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14/900,814	12/22/2015	Geoffrey Owen	12710P/WOUS	2103
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The Mason Group Patent Specialists LLC 24610 Kingsland Blvd Katy, TX 77494			SINGH, ALEXANDER A	
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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* GEOFFREY OWEN

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Appeal 2019-006732  
Application 14/900,814  
Technology Center 2800

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Before TERRY J. OWENS, LINDA M. GAUDETTE, and LILAN REN,  
*Administrative Patent Judges.*

OWENS, *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 1–8. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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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 Protean Electric Limited (Appeal Br. 2).

### CLAIMED SUBJECT MATTER

The claims are directed to a control module for an electric motor or generator. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A control module for an electric motor having a stator that includes a cooling element having a first surface, wherein cooling fluid is arranged to flow within channels of the cooling element for providing cooling to the first surface, the control module comprising:

a power device having a second surface on which switching elements are mounted, the switching elements for controlling current flow in coil windings mounted on the stator;

a control device for controlling the operation of the switching elements;

a housing with a first side that includes an aperture for allowing the second surface of the power device on which the switching elements are mounted to contact the first surface of the cooling element for providing cooling to the switching elements when the first side of the housing is mounted to the first surface of the cooling element,

wherein the control device is arranged to be mounted in the housing on an opposite side of the power device to the first side of the housing and an elastomer is located over the power device and the control device for providing an electrical insulation barrier over the switching elements on the power device and electrical components on the control device.

## REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Sunaga	US 6,297,572 B1	Oct. 2, 2001
Takashi	JP 2003-274606 A	Sept. 26, 2003
Lin	US 2008/0053639 A1	Mar. 6, 2008
Hattori	US 2011/0095659 A1	Apr. 28, 2011

## REJECTIONS

The claims stand rejected as follows: claims 1–8 under 35 U.S.C. § 112(b) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention; claims 1 and 3–7 under 35 U.S.C. § 103 over Sunaga in view of Takashi and Lin; and claims 2 and 8 under 35 U.S.C. § 103 over Sunaga in view of Takashi, Lin, and Hattori.

## OPINION

### Rejection under 35 U.S.C. § 112(b)

Claims 1 and 6 require a cooling element (253) having a first surface, a power device (500) having a second surface on which switching elements (510) are mounted, and a housing (550) with a first side that includes an aperture (511) for allowing the second surface of the power device (500) on which the switching elements (510) are mounted to contact the first surface of the cooling element (253) for providing cooling to the switching elements (510) when the first side of the housing (550) is mounted

to the first surface of the cooling element (253). Claim 7, which is the other independent claim among claims 1 and 3–7, has similar limitations.

The Examiner concludes that the claims are unclear as to “how the second surface of the power device can have the switching elements mounted on it and at the same time contact a surface of the cooling element” (Non-final Rej. 5), and that the claims do not recite that “one side of the power substrate 510 includes switching elements and the other side of the power device contacts a surface 502 of the cooling element 253” (Ans. 4).

The relevant inquiry under 35 U.S.C. § 112(b) is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of the Appellant’s Specification, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. *See In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971).

The Appellant’s Specification states that the claimed control module (400) “includes a power printed circuit board 500 in which are mounted two power substrate assemblies 510” (Spec. 10:10–12), and that “[a] corresponding aperture 511 is also formed in the control module housing 550 so that the copper base plate for each of the power substrates 510 is placed in direct contact with the stator heat sink 253 when the control device housing 550 is mounted to the stator, thereby allowing for cooling to be applied directly to the base of each of the power substrates 510” (Spec. 10:34 – 11:6). Thus, in view of the Appellant’s Specification, the Appellant’s independent claims would have indicated to one of ordinary skill in the art that the recited first surface is the cooling element surface, the recited second surface is the power device surface, and

the housing (550) has a first side including an aperture (511) for allowing the power device surface to contact the cooling element surface for providing cooling to switching elements (510) on the power device surface when the housing's first side is mounted to the cooling element surface. Thus, the claim language, as it would have been interpreted by one of ordinary skill in the art in light of the Appellant's Specification, sets out and circumscribes a particular area with a reasonable degree of precision and particularity.

#### Rejections under 35 U.S.C. § 103

We need address only the independent claims (1, 6, and 7).

Sunaga discloses a brushless motor (100A) comprising a drive circuit (40) including a first substrate (41) having a part mounting surface (41*b*) to which semiconductor switching elements (23) are mounted and a cooling surface (41*c*) in contact with a heat sink (24) having heat radiating fins (24*a*) projecting from a heat radiating surface (24*b*) to open air (col. 5, ll. 23–27, 31–34, 39–40; col. 6, ll. 27–29, 35–37; Fig. 1). Heat generated by a drive circuit (SD) below the heat sink (24) is carried upward from the heat radiating surface (24*b*) and discharged to open air by a blower fan (10) (col. 6, ll. 58–63; col. 10, ll. 5–9; col. 11, ll. 3–9; Fig. 1).

Takashi discloses a dynamo-electric machine comprising semiconductor switching elements (10) mounted on the outer edge surface of an end plate (3) cooled by coolant flowing through integral cooling agent passages (23, 31) (¶¶ 29, 32; Fig. 1). “Since a cooling agent cools satisfactorily the end plate 3, which serves as the heat sink of the semiconductor switching element 10, the semiconductor switching

element 10 mounted on the outer edge surface of end plate 3 is cooled satisfactorily, and overheating of the bearing 13 is also prevented” (¶ 32).

The Examiner concludes that “it would have been obvious to a person having ordinary skill in the art before the effective filing date of the claimed invention to modify the device of Sunaga and provide cooling fluid is arranged to flow within channels of the cooling element as taught by Takashi in order improve cooling of motor components and prevent damage due to overheating (Takashi, ¶ 32)” (Non-final Rej. 11). The Examiner provides no detail as to how Sunaga’s brushless motor would be modified to include Takashi’s cooling agent passages.

Establishing a prima facie case of obviousness of an invention comprising a combination of known elements requires “an apparent reason to combine the known elements in the fashion claimed.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

The Examiner’s mere assertion that providing Sunaga’s device with Takashi’s cooling agent passages would improve cooling of motor components and prevent damage due to overheating does not establish that such a modification would have been apparent to one of ordinary skill in the art in view of Sunaga and Takashi. Thus, the record indicates that the Examiner’s rejection is based upon impermissible hindsight in view of the Appellant’s disclosure. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967) (“A rejection based on section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art.”). Accordingly, we reverse the rejections under 35 U.S.C. § 103.

CONCLUSION

The Examiner's rejections are reversed.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-8	112(b)	Indefiniteness		1-8
1, 3-7	103	Sunaga, Takashi, Lin		1, 3-7
2, 8	103	Sunaga, Takashi, Lin, Hattori		2, 8
<b>Overall Outcome</b>				<b>1-8</b>

REVERSED