United States Court of Appeals for the Federal Circuit

REMBRANDT PATENT INNOVATIONS, LLC, REMBRANDT SECURE COMPUTING, LP,
Plaintiffs-Appellants

v.

APPLE, INC.,
Defendant-Appellee

2016-2324

Appeal from the United States District Court for the Northern District of California in Nos. 3:14-cv-05093-WHA, 3:14-cv-05094-WHA, Judge William H. Alsup.

Decided: November 22, 2017

J. MICHAEL JAKES, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Washington, DC, argued for plaintiffs-appellants. Also represented by EDWARD ROBERT YOCHES; JACOB ADAM SCHROEDER, Palo Alto, CA.

MARK S. DAVIES, Orrick, Herrington & Sutcliffe LLP, Washington, DC, argued for defendant-appellee. Also represented by MELANIE L. BOSTWICK, KATHERINE M. KOPP, AMISHA R. PATEL; CHRISTOPHER JAMES GASPAR,

ANDREW LICHTENBERG, Milbank, Tweed, Hadley & McCloy LLP, New York, NY; MARK C. SCARSI, Los Angeles, CA.

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Before PROST, *Chief Judge,* CHEN, and HUGHES, *Circuit Judges.*

CHEN, *Circuit Judge.*

Plaintiffs (collectively, Rembrandt) sued Apple, Inc. (Apple) for infringement of U.S. Patent No. 6,185,678 (the '678 patent). The district court construed certain terms in the '678 patent's claims and granted Apple's motion for summary judgment of noninfringement. Rembrandt appeals the district court's claim construction and noninfringement rulings. We *affirm*.

BACKGROUND

I. The '678 Patent

The '678 patent describes techniques for securely initializing, or "bootstrapping," a computer system. '678 patent col. 1 ll. 23–25. The asserted claims recite systems and methods for verifying the integrity of a computer's boot components and recovering at least one boot component that is found to be corrupted. Verification involves a "chain of integrity checks," executed by certain hardware and a computer's Basic Input Output System (BIOS), to determine whether boot components have been corrupted. *Id.* col. 6 ll. 6–24. Recovery involves the replacement of any corrupted boot components. Apple's noninfringement arguments hinge on whether the claimed recovery step must be performed automatically without human intervention, as Apple argues, or whether there is no such requirement, as Rembrandt argues.

Figure 2a depicts the functional steps and components used in a preferred embodiment of the claimed invention:
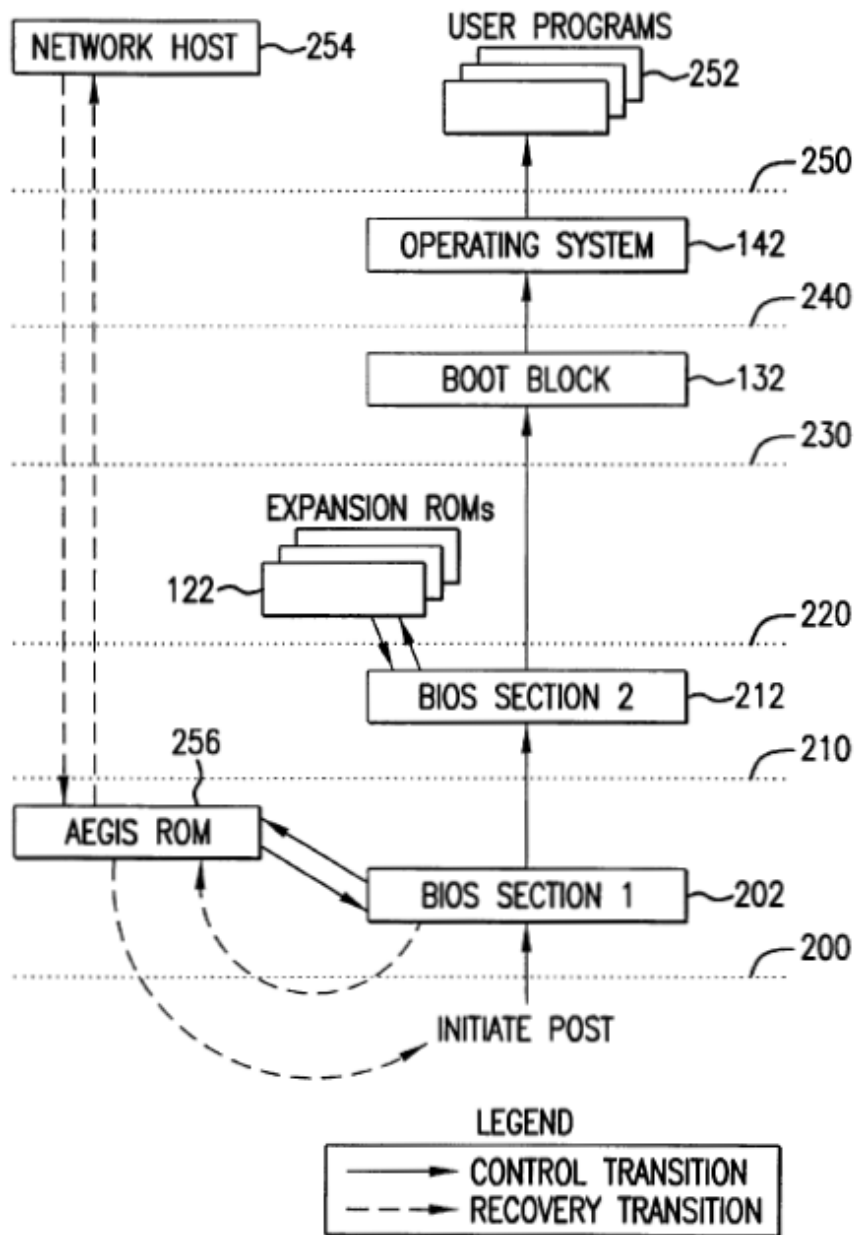
NETWORK HOST —254

