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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/768,258	08/17/2015	Stephen K Kramer	71154US02(15-102)	1078
52237	7590	02/03/2020	EXAMINER	
Bachman & LaPointe, P.C. 900 Chapel St., Suite 1201 New Haven, CT 06510			DUGER, JASON H	
			ART UNIT	PAPER NUMBER
			3741	
			MAIL DATE	DELIVERY MODE
			02/03/2020	PAPER

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* STEPHEN K. KRAMER

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Appeal 2019-004448  
Application 14/768,258  
Technology Center 3700

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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<sup>1</sup> appeals from the Examiner’s decision to reject claims 9, 11, 16, 17, and 19–25.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> 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 United Technologies Corporation. Appeal Brief (“Appeal Br.”) 2, filed Oct. 18, 2018.

<sup>2</sup> Claims 1–8, 10, 12–15, and 18 have been canceled. *See* Appeal Br. 4; Advisory Action (“Adv. Act.”), dated Sept. 28, 2018.

### CLAIMED SUBJECT MATTER

The claimed subject matter “relates to a gas turbine engine and, more particularly, to a fuel injector system therefor.” Spec. ¶ 1, Figs. 2, 4. Claims 9 and 17 are independent.

Claims 9 and 17 are illustrative of the claimed subject matter and recite:

9. A fuel injector system for a gas turbine engine comprising:  
an accumulator;

a first passage in communication with said accumulator  
and a pressure source, wherein said pressure source is a diffuser  
case module;

a first valve in communication with said first passage;

a second passage in communication with said  
accumulator, wherein said second passage is in communication  
with a fuel injector; and

a second valve in communication with said second  
passage.

17. A method of self-purging a fuel injector of a gas turbine  
engine comprising:

selectively charging an accumulator from a diffuser case  
module; and

selectively releasing air from [] the accumulator to purge  
the fuel injector.

## THE REJECTIONS

- I. Claims 23 and 25<sup>3</sup> stand rejected under 35 U.S.C. § 112(a) as failing to comply with the written description requirement.
- II. Claims 19 and 21–25<sup>4</sup> stand rejected under 35 U.S.C. § 112(b) as indefinite.
- III. Claims 9, 11, 16, 17, and 19<sup>5</sup> stand rejected under 35 U.S.C. § 103 as unpatentable over Davies (US 3,344,602, issued Oct. 3, 1967) and Juhasz (US 3,910,035, issued Oct. 7, 1975).
- IV. Claim 20 stands rejected under 35 U.S.C. § 103 as unpatentable over Davies, Juhasz, and Taylor (US 6,244,034 B1, issued June 12, 2001).
- V. Claims 21–23 stand rejected under 35 U.S.C. § 103 as unpatentable over Davies, Juhasz, and Gameiro (US 9,022,056 B2, issued May 5, 2015).

## ANALYSIS

### *Rejection I – Written Description*

#### *Claims 23 and 25*

The Examiner finds that the Specification fails to disclose the subject matter of claims 23 and 25, particularly the limitation of the second valve being *closed* in response to a pressure in the first passage that is “equal to” the pressure in the second passage. Final Act. 2–3. The Examiner explains

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<sup>3</sup> As claims 6–8 have been canceled, the rejection of these claims under 35 U.S.C. § 112(a) is now moot. *See* Final Office Action (“Final Act.”) 2–3, dated Jan. 23, 2018; Adv. Act.

<sup>4</sup> As claims 1 and 6–8 have been canceled, the rejection of these claims under 35 U.S.C. § 112(b) is now moot. *See* Final Act. 3–4; Adv. Act.

<sup>5</sup> As claim 1 has been canceled, the rejection of this claim under 35 U.S.C. § 103 is now moot. *See* Final Act. 6–8, 10–11; Adv. Act.

that at paragraphs 60 and 61, the Specification discloses that when the pressure in the first passage 100 is equal to the pressure in the second passage 106, the second valve 108 is *opened*, rather than closed. Ans. 15.

Appellant contends that “since Appellant recites a pressure in a first [passage] being less than or equal to the pressure in the second passage, the claims are *clear on their face* and meet the written description requirement.” Appeal Br. 9 (emphasis added).

Appellant’s contention is unpersuasive in that it does not address the rejection as set forth by the Examiner. The test for sufficiency under the written description requirement of 35 U.S.C. § 112(a), “is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). To have “possession,” “the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed.” *Id.* Here, claims 23 and 25 are rejected as failing to comply with the written description requirement rather than the indefiniteness requirement. Appellant does not explain how the subject matter of claims 23 and 25 are described in the Specification such that the inventor has possession of the claimed subject matter.

