United States Court of Appeals for the Federal Circuit

ADVANCED GROUND INFORMATION SYSTEMS, INC.,
Plaintiff-Appellant

v.

LIFE360, INC.,
Defendant-Appellee

2015-1732

Appeal from the United States District Court for the Southern District of Florida in No. 9:14-cv-80651-DMM, Judge Donald M. Middlebrooks.

Decided: July 28, 2016

GEORGE BADENOCH, Kenyon & Kenyon LLP, New York, NY, argued for plaintiff-appellant. Also represented by MARK ALEXANDER CHAPMAN, ROSE CORDERO PREY, ALESSANDRA MESSING.

DANIEL H. BREAN, The Webb Law Firm, Pittsburgh, PA, argued for defendant-appellee. Also represented by KENT E. BALDAUF, JR., BRYAN P. CLARK, CHRISTIAN D. EHRET.

Before MOORE, MAYER, and WALLACH, *Circuit Judges.*

WALLACH, *Circuit Judge.*

Advanced Ground Information Systems, Inc. ("AGIS") appeals the decision of the United States District Court for the Southern District of Florida in *Advanced Ground Information Systems, Inc. v. Life360, Inc.*, No. 14-cv-80651 (S.D. Fla. Nov. 21, 2014) (J.A. 2–37), which found that claims 3 and 10 of U.S. Patent No. 7,031,728 ("the '728 patent") and claims 5 and 9 of U.S. Patent No. 7,672,681 ("the '681 patent") (together, the "patents-in-suit") invoke 35 U.S.C. § 112, ¶ 6, and that the claims are indefinite under 35 U.S.C. § 112, ¶ 2 (2006).[1] Although the district court found these claims indefinite, it did not address the issue of invalidity because Appellee, Life360, Inc., ("Life360") did not request a finding of invalidity. The parties subsequently stipulated that these claims were invalid for indefiniteness, *see* J.A. 857, and the court entered its Final Judgment on May 12, 2015, *see* J.A. 1. For the reasons articulated below, we affirm the district court's decision that the claims are indefinite, and accordingly conclude that the asserted claims are invalid.

BACKGROUND

AGIS is a technology company, software developer, and military contractor, as well as the owner of the patents-in-suit. While the specifications of the patents-in-suit differ from one another, the patents-in-suit relate to methods, devices, and systems for establishing a communication network for users (referred to as "participants" in

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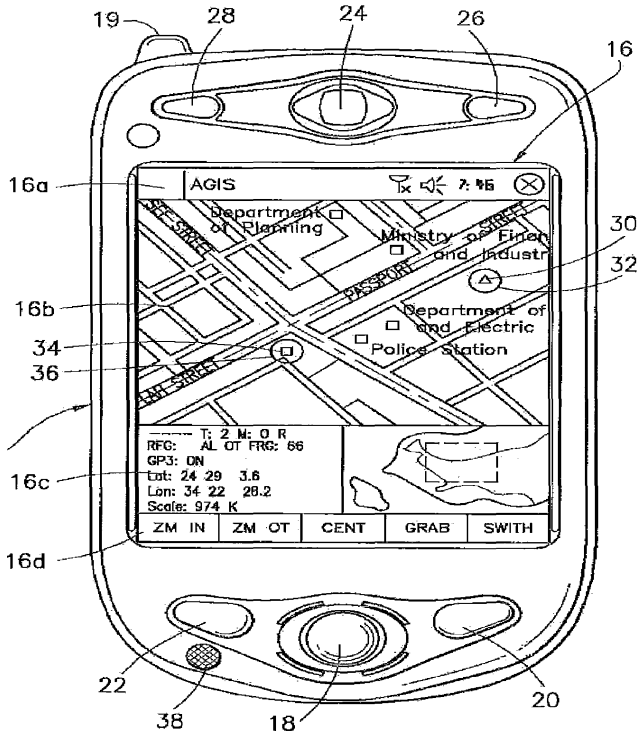
[1] Congress amended 35 U.S.C. § 112 when it passed the Leahy–Smith America Invents Act ("AIA"), and the amendments took effect on September 16, 2012. Pub. L. No. 112–29, § 4 125 Stat. 284, 296–97 (2011). Because the applications resulting in the patents-in-suit were filed before that date, we refer to the pre-AIA version of § 112.

the patents-in-suit) of mobile devices, such as cellular phones.