USER PROGRAMS —252

—250

OPERATING SYSTEM —142

—240

BOOT BLOCK —132

—230

EXPANSION ROMs

122—

—220

BIOS SECTION 2 —212

—210

256

AEGIS ROM

BIOS SECTION 1 —202

—200

INITIATE POST

LEGEND

CONTROL TRANSITION
RECOVERY TRANSITION

FIG. 2a

In Figure 2a, verification begins when a computer is powered on and executes a "Power on Self Test" (POST) at functional layer 200, which tests the computer's processor and initiates other tests controlled by the BIOS. *Id.* col. 7 l. 61 – col. 8 l. 11. Components at layer 200 are "assumed to be valid." *Id.* col. 8 ll. 48–49. Control is subsequently passed from one functional layer to the next, but only after each layer cryptographically verifies the integrity of components in the next layer. Once initialized, each layer adds correspondingly higher levels of capability to the system. Verification of all boot layers ensures the system's integrity before control is passed to the computer's operating system.

Recovery takes place only if verification detects an integrity failure. "Once an integrity failure is detected, the invention uses a secure protocol to inform a trusted repository that a failure has occurred and to obtain a valid replacement component." *Id.* col. 4 ll. 49–51. As depicted in Figure 2a, the claimed "trusted repository" may be implemented via the "AEGIS ROM" component for "secure recovery of any integrity failures found during the initial bootstrap." *Id.* col. 10 ll. 47–67.

The specification describes the '678 patent's invention as "relat[ing] to an architecture for initializing a computer system and more particularly to a secure bootstrap process and automated recovery procedure." '678 patent col. 1 ll. 23–25. According to the specification, the invention achieves a reduction in the total cost of owning a personal computer by "automatically detecting and repairing integrity failures," without requiring a user to call technical support staff or suffer any machine downtime. *Id.* col. 4 ll. 60–65.

Rembrandt asserted claims 1, 3, 4, and 7 of the '678 patent. Independent claim 1 recites:

> An architecture for initializing a computer system comprising:

a processor;

an expansion bus coupled to said processor;

a memory coupled to said expansion bus, said memory storing a system BIOS for execution by said processor upon power up of the computer system;

a plurality of boot components coupled to said expansion bus and accessed by said processor when said system BIOS is executed;

a trusted repository coupled to said expansion bus; and

means for verifying the integrity of said boot components and said system BIOS wherein integrity failures are recovered through said trusted repository.

Id. col. 21 l. 39 – col. 22 l. 11.

Claim 3 depends from claim 1 and recites:

An architecture for initializing a computer system according to claim 1, wherein said trusted repository is a host computer communicating with said computer system through a communications interface coupled to said expansion bus.

Id. col. 22 ll. 15–19.

Independent claim 4 recites:

A method for initializing a computer system comprising the steps of:

(1) invoking a Power on Self Test (POST);

(2) verifying the integrity of a system BIOS;

(3) verifying the integrity of a boot component; and

(4) when said boot component fails, recovering said failed boot component.

Id. col. 22 ll. 20–26.

Claim 7 depends from claim 4 and recites:

The method of claim 4, wherein step (4) employs a secure protocol to obtain a replacement boot component from a trusted repository to replace said failed boot component.

Id. col. 22 ll. 37–40.

