

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOPSOE INC.,
Petitioner

v.

CASALE SA,
Patent Owner

Case IPR2025-01454
U.S. Patent No. 11,286,168

**PATENT OWNER'S SUR-REPLY IN SUPPORT OF PATENT OWNER
PRELIMINARY RESPONSE**

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Patent Owner submits this sur-reply in opposition to Petitioner's reply (Paper 13) and in support of its Preliminary Response (Paper 8 ("POPR")). Petitioner's attempts to "fix" deficiencies in the Petition with new arguments unsupported by the citations to the record are unavailing and untimely. And Petitioner's suggestion that Patent Owner has taken inconsistent positions concerning "furnace" is meritless—Patent Owner's counterclaim is consistent with the claim construction in the specification. The Board should deny institution of the Petition.

I. A Construction of "Furnace" is Required, and Petitioner Fails to Adhere to its Incorrect "Plain and Ordinary Meaning" Construction.

Petitioner was required to propose its construction of "furnace" in the Petition and its failure to do so is fatal. Petitioner's reply confirms why claim construction is necessary. While Petitioner outwardly advocates for "plain and ordinary meaning," its arguments reveal Petitioner's actual proposed construction of "furnace" is "operating by means combustion." *See* Reply at 4 (The specification "broadly describes 'furnaces' functionally as operating 'by means of combustion'"; "The '168 Patent further describes apparatuses that operate by means of combustion such as gas turbines for generating electricity.").

This is consistent with Petitioner's position in the Petition. Petition at 17 ("A POSA would have understood that, by definition, a gas turbine operates by means of combustion and therefore includes a 'furnace'."). And as explained in the POPR, Petitioner's implicit construction of "furnace" is wrong. POPR at 11-13. Under

Petitioner's broad read, an internal combustion engine car would qualify as a "furnace."

Thankfully, the specification defines the term "furnace" in the Summary of the Invention:

The term "furnace" is understood as meaning an apparatus chosen from among: a steam reformer or a charge preheater or a steam generator or a steam superheater. These
50 apparatus, which operate by means of combustion, are identified by the term "fired heater". Said furnace in some

EX1001 at 2:47-51. Petitioner's purported recitation (reply at 4) rewrites column 2 lines 47-51. The specification does not, as Petitioner posits, "explain[] a furnace is also 'identified by the term 'fired heater'"—the specification states that "*these apparatus*" "are identified by the term 'fired heater.'" *See* Reply at 4 (citing EX1001 at 2:50-51). And the specification does not "broadly describe[] 'furnaces' functionally as operating 'by means of combustion'"—the specification states that "*these apparatus*" "operate by means of combustion." *Id.* The Board should look to the specification, not Petitioner's rewrite.

Petitioner next jumps pages ahead to column 7 of the '168 Patent for its purported "plain and ordinary meaning" construction of "furnace." *See* Reply at 4 (citing EX1001 at 7:44-53). But that section of the specification is not discussing the meaning of the claim term "furnace," rather, it is describing ways "to produce the *electricity* [not heat] necessary for the synthesis of ammonia:"

The invention also allows to produce the electricity necessary for the synthesis of ammonia or of its derivatives (for example urea) with low emissions of CO₂, using as fuel CO₂-depleted synthesis gas, for example in the following ways:

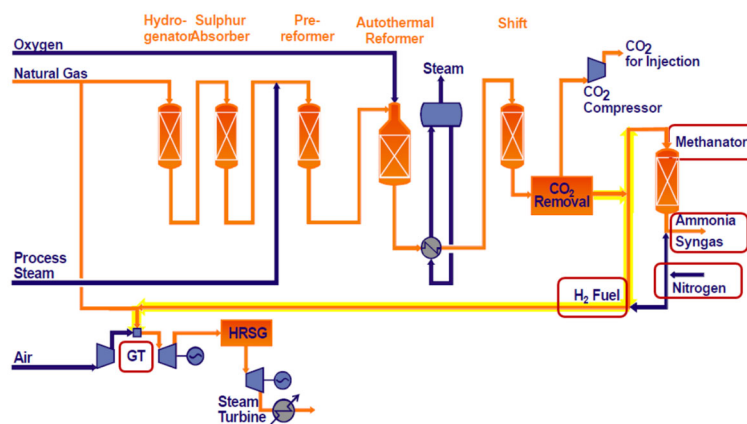
expansion in a turbo generator of a flow of steam produced in a steam generator or steam superheater, fed by the CO₂-depleted synthesis gas as fuel;
combustion in a gas turbine or in a gas engine, fed by the CO₂-depleted synthesis gas as fuel.

