hudis, Administrative Trademark Judge:

Omniome, Inc. ("Applicant") seeks registration on the Principal Register of the proposed mark SEQUENCING BY BINDING (in standard characters) for:

> Reagents for analysis of biological analytes, in International Class 1;
>
> Research laboratory analyzers for analysis of biological analytes for non-medical purposes, in International Class 9;

[1] While Mr. Wilke was the Trademark Examining Attorney during the prosecution of this Application, and filed the brief on appeal on behalf of the USPTO, Mr. Sander appeared on behalf of the USPTO during the oral hearing for this proceeding.

> Devices for analysis of biological analytes for medical purposes," in International Class 10; and
>
> Analysis of biological analytes; development of new technology for others for analysis of biological analytes, in International Class 42.[2]

The Trademark Examining Attorney refused registration under Trademark Act Section 2(e)(1), 15 U.S.C. § 1052(e)(1), on the ground that Applicant's proposed mark, as applied to the goods and services identified in the Application, is merely descriptive.

When the refusal was made final, Applicant appealed and requested reconsideration. After the Examining Attorney denied the request for reconsideration, the appeal was resumed. Applicant and the Examining Attorney filed briefs. An oral hearing was held at Applicant's request, and was presided over by this panel. For the reasons discussed below, we affirm the refusal to register.

## I. Evidentiary Record and Issues

With the first Office Action, the Examining Attorney made the following items of record:

- Internet page capture from the NATURE COMMUNICATIONS website, showing an article titled "DNA Sequencing Using Polymerase Substrate-Binding Kinetics."[3]

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[2] Application Serial No. 87661190, filed on October 26, 2017 under Trademark Act Section 1(b), 15 U.S.C. § 1051(b), based upon Applicant's allegation of a bona fide intention to use the mark in commerce. Because the mark presented in the drawing page of the application is as a standard character mark, we will depict it in this opinion as SEQUENCING BY BINDING unless quoted from the evidence of record. This "reflects the fact that a term registered as a mark in 'standard character' form is not limited to any particular font style, size, or color. *See In re Calphalon Corp.*, 122 USPQ2d 1153, 1154 n.1 (TTAB 2017) (citing *In re Star Belly Stitcher, Inc.*, 107 USPQ2d 2059 n.1 (TTAB 2013)).

[3] Office Action of February 6, 2018, TSDR 5-47. Page references in this opinion to the application record refer to the online database of the USPTO's Trademark Status & Document Retrieval ("TSDR") system. All citations to documents contained in the TSDR

- Internet page capture from the WIKIPEDIA website, providing a discussion of the term "DNA Binding Site."[4]
- Internet page capture from the JOURNAL OF BIOMOLECULAR TECHNOLOGIES website, showing an article titled "A Method for Preparing DNA Sequencing Templates Using a DNA Binding Microplate."[5]

Applicant did not provide any evidence with its August 3, 2018 Response to the first Office Action.

With the final Office Action, the Examining Attorney made the following items of record:

- Internet page capture from the FREE PATENTS ONLINE website, providing a copy of Applicant's U.S. Patent Application No. 2018/0044727 A1 (the " '727 Application") titled "Method and System for Sequencing Nucleic Acids."[6]
- Internet page capture from the FREE PATENTS ONLINE website, providing a copy of Applicant's U.S. Patent No. 9,951,385 B1 (the " '385 Patent") titled "Methods and Apparatus that increase Sequencing-By-Binding Efficiency."[7]

With its Request for Reconsideration, Applicant made the following items of record:

- Precedential and non-precedential decisions of the Board (Exhs. A-I).[8]
- Internet page capture from the ENDPOINTS NEWS website, providing a copy of an article titled "Faster, Cheaper DNA Sequencing gets Omniome $60M Led by Chinese Investors" (Exh. J).[9]

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database are to the downloadable .pdf versions of the documents. References to the briefs on appeal refer to the Board's TTABVUE docket system. Coming before the designation TTABVUE is the docket entry number; and coming after this designation are the page references, if applicable.

[4] *Id.*, TSDR 48-51.

[5] *Id.*, TSDR 52-60.

[6] Office Action of August 15, 2018, TSDR 5-9.

[7] *Id.*, TSDR 10-49.

[8] Request for Reconsideration of February 13, 2019, TSDR 15-69.

[9] *Id.*, TSDR 70-72. To properly submit Internet evidence, an applicant must include the URL and access or print date of the Internet evidence. *See In re I-Coat Co.*, 126 USPQ2d 1730,

- Copy of an article from NATURE REVIEWS GENETICS titled "Coming of Age: Ten Years of Next Generation Sequencing Technologies" (Exh. K).[10]

With the Denial of Request for Reconsideration, the Examining Attorney made the following items of record:

- Internet page capture from the ACS SENSORS website, providing a copy of an article titled "Plasmonic Sensor Could Enable Label-Free DNA Sequencing."[11]
- Internet page capture of the search results from the JUSTIA PATENTS website, showing abstracts of U.S. patents and patent applications assigned to Applicant.[12]
- Internet page capture from the website of the US NATIONAL LIBRARY OF MEDICINE NATIONAL INSTITUTES OF HEALTH, providing a copy of an article from the publication GENES titled "Next-Generation Sequencing of Genomic DNA Fragments bound to a Transcription Factor in Vitro Reveals its Regulatory Potential."[13]
- Internet page capture from the NATURE COMMUNICATIONS website, showing an article titled "DNA Sequencing Using Polymerase Substrate-Binding Kinetics."[14]

