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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte VIKRANT BHAVANISHANKAR WAGLE,
DHANASHREE GAJANAN KULKARNI, and
SHADAAB SYED MAGHRABI

Appeal 2019-006103
Application 14/913,938
Technology Center 3600

Before CYNTHIA L. MURPHY, BRADLEY B. BAYAT, and
AMEE A. SHAH, Administrative Patent Judges.

BAYAT, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134, Vikrant B. Wagle et al. (Appellant)¹ seeks our review of the final rejection of claims 15–32 under 35 U.S.C. § 103(a) as unpatentable over Miller² and Loiseau.³ We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies “Halliburton Energy Services, Inc.” as the real party in interest. Appeal Brief 1.

² Miller et al., US 2011/0053808 A1, published March 3, 2011 (“Miller”).

³ Loiseau et al., US 2012/0305245 A1, published December 6, 2012 (“Loiseau”).

CLAIMED INVENTION

Appellant’s “disclosure relates to oil or synthetic fluid based invert emulsion drilling fluids which combine high ecological compatibility with good stability and performance properties.” Spec. ¶ 1. Independent claim 15, reproduced below, is illustrative of the subject matter on appeal.

15. A method for drilling in a subterranean formation having shales comprising:

providing or using an invert emulsion drilling fluid

having:

a base oil;

an internal aqueous phase; and

a suspension agent comprising a combination of a primary viscosifier and very fine sized fumed silica, the very fine sized fumed silica having a surface area of at least 90m²/g; and

drilling through shales in the subterranean formation with the drilling fluid.

OPINION

The obviousness rejection of claims 15–32 is premised, in part, upon the Examiner’s determination that the combination of the teachings of Miller and Loiseau would yield a predictable result. *See* Final Action 3.

Alleging error in the rejection of claims 15–32 as unpatentable over Miller and Loiseau, Appellant argues that “[b]ecause of significant differences between the fluids of Loiseau and Miller, the Examiner’s combination does not merely yield a predictable result.” Appeal Br. 3 (emphasis omitted). Appellant contends “*Loiseau* teaches fracturing fluids that are primarily *water-based* (see *Loiseau* at ¶ 0016 & Tables 1 & 3 (noting the use of tap water in each sample fluid tested)), in contrast with the *oil-based* invert emulsion drilling fluids of *Miller*.” *Id.* at 4. “Appellant

submits that it would *not* have been predictable that the very fine sized fumed silica of *Loiseau* could be successfully substituted into the invert emulsion fluids of *Miller* since the fluids in *Loiseau* and *Miller* do not share any relevant common compositional properties.” *Id.*

The Examiner responds that “Appellant is basing this argument based upon an incorrect understanding of the reference. *Loiseau* does indeed recite an *oil-based drilling fluid*.” Ans. 4 (citing *Loiseau* ¶ 16). We agree.

There is no dispute that *Miller* teaches an oil-based drilling (*see Miller* ¶ 9) and “more specifically teaches the invert emulsion element of Appellant’s claims.” Reply Br. 2. *Loiseau* is directed to a method of treating a subterranean formation of a well bore by providing a treatment fluid comprising a carrier fluid, a particulate material, a viscosifying agent and fumed silica, wherein fumed silica is in such concentration to reduce the settling rate of the particulate material in the treatment fluid; and introducing the treatment fluid into the wellbore. *Loiseau*, Abstract. The Examiner finds that “*Loiseau* teaches a drilling fluid comprising fumed silica to reduce settling rate (i.e., aid suspension).” Final Act. 3 (citing *Loiseau* ¶¶ 8, 33, 40, 49, and 50); *see also* Final Act. 8 (citing *Loiseau*, Tables 3–4 (examples of formulations of samples including fumed silica)). Appellant does not dispute the Examiner’s findings as to the reduced settling rate induced by fumed silica in *Loiseau*. Contrary to Appellant’s argument that the fluids in *Loiseau* and *Miller* do not share any relevant properties, *Loiseau* discloses that its “treatment fluids may be used for carrying out a variety of subterranean treatments, including, but not limited to, *drilling operations*, *fracturing treatments*, and *completion operations* (e.g., gravel packing).” *Id.*

