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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte WILLIAM THOMAS BENNETT, KEVIN SAMUEL KLASING,
and CRAIG ALAN GONYOU

Appeal 2019-004477
Application 14/935,758
Technology Center 3700

Before EDWARD A. BROWN, CHARLES N. GREENHUT, and
ANNETTE R. REIMERS, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner's decision to reject claims 1–20. We have jurisdiction under
35 U.S.C. § 6(b).

We AFFIRM IN PART.

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 General
Electric Company. Br. 1.

CLAIMED SUBJECT MATTER

Claims 1 and 14 are independent. Claim 1 is reproduced below as illustrative of the claimed subject matter.

1. A gas turbine engine comprising:
 - a compressor section;
 - a turbine section located downstream of the compressor section; and
 - a combustion section disposed between the compressor section and the turbine section, the combustion section defining a combustion chamber and comprising
 - a combustor member defining an opening to the combustor chamber;
 - a mounting assembly extending around or positioned adjacent to the opening defined by the combustor member, the mounting assembly comprising a ferrule; and
 - an igniter extending through the ferrule and including a distal end positioned proximate the opening in the combustor member, the igniter defining a plurality of channels, each channel extending between a first end and a second end, the first end positioned away from the distal end of the igniter relative to the second end, and the second end being a terminal end spaced from the distal end of the igniter.

Br. 10 (Claims App.).

REJECTIONS

Claims 1–3, 5–9, 11–16, 18, and 19 are rejected under 35 U.S.C. § 102(a)(1) as anticipated by DuBell (US 3,990,834, issued Nov. 9, 1976).

Claims 4, 10, 17, and 20 are rejected under 35 U.S.C. § 103 as unpatentable over DuBell.

ANALYSIS

Claims 1–3, 5–9, 11–16, 18, and 19 as anticipated by DuBell

Appellant contests the rejection of claims 1 and 14 collectively, and presents additional argument for claims 2 and 6. Br. 4–7. We select claim 1 as representative, with claims 3, 5, 7–9, 11–16, 18, and 19 standing or falling with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv). We also address the separate argument for claims 2 and 6.

Claims 1, 3, 5, 7–9, 11–16, 18, and 19

For claim 1, the Examiner finds that DuBell discloses a gas turbine engine comprising a combustor section comprising, *inter alia*, a mounting assembly (second structural member 52, ferrule 48) extending around or positioned adjacent to an opening (“fig 5 combustion chamber opening between [structural member] 50 and [cup structure] 32”) defined by a combustor member, the mounting assembly comprising a ferrule (ferrule 48); and an igniter (igniter 36) defining a plurality of channels (channels 80), each channel extending between a first end and a second end (“fig 4 top and bottom ends of channels 80”), the first end positioned away from the distal end of the igniter relative to the second end (“fig 1; top of [channel] 80 extends away from [heated tip] 46 relative to the bottom end”), and the second end being a terminal end spaced from the distal end of the igniter (“fig 1; bottom end of 80 is terminal and spaced from 46”). Final Act. 2–3; *see also* Ans. 5 (annotated DuBell Fig. 4 showing locations of “first end” and “second end” of channel 80).

Appellant contends that DuBell does not disclose a mounting assembly as recited in claim 1. Br. 4. Appellant contends that, in DuBell, the mounting structure 44 is provided within casing 12. *Id.* (citing DuBell

Fig. 1, col. 3, ll. 10–24). Appellant asserts that structural member 52 cannot be considered as equivalent to the recited mounting assembly. *Id.* at 4–5.

This contention does not apprise us of error in the Examiner’s finding. Although DuBell describes the “mounting structure” 44, “which interlocks the igniter 36 with casing 12,” Appellant’s contention that structural member 52 cannot be considered as part of a “mounting assembly,” as claimed, is conclusory. DuBell (col. 3, ll. 10–12, Fig. 2).

Appellant also contends that, in DuBell, ferrule 48 is not part of mounting structure 44 or structural member 52, but rather, ferrule 48 is supported by structural member 50 extending inwardly from liner 14. Br. 5. This contention does not explain persuasively why ferrule 48 cannot be considered as part of a “mounting assembly” also comprising structural member 52, or why ferrule 48 must be “part of” structural member 52. Accordingly, the contention does not address the Examiner’s rejection.

Regarding the claimed igniter, Appellant contends that, in DuBell, channels 80 are formed by the voids between ribs 82 as shown in Figures 2 and 3, and thus, do not extend between a first end and a second end. Br. 5.

This contention does not explain persuasively why DuBell’s channels 80 cannot be considered to extend between a first end located at the inlet end 86 (“top end”) and a second end located at the bottom end as depicted in Figure 4, for example.

