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STEIN IP, LLC
1990 M STREET, NW
SUITE 610
WASHINGTON, DC 20036

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KLINKEL, KORTNEY L	

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte JOSEPH P. WOOD, MORGAN Q. S. WENDLING, and ANDREW LASTIVKA

_____

Appeal 2019-001453
Application 15/271,946
Technology Center 3600

_____

Before MICHAEL L. HOELTER, ANNETTE R. REIMERS, and LISA M. GUIJT, *Administrative Patent Judges*.

REIMERS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1–6. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as the United States Government, "as represented by the Environmental Protection Agency." Appeal Brief ("Appeal Br.") 1, filed August 24, 2018. We note that the Appeal Brief is not paginated. We refer to the Appeal Brief as if it is numbered consecutively starting from page 1.

The claimed subject matter "relates to the field of soil decontamination." Spec. ¶ 1.[2]

Claim 1, the sole independent claim on appeal, is representative of the claimed subject matter and recites:

> 1. A method of inactivating *B anthracis* spores in a contaminated target environment by:
>
> a) exposing the environment containing said spores to an effective amount of persulfate in solution and an oxidation agent wherein an effective amount is an amount sufficient to produce a LR (Log reduction) of at least 6 wherein LR is the efficiency as under the formula
>
> Efficacy = $(\log_{10}CFUc_{ij})$ - $(\log_{10}CFUt_{ij})$
>
> b) allowing the persulfate solution and oxidation agent to remain in contact with the environment containing said spores until LR of at least 6 has been achieved.

THE REJECTION

Claims 1–6 stand rejected under 35 U.S.C. § 103 as unpatentable over Sethi (US 7,524,141 B2, issued Apr. 28, 2009) and Giletto (US 6,569,353 B1, issued May 27, 2003).

ANALYSIS

Appellant does not offer arguments in favor of claims 2–6 separate from those presented for independent claim 1. *See* Appeal Br. 2–5. We select claim 1 as the representative claim, and claims 2–6 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

[2] Specification ("Spec."), filed Nov. 22, 2016.

Regarding claim 1, the Examiner finds that Giletto discloses "a universal decontamination formulation and method for detoxifying chemical warfare agents (CWA's) and biological warfare agents (BWA's)" in which the formulation "includes sodium and potassium monopersulfate" and an "oxidant [that] is preferably hydrogen peroxide" that is used "against *Bacillus anthracis* spores." Final Act. 4–5[3] (citing Giletto Abstr., 2:23–27, 35–39, 7:43–46). The Examiner further finds that Giletto discloses its formulation "is highly effective at decontaminating spores and 99.999998% are killed in 3 minutes or less," which "resulted in a log reduction of 6.6 of the anthrax spore surrogate," but acknowledges that Giletto's formulation is "referred to throughout the document as 'the gel.'" *Id.* at 5 (citing Giletto col. 20, Example 5, Table 2, Fig. 7). The Examiner, however, finds that Sethi discloses "contaminate removal from an environmental medium, such as contaminated soil by treatment with a combination of a persulfate, such as a sodium persulfate, and hydrogen peroxide" in which "the persulfate is formed into an aqueous solution." *Id.* at 4 (citing Sethi Abstr., 5:36–39). The Examiner reasons given that "Sethi [] teaches that for *in situ* soil treatment, injection rates must be chosen based upon the hydro geologic conditions, i.e. the ability of the oxidizing solution to displace, mix and disperse with existing groundwater and move through the soil," it would have been obvious to combine the teachings of Giletto and Sethi in order to arrive at the claimed invention. *Id.* at 5–6 (citing Sethi 3:37–40).

Appellant contends that "Sethi is primarily concerned about hydrocarbon contamination and does not address any microbial

[3] Final Office Action ("Final Act."), dated Apr. 2, 2018.

contaminants" and that "Giletto gives no teaching about decontamination of soil containing *B anthracis* spores." Appeal Br. 2; *see also id.* at 3–4 (citing Sethi col. 4). Appellant argues Giletto discloses that "gel was required on the contaminated surface to hold the contaminants on the glass surface." *Id.* 3.

These contentions are unpersuasive in that they do not address the rejection. The Examiner relies on Giletto for disclosing treating microbial contaminants such as *B anthracis* spores and Sethi for disclosing using formulations in solution form for decontamination of soil. *See* Final Act. 4–5. *See also In re Keller*, 642 F.2d 413 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091 (Fed. Cir. 1986). We further note that claim 1 does not require the contaminated target environment to be soil. *See* Appeal Br. 6 (Claims App.).[4] *See also In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (Limitations not appearing in the claims cannot be relied upon for patentability.).

Appellant contends that "[t]his rejection is clearly based on hindsight" because "[o]ne would not look to the remediation of pollution related to hydrocarbons to identify means for inactivating bacterial spores." Appeal Br. 4–5; *see also id.* at 3 (arguing that Sethi addresses entirely different problems than those addressed by the claimed invention such that an

[4] We note Appellant also contends that the subject invention "requires generation of sulfate radicals for oxidation of bacterial spores in an organic matrix." Appeal Br. 4. However, claim 1 does not recite "generation of sulfate radicals for oxidation of bacterial spores in an organic matrix." Appeal Br. 6 (Claims App.).

ordinary artisan would not look to Sethi for treating *Bacillus anthracis* spores in soil); Reply Br. 2.[5]

This contention is unpersuasive. "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). Giletto evidences that a formulation including persulfate and hydrogen peroxide is effective for treating *Bacillus anthracis* spores. Giletto Abstr., 2:23–27, 35–39, 7:43–46.[6] Sethi evidences that a formulation including persulfate and hydrogen peroxide in solution form is effective for treating contaminants in soil. Sethi Abstr., 3:37–40; 5:36–39. We therefore agree with the Examiner that it would have been obvious to provide Giletto's formulation in solution form as taught by Sethi, to treat contaminants in the soil. Final Act. 5–6. The combined teachings of Giletto and Sethi regarding using persulfate and hydrogen peroxide in solution form would yield predictable results of treating *Bacillus anthracis* spores in the soil.[7] Thus, we conclude that the Examiner's rejection is based on sound

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[5] Reply Brief ("Reply Br."), filed Dec. 7, 2018.