I. The Patents-in-Suit

A. The '728 Patent

The '728 patent describes a cellular communication system that allows multiple cellular phone users to monitor others' locations and statuses via visual display of such information on a map. '728 patent, Abstract. For example, as illustrated in Figure 1 of the '728 patent, users of a mobile device can see the locations of other users on the network (indicated by triangle 30 and square 34 symbols):



Id. fig.1. Symbols generated on the users' cellular phones represent the latitude and longitude of other users. *Id.* col. 3 ll. 35–40. Users in the communication network may initiate a phone call, send text messages, or send data or

pictures with other users on the network by touching a symbol representative of the other users on the screen. *Id*. col. 11 ll. 12–13, 38–42.

B. The '681 Patent

The '681 patent is a continuation-in-part of the '728 patent. It describes how "a designated administrator using a personal computer (PC) or other input device can reprogram all user and network participants' cell phone devices to change, modify[,] or create new virtual switch names and new symbols for a different operating environment." '681 patent col. 2 ll. 3–7.

C. The Asserted Claims

Claims 3 and 10 of the '728 patent and claims 5 and 9 of the '681 patent (collectively, the "asserted claims") recite a "symbol generator" that generates symbols representing each user in the network on the display of a user's cellular phone. Claim 3 of the '728 patent is a system claim that recites a "symbol generator in [a central processing unit ('CPU')] that can generate symbols that represent each of the *participants' cell phones* in the communication network on the display screen." '728 patent col. 12 ll. 62–64 (emphasis added). Claim 5 of the '681 patent is a system claim similar to claim 3 of the '728 patent in all relevant respects, except that it recites a "symbol generator in [a] CPU that can generate symbols that represent each of the *participants in the communication network* on the display screen," '681 patent col. 12 ll. 62–64 (emphasis added), as opposed to "each of the participants' cell phones," '728 patent col. 12 l. 63.

Claim 10 of the '728 patent and claim 9 of the '681 patent are apparatus claims that recite a "cellular phone for use in a communication network for a plurality of participants comprising . . . *a symbol generator connected to* [*a*] *CPU and* [*a*] *database for generating symbols on* [*a*] *touch screen display screen*." '728 patent col. 14 ll. 28–47 (em-

phasis added); '681 patent col. 13 l. 44–col. 14 l. 8 (same (emphasis added)). Both claims also recite that the cellular phone comprises "CPU Software." *See* '728 patent col. 14 ll. 48–49 (stating that the cellular phone comprises "CPU software for selectively polling other participants with a cellular phone"); '681 patent col. 14 ll. 9–10 (stating that the cellular phone comprises "CPU software that causes the exchange of data with other participants with a cellular phone").

II. Procedural History

Life360 is a startup company and the creator of a smartphone software application (the "Life360 mobile app"). J.A. 2382. The Life360 mobile app was designed to allow families to stay better connected—it "runs on [a] mobile device to allow [users] to view [their] family members on a map, communicate with them, and receive alerts when [their] loved ones arrive at home, school[,] or work." *Product Tour*, https://www.life360.com/tour/ (last visited July 26, 2016). On May 16, 2014, AGIS filed a complaint in the district court alleging that the Life360 mobile app infringed claims 3, 7, and 10 of the '728 patent and claims 1, 5, and 9 of the '681 patent. *See* J.A. 2–3.

In response to AGIS's Complaint, Life360 asserted that the claim terms "symbol generator" and "CPU software" in the asserted claims invoked means-plus-function claiming allowed under 35 U.S.C. § 112, ¶ 6, but the terms failed to disclose adequate structure and, therefore, are indefinite under 35 U.S.C. § 112, ¶ 2. J.A. 262–70. Paragraph 6 of 35 U.S.C. § 112 allows "[a]n element in a claim for a combination" to "be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." Pursuant to 35 U.S.C. § 112, ¶ 6, if the specification of a patent does not disclose

"corresponding structure, material, or acts" for "performing the specified function" in the claims, the patent will be found to be invalid for indefiniteness under 35 U.S.C. § 112, ¶ 2 because it does not "distinctly claim[] the subject matter . . . the inventor . . . regards as the invention." 35 U.S.C. § 112, ¶ 2.