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1733 (TTAB 2018) (citing *In re Mueller Sports Med., Inc.*, 126 USPQ2d 1584, 1587 (TTAB 2018)); *see also* TRADEMARK MANUAL OF EXAMINING PROCEDURE (TMEP) § 710.01(b) (October 2018) and TRADEMARK TRIAL AND APPEAL BOARD MANUAL OF PROCEDURE (TBMP) § 1208.03 (June 2019). Applicant did not provide this information for the ENDPOINTS NEWS article. However, the Examining Attorney failed to object to this evidence in the Denial of Applicant's Request for Reconsideration. Therefore, any objection to this evidence has been waived and we have considered the article. *See In re Mueller Sports*, 126 USPQ2d at 1586 (by failing to object to Internet excerpts submitted by the examining attorney that did not include URLs and access dates, applicant waived its objections to the submission of those websites); *In re HSB Solomon Assoc., LLC*, 102 USPQ2d 1269, 1273 (TTAB 2012) (if an examining attorney does not object to a listing of third-party registrations, proffered in response to an Office Action, as being insufficient to make the third-party registrations of record, any later objection to the list would be waived.).

[10] *Id.*, TSDR 73-92.

[11] Denial of Request for Reconsideration of February 19, 2019, TSDR 4-6.

[12] *Id.*, TSDR 7-15.

[13] *Id.*, TSDR 16-36.

[14] *Id.*, TSDR 37-46. This appears to be the same article provided with the Examining Attorney's first Office Action.

- Internet page capture from the WIKIPEDIA website, providing a discussion of the term "DNA Sequencing."[15]
- Internet page capture from the WIKIPEDIA website, providing a discussion of the term "DNA Binding Site."[16]

Attached to the Examining Attorney's brief are the following definitions from the MERRIAM-WEBSTER online dictionary:[17]

- Sequencing – to determine the sequence of chemical constituents (such as amino-acid residues or nucleic-acid bases).[18]
- Binding – the action of one that binds.[19]

On October 23, 2019, one day prior to the oral hearing, Applicant filed with the Board a "Request to Supplement Record with Full Copies of Excerpted Materials,"[20] which contains full copies of the following materials, only excerpts of which were submitted by the Examining Attorney on February 19, 2019 with the Denial of Request for Reconsideration:

- From the publication ACS SENSORS, a copy of an article titled "Plasmonic Sensor Could Enable Label-Free DNA Sequencing" (Exh. A).[21]

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[15] *Id.*, TSDR 47.

[16] *Id.*, TSDR 48-50. This appears to be the same WIKIPEDIA entry provided with the Examining Attorney's first Office Action.

[17] We grant the Examining Attorney's request that we take judicial notice of these dictionary definitions. The Board may take judicial notice of dictionary definitions, including online dictionaries, definitions in technical dictionaries and translation dictionaries that exist in printed format, and we elect to do so here. *See In re White Jasmine LLC*, 106 USPQ2d 1385, 1392 n.23 (TTAB 2013).

[18] Examining Attorney's Brief, 16 TTABVUE 13-20, https://www.merriam-webster.com/dictionary/sequencing (last visited June 6, 2019).

[19] Examining Attorney's Brief, 16 TTABVUE 21-27, https://www.merriam-webster.com/dictionary/binding (last visited June 6, 2019).

[20] Applicant's Request to Supplement Record, 26 TTABVUE.

[21] *Id.*, 26 TTABVUE 5-12.

- Applicant's '385 Patent (Exh. B).[22]
- Applicant's patent titled "Methods and Apparatus that Increase Sequencing-By-Binding Efficiency" – U.S. Patent No. US 10,161,003 B2 (the " '003 Patent") (Exh. C).[23]
- Applicant's patent application titled "Process for Cognate Nucleotide Detection in a Nucleic Acid Sequencing Workflow" - Published U.S. Patent Application No. US 2018/0208983 A1 (the " '983 Application") (Exh. D).[24]
- Applicant's '727 Application (Exh. E).[25]
- Applicant's patent application titled "Method of Nucleic Acid Sequence Determination" - Published U.S. Patent Application No. US 2017/0314072 A1 (the " '072 Application") (Exh. F).[26]

At the hearing, the Examining Attorney indicated that the USPTO had no objection to Applicant's supplemental filings. We therefore exercise our discretion to accept them, and we do so given the unusual circumstances of this case (that is, the express lack of objection by the USPTO) – noting the admonition of Trademark Rule 2.142(d), 37 C.F.R. § 2.142(d), that "[t]he [evidentiary] record in the application should be complete prior to the filing of an appeal."

As noted in TBMP § 1207.01:

> If the applicant or the examining attorney submits excerpts from articles during examination, the nonoffering party may submit the complete article, even if such submission is made after the appeal is filed. If the nonoffering party wishes to have the entire article considered, the better practice is to submit the article with a request for remand. However, because the party submitting the excerpt of the article had the opportunity to review the entire article, if the article is

[22] *Id.*, 26 TTABVUE 13-47.

[23] *Id.*, 26 TTABVUE 48-85.

[24] *Id.*, 26 TTABVUE 86-150.