[6] Appellant acknowledges that "Giletto's patent generally addresses decontamination formulations . . . including some *sodium persulfates*." Appeal Br. 3 (emphasis added).

[7] We note Appellant's assertion that "as indicated at paragraphs 4 and 5 of the application, decontamination of soil presents special problems when the contaminant is *B. anthracis* spores." Appeal Br. 2. However, Appellant does not explain what the "special problems" are and why the Examiner's proposed modification would not yield predictable results, i.e., a reasonable expectation of success. *See also* Examiner's Answer ("Ans.") 7 (explaining that Appellant does not provide evidence as to why the claimed composition is unexpectedly superior when used in a particular target environment), dated Oct. 10, 2018.

technical reasoning and evidence disclosed in the cited prior art, rather than improper hindsight reconstruction.

Appellant contends that "Giletto teaches away from choosing the compositions required in the claims of this application." Appeal Br. 3. Appellant argues that "[i]t should be noted that the tests in Giletto are all done using surrogates and only on glass slides or in suspension and so they do not address the functionality required on material such a soil which are typically comprised of substantial amounts of organic constituents." *Id.*

We first note that it is unclear as to why Appellant believes that Giletto teaches away from choosing the claimed compositions based on Giletto's preferred embodiments. *See Merck & Co. Inc. v. Biocraft Labs. Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) ("'the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.'") (quoting *In re Lamberti,* 545 F.2d 747, 750 (CCPA 1976)). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or non-preferred embodiments. *In re Susi*, 440 F.2d 442, 446 n.3 (CCPA 1971). Giletto does not discredit, criticize, or disparage the claimed persulfate and oxidation agent but instead suggests that formulations containing persulfate and hydrogen peroxide are effective for treating *Bacillus anthracis* spores. Neither does Giletto discredit, criticize, or disparage the application of its compositions to soil or other contaminated target environments that are different from glass. Giletto Abstr., 2:23–27, 35–39, 7:43–46. Like our appellate reviewing court, "[w]e will not read into a reference a teaching away from a process where no such

language exists." *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006).

Appellant argues that "thousands of chemical ingredients can be encompassed generally as suggested at column 2" of Giletto. Appeal Br. 3; *see also* Reply Br. 2. Appellant further argues that "the formulations exemplified in Giletto do not work to address the problem of spores in soil because they do not produce the sulfate radicals required for effectiveness in an organic matrix such as soil." Appeal Br. 3. Appellant also argues that "[t]he examples tested by Giletto contain potassium peroxymonosulfates and activators (and which one would expect would include preferred compositions) do not generate sulfate radicals necessary in the practice of the current invention for soil decontamination as taught and necessary for the purposes of disinfection of solid substrates such as soil" and that "Giletto teaches the formulations will produce hydroxyl radicals, which alone would not be effective in inactivating bacterial spores in the presence of organic matter as would be found in soil." *Id.*

These contentions are unpersuasive. First, as the Examiner points out, "the rejection never argues to replace the required potassium monosulfate ($KHSO_5$) of Giletto with the persulfate oxidant recited in column 2 (among 6 relatively small families of oxidants, *not thousands* of compounds as purported by Appellant)." Ans. 6 (emphasis added).[8] Second, as discussed

[8] We note *supra* (n.5) that Appellant acknowledges Giletto discloses the claimed composition (Appeal Br. 2) but to the extent that Appellant is arguing Giletto does not disclose the claimed composition, the Examiner further explains that Sethi's compositions are functional equivalents of certain compositions of Giletto (*see* Ans. 6) and Appellant does not explain why the Examiner is incorrect in making this determination.

above, the broader disclosure or non-preferred embodiments of Giletto must be considered rather than only the disclosed examples and preferred embodiments. *In re Susi*, 440 F.2d at 446 n.3. Third, Appellant attacks the references individually because the arguments revolve around compositions that are not in solution form—rather than those from the Examiner's proposed modification—which are in solution form. *See* Appeal Br. 3 (arguing that Appellant "is not dealing with a gel applied to glass"). Finally, we find Appellant's arguments, which lack supporting evidence, insufficient to rebut the express teaching of Giletto as reiterated above. *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) ("[A]ttorney argument [is] not the kind of factual evidence that is required to rebut a prima facie case of obviousness"). "Attorney's argument in a brief cannot take the place of evidence." *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

In summary, and based on the record presented, we are not persuaded the Examiner erred in rejecting independent claim 1 as unpatentable over Sethi and Giletto. Accordingly, we sustain the Examiner's rejection of claim 1, as unpatentable over Sethi and Giletto, with claims 2–6 falling with claim 1.

DECISION

We AFFIRM the decision of the Examiner to reject claims 1–6 as unpatentable over Sethi and Giletto.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED