NOTE: This disposition is non-precedential.

United States Court of Appeals for the Federal Circuit

CLEARWATER SYSTEMS CORP.,
Plaintiff-Appellant,

v.

EVAPCO, INC. AND JOHN W. LANE,
Defendants-Appellees,

AND

BULLOCK, LOGAN & ASSOCIATES, INC.,
Defendants-Appellees,

2009-1284

Appeal from the United States District Court for the District of Connecticut in Case No. 3:05-CV-507, Judge Stefan R. Underhill.

Decided: August 30, 2010

PAUL GRANDINETTI, Levy & Grandinetti, of Washington, DC, argued for plaintiff-appellant.

ALEXANDER J. HADJIS, Morrison & Foerster LLP, of Washington, DC, argued for defendants-appellees

Evapdo, Inc. and John W. Lane. With him on the brief were BRIAN R. MATSUI, and MATTHEW J. VLISSIDES.

Before GAJARSA, MAYER, and CLEVENGER, *Circuit Judges*.

GAJARSA, *Circuit Judge*.

This is a patent infringement case that commenced as a trade secret dispute between two competitors in the non-chemical water treatment business. Clearwater Systems Corporation ("Clearwater") brought an action in the U.S. District Court for the District of Connecticut ("district court") against Evapco, Inc. ("Evapco"), as well as John W. Lane, a former Clearwater employee who was hired by Evapco, and Bullock, Logan & Associates ("Bullock"), a marketing consultant that provided marketing services for Clearwater and Evapco. Clearwater sought injunctive relief for alleged theft of trade secrets and other state business law torts. The district court concluded that Clearwater's allegedly misappropriated information were not trade secrets under the Connecticut Uniform Trade Secrets Act and denied Clearwater's request for a permanent injunction. *Clearwater Sys. Corp. v. Evapco, Inc.*, No. 3:05-CV-507, 2005 WL 3543717, at *14 (D. Conn. July 26, 2005).

Prior to the resolution of the trade secrets claim, Evapco counterclaimed for a declaratory judgment that its "Pulse-Pure" product did not infringe two of Clearwater's patents, U.S. Patent No. 6,063,267 ("'267 patent"), disclosing an apparatus for non-chemical water treatment, and U.S. Patent No. 6,641,739 ("'739 patent"), disclosing a method of non-chemical water treatment. Evapco also counterclaimed for a declaration of invalidity and/or unenforceability of the '267 and '739 patents. In response, Clearwater amended its complaint to assert a claim of

patent infringement against Evapco, alleging that the Pulse-Pure infringed the '267 and '739 patents.

The parties subsequently submitted cross-motions for summary judgment of literal infringement of the '267 patent and invalidity of the '267 and '739 patents. After hearing arguments relating to the motions, the district court ruled that the '267 patent is not invalid for anticipation, but concluded that the '739 patent is invalid because it is inherently anticipated by the '267 patent. *Clearwater Sys., Corp. v. Evapco, Inc.*, 596 F. Supp. 2d 291, 313 (D. Conn. 2009). Furthermore, the district court ruled that the Pulse-Pure does not literally infringe the '267 patent and *sua sponte* ruled that the Pulse-Pure does not infringe the '267 patent under the doctrine of equivalents. *Id.* at 302, 308. For the reasons discussed below, we vacate and remand for proceedings consistent with this opinion.

BACKGROUND

The '267 patent discloses an apparatus for purifying liquids, such as water, crude oil, metal working fluid, or any other liquid containing undesired microorganisms and/or dissolved solids, by treating the liquid with electromagnetic flux. '267 patent col.1 ll.5-10. The treatment prevents minerals in the liquid from forming scale on internal surfaces of pipes or other equipment. *Id.* at col.1 ll.8–11. The treatment also reduces or eliminates any living microorganisms contained in the liquid. *Id.* at col.1 ll.12–14. The treatment is intended to replace purification by using chemicals that are added to circulated water or other liquids. Non-chemical water treatment devices generating electromagnetic flux were well known in the prior art, but unlike the claimed inventions, they produced electromagnetic flux that was "weak" and of "small effectiveness." *Id.* at col.1 ll. 28–53. The claimed inven-

tion produces a stronger electromagnetic flux thereby achieving better and more effective operational results. *Id.* at col.1 ll.54–63.