II. The Accused Products

Rembrandt accuses various models of Apple's iPhone, iPad, and iPod Touch devices of infringing the asserted claims. Each of the accused products runs Apple's operating system for mobile devices, iOS. When products running iOS are powered on, their processors initiate a verification procedure that uses a chain of integrity checks, starting with the execution of software stored in a SecureROM component. Additional software components in the boot sequence include, in order of access: the LLB, iBoot, and iOS kernel. Each of the boot components, other than the iOS kernel, checks the integrity of the next boot component by comparing a measured cryptographic value of the next component with a value obtained from a stored digital signature. When iOS's boot process succeeds, each component in the boot chain is verified, and the iOS kernel loads the iOS operating system.

When the integrity of a boot component cannot be verified, the accused mobile devices enter one of two recovery modes: Device Firmware Update (DFU) Mode or Recovery Mode. The devices enter DFU Mode when SecureROM fails to verify the integrity of LLB or when LLB fails to verify the integrity of iBoot. The devices enter Recovery Mode when iBoot fails to verify the integrity of the iOS kernel. Upon entering a recovery mode, Apple's devices

will display either a blank screen (in DFU Mode) or an image prompting users to restore their devices using Apple's iTunes software (in Recovery Mode).

In either recovery mode, Apple's customer support web pages and service guides instruct a user to connect the corrupted mobile device to a computer running iTunes. The corrupted device will be unusable unless the user connects it to a computer running iTunes and initiates the recovery process. When installed on a computer, iTunes generally launches itself automatically when it detects a connection to an iOS device that is in recovery mode. Once connected, iTunes displays a dialog box prompting the user to select "OK" or "Restore" to proceed with the recovery process. After a user opts to initiate recovery, iTunes contacts a remote Apple server, downloads replacement boot components, cryptographically verifies the replacement components' integrity, and installs the new components on the corrupted device to complete recovery.

III. Procedural History

Rembrandt filed suit in January 2014 in the United States District Court for the Eastern District of Texas. The case was later transferred to the Northern District of California. Apple moved for summary judgment of noninfringement in May 2016, contending that the asserted claims require automatic recovery and that Apple's mobile products "cannot recover without manual intervention." J.A. 1030. Rembrandt opposed, arguing that (1) the asserted claims do not require automatic recovery; and (2) even if the claims require automatic recovery, Apple's products still infringe, either literally or under the doctrine of equivalents.

The district court granted Apple's motion, holding that (1) the asserted claims, when read in light of the specification, require automatic recovery; and (2) Apple's devices do not infringe because they do not use automatic

recovery. Although the asserted claims do not recite the word "automatic," the district court placed weight on, *inter alia*, the specification's characterization of the invention as "relat[ing] to . . . a secure bootstrap process and ***automated*** recovery procedure." J.A. 8 (quoting '678 patent col. 1 ll. 23–25) (emphasis added). The district court also noted the specification's disparagement of prior art recovery processes that require human interaction. It further observed that the specification repeatedly refers to automatic recovery processes as advantageously eliminating the need for phone calls to technical support staff and associated downtime. In addition, the district court found significant that "[t]here is not a single reference to recovery with human intervention" in the patent. J.A. 9.

In light of its claim construction opinion, the district court granted summary judgment of no literal infringement. The district court opined that, contrary to Rembrandt's arguments, "[a]utomatic recovery simply cannot mean recovery started manually, even if the technical restoration of a new component is ultimately performed automatically (after a human has commenced the process)." J.A. 13. The district court acknowledged that the specification discloses "circumstances in which human interaction may be necessary to recover a device," but determined that these circumstances "are clearly limited to instances when several attempts at automatic recovery have ***failed***, and in fact, they do not provide for recovery at all," as required in the claims. *Id*.

The district court also granted summary judgment of no infringement by equivalents. The district court held that Apple's recovery process did not solve the same problem purported to be solved by the '678 patent. For example, the district court noted that the accused products are "bricked," i.e., rendered inoperable "from the time they enter recovery mode until they are recovered," such that "a user will still experience a denial of service until he is able to reach a computer running iTunes." J.A. 14.

As noted, *supra*, the '678 patent's specification repeatedly identifies the avoidance of this downtime as an advantage of the '678 patent's automated solution. According to the district court, "[i]f Apple's recovery procedure that required human intervention could be equivalent to automatic recovery even though the former failed to address all of the problems solved by the latter, that would vitiate the automatic limitation present in the properly construed claims." J.A. 15.

