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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NATHAN PIETER DEN HERDER,
REBECCA FLYNN ADLER-STRATFORD,
SILVIU CRISTIAN MARGHESCU,
DAVID A. TALBIRD, and ERIC ROSENBLATT

Appeal 2019-001425
Application 15/095,571
Technology Center 2600

Before ERIC S. FRAHM, JUSTIN BUSCH, and
JAMES W. DEJMEK, *Administrative Patent Judges*.

FRAHM, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ appeals under 35 U.S.C. § 134 from a rejection of claims 20–39. Claims 1–19 have been canceled (*see* Appeal Br. 13). We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing was held on May 19, 2020.² We affirm.

DISCLOSED AND CLAIMED INVENTION

According to Appellant, the disclosed invention, entitled “A System and Method for Mapping and Comparing Choroplethic Housing Statistics” (Title), “relates generally to comparing statistical data on the housing market with geospatial mapping” (Spec. ¶ 1) for use in analyzing housing trends (*see* Spec. ¶ 2).³ Choropleth maps are a type of thematic maps, and use differences in shading or coloring for different predefined geographic areas in proportion to statistical variables to represent aggregate summaries of characteristics for the geographic areas. Appellant describes “choroplethic maps” as “a type of thematic map in which areas may be shaded or patterned in proportion to the measurement of the statistical variables being displayed on the map” (Spec. ¶ 13). Appellant discloses mapping and comparing

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42 (2017). “The word ‘applicant’ when used in this title refers to the inventor or all of the joint inventors, or to the person applying for a patent as provided in §§ 1.43, 1.45, or 1.46.” 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Fannie Mae (Appeal Br. 2).

² Appellant was represented at oral hearing by Christopher M. Tobin, USPTO Registration No. 40,290.

³ This application is a continuation of U.S. Patent Application Number 13/599,009, which issued as U.S. Patent Number 9,311,726 (having claims reciting similar subject matter regarding simultaneously displaying thematic map images as the claims in the instant case on appeal).

choroplethic housing statistics by accessing property data for a geospatial area to generate a thematic map image (*see* Spec. ¶ 3). Graphs and maps may be simultaneously produced on a single display screen at different levels of aggregation, such as by state, county, and/or census tract (*see* Figs. 1A, 1B; Spec. ¶¶ 14, 26, 27). Independent claims 20 and 34 recite commensurate limitations regarding a method for mapping and comparing choroplethic housing statistics, whereby a user can interactively make selections to generate displays of property data statistics across time (*see* claims 20, 34). Claim 20, reproduced below with bracketed lettering and emphases added, is illustrative of the claimed subject matter:

20. A method for mapping and comparing choroplethic housing statistics, comprising:

accessing property data corresponding to a geospatial area to generate property data statistics;

generating, according to a selected comparison category from among a set of comparison categories, a thematic map image based on dispersing the property data statistics across the geospatial area in accordance with an aggregation level;

displaying on a display device the thematic map image,

[A] wherein generating the thematic map image comprises illustrating divisions defined by the aggregation level such that respective appearances of the divisions depend on respective portions of the property data statistics corresponding thereto; and

[B] *while the thematic map image is being displayed,*

receiving a first user selection of a first selected division among the divisions in the thematic map image, and in response to receiving the first user selection, automatically generating a graphical image that illustrates the property data statistics that correspond to the selected comparison category for the first selected division *across time*, and

[C1] receiving a second user selection of a second selected division among the divisions in the thematic map image, and in response to receiving the second user selection, [C2] automatically generating an updated graphical image to

concurrently illustrate the property data statistics that correspond to the selected comparison category for the second selected division across time [C3] in distinguishable comparison to the property data statistics that correspond to the selected comparison category for the first selected division *across time*.

Appeal Br. 13, Claims Appendix (bracketed lettering and emphases added).

REJECTIONS

The Examiner made the following rejections:

(1) Claims 20–26, 28, and 30–39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cagan (US 2006/0015357 A1; published Jan. 19, 2006), Chan et al. (US 8,151,194 B1; issued Apr. 3, 2012) (hereinafter, “Chan”), and Godshalk (US 2008/0097768 A1; published Apr. 24, 2008). Final Act. 2–15.

(2) Claim 27 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cagan, Chan, Godshalk, and G. Andrienko et al., *Internet Mapping for Dissemination of Statistical Information*, COMPUTERS, ENVIRONMENT AND URBAN SYSTEMS, VOL. 23, Issue 6, pp. 425–441 (Nov. 30, 1999) (hereinafter, “Andrienko”). Final Act. 16–17.