On November 21, 2014, the district court issued the decision in dispute. *See* J.A. 2–37 (District Court's *Markman* Order). In addition to construing various claims of the patents-in-suit, the district court found that the terms "symbol generator" and "CPU software" in the asserted claims—i.e., claims 3 and 10 of the '728 patent and claims 5 and 9 of the '681 patent—invoked 35 U.S.C. § 112, ¶ 6, and were indefinite under 35 U.S.C. § 112, ¶ 2. *See* J.A. 9–20. In view of the district court's decision as to indefiniteness, the parties stipulated that these claims were invalid. *See* J.A. 857.

AGIS appeals the district court's indefiniteness determinations. This court has jurisdiction over this appeal under 28 U.S.C. § 1295(a)(1) (2012).

DISCUSSION

Our analysis proceeds in two steps. First, we address whether "symbol generator" in the asserted claims is in means-plus-function form pursuant to 35 U.S.C. § 112, ¶ 6. *See Robert Bosch, LLC v. Snap–On Inc.*, 769 F.3d 1094, 1097 (Fed. Cir. 2014). If we find that the relevant claim terms recite a means-plus-function limitation, we proceed to our second inquiry and "attempt to construe the disputed claim term by identifying the corresponding structure, material, or acts described in the specification to which the term will be limited." *Id*. (internal quotation marks and citation omitted); *see also O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997) ("The price that must be paid for use of [a means-plus-function claim] is limitation of the claim to the means specified in the

written description and equivalents thereof."). However, "[i]f the specification is not clear as to the structure that the patentee intends to correspond to the claimed function, then the patentee has not paid that price but is . . . attempting to claim in functional terms unbounded by any reference to structure in the specification." *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1211 (Fed. Cir. 2003). We address each step in turn.

I. The Claim Term "Symbol Generator" Invokes 35 U.S.C. § 112, ¶ 6

The district court held that "symbol generator" and "CPU software" in claims 3 and 10 of the '728 patent and claims 5 and 9 of the '681 patent invoked 35 U.S.C. § 112, ¶ 6, but were indefinite under 35 U.S.C. § 112, ¶ 2. "Symbol generator" appears in all of the asserted claims. Thus, if we find that claim term indefinite under 35 U.S.C. § 112, ¶ 2, we need not independently address whether the claim term "CPU software" also renders clam 10 of the '728 patent and claim 9 of the '681 patent invalid for indefiniteness.

The district court's construction of patent claims based on evidence intrinsic to the patent, including any finding that the claim language invokes 35 U.S.C. § 112, ¶ 6, is reviewed de novo as a question of law. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346 (Fed. Cir. 2015) (en banc) (citation omitted). In construing patent claims, if the district court makes underlying findings of fact based on extrinsic evidence, such findings are reviewed for clear error. *Id.* "Clear error only exists if we are left with a definite and firm conviction that a mistake has been committed." *Venture Indus. Corp. v. Autoliv ASP, Inc.*, 457 F.3d 1322, 1331 (Fed. Cir. 2006) (internal quotation marks and citation omitted).

If a claim element "contains the word 'means' and recites a function," this creates a presumption that the

claim is in means-plus-function form under 35 U.S.C. § 112, ¶ 6. *Envirco Corp. v. Clestra Cleanroom, Inc.*, 209 F.3d 1360, 1364 (Fed. Cir. 2000) (citation omitted). "That presumption falls, however, if the claim itself recites sufficient structure to perform the claimed function." *Id.* (citation omitted).

"[T]he failure to use the word 'means' also creates a rebuttable presumption—this time that § 112, para. 6 does not apply." *Williamson*, 792 F.3d at 1348 (citation omitted). However, "if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function," this presumption may be rebutted. *Id.* (internal quotation marks, brackets, and citation omitted). "The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Id.* at 1349. In determining whether this presumption has been rebutted, the challenger must establish by a preponderance of the evidence that the claims are to be governed by § 112, ¶ 6. *See Apex Inc. v. Raritan Comput. Inc.*, 325 F.3d 1364, 1372 (Fed. Cir. 2003).