Accordingly, we sustain the Examiner’s rejection of claims 23 and 25 for lack of written description.

*Rejection II – Indefiniteness*

*Claims 19 and 21–25*

The Examiner determines that the language recited in claims 19 and 21–25 renders those claims indefinite. Final Act. 3–5. More particularly, the Examiner determines the following:

(a) for claim 19, it is unclear whether only the second passage or both the first passage and the second passage are in communication with the diffuser case module (*id.* at 4);

(b) for claims 21–23, as these claims are directed to an apparatus, it is indefinite to recite method steps; rather, the claims should recite “configured to” language instead. The Examiner cites *In re Katz Interactive Call Processing Patent Litigation*<sup>6</sup> for the proposition that “[a] single claim which claims both an apparatus and the method steps of using the apparatus is indefinite” (*id.* at 4–5);

(c) for claims 21 and 23, “the pressure in the second passage” lacks antecedent support (*id.* at 4);

(d) for claim 22, “the relatively high pressure” lacks antecedent support and is subjective because the Specification does not provide a standard for comparison (*id.* at 4–5); and

(e) for claims 24 and 25, a second valve is recited but a first valve is not recited, and “the first passage,” “the pressure,” and “the second passage” lack antecedent support (*id.* at 5).

Appellant contends that the claim language of claims 21–25 does not recite a method step but instead, describes mechanical relationships. Appeal

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<sup>6</sup> 639 F.3d 1303 (Fed. Cir. 2011).

Br. 9–10. Appellant argues that “the electronic system nature of the systems referenced in *Katz* are simply inapplicable to a mechanical valve.” *Id.* at 10.

Appellant’s contentions are unpersuasive. As an initial matter, we note that Appellant addresses only one of the several indefiniteness rejections raised by the Examiner. *See* Ans. 15<sup>7</sup> (“Appellant’s arguments are insufficient to overcome the rejections of Claims 19 and 21-25 because they fail to address the merits of the rejections set forth in the Final Rejection.”). Further, we do not agree with Appellant that “the electronic system nature of the systems referenced in *Katz* are simply inapplicable to a mechanical valve” (Appeal Br. 10), such that the proposition of “[a] single claim which claims both an apparatus and the method of using the apparatus is indefinite” is applicable for only claims directed to electronic systems rather than those directed to mechanical systems. *See* M.P.E.P. § 2173.05(p), citing *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990) (“claim directed to an *automatic transmission* workstand and the method of using it held ambiguous and properly rejected under 35 U.S.C. 112, *second paragraph*”) (emphasis added).

As the Examiner points out in the Answer, claim 21 recites the claim language “valve is open in response to a pressure,” claim 22 recites the claim language “the accumulator is released to purge the fuel injector,” and claim 23 recites the claim language “the second valve is closed in response to a pressure,” none of this claim language is “limited to mechanical features of a valve, but encompasses actions performed by electromechanical valves operated by controllers, and actions performed by mechanical valves.” Ans.

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<sup>7</sup> Examiner’s Answer (“Ans.”), dated Mar. 18, 2019.

16. The Examiner takes the position that like *Katz*, “[c]laims 21-23 recite a system and actions thereof in a manner that creates confusion as to when infringement occurs.” Ans. 16. Appellant does not apprise us of Examiner error. *See Reply Br. 1–4.*<sup>8</sup>

Appellant contends that claims 24 and 25 “are properly allowable since no prior art rejections are asserted by the Examiner.” Appeal Br. 10–11.

As the Examiner points out in the Answer, each of claims 24 and 25 recites “the first passage,” “the pressure,” and “the second passage.” Ans. 16. The Examiner further points out that “[t]hese recitations lack sufficient antecedent basis and render the claims indefinite because no first or second passage has been set forth,” that “it is unclear how and if they form part of, or are in connection/communication with, the elements set forth in claim 17” and that “it is unclear if the claims require a single valve or two valves.” Ans. 16–17. Appellant does not apprise us of Examiner error. *See Reply Br. 1–4.*

For these reasons, we sustain the Examiner’ rejection of claims 19 and 21–25 as indefinite.

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<sup>8</sup> Reply Brief (“Reply Br.”), filed May 17, 2019.