¶ 40 (emphasis added). As the Examiner observes, Loiseau teaches that the carrier fluid of the treatment fluid may be “an oil-based fluid.” *Id.* ¶ 16; Ans. 5 (“[A]ny additives taught as suitable for oil-based drilling fluid as taught by Loiseau can indeed be considered suitable for the oil-based drilling fluid disclosed by Miller.”). Indeed, Loiseau does not limit its use of fumed silica to water-based fluids; rather, Loiseau’s claimed invention teaches the use of its suspension aid with various types of carrier fluids, including oil-based fluids. *See id.*

Further, Appellant argues “[e]ven if the Examiner had established a *prima face* case of obviousness as to the combination of *Loiseau* and *Miller*, the claimed invention achieves unexpected synergistic results, demonstrating that such a combination would not have been obvious to a person of ordinary skill in the art.” Appeal Br. 6. According to Appellant, “[t]he test examples in the present specification demonstrate that the combination of a primary viscosifier and very fine sized fumed silica in an invert emulsion fluid reduces sag and oil separation to an unexpected degree, indicating the nonobviousness of the claimed combination.” *Id.* at 7 (citing Spec., Tables 1, 3). Appellant contends the Examiner has not addressed these unexpected results of the claimed combination. *Id.*

It is well established that the burden of showing unexpected results rests on Appellant by establishing that the reported tests provide results that are unexpected, that the comparisons are with the closest prior art, and that the showing is commensurate in scope with the claimed subject matter. *See In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). However, as noted by the Examiner, “Appellant’s arguments are more limiting than the claims

themselves” (Ans. 6); and the showing of unexpected results must be commensurate in scope with the claims. *See In re Peterson*, 315 F.3d 1325, 1330–31 (Fed. Cir. 2003). The claims on appeal broadly cover drilling fluids that possess neither the particular components nor the particular proportions set forth in Table 3. And the record contains no evidence or technical reasoning as to why the same or similar unexpected results would be reached for the broad range of drilling fluids covered by the claims on appeal. *See In re Greenfield*, 571 F.2d 1185, 1189 (CCPA 1978) (*quoting In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)) (“Establishing that one (or a small number of) species gives unexpected results is inadequate proof, for ‘it is the view of this court that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.’”). Based on the totality of the record, including due consideration of Appellant’s evidence and arguments, we determine that the preponderance of evidence weighs more heavily in favor of an obviousness determination for the claimed subject matter.

In rejecting claims 18 and 26, which recite that “the primary viscosifier” of the drilling fluid is selected from a Markush group listing “pentaerythritol tetrastearate,” the Examiner finds that one of ordinary skill in the art would infer from the teachings of Miller that pentaerythritol tetrastearate could be incorporated into an oil-based drilling fluid as an “additional suspension additive.” Ans. 7 (emphasis added). As noted by the Examiner, Miller discloses pentaerythritol tetrastearate as an additive to an oil-based drilling fluid; and Miller teaches that “[a] number of additives may be included” in an oil-based drilling fluid. Miller ¶ 2.

Appellant argues that the rejections of these claims relies on impermissible hindsight because “even if the proposed substitution of *Miller’s* suspension agents with those of *Loiseau* would be obvious, the resulting fluid would not comprise any of the primary viscosifiers recited.” Appeal Br. 8. According to Appellant, “the Examiner merely uses Applicant’s claims as a roadmap to arrive at the claimed combination of fumed silica with one of the specific viscosifiers listed in independent claim 26 (from which claims 27-32 depend) and dependent claim 18, without providing any rationale based on the prior art for doing so.” *Id.* at 8–9. However, the Examiner does provide rationale based on *Miller* for doing so (*see* Ans. 7), but Appellant’s arguments overlook this rationale. Specifically, the Appellant does not address why one of ordinary skill in the art would not infer from *Miller* that pentaerythritol tetrastearate could be incorporated as an additional suspension additive into this so-called resulting fluid. Accordingly, we are not apprised of reversible error by the Examiner.

CONCLUSION

The rejection of claims 15–32 is affirmed.

In summary:

| Claims Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed |
|-----------------|-------------|--------------------|----------|----------|
| 15–32 | 103(a) | Miller, Loiseau | 15–32 | |

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