[25] *Id.*, 26 TTABVUE 151-237.

[26] *Id.*, 26 TTABVUE 151-237.

> submitted with an appeal brief, the Board need not remand the application, and may instead consider the article as part of the record.

Here, Applicant submitted its supplemental evidentiary filing months after filing its appeal and reply briefs. Nevertheless, as the Examining Attorney explicitly did not object to their submission, and we perceive no prejudice, we give the filings due consideration. Our acceptance of Applicant's late filings in this case should not be a signal to future litigants purporting to rely on our decision here as an exception to the general rule that all evidentiary submissions should be filed during prosecution and before a notice of appeal is filed.

## II. Applicable Law

Absent a showing of acquired distinctiveness, Trademark Act Section 2(e)(1), 15 U.S.C. § 1052(e)(1), precludes registration of a mark on the Principal Register which, when used in connection with the applicant's goods and services, is merely descriptive of them. A mark is "merely descriptive" within the meaning of Section 2(e)(1) "if it immediately conveys information concerning a feature, quality, or characteristic of the goods or services for which registration is sought." *In re N.C. Lottery*, 866 F.3d 1363, 123 USPQ2d 1707, 1709 (Fed. Cir. 2017) (citing *In re Bayer A.G.*, 488 F.3d 960, 82 USPQ2d 1828, 1831 (Fed. Cir. 2007)). Conversely, a mark is suggestive if it "requires imagination, thought, and perception to arrive at the qualities or characteristics of the goods or services." *See Earnhardt v. Kerry Earnhardt, Inc.*, 864 F.3d 1374, 123 USPQ2d 1411, 1413 (Fed. Cir. 2017) (contrasting merely descriptive from suggestive marks) and *In re Franklin Cty. Historical Soc'y*, 104 USPQ2d 1085, 1087 (TTAB 2012) (same). The Board resolves doubts as to the mere descriptiveness

of a proposed mark in favor of the applicant. *In re Fat Boys Water Sports LLC*, 118 USPQ2d 1511, 1512 (TTAB 2016).

"A mark need not recite each feature of the relevant goods or services in detail to be descriptive, it need only describe a single feature or attribute." *In re Chamber of Commerce of the U.S.*, 675 F.3d 1297, 102 USPQ2d 1217, 1219 (Fed. Cir. 2012) (citation and internal quotation omitted). *See also In re Oppedahl & Larson LLP*, 373 F.3d 1171, 71 USPQ2d 1370, 1371 (Fed. Cir. 2004) ("A mark may be merely descriptive even if it does not describe the 'full scope and extent' of the applicant's goods or services.") (citing *In re Dial-A-Mattress Operating Corp.*, 240 F.3d 1341, 57 USPQ2d 1807, 1812 (Fed. Cir. 2001)).

Whether a mark is merely descriptive is evaluated "in relation to the particular goods [or services] for which registration is sought, the context in which it is being used, and the possible significance that the term would have to the average purchaser of the goods [or services] because of the manner of its use or intended use." *In re Chamber of Commerce*, 102 USPQ2d at 1219 (quoting *In re Bayer*, 82 USPQ2d at 1831) and "not in the abstract or on the basis of guesswork." *In re Fat Boys*, 118 USPQ2d at 1513 (citing *In re Abcor Dev. Corp.*, 588 F.2d 811, 200 USPQ 215, 218 (CCPA 1978)).

Thus, we ask "not whether someone presented with only the mark could guess what the goods or services are. Rather, the question is whether someone who knows what the goods and services are will understand the mark to convey information about them." *DuoProSS Meditech Corp. v. Inviro Med. Devices, Ltd.*, 695 F.3d 1247,

103 USPQ2d 1753, 1757 (Fed. Cir. 2012) (citation and internal quotation omitted). That a term has different meanings in different contexts is not controlling. *In re Bright-Crest Ltd.*, 204 USPQ 591, 593 (TTAB 1979).

Where a mark consists of multiple words, the mere combination of descriptive words does not necessarily create a non-descriptive word or phrase. *In re Phoseon Tech., Inc.*, 103 USPQ2d 1822, 1823 (TTAB 2012); *In re Associated Theatre Clubs Co.*, 9 USPQ2d 1660, 1662 (TTAB 1988). A mark comprising a combination of merely descriptive components is registrable only if the combination of terms creates a unitary mark with a non-descriptive meaning, or if the composite has a bizarre or incongruous meaning as applied to the goods or services. *See In re Colonial Stores Inc.*, 394 F.2d 549, 157 USPQ 382 (CCPA 1968); *In re Shutts*, 217 USPQ 363, 364-65 (TTAB 1983).

However, if each component retains its merely descriptive significance in relation to the goods or services, the combination results in a composite that is itself merely descriptive. *See, e.g.*, *In re Oppedahl & Larson*, 71 USPQ2d at 1374 (PATENTS.COM merely descriptive of computer software for managing a database of records that could include patents and for tracking the status of the records by means of the Internet); *see also In re Phoseon Tech.*, 103 USPQ2d at 1823 ("When two or more merely descriptive terms are combined, ... [i]f each component retains its merely descriptive significance in relation to the goods or services, the combination results in a composite that is itself merely descriptive.").