The disclosed device claims to generate a stronger electromagnetic flux, an improvement over the prior art, by producing successive periods of ringing flux. *Id.* The ringing flux is produced by alternating the electrical power between a set of half cycles of positive voltage and a set of half cycles of negative voltage created by switching these cycles at an optimum time. *Id.* at col.1 l.66–col.2 l.16. Unlike the prior art diode devices, which interrupt the current flow at the very end of a supply voltage half-cycle (*i.e.*, near zero current), the claimed invention interrupts the current flow to the induction coils at any point along the supply voltage waveform. *Id.* According to the written description, interruption of the current flow to the induction coils when the amplitude of the current is relatively high, as opposed to interruption at near zero amplitude, results in a stronger electromagnetic flux. *Id.* The operation of the claimed system is shown in Figure 6 from the '267 patent, where the gated switch is controlled to open and stop the current from flowing into the coils well in advance of the coil current returning to zero. *Id.* at Fig. 6; *see also id.* at col.5 l.49–col.6 l.9. In contrast to a prior art diode, the circuit opens and the current is stopped shortly after the coil current returns to zero amplitude.

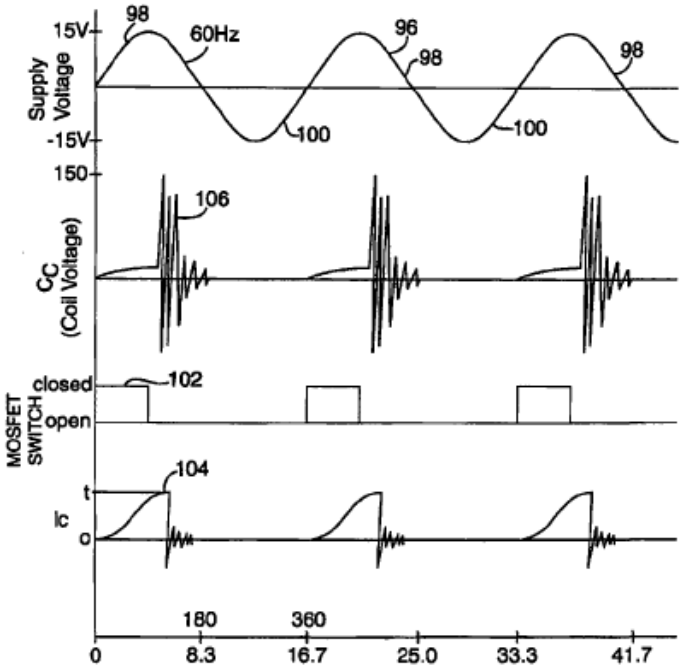

FIG. 6

The claimed invention uses a gated component, or a "switch," such as a triode or other transistor, which is activated at an optimum point to generate a more powerful electromagnetic flux. *Id.* at col.4 ll.9–55. The switch can be selectively turned on and off to interrupt the current flowing to the induction coils anywhere along the supply voltage waveform. *Id.* Additional circuitry is required to toggle the switch on and off at the appropriate time. *Id.* The circuitry operates in conjunction with the "switch" to conduct and then interrupt the current flow to the coils. *Id.* Figure 5 in the '267 patent shows a depiction of the circuitry that operates in conjunction with the "switch," labeled 82 below. *Id.* at col.4 ll.36–42.

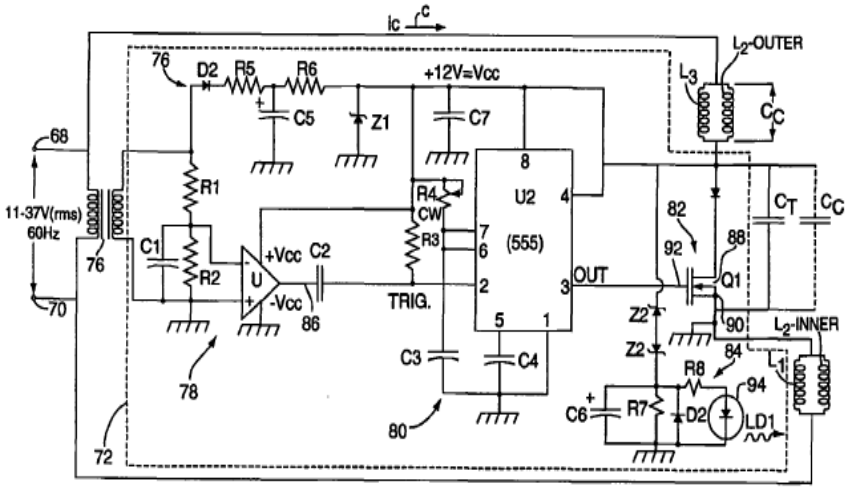

FIG. 5

In this action, Clearwater asserts infringement of a single claim, claim 21 of the '267 patent. The relevant language of claim 21 is reproduced below.