Rembrandt appeals. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

STANDARD OF REVIEW

We apply the law of the regional circuit when reviewing a district court's grant of summary judgment. *Classen Immunotherapies, Inc. v. Elan Pharm., Inc.*, 786 F.3d 892, 896 (Fed. Cir. 2015). The Ninth Circuit reviews a grant of summary judgment de novo. *Ariz. Dream Act Coalition v. Brewer*, 818 F.3d 901, 908 (9th Cir. 2016). A "judge's function at summary judgment is not to weigh the evidence and determine the truth of the matter but to determine whether there is a genuine issue for trial." *Tolan v. Cotton*, 134 S. Ct. 1861, 1866 (2014) (internal quotation marks and citation omitted). The evidence, and inferences drawn therefrom, must be viewed in the light most favorable to the opposing party. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587–88 (1986).

DISCUSSION

I. Claim Construction

The "ultimate issue of the proper construction of a claim" is "a question of law." *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 839 (2015). "[W]hen the district court reviews only evidence intrinsic to the patent (the patent claims and specifications, along with the patent's prosecution history), the judge's determination will amount solely to a determination of law, and the

Court of Appeals will review that construction de novo." *Id*. at 841. "[S]ubsidiary factfinding in patent claim construction" is reviewed for "clear error." *Id*. at 840.

"The process of construing a claim term begins with the words of the claims themselves." *Virnetx, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1316 (Fed. Cir. 2014). However, the claims "do not stand alone. Rather, they are part of 'a fully integrated written instrument,' . . . consisting principally of a specification that concludes with the claims." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 978 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996)). "For that reason, claims 'must be read in view of the specification, of which they are a part.'" *Phillips*, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 979). Indeed, the specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

In this case, the district court relied primarily on statements in the '678 patent's specification when construing the claims and expressly declined to rely on testimony from Rembrandt's expert that contradicted the claims' meaning established by the intrinsic record. *See* J.A. 5–6. We agree with the district court that the intrinsic evidence clearly limits the scope of the '678 patent's invention to automatic recovery. We likewise agree with the district court's decision to disregard testimony from Rembrandt's expert that contradicts the claims' meaning established by the intrinsic evidence. *Vitronics*, 90 F.3d at 1583.

The asserted claims do not recite the word "automatic" or any variation thereof and do not appear to require automated recovery when read in isolation. However, as explained in *Phillips*, claims should be construed in

conjunction with the specification. In *Verizon Services Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007), we held that, when a patent "describes the features of the 'present invention' as a whole, this description limits the scope of the invention." The '678 patent repeatedly characterizes the recovery process of the "present invention" as being "automated."

For example, the patent's abstract explains that "the bootstrap process of the present invention can be augmented with ***automated*** recovery procedures" (emphasis added).

In defining the field of the invention, the patent states: "[t]his invention relates to an architecture for initializing a computer system and more particularly to a secure bootstrap process and ***automated*** recovery procedure." '678 patent col. 1 ll. 23–25 (emphasis added).

In addition, the Summary of the Invention explains that the total cost of ownership is reduced "through ***automatically*** detecting and repairing integrity failures, thereby permitting the user to continue to work without the nuisance of a trouble call to support staff and the associated down time." *Id.* col. 4 ll. 60–65 (emphasis added).

Finally, the Detailed Description of the Preferred Embodiments describes only a single embodiment of the claimed recovery functionality—referred to as "AEGIS." This embodiment recovers from an integrity failure automatically, without human intervention. According to the specification, "***[a]utomatically*** detecting and repairing integrity failures," using AEGIS, "permits the user to continue to work without the nuisance of a trouble call to the support staff and the associated down time spent waiting." *Id.* col. 20 ll. 45–48. Elsewhere, the specification explains that the invention's "entire" AEGIS recovery process "occurs without user intervention." *Id.* col. 6 l. 24, *see also* col. 10 l. 8 ("This entire [AEGIS boot] process

occurs ***without user intervention***.") (emphasis added). The clear takeaway from reviewing the '678 patent is that its process for detecting and recovering failed boot components is necessarily an automated one, i.e., conducted without human intervention.

That understanding of the patent is reinforced by its criticism of prior art recovery methods that involved human intervention. In *Poly-America, L.P. v. API Industries, Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016), we acknowledged that "an inventor may disavow claims lacking a particular feature when the specification distinguishes or disparages prior art based on the absence of that feature." *See also Openwave Sys., Inc. v. Apple Inc.*, 808 F.3d 509, 513 (Fed. Cir. 2015); *SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1317 (Fed. Cir. 2015). This case presents such a situation. The '678 patent disparages prior art recovery procedures that "required human interaction." *See* '678 patent col. 3 ll. 42–45. For example, the '678 patent discusses a prior art procedure that requires a user to boot from a floppy disk and explains that this procedure is "inferior to the present invention," because repairing corrupted boot components using unverified floppy disks may introduce "unauthorized" software into the system. *Id.* col. 3 ll. 45–57. "This is in contrast to the present invention [of the '678 patent] which provides automatic recovery of all of the bootstrap components including ROM chips." *Id.* col. 3 ll. 57–59. According to the '678 patent, avoiding human participation makes the '678 patent's recovery process more secure in comparison to prior art methods.