Appellant also contends that “the portion referred to as a second end by the Examiner is not a *terminal end spaced apart from the distal end*, in fact it is continuous to the distal end as shown in Fig. 2 of DuBell.” Br. 5.

This contention is unpersuasive. We note Appellant’s Specification describes, “the second end 142 [of channel 138] is configured as a terminal

end spaced from the distal end 116 of the igniter 114 (such that the channel 138 terminates prior to reaching the distal end 116 of the igniter 114).”

Spec. ¶ 33. In the embodiment shown in DuBell, channels 80 are formed by upstanding ribs 82 disposed on either side of each channel. DuBell, col. 3, l. 67–col. 4, l. 3, Figs. 2–4. The Examiner responds that, in DuBell, “[t]he second end is a terminal end as the channel 80 terminates at the second end, and it is not continuous as channels 80 terminate before a circumferential channel 88 formed below the second end.” Ans. 4. Appellant does not explain persuasively why the bottom end of channels 80 cannot be considered a “terminal end,” or being spaced from a “distal end” of the igniter (i.e., heated tip 46).

Accordingly, Appellant’s contentions do not apprise us of error in the Examiner’s findings. Thus, we sustain the rejection of claim 1 as anticipated by DuBell. Claims 3, 5, 7–9, 11–16, 18, and 19 fall with claim 1.

Claim 2

Claim 2 depends from claim 1 and recites that “the igniter further comprises an agitation portion between the second ends of each of the channels and the distal end of the igniter *for disrupting an airflow through the channels.*” Br. 10 (Claims App.) (emphasis added). The Examiner finds that, in DuBell, igniter 36 comprises an agitation portion (“flared portion below [circumferential channel] 88”) between the second end of each channel and the distal end of the igniter for disrupting an airflow through the channels (“air from 80 is disrupted at the flared portion, as evidenced by the arrow”). Final Act. 3; *see also* Ans. 5 (annotated version of DuBell Fig. 4 showing location of “agitation portion” of igniter).

Appellant disagrees that DuBell discloses the limitation of claim 2. Appellant contends that DuBell does not disclose an agitation portion; “rather a **circumferential channel 88** is provided that along with the ferrule and channels 80 **define a generally toroidal air passage way** without any disruption to airflow through the channels.” Br. 6. Further, Appellant contends, DuBell describes that disruption of flow fields is undesirable. *Id.* (citing DuBell, col. 1, ll. 60–61). Appellant emphasizes the following description in DuBell:

The **circumferential channel 88 combines with the ferrule 48 to define a generally toroidal air passage** having a plurality of points of communication to the **passages 84 formed by channels 80**. In other words, each of the axial channels extends from its inlet 86 radially inwardly of the combustion chamber to and communicates with circumferential channel 88.

Id. (citing DuBell, col. 4, ll. 17–24). Appellant contends that DuBell fails to teach that airflow from the channels is disrupted, as claimed, but rather, teaches that the axial and circumferential channels along with the ferrule define a toroidal air passage without disruption to airflow. *Id.* Appellant asserts this position is corroborated by DuBell’s description:

Upon reaching the axial ends of the passages 84, **the air is collected within circumferential channel 88**. Since the ferrule isolates these various passages from the exterior environment, except for the generally radial opening formed by indentation 70, **the air thus collected within channel 88 passes through the opening and into the combustion zone 18 downstream of the igniter and generally normally to the housing 38.**

Id. (citing DuBell, col. 4, ll. 52–59). Appellant disagrees that the additional airflow passage (circumferential channel 88) in DuBell is the agitation portion, as it does not disrupt airflow through the channels. *Id.*

These contentions are unpersuasive. First, it is the Examiner’s position that the flared portion of DuBell’s igniter *located below* circumferential channel 88 is the structure that corresponds to the claimed agitation portion. Ans. 6. It is further the Examiner’s position that, in DuBell, the flared portion is located between the second end of each channel and the distal end of the igniter. Final Act. 3.

Second, Appellant’s Specification describes, “the agitation portion 144 is configured to disrupt a flow of air through each of the plurality of channels 138 *prior to such flow of air reaching the distal end 116 of the igniter 114.*” Spec. ¶ 35 (emphasis added). The Examiner explains that annotated Figure 4 of DuBell “also shows . . . the linear airflow through channels 80 is disrupted by the flared portion, as it alters the linear direction of the airflow, as indicated by the flow arrows.” Ans. 6. This disruption by the flared portion occurs prior to air flow through channels 80 reaching the distal end of the igniter. As Appellant does not apprise us of Examiner error, we sustain the rejection of claim 2 as anticipated by DuBell.