Thus, our determination as to whether the phrase SEQUENCING BY BINDING is merely descriptive is based on an analysis of the proposed mark as a whole. *DuoProSS Meditech*, 103 USPQ2d at 1756 ("When determining whether a mark is merely descriptive, the Board must consider the commercial impression of a mark as a whole."). On the other hand, we may consider the significance of each element separately in the course of evaluating the mark as a whole. *Id.* at 1756-57 (noting that "[t]he Board to be sure, can ascertain the meaning and weight of each of the components that makes up the mark.").

Evidence that a term is merely descriptive to the relevant purchasing public "may be obtained from any competent source, such as dictionaries, newspapers, or surveys," *In re Bayer*, 82 USPQ2d at 1831, as well as "labels, packages, or in advertising material directed to the goods." *In re Abcor*, 200 USPQ at 218. It also may be obtained from websites and publications, and an applicant's own specimen of use and any explanatory text included therein. *In re N.C. Lottery*, 123 USPQ2d at 1710; *In re Nett Designs Inc.*, 236 F.3d 1339, 57 USPQ2d 1564, 1565 (Fed. Cir. 2001).

Evidence that a term is merely descriptive similarly may come from an applicant's own usage other than that found on its labels, packaging or advertising materials. *See, e.g.*, *In re Chamber of Commerce*, 102 USPQ2d at 1220 (content of applicant's website, along with articles discussing the activities of chambers of commerce, constituted substantial evidence supporting the Board's mere descriptiveness finding). Thus, while it may be a truism of patent law that "a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary

meaning," *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Grp., Inc.*, 262 F.3d 1258, 59 USPQ2d 1865, 1870 (Fed. Cir. 2001), descriptive usage of such terms by the trademark applicant in its patent filings can be, and in this case is, probative.

Thus, proof of mere descriptiveness may originate from Applicant's own descriptive use of its proposed mark, or portions thereof, in U.S. patents obtained or patent applications filed by Applicant; and such proof also many be found in U.S. patents or patent applications of third parties. *See, e.g.*, *In re Empire Tech. Dev. LLC*, 123 USPQ2d 1544, 1546, 1551 (TTAB 2017) (in affirming its refusal to register the designation COFFEE FLOUR on the Supplemental Register, the Board relied in part on Applicant's published U.S. patent application which explained in detail the claimed invention for obtaining "coffee flour" from sub-products of coffee production); *In re Tekdyne Inc.*, 33 USPQ2d 1949, 1951-52 (TTAB 1994) (numerous descriptive references of the designation MICRO-RETRACTOR in applicant's patent for its goods were relied on in part by the Board in affirming mere descriptiveness refusal to register term); *In re Int'l Game Tech. Inc.*, 1 USPQ2d 1587, 1588 (TTAB 1986) (excerpts from U.S. utility patents made of record to show that the term "on-demand," in the phrase ON-LINE, ON-DEMAND, had descriptive significance with respect to computers, computer-controlled equipment, or other automated equipment – merely descriptive refusal affirmed).

While the Board, in *Empire Tech.*, *Tekdyne*, and *Int'l Game Tech.*, considered the patent filings of the trademark applicant and third parties as proof of mere descriptiveness, we pause here to specifically add such evidence to the list (that is,

dictionaries, newspapers, surveys, websites, publications, advertising material directed to the goods or services, and the textual matter contained in an applicant's own specimen of use) of the types of evidence from which mere descriptiveness may be obtained.

## III. Arguments and Analysis

"Whether a mark is merely descriptive or not is 'determined from the viewpoint of the relevant purchasing public.'" *In re Stereotaxis, Inc.*, 429 F.3d 1039, 77 USPQ2d 1087, 1090 (Fed. Cir. 2005) (quoting *In re Bed & Breakfast Registry*, 791 F.2d 157, 160 (Fed. Cir. 1986)). Unfortunately, neither Applicant nor the Examining Attorney specifically defined the relevant consumers in their briefs. However, based on the industry articles Applicant and the Examining Attorney made of record and the Identification of Goods and Services in the Application, we find that microbiologists are the relevant consumers.

### A. The Examining Attorney's Arguments and Evidence

The Examining Attorney argues:

> The term "Sequencing by Binding" describes a process and procedure used in connection with each of applicant's goods and services. The term "sequencing by binding" is the plain English way of referencing applicant's DNA analysis, i.e. a process that relies on identifying binding sites to determine the sequence of DNA molecular structure.[27]

In support of the USPTO's position, the Examining Attorney cites to MERRIAM-WEBSTER's definitions of "Sequencing" as meaning "to determine the sequence of chemical constituents (such as amino-acid residues or nucleic-acid bases)" and

[27] Examining Attorney's Brief, 16 TTABVUE 4.