Here, although the asserted claims do not include the word "means," the district court determined that AGIS intended to invoke § 112, ¶ 6. *See* J.A. 10–11; *see also* '728 patent col. 12 l. 52–col. 13 l. 13 (claim 3), col. 14 ll. 27–61 (claim 10); '681 patent col. 12 l. 52–col. 13 l. 18 (claim 5), col. 13 l. 44–col. 14 l. 27 (claim 9). According to the district court, "[a] plain reading of the term in context of the relevant claim language suggests the term 'symbol generator' is analogous to a 'means for generating symbols' because the term is simply a description of the function performed." J.A. 10–11 (citation omitted). The district court also determined "the term is not used in common parlance or by persons of ordinary skill in the pertinent art to designate structure." J.A. 11 (internal

quotation marks and citation omitted). Finally, the district court rejected the testimony of AGIS's expert, Dr. Benjamin Goldberg, because he was "not aware whether the term symbol generator has a meaning in computer science." J.A. 11 (internal quotation marks and citation omitted).

AGIS challenges the district court's determination, asserting that the district court "erred when it concluded that the 'symbol generator' elements in [the asserted claims] are subject to § 112, ¶ 6." AGIS's Br. 25. Specifically, AGIS avers that Life360 failed to present sufficient evidence demonstrating that "symbol generator" invokes § 112, ¶ 6. *See id.* at 26, 32. According to AGIS, "[t]he unrebutted expert evidence [of Dr. Goldberg] . . . showed that persons of ordinary skill would have understood the claimed symbol generator to have a sufficiently definite meaning as the name for structure." *Id.* at 26–27 (internal quotation marks and citation omitted); *see also id.* at 27 (stating that "Dr. Goldberg testified that those skilled in the art would have understood a 'symbol generator' to refer to a well-known class of existing, available, standard modules of software code used to generate symbols on a display" (citations omitted)).

The term "symbol generator" invokes the application of § 112, ¶ 6 because it fails to describe a sufficient structure and otherwise recites abstract elements "for" causing actions, '728 patent col. 14 ll. 45–47, or elements "that can" perform functions, '681 patent col. 12 l. 62. Through the testimony of Dr. Goldberg, AGIS contends "those skilled in the art would have understood a 'symbol generator' to refer to a class of structures instead of a particular structure." AGIS's Br. 27; *see also id.* at 28 (stating that "Dr. Goldberg's unrebutted testimony that those skilled in the art would have understood what a 'symbol generator' is, and would have known how to select and use one from the well-known class of software modules, demonstrates

that the words have a sufficiently definite meaning as the name for structure" (internal quotation marks and citation omitted)). However, contrary to AGIS's contention, Dr. Goldberg testified that the term "symbol generator" is a term coined for the purposes of the patents-in-suit. *See* J.A. 798. The term is not used in "common parlance or by persons of skill in the pertinent art to designate structure," such that it connotes sufficient structure to avoid the application of 35 U.S.C. § 112, ¶ 6. *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1359 (Fed. Cir. 2004), *overruled on other grounds by Williamson*, 792 F.3d at 1348–49.

We see no clear error in the district court's findings regarding Dr. Goldberg's testimony. Dr. Goldberg's testimony that the terms "symbol" and "generator" are known within the field of computer science is not dispositive and does not require us to find that 35 U.S.C. § 112, ¶ 6 does not apply. *See* J.A. 11 (stating that "Dr. Goldberg testified he was aware of the terms 'symbol' and 'generator' separately, but was unaware of [the] use [of] the specific term 'symbol generator' within the field of computer science" (citation omitted)). Irrespective of whether the terms "symbol" and "generator" are terms of art in computer science, the *combination* of the terms as used in the context of the relevant claim language suggests that it is simply an abstraction that describes the function being performed (i.e., the generation of symbols). *See, e.g.*, '728 patent col. 3 ll. 44–46 ("Each cellular phone/[Personal Digital Assistant ('PDA')/[Global Positioning System ('GPS')]" is identified on the display of other phone systems by a *symbol that is generated* to indicate its identity." (emphasis added)); *see also* '681 patent col. 7 ll. 14–17 ("Each cellular phone device is identified on the map display of the other participant/user cell phone devices by a display *symbol that is generated* on each user cell phone device display to indicate each user's identity." (emphasis added)).