> An apparatus for treating flowing liquid with electromagnetic flux and to be *powered by a source* of alternating current electrical power wherein a set of half cycles of positive voltage alternate with a set of half cycles of negative voltage, said apparatus comprising:
>
> a pipe for conducting a flow of liquid, a plurality of electrical coils surrounding said pipe, means providing a given capacitance, *a switch* having a first and second terminals having open and closed conditions relative to one another, *connecting means* for connecting said coils, given capacitance and switch to one another and to *said power source* such that during each

> half cycle of at least one of said two sets of half cycles. . . .

Id. at col.9 l.20–col.10 l.4 (emphases added to disputed claim terms).

In comparison to the '267 patent, the '739 patent discloses a method for non-chemical treatment and purification of liquids with repeated bursts of electromagnetic flux to produce a stabilized oxidizing agent. '739 patent col.1 ll.8–12. The claimed method may be used for any liquid, but is particularly suited for purifying water that contains undesired bacteria and/or other microorganisms. *Id.* at col.1 ll.12–16. The claimed method exposes liquid to successive bursts of ringing magnetic flux for a period sufficient to form a stabilized oxidizing agent. *Id.* at col. 8 ll.56–64. The stabilized oxidizing agent reacts with the microorganisms by oxidizing components of the cell structure to either quickly kill the microorganisms or to cause a major sub-lethal injury that reduces the microorganism population. *Id.* at col.2 ll.5–10. Claims 1 through 9 of the '739 patent require that the stabilized oxidizing agent be produced in "a concentration sufficient to have a biocidal effect" on the microorganisms in the liquid. *Id.* at col.8 ll.56–64. Representative claim 1 of the '739 patent is reproduced below.

> A method of making an oxidizing agent comprising the steps of:
>
> providing a magnetic field in the form of successive bursts of ringing magnetic flux; and
>
> exposing a liquid to the bursts of magnetic flux for a period sufficient to form a stabilized oxidizing agent in a concentration sufficient to have a biocidal effect on microorganisms in the liquid.

The accused infringing device in this action is Evapco's Pulse-Pure product. The Pulse-Pure is a water treatment system for controlling bacterial growth in recirculated water and preventing the formation of mineral scale. The Pulse-Pure performs the water treatment by generating short, high-frequency bursts of electromagnetic fields. The Pulse-Purse device consists of two distinct coil configurations. The first configuration is referred to as the "low frequency" coils. The second configuration is referred to as the "high frequency" coils. The low frequency coils are comprised of four individual coils; the two outer coils are connected and the two inner coils are connected. Each pair of the low frequency coils is connected to a separate diode and capacitor. The low frequency coils use diodes to interrupt the current to its coils during each alternating cycle. However, the high frequency coils, comprising of two individual coils, are powered by a source that generates a high frequency signal to those coils. The duration of the high frequency fields can be controlled by applying and selectively interrupting the current input. The high frequency coils generate magnetic flux lasting a longer period of time, thus exposing the water to a higher degree of high frequency flux. While the high frequency flux created by the prior art devices lasted less than one minute per hour, the flux generated by the Pulse-Pure high frequency coils can be operated to continue treating the water for approximately twenty minutes per hour.

