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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* SAI REDDY PINAPPU, BRADLEY G. HARRELL, RANDY G.  
RECHTIEN, JERRY J. WEERS, CORINA L. SANDU, and  
J. MICHAEL BROWN

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Appeal 2016-007928  
Application 13/872,786  
Technology Center 2800

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Before KAREN M. HASTINGS, MONTÉ T. SQUIRE, and  
JANE E. INGLESE, *Administrative Patent Judges*.

INGLESE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants<sup>1</sup> appeal under 35 U.S.C. § 134(a) from a final rejection of claims 1, 3–7, 9–13, 15, 17, 18, and 20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> Appellants identify the real party in interest as Baker Hughes Incorporated. Appeal Brief filed December 22, 2015 (“App. Br.”), 3.

STATEMENT OF THE CASE

Appellants claim a system and process for monitoring industrial fluids. App. Br. 3–5.

Claim 1 illustrates the subject matter on appeal and is reproduced below:

1. A process for monitoring industrial fluids comprising:  
employing a differential ion mobility spectrometry (DMS) apparatus to sample the industrial fluids at a collection point selected from the group consisting of a pipeline transporting crude oil, a refinery, and combinations thereof; wherein the industrial fluids are selected from a group consisting of cooling water, process water, oil field drilling and completion fluids, oil and gas well production fluids, crude oil, feed streams to desalting units, outflow from desalting units, refinery and chemical plant heat transfer fluids, gas scrubber fluids, chemical plant and refinery unit feed streams, refinery and chemical plant intermediate streams, and refinery and chemical plant production and finished product streams;  
outputting a signal from the DMS apparatus to at least one external device; wherein the at least one external device is external to the DMS apparatus; and  
changing an industrial process upstream or downstream with the at least one external device selected from a group consisting of changing the speed of a valve or pump for a specific industrial fluid; changing the pH of a specific industrial fluid; changing the dosage of an additive selected from a group consisting of a corrosion inhibitor, a hydrate inhibitor, an anti-fouling agent, an antifoaming agent, an anti-scaling agent, a demulsifier, and mixtures thereof; and combinations thereof.

App. Br. 24–25 (Claims Appendix).

Appellants request review of the following rejections set forth in the Final Office Action entered July 23, 2015 (“Final Act.”), which the Examiner maintains in the Answer entered June 13, 2016, 2016 (“Ans.”):

I. Claims 1, 5–7, 9, 12, 13, 15, 17, and 18 under 35 U.S.C. § 103(a) as unpatentable over Hodges (US 2009/0011517 A1, published January 8, 2009) in view of Wilson et al. (US 6,810,718 B2, issued November 2, 2004) (“Wilson”); and

II. Claims 3, 4, 10, 11, and 20 under 35 U.S.C. § 103(a) as unpatentable over Hodges in view of Wilson and Miller et al. (US 2005/0051719 A1, published March 10, 2005) (“Miller”).

## DISCUSSION

Upon consideration of the evidence relied upon in this appeal and each of Appellants’ contentions, we affirm the Examiner’s rejections of claims 1, 3–7, 9–13, 15, 17, 18, and 20 under 35 U.S.C. § 103(a), for the reasons set forth in the Final Action, the Answer, and below.

### Rejection I

Appellants argue claims 1, 5–7, 9, 12, 13, 15, 17, and 18 as a group on the basis of claim 1, to which we limit our discussion. App. Br. 16–22. 37 C.F.R. § 41.37(c)(1)(iv).

Hodges discloses a portable equipment set that includes a micro-ion mobility/differential mobility spectrometer (differential ion mobility spectrometer or DMS) used to analyze a fluid used in an industrial process. Hodges ¶¶ 24, 54, 82. Hodges discloses that the equipment set can be taken to the location of a sample to be analyzed (collection point), such as a refinery (Hodges ¶¶ 56, 68), and discloses that the equipment set can be used

to measure the acidity of a refinery feedstock, a refinery intermediate, or a product of a refinery process (Hodges ¶¶ 27, 31). Hodges discloses that the analyses performed by the equipment set can be used for process optimization. Hodges ¶ 66. The Examiner finds that Hodges fails to explicitly teach outputting a signal from the DMS to an external device that changes the speed of a valve or pump for a specific industrial fluid, changes the pH of a specific industrial fluid, or changes the dosage of an additive, and the Examiner relies on Wilson for suggesting this feature. Final Act. 3–4.

Wilson discloses an apparatus for analyzing a fluid used in an industrial process that includes a meter for measuring a parameter of the process fluid, and a controller for controlling the meter and collecting data from the meter. Wilson col. 3, ll. 24–26, col. 5, ll. 17–22, col. 6, ll. 63–65, Fig. 1.