"Binding" as meaning "the action of one that binds."[28] The Examining Attorney further provides WIKIPEDIA definitions of: (1) "DNA Binding Site" as being "a type of binding site found in DNA where other molecules may bind [, as they] … are … part of a DNA sequence (e.g. a genome) and … bound by DNA-binding proteins"; and (2) "DNA Sequencing" as "the process of determining the nucleic acid sequence - the order of nucleotides in DNA."[29]

The Examining Attorney also points to industry articles demonstrating the use of the "Sequencing by _____", "____ Binding" or "Sequencing-by-Binding" nomenclature in the microbiology field (emphasis added):

- Article titled "**DNA Sequencing** Using Polymerase **Substrate-Binding** Kinetics" from NATURE COMMUNICATIONS –
    - "Here we demonstrate a version of the **Sequencing by Synthesis** (SBS) chemistry that potentially can become a preferred targeted sequencing method in the clinical space."
    - "While it was possible to theoretically predict the feasibility of base discrimination using a **polymerase/DNA-binding** kinetics model, the mixing of the reacting species is assumed to be instantaneous in the simulation. This assumption insures that all polymerase/DNA-**binding** events are perfectly synchronized."[30]
- Article titled "A Method for Preparing **DNA Sequencing** Templates Using a **DNA Binding Microplate**" from the JOURNAL OF BIOMOLECULAR TECHNOLOGIES – A **DNA-binding** matrix was immobilized on the surface of a 96-well microplate and used for plasmid DNA preparation for **DNA sequencing**. The same **DNA-binding plate** was used for bacterial growth, cell lysis, DNA purification, and storage. … The method is fully automatable

[28] Examining Attorney's Brief, 16 TTABVUE 13-27. In the context of this appeal, we find the following a more helpful definition of "Bind": "To combine with, form a bond with, to be taken up by a chemical or chemical structure. An enzyme, for example, is structured in such a way as to be able to bind with its substrate." THE AMERICAN HERITAGE SCIENCE DICTIONARY 70 (2005).

[29] Office Action of February 6, 2018, TSDR 47-48.

[30] *Id.*, TSDR 5, 6, 13.

and convenient for manual operation as well. It enables reproducible, high-throughput, rapid production of DNA with purity and yields sufficient for high-quality **DNA sequencing** at a substantially reduced cost.[31]

- Article titled "Plasmonic Sensor Could Enable Label-Free **DNA Sequencing**" from ACS SENSORS –
    - "We demonstrated a proof-of-principle concept of a label-free platform that enables nucleic acid **sequencing by binding** methodology."
    - "In this letter, we introduce a nucleic acid sequencing platform that employs **sequencing by binding (SBB)** methodology in a label-free detection device."
    - "**SBB** methodology detects the binding of nucleotide-specific complexes."
    - "In conclusion, we introduced a proof-of-principle demonstration of a sequencing platform utilizing **sequencing by binding (SBB)** methodology not requiring additional labels for detection."[32]
- Article titled "Next-Generation Sequencing of Genomic DNA Fragments bound to a Transcription Factor in Vitro Reveals its Regulatory Potential" from GENES –
    - "We used an in vitro genomic **DNA binding** assay coupled with immunoprecipitation and next-generation **sequencing** (gDB-seq) instead of the in vivo chromatin immunoprecipitation (ChIP)-based methods."
    - "Thus, an **in vitro gDNA-binding assay** coupled with **sequencing** is a convenient and powerful method to bridge the gap between identifying TF **binding** potential and establishing function." [33]

The Examining Attorney further points to copies of Applicant's U.S. patents and patent applications in which Applicant uses the term SEQUENCING BY BINDING

[31] *Id.*, TSDR 52.

[32] Denial of Request for Reconsideration of February 19, 2019, TSDR 4-6. During the oral hearing, Applicant objected that the version of the ACS SENSORS article submitted by the Examining Attorney comprised mere excerpts. Because we have accepted a later-filed full copy of this article, we cite here to the full version filed by Applicant on October 23, 2019, 26 TTABVUE 5, 6, 10, and 11, Exh. A.

[33] *Id.*, TSDR 16, 17.

(or SEQUENCING-BY-BINDING) in a descriptive manner, as follows (emphasis added):[34]

- The '385 Patent – "Methods and Apparatus that Increase **Sequencing-By-Binding** Efficiency"
    - "In a **sequencing by binding** embodiment, evaluation can proceed at a subsequent position of the primed template by performing a primer extension step following the repeated examination steps."[35]
    - "For example, a system can be configured for genotyping reactions or **sequencing by binding** reactions involving the examination of the interaction between a polymerase and a primed template nucleic acid in the presence of nucleotides to identify the next base in the template nucleic acid sequence."[36]
    - "In some embodiments, the kit can be configured to support a repetitive method such as a **sequencing by binding** method."[37]
- The '003 Patent – "Methods and Apparatus that Increase **Sequencing-By-Binding** Efficiency"
    - "In a **Sequencing By Binding** embodiment, evaluation can proceed at a subsequent position of the primed template by performing a primer extension step following the serial or repeated examination steps."[38]
    - "For example, a system can be configured for genotyping reactions or **Sequencing By Binding**™ reactions involving the examination of the interaction between a polymerase and a primed template nucleic acid in the presence of nucleotides to identify the next base in the template nucleic acid sequence."[39]

[34] Final Office Action of August 15, 2018, TSDR 5-49; Denial of Request for Reconsideration of February 19, 2019, TSDR 7-15. During the oral hearing, Applicant protested that the versions of Applicant's patents and patent applications submitted by the Examining Attorney comprised mere excerpts. Because we have accepted later-filed copies of the full patents and applications, we cite here to the full versions filed by Applicant on October 23, 2019, 26 TTABVUE 13-281, Exhs. B-F.

[35] 26 TTABVUE 30 (Col. 26).

[36] *Id.* at 35 (Col. 36).

[37] *Id.* at 36 (Col. 38).

[38] *Id.* at 67 (Col. 29).

[39] *Id.* at 73 (Col. 41).