On July 1, 2008, the parties filed cross-motions for summary judgment of non-infringement of the '267 patent and invalidity of the '267 and '739 patents. After oral argument on the motions, the district court ruled that the '267 patent is not invalid for anticipation by the asserted prior art. *Clearwater Sys.*, 596 F. Supp. 2d at 308-09. However, the district court ruled that the method of the

'739 patent is inherently anticipated by the disclosure of the '267 patent. *Clearwater Sys.*, 596 F. Supp. 2d at 313. The district court also ruled that the Pulse-Pure does not meet the "power source," "connecting means," or "switch" limitations and, therefore, does not literally infringe the '267 patent. *Id.* at 302. Although the parties did not file motions relating to infringement under the doctrine of equivalents, the district court *sua sponte* ruled that the Pulse-Pure does not infringe the '267 patent under the doctrine of equivalents. *Id.* at 308. Clearwater appeals the district court's rulings of invalidity of the '739 patent and non-infringement of claim 21 of the '267 patent. We have jurisdiction to review the district court's final decision pursuant to 28 U.S.C. § 1295(a).

DISCUSSION

We review the district court's summary judgment ruling *de novo*. *Ethicon Endo-Surgery, lnc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1315 (Fed. Cir. 1998). Summary judgment is appropriate only when there are no genuine issues of material fact and the moving party is entitled to judgment as a matter of law. *See* Fed. R. Civ. P. 56(c). This court has stated that "[i]n determining whether there is a genuine issue of material fact, the evidence must be viewed in the light most favorable to the party opposing the motion, with doubts resolved in favor of the opponent." *Ethicon*, 149 F.3d at 1315. When a motion for summary judgment is properly supported by documentary and testimonial evidence, however, the nonmoving party may not rest upon mere allegations or denials of his pleadings, but rather must present significant probative evidence to establish a genuine issue of material fact. *Celotex Corp. v. Catrett*, 477 U.S. 317, 327 (1986).

I.

We begin with the district court's summary judgment ruling that the '739 patent is invalid. In moving for summary judgment, Evapco argued that the '739 patent claims methods that are inherently anticipated by several prior art references. The alleged anticipatory references are the '267 patent, several prior art devices that practice the '267 patent, and an article published by Dr. Dennis Opheim, one of the inventors of the '739 patent.[1] The district court ruled that both the dependent and independent claims of the '739 patent are inherently anticipated by the '267 patent. *Clearwater Sys.*, 596 F. Supp. 2d at 313. The district court relied on the written description of the '739 patent, which contains a description of the invention of the '267 patent and compared that description to the claims of the '739 patent. Specifically, the district court concluded that "[t]he text of the '739 [p]atent specification makes clear that inherent in the '267 [p]atent, when practiced, is the method and results claimed in the '739 [p]atent." *Id.* (alterations added). The district court did not address either the prior art devices or Dr. Opheim's article in its ruling.

On appeal, Clearwater argues that the district court conducted an erroneous inherent anticipation analysis by failing to properly compare the '739 patent with the asserted prior art. We agree. An anticipation analysis "requires that a prior art reference disclose every limitation of the claimed invention, either explicitly or inherently." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 481 F.3d

[1] Dr. Opheim's article is entitled "The Effect of Pulse-Power Technology on the Microbial Content and Biofilm Formation in Evaporative Cooling Towers" and was presented at the May 2000 Annual General Meeting of the American Society of Microbiology.

1371, 1381 (Fed. Cir. 2007). Thus, a proper anticipation analysis requires a comparison of the claims of the allegedly invalid patent to the disclosure of the prior art.

In this case, the district court performed an erroneous anticipation analysis. Specifically, the district court erred in comparing the claim language of the '739 patent with the description of the '267 patent contained in the written description of the '739 patent. This comparison is erroneously premised; the correct comparison is the actual claim language in both patents, not how the later patent describes the earlier patent. In other words, the district court erroneously found the '739 patent was anticipated by its own written description. Thus, we remand for a proper claim-by-claim analysis between the allegedly anticipated claims and the prior art reference. The district court also erred in ruling that the dependent claims of the '739 patent are inherently anticipated by the '267 patent. The district court invalidated the dependent claims in a single footnote, stating:

> Because the dependent claims of the '739 patent are narrower than the independent claims on which they depend, they *cannot be valid* if the independent claims - claims 1, 10 and 16 - are invalid. Accordingly, this discussion is limited to the independent claims of the '739 patent.