The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time of Appellants’ invention to incorporate an external controller into Hodges’ equipment set as disclosed in Wilson to receive output from the DMS and change a parameter of Hodges’ industrial process such as the pH of a specific industrial fluid, to achieve process optimization as taught by Hodges. Final Act. 4.

Appellants argue that Hodges discloses fluid analysis in a refinery process, but does not teach or suggest taking any action directed to the refinery process based on the information provided. App. Br. 16. Appellants contend that Hodges thus does not teach or suggest outputting a signal from the DMS apparatus to an external device and changing an industrial process. *Id.* Appellants further argue that Wilson uses an external

controller to control meters and collect data from the meters in order to detect a problem or characteristic of an industrial fluid. *Id.* Appellants assert that Wilson does not offer any direction or teaching about using the characteristic of the industrial fluid to control and treat the fluid. App. Br. 16–20. Appellants contend that Wilson therefore does not disclose or suggest using a signal output from the controller to change an industrial process. *Id.*

We note initially that Appellants acknowledge that claim 1 does not recite changing an industrial process “in response to” a signal output from a DMS apparatus (Reply Br. 6), despite the fact that Appellants’ arguments seem to imply such a requirement in claim 1 (App. Br. 16–20). Although Appellants assert that “the claimed sequence” in claim 1 “recites the consequential result of the method” (Reply Br. 6), the plain language of claim 1 requires only outputting a signal from the DMS apparatus to at least one external device, and changing one or more of the enumerated industrial processes with the external device.

Nevertheless, one of ordinary skill in the art reasonably would have understood Hodges’ disclosures to imply changing an industrial process with an external device based on data output from a DMS apparatus to the device, as discussed in greater detail below. Therefore, even assuming *arguendo* that Wilson would not have suggested using a signal output from a controller to change an industrial process as Appellants assert, Hodges’ disclosures in view of the level of ordinary skill in the art would have suggested the process recited in claim 1.

Specifically, one of ordinary skill in the art would have understood that using the analyses performed by the equipment set disclosed in Hodges

for process optimization as described in the reference would involve some sort of change to the industrial process being optimized. *In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]t is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.”). Accordingly, one of ordinary skill in the art seeking to analyze feedstocks, intermediates, or products of a refining process with a DMS apparatus as disclosed in Hodges, and seeking to optimize the refining process as also disclosed in Hodges, reasonably would have been led to output a signal from the DMS apparatus to a controller as disclosed in Wilson as a way to implement a change in the process necessary for optimization. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for [an Examiner] can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”); *cf. In re Venner*, 262 F.2d 91, 95 (CCPA 1958) (“[I]t is well settled that it is not ‘invention’ to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result.”)

In view of Hodges’ disclosure of measuring the acidity of a refinery feedstock, a refinery intermediate, or a product of a refinery process, one of ordinary skill in the art would have understood that such a process change as suggested by Hodges necessary for process optimization could involve changing the pH of one of these fluids, as recited in claim 1, using a controller as suggested by Wilson. *Preda*, 401 F. 2d at 826; *KSR* 550 U.S. at 418; *cf. Western Union Co. v. MoneyGram Payment Sys.*, 626 F.3d 1361, 1370 (Fed. Cir. 2010) (holding obvious “routine modifications that are a part

of adapting a new technology to an existing system”). Therefore, Appellants’ arguments are unpersuasive of reversible error.<sup>2</sup>

Accordingly, on this record, the preponderance of the evidence supports the Examiner’s conclusion of obviousness, and we therefore sustain the Examiner’s rejection of claims 1, 5–7, 9, 12, 13, 15, 17, and 18 under 35 U.S.C. § 103(a).

### Rejection II

In addressing this rejection, Appellants rely on the arguments discussed above that they provide for claim 1, and contend that Miller fails to remedy the deficiencies of Hodges and Wilson. App. Br. 22. Because we are unpersuaded of reversible error in the Examiner’s rejection of claim 1 as set forth above, Appellants’ position as to this ground of rejection is also without merit. We accordingly sustain the Examiner’s rejection of claims 3, 4, 10, 11, and 20 under 35 U.S.C. § 103(a).

### DECISION

In view of the reasons set forth above, and in the Final Action and the Answer, we affirm the Examiner’s rejections of claims 1, 3–7, 9–13, 15, 17, 18, and 20 under 35 U.S.C. § 103(a).

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

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<sup>2</sup> Although Appellants provide additional arguments directed to Guevremont et al. (US 7,045,778 B2, issued May 16, 2006) (App. Br. 21–22), as the Examiner explains in the Answer, this reference was not “used to reject the appealed claims” (Ans. 5). Appellants’ arguments regarding Guevremont are therefore unpersuasive of reversible error in the rejection as presented by the Examiner in the Final Action.