(3) Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cagan, Chan, Godshalk, and Carpenter et al. (US 2002/0198760 A1; published Dec. 26, 2002) (hereinafter, “Carpenter”). Final Act. 17–18.

ISSUE

Based on Appellant's arguments in the Appeal Brief (Appeal Br. 5–12) and the Reply Brief (Reply Br. 1–9),⁴ the following principal issue is presented on appeal:

Did the Examiner err in rejecting claims 20–39 under 35 U.S.C. § 103(a) as being unpatentable over the base combination of Cagan, Chan, and Godshalk?

ANALYSIS

We have reviewed the Examiner's rejections (Final Act. 2–18) in light of Appellant's arguments (Appeal Br. 5–10; Reply Br. 1–9) that the Examiner has erred, as well as the Examiner's response to Appellant's arguments in the Appeal Brief (Ans. 3–8). We have also considered Appellant's arguments presented at oral hearing on May 19, 2020. Appellant's arguments are not persuasive of error. With regard to representative claim 20, we agree with and adopt as our own the Examiner's findings of facts and conclusions as set forth in the Final Rejection (Final

⁴ Appellant argues claims 21–26, 28, and 30–39 on the same basis as claim 20 (*see* Appeal Br. 5–10; Reply Br. 1–8). As to remaining claims 27 and 29, Appellant relies on the arguments presented as to claim 20, adding that the additionally applied references fail to cure the deficiencies of the base combination of Cagan, Chan, and Godshalk (*see* Appeal Br. 10–11; Reply Br. 8–9). Based on Appellant's arguments, we select claim 20 as representative of claims 20–26, 28, and 30–39, and we decide the outcome of the rejections of claims 27 and 29 on the same basis as provided for claim 20.

Act. 2–7) and Answer (Ans. 3–8). We provide the following explanation for emphasis only.

We emphasize that the Examiner’s ultimate legal conclusion of obviousness is based upon the *combined* teachings of the cited references. Moreover, “the question under 35 USC 103 is not merely what the references expressly teach but what they would have *suggested* to one of ordinary skill in the art at the time the invention was made.” *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976)). (Emphasis added); *see also* MPEP § 2123. In this light, we agree with the Examiner that the combined teachings and suggestions of Cagan, Chan, and Godshalk support the legal conclusion of obviousness as to claim 20.

“During examination, ‘claims ... are to be given their broadest reasonable interpretation consistent with the specification, and ... claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.’” *In re Am. Acad. of Sci. Tech Cir.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004); *In re Morris*, 127 F.3d 1048, 1053-54 (Fed. Cir. 1997). To the extent possible, claim terms are given their ordinary and customary meaning, as they would be understood by one of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). Idiosyncratic language, highly technical terms, or terms coined by the inventor are best understood by reference to the specification. *Id.* at 1315–16. In determining the ordinary and customary meaning of a term as viewed by a person of ordinary skill in the art, it is also appropriate to consult a general dictionary definition of the word for guidance. *Id.* at

1322–23. Courts may rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent documents. *See Advanced Fiber Tech. (AFT) Trust v. J & L Fiber Servs., Inc.*, 674 F.3d 1365, 1374–75 (Fed. Cir. 2012) (internal citations omitted).

In this respect, we consult the Specification to determine the meaning of the claim terms but do not limit claims to the specific embodiments and language disclosed in the Specification if the claim terms can reasonably be interpreted to have a broader meaning. *See, e.g., Phillips*, 415 F.3d at 1323; *In re Van Geuns*, 988 F.2d 1181, 1184–1185 (Fed. Cir. 1993); *In re Zletz*, 893 F.2d 319, 321–22 (Fed. Cir. 1989) (“During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow. When the applicant states the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the applicant’s invention and its relation to the prior art. *See In re Prater*, 415 F.2d 1393, 1404–05, 56 CCPA 1381, 162 USPQ 541, 550–51 (1969) (before the application is granted, there is no reason to read into the claim the limitations of the specification.)”); *see also Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009) (“When a patentee explicitly defines a claim term in the patent specification, the patentee’s definition controls.”).

In this light, we review the Specification to determine the meaning of “choroplethic” as it pertains to the display of real estate information. Appellant describes “choroplethic maps” as “a type of thematic map in which areas may be shaded or patterned in proportion to the measurement of the statistical variables being displayed on the map” (Spec. ¶ 13). Although

a choropleth map is a type of thematic map as implied by paragraph 3 of the Specification, and Appellant's Figures 1A and 1B "illustrat[e] examples of displays by a choroplethic comparison application" (Spec. ¶ 6) and Figures 2A and 2B "illustrat[e] examples of a choroplethic comparison application" (Spec. ¶ 7), we find no explicit definition for the terms "choroplethic" or "thematic" as used in claim 20.