*Rejection III – Obviousness over Davies and Juhasz*

*Claims 9, 11, 16, 17, and 19*

Appellant argues claims 9, 11, 16, 17, and 19 as a group. Appeal Br. 11–14. We select claim 9 as representative, and claims 11, 16, 17, and 19 stand or fall with claim 9. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Under a first interpretation of Davies, the Examiner finds that Figure 1 discloses a fuel injector system comprising a fuel injector (burner 15), an accumulator (vessel 10), a first passage (tube 11), a first valve (valve 12), a second passage (branch 20), a second valve (valve 22), and a pressure source (compressor) in which air can be bled downstream. Final Act. 8 (citing Davies 1:60–2:72, Fig. 1). Alternatively, the Examiner finds that Davies’s Figure 2 discloses a fuel injector system comprising a fuel injector (burner 116), an accumulator (vessel 110), a first passage (pipe 111 from point A to point B in the Examiner’s annotated Figure 2 of Davies), a first valve (valve 112), a second passage (throttle unit 117 and conduit 119 to point T in annotated Figure 2), a second valve (valve 123), and a pressure source (compressor) in which air can be bled downstream. *Id.* at 10–12 (citing Davies 2:50–59, Fig. 3).

The Examiner acknowledges that Davies “does not teach the bleed air pressure source is a diffuser case module.” *Id.* at 8, 12. The Examiner, however, finds that Juhasz “teaches a bleed pressure air source bleeding compressed air from a gas turbine compressor downstream from the compressor adjacent to the burners of the combustion chamber at a diffuser case module.” *Id.* at 8, 12 (citing Juhasz 3:3–36). The Examiner concludes that it would have been obvious to modify the fuel injector system of Davies “so [that] the pressure source of compressed air selectively charging the

accumulator is a diffuser case module,” as taught by Juhasz, “so [that] the bleed system will additionally improve performance during certain operating conditions.” *Id.* at 8–9, 12 (citing Juhasz 2:3–17, 4:4–11).

Appellant contends that “[t]here is simply no disclosure for charging an accumulator with pressure from a diffuser case module to purge a fuel passage as recited and claimed by Appellant.” Appeal Br. 11; *see also id.* at 13 (arguing that “[n]either reference alone or in combination discloses, suggests or teaches the use of a diffuser to purge a fuel passage”); *id.* at 14 (arguing that the cited references “simply fail to purge a fuel passage”); Reply Br. 2 (arguing Juhasz does not charge or store pressure). Appellant also argues that “Juhasz does not use a diffuser case module as a pressure source” and that “[t]he bleed air from the diffuser in Juhasz is not stored in any way.” Reply Br. 1.

Appellant’s contentions are unpersuasive. We first note that although independent method claim 17 recites “selectively releasing air from [] the accumulator to purge the fuel injector,” independent apparatus claim 9 does not require purging a fuel passage. Appeal Br. 15 (Claims App.). Nonetheless, as the Examiner points out, Davies discloses purging fuel because “the goal of Davies is to expel fuel upon engine shutdown.” Ans. 21 (citing Davies 2:65–72). Notably, Davies discloses “residual fuel was expelled after engine shutdown.” Davies 2:67. Davies also discloses storing bled air in that Davies discloses “a reservoir supplied with air under pressure.” *Id.* at Abstract.

Further, “[n]on-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. . . . [The reference] must be read, not in

isolation, but for what it fairly teaches in combination with the prior art as a whole.” *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *see also* Ans. 18 (“Appellant’s arguments appear premised on the idea that a limitation at issue must be disclosed in a single reference. However, a determination of obviousness does not require the claimed invention to be expressly suggested by any one or all of the references.”).

In this case, the Examiner relies on the teachings of Davies for disclosing an accumulator for storing bled air, i.e., vessel 10 or vessel 110, and purging fuel and relies on the teachings of Juhasz for disclosing a diffuser case module as a bleed pressure air source. *See* Final Act. 8, 10–12; *see also* Ans. 17–18 (“Davies was relied upon to teach charging an accumulator with pressure from a pressure source to purge a fuel passage, but was not relied [upon] to teach this pressure source is a *diffuser case module*. Juhasz was relied upon to teach a diffuser using a diffuser case module as a pressure source.”).

Appellant argues that “[a]lthough the Examiner seems to argue that sources other than the compressor may be utilized, the Examiner provides no such evidence” and that “Juhasz bleeds air from a diffuser utilizing circumferentially spaced blade ports 34 in the diverging outer wall portion 30 of the diffuser to enable a small fraction of diffuser inner air flow to be removed from the diffuser walls at certain operating conditions.” Appeal Br. 11–12.