Finally, the claim term "symbol generator," by itself, does not identify a structure by its function, *cf. Personalized Media Commc'ns v. ITC*, 161 F.3d 696, 705 (Fed. Cir. 1998) (stating that the claim term "digital detector" does not invoke § 112, ¶ 6 because "[e]ven though the term 'detector' does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety of structures known as 'detectors'"), nor do the asserted claims suggest that the term "symbol generator" connotes a *definite* structure, *see Media Rights Techs., Inc. v. Capital One Fin. Corp.,* 800 F.3d 1366, 1372 (Fed. Cir. 2015) (finding that the term "compliance mechanism" invokes § 112, ¶ 6, because the asserted claims "simply state that the 'compliance mechanism' can perform *various functions*" (emphasis added)). Accordingly, because the term "symbol generator" does not describe anything structural, the district court was correct to conclude that the asserted claims which recite the term "symbol generator" are subject to 35 U.S.C. § 112, ¶ 6.

II. The Claim Term "Symbol Generator" Is Indefinite Under § 112, ¶ 2

Because the claim term "symbol generator" is a means-plus-function term as described by paragraph 6 of § 112, we must "construe the disputed claim term by identifying the corresponding structure, material, or acts described in the specification to which the claim term will be limited." *Robert Bosch*, 769 F.3d at 1097 (internal quotation marks and citation omitted). If a patentee "employs means-plus-function language in a claim, [the patentee] must set forth in the specification an adequate disclosure showing what is meant by that language." *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382 (Fed. Cir. 2009) (internal quotation marks and citation omitted). "If the specification does not contain an adequate disclosure of the structure that corresponds to the claimed function, the patentee will have failed to particularly point out and distinctly claim the invention

[under § 112, ¶ 2], which renders the claim invalid for indefiniteness." *Id.* (internal quotation marks and citation omitted).

We agree with the district court's determination that the "term 'symbol generator' is indefinite." J.A. 13 (footnote omitted). Although the district court recognized that "the specification [] describe[s], in general terms, that symbols are generated based on the latitude and longitude of the participants," it nonetheless determined that the specification "fails to [disclose] an 'algorithm' or description as to how those symbols are actually 'generated.'" J.A. 12 (citation omitted).

"[I]n a means-plus-function claim in which the disclosed structure is a computer[] or microprocessor[] programmed to carry out an algorithm, [as is the case here], the disclosed structure is . . . [a] special purpose computer programmed to perform the disclosed algorithm." *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008) (internal quotation marks and citation omitted); *see* '728 patent col. 3 ll. 57–61 (stating that "[w]hen the cellular phone/PDA/GPS System user uses his stylus or finger to touch one or more of the symbols or a location on the cellular phone display, the system's software causes the status and latitude and longitude information concerning that symbol or location to be displayed"). In the case of computer-implemented functions, we require that the specification "disclose an algorithm for performing the claimed function." *See Net MoneyIN*, *Inc. v. VeriSign*, *Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008). The specification can express the algorithm "in any understandable terms including as a mathematical formula, in prose, . . . as a flow chart, or in any other manner that provides sufficient structure." *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008) (citation omitted).

The specifications of the patents-in-suit do not disclose an operative algorithm for the claim elements reciting "symbol generator." The function of generating symbols must be performed by some component of the patents-in-suit; however, the patents-in-suit do not describe this component. Although the specification of the '728 patent suggests that these symbols are generated via "a map database and a database of geographically referenced fixed locations . . . with a specified latitude and longitude[,] . . . [and] [a] database with the constantly updated GPS location,'" 728 patent col. 3 ll. 35–41, this only addresses the *medium* through which the symbols are generated. A patentee cannot claim a means for performing a specific function and subsequently disclose a "general purpose computer as the structure designed to perform that function" because this "amounts to pure functional claiming." *Aristocrat Techs.*, 521 F.3d at 1333. Accordingly, because the specifications of the patents-in-suit do not disclose sufficient structure for the "symbol generator" function and the asserted claims include this term, the asserted claims are indefinite under 35 U.S.C. § 112, ¶ 2.

CONCLUSION

For the foregoing reasons, the decision of the United States District Court for the Southern District of Florida is

AFFIRMED