Rembrandt argues that there is no clear and unmistakable disclaimer because the '678 patent refers to the terms "human interaction" or "user intervention" only three times, and none of these references literally proclaims a disclaimer of claim scope. But disclaimer does not require express statements by the patentee identifying the surrendered claim scope. Rather, it may be im-

plicit, so long as it is sufficiently clear. *See, e.g., Straight Path IP Grp., Inc. v. Sipnet EU S.R.O.*, 806 F.3d 1356, 1361 (Fed. Cir. 2015).

The clear, repetitive, and uniform nature of the '678 patent's description of the automated recovery process, in combination with its rejection of prior art methods that require some human involvement, "limit[] the scope of the invention." *Verizon*, 503 F.3d at 1308; *see also Honeywell Int'l, Inc. v. ITT Indus., Inc.*, 452 F.3d 1312, 1318 (Fed. Cir. 2006) ("On at least four occasions, the written description refers to the fuel filter as 'this invention' or 'the present invention' . . . . The public is entitled to take the patentee at his word and the word was that the invention is a fuel filter.").

According to Rembrandt, the specification describes human intervention as falling within the scope of what the patent describes as automatic recovery. Rembrandt points to a statement in the specification that, "[o]nce the repair is completed [by the claimed recovery process], the system is restarted (warm boot) to ensure that the system boots." Open. Br. 32 (quoting '678 patent col. 10 ll. 6–8). Rembrandt then argues that the aforementioned "warm boot" is defined in the specification as resulting from user intervention—specifically, a user's simultaneous pressing of the ctrl, alt, and del keys. *Id.* (citing '678 patent col. 8 ll. 3–5). However, this latter portion of the specification merely describes prior art methods for invoking a POST on an IBM PC and does not suggest that the ctrl-alt-del command is the only way to initiate a warm boot. *See* '678 patent col. 7 l. 63 – col. 8 l. 5. Indeed, the warm boot that takes place after completion of the claimed recovery

process is initiated "without user intervention," as described in the specification. *Id.* col. 10 l. 8.[1]

Referring to the patent's abstract, Rembrandt notes that it uses permissive language to explain that "the bootstrap process of the present invention ***can be augmented*** with automated recovery procedures." Open. Br. 33 (quoting '678 patent abstract). Rembrandt argues that automation of the recovery process is therefore optional in view of this language. Apple responds that the abstract does not define automation as an optional feature, but instead describes ***recovery*** as an optional "addition to the integrity check." *See* Resp. Br. 35. As noted by Apple, the "can be augmented" language refers to optional augmentation of the verification functionality with recovery functionality, with the latter always being "automated" when it is included.[2]

Rembrandt contends that the district court "overlooked" several examples of human intervention discussed in the specification. Open. Br. 35. For example, Rembrandt refers us to the following excerpt:

> In each case, AEGIS attempts to recover from a trusted repository, step 298, as discussed below. Should a trusted repository be unavailable after several attempts, then the client's further action depends on the security policy of the user. For instance, a user may choose to continue operation in

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[1]   Moreover, the fact that a warm boot takes place after completion of the claimed recovery process is irrelevant to whether the recovery process may include human involvement, because whatever takes place ***after*** the recovery process cannot reasonably be considered to be a part of that process.

[2]   All of the asserted claims require recovery.

> a limited manner or may choose to halt operations altogether.

Open. Br. 36 (quoting '678 patent col. 10 ll. 19–25). Rembrandt contends that this passage "requires the user to choose how to proceed" when the trusted repository cannot be reached for a replacement component, and leaves open the possibility that the user may be able to "finish the recovery process" after intervention. Open. Br. 36. However, as Apple points out, the above-quoted portion of the specification does not describe any recovery process. It therefore falls outside the scope of the claims, because no component is recovered if the system is halted or if a defective boot component is simply ignored and the system operates in a limited manner. Moreover, Rembrandt cites no evidence to support its speculation that recovery could be completed after further user intervention.