These arguments are also unpersuasive. Davies discloses that locations other than the compressor may be used as a pressure source. *See* Ans. 18–19. Notably, Davies discloses that “it may be possible to dispense with regulating valve 13” and that “[t]his case may be met in gas turbine

engines when the air bleed from the compressor to vessel 10 is taken *downstream* of the compressor.” Davies 2:54–58 (emphasis added); *see also* Ans. 18. Further, even if crediting Appellant’s argument that Juhasz bleeds air using ports 34, that does not prevent Juhasz’s diffuser from being used as a pressure source for Davies’ accumulator.

Appellant contends that “Juhasz is not utilizing the bleed air from the diffuser to pressurize anything” and that “[t]he goal of Juhasz is to trim the profile 48” of the diffuser. Appeal Br. 12–13. Appellant contends that Davies “makes no reference to a diffuser” and that the rejection is based on impermissible hindsight reconstruction. *Id.* at 13; *see also* Reply Br. 2 (arguing that “there is no motivation to combine Davies in view of Juhasz”).

These arguments are unpersuasive in that they do not address the rejection as set forth by the Examiner. First, even if Juhasz’s goal is to trim profile 48 of the diffuser, that does not mean that Juhasz’s diffuser cannot be used as a pressure source as the Examiner proposes. *See In re Merck & Co.*, 800 F.2d at 1097. Further, the Examiner is not relying on Juhasz for simply bleeding air from the diffuser but instead, relies on Juhasz’s diffuser as a pressure source. *See* Ans. 19–20. The Supreme Court has emphasized that “the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). As noted by the Court in *KSR*, “[a] person of ordinary skill is also a person of ordinary creativity, not an automaton.” *Id.* at 421. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416. Further,

[E]vidence of a motivation to combine need *not* be found in the prior art references themselves, but rather may be found in “the knowledge of one of ordinary skill in the art or, in some cases, from the nature of the problem to be solved.” . . . When not from the prior art references, the “evidence” of motive will likely consist of an *explanation* of the well-known principle or problem-solving strategy to be applied.

*Dystar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1366 (Fed. Cir. 2006) (quoting *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999)).

As noted above, Davies discloses that sources or locations other than the compressor can be used as a pressure source. Davies 2:54–58. Juhasz discloses diffuser 16 as a pressure source in that air can be bled from the diffuser. Juhasz 3:3–36. Notably, Juhasz discloses air from the diffuser is mixed with fuel so that it charges pressure in the fuel line, which is what the Examiner is relying on Juhasz for, i.e., a pressure source. *See id.* at 2:60–61. As Juhasz discloses a “diffuser bleed to control the airflow distribution in a gas turbine engine at various operating conditions” (*id.* at Abstract), it would have been obvious to use a diffuser, as taught by Juhasz for the fuel injector system of Davies, as an alternative pressure source for improving performance of the fuel injector system. *See* Final Act. 8–9, 12; *see also* Ans. 19–20; Juhasz 3:58–62 (disclosing that “diffuser bleed flow may be also used to meet customer air requirements”). Appellant has not made a showing that the Examiner’s rationales were outside of the knowledge within the level of ordinary skill in the art at the time the claimed invention was made or were gleaned only from Appellant’s disclosure. *See* Ans. 20 (“The rejections do not include knowledge gleaned only from the Appellant’s disclosure. Rather, they take into account only knowledge

which was within the level of ordinary skill at the time the claimed invention was made.”). As such, the Examiner’s rejection is based on evidence and sound technical reasoning rather than improper hindsight reconstruction.

Appellant contends that the Examiner’s proposed modification would render the prior art invention unsatisfactory for its intended purpose. Appeal Br. 13. In support, Appellant argues that “since Juhasz simply dumps the bleed air into the turbine section, the teachings of Juhasz would ruin the goal of charging a tank from a compressor.” *Id.*

This argument is unpersuasive in that it does not address the rejection as set forth by the Examiner. The Examiner does not rely on Juhasz simply for dumping the bleed air into the *turbine section*, and Davies’ goal is not simply charging the tank from a compressor but instead, Davies’ goal is expelling fuel upon engine shutdown. *See* Ans. 21; *see also* Davies 2:65–72. Further, “attorney argument [is] not the kind of factual evidence that is required to rebut a prima facie case of obviousness.” *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *see also* Ans. 21 (“Arguments of counsel amount to mere allegations that are not factually supported in the record. It has been held that arguments of counsel cannot take the place of factually supported objective evidence.”).