A "choropleth map" can be defined as (i) "[a] map that uses differences in shading, coloring, or the placing of symbols within predefined areas to indicate the average values of a property or quantity in those areas" (https://www.lexico.com/en/definition/choropleth_map, last visited May 28, 2020); (ii) "a map that uses graded differences in shading or color or the placing of symbols inside defined areas on the map in order to indicate the average values of some property or quantity in those areas" (<https://www.vocabulary.com/dictionary/choropleth%20map>, last visited May 28, 2020); and (iii) "[c]horopleth maps are popular thematic maps used to represent statistical data through various shading patterns or symbols on predetermined geographic areas (i.e., countries). They are good at utilizing data to easily represent variability of the desired measurement, across a region" (<https://www.arcgis.com/apps/MapJournal/index.html?appid=75eff041036d40cf8e70df99641004ca>, last visited May 28, 2020). In view of the foregoing, we find that the plain and ordinary meaning of "choropleth map" is a thematic map that uses differences in shading or coloring for different predefined geographic areas in proportion to statistical variables to represent aggregate summaries of characteristics for the geographic areas. This comports with Appellant's description of "choroplethic maps" in paragraph 13 of the Specification. Furthermore, at

oral hearing, Appellant’s representative agreed that “choroplethic” should be given its plain and ordinary meaning.⁵

Cagan shows and describes housing valuation comparison maps (*see* Figs. 10a–d, 13a–d) that use shading (*see* Fig. 15) or coloring for different geographic areas at different levels (e.g., by census tract, zip code, city, county, state, or nation) to delineate different property statistics (*see* ¶¶ 55–58, 65). Cagan also teaches that the maps are interactive, and can show summary (i.e., aggregate) data concerning average valuations, square footage, or sales prices for a given geographic area (*see* ¶ 58), as well as “percentage changes in valuation from one iteration of the data stratum to the next” (¶ 65).

Given the above reference teachings, and in view of the plain and ordinary meaning of “choropleth map,” the Examiner reasonably inferred that Cagan teaches or suggests a choroplethic and thematic map (*see* Final Act. 2–3). *See In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]n considering the disclosure of a reference, it is proper to take into account not

⁵ At Oral Hearing (*see* Oral Hearing Transcript, pp. 7:18–8:9), Appellant’s representative agreed to use the plain and ordinary meaning:

JUDGE FRAHM: Thank you. Mr. Tobin, this is Judge Frahm. Do you have a definition in your specification for "choroplethic" that you know of?

MR. TOBIN: I think that you could just go by the regular definition of that term, if we don't specifically spell that out in the specification itself.

JUDGE FRAHM: Okay. The plain and ordinary meaning.

MR. TOBIN: Yeah, the plain and ordinary meaning is fine. And then as I had mentioned, within the claim, there is also recited features that are consistent with that.

JUDGE FRAHM: Yes. Thank you. I agree.

only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom” (citation omitted).). Notably, Chan (*see* Fig. 7, 722) and Godshalk (*see* Figs. 2a, 2b) also show thematic maps that are choroplethic.

Given that the common knowledge of displaying real estate data thematically with maps is before us, it would be error to fail to consider whether a person of ordinary skill in the art would be motivated to combine Cagan, Chan, and Godshalk (which disclose every limitation of claims 20 and 34) to arrive at the claimed invention. It is well settled that, as part of the obviousness analysis, the prior art must be viewed in the context of what was generally known in the art at the time of the invention. *See Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (“[T]he [KSR] Court required an analysis that reads the prior art in context, taking account of ‘demands known to the design community,’ ‘the background knowledge possessed by a person having ordinary skill in the art,’ and ‘the inferences and creative steps that a person of ordinary skill in the art would employ.’” (quoting *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007))); *In re Taylor Made Golf Company, Inc.*, 589 Fed. Appx. 967 (Fed. Cir. 2014) (the Board erred in failing to consider the prior art in the context of the background knowledge that a person of ordinary skill in the art would have had). Art can legitimately serve to document the knowledge that skilled artisans would bring to bear in reading the prior art identified as producing obviousness. *Randall*, 733 F.3d at 1362–63.