Rembrandt also calls our attention to the specification's discussion of manual repair of ROM chips. The relevant excerpt reads:

> Automatically detecting and repairing integrity failures permits the user to continue to work without the nuisance of a trouble call to the support staff and the associated down time spent waiting. A system administrator can monitor the log of the AEGIS trusted repository and identify those workstations that require "hands on" repairs, e.g. ROM failure, and schedule the work to be done when the user is not using the computer.

'678 patent col. 20 ll. 45–52. Rembrandt argues that the above-quoted statements, in combination with the specification's teaching that "the present invention . . . provides automatic recovery of all of the bootstrap components[,] including ROM chips," indicate that manual repairs are encompassed within the patent's conception of "automatic recovery." Open. Br. 37 (quoting '678 patent col. 3 ll. 57–

59). As argued by Apple, however, the referenced "hands on" repairs are simply "additional work, separate from recovery," that have nothing to do with the claimed recovery process. Resp. Br. 43. The preambles of the patent's independent claims 1 and 4 respectively recite "[a]n architecture for *initializing* a computer system" and "[a] method for *initializing* a computer system." '678 patent col. 21 l. 38, col. 22 l. 19 (emphases added). Hands-on repair of ROMs, which are hardware components requiring physical removal, *see id.* col. 12 ll. 14–16, would not occur while the computer is "initializing," as recited in the claims' preambles, but would instead occur during "schedule[d]" downtime. *See id.* col. 20 ll. 48–52. Moreover, the specification repeatedly distinguishes recovery processes that require downtime from the '678 patent's invention. *See, e.g.*, '678 patent col. 4 ll. 60–65 (describing a prior art embodiment that required "a trouble call to support staff" and associated downtime).

In Rembrandt's view, the U.S. Patent and Trademark Office (PTO) "believed the claimed 'recovery' included human activity, and the inventors never disagreed" during prosecution of the application that led to the '678 patent. Open. Br. 38. The PTO rejected claims of the '678 patent over a prior art U.S. patent to Bramnick, which, according to Rembrandt, used a recovery process that required human intervention.   The inventors did not distinguish Bramnick on the basis that it used a non-automatic recovery procedure. Thus, Rembrandt urges that "the inventors tacitly agreed by not distinguishing the art on this basis" that non-automatic processes fall within the scope of the claims. Apple responds that (1) Rembrandt waived this argument by not raising it before the district court and, (2) even if the argument were preserved, Rembrandt is wrong when it says that Bramnick used a non-automatic recovery procedure. We agree with Apple on the latter point and therefore decline to resolve the waiver dispute.   The relevant portions of

Bramnick cited in the PTO's rejection disclose an automated recovery procedure. *See, e.g.*, J.A. 1902, col. 3 ll. 13–15 (stating that it is an "object of the [Bramnick] invention to recover from a failure during a boot process without user intervention"); *see also id.* col. 3 ll. 24–35 (describing Bramnick's recovery process as designed to automatically recover a computer to a functional state such that, ***after*** recovery, a user may manually perform other tasks).

Finally, Rembrandt argues that the specification's disparagement of non-automated recovery processes is "[m]ere criticism of a particular embodiment encompassed in the plain meaning of a claim term." Open. Br. 32 (quoting *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012)). We disagree. The exclusion of non-automated recovery processes is inextricably interwoven into descriptions of the primary purposes of the invention and how the invention overcomes problems in the prior art. Under these circumstances, where the patent clearly distinguishes non-automated processes from the '678 patent's invention and makes clear that non-automated processes do not accomplish the invention's stated objectives of improved security and lower cost of ownership, the district court correctly construed the claims to require automated recovery.[3]

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[3] The district court opined that the claims would be invalid for lack of written description if they covered non-automatic recovery. *See* J.A. 12–13. Rembrandt argues that the district court's decision on this issue credited an argument raised by Apple for the first time in its reply brief in support of its motion for summary judgment, and that we should consider the argument waived. *See* Open. Br. 45–46; Resp. Br. 52–54. We do not rely on Apple's written description argument in reaching our decision on claim construction.

II. Infringement

A. Literal Infringement

We apply a two-step analysis to determine whether accused devices literally infringe a patent's claims. First the patent's claims are "construed to determine their scope." *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1330 (Fed. Cir. 2001). Second, "the claims must be compared to the accused device." *Id.* "Literal infringement exists when every limitation recited in the claim is found in the accused device." *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1341 (Fed. Cir. 2016). "[O]n appeal from a grant of summary judgment of noninfringement, we must determine whether, after resolving reasonable factual inferences in favor of the patentee, the district court correctly concluded that no reasonable jury could find infringement." *Brilliant Instruments, Inc. v. GuideTech, LLC*, 707 F.3d 1342, 1344 (Fed. Cir. 2013).