In this case, Appellant does not provide persuasive argument or evidence to show that: (1) dumping bleed air into Davies’ vessel 10 or 110 would prevent the vessel from being charge, or (2) dumping bleed air into Davies’ turbine section would prevent charging vessel 10 or 110 because the vessel could be charged first and then bleed air could be dumped later, depending on the requirements of the operating conditions. *See* Appeal Br. 13–14; *see also* Ans. 21 (“Appellant provides no evidence in support of the

allegation that this bleed air source would somehow ruin charging of the tank in Davies.”).

In the Reply Brief, Appellant contends that because Davies discloses that its “regulating valve 13 serves as an outlet from the vessel and is adapted [to] open at pressures above the selected pressure of the air and the vessel 10” (citing Davies 2:46–49), “[t]his *alternative embodiment*, again contrary to the Examiner’s interpretation, would teach away from even storing the pressure since following engine shut-down, the fuel pressure from the engine driven pump and the compressor delivery pressure both decay . . . .” Reply Br. 3 (emphasis added). Appellant further argues that Juhasz “is [] at best a passive system.” *Id.* at 4.

As an initial matter, these arguments were not raised in the Appeal Brief, and are not responsive to any argument raised in the Examiner’s Answer. As stated in 37 C.F.R. § 41.41(b)(2):

Any argument raised in the reply brief which was not raised in the appeal brief, or is not responsive to an argument raised in the examiner’s answer, including any designated new ground of rejection, *will not be considered by the Board for purposes of the present appeal, unless good cause is shown.*

(Emphasis added). Accordingly, we do not consider these arguments as timely presented. However, we note that Appellant’s contentions are unpersuasive, even had they been timely made, for the following reasons.

Regarding Appellant’s described operation of Davies’ regulating valve 13, as Appellant states, that operation is an “alternative embodiment,” i.e., it is not necessary to the operation of Davies’ fuel injector system. Further, the sequence of delivering pressure and engine shut-down as described by Appellant is not claimed. Moreover, even if crediting Appellant’s contention that there is a decay in fuel pressure, that does not

mean that Davies teaches away from storing pressure at *any* stage of the operation of its fuel injector system. Davies discloses storing pressure in that Davies discloses “a reservoir supplied with air under pressure.” (Davies Abstract) and “valve 113 is arranged to open when the vessel 110 is *charged* to its maximum pressure . . .” (*id.* at 3:16–18 (emphasis added)). Appellant does not direct us to any passage in Davies that discredits, criticizes, or disparages storing pressure. 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*, 464 F.3d at 1364. Concerning Appellant’s characterization of Juhasz as disclosing “a passive system,” we note that claim 9 is an apparatus claim that does not preclude passive operation of supplying pressure. Further, the Examiner relies on Davies, rather than Juhasz, for disclosing the claimed valves, i.e., a non-passive system. *See* Final Act. 8, 11. Thus, Appellant does not apprise us of Examiner error.

In summary, and based on the record presented, we are not persuaded the Examiner erred in rejecting independent claim 9 as obvious over Davies and Juhasz. Accordingly, we sustain the Examiner’s rejection of claims 9, 11, 16, 17, and 19 as unpatentable over Davies and Juhasz.

*Rejection IV and V – Obviousness over Davies, Juhasz, and Taylor or  
Davies, Juhasz, and Gameiro*

*Claims 20–23*

Appellant does not provide any substantive arguments for these rejections and appears to rely on arguments for parent claims 9 and 17, from which claims 20–23 depend, respectively. Appeal Br. 11–14. As we find no deficiencies in the Examiner’s rejection of independent claims 9 and 17 as unpatentable over Davies and Juhasz for the reasons discussed above, we

likewise sustain the Examiner's rejection of claims 20–23 as unpatentable over the various combinations of cited prior art.

### CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
23, 25	112(a)	Written Description	23, 25	
19, 21–25	112(b)	Indefiniteness	19, 21–25	
9, 11, 16, 17, 19	103	Davies and Juhasz	9, 11, 16, 17, 19	
20	103	Davies, Juhasz, and Taylor	20	
21–23	103	Davies, Juhasz, and Gameiro	21–23	
<b>Overall Outcome</b>			9, 11, 16, 17, 19–25	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

**AFFIRMED**