EX1001 at 7:44-53. Petitioner's reply regurgitates its implied and incorrect construction of "furnace" from the Petition guised as its "plain and ordinary" construction. For the same reasons explained in the POPR, Petitioner fails both to meet its burden when filing a Petition and is also substantively wrong.

II. The Petition Does Not Demonstrate a Reasonable Likelihood of Success.

After failing to make the required specific allegations in its Petition, Petitioner tries to backfill its arguments by pretending that the evidence and specifics it needs are buried in the Petition. They are not.

The Petition does not demonstrate that "2007 IFA discloses using CO₂-depleted syngas as fuel for both a gas turbine ("GT") and a heat recovery steam generator ("HRSG')." Reply at 1. At most, 2007 IFA discloses using CO₂-depleted synthesis gas as fuel for a gas turbine for electricity production, and the POPR explained why this does not meet claim limitation 1[c]. POPR at 20. Petitioner points to page 17 of the Petition for support, but the figure there clearly shows "H₂ Fuel" going to the gas turbine ("GT")—Petitioner even highlighted the path:



Petition at 17. As is clear from the disclosure in *2007 IFA* cited by Petitioner, the “HRSG”, even if it qualified as a furnace, which it does not¹, is fed with an *exhaust* gas resulting from the combustion in the gas turbine, and not with a CO₂-depleted synthesis gas as required by claim 1.²

Moreover, there is at least one additional independent reason not to institute Ground 1: the Petition does not demonstrate that *2007 IFA* qualifies as prior art. *See* POPR at 14-20. Petitioner did not even ask for a reply to address this failure of proof.

Next, the reply tries to rectify Petitioner’s failure to identify with particularly any specific component in *Rytter* as the claimed “furnace” in the Petition by repeatedly adding the phrase “i.e. furnace” to its quoted citations. Reply at 2. This new recitation/explanation was *not* in the Petition (compare with Petition at 42), and

¹ The HRSG is just a heat exchanger.

² The reply (at 2) also points to “another figure” from *2007 IFA* on page 20 of the Petition. But this section of the Petition (and the further cited expert testimony (EX1005 ¶93)) were not cited as support for claim 1 in the Petition.

Petitioner cannot attempt to fix its failure to “specify where each element of the claim is found in the prior art ... relied upon” in a reply. 37 C.F.R. §42.104(b)(4) (“The petition must specify where each element of the claim is found”).

Petitioner does not even attempt to assert that *Fjellhaug* meets limitation 1[c] in reply (at 3), and the POPR already explained at length why the Petition does not show a reasonable likelihood of success for this limitation, or, independently, limitation 1[a]. POPR at 23-30. The reply does not address 1[a], and the Petition’s failure on that limitation is another independent reason to deny institution.

III. Patent Owner’s IPR and Litigation Positions are Consistent.

Petitioner’s “conflicting position” accusation is meritless and rests on a mischaracterization of Patent Owner’s pleadings. In the Co-Pending Litigation, Patent Owner alleged infringement based on Petitioner’s use of a fired heater as the claimed “furnace.” *See* EX1044, at 39 (¶ 66). The allegation expressly tracks the specification (as discussed above) without purporting to construe the precise outer bounds of claim construction. By contrast, in this IPR, Patent Owner appropriately addresses claim construction in response to Petitioner’s invalidity theories and purported “plain and ordinary meaning” construction, explaining—consistent with the intrinsic evidence—that the claims do not sweep as broadly as Petitioner asserts. These positions are not contradictory.

Respectfully submitted on January 12, 2026 by:

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), the undersigned certifies that on January 12, 2026, a complete and entire copy of this Patent Owner's Sur-Reply in Support of Patent Owner Preliminary Response was served on the Petitioner via electronic mail at the following addresses:

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