Rembrandt argues that, even if the district court adopted the correct claim construction, summary judgment of no literal infringement was improper, because Apple's recovery process does not involve human interaction. The recovery process in Apple's mobile devices starts "when the user chooses, in iTunes, to begin a software restore of an attached device" and completes without any further user involvement. Open. Br. 49 (quoting testimony from Apple's corporate representative). Rembrandt asserts that a user's initiation of Apple's recovery process is not part of recovery and, therefore, that the entire recovery process is automated. The '678 patent, however, expressly distinguishes user-initiated recovery processes from the '678 patent's fully-automated process when it disparages prior art procedures that initiate recovery only after a user inserts and boots from a floppy disk.

Rembrandt contends that waiting for user action after detecting a failure, as done in Apple's accused recovery process, is "consistent with an embodiment in the specification"—specifically, the embodiment discussed, *supra,* that looks to a user's "security policy" to determine what to do after a trusted repository cannot be contacted to complete recovery. Open. Br. 51–52 (quoting '678 patent col. 10 ll. 21–23). However, as already discussed, the aforementioned embodiment falls outside the scope of the claims because no component is recovered if the system is halted or if a defective boot component is simply ignored while the system operates in a limited manner.

Finally, Rembrandt argues that a user's actions to initiate Apple's recovery process "do not jeopardize the integrity of the bootstrap process." *Id.* at 53. This may be true, but it does change the meaning of "automatic" as understood in the context of the specification, which describes the invention as, *inter alia,* eliminating downtime associated with waiting for human intervention. Apple's process does not eliminate downtime associated with human intervention. As the district court stated, the term "automatic," in the context of the '678 patent's specification, requires "a recovery process that begins, proceeds, and finishes without user intervention." J.A. 13. Apple's accused recovery process does not begin without user intervention and, therefore, no reasonable jury could conclude that Apple's products literally infringe the asserted claims of the '678 patent.

B. Infringement Under the Doctrine of Equivalents

"[A] product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997). "What constitutes equivalency must be deter-

mined against the context of the patent, the prior art, and the particular circumstances of the case." *Id.* at 24 (quoting *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950)).

"Infringement may be found under the doctrine of equivalents if every limitation of the asserted claim, or its 'equivalent,' is found in the accused subject matter, where an 'equivalent' differs from the claimed limitation only insubstantially." *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1315 (Fed. Cir. 1998). "Whether a component in the accused subject matter performs substantially the same function as the claimed limitation in substantially the same way to achieve substantially the same result may be relevant to this determination." *Id.*

We have also explained that "the concept of equivalency cannot embrace a structure that is specifically excluded from the scope of the claims." *Dolly, Inc. v. Spalding & Evenflo Cos.*, 16 F.3d 394, 400 (Fed. Cir. 1994). An argument under the doctrine of equivalents fails if it "renders a claim limitation inconsequential or ineffective." *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1342 (Fed. Cir. 2016). As the Supreme Court instructed, "if a theory of equivalence would entirely vitiate a particular claim element, partial or complete judgment should be rendered by the court, as there would be no further material issue for the jury to resolve." *Warner-Jenkinson*, 520 U.S. at 39 n.8.

Rembrandt largely parrots arguments supplied by its expert, Dr. Tygar, in arguing infringement under the doctrine of equivalents.[4] Open. Br. 54–55. Dr. Tygar

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[4] Rembrandt argues that Apple waived any argument that its devices do not infringe under the doctrine of equivalents. *See* Open. Br. 24 n.9; *see also id.* at 55

notes that the only user interaction required during either of Apple's two recovery processes is connection of a corrupted device to iTunes and clicking on a button in a pop-up message box. J.A. 1239. According to Dr. Tygar: "Requiring a user to plug a device into a computer running iTunes and confirm to proceed with a recovery is an insubstantial difference to requiring an 'automatic' recovery without involving plugging in the product or asking for the user's confirmation to proceed." *Id.* Dr. Tygar also opines that the accused devices accomplish recovery (the same function) using automation (the same way) to restore a device (the same result) as the methodology claimed in the '678 patent. *Id.* at 1239–40.