- The '983 Application – "Process for Cognate Nucleotide Detection in a Nucleic Acid Sequencing Workflow"
    - "Method and composition for identifying cognate nucleotides in a **Sequencing By Binding**™ procedure, wherein one or more labeled nucleotides are detected in ternary complexes but never incorporated."[40]
    - "As used herein, '**Sequencing By Binding**' refers to a sequencing technique wherein specific binding of a polymerase to a primed template nucleic acid is used for identifying the next correct nucleotide to be incorporated into the primer strand of the primed template nucleic acid."[41]
    - "Examples of native nucleotides useful for carrying out the **Sequencing By Binding**™ procedures described herein include: dATP (2'-deoxyadenosine-5'-triphosphate); dGTP (2'-deoxyguanosine-5'-triphosphate); dCTP (2'-deoxycytidine-5'-triphosphate); dTTP (2'-deoxythymidine-5'-triphosphate); and dUTP (2'-deoxyuridine-5'-triphosphate)."[42]
    - "General features of the **Sequencing By Binding**™ technique, together with details concerning various aspects of methods employing single - scan imaging are provided below. … Methods that interrogate only a single nucleotide site can be carried out using a single cycle of a **Sequencing By Binding**™ method set forth herein. Described herein is a **Sequencing By Binding**™ technique that, in a single processing step (i.e., a so-called "blocking-and-examination" step), advances a primed template nucleic acid molecule forward …."[43]
    - "**Sequencing By Binding**™ procedures are typically carried out as a series of cycles, with each cycle including one or more steps that result in identification of the next correct nucleotide for a particular nucleotide position of a primed template nucleic acid."[44]
    - "Generally speaking, the polymerase used in nucleic acid **Sequencing By Binding**™ reactions undergoes transitions between open and closed conformations during discrete steps of the reaction."[45]

[40] *Id.* at 87.

[41] *Id.* at 108 (Second Column).

[42] *Id.* at 110 (First Column).

[43] *Id.* at 115 (Second Column).

[44] *Id.* at 116 (First Column).

[45] *Id.* at 116 (Second Column).

- "Generally speaking, the disclosed **Sequencing By Binding**™ procedure includes an 'examination' step or sub-step that detects signals useful for identifying the next template base."[46]
- "For example, the determination or identification of a cognate nucleotide can occur after a delay that covers one or more subsequent cycles in a **Sequencing By Binding**™ procedure."[47]
- "The fact that nucleotide concentrations typically far exceed polymerase concentrations in binding reaction mixtures of **Sequencing By Binding**™ assays means that procedures employing labeled nucleotide can be particularly susceptible to high backgrounds that obscure ternary complex detection."[48]
- "This follows from the dynamic nature of ternary complexes that are detected using the **Sequencing By Binding**™ platform."[49]
- "[T]ernary complexes that form without chemical incorporation in the **Sequencing By Binding**™ workflow are in a dynamic equilibrium …."[50]
- "The following procedure demonstrated the use of distinguishably labeled incorporable nucleotides in a **Sequencing By Binding**™ protocol."[51]
- "The system used in this demonstration employed a **Sequencing By Binding**™ protocol to generate nucleic acid sequencing data."[52]

- The '072 Application – "Method of Nucleic Acid Sequence Determination"
  - "Optionally, one or more cytosine methylations on a template nucleic acid are identified during the **sequencing by binding** methods provided herein."[53]

In concluding arguments, the Examining Attorney states:

> Applicant's usage is merely explanatory or descriptive usage rather than usage as an indicator of the source of applicant's goods and services.

[46] *Id.* at 117 (First Column).

[47] *Id.* at 118 (First Column).

[48] *Id.* at 130 (Second Column).

[49] *Id.* at 132 (First Column).

[50] *Id.* at 132 (Second Column).

[51] *Id.* at 140 (Second Column).

[52] *Id.* at 143 (First Column).

[53] *Id.* at 270 (First Column).

> Here, the proposed mark is used by applicant to describe the process of gene sequencing by binding used in connection with applicant's reagents and analyzers and also in applicant's biological analysis services and product development services, i.e. that they feature the use of DNA sequencing based on binding sites.[54]

### B. Applicant's Arguments and Evidence

As to Applicant's patent filings made of record, Applicant states that these filings show Applicant's "use of 'sequencing-by-binding' as shorthand for its complex DNA sequencing technology for invention disclosure purposes."[55] Alternatively, says Applicant, "'sequencing-by-binding' … and its acronym SBB, [is used in Applicant's patent filings] as a concise identifier, label or shorthand name for a complex DNA sequencing technique for the purpose of conveying Applicant's inventive technology solely for patent procurement purposes."[56]

Applicant argues: SEQUENCING BY BINDING is a coined mark which as a whole has no recognized meaning other than as Applicant's mark; SEQUENCING BY BINDING fails to describe Applicant's goods and services with "any degree of particularity"; the record does not contain any evidence of third-party descriptive use of "SEQUENCING BY BINDING"; the record also does not contain any evidence of a competitive need by others in the industry to use SEQUENCING BY BINDING to describe the identified goods and services; and others view SEQUENCING BY BINDING as Applicant's mark, not as merely descriptive matter.[57]

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[54] Examining Attorney's Brief, 16 TTABVUE 10.

[55] Applicant's Brief, 14 TTABVUE 14.