Therefore, we are unpersuaded by Appellant’s arguments that one of ordinary skill in the art would limit (i) Cagan’s teachings to “a map with dispersed dots” (Appeal Br. 7; Reply Br. 3); (ii) Chan’s teachings to “a chart

that illustrates how many times a video had been viewed” (Appeal Br. 8; Reply Br. 5) (emphases omitted); and/or (iii) Godshalk’s teachings to “merely depict[ing] three instances of the same graph, on the exact same timeline” (Appeal Br. 10; Reply Br. 7). Rather, “[a] reference may be read for all that it teaches, including uses beyond its primary purpose.” *See In re Mouttet*, 686 F.3d 1322, 1331 (Fed. Cir. 2012); *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir. 1985) (“A reference must be considered for everything it *teaches* by way of technology and is not limited to the particular *invention* it is describing and attempting to protect.”).

Moreover, we are not persuaded that modifying Cagan with Chan and Godshalk would not merely produce predictable results or was “uniquely challenging or difficult for one of ordinary skill in the art” at the time of Appellants’ invention (*see Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007))). This is evidenced by the fact that all three references pertain to thematic and choroplethic map displays, and both Cagan and Godshalk are concerned with allowing user selections to modify displayed data.

Appellant has not shown the Examiner erred in rejecting claim 20 under 35 U.S.C. § 103(a) as being unpatentable over the base combination of Cagan, Chan, and Godshalk, because (i) Chan (*see* Fig. 7, 720) and Godshalk (*see* Fig. 8) both teach or suggest displaying information over time; (ii) both Cagan (¶¶ 14, 52, 55, 57, 58) and Godshalk (¶¶ 3, 72, 86) teach displaying maps and information pertaining to real estate statistics/data and allowing users to customize the maps by making selections; and (iii) Cagan teaches or suggests limitations A and B, including displaying a

thematic map that is choroplethic, as recited in claim 20. Thus, we agree with the Examiner's determination that the combination of Cagan, Chan, and Godshalk teaches or suggests the subject matter of claim 20, including limitations A, B, and C.

In view of the foregoing, Appellant has not overcome the Examiner's prima facie case of obviousness with respect to independent claim 20. We are not persuaded the Examiner erred in rejecting claims 20–39.

Accordingly, we sustain the Examiner's rejection of (i) independent claims 20 and 34, as well as claims 21–26, 28, 30–33, and 35–39 grouped therewith; and (ii) the Examiner's remaining rejections of claims 27 and 29 argued for similar reasons.

CONCLUSION⁶

⁶ We leave it the Examiner in the event of further prosecution, *including any review prior to allowance*, to consider a rejection under 35 U.S.C. § 101 under the Director's 2019 Revised Guidance, as updated in the October 2019 Patent Eligibility Guidance Update, for all claims 20–39 on appeal. Specifically, the Examiner may wish to consider whether claims 20 and 34 recite, and may be directed to, mental processes. Although the Board is authorized to reject claims under 37 C.F.R. § 41.50(b), no inference should be drawn when the Board elects not to do so. *See* Manual of Patent Examining Procedure (MPEP) § 1213.02. We also note that similar claims directed to displaying real estate information has been found to be patent ineligible by our reviewing court.

In *Move v. Real Estate Alliance*, 721 F. App'x 950, 954 (Fed. Cir. 2018), our reviewing court determined that the claims were directed to the abstract idea of “a method for collecting and organizing information about available real estate properties and displaying this information on a digital map that can be manipulated by the user.” In *Move*, the Federal Circuit found the claim at issue focused “not on a technological improvement, but rather on a method of searching for real estate using a computer” (*id.* at 956), because the claim recited steps of creating a property

In summary:

Claims Rejected	35 U.S.C. §	References	Affirmed	Reversed
20–26, 28, 30–39	103(a)	Cagan, Chan, Godshalk	20–26, 28, 30–39	
27	103(a)	Cagan, Chan, Godshalk, Adrienko	27	
29	103(a)	Cagan, Chan, Godshalk, Carpenter	29	
Overall Outcome			20–39	

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

database, displaying a geographic region on a map, iterative zooming to focus on a desired geographic region, and identifying properties within the database that fall within the selected geographic region.

And, in *In re Villena*, 745 F. App'x 374, 376 (Fed. Cir. 8/29/2018), our reviewing court similarly determined that claims reciting property valuation concepts (one or more computers configured to receive a user's target geographic region, produce property valuations) were directed to a fundamental economic practice, and thus an abstract idea. The Federal Circuit based this determination on the finding that “[p]rospective sellers and buyers have long valued property and doing so is necessary to the functioning of the residential real estate market.” (*id.* at 376). Here claims 20–39 focus on similar concepts related to real estate information display.