Clearwater Sys., 596 F. Supp. 2d at 310 n.5 (emphasis added). This is clear error. The law is premised on the basis that "each claim of a patent is 'presumed valid independently of . . . the other claims' and 'dependent . . . claims shall be presumed valid even though dependent upon an invalid claim.'" *Apple Computer, Inc. v. Articulate Sys., Inc.*, 234 F.3d 14, 24 (Fed. Cir. 2000) (citing 35 U.S.C. § 282). The district court failed to independ-

ently analyze the dependent claims to determine whether they are anticipated by the '267 patent. Accordingly, we vacate the judgment of inherent anticipation for all claims of the '739 patent and remand for proceedings consistent with this opinion.

II.

Next, we review the district court's summary judgment ruling of non-infringement. The district court concluded that the Pulse-Pure does not literally infringe the '267 patent as a matter of law. Specifically, the district court concluded that there were no issues of material fact relating to literal infringement of the following three claim terms in the '267 patent: (1) "said power source," (2) "connecting means," and (3) "switch." *Clearwater Sys.*, 596 F. Supp. 2d at 302-06. For the reasons discussed below, the district court erred in granting summary judgment of non-infringement.

Clearwater asserted infringement of claim 21 of the '267 patent. The relevant claim language of claim 21 is reproduced below.

> An apparatus for treating flowing liquid with electromagnetic flux and to be *powered by a source* of alternating current electrical power wherein a set of half cycles of positive voltage alternate with a set of half cycles of negative voltage, said apparatus comprising:
>
> a pipe . . ., a plurality of electrical coils . . ., a means for providing capacitance. . . , a switch . . ., [and] connecting means for connecting said coils, given capacitance and switch to one another and to *said power source* such that during each half

> cycle of at least one of said two sets of half cycles . . . .

'267 patent col.9 l.20–col.10 l.4 (emphases added to disputed claim terms).

On appeal, Clearwater argues that the district court erred in its claim construction when it improperly imported unclaimed functions into the disputed claim limitations. We agree. The district court determined that the "power source" in the body of claim 21 referred to the same power source as in the preamble of the claim; *i.e.*, the "powered by a source" limitation. *Clearwater Sys.*, 596 F. Supp. 2d at 301. Based on the preamble language, the district court concluded that claim 21 required that the "power source" directly power the entire apparatus. *Id.* Clearwater argued that the "power source" could mean any type of power source anywhere in the apparatus—including a power source found within the apparatus that powers only a portion of the apparatus, such as the coils. The district court rejected this claim interpretation and concluded that "said power source" must power the entire apparatus. *Clearwater Sys.*, 596 F. Supp. 2d at 301. This ruling is erroneous because it imported an extraneous limitation into the claim.

While the district court was correct that the preamble is limiting because it is necessary to provide context to the claim, *see Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999), it was incorrect in concluding that the "power source" must power the entire apparatus. There is no limiting language in the claims, written description, or prosecution history requiring that the "power source" power the *entire* apparatus. Accordingly, the district court improperly imported an extraneous limitation into the claim. *E.I. du Pont de Nemours & Co. v. Philips Petroleum*, 849 F.2d 1430, 1433 (Fed. Cir.

1998); *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998).

Clearwater's expert, Dr. Horenstein, explained that the "apparatus" of the preamble can refer to either the high or low frequency circuits alone and that the "power source" may power either of these components:

> I do not believe that the requisite antecedent power source described in Claim 21 must be derived from a wall socket. This opinion stems, in part, from the fact that the "apparatus" claimed can be understood to refer to the high-frequency circuit alone, or the low-frequency circuit alone, considered as separate entities. Nothing in the patent precludes this understanding. . . .

We agree. The term "apparatus" may be understood as the high frequency circuit, and there is evidence on the record creating a material issue of fact regarding its power source. The Pulse-Pure contains an integrated circuit, the L293B, which is the power source for the high frequency coils, which is in turn powered by a 60 Hz alternating current. This evidence creates a genuine issue of material fact regarding the "power source" limitation. Thus, the district court improperly granted summary judgment based on the "power source" limitation.

Next, we review the district court's non-infringement ruling based on the term "connecting means." The district court construed the term "connecting means" as follows:

> means for connecting (1) electrical coils (surrounding a pipe for conducting a flow of liquid), (2) capacitance, and (3) a switch to each other, and to (4) a source of alter-

> nating electrical power (wherein a set of half cycles of positive voltage alternate with a set of half cycles of negative voltage), in a manner that performs the functions described following each use of 'such that' in column 10 of the '267 patent.