[56] Applicant's Reply Brief, 17 TTABVUE 8.

[57] Applicant's Brief, 14 TTABVUE 6, 9.

In support of its positions, Applicant points to a copy of an article from ENDPOINTS NEWS titled "Faster, Cheaper DNA Sequencing gets Omniome $60M Led by Chinese Investors."[58] The article states "The company's tech is called 'SEQUENCING BY BINDING' (SBB), which it says can give an 'enhanced precision of nucleotide and DNA matching by leveraging the natural matching ability of the polymerase.' This decreases runtimes and boosts the number of samples per run."

Applicant also made of record an article from NATURE REVIEWS GENETICS titled "Coming of Age: Ten Years of Next Generation Sequencing Technologies."[59] The article discusses the progress made in genome sequencing technologies since the completion of the human genome project in 2003.[60] Among the DNA sequencing methods discussed in the article (emphasis added) are:

- **Sequencing by Ligation** (SBL) – wherein a probe sequence that is bound to a fluorophore hybridizes to a DNA fragment and is ligated to an adjacent oligonucleotide for imaging. The emission spectrum of the fluorophore indicates the identity of the base or bases complementary to specific positions within the probe.[61]
- **Sequencing by Synthesis** (SBS) – wherein a polymerase is used and a signal, such as a fluorophore or a change in ionic concentration, identifies the incorporation of a nucleotide into an elongating strand.[62]

[58] Request for Reconsideration of February 13, 2019, TSDR 70-72.

[59] *Id.* TSDR 73-92.

[60] *Id.* TSDR 74.

[61] *Id.*

[62] *Id.* TSDR 74-76.

Additionally, on three separate occasions in its briefs, Applicant describes the manner in which its goods and services recited in its Application function (emphasis added):

> Applicant's goods and services employ a cyclic method for stepping along a target nucleic acid from one interrogation position to the next, thereby determining the **sequence** of nucleotides in the target nucleic acid. Each individual cycle includes multiple steps. In a first step, the target nucleic acid is contacted with a polymerase and nucleotide under conditions to form a stable **binding** complex at the interrogation position. In a second step, the **binding** complex is detected to determine the type of nucleotide that is present in the complex. In a third step, the target nucleic acid is activated to a state that destabilizes the complex and renders the target nucleic acid competent for subsequent extension. In a fourth step, the activated target nucleic acid is extended by one nucleotide to step to the next interrogation position. The cycle then repeats for the extended target nucleic acid until the **sequence** has been obtained.[63]

As to the non-patent evidence made of record, Applicant argues that this evidence: does not refer specifically to SEQUENCING BY BINDING unless associated with Applicant;[64] SEQUENCING BY BINDING would not provide adequate description for a typical customer to know what any of the referenced sequencing technologies look like or what Applicant's underlying DNA sequencing technology looks like;[65] SEQUENCING BY BINDING is far too nebulous with too many different meanings to describe Applicant's goods and services, and that rather it should be considered

[63] Applicant's Brief, 14 TTABVUE 10, 13; Applicant's Reply Brief, 17 TTABVUE 4-5.

[64] Applicant's Brief, 14 TTABVUE 13-15

[65] *Id.*, 14 TTABVUE 18.

suggestive and not merely descriptive;[66] there is no dictionary definition for "SEQUENCING BY BINDING"; and SEQUENCING BY BINDING is generally not used to describe Applicant's goods and services; and SEQUENCING BY BINDING is not used in the relevant industry (microbiology).[67]

Applicant also calls our attention to prior precedential and non-precedential Board decisions in which multi-term word marks of allegedly descriptive character were nonetheless allowed to proceed to registration.[68]

### C. Analysis

Based on the evidence of record, we disagree that the proposed mark is suggestive, and find instead that SEQUENCING BY BINDING immediately describes the function and purpose of Applicant's goods and services. That is, the identified goods and services are used to **sequence** DNA **by** the process of **binding**. Applicant's goods and services are identified broadly and are presumed to encompass goods and services of all types, including those for use in DNA **sequencing by binding** or conducting of analysis of biological analytes via DNA **sequencing by binding**. Prospective purchasers of Applicant's goods and services would immediately understand the descriptive significance of the proposed mark in relation to those goods and services. Merely because a term has different meanings in different contexts is not controlling. Rather, we look at the proposed mark in relation to the identified goods and services.

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[66] Applicant's Brief, 14 TTABVUE 9, 13; Applicant's Reply Brief, 17 TTABVUE 4, 6, citing decisions such as *Plus Prods. v. Med. Modalities Assocs., Inc.*, 211 USPQ 1199, 1204-05 (TTAB 1981) and *Airco, Inc. v. Air Prods. and Chems., Inc.*, 196 USPQ 832, 835 (TTAB 1977).

[67] *Id.*, 14 TTABVUE 18-19.

[68] Applicant's Brief, 14 TTABVUE 10-13; Applicant's Reply Brief, 17 TTABVUE 5-6.

*In re Bright-Crest Ltd.*, 204 USPQ 591, 593 (TTAB 1979). *See also DuoProSS Meditech Corp. v. Inviro Medical Devices, Ltd.*, 695 F.3d 1247, 103 USPQ2d 1753, 1757 (Fed. Cir. 2012) ("the Board must consider the mark in relation to the goods for which it is registered").