Claim 6

Claim 6 depends from claim 1 and recites, “the ferrule includes a contact portion that contacts the igniter, and wherein the first ends of the plurality of channels *are positioned outward from the contact portion of the ferrule relative to the combustor member.*” Br. 10 (Claims App.) (emphasis added). The Examiner finds that, in DuBell, ferrule 48 includes a contact portion that contacts the igniter (“[Fig.] 3; portions of 48 contacting [ribs

82]”), and the first ends of the channels are positioned outward from the contact portion of the ferrule relative to the combustor member (“[Fig.] 1; ferrule 48 and its contact portion are found between [structural member] 50 [sic] the channels 80, thus the channels extend away from 50 as they extend away from the contact portions of 48”). Final Act. 4.

Appellant disagrees that DuBell discloses the claimed limitation. Appellant contends that, in DuBell, the channels extend from a point near the outward extremity of the ferrule to a point within the ferrule. Br. 7 (citing DuBell, col. 4, ll. 10–12). Appellant concedes that Figure 2 of DuBell shows ferrule 48 includes a contact portion that contacts igniter 36, but Appellant contends that channels 80 do not extend beyond the contact portion and both the first and second ends of channels 80 fall within the area of the contact between ferrule 48 and igniter 36. *Id.*

The Examiner responds that claim 6 “does not require the first ends of the channels to be positioned radially outward nor otherwise above or below in a radial location from the contact portion,” but requires the first ends of the channels to be positioned outward from the contact portion. Ans. 7. The Examiner states that a broadest reasonable interpretation of “a relatively outward location” includes “extending **away from** the contact portion in any direction.” *Id.* The Examiner notes that Figure 2 of DuBell shows element 50 of the combustor member located at a side of the mounting assembly, and the Examiner submits that this relative location of element 50 is better seen in annotated Figure 3 of DuBell. *Id.* The Examiner states that annotated Figure 3 shows “channels 80 extend beyond the contact portion of the ferrule 48 relative to element 50 of combustor member.” *Id.* That is, ferrule 48 and its contact portion are located between element 50 and channels 80,

and thus, channels 80 (and their first ends) extend outward away from the contact portion relative to the combustor member, as can be appreciated by the arrows included in annotated Figure 3. *Id.*

It appears to be Appellant's position that the term "positioned outward from" means that the first ends of the channels are located in the axial direction from the contact portion between the ferrule and igniter relative to the combustor member. Regarding the embodiment shown in Figure 3, Appellant's Specification describes:

[T]he first ends 140 of the plurality of channels 138 are *positioned outward* of the ferrule 122 relative to the outer liner 82 of the combustor 80, or more specifically, outward of the contact portion 130 of the ferrule 122 relative to the outer liner 82 and combustion chamber 88."

Spec. ¶ 37 (emphasis added). Figure 3 depicts the first end 140 of the channel 138 being spaced from the contact portion 130 in the axial direction A2 along which the igniter extends, relative to the combustor member 82.

In DuBell, channels 80 are positioned inwardly from the contact portion at which ferrule 48 contacts igniter 36. *See, e.g.,* DeBell, Fig. 3. And, channels 80 are not spaced axially from the contact portion. *See, e.g., id.* Fig. 4. The Examiner's finding that DuBell discloses the limitation of claim 6 appears to be premised on construing the phrase "outward from the contact portion" broadly to encompass configurations in which the channels extend away from the contact portion between the ferrule and igniter in *any direction* of the combustion section. This construction is, however, overly broad in light of Appellant's disclosure discussed above. Accordingly, we do not sustain the rejection of claim 6 as anticipated by DuBell.

Claims 4, 10, 17, and 20 as unpatentable over Dubell

Claim 4 recites, “the agitation portion defines a dimension along an axial direction of the igniter of at least about 0.02 inches.” Br. 10 (Claims App.). Appellant contends that this limitation clarifies that DuBell’s circumferential channel 88 differs from the claimed agitation portion. Br. 8.

It is not, however, the Examiner’s position that DuBell’s circumferential channel 88 corresponds to the claimed agitation portion. Accordingly, Appellant’s contention does not address, or apprise us of error in, the Examiner’s rejection. We thus sustain the rejection of claim 4, and claims 10, 17, and 20 which are not separately argued, as unpatentable over DuBell.

DECISION SUMMARY

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 5–9, 11–16, 18, 19	§ 102(a)(1)	DuBell	1–3, 5, 7–9, 11–16, 18, 19	6
4, 10, 17, 20	§ 103	DuBell	4, 10, 17, 20	
Overall Outcome			1–5, 7–20	6

FINALITY AND RESPONSE

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

AFFIRMED IN PART