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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* BRANDON W. SPANGLER and  
DOUGLAS M. BERCIK

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Appeal 2020-000889  
Application 14/794,861  
Technology Center 3700

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Before BIBHU R. MOHANTY, PHILIP J. HOFFMANN, and  
KENNETH G. SCHOPFER, *Administrative Patent Judges*.

HOFFMANN, *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 rejection of claims 1, 3, 6–13, and 15–28. 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. According to Appellant, “[t]he real party in interest is UNITED TECHNOLOGIES CORPORATION.” Appeal Br. 1.

Appellant's disclosure relates to a "method for forming a gas turbine engine component." Spec., Abstract. Below, we reproduce claim 1 as illustrative of the appealed claims.

1. A method for forming a gas turbine engine component comprising the steps of:
  - (a) forging a block from a high temperature alloy material that can withstand operating temperatures within a range greater than 2200 and up to 2700 degrees Fahrenheit;
  - (b) cutting the block into a first portion and a second portion, the first and second portions each defining an external surface and an internal surface, and including forming the first and second portions to each include internal surface areas that form part of one or more internal cooling passages;
  - (c) forming at least one heat transfer feature directly on the internal surface area of the one or more internal cooling passages of at least one of the first and second portions;
  - (d) attaching the first and second portions together to form a component such that one internal surface area on the first portion forms one portion of the internal cooling passage while an opposing internal surface area on the second portion forms the remaining portion of the internal cooling passage; and
  - (e) machining the external surfaces of the first and second portions subsequent to step (d) to provide a finished component.

## REJECTIONS AND PRIOR ART

The Examiner rejects the claims as follows:<sup>2</sup>

- I. Claims 1, 3, 6–10, 12, 13, and 15–28 under 35 U.S.C. § 103(a) as unpatentable based on Fleck,<sup>3</sup> Berczik,<sup>4</sup> and Shields;<sup>5</sup> and
- II. Claim 11 under 35 U.S.C. § 103(a) as unpatentable based on Fleck, Berczik, Shields, and Noble.<sup>6</sup>

## ANALYSIS

### Rejection I—Obviousness rejection of claims 1, 3, 6–10, 12, 13, and 15–28

As set forth above, the Examiner rejects claims 1, 3, 6–10, 12, 13, and 15–28 as obvious based on a combination of Fleck, Berczik, and Shields. We have carefully reviewed the record, including Appellant’s Appeal and Reply Briefs, and the Examiner’s Final Office Action and Answer. Based on our review, Appellant does not persuade us that the Examiner errs. Thus, we sustain the rejection.

With respect to claim 1, Appellant argues that “[t]here is nothing found in Berczik to suggest that the material can withstand operating temperatures that can be up to 2700 degrees Fahrenheit[,] as claimed.” Appeal Br. 3–4. However, in the Final Office Action, the Examiner finds that Berczik’s “material is exactly [the same] as [the material] described in”

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<sup>2</sup> In the Answer, the Examiner withdraws a written-description rejection from the Final Office Action. Answer 3; Final Action 2–3.

<sup>3</sup> Fleck, US 6,162,347, issued Dec. 19, 2000.

<sup>4</sup> Berczik, US 5,595,616, issued Jan. 21, 1997.

<sup>5</sup> Shields, John A., *Applications of Molybdenum Metal and Its Alloys*, [www.imoa.info/download\\_files/molybdenum/Applications\\_Mo\\_Metal.pdf](http://www.imoa.info/download_files/molybdenum/Applications_Mo_Metal.pdf), 2013.

<sup>6</sup> Noble et al., US 2013/0243600 A1, published Sept. 19, 2013.

Appellant's Specification. Final Action 4–5; *see also id.* at 7, 11 (“Berczik teaches the material being the alloy composed exactly as the claimed alloy and the alloy as described throughout” Appellant's Specification.). The Examiner repeats this finding in the Answer. *See, e.g.*, Answer 4, 6. In both the Final Office Action and the Answer, the Examiner provides a factual basis for this finding. *See, e.g.*, Final Action 4–5. However, Appellant does not argue against this finding in either the Appeal Brief or the Reply Brief. Thus, the Examiner adequately supports the finding, and Appellant does not persuade us that this finding is erroneous.