We base our findings on an analysis of all of the evidence of record, particularly: (1) the definitions of "Sequencing," "Binding," "DNA Binding Site" and "DNA Sequencing" made of record, (2) the industry articles made of record showing descriptive use of "Sequencing by ____", "Binding" and "Sequencing-by-Binding" in the microbiology field,[69] (3) numerous examples in Applicant's U.S. patents and patent applications made of record in which Applicant uses SEQUENCING BY BINDING (or SEQUENCING-BY-BINDING) descriptively to refer to an invention embodiment, a reaction, a method, a procedure, a technique, a platform and a workflow, (4) the ENDPOINTS NEWS article Applicant made of record describing SEQUENCING BY BINDING (SBB) as "tech(nology) [which] … decreases runtimes and boosts the number of samples per run, (5) the NATURE REVIEWS GENETICS article which discussed various forms of DNA sequencing methods by the nomenclature

[69] The fact that, in the Notes section at the end of the ACS SENSORS article, it says SEQUENCING BY BINDING and SBB are trademarks of Applicant does not change our findings and analysis. Likewise, Applicant's uses of the "™" symbol next to the phrase in its patent filings does not alter our descriptiveness determination. *Cf. In re Volvo Cars of N. Am. Inc.*, 46 USPQ2d 1455, 1461 (TTAB 1998) ("use of the notice indicating that DRIVE SAFELY [for automobiles] is a trademark of applicant does not transform this unregistrable phrase into a trademark indicating source or origin."). An applicant's intent that a word or phrase serve as a trademark does not bear on the issue of whether the public perceives it as such (*i.e.*, that it is distinctive). *See, e.g.*, *Otto Roth & Co. v. Universal Foods Corp.*, 640 F.2d 1317, 209 USPQ 40, 45 (CCPA 1981); *Roux Labs., Inc. v. Clairol Inc.*, 427 F.2d 823, 66 USPQ 34, 39 (CCPA 1970).

"Sequencing by _____," and (6) Applicant's own repeated explanations of its DNA sequencing technology (as identified in the Application) in its briefs using the terms "sequencing" and "binding" descriptively.

In short, in the phrase SEQUENCING BY BINDING, each of the component terms "Sequencing," "By" and "Binding" retains its merely descriptive significance in relation to Applicant's goods and services, and the combination results in a composite that is itself merely descriptive. *See, e.g.*, *In re Oppedahl & Larson LLP*, 373 F.3d 1171, 71 USPQ2d 1370, 1374 (Fed. Cir. 2004); *DuoProSS Meditech*, 103 USPQ2d at 1758-1759. We further find that the term "by" adds to the descriptiveness of the proposed mark because it indicates that the method by which one "sequences" DNA is by "binding."

Regarding the Board's prior precedential and non-precedential decisions in which multi-term word marks of allegedly descriptive character were nonetheless allowed to proceed to registration, "[i]t has been said many times that each case must be decided on its own facts." *In re Eagle Crest Inc.*, 96 USPQ2d 1227, 1229 (TTAB 2010) (internal citation omitted). *See also In re Nett Designs*, 57 USPQ2d at 1566 ("Even if some prior registrations had some characteristics similar to [Applicant's] application, the PTO's allowance of such prior registrations does not bind the Board or this court."); *In re Cordua Rests., Inc.*, 823 F.3d 594, 118 USPQ2d 1632, 1635 (Fed. Cir. 2016) (The PTO must "examine all trademark applications for compliance with each and every eligibility requirement" regardless of the prior treatment of applications involving similar marks); *In re Merrill Lynch, Pierce, Fenner & Smith Inc.*, 828 F.2d

1567, 4 USPQ2d 1141, 1142 (Fed. Cir. 1987) ("Each application for registration must be considered on its own merits.").

Moreover, the fact that there is no dictionary definition for the combined wording SEQUENCING BY BINDING or that there are other uses that may not directly support a descriptiveness finding is not dispositive. In short, the fact that Applicant may be the first user of a term does not render that term distinctive, if it otherwise meets the standards of mere descriptiveness. *See KP Permanent Make-Up, Inc. v. Lasting Impression I, Inc.*, 543 U.S. 111, 72 USPQ2d 1833, 1838 (2004) (trademark law does not countenance someone obtaining "a complete monopoly on use of a descriptive term simply by grabbing it first") (citation omitted); *see also Clairol, Inc. v. Roux Distrib. Co.*, 280 F.2d 863, 126 USPQ 397, 398 (CCPA 1960) (even novel ways of referring to a product may nonetheless be merely descriptive).

In sum, the record evidence supports a finding that the designation SEQUENCING BY BINDING is merely descriptive of Applicant's goods and services. While we must resolve doubt for Applicant, we have no doubt that (based on the entire record) the designation immediately conveys information to the relevant target audience, microbiologists, concerning features and characteristics of Applicant's reagents, analyzers, biological analysis devices and biological analysis services, i.e., a DNA sequencing process that relies on identifying binding sites to determine the sequence of DNA molecular structure. *In re N.C. Lottery*, 866 F.3d 1363, 123 USPQ2d 1707, 1709 (Fed. Cir. 2017) ("the TTAB 'must consider a mark in its commercial context to determine the public's perception.'").

## IV. Decision

The refusal to register Applicant's proposed mark SEQUENCING BY BINDING on the grounds that it is merely descriptive is affirmed.