In its summary judgment ruling, the district court explained that the term "said power source" of the "connecting means" requires that the current flow from "said power source" to the coils during every positive or every negative half cycle of an alternating current cycle. The district court found that Clearwater failed to introduce evidence creating an issue of fact regarding whether the power source in the Pulse-Pure produces a current every positive or every negative half cycle. *Clearwater Sys.*, 596 F. Supp. 2d at 301-02. The district court explained:

> Clearwater cites to its expert's report, which identifies the Pulse-Pure's signal generator (the L293B) as a switch and indicates that the L293B produces current that flows during at least each 16.7 microsecond half period of the L293B current cycle. Clearwater's argument fails because the L293B does not meet the limitation of the power source that claim 21 describes . . . .The claimed power source cannot be infringed, by the L293B signal generator chip, which (even if it otherwise meets the limitations of claim 21) does not power the entire Pulse-Pure device.

Id. at 301. However, Clearwater introduced evidence creating a genuine dispute of material fact, based on Dr. Horenstein's testimony as to whether the L293B produces a current that flows through the coils during at least a

portion of said half cycle, as required by claim 21. The district court improperly dismissed Dr. Horenstein's testimony based on its erroneous finding that the L293B cannot be the "power source" because it does not power the entire device. As explained above, the patent does not require the "power source" to power the entire device. Accordingly, the district court improperly granted summary judgment of non-infringement based on the "connecting means" limitation.

Next, we turn to the district court's non-infringement ruling based on the claim term "switch." The district court construed the term "switch" according to the parties' stipulated construction, which is reproduced below.

> An electrical component that includes a control terminal and at least two additional terminals that pass current through the component. Current is either permitted to flow or prevented from flowing through the additional terminals when different voltage levels are applied to the control terminal.

The district court concluded that the low-frequency coils have no "connecting means" because there are no structures in the circuit connected to a "switch" that meet the functional limitations of claim 21. *Clearwater Sys.*, 596 F. Supp. 2d at 306. However, the district court erred in finding that the Pulse-Pure does not contain a "switch" limitation as a matter of law because the record contains material issues of fact regarding whether the Pulse-Pure contains a "switch."

The district court found that there are no structural components in the Pulse-Pure that "when connected, enable a switch to open and close, controlling and interrupting the flow of current to the device and creating

ringing magnetic flux . . . ." *Id.* As support for its conclusion, the district court cited to a statement from Clearwater that the Pulse-Pure employs diodes to interrupt current to the coils, believing that this fact rules out the use of a "switch." *Id.* (citing Clearwater Rule 56(e)(2) statement at ¶ 70). However, the use of diodes in the Pulse-Pure does not exclude the possibility of an additional component functioning as a "switch" somewhere else in the circuit. Clearwater introduced evidence relating to several components in the circuit—the K3 switch, the ULN2003AN, and the L293B integrated circuit—that function as a "switch" under the district court's construction. For instance, Dr. Horenstein explained that the Pulse-Pure contains the L293B component that functions as a "switch":

> The Pulse-Pure contains another switch as defined by Evapco's proposed construction. This switch is located inside the SGS-Thompson L293B integrated circuit (IC) . . . . This component is used to drive current through coils #5 and #6 via connection points X4-2 and X4-1. The L293B IC is one chip in a family of push-pull channel drivers used as power switches . . . . This driver meets the definition of a switch as proposed by Evapco.

In light of this evidence creating a genuine issue of material fact regarding the "switch" limitation, the district court erred in granting summary judgment. Thus, we vacate the non-infringement ruling and remand to the district court.

Finally, we review the district court's *sua sponte* ruling of non-infringement under the doctrine of equivalents. The district court concluded that the Pulse-Pure does not

infringe claim 21 of the '267 patent, finding that the accused device does not perform "substantially the same functions as those claimed in claim 21." *Clearwater Sys.,* 596 F. Supp. 2d at 308. The district court based its ruling on its erroneous finding that the Pulse-Pure's L293B component cannot satisfy the power source limitation because it does not power the entire device. *Id.* As explained above, this finding regarding the power source limitation is error. Thus, we also vacate the district court's ruling of non-infringement under the doctrine of equivalents and remand.

CONCLUSION

For the foregoing reasons, we vacate and remand for proceedings consistent with this opinion.

VACATED and REMANDED