Dr. Tygar cites the '678 patent's embodiment that looks to a user's "security policy" to determine what to do when a trusted repository cannot be contacted to complete recovery and argues that this embodiment is "consistent with" Apple's process. As already discussed, this is not an embodiment of the claimed invention. Dr. Tygar provides no other explanation for why or how Apple's non-automated process is performed in the same way as the claimed process. In *Augme Techs., Inc. v. Yahoo! Inc.*, 755 F.3d 1326, 1336 (Fed. Cir. 2014), we held that conclusory expert testimony on the "way" prong of the function-way-result test was insufficient, by itself, to create a genuine issue of material fact on the issue of infringement

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(arguing Apple "did not contest" Dr. Tygar's opinions on the doctrine of equivalents). We disagree. In Apple's motion for summary judgment, Apple argued that there was insufficient evidence of infringement of any kind. J.A. 1041. Rembrandt responded with specific arguments under the doctrine of equivalents. J.A. 1160–61. Apple responded to Rembrandt's arguments in its reply brief. J.A. 1384–85. The district court did not find waiver, and neither do we.

by equivalents. *See id.* ("[E]ven if the testimony were of proper scope, it is conclusory, stating only that the product would 'operate the same,' 'perform [the functions described in the patent] in essentially the same way,' and 'would [produce] the same result.' It offers no explanation beyond these conclusory statements." (citation omitted)). As in *Augme*, conclusory testimony from Dr. Tygar on the "way" prong is insufficient to create a genuine issue of material fact for trial regarding infringement by equivalents. *Cf. Perkin–Elmer Corp. v. Westinghouse Elec. Corp.*, 822 F.2d 1528, 1532 n.6 (Fed. Cir. 1987) ("That a claimed invention and an accused device may perform substantially the same function and may achieve the same result will not make the latter an infringement under the doctrine of equivalents where it performs the function and achieves the result in a substantially different way.").

Rembrandt argues that "Apple has made an 'unimportant and insubstantial' change" to the '678 patent's claimed process and is "engaged in precisely the conduct the doctrine of equivalents evolved to prohibit." Open. Br. 58 (quoting *Graver Tank*, 339 U.S. at 607). We do not view Apple's choice to involve its users in the recovery process as an unimportant or insubstantial change. Apple's non-automated procedure runs counter to at least one of the stated purposes of the invention: to lower the cost of ownership by eliminating downtime associated with non-automated recovery. Rembrandt would have us ignore this clearly articulated purpose of the invention, as well as the specification's explanation of how the invention achieves this purpose by automating the recovery process. This would be improper.

In *J & M Corp. v. Harley-Davidson, Inc.*, 269 F.3d 1360, 1366 (Fed. Cir. 2001), we held that "[t]he scope of equivalents may . . . be limited by statements in the specification that disclaim coverage of certain subject matter." This case presents such a scenario. Rembrandt

cannot recapture under the doctrine of equivalents what the specification clearly gives up. *See Augme Techs., Inc. v. Yahoo! Inc.*, 755 F.3d 1326, 1335 (Fed. Cir. 2014) ("Augme's arguments that the Combined RMX Module is equivalent to the embedded first code module are essentially identical to its claim construction arguments: namely that linked code can fall within the definition of embedded code. No reasonable jury could find equivalence here because doing so would require a determination that embedded code is substantially the same as linked code—the very thing that the construction of 'embedded' excludes."). As in *Augme*, the claims of the '678 patent, when properly construed, exclude the accused functionality from their coverage. Therefore, Rembrandt's arguments that the district court made improper factual findings and that there are disputed issues of fact regarding infringement under the doctrine of equivalents are unavailing. No reasonable jury could find infringement by equivalents, because no reasonable jury could find that Apple's non-automated recovery is substantially the same as the '678 patent's automated recovery. Moreover, because such a finding would "entirely vitiate a particular claimed element," there can be no infringement by equivalents. *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 843 F.3d 1315, 1344 (Fed. Cir. 2016) (quoting *Lockheed Martin Corp. v. Space Systems/Loral, Inc.*, 324 F.3d 1308, 1321 (Fed. Cir. 2003)) (holding that a limitation required by the proper construction of claim terms would be vitiated if the jury's finding of infringement by equivalents were upheld).

We have considered Rembrandt's other arguments and find them to be unpersuasive.[5]

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[5]   Rembrandt states in its opening brief: "If the Court remands this case, Rembrandt respectfully requests reassignment   to   a   different   district   judge."

CONCLUSION

Because the district court did not err in its claim construction and noninfringement rulings, the district court's judgment is

AFFIRMED

COSTS

No costs.

See Open. Br. 58. Because we affirm the district court, Rembrandt's request for reassignment, which is contingent on there being a "remand," appears to be moot. Moreover, having reviewed Rembrandt's arguments and the pertinent portions of the record, we conclude that reassignment is, in any event, unwarranted. *See Int'l Rectifier Corp. v. Samsung Electronics Co.*, 424 F.3d 1235, 1244 (Fed. Cir. 2005) (applying Ninth Circuit law). We therefore deny Rembrandt's request for reassignment.