Appellant argues that the Examiner errs by determining “that it would be obvious to replace the material of Fleck with the material of Berczik and then to replace the casting process of Fleck with a forging process of Shields.” Appeal Br. 5. Appellant bases the arguments on Berczik's alleged failure to “disclose or teach a high temperature alloy material that can withstand operating temperatures up to 2700 degrees Fahrenheit.” *Id.* However, because Appellant does not persuade us that Berczik fails to disclose such a material, for the reasons discussed above, Appellant does not persuade us of error.

Appellant argues that the Examiner's rejection is based on impermissible “hindsight reconstruction.” Appeal Br. 6. This is because, according to Appellant,

[t]here is nothing found in any of the references to suggest the Berczik material can be forged to form a component as claimed. There certainly is no disclosure of forging a block from a high temperature alloy material that can withstand operating temperatures within a range greater than 2200 and up to 2700 degrees Fahrenheit[,] as claimed.

*Id.* To the extent that this argument relies on the argument that no reference discloses such a material, for the reasons discussed above, Appellant does not persuade us that Berczik fails to disclose such a material. Further, the Examiner adequately supports that, based on “Shields[’s] teach[ing] [of] forging molybdenum alloy” (Final Action 5 (citation omitted)), it would have been obvious to forge Berczik’s molybdenum alloy (*id.* at 5–6 (citation omitted)).

Appellant argues that the Examiner errs because

Berczik does not disclose forging a block from a high temperature alloy material, and instead, the entire Berczik reference is directed to a unique method of enhancing the oxidation resistance of a molybdenum alloy. The Examiner’s proposed modification involves changing this method to a forging method as taught by Shields and then using this forged material in Fleck. However, changing the method of making the material of Berczik would render Berczik unsatisfactory for its intended purpose. Further, modifying the material of Fleck as taught by Berczik would necessarily suggest that the process to make the material would be in a manner as taught by Berczik, which does not include forging.

Appeal Br. 6–7. Appellant does not persuade us, such as by reference to any portion of Berczik or any other evidence, or by technical reasoning, that “changing the method of making the material of Berczik [to forging] would render Berczik unsatisfactory for its intended purpose [of providing an oxidation-resistant molybdenum alloy].” *Id.* at 6. Further, we disagree that “modifying the material of Fleck as taught by Berczik would necessarily suggest that the process to make the material would be in a manner as taught by Berczik, which does not include forging.” *Id.* at 6–7. Instead, as discussed above, the Examiner proposes a further modification to Fleck and Berczik, based on Shields, which discloses forging molybdenum alloy.

Consequently, Appellant does not persuade us that the Examiner's rejection of independent claim 1 is in error. Thus, we sustain the Examiner's obviousness rejection of claim 1, and of claims 3, 6–10, 12, 13, 15–24, 26, and 28 that the Examiner rejects with, and Appellant does not argue separately from, claim 1.

Appellant appears to argue separately against the Examiner's rejection of claims 25 and 27. *Id.* at 7. However, Appellant's arguments are substantially the same as those discussed above for claim 1. *Id.* Thus, Appellant does not persuade us that the Examiner's rejection of claims 25 and 27 is in error, and we sustain the Examiner's obviousness rejection of these claims.

*Rejection II—Obviousness rejection of claim 11*

Claim 11 depends from claim 1. Appellant argues that the Examiner errs in rejecting claim 11 based on Noble's failure to remedy the deficiencies in independent claim 1's rejection. Appeal Br. 7. Inasmuch as we sustain claim 1's rejection, however, we also sustain the Examiner's obviousness rejection of claim 11.

CONCLUSION

We AFFIRM the Examiner's obviousness rejections of claims 1, 3, 6–13, and 15–28.

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis/Reference(s)</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 3, 6–10, 12, 13, 15–28	103	Fleck, Berczik, Shields	1, 3, 6–10, 12, 13, 15–28	
11	103	Fleck, Berczik, Shields, Noble	11	
<b>Overall Outcome:</b>			1, 3, 6–13, 15–28	

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. § 41.50(f